

**DRAFT ENVIRONMENTAL IMPACT ASSESSMENT
&
ENVIRONMENT MANAGEMENT PLAN**

“B1” CATEGORY – MINOR MINERAL – CLUSTER - NON-FOREST LAND

TOTAL CLUSTER EXTENT: 55.04.3ha

SOOLAMALAI COLOUR GRANITE CLUSTER QUARRIES

At

Soolamalai Village, Bargur Taluk, Krishnagiri District.

Code	Name of the Proponent	S.F.No	Extent (Ha)
P1	Thiru.M.Kowshik Dhev	333 (P)	1.98.0
P2	Thiru.Salman Sathar	341/1(P)	1.36.80
P3	M/s.Bismilla Exports	339/1(P)	1.02.0

**For Obtaining
Environmental Clearance under EIA Notification – 2006 Schedule Sl. No. 1 (a) (i):
Mining Project**

Compiled as per Tor Obtained Vide

P1- Lr No. SEIAA-TN/F.No.10247/SEAC/ToR- 1564/2023 Dated:27.09.2023.

P2- Lr No. SEIAA-TN/F.No.10354/SEAC/1(a)ToR-1611/2023 Dated: 06.11.2023.

P3- Lr No. SEIAA-TN/F.No.10365/SEAC/ToR-1643/2023 Dated:02.01.2024.

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 Cat ‘A’, sector 31 & 38 Cat ‘B’   Certificate No : NABET/EIA/2225/RA 0276 Phone: 0427-2431989, Email: ifthiahmed@gmail.com, geothangam@gmail.com Web: www.gemssalem.com	Laboratory EHS 360 LABS PRIVATE LIMITED, 10/2 Ground floor, 50th street, 7th Avenue, Ashok Nagar, Chennai – 600 083.
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Baseline Monitoring Period

Oct 2023-Dec 2023

JANUARY 2024

For easy representation of Proposed and Existing Quarries, Expired/Abandoned Quarries in the Cluster are given unique codes and identifies and studied in this EIA/EMP Report.

PROPOSED QUARRIES				
CODE	Name of the Owner	S.F.Nos & Village	Extent	Status
P1	Thiru.M.Kowshik Dhev	333 (P), Soolamalai Village	1.98.0	Lr No.SEIAA-TN/F.No.10247/SE AC/ToR- 1564/2023 Dated:27.09.2023
P2	Thiru.Salman Sathar	341/1(P) Soolamalai Village	1.36.80	Lr No. SEIAA-TN/F.No.10354/SE AC/1(a)ToR- 1611/2023 Dated: 06.11.2023
P3	M/s. Bismilla Exports	339/1(P) Soolamalai Village	1.02.0	Lr No. SEIAA-TN/F.No.10365/SE AC/ToR-1643/2023 Dated:02.01.2024
P4	M/s.TAMIN	283 (P), Soolamalai Village	34.35.5	Mining Plan forwarded to Directorate Chennai
TOTAL			38.72.3 Ha	
EXISTING QUARRIES				
CODE	Name of the Owner	S.F. Nos & Village	Extent	Status
*E-1	Tmt.Varalakshmi	335/4B, 341/4, Soolamalai Village	1.08.5	14/06/2018 To 13/06/2038
*E-2	M/s.TAMIN	176/1 Chendarapalli Village	15.23.5	29.12.2018 to 28.12.2038
E-3	Thiru.B.K.Murali	382/5A, etc Chendarapalli Village	2.78.5	28.02.2011- 27.02.2031
E-4	Thiru.A.Sathar	375/2A etc., Chendarapalli Village	1.03.5	07.10.2013- 06.10.2033
E-5	Tmt.D.Rukkammal	335/4A1, Soolamalai Village	1.20.0	14.12.2009- 13.12.2029
E-6	Thiru.B.S Ravi	369/2, Chendarapalli Village	2.46.5	10.11.2003 - 09.11.2023
E-7	Thiru.B.S Ravi	339/2, Soolamalai Village	1.19.0	27.03.2006- 26.03.2026
Total			24.99.5 Ha	
EXPIRED/ ABANDONED QUARRIES				
Ex-1	M/s.TAMIN	381, Chendarapalli Village	1.78.5	21.06.1999- 20.06.2019
Ex-2	Thiru.B.C Krishnan	335/2, Soolamalai Village	0.40.50	26.06.1995 - 25.06.2005
TOTAL			2.19.0 Ha	
TOTAL CLUSTER EXTENT			55.04.3 Ha	

Note: -

- **Cluster area is calculated as per MoEF & CC Notification – S.O. 2269 (E) Dated: 01.07.2016**

As per above notification S.O.2269(E) dated : 01.07.2016 in para (b) in Appendix XI, - (ii) (5): The lease not operative for three years or more and leases which have got environmental clearance as on 15th January, 2016 shall not be counted for calculating the area of cluster, but shall be included in the Environment Management Plan and the Regional Environmental Management Plan”

TERMS OF REFERENCE (ToR) COMPLIANCE

Thiru.M.Kowshik Dhev -P1

“Lr No.SEIAA-TN/F.No.10247/SEAC/ToR- 1564/2023 Dated:27.09.2023

ADDITIONAL CONDITIONS		
1	The PP shall furnish the details of W.P.No.18317 of 2020 and W.P.No.16060/2020 and W.M.P.No.19999 of 2020 which is pending with Hon'ble Madras High Court.	Furnished attached Copy of Court case status.
2	The structures within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m shall be enumerated with details such as dwelling houses with number of occupants whether it belongs to the owner (or) not, places of worship, industries, factories, sheds, etc.	Structure Map details in the Chapter-3 Socioeconomic environment Report.
3	SEAC has noted that the school situated at a distance of 310m, hence the PP shall submit details of mining methodology and impact of dust/particulate emission and vibration on the surrounding environment in regard to peak production of the cluster area along with details of transport route of quarried minerals & mitigation measures adopted for fugitive emission due vehicular movement/ transport route.	Chapter-2 sub 2.5 details of Method of Mining and sub 2.6.3 Traffic Density details and Impact of dust/particulate emission details in Air dispersion map using Aermode software in chapter-4 and vibration studies in cluster area included in the draft EIA report.
4	The PP shall furnish revised CER details.	Attached CER details Noc.No 36/2023 date 10/07/2023
5	The project proponent shall enumerate on the details of trees existing in the proposed mining area, Age of trees & its yield details.	Fresh quarry, 990 trees to be proposed planted @80% rate
Annexure-1		
1	In the case of existing/operating mines, a letter obtained from the concerned AD (Mines) shall be submitted and it shall include the following: (i) Original pit dimension (ii) Quantity achieved Vs EC Approved Quantity (iii) Balance Quantity as per Mineable Reserve calculated. (iv) Mined out Depth as on date Vs EC Permitted depth (v) Details of illegal/illicit mining (vi) Violation in the quarry during the past working. (vii) Quantity of material mined out outside the mine lease area (viii) Condition of Safety zone benches (ix) Revised/Modified Mining Plan showing the benches of not exceeding 6 m height and ultimate depth of not exceeding 50m.	Fresh quarry
2	Details of habitations around the proposed mining area and latest VAO certificate regarding the location of habitations within 300m radius from the periphery of the site.	VAO letter stating the details of habitations, temples etc., is enclosed as Annexure
3	The proponent is requested to carry out a survey and enumerate on the structures located within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m (v) 500m shall be enumerated with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places of worship, industries, factories, sheds, etc with indicating the owner of the	Structure Map included in the Chapter-3 Socioeconomic environment Report.

	building, nature of construction, age of the building, number of residents, their profession and income, etc.	
4	The PP shall submit a detailed hydrological report indicating the impact of proposed quarrying operations on the Waterbodies like lake, water tanks, etc are located within 1 km of the proposed quarry.	The hydro-geological study was conducted to evaluate the possible impact on the ground water table. No significant impacts are anticipated on the water bodies around the project area. Details are discussed under Chapter No. 4 1.Odai- 100m_E 2.Narayanapuram Tank -380m_SE 3.Odai- 570m_S 4.Canal-1Km_NW 5.Tank- 1.1Km_SW 6.Canal-2.2Km_NE 7.Chinneri Lake- 4Km_NW 8.Badethala Lake-8Km_NW
5	The Proponent shall carry out Bio diversity study through reputed Institution and the same shall be included in EIA Report.	Biodiversity study has been carried out by Functional Area Expert by the NABET accredited consultant. The detailed study is given in the Chapter No.3
6	The DFO letter stating that the proximity distance of Reserve Forests, Protected Areas, Sanctuaries, Tiger reserve etc., up to a radius of 25 km from the proposed site.	Enclosed Annexure DFO Letter Noc No 5574/2022/L Date 28.07.2022
7	In the case of proposed lease in an existing (or old) quarry where the benches are not formed (or partially formed as per the approved Mining Plan, the Project Proponent (PP) shall the pp shall carry out the scientific studies to assess the slope stability of the working benches to be constructed and existing quarry wall, by involving any one of the reputed Research and Academic Institutions - CSIR-Central Institute of Mining & Fuel Research / Dhanbad, NIRM/Bangalore, Division of Geotechnical Engineering-IIT-Madras, NIT-Dept of Mining Engg, Surathkal, and Anna University chennai-CEG Campus. The PP shall submit a copy of the aforesaid report indicating the stability status of the quarry wall and possible mitigation measures during the time of appraisal for obtaining the EC.	Noted and agreed
8	However, in case of the fresh/virgin quarries, The Proponent shall submit a conceptual 'Slope Stability Assessment' for the proposed quarry during the appraisal while obtaining the EC, when the depth of the proposed working is extended beyond 30 m below ground level.	For the first five years plan period the mining operation is proposed to carry out up to the depth of 23m bgl. It is ensured that the slope stability will be carried out after 30m bgl.
9	The PP shall furnish the affidavit stating that the blasting operation in the proposed quarry is carried out by the statutory competent person as per the MMR 1961 such as blaster, mining mate, mine foreman, II/I Class mines manager appointed by the proponent.	Proponent given affidavit stating that the blasting will be carried out under the supervision of Competent person.
10	The PP shall present a conceptual design for carrying out only controlled blasting operation involving line drilling and muffle blasting in the proposed quarry such that the blast-induced ground vibrations are controlled as well as no fly rock travel beyond 30 m from the blast site.	Noted and agreed

11	The EIA Coordinators shall obtain and furnish the details of quarry/quarries operated by the proponent in the past, either in the same location or elsewhere in the State with video and photographic evidences.	Noted and agreed. There are two quarries including this proposal in the cluster belongs to the Proponent Thiru.Salamn Sathar, M/s.Bismilla Exports, M/s.Tamin
12	if the proponent has already carried out the mining activity in the proposed mining lease area after 15.01.2016, then the proponent shall furnish the following details from AD/DD, mines	Fresh Lease
13	What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?	Fresh Lease
14	Quantify of minerals mined out A. Highest production achieved in any one year B. Detail of approved depth of mining. C. Actual depth of the mining achieved earlier. D. Name of the person already mined in that leases area. E. If EC and CTO already obtained, the copy of the same shall be submitted. F. Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.	Mineable reserves ROM – 1,75,300 m ³ Ultimate Depth 183m(L) x 84m (W) x 23m (D) Year wise production for first five years ROM – 43,213m ³ Color Granite – 8,643m ³ @ 20% Recovery Peak Production – 9,780m ³ of ROM Depth – 23m bgl
15	All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/Topo sheet. Topographic sheet, geomorphology, lithology and geology of the mining lease area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).	Satellite imagery of the project area along with boundary coordinates is given in the Chapter No 2, Figure No.2.2, , Page No.11. Geomorphology of the area is given in Chapter No 2, Figure No.2.9, Page No.21 Land use pattern of the project area is tabulated in the Chapter No.2. Table no 2.3, Pg.No.18 Land use pattern of the Study area is tabulated in the Chapter No.2, Table no 2.3, Pg.No.17.
16	The PP shall carry out Drone video survey covering the cluster. green belt, fencing, etc..	Noted and agreed
17	The proponent shall furnish photographs of adequate fencing, green belt along the periphery including replantation of existing trees & safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan.	The area has been fenced and plantation activities carried out within the project site.
18	The Project Proponent shall provide the details of mineral reserves and mineable reserves, planned production capacity, proposed working methodology with justifications, the anticipated impacts of the mining operations on the surrounding environment, and the remedial measures for the same.	The details of mineral reserves have been provided in Chapter No 1, Total Mineable Reserves ROM - 1,75,300m ³ Granite Recovery 20% – 35,060m ³ Production for first five years MP period ROM - 43,213m ³ Granite Recovery 20% -8,643m ³ Peak production – 9,780m ³ of ROM
19	The Project Proponent shall provide the Organization chart indicating the appointment of various statutory officials and other competent persons to be appointed as per the provisions of the Mines Act 1952 and the MMR, 1961 for	Total Employment is 18 Nos inclusive of Competent persons. Mines Manager & Foreman

	carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment.	Details are given in the Chapter No.2. Page No.28.
20	The Project Proponent shall conduct the hydro-geological study considering the contour map of the water table detailing the number of groundwater pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds, etc. within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD / TWAD so as to assess the impacts on the wells due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided.	The hydro-geological study was conducted to evaluate the possible impact on the ground water table. No significant impacts are anticipated on the water bodies around the project area. Details are discussed under Chapter No. 3,
21	The proponent shall furnish the baseline data for the environmental and ecological parameters with regard to surface water/ground water quality, air quality, soil quality & flora/fauna including traffic vehicular movement study.	Baseline Data were collected for One Season (Post Monsoon) Oct to Dec 2023 as per CPCB Notification and MoEF & CC Guidelines. Details in Chapter No. 3
22	The Proponent shall carry out the Cumulative impact study due to mining operations carried out in the quarry specifically with reference to the specific environment in terms of soil health, biodiversity, air pollution, water pollution, climate change and flood control & health impacts- Accordingly, the Environment Management plan should be prepared keeping the concerned quarry and the surrounding habitations in the mind.	The Cumulative impact study due to mining operations is explained in chapter - 7
23	Rain water harvesting management with recharging details along with water balance (both) monsoon & non-monsoon) be submitted.	Noted and agreed
24	Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.	Land use and land cover of the study area is discussed in Chapter No. 3. Land use plan of the project area showing pre-operational, operational and post-operational phases are discussed in Chapter No. 2, Table No 2.3, Page No. 17.
25	Details of the land for storage of Overburden/Waste Dumps (or) Rejects outside the mine lease, such as extent of land area, distance from mine lease, its land use. R&R issues, if any. should be provided.	The details of Dump and disposal of Granite waste is discussed in the Chapter No.4 Page No. 96.
26	Proximity to Areas declared as 'Critically Polluted' (or) the Project areas which attracts the court restrictions for mining operations, should also be indicated and where so required. clearance certifications from the prescribed Authorities, such as the TNPCB (or) Dept of Geology and Mining should be secured and furnished to the effect that the proposed mining activities could be considered.	Not Applicable. Project area / Study area is not declared in 'Critically Polluted' Area and does not come under 'Aravalli Range.
27	Description of water conservation measures proposed to be adopted in the Project should be	Part of the working pit will be allowed to collect rain water during the spell of rain will be used for greenbelt development and dust suppression.

	given. Details of rainwater harvesting proposed in the Project, if any, should be provided.	The Mine Closure Plan is prepared for converting the excavated pit into rain water harvesting structure and serve as water reservoir for the project village during draught season.
28	Impact on local transport infrastructure due to the Project should be indicated.	Transportation details mentioned in Chapter -2
29	A tree survey study shall be carried out (nos., name of the species, age, diameter etc..) both within the mining lease applied area & 300m buffer zone and its management during mining activity.	Details of the trees in the buffer zone given in Chapter No.3&4
30	A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.	After the completion of mining operation, the part of the quarried-out land will be utilized as temporary storage reservoir. The details are given in the Chapter No.4
31	As a part of the study of flora and fauna around the vicinity of the proposed site, the EIA coordinator shall strive to educate the local students on the importance of preserving local flora and fauna by involving them in the study, wherever possible.	Noted and agreed
32	The purpose of green belt around the project is to capture the fugitive emissions, carbon sequestration and to attenuate the noise generated, in addition to improving the aesthetics. A wide range of indigenous plant species should be planted as given in the appendix-I in consultation with the DFO, & Tamil Nadu Agriculture University. The plant species with dense/moderate canopy of native origin should be chosen. Species of small/medium/tall trees alternating with shrubs should be planted in a mixed manner.	Noted & agreed. It is proposed to plant a 1000nos of trees in the 7.5m safety barrier and village roads.
33	Taller/one year old Saplings raised in appropriate size of bags, preferably eco-friendly bags should be planted as per the advice of local forest authorities/botanist/Horticulturist with regard to site specific choices. The proponent shall earmark the greenbelt area with GPS coordinates all along the boundary of the project site with at least 3 meters wide and in between blocks in an organized manner.	It is an fresh Lease. it is proposed to plant 1000Nos of Trees in the safety barrier and Village roads.
34	A Disaster management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.	Disaster management Plan details in Chapter-7
35	A Risk Assessment and management Plan shall be prepared and included in the ELA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.	A Risk Assessment and management Plan Chapter- 7
36	Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.	Occupational Health impacts chapter- 10

37	Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.	No Public Health Implications anticipated due to this project. Details of CER are discussed under Chapter 8, Page No. 148-149.
38	The Socio-economic studies should be carried out within a 5 km buffer zone from the mining activity. Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.	It is explained in Chapter -3
39	Details of litigation pending against the project, if any, with direction /Order passed by any Court of Law against the Project should be given.	No, Litigation against the project
40	Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.	Noted and agreed
41	If any quarrying operations were carried out in the proposed quarrying site for which now the EC is sought, the Project Proponent shall furnish the detailed compliance to EC conditions given in the previous EC with the site photographs which shall duly be certified by MoEF&CC. Regional Office, Chennai (or) the concerned DEE/TNPCB.	It is a fresh lease
42	The PP shall prepare the EMP for the entire life of mine and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine.	The EMP prepared for the life of the mine.
43	Concealing any factual information or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this Terms of Conditions besides attracting penal provisions in the Environment (Protection) Act, 1986.	Noted & agreed.
NORMAL CONDITIONS-Annexure-B		
<i>Cluster Management committee</i>		
1.	Cluster Management Committee shall be framed which must include all the proponents in the cluster as members including the existing as well as proposed quarry.	Cluster management committee has been formed with mutual agreement with the proponents including Proposed quarry at present are framed.
2	The members must coordinate among themselves for the effective implementation of EMP as committed including Green Belt Development, Water sprinkling, tree plantation, blasting etc..	As per the committee agreement proponents will coordinate for the Greenbelt development, Water sprinkling and tree plantation activities combinedly.
3	The List of members of the committee formed shall be submitted to AD/Mines before the execution of mining lease and the same shall be updated every year to the AD/Mines.	The formation of committee with list of members has been submitted to the AD mines office, Krishnagiri and the same will be update in every year
4	Detailed operational Plan must be submitted which must include the blasting frequency with respect to the nearby quarry situated in the cluster, the usage of haul roads by the individual quarry in the form of route map and network.	As per the committee agreement the blasting frequency will be discussed and carryout by the Mines Manager appointed by the proponents and

		the same will be updated in the committee minutes. Transport details in chapter-2
5	The committee shall deliberate on risk management plan pertaining to the cluster in a holistic manner especially during natural calamities like intense rain and the mitigation measures considering the inundation of the cluster and evacuation plan.	Details discussed in chapter 7 of Draft EIA report
6	The Cluster Management Committee shall form Environmental Policy to practice sustainable mining in a scientific and systematic manner in accordance with the law. The role played by the committee in implementing the environmental policy devised shall be given in detail.	Details discussed in chapter 6 of Draft EIA report
7	The committee shall furnish action plan regarding the restoration strategy with respect to the individual quarry falling under the cluster in a holistic manner.	Noted & agreed
8	The committee shall furnish the Emergency Management plan within the cluster.	Details discussed in chapter 7.
9	The committee shall deliberate on the health of the workers/staff involved in the mining as well as the health of the public.	Details discussed in chapter 10.
10	The committee shall furnish an action plan to achieve sustainable development goals with reference to water, sanitation & safety.	Noted & agreed
11	The committee shall furnish the fire safety and evacuation plan in the case of fire accidents.	Detailed discussed in chapter 7.
Impact study of mining		
12	Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area covering the entire mine lease period as per precise area communication order issued from reputed research institutions on the following a) Soil health & bio-diversity b) Climate change leading to Droughts, Floods etc. c) Pollution leading to release of Greenhouse gases (GHG), rise in Temperature' & Livelihood of the local people. d) Possibilities of water contamination and impact on aquatic ecosystem health' e) Agriculture, Forestry & Traditional practices. f) Hydrothermal/Geothermal effect due to destruction in the Environment' g) Bio-geochemical processes and its foot prints including environmental stress. h) Sediment geochemistry in the surface steams.	Details of Soil health is given in Chapter No 3 and biodiversity is given in Chapter No 3. The project will not cause any significant changes in the climate Climatic changes and GHG are described in Chapter No 4. Details of water contamination and impact on aquatic ecosystem is given in Chapter No 4. Hydrothermal/ Geothermal effects due to destruction in the environment, Bio geochemical process and sediment geo chemistry given in the Chapter No 7.
Agriculture & Agro-Biodiversity		
13	Impact on surrounding agricultural fields around the proposed mining Area.	Detailed discussed in chapter 4.
14	Impact on soil flora & vegetation around the project site.	Detailed discussed in chapter 4.
15	Details of type of vegetations including no. of trees & shrubs within the proposed mining area and. If so, transplantation of such vegetations all along the boundary of the proposed mining area shall committed mentioned in EMP.	The area is proposed Lease & Few trees present with in lease.

16	The Environmental Impact Assessment should study the biodiversity, the natural ecosystem, the soil micro flora. fauna and soil seed banks and suggest measures to maintain the natural Ecosystem.	Details in Chapter 3
17	Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.	Noted & agreed
18	The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands, Horticulture, Agriculture and livestock.	The project area is dry barren land no agriculture activities carried out. This is fresh/ proposed lease area.
Forest		
19	The project proponent shall detail study on impact of mining on Reserve forests free ranging wildlife.	Thogarapalli Extn R.F – 4.83 km – South East
20	The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.	The area is surrounded by quarried land and Barren land. Details of flora and fauna studies given in the Chapter No.3.
21	The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection.	No major trees within the project area
22	The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site.	Thogarapalli Extn R.F – 4.83 km – South East Cauvery North Wildlife Sanctuary- Around 36km – W
Water Environment		
23	Hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks. canals, ponds etc. within 1 km (radius) so as to assess the impacts on the nearby waterbodies due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided, covering the entire mine lease period.	The hydro-geological study was conducted to evaluate the possible impact on the ground water table. No significant impacts are anticipated on the water bodies around the project area. Details are discussed under Chapter No. 3.
24	Erosion Control measures.	Noted & agreed
25	Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area on the nearby villages, water-bodies/ Rivers. & Any ecological fragile areas.	Details in Chapter 2
26	The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir.	Noted & agreed
27	The project proponent shall study and furnish the details on potential fragmentation impact on natural environment by the activities.	Noted & agreed
28	The project proponent shall study and furnish the impact on aquatic plants and animals in water bodies and possible scars on the landscape, damages to nearby caves, heritage site, and archaeological sites possible land form changes visual and aesthetic impacts.	No Archaeological site near the project area, no proposal for the disposal of mine pit water in the nearby water bodies

29	The Terms of Reference should specifically study impact on soil health, soil erosion, the soil, physical, chemical components and microbial components.	Details in Chapter 3 Soil environment.
30	The Environmental Impact Assessment should study on wetlands, water bodies, rivers, streams, lakes and farmer sites.	Discussed in the Draft EIA/EMP Report in Chapter No.3
Energy		
31	The measures taken to control Noise. Air, Water. Dust Control and steps adopted to efficiently utilize the Energy shall be furnished.	It is explained in Chapter 4
Climate Change		
32	The Environmental Impact Assessment shall study in detail the carbon emission and also suggest the measures to mitigate carbon emission including development of carbon sinks and temperature reduction including control of other emission and climate mitigation activities.	Details of carbon emission and mitigation activities are given in the Chapter No.4
33	The Environmental impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock.	Discussed in the Draft EIA/EMP Report in Chapter No.3.
Mine Closure Plan		
34	Detailed Mine Closure Plan covering the entire mine lease period as per precise area communication order issued.	Details in Chapter 2 mine closure plan
EMP		
35	Detailed Environment Management Plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued.	Detailed under Chapter 10
36	The Environmental Impact Assessment should hold detailed study on EMP with budget for green belt development and mine closure plan including disaster management plan.	Project Cost = Rs.3,07,30,000/- CER Cost = Rs 5,00,000/ Disaster Management plan & mine closure plan is discussed in chapter no.4 & 7
Risk Assessment		
37	To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining.	Detailed under Chapter 7
Disaster Management Plan		
38	To furnish disaster management plan and disaster mitigation measures in regard to all aspects to avoid/reduce vulnerability to hazards & to cope with disaster/unfavorable accidents in & around the proposed mine lease area due to the proposed method of mining activity & its related activities covering the entire mine lease period as per precise area communication order issued.	Details in Study 7.3 Disaster Management Plan in Chapter -7
Others		
39	The project proponent shall furnish VAO certificate with reference to 300m radius regard to approved habitations, schools, Archaeological sites, Structures. railway lines, roads. Water bodies such as streams, odai, vaari, canal, channel. river, lake pond, tank etc.	VAO certificate is attached as Annexure There is no habitation 300m radius attached Structure map 300m Radius in chapter-3 Socioeconomic environment.

40	As per the MoEF& CC office memorandum F.No.22-65/2017-1A.III dated: 30.09.2020 and 20.10.2020 the proponent shall address the concerns raised during the public consultation and all the activities proposed shall be part of the Environment Management Plan.	Noted and agreed
41	The project proponent shall study and furnish the possible pollution due to plastic and microplastic on the environment. The ecological risks and impacts of plastic & microplastics on aquatic environment and fresh water systems due to activities, contemplated during mining may be investigated and reported.	Details of carbon emission and mitigation activities are given in the Chapter No.4

Thiru.Salman Sathar -P2

“ToR issued vide Lr No. SEIAA-TN/F.No.10354/SEAC/1(a)ToR-1611/2023 Dated: 06.11.2023

ADDITIONAL CONDITIONS																										
1	The proponent shall transplant the Banyan tree, that is in the proposed mining area to a new place outside the mining area and the evidence for transplantation in the form of photograph/videograph must be submitted along with EIA report.	Noted and agreed																								
2	The PP shall mark the DGPS reference pillars painted with blue & white colour indicating the safety barrier of 7.5 m to be left under the Rule 13 (l) of MCDR, 1988 within the lease boundary and protective bunds.	Noted and agreed																								
3	The PP shall develop Greenbelt/ plantation all along the mining lease boundary in a safety barrier.	attached Greenbelt map in chapter-4 and chapter-7																								
4	The PP shall furnish the total manpower required for the proposed mining project including Statutory officials, Geologist, Supervisory staff, Skilled, Semi-skilled & Unskilled staff with showing the representation of the local people as per their eligibility and experience.	Total manpower 33 persons. <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>S.No</th> <th>Description</th> <th>Numbers</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Mines Manager</td> <td>1</td> </tr> <tr> <td>2</td> <td>Mines Foreman</td> <td>1</td> </tr> <tr> <td>3</td> <td>Machinery Operators</td> <td>3</td> </tr> <tr> <td>4</td> <td>Skilled labour</td> <td>5</td> </tr> <tr> <td>5</td> <td>Semi-skilled</td> <td>18</td> </tr> <tr> <td>6</td> <td>Unskilled</td> <td>5</td> </tr> <tr> <td></td> <td>Total</td> <td>33</td> </tr> </tbody> </table>	S.No	Description	Numbers	1	Mines Manager	1	2	Mines Foreman	1	3	Machinery Operators	3	4	Skilled labour	5	5	Semi-skilled	18	6	Unskilled	5		Total	33
S.No	Description	Numbers																								
1	Mines Manager	1																								
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Annexure-1

1	In the case of existing/operating mines, a letter obtained from the concerned AD (Mines) shall be submitted and it shall include the following: (i) Original pit dimension (ii) Quantity achieved Vs EC Approved Quantity (iii) Balance Quantity as per Mineable Reserve calculated. (iv) Mined out Depth as on date Vs EC Permitted depth (v) Details of illegal/illicit mining (vi) Violation in the quarry during the past working. (vii) Quantity of material mined out outside the mine lease area	Fresh quarry
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	(viii) Condition of Safety zone benches (ix) Revised/Modified Mining Plan showing the benches of not exceeding 6 m height and ultimate depth of not exceeding 50m.	
2	Details of habitations around the proposed mining area and latest VAO certificate regarding the location of habitations within 300m radius from the periphery of the site.	VAO letter stating the details of habitations, temples etc., is enclosed as Annexure
3	The proponent is requested to carry out a survey and enumerate on the structures located within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m (v) 500m shall be enumerated with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places of worship, industries, factories, sheds, etc with indicating the owner of the building, nature of construction, age of the building, number of residents, their profession and income, etc.	Structure Map included in the Chapter-3 Socioeconomic environment Report.
4	The PP shall submit a detailed hydrological report indicating the impact of proposed quarrying operations on the Waterbodies like lake, water tanks, etc are located within 1 km of the proposed quarry.	The hydro-geological study was conducted to evaluate the possible impact on the ground water table. No significant impacts are anticipated on the water bodies around the project area. Details are discussed under Chapter No. 4 1.Odai-370m_NE 2.Narayanapuram Tank-280m_NE 3.Odai- 80m_S 4.Canal-1.2Km_NW 5.Tank- 830m_SW 6.Canal-2.6Km_NE 7.Chinneri Lake 4.3Km_NW 8.Badethala Lake-8.5Km_NW
5	The Proponent shall carry out Bio diversity study through reputed Institution and the same shall be included in EIA Report.	Biodiversity study has been carried out by Functional Area Expert by the NABET accredited consultant. The detailed study is given in the Chapter No.3
6	The DFO letter stating that the proximity distance of Reserve Forests, Protected Areas, Sanctuaries, Tiger reserve etc., up to a radius of 25 km from the proposed site.	Enclosed Annexure DFO Letter Noc No 5574/2022/L Date 28.07.2022
7	In the case of proposed lease in an existing (or old) quarry where the benches are not formed (or) partially formed as per the approved Mining Plan, the Project Proponent (PP) shall the pp shall carry out the scientific studies to assess the slope stability of the working benches to be constructed and existing quarry wall, by involving any one of the reputed Research and Academic Institutions - CSIR-Central Institute of Mining & Fuel Research / Dhanbad, NIRM/Bangalore, Division of Geotechnical Engineering-IIT-Madras, NIT-Dept of Mining Engg, Surathkal, and Anna University chennai-CEG Campus. The PP shall submit a copy of the aforesaid report indicating the stability status of the quarry wall and possible mitigation measures during the time of appraisal for obtaining the EC.	Fresh Lease

8	However, in case of the fresh/virgin quarries, The Proponent shall submit a conceptual 'Slope Stability Assessment' for the proposed quarry during the appraisal while obtaining the EC, when the depth of the proposed working is extended beyond 30 m below ground level.	For the first five years plan period the mining operation is proposed to carry out up to the depth of 28m bgl. It is ensured that the slope stability will be carried out after 30m bgl.
9	The PP shall furnish the affidavit stating that the blasting operation in the proposed quarry is carried out by the statutory competent person as per the MMR 1961 such as blaster, mining mate, mine foreman, II/I Class mines manager appointed by the proponent.	Proponent given affidavit stating that the blasting will be carried out under the supervision of Competent person.
10	The PP shall present a conceptual design for carrying out only controlled blasting operation involving line drilling and muffle blasting in the proposed quarry such that the blast-induced ground vibrations are controlled as well as no fly rock travel beyond 30 m from the blast site.	Noted and agreed
11	The EIA Coordinators shall obtain and furnish the details of quarry/quarries operated by the proponent in the past, either in the same location or elsewhere in the State with video and photographic evidences.	Noted and agreed. There are three quarries including this proposal in the cluster belongs to the Proponent M/s.Bismilla Exports and Thiru.M.Kowshik Dhev, M/s.Tamin
12	If the proponent has already carried out the mining activity in the proposed mining lease area after 15.01.2016, then the proponent shall furnish the following details from AD/DD, mines	Fresh Lease
13	What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?	Fresh Lease
14	Quantify of minerals mined out A. Highest production achieved in any one year B. Detail of approved depth of mining. C. Actual depth of the mining achieved earlier. D. Name of the person already mined in that leases area. E. If EC and CTO already obtained, the copy of the same shall be submitted. F. Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.	Mineable reserves ROM – 1,12,305 m ³ Ultimate Depth 151m(L) x 102m (W) x 28m (D) Year wise production for first five years ROM – 34,180m ³ Color Granite – 11,963m ³ @ 35% Recovery Peak Production – 6,890m ³ of ROM Depth – 28m bgl
15	All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/Topo sheet. Topographic sheet, geomorphology, lithology and geology of the mining lease area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).	Satellite imagery of the project area along with boundary coordinates is given in the Chapter No 2, Figure No.2.2, , Page No.11. Geomorphology of the area is given in Chapter No 2, Figure No.2.9, Page No.21 Land use pattern of the project area is tabulated in the Chapter No.2. Table no 2.3, Pg.No.18 Land use pattern of the Study area is tabulated in the Chapter No.2, Table no 2.3, Pg.No.17.
16	The PP shall carry out Drone video survey covering the cluster. green belt, fencing, etc..	Noted and agreed
17	The proponent shall furnish photographs of adequate fencing, green belt along the periphery	The area has been fenced and plantation activities carried out within the project site.

	including replantation of existing trees & safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan.	1.Odai-370m_NE 2.Narayanapuram Tank-280m_NE 3.Odai- 80m_S 4.Canal-1.2Km_NW 5.Tank- 830m_SW 6.Canal-2.6Km_NE 7.Chinneri Lake 4.3Km_NW 8.Badethala Lake-8.5Km_NW
18	The Project Proponent shall provide the details of mineral reserves and mineable reserves, planned production capacity, proposed working methodology with justifications, the anticipated impacts of the mining operations on the surrounding environment, and the remedial measures for the same.	The details of mineral reserves have been provided in Chapter No 1, Total Mineable Reserves ROM – 1,12,305 m ³ Granite Recovery 11,963m ³ @ 35% Recovery Production for first five years MP period ROM - 34,180m ³ Granite Recovery 35% -11,963m ³ Peak production - 6,890m ³ of ROM
19	The Project Proponent shall provide the Organization chart indicating the appointment of various statutory officials and other competent persons to be appointed as per the provisions of the Mines Act 1952 and the MMR, 1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment.	Total Employment is 33 Nos inclusive of Competent persons. Mines Manager & Foreman Details are given in the Chapter No.2. Page No.28.
20	The Project Proponent shall conduct the hydro-geological study considering the contour map of the water table detailing the number of groundwater pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds, etc. within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD / TWAD so as to assess the impacts on the wells due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided.	The hydro-geological study was conducted to evaluate the possible impact on the ground water table. No significant impacts are anticipated on the water bodies around the project area. Details are discussed under Chapter No. 3,
21	The proponent shall furnish the baseline data for the environmental and ecological parameters with regard to surface water/ground water quality, air quality, soil quality & flora/fauna including traffic vehicular movement study.	Baseline Data were collected for One Season (Post Monsoon) Oct to Dec 2023 as per CPCB Notification and MoEF & CC Guidelines. Details in Chapter No. 3
22	The Proponent shall carry out the Cumulative impact study due to mining operations carried out in the quarry specifically with reference to the specific environment in terms of soil health, biodiversity, air pollution, water pollution, climate change and flood control & health impacts- Accordingly, the Environment Management plan should be prepared keeping the concerned quarry and the surrounding habitations in the mind.	The Cumulative impact study due to mining operations is explained in chapter - 7
23	Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.	Noted and agreed

24	Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.	Land use and land cover of the study area is discussed in Chapter No. 3. Land use plan of the project area showing pre-operational, operational and post-operational phases are discussed in Chapter No. 2, Table No 2.3, Page No. 17.
25	Details of the land for storage of Overburden/Waste Dumps (or) Rejects outside the mine lease, such as extent of land area, distance from mine lease, its land use. R&R issues, if any, should be provided.	The details of Dump and disposal of Granite waste is discussed in the Chapter No.4 Page No. 96.
26	Proximity to Areas declared as 'Critically Polluted' (or) the Project areas which attracts the court restrictions for mining operations, should also be indicated and where so required. clearance certifications from the prescribed Authorities, such as the TNPCB (or) Dept of Geology and Mining should be secured and furnished to the effect that the proposed mining activities could be considered.	Not Applicable. Project area / Study area is not declared in 'Critically Polluted' Area and does not come under 'Aravalli Range.
27	Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.	Part of the working pit will be allowed to collect rain water during the spell of rain will be used for greenbelt development and dust suppression. The Mine Closure Plan is prepared for converting the excavated pit into rain water harvesting structure and serve as water reservoir for the project village during draught season.
28	Impact on local transport infrastructure due to the Project should be indicated.	Transportation details mentioned in Chapter -2
29	A tree survey study shall be carried out (nos., name of the species, age, diameter etc..) both within the mining lease applied area & 300m buffer zone and its management during mining activity.	Details of the trees in the buffer zone given in Chapter No.3&4
30	A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.	After the completion of mining operation, the part of the quarried-out land will be utilized as temporary storage reservoir. The details are given in the Chapter No.4
31	As a part of the study of flora and fauna around the vicinity of the proposed site, the EIA coordinator shall strive to educate the local students on the importance of preserving local flora and fauna by involving them in the study, wherever possible.	Noted and agreed
32	The purpose of green belt around the project is to capture the fugitive emissions, carbon sequestration and to attenuate the noise generated, in addition to improving the aesthetics A wide range of indigenous plant species should be planted as given in the appendix-I in consultation with the DFO, & Tamil Nadu Agriculture University. The plant species with dense/moderate canopy of native origin should be chosen. Species of small/medium/tall trees alternating with shrubs should be planted in a mixed manner.	Noted & agreed. It is proposed to plant a 770nos of trees in the 7.5m safety barrier and village roads.

33	Taller/one year old Saplings raised in appropriate size of bags, preferably eco-friendly bags should be planted as per the advice of local forest authorities/botanist/Horticulturist with regard to site specific choices. The proponent shall earmark the greenbelt area with GPS coordinates all along the boundary of the project site with at least 3 meters wide and in between blocks in an organized manner.	It is a fresh Lease. No trees within the project site. During the course of mining operation, it is proposed to plant 770Nos of Trees in the safety barrier and Village roads.
34	A Disaster management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.	Disaster management Plan details in Chapter-7
35	A Risk Assessment and management Plan shall be prepared and included in the ELA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.	A Risk Assessment and management Plan Chapter- 7
36	Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.	Occupational Health impacts chapter- 10
37	Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.	No Public Health Implications anticipated due to this project. Details of CER are discussed under Chapter 8, Page No. 148-149.
38	The Socio-economic studies should be carried out within a 5 km buffer zone from the mining activity. Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.	It is explained in Chapter -3
39	Details of litigation pending against the project, if any, with direction /Order passed by any Court of Law against the Project should be given.	No, Litigation against the project
40	Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.	Noted and agreed
41	If any quarrying operations were carried out in the proposed quarrying site for which now the EC is sought, the Project Proponent shall furnish the detailed compliance to EC conditions given in the previous EC with the site photographs which shall duly be certified by MoEF&CC, Regional Office, Chennai (or) the concerned DEE/TNPCB.	It is a fresh lease
42	The PP shall prepare the EMP for the entire life of mine and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine.	The EMP prepared for the life of the mine.
43	Concealing any factual information or submission of false/fabricated data and failure to comply with any of the conditions mentioned	Noted & agreed.

	above may result in withdrawal of this Terms of Conditions besides attracting penal provisions in the Environment (Protection) Act, 1986.	
NORMAL CONDITIONS-Annexure-B		
<i>Cluster Management committee</i>		
1.	Cluster Management Committee shall be framed which must include all the proponents in the cluster as members including the existing as well as proposed quarry.	Cluster management committee has been formed with mutual agreement with the proponents including Proposed quarry at present are framed.
2	The members must coordinate among themselves for the effective implementation of EMP as committed including Green Belt Development, Water sprinkling, tree plantation, blasting etc..	As per the committee agreement proponents will coordinates for the Greenbelt development, Water sprinkling and tree plantation activities combinedly.
3	The List of members of the committee formed shall be submitted to AD/Mines before the execution of mining lease and the same shall be updated every year to the AD/Mines.	The formation of committee with list of members has been submitted to the AD mines office, Krishnagiri and the same will be update in every year
4	Detailed operational Plan must be submitted which must include the blasting frequency with respect to the nearby quarry situated in the cluster, the usage of haul roads by the individual quarry in the form of route map and network.	As per the committee agreement the blasting frequency will be discussed and carryout by the Mines Manager appointed by the proponents and the same will be updated in the committee minutes. Transport details in chapter-2
5	The committee shall deliberate on risk management plan pertaining to the cluster in a holistic manner especially during natural calamities like intense rain and the mitigation measures considering the inundation of the cluster and evacuation plan.	Details discussed in chapter 7 of Draft EIA report
6	The Cluster Management Committee shall form Environmental Policy to practice sustainable mining in a scientific and systematic manner in accordance with the law. The role played by the committee in implementing the environmental policy devised shall be given in detail.	Details discussed in chapter 6 of Draft EIA report
7	The committee shall furnish action plan regarding the restoration strategy with respect to the individual quarry falling under the cluster in a holistic manner.	Noted & agreed
8	The committee shall furnish the Emergency Management plan within the cluster.	Details discussed in chapter 7.
9	The committee shall deliberate on the health of the workers/staff involved in the mining as well as the health of the public.	Details discussed in chapter 10.
10	The committee shall furnish an action plan to achieve sustainable development goals with reference to water, sanitation & safety.	Noted & agreed
11	The committee shall furnish the fire safety and evacuation plan in the case of fire accidents.	Detailed discussed in chapter 7.
<i>Impact study of mining</i>		
12	Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area covering the entire mine lease period as per precise area communication order issued from reputed research institutions on the following	Details of Soil health is given in Chapter No 3 and biodiversity is given in Chapter No 3. The project will not cause any significant changes in the climate

	<p>a) Soil health & bio-diversity b) Climate change leading to Droughts, Floods etc. c) Pollution leading to release of Greenhouse gases (GHG), rise in Temperature' & Livelihood of the local people. d) Possibilities of water contamination and impact on aquatic ecosystem health' e) Agriculture, Forestry & Traditional practices. f) Hydrothermal/Geothermal effect due to destruction in the Environment' g) Bio-geochemical processes and its foot prints including environmental stress. h) Sediment geochemistry in the surface steams.</p>	<p>Climatic changes and GHG are described in Chapter No 4. Details of water contamination and impact on aquatic ecosystem is given in Chapter No 4. Hydrothermal/ Geothermal effects due to destruction in the environment, Bio geochemical process and sediment geo chemistry given in the Chapter No 7.</p>
Agriculture & Agro-Biodiversity		
13	Impact on surrounding agricultural fields around the proposed mining Area.	Detailed discussed in chapter 4.
14	Impact on soil flora & vegetation around the project site.	Detailed discussed in chapter 4.
15	Details of type of vegetations including no. of trees & shrubs within the proposed mining area and. If so, transplantation of such vegetations all along the boundary of the proposed mining area shall committed mentioned in EMP.	The area is proposed Lease & Few trees present with in lease.
16	The Environmental Impact Assessment should study the biodiversity, the natural ecosystem, the soil micro flora. fauna and soil seed banks and suggest measures to maintain the natural Ecosystem.	Details in Chapter 3
17	Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.	Noted & agreed
18	The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands, Horticulture, Agriculture and livestock.	The project area there is no agriculture activities carried out. This is fresh lease area.
Forest		
19	The project proponent shall detail study on impact of mining on Reserve forests free ranging wildlife.	Thogarapalli Extn R.F – 4.36 km – South East
20	The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.	The area is surrounded by quarried land and Barren land. Details of flora and fauna studies given in the Chapter No.3.
21	The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection.	No major trees within the project area
22	The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site.	Noted & agreed. Cauvery North Wildlife Sanctuary- Around 36 km – W Cauvery South Wildlife Sanctuary- Around 44km –S.West
Water Environment		
23	Hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks. canals, ponds etc. within 1 km (radius) so as to assess the	The hydro-geological study was conducted to evaluate the possible impact on the ground water table. No significant impacts are anticipated on

	impacts on the nearby waterbodies due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided, covering the entire mine lease period.	the water bodies around the project area. Details are discussed under Chapter No. 3.
24	Erosion Control measures.	Noted & agreed
25	Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area on the nearby villages, water-bodies/ Rivers. & Any ecological fragile areas.	Details in Chapter 2
26	The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir.	Noted & agreed
27	The project proponent shall study and furnish the details on potential fragmentation impact on natural environment by the activities.	Noted & agreed
28	The project proponent shall study and furnish the impact on aquatic plants and animals in water bodies and possible scars on the landscape, damages to nearby caves, heritage site, and archaeological sites possible land form changes visual and aesthetic impacts.	No Archaeological site near the project area, no proposal for the disposal of mine pit water in the nearby water bodies
29	The Terms of Reference should specifically study impact on soil health, soil erosion, the soil, physical, chemical components and microbial components.	Details in Chapter 3 Soil environment.
30	The Environmental Impact Assessment should study on wetlands, water bodies, rivers, streams, lakes and farmer sites.	Discussed in the Draft EIA/EMP Report in Chapter No.3
Energy		
31	The measures taken to control Noise. Air, Water. Dust Control and steps adopted to efficiently utilize the Energy shall be furnished.	It is explained in Chapter 4
Climate Change		
32	The Environmental Impact Assessment shall study in detail the carbon emission and also suggest the measures to mitigate carbon emission including development of carbon sinks and temperature reduction including control of other emission and climate mitigation activities.	Details of carbon emission and mitigation activities are given in the Chapter No.4
33	The Environmental impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock.	Discussed in the Draft EIA/EMP Report in Chapter No.3.
Mine Closure Plan		
34	Detailed Mine Closure Plan covering the entire mine lease period as per precise area communication order issued.	Details in Chapter 2 mine closure plan
EMP		
35	Detailed Environment Management Plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued.	Detailed under Chapter 10
36	The Environmental Impact Assessment should hold detailed study on EMP with budget for green belt development and mine closure plan including disaster management plan.	Project Cost = Rs. 2,33,07,000 CER Cost = Rs 5,00,000/ Disaster Management plan & mine closure plan is discussed in chapter no.4 & 7

Risk Assessment		
37	To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining.	Detailed under Chapter 7
Disaster Management Plan		
38	To furnish disaster management plan and disaster mitigation measures in regard to all aspects to avoid/reduce vulnerability to hazards & to cope with disaster/untoward accidents in & around the proposed mine lease area due to the proposed method of mining activity & its related activities covering the entire mine lease period as per precise area communication order issued.	Details in Study 7.3 Disaster Management Plan in Chapter -7
Others		
39	The project proponent shall furnish VAO certificate with reference to 300m radius regard to approved habitations, schools, Archaeological sites, Structures. railway lines, roads. Water bodies such as streams, odai, vaari, canal, channel. river, lake pond, tank etc.	VAO certificate is attached as Annexure There is no habitation 300m radius attached Structure map in chapter 3 Socioeconomic environment
40	As per the MoEF& CC office memorandum F.No.22-65/2017-1A.III dated: 30.09.2020 and 20.10.2020 the proponent shall address the concerns raised during the public consultation and all the activities proposed shall be part of the Environment Management Plan.	Noted and agreed
41	The project proponent shall study and furnish the possible pollution due to plastic and microplastic on the environment. The ecological risks and impacts of plastic & microplastics on aquatic environment and fresh water systems due to activities, contemplated during mining may be investigated and reported.	Details of carbon emission and mitigation activities are given int the Chapter No.4

M/s.Bismilla Exports -P3

“ToR issued vide Lr No. SEIAA-TN/F.No.10365/SEAC/ToR-1643/2023 Dated:02.01.2024

ADDITIONAL CONDITIONS		
1	The proponent shall furnish registered land deed/lease agreement for all the Survey nos. of the proposed mining lease area.	Partnership Deed copy are enclosed in Annexure.
2	The structures with in the radius of (i) 50m (ii)100m (iii)200m and (iv)300m shall be enumerated with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places of worship, industries, factories, sheds, etc.	Structure Map included in the Chapter-3 Socio economic environment Report.
3	The Proponent shall provide a controlled Blast design & Vibration Prediction for the structures located within 500 m from the lease boundary and any other sensitive structures.	Chapter4 sub 4.4.3Ground Vibrations and Figure 4.7 details.
4	The project proponent shall furnish details of photographs of adequate barbered fencing, greenbelt and garland drain around the boundary of the proposed quarry.	Fresh lease quarry

5	The Proponent shall submit a conceptual 'slope stability plan' for the proposed quarry during the appraisal while obtaining the EC, when the depth of the working is extended beyond 30 m below ground level.	For the first five years plan period the mining operation is proposed to carry out up to the depth of 18m bgl. It is ensured that the slope stability will be carried out after 30m bgl.
6	The proponent shall furnish a revised EMP budget for entire life of proposed mining including progressive mine closure plan.	Chapter10 budget of EMP for entire life of proposed mining area.
Annexure-1		
1	In the case of existing/operating mines, a letter obtained from the concerned AD (Mines) shall be submitted and it shall include the following: (i) Original pit dimension (ii) Quantity achieved Vs EC Approved Quantity (iii) Balance Quantity as per Mineable Reserve calculated. (iv) Mined out Depth as on date Vs EC Permitted depth (v) Details of illegal/illicit mining (vi) Violation in the quarry during the past working. (vii) Quantity of material mined out outside the mine lease area (viii) Condition of Safety zone benches (ix) Revised/Modified Mining Plan showing the benches of not exceeding 6 m height and ultimate depth of not exceeding 50m.	Fresh quarry
2	Details of habitations around the proposed mining area and latest VAO certificate regarding the location of habitations within 300m radius from the periphery of the site.	VAO letter stating the details of habitations, temples etc., is enclosed as Annexure
3	The proponent is requested to carry out a survey and enumerate on the structures located within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m (v) 500m shall be enumerated with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places of worship, industries, factories, sheds, etc with indicating the owner of the building, nature of construction, age of the building, number of residents, their profession and income, etc.	Structure Map included in the Chapter-3 Socioeconomic environment Report.
4	The PP shall submit a detailed hydrological report indicating the impact of proposed quarrying operations on the Waterbodies like lake, water tanks, etc are located within 1 km of the proposed quarry.	The hydro-geological study was conducted to evaluate the possible impact on the ground water table. No significant impacts are anticipated on the water bodies around the project area. Details are discussed under Chapter No. 4 1.Odai-370m_NE 2.Narayanapuram Tank-280m_NE 3.Odai- 80m_S 4.Canal-1.2Km_NW 5.Tank- 830m_SW 6.Canal-2.6Km_NE 7.Chinneri Lake 4.3Km_NW 8.Badethala Lake-8.5Km_NW
5	The Proponent shall carry out Bio diversity study through reputed Institution and the same shall be included in EIA Report.	Biodiversity study has been carried out by Functional Area Expert by the NABET accredited consultant.

		The detailed study is given in the Chapter No.3
6	The DFO letter stating that the proximity distance of Reserve Forests, Protected Areas, Sanctuaries, Tiger reserve etc., up to a radius of 25 km from the proposed site.	Enclosed Annexure DFO Letter Noc No 5575/2022/L 28.07.2022
7	In the case of proposed lease in an existing (or old) quarry where the benches are not formed (or partially formed as per the approved Mining Plan, the Project Proponent (PP) shall the pp shall carry out the scientific studies to assess the slope stability of the working benches to be constructed and existing quarry wall, by involving any one of the reputed Research and Academic Institutions - CSIR-Central Institute of Mining & Fuel Research / Dhanbad, NIRM/Bangalore, Division of Geotechnical Engineering-IIT-Madras, NIT-Dept of Mining Engg, Surathkal, and Anna University chennai-CEG Campus. The PP shall submit a copy of the aforesaid report indicating the stability status of the quarry wall and possible mitigation measures during the time of appraisal for obtaining the EC.	Fresh Lease
8	However, in case of the fresh/virgin quarries, The Proponent shall submit a conceptual 'Slope Stability Assessment' for the proposed quarry during the appraisal while obtaining the EC, when the depth of the proposed working is extended beyond 30 m below ground level.	For the first five years plan period the mining operation is proposed to carry out up to the depth of 18m bgl. It is ensured that the slope stability will be carried out after 30m bgl.
9	The PP shall furnish the affidavit stating that the blasting operation in the proposed quarry is carried out by the statutory competent person as per the MMR 1961 such as blaster, mining mate, mine foreman, II/I Class mines manager appointed by the proponent.	Proponent given affidavit stating that the blasting will be carried out under the supervision of Competent person.
10	The PP shall present a conceptual design for carrying out only controlled blasting operation involving line drilling and muffle blasting in the proposed quarry such that the blast-induced ground vibrations are controlled as well as no fly rock travel beyond 30 m from the blast site.	Noted and agreed
11	The EIA Coordinators shall obtain and furnish the details of quarry/quarries operated by the proponent in the past, either in the same location or elsewhere in the State with video and photographic evidences.	Noted and agreed. There are three quarries including this proposal in the cluster belongs to the Proponent M/s.Bismilla Exports and Thiru.M.Kowshik Dhev, M/s.Tamin
12	If the proponent has already carried out the mining activity in the proposed mining lease area after 15.01.2016, then the proponent shall furnish the following details from AD/DD, mines	Fresh Lease
13	What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?	Fresh Lease

14	<p>Quantify of minerals mined out</p> <p>A. Highest production achieved in any one year</p> <p>B. Detail of approved depth of mining.</p> <p>C. Actual depth of the mining achieved earlier.</p> <p>D. Name of the person already mined in that leases area.</p> <p>E. If EC and CTO already obtained, the copy of the same shall be submitted.</p> <p>F. Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.</p>	<p>Mineable reserves ROM – 39,420 m³</p> <p>Ultimate Depth 184m(L) x 41m (W) x 18m (D)</p> <p>Year wise production for first five years ROM – 25,840m³</p> <p>Color Granite – 9,044m³ @ 35% Recovery</p> <p>Peak Production – 5,270m³ of ROM</p> <p>Depth – 18m bgl</p>
15	<p>All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/Topo sheet. Topographic sheet, geomorphology, lithology and geology of the mining lease area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).</p>	<p>Satellite imagery of the project area along with boundary coordinates is given in the Chapter No 2, Figure No.2.2, Page No.11.</p> <p>Geomorphology of the area is given in Chapter No 2, Figure No.2.9, Page No.21</p> <p>Land use pattern of the project area is tabulated in the Chapter No.2. Table no 2.3, Pg.No.18</p> <p>Land use pattern of the Study area is tabulated in the Chapter No.2, Table no 2.3, Pg.No.17.</p>
16	<p>The PP shall carry out Drone video survey covering the cluster, green belt, fencing, etc..</p>	<p>Noted and agreed</p>
17	<p>The proponent shall furnish photographs of adequate fencing, green belt along the periphery including replantation of existing trees & safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan.</p>	<p>The area has been fenced and plantation activities carried out within the project site.</p> <p>water bodies nearby</p> <ol style="list-style-type: none"> 1.Odai-490m_NE 2.Narayanapuram Tank-490m_E 3.Odai- 120m_SE 4.Canal-1.1Km_NW 5.Tank- 710m_SW 6.Canal-2.6Km_NE 7.Chinneri Lake 4.2Km_NW 8.Badethala Lake-8.3Km_NW
18	<p>The Project Proponent shall provide the details of mineral reserves and mineable reserves, planned production capacity, proposed working methodology with justifications, the anticipated impacts of the mining operations on the surrounding environment, and the remedial measures for the same.</p>	<p>The details of mineral reserves have been provided in Chapter No 1,</p> <p>Total Mineable Reserves ROM - 39,420m³ Granite Recovery 35% – 13,797m³</p> <p>Production for first five years MP period ROM - 25,840m³ Granite Recovery 35% -9,044m³ Peak production – 5,270m³ of ROM</p>
19	<p>The Project Proponent shall provide the Organization chart indicating the appointment of various statutory officials and other competent persons to be appointed as per the provisions of the Mines Act 1952 and the MMR, 1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment.</p>	<p>Total Employment is 30 Nos inclusive of Competent persons.</p> <p>Mines Manager & Foreman</p> <p>Details are given in the Chapter No.2. Page No.28.</p>
20	<p>The Project Proponent shall conduct the hydro-geological study considering the contour map of the water table detailing the number of groundwater pumping & open wells, and surface</p>	<p>The hydro-geological study was conducted to evaluate the possible impact on the ground water table. No significant impacts are anticipated on</p>

	water bodies such as rivers, tanks, canals, ponds, etc. within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD / TWAD so as to assess the impacts on the wells due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided.	the water bodies around the project area. Details are discussed under Chapter No. 3,
21	The proponent shall furnish the baseline data for the environmental and ecological parameters with regard to surface water/ground water quality, air quality, soil quality & flora/fauna including traffic vehicular movement study.	Baseline Data were collected for One Season (Post Monsoon) Oct to Dec 2023 as per CPCB Notification and MoEF & CC Guidelines. Details in Chapter No. 3
22	The Proponent shall carry out the Cumulative impact study due to mining operations carried out in the quarry specifically with reference to the specific environment in terms of soil health, biodiversity, air pollution, water pollution, climate change and flood control & health impacts- Accordingly, the Environment Management plan should be prepared keeping the concerned quarry and the surrounding habitations in the mind.	The Cumulative impact study due to mining operations is explained in chapter - 7
23	Rain water harvesting management with recharging details along with water balance (both) monsoon & non-monsoon) be submitted.	Noted and agreed
24	Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.	Land use and land cover of the study area is discussed in Chapter No. 3. Land use plan of the project area showing pre-operational, operational and post-operational phases are discussed in Chapter No. 2, Table No 2.3, Page No. 17.
25	Details of the land for storage of Overburden/Waste Dumps (or) Rejects outside the mine lease, such as extent of land area, distance from mine lease, its land use. R&R issues, if any. should be provided.	The details of Dump and disposal of Granite waste is discussed in the Chapter No.4 Page No. 96.
26	Proximity to Areas declared as 'Critically Polluted' (or) the Project areas which attracts the court restrictions for mining operations, should also be indicated and where so required. clearance certifications from the prescribed Authorities, such as the TNPCB (or) Dept of Geology and Mining should be secured and furnished to the effect that the proposed mining activities could be considered.	Not Applicable. Project area / Study area is not declared in 'Critically Polluted' Area and does not come under 'Aravalli Range.
27	Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.	Part of the working pit will be allowed to collect rain water during the spell of rain will be used for greenbelt development and dust suppression. The Mine Closure Plan is prepared for converting the excavated pit into rain water harvesting structure and serve as water reservoir for the project village during draught season.
28	Impact on local transport infrastructure due to the Project should be indicated.	Transportation details mentioned in Chapter -2

29	A tree survey study shall be carried out (nos., name of the species, age, diameter etc..) both within the mining lease applied area & 300m buffer zone and its management during mining activity.	Details of the trees in the buffer zone given in Chapter No.3&4
30	A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.	After the completion of mining operation, the part of the quarried-out land will be utilized as temporary storage reservoir. The details are given in the Chapter No.4
31	As a part of the study of flora and fauna around the vicinity of the proposed site, the EIA coordinator shall strive to educate the local students on the importance of preserving local flora and fauna by involving them in the study, wherever possible.	Noted and agreed
32	The purpose of green belt around the project is to capture the fugitive emissions, carbon sequestration and to attenuate the noise generated, in addition to improving the aesthetics. A wide range of indigenous plant species should be planted as given in the appendix-I in consultation with the DFO, & Tamil Nadu Agriculture University. The plant species with dense/moderate canopy of native origin should be chosen. Species of small/medium/tall trees alternating with shrubs should be planted in a mixed manner.	Noted & agreed. It is proposed to plant a 510nos of trees in the 7.5m safety barrier and village roads.
33	Taller/one year old Saplings raised in appropriate size of bags, preferably eco-friendly bags should be planted as per the advice of local forest authorities/botanist/Horticulturist with regard to site specific choices. The proponent shall earmark the greenbelt area with GPS coordinates all along the boundary of the project site with at least 3 meters wide and in between blocks in an organized manner.	It is a fresh Lease. Some trees within the project site. it is proposed to plant 510 Nos of Trees in the safety barrier and Village roads.
34	A Disaster management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.	Disaster management Plan details in Chapter-7
35	A Risk Assessment and management Plan shall be prepared and included in the ELA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.	A Risk Assessment and management Plan Chapter- 7
36	Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.	Occupational Health impacts chapter- 10
37	Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.	No Public Health Implications anticipated due to this project. Details of CER are discussed under Chapter 8,
38	The Socio-economic studies should be carried out within a 5 km buffer zone from the mining	It is explained in Chapter -3

	activity. Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.	
39	Details of litigation pending against the project, if any, with direction /Order passed by any Court of Law against the Project should be given.	No, Litigation against the project
40	Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.	Explained in chapter-8 benefits of project.
41	If any quarrying operations were carried out in the proposed quarrying site for which now the EC is sought, the Project Proponent shall furnish the detailed compliance to EC conditions given in the previous EC with the site photographs which shall duly be certified by MoEF&CC. Regional Office, Chennai (or) the concerned DEE/TNPCB.	It is a fresh lease
42	The PP shall prepare the EMP for the entire life of mine and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine.	The EMP prepared for the life of the mine.
43	Concealing any factual information or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this Terms of Conditions besides attracting penal provisions in the Environment (Protection) Act, 1986.	Noted & agreed.
NORMAL CONDITIONS-Annexure-B		
1	The project proponent shall prepare mine closure plan considering quantity of Topsoil & Weathered rock. If any.	Details in chapter-2 mine closure plan considering quantity of topsoil and weathered rock. Attached approved mining plan in annexure.
2	The DFO letter stating that the proximity distance of Reserve Forests, Protected Areas, Sanctuaries, Tiger reserve etc., up to a radius of 25 km from the proposed site.	Noc. No 5575/2022/L Date: 28.07.2022
Cluster Management committee		
1.	Cluster Management Committee shall be framed which must include all the proponents in the cluster as members including the existing as well as proposed quarry.	Cluster management committee has been formed with mutual agreement with the proponents including Proposed quarry at present are framed.
2	The members must coordinate among themselves for the effective implementation of EMP as committed including Green Belt Development, Water sprinkling, tree plantation, blasting etc..	As per the committee agreement proponents will coordinate for the Greenbelt development, Water sprinkling and tree plantation activities combinedly.
3	The List of members of the committee formed shall be submitted to AD/Mines before the execution of mining lease and the same shall be updated every year to the AD/Mines.	The formation of committee with list of members has been submitted to the AD mines office, Krishnagiri and the same will be update in every year
4	Detailed operational Plan must be submitted which must include the blasting frequency with respect to the nearby quarry situated in the cluster,	As per the committee agreement the blasting frequency will be discussed and carryout by the Mines Manager appointed by the proponents and

	the usage of haul roads by the individual quarry in the form of route map and network.	the same will be updated in the committee minutes. Transport details in chapter-2
5	The committee shall deliberate on risk management plan pertaining to the cluster in a holistic manner especially during natural calamities like intense rain and the mitigation measures considering the inundation of the cluster and evacuation plan.	Details discussed in chapter 7 of Draft EIA report
6	The Cluster Management Committee shall form Environmental Policy to practice sustainable mining in a scientific and systematic manner in accordance with the law. The role played by the committee in implementing the environmental policy devised shall be given in detail.	Details discussed in chapter 6 of Draft EIA report
7	The committee shall furnish action plan regarding the restoration strategy with respect to the individual quarry falling under the cluster in a holistic manner.	Noted & agreed
8	The committee shall furnish the Emergency Management plan within the cluster.	Details discussed in chapter 7.
9	The committee shall deliberate on the health of the workers/staff involved in the mining as well as the health of the public.	Details discussed in chapter 10.
10	The committee shall furnish an action plan to achieve sustainable development goals with reference to water, sanitation & safety.	Noted & agreed
11	The committee shall furnish the fire safety and evacuation plan in the case of fire accidents.	Detailed discussed in chapter 7.
Impact study of mining		
12	Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area covering the entire mine lease period as per precise area communication order issued from reputed research institutions on the following a) Soil health & bio-diversity b) Climate change leading to Droughts, Floods etc. c) Pollution leading to release of Greenhouse gases (GHG), rise in Temperature' & Livelihood of the local people. d) Possibilities of water contamination and impact on aquatic ecosystem health' e) Agriculture, Forestry & Traditional practices. f) Hydrothermal/Geothermal effect due to destruction in the Environment' g) Bio-geochemical processes and its foot prints including environmental stress. h) Sediment geochemistry in the surface steams.	Details of Soil health is given in Chapter No 3 and biodiversity is given in Chapter No 3. The project will not cause any significant changes in the climate Climatic changes and GHG are described in Chapter No 4. Details of water contamination and impact on aquatic ecosystem is given in Chapter No 4. Hydrothermal/ Geothermal effects due to destruction in the environment, Bio geochemical process and sediment geo chemistry given in the Chapter No 7.
Agriculture & Agro-Biodiversity		
13	Impact on surrounding agricultural fields around the proposed mining Area.	Detailed discussed in chapter 4.
14	Impact on soil flora & vegetation around the project site.	Detailed discussed in chapter 4.
15	Details of type of vegetations including no. of trees & shrubs within the proposed mining area and. If so, transplantation of such vegetations all along the boundary of the proposed mining area shall committed mentioned in EMP.	The area is proposed Lease & Few trees present with in lease.

16	The Environmental Impact Assessment should study the biodiversity, the natural ecosystem, the soil micro flora. fauna and soil seed banks and suggest measures to maintain the natural Ecosystem.	Details in Chapter 3
17	Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.	Noted & agreed
18	The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands, Horticulture, Agriculture and livestock.	The project area is dry barren land no agriculture activities carried out. This is proposed fresh lease area.
Forest		
19	The project proponent shall detail study on impact of mining on Reserve forests free ranging wildlife.	Thogarapalli Extn R.F – 4.3 km – South East
20	The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.	The area is surrounded by quarried land and Barren land. Details of flora and fauna studies given in the Chapter No.3.
21	The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection.	No major trees within the project area
22	The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site.	Cauvery North Wildlife Sanctuary- Around 36km – W Cauvery South Wildlife Sanctuary- Around 43km –S.West
Water Environment		
23	Hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks. canals, ponds etc. within 1 km (radius) so as to assess the impacts on the nearby waterbodies due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided, covering the entire mine lease period.	The hydro-geological study was conducted to evaluate the possible impact on the ground water table. No significant impacts are anticipated on the water bodies around the project area. Details are discussed under Chapter No. 3.
24	Erosion Control measures.	Noted & agreed
25	Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area on the nearby villages, water-bodies/ Rivers. & Any ecological fragile areas.	Details in Chapter 2
26	The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir.	Noted & agreed
27	The project proponent shall study and furnish the details on potential fragmentation impact on natural environment by the activities.	Noted & agreed
28	The project proponent shall study and furnish the impact on aquatic plants and animals in water bodies and possible scars on the landscape, damages to nearby caves, heritage site, and archaeological sites possible land form changes visual and aesthetic impacts.	No Archaeological site near the project area, no proposal for the disposal of mine pit water in the nearby water bodies
29	The Terms of Reference should specifically study impact on soil health, soil erosion, the soil,	Details in Chapter 3 Soil environment.

	physical, chemical components and microbial components.	
30	The Environmental Impact Assessment should study on wetlands, water bodies, rivers, streams, lakes and farmer sites.	Discussed in the Draft EIA/EMP Report in Chapter No.3
Energy		
31	The measures taken to control Noise. Air, Water. Dust Control and steps adopted to efficiently utilize the Energy shall be furnished.	It is explained in Chapter 4
Climate Change		
32	The Environmental Impact Assessment shall study in detail the carbon emission and also suggest the measures to mitigate carbon emission including development of carbon sinks and temperature reduction including control of other emission and climate mitigation activities.	Details of carbon emission and mitigation activities are given in the Chapter No.4
33	The Environmental impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock.	Discussed in the Draft EIA/EMP Report in Chapter No.3.
Mine Closure Plan		
34	Detailed Mine Closure Plan covering the entire mine lease period as per precise area communication order issued.	Details in Chapter 2 mine closure plan
EMP		
35	Detailed Environment Management Plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued.	Detailed under Chapter 10
36	The Environmental Impact Assessment should hold detailed study on EMP with budget for green belt development and mine closure plan including disaster management plan.	Project Cost = Rs. 5,00,04,000/- CER Cost = Rs 5,00,000/ Disaster Management plan & mine closure plan is discussed in chapter no.4 & 7
Risk Assessment		
37	To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining.	Detailed under Chapter 7
Disaster Management Plan		
38	To furnish disaster management plan and disaster mitigation measures in regard to all aspects to avoid/reduce vulnerability to hazards & to cope with disaster/untoward accidents in & around the proposed mine lease area due to the proposed method of mining activity & its related activities covering the entire mine lease period as per precise area communication order issued.	Details in Study 7.3 Disaster Management Plan in Chapter -7
Others		
39	The project proponent shall furnish VAO certificate with reference to 300m radius regard to approved habitations, schools, Archaeological sites, Structures. railway lines, roads. Water bodies such as streams, odai, vaari, canal, channel. river, lake pond, tank etc.	VAO certificate is attached as Annexure There is no habitation 300m radius attached Structure map in chapter-3 Socioeconomic environment
40	As per the MoEF& CC office memorandum F.No.22-65/2017-1A.III dated: 30.09.2020 and	Noted and agreed

	20.10.2020 the proponent shall address the concerns raised during the public consultation and all the activities proposed shall be part of the Environment Management Plan.	
41	The project proponent shall study and furnish the possible pollution due to plastic and microplastic on the environment. The ecological risks and impacts of plastic & microplastics on aquatic environment and fresh water systems due to activities, contemplated during mining may be investigated and reported.	Details of carbon emission and mitigation activities are given in the Chapter No.4

STANDARD TERMS OF REFERENCE

1	Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification 1994 came into force, w.r.t. the highest production achieved prior to 1994.	Not applicable. This is Not a violation category project. This proposal falls under B1 Category (Cluster Condition).
2	A copy of the document in support of the fact that the Proponent is the rightful lessee of the mine should be given.	The applied land for quarrying is a Patta Land. Document is enclosed along with Approved Mining Plan as Annexure Volume 1.
3	All documents including approved mine plan, EIA and Public Hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and should be in the name of the lessee.	Noted & agreed.
4	All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/toposheet, topographic sheet, geomorphology and geology of the area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).	Map showing – Project area is superimposed on Satellite imagery is enclosed in Figure No. 2.1 Project area boundary coordinates superimposed on Toposheet – Figure No. 1.3 Surface Features around the project area covering 10km radius – Figure No. 2.2 Geology map of the project area covering 10km radius - Figure No. 2.7. Geomorphology Map of the Study Area covering 10 km radius – Figure No. 2.8.
5	Information should be provided in Survey of India Toposheet in 1:50,000 scale indicating geological map of the area, geomorphology of land forms of the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics.	Map showing – Geology map of the project area covering 10km radius - Figure No. 2.7. Geomorphology Map of the Study Area covering 10 km radius – Figure No. 2.8.
6	Details about the land proposed for mining activities should be given with information as to whether mining conforms to the land use policy of the State; land diversion for mining should	The applied area was inspected by the officers of Department of Geology along with revenue officials and found that the land is fit for quarrying under the policy of State Government.

	have approval from State land use board or the concerned authority.	
7	It should be clearly stated whether the proponent Company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA Report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/ violation of the environmental or forest norms/conditions? The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large, may also be detailed in the EIA Report.	The proponent has framed their Environmental Policy and the same is discussed in the Chapter No 10.1.
8	Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.	It is an opencast quarrying operation proposed to operate in Mechanized method. The rough stone formation is a hard, compact and homogeneous body. The height and width of the bench will be maintained as 5m with 90 ⁰ bench angles. Quarrying activities will be carried out under the supervision of Competent Persons like Mines Manager, Mines Foreman and Mining Mate. Necessary permissions will be obtained from DGMS after obtaining Environmental Clearance.
9	The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc., should be for the life of the mine / lease period.	Noted & agreed. The study area considered for this study is 10 km radius and all data contained in the EIA report such as waste generation etc., is for the Life of the Mine / lease period.
10	Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.	Land use and land cover of the study area is discussed in Chapter No. 3. Land use plan of the project area showing pre-operational, operational and post-operational phases are discussed in Chapter No. 2, Table No 2.3.
11	Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given	Not Applicable. There is no waste anticipated during this quarry operation. The entire quarried out rough stone will be transported to the needy customers. No Dumps is proposed outside the lease area.
12	Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area. In the event of any contrary claim by the Project Proponent	Not Applicable. There is no Forest Land involved in the proposed project area. The proposed project area is a patta land.

	regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees.	Approved Mining Plan is enclosed as Annexure Volume 1.
13	Status of forestry clearance for the broken-up area and virgin forestland involved in the Project including deposition of net present value (NPV) and compensatory afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.	Not Applicable. The proposed project area does not involve any Forest Land.
14	Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.	Not Applicable. The project doesn't attract Recognition of Forest Rights Act, 2006.
15	The vegetation in the RF / PF areas in the study area, with necessary details, should be given.	Thogarapalli Extn R.F – 4.36 km – South East.
16	A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted.	Not Applicable. There are No National Parks, Biosphere Reserves, Wildlife Corridors, and Tiger/Elephant Reserves within 10 km Radius from the periphery of the project area.
17	Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/ Elephant Reserves/(existing as well as proposed), if any, within 10 KM of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished	Not Applicable. There are No National Parks, Biosphere Reserves, Wildlife Corridors, and Tiger/Elephant Reserves within 10 km Radius from the periphery of the project area. Thogarapalli Extn R.F – 4.36 km – South East.
18	A detailed biological study of the study area [core zone and buffer zone (10 KM radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled-I fauna found in the study area, the necessary plan along with budgetary provisions for their conservation should be prepared in consultation with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost.	Detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] was carried out and discussed under Chapter No. 3. There is no schedule I species of animals observed within study area as per Wildlife Protection Act 1972 as well as no species is in vulnerable, endangered or threatened category as per IUCN. There is no endangered red list species found in the study area.

19	Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravalli Range', (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Department should be secured and furnished to the effect that the proposed mining activities could be considered.	Not Applicable. Project area / Study area is not declared in 'Critically Polluted' Area and does not come under 'Aravalli Range'.
20	Similarly, for coastal Projects, A CRZ map duly authenticated by one of the authorized agencies demarcating LTL, HTL, CRZ area, location of the mine lease w.r.t CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).	Not Applicable. The project doesn't attract The C. R. Z. Notification, 2018.
21	R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need-based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine lease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspects should be discussed in the Report.	Not Applicable. There are no approved habitations within a radius of 300 meters. Therefore, R&R Plan / Compensation details for the Project Affected People (PAP) is not anticipated and Not Applicable for this project.
22	One season (non-monsoon) [i.e. March-May (Summer Season); October-December (post monsoon season) ; December-February (winter season)]primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.	Baseline Data were collected for One Season Oct – Dec 2023 as per CPCB Notification and MoEF & CC Guidelines. Details in Chapter No. 3.

23	Air quality modelling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of vehicles for transportation of mineral. The details of the model used and input parameters used for modelling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing predominant wind direction may also be indicated on the map.	Air Quality Modelling for prediction of incremental GLC's of pollutant was carried out using AERMOD view 9.6.1 Model. Details in Chapter No. 4.
24	The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated.	Total Water Requirements: 1.5 KLD-P1, 1.8KLD-P2, 1.8KLD-P3 Discussed under Chapter 2, Table No 2.15.
25	Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.	Not Applicable. Water for dust suppression, greenbelt development and domestic use will be sourced from accumulated rainwater/seepage water in mine pits and purchased from local water vendors through water tankers on daily requirement basis. Drinking water will be sourced from the approved water vendors.
26	Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.	Part of the working pit will be allowed to collect rain water during the spell of rain will be used for greenbelt development and dust suppression. The Mine Closure Plan is prepared for converting the excavated pit into rain water harvesting structure and serve as water reservoir for the project village during draught season.
27	Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided.	Impact Studies and Mitigation Measures of Water Environment including Surface Water and Ground Water are discussed in Chapter 4.
28	Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter-alia, shall include details of the aquifers present and impact of mining activities on these aquifers. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.	The ground water table inferred 62-54m below ground level. The ultimate depth of quarry is 23m agl.-P1 The ground water table inferred 64-59m below ground level. The ultimate depth of quarry is 28m agl.-P2 The ground water table inferred 64m below ground level. The ultimate depth of quarry is 18m agl.-P3 This proposal of 30 m below ground level will not intersect the ground water table, which is inferred from the hydro-geological carried out at the project site. Discussed under Chapter 3.

29	Details of any stream, seasonal or otherwise, passing through the lease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be brought out.	Not Applicable. There is no stream, seasonal or other water bodies passing within the project area. Therefore, no modification/ diversion of water bodies is anticipated.
30	Information on site elevation, working depth, groundwater table etc. Should be provided both in AMSL and Bgl. A schematic diagram may also be provided for the same.	The ground water table inferred 62-54m below ground level. The ultimate depth of quarry is 23m agl.-P1 The ground water table inferred 64-59m below ground level. The ultimate depth of quarry is 28m agl.-P2 The ground water table inferred 64m below ground level. The ultimate depth of quarry is 18m agl.-P3
31	A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the Project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The details of plantation already done should be given. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution.	Greenbelt Development Plan is discussed under Chapter 4.
32	Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines.	Traffic density survey was carried out to analyse the impact of Transportation in the study area as per IRC guidelines 1961 and it is inferred that there is no significant impact due to the proposed transportation from the project area. Details in Chapter 2.
33	Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.	Infrastructure & other facilities will be provided to the Mine Workers after the grant of quarry lease and the same has been discussed in the Chapter No.2 .
34	Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report.	Discussed under Chapter 2. Mine Closure Plan is a part of Approved Mining Plan enclosed as Annexure Volume – 1.
35	Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules	Occupational Health Impacts of the project and preventive measures are detailed under Chapter 4, Page No.127.

	should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.	
36	Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.	No Public Health Implications anticipated due to this project. Details of CER and CSR are discussed under Chapter 8.
37	Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.	No Negative Impact on Socio Economic Environment on the Study Area is anticipated and this project shall benefit the Socio-Economic Environment by ways of employment for 35 people directly and 50 people indirectly. Details in Chapter 2.
38	Detailed environmental management plan (EMP) to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project.	Detailed Environment Management Plan for the project to mitigate the anticipated impacts described under Chapter 4 is discussed under Chapter 10.
39	Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.	The outcome of public hearing will be updated in the final EIA/AMP report.
40	Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.	No litigation is pending in any court against this project.
41	The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.	Project Cost is Rs.3,07,30,000/- -P1 Rs. 2,33,07,000-P2 Rs. 5,00,04,000/--P3 CER Cost is Rs 5,00,000/ Each Proposal
42	A Disaster management Plan shall be prepared and included in the EIA/EMP Report.	Details in Chapter 7.
43	Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.	Details in Chapter 8.
44	Besides the above, the below mentioned general points are also to be followed: -	
a	Executive Summary of the EIA/EMP Report	Enclosed as separate booklet.
b	All documents to be properly referenced with index and continuous page numbering.	All the documents are properly referenced with index and continuous page numbering.
c	Where data are presented in the Report especially in Tables, the period in which the	List of Tables and source of the data collected are indicated.

	data were collected and the sources should be indicated.	
d	Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise etc. using the MoEF & CC/NABL accredited laboratories. All the original analysis/testing reports should be available during appraisal of the Project	Baseline monitoring reports are enclosed with This report in Chapter 3. Original Baseline monitoring reports will be submitted in the final EIA report during appraisal.
e	Where the documents provided are in a language other than English, an English translation should be provided.	Not Applicable.
f	The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted.	Will be enclosed along with Final EIA EMP Report.
g	While preparing the EIA report, the instructions for the Proponents and instructions for the Consultants issued by MoEF&CC vide O.M. No. J-11013/41/2006-IA. II(I) Dated: 4th August, 2009, which are available on the website of this Ministry, should be followed.	Noted & agreed. Instructions issued by MoEF & CC O.M. No. J-11013/41/2006-IA. II (I) Dated: 4th August, 2009 are followed.
h	Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the PFR for securing the TOR) should be brought to the attention of MoEF&CC with reasons for such changes and permission should be sought, as the TOR may also have to be altered. Post Public Hearing changes in structure and content of the draft EIA/EMP (other than modifications arising out of the P.H. process) will entail conducting the PH again with the revised documentation	Noted & agreed.
i	As per the circular no. J-11011/618/2010-IA. II(I) Dated: 30.5.2012, certified report of the status of compliance of the conditions stipulated in the environment clearance for the existing operations of the project, should be obtained from the Regional Office of Ministry of Environment, Forest and Climate Change, as may be applicable.	Not Applicable.
j	The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and sections and (iii) sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area.	Surface Plan – Figure No. 2.2. Geological Plan – Figure No 2.9. Working Plan – Figure No 2.9. Closure Plan – Figure No.2.10.

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CHAPTER – 1: INTRODUCTION

1.0 Preamble

Environmental Impact Assessment (EIA) is the management tool to ensure the sustainable development and it is a process, used to identify the environmental, social and economic impacts of a project prior to decision-making. It is a decision-making tool, which guides the decision makers in taking appropriate decisions for any project. EIA systematically examines both beneficial and adverse consequences of the project and ensures that these impacts are taken into account during the project designing. It also reduces conflicts by promoting community participation, information, decision makers, and helps in developing the base for environmentally sound project.

This EIA report is prepared by considering Cumulative load of all proposed & existing quarries around Soolamalai Colour Granite Quarry (Total Cluster 55.04.3 Ha) lease at Soolamalai Village, Bargur Taluk, Krishnagiri District, Tamil Nadu State, Cluster area calculated as per MoEF & CC Notification S.O. 2269(E) Dated 1st July 2016.

This EIA Report is prepared in compliance with ToR obtained

P1- Lr No. SEIAA-TN/F.No.10247/SEAC/ToR- 1564/2023 Dated:27.09.2023

P2- Lr No. SEIAA-TN/F.No.10354/SEAC/1(a)ToR-1611/2023 Dated: 06.11.2023

P3- Lr No. SEIAA-TN/F.No.10365/SEAC/ToR-1643/2023 Dated:02.01.2024

The Baseline Monitoring study has been carried out during the period of Post monsoon season Oct 2023 to Dec 2023 and this EIA / EMP report is prepared for considering cumulative impacts arising out of these projects, the Cumulative Environmental Impact Assessment study is undertaken, which is followed by preparation of a detailed Environmental Management Plan (EMP) individually to minimize those adverse impacts.

1.1 Purpose of the Report

The Ministry of Environment and Forests, Govt. of India, through its EIA notification S.O. 1533(E) of 14th September 2006 and its subsequent amendments as per Gazette Notification S.O. 3977 (E) of 14th August 2018, Mining Projects are classified under two categories i.e., A (> 100 Ha) and B (\leq 100 Ha), and Schematic Presentation of Requirements on Environmental Clearance of Minor Minerals including cluster situation in Appendix–XI.

Now, as per Order Dated: 04.09.2018 & 13.09.2018 passed by Hon'ble National Green Tribunal, New Delhi in O.A. No. 173 of 2018 & O.A. No, 186 of 2016 and MoEF & CC Office Memorandum F. No. L-11011/175/2018-IA-II (M) Dated: 12.12.2018 clarified the requirement for EIA, EMP and therefore, Public Consultation for all areas from 5 to 25 ha falling in Category B- 1 and appraised by SEAC/ SEIAA as well as for cluster situation.

The proposed projects are categorized under category “B1” Activity 1(a) (mining lease area in cluster situation) and will be considered at SEIAA – TN after conducting Public Hearing and Submission of EIA/EMP Report for Grant of Environmental Clearance.

Application to The Member Secretary of the Tamil Nadu Pollution Control Board (TNPCB) to conduct Public Hearing in a systematic, time bound and transparent manner ensuring widest possible public participation at the project site or in its close proximity in the district was submitted vide Ref: Nil, Dated: 09.06.2021.

“Draft EIA report prepared on the basis of ToR Issued ToR for carrying out public hearing for the grant of Environmental Clearance from SEIAA, Tamil Nadu”

Figure1.0: Cluster Quarries Map



1.2 Identification of Project and Project Proponent-P1

1.2.1 Identification of Project

- The Project area is located in S.F. Nos 333 (P), Soolamalai Village, Bargur Taluk and Krishnagiri District.
- Proponent applied for Colour Granite quarry lease Dated 07.11.2020.
- precise area communication has been granted as per Govt. Letter No. 893/MME.2/ 2021-1, Dated: 26.02.2021 for twenty years.
- Mining plan was approved by the Director of Geology and Mining, Guindy, Chennai Vide Rc. No. 6941/MM4/2020, Dated: 17.05.2023.
- As per the direction issued in the precise area communication letter the lessee has obtained Environmental clearance from the SEIAA, Tamil Nadu Lr No. SEIAA-TN/F.No.10247/SEAC/ToR-1564/2023 Dated: 27.09.2023.

1.2.2 Identification of Project Proponent

Name of the Project Proponent : M. Kowshik Dhev,
 Address : S/o. D. Mathiazhagan
 No:58-B, Gandhi Nagar,
 Krishnagiri District
 State : Tamil Nadu
 Pin code : 635 001
 Mobile No : +91 9443244390
 Designation : Individual

1.3 Identification of Project and Project Proponent-P2

1.3.1 Identification of Project

- The Project area is located in S.F. Nos 341/1(P), Soolamalai Village, Bargur Taluk and Krishnagiri District, Tamil Nadu State
- Proponent applied for Grey Colour granite quarry lease Dated 06.06.2022.
- The precise area communication has been granted as per Govt. letter No. 3842275/MME.2/2022-1, Dated: 17.04.2023 for a period of twenty years.
- Mining plan was approved by the Director of Geology and Mining, Guindy, Chennai Vide Rc. No. 7527/MM4/2023 dated: 26.05.2023.
- As per the direction issued in the precise area communication letter the lessee has obtained Environmental clearance from the SEIAA, Tamil Nadu Lr No. SEIAA-TN/F.No.10354/SEAC/1(a)ToR-1611/2023 Dated: 06.11.2023.

1.3.2 Identification of Project Proponent

Name of the Project Proponent : Thiru. Salman Sathar S/o. Sathar,
 Address : No.125, Jagadevi, Jagadevipalayam,
 Krishnagiri District,
 State : Tamil Nadu
 Pin code : 635 203
 Mobile No : +91 95244 50667
 Designation : Individual

1.4 Identification of Project and Project Proponent-P3

1.4.1 Identification of Project

- The Project area is located in S.F. Nos 339/1 (Part), Soolamalai Village, Bargur Taluk, Krishnagiri District, Tamil Nadu State
- Proponent applied for Grey Colour granite quarry lease Dated 06.06.2022.
- The precise area communication has been granted as per Govt. letter No. 3774007/MME.2/2022-1, Dated: 17.04.2023 for a period of twenty years.

- The mining plan was prepared in respect of Grey Colour granite quarry and the same was approved by the Commissioner, Department of Geology and Mining, Guindy, Chennai vide letter No. 7258/MM4/2022 dated: 26.05.2023.
- As per the direction issued in the precise area communication letter the lessee has obtained prior environmental clearance from the SEIAA, Tamil Nadu vide Lr No. SEIAA-TN/F.No.10365/SEAC/ToR-1643/2023 Dated:02.01.2024.

1.4.2 Identification of Project Proponent

Name of the Project Proponent	:	M/s. Bimillah Export (Managing Partner Thiru.S.Salman)
Address	:	No.125, Jagadevi, Jagadevipalayam, Krishnagiri District,
State	:	Tamil Nadu
Pin code	:	635 203
Mobile No	:	91 95244 50667
Designation	:	Partnership Firm

1.5 Brief Description of the Project -P1

1.5.1 Nature and Size of the Project

The quarrying operation is proposed to be carried out by Opencast Mechanized Mining method with 5.0m bench height and 5.0m bench width by deploying Hydraulic Excavator, Eco-friendly Diamond Wire Saw Cutting and minor amount of blasting only for removal of overburden and weathered portions.

On the basis of available reserves the life of the mine is computed and approved as 20 Years.

Proposed production for the Mining plan Period (5 years) is described below–

Proposed Project

Mineable ROM	=	1,75,300 m ³
Total Mineable Recoverable Reserves of Granite @ 20%	=	35060 m ³
Average Production per year @ 30%	=	1,729m ³
Estimated Life of the quarry	=	35060m ³ / 1,729 m ³ = 20 Years
Life of the quarry	=	20 Years

Table 1.2: Resources and Reserves of Project

Description	ROM in m ³	Granite recovery @20 % in m ³	Granite waste @80% recovery	Weathered Rock (m ³)	Top Soil in m ³
Geological Resources	3,95,760	79,152	3,16,608	39,576	19,788
Mineable Reserves	1,75,300	35,060	1,40,240	26,134	13,832

Source: Approved Mining plan

1.6 Brief Description of the Project -P2

1.6.1 Nature and Size of the Project

The quarrying operation is proposed to be carried out by Opencast Mechanized Mining method with 5.0m bench height and 5.0m bench width by deploying Hydraulic Excavator, Eco-friendly Diamond Wire Saw Cutting and minor amount of blasting only for removal of overburden and weathered portions.

On the basis of available reserves the life of the mine is computed and approved as 20 Years.

Proposed production for the Mining plan Period (5 years) is described below–

Proposed Project

Mineable ROM	=	1,12,305 m ³
Total Mineable Recoverable Reserves of Granite @ 35%	=	39,307m ³
Average Production per year @ 35%	=	11,963m ³ /5 Years = 2,393 m ³
Estimated Life of the quarry	=	39,307m ³ / 2,393 m ³ =17 years
Life of the quarry	=	20 Years

Table 1.3: Resources and Reserves of Project

Description	ROM in m ³	Granite recovery @35 % in m ³	Granite waste @65% recovery	Weathered Rock	Total waste (Granite waste + Weathered)	Side Burden in m ³	Top Soil in m ³
Geological Resources	3,41,350	1,19,472	2,21,877	27,308	2,49,185	2,57,550	13,654
Mineable Reserves	1,12,305	39,307	79,998	17,304	90,302	-	9,354

Source: Approved Mining Plan

1.7 Brief Description of the Project -P3**1.7.1 Nature and Size of the Project**

The quarrying operation is proposed to be carried out by Opencast Mechanized Mining method with 5.0m bench height and 5.0m bench width by deploying Hydraulic Excavator, Eco-friendly Diamond Wire Saw Cutting and minor amount of blasting only for removal of overburden and weathered portions. On the basis of available reserves the life of the mine is computed and approved as 20 Years.

Proposed production for the Mining plan Period (5 years) is described below–

Proposed Project

Mineable ROM	=	39,420 m ³
Total Mineable Recoverable Reserves of Granite @ 35%	=	13,797 m ³
Average Production per year @ 35%	=	9,044m ³ /5 Years = 1,808 m ³
Estimated Life of the quarry	=	20 Years

Table 1.4: Resources and Reserves of Project

Description	ROM in m ³	Granite recovery @35 % in m ³	Granite waste @65% recovery	Weathered Rock	Total waste (Granite waste + Weathered)	Side Burden in m ³	Top Soil in m ³
Geological Resources	1,52,640	53,424	99,216	20,352	1,19,568	-	10,176
Mineable Reserves	39,420	13,797	25,623	10,712	36,335	-	6,032

Source: Approved Mining Plan

Table 1.5: Salient Features of the Proposed Projects -P1

Name of the Quarry	Thiru.M.Kowshik Dhev Colour granite quarry
Land type	Government Poramboke Land
Previous lease details	Tender Quarry – Fresh lease
Lease period	20 years
Mining Lease area	1.98.0 Ha
Location	333 (P), Soolamalai Village, Bargur Taluk, Krishnagiri District
Life of the Mine	20 years
Proposed Depth for five years plan period	23m
Ultimate Depth	Pit : 183m(L) x84m(B) x 23m(D)
Toposheet No	57- L/7
Latitude between	12°29'48.6998"N to 12°29'54.5131"N
Longitude between	78°18'0.9548"E to 78°18'8.2169"E
Topography	The applied lease area is undulated rocky terrain mostly covered up to 1.0m topsoil and below which weathered rock is observed for a thickness of 2.0m followed by fresh colour granite deposits. The average elevation of the study area is about 487m MSL.
Water level	62m-54m
Water Requirements	1.5KLD
	Jackhammer
	4

Machinery proposed	Compressor	2
	Excavator	1
	Tipper	3
	Diesel Generator	1
	Diamond wire saw	1
Proposed manpower deployment		18
A. Project cost		Rs. 30,420,000
B.EMP Cost		Rs. 3,10,000/-
C.CER cost		Rs. 5,00,000/-
Total Project cost		Rs.3,07,30,000/-
Nearest Habitation		260m-NE
Reserved Forest		Thogarapalli Extn R.F – 4.83 km – South East
Wild Life Sanctuary		Cauvery North Wildlife Sanctuary – 36 Km -NW

Table 1.6: Salient Features of the Proposed Projects -P2

Name of the Quarry		Thiru.Salman Sathar Grey Granite quarry
Land type		Patta Land (Patta no 1998)
Lease period		20 years
Mining Lease area		1.36.8 Ha
Location		341/1 (Part) of Soolamalai Village, Bargur Taluk, Krishnagiri District
Mining Period		5 Years
Life of the Mine		20 years
Previous lease particulars		It is an Own patta land
Proposed Depth		28m
Ultimate Depth		151m(L) x 102m (W) x 28m (D)
Toposheet No		57L/07
Latitude between		12°29'32.7111"N to 12°29'39.1286"N
Longitude between		78°18'04.6583"E to 78°18'09.0436"E
Topography		The area is situated in flat terrain. The gradient is gentle towards southeast and altitude of the area is 478m above from MSL. The Grey granite formation is clearly visible right from the adjacent quarry lease.
Water level		64m-59m
Water requirement		1.8KLD
Machinery proposed	Jackhammer	6
	Compressor	2
	Crawler crane	1
	Mobile crane	
	Excavator	1
	Tipper	2
	Diesel Generator	1
	Diamond wire saw	1
Proposed manpower deployment		33
A. Project cost		Rs. 2,29,27,000/-
B.EMP Cost		Rs. 3,80,800/-
C.CER cost		Rs.5,00,000/-
Total Project cost		Rs. 2,33,07,000
Nearest Habitation		510m-NE
Reserved Forest		Thogarapalli Extn R.F – 4.36 km – South East
Wild Life Sanctuary		Cauvery North Wildlife Sanctuary – 36 Km -W Cauvery South Wildlife Sanctuary 44km-SW

Table 1.7: Salient Features of the Proposed Projects -P3

Name of the Quarry		M/s.Bismilla Exports Grey Granite Quarry (Managing Partner Thiru. S.Salman, S/o. Sathar)
Land type		Patta Land (Patta no 2012)

Lease period	20 years	
Mining Lease area	1.02.0 Ha	
Location	339/1 (Part) of Soolamalai Village, Bargur Taluk, Krishnagiri District	
Mining Period	5 Years	
Life of the Mine	20 years	
Previous lease particulars	It is an Own patta land	
Proposed Depth	18m	
Ultimate Pit dimension	184m(L) x 41m (W) x 18m (D)	
Toposheet No	57L/07	
Latitude between	12°29'33.6345"N to 12°29'40.2216"N	
Longitude between	78°18'00.3456"E to 78°18'02.5405"E	
Topography	The area is situated in flat terrain. The gradient is gentle towards West and altitude of the area is 478m above from MSL. The Grey granite is clearly visible right from the nearby existing quarry pits and places are concealed under Reddish gravelly soil.	
Water level	64m Bgl	
Water requirement	1.8KLD	
Machinery proposed	Jackhammer	4
	Compressor	2
	Crawler crane	1
	Excavator	1
	Tipper	2
	Diesel Generator	1
	Diamond wire saw	1
Proposed manpower deployment	30	
A. Project cost	Rs. 4,96,24,000/-	
B.EMP Cost	Rs. 3,80,800/-	
C.CER cost	Rs.5,00,000/-	
Total Project cost	Rs. 5,00,04,000/-	
Nearest Habitation	600m-S	
Reserved Forest	Thogarapalli Extn R.F – 4.45 km – South East	
Wild Life Sanctuary	Cauvery North Wildlife Sanctuary – 35.5 Km -W Cauvery South Wildlife Sanctuary 43.4km-SW	

Source: Approved mining plan and PFR

1.8 Location of the Project -P1

- The area is located in **333 (P), Soolamalai Village, Bargur Taluk, Krishnagiri District**
- The entire quarry lease area falls in the Government land, the area is situated in an undulated rocky terrain.
- The Altitude of the area is ranges from **487m above from MSL**
- The area is mentioned in GSI Topo sheet No. **57-L/07**
- The Latitude between of **12°29'48.6998"N to 12°29'54.5131"N**
- The Longitude between of **78°18'0.9548"E to 78°18'8.2169"E** on WGS 1984 datum.

1.9 Location of the Project -P2

- The area is located in **341/1 (Part) of Soolamalai Village, Bargur Taluk, Krishnagiri District**
- The entire quarry lease area falls in the Patta land, the area is situated in flat terrain.
- The Altitude of the area is ranges from **478m above from MSL**
- The area is mentioned in GSI Topo sheet No. **57-L/07**
- The Latitude between of **12°29'32.7111"N to 12°29'39.1286"N**
- The Longitude between of **78°18'04.6583"E to 78°18'09.0436"E** on WGS 1984 datum.

1.10 Location of the Project -P3

- The area is located in **339/1 (Part) of Soolamalai Village, Bargur Taluk, Krishnagiri District.**
- The entire quarry lease area falls in the Patta land, the area is situated in an elevated terrain.
- The Altitude of the area is ranges from **478m above from MSL.**
- The area is mentioned in GSI Topo sheet No. **57-L/07**
- The Latitude between of **12°29'33.6345"N to 12°29'40.2216"N**
- The Longitude between of **78°18'00.3456"E to 78°18'02.5405"E** on WGS 1984 datum.

Figure 1.1: Key Map Showing the Location of the Project Site

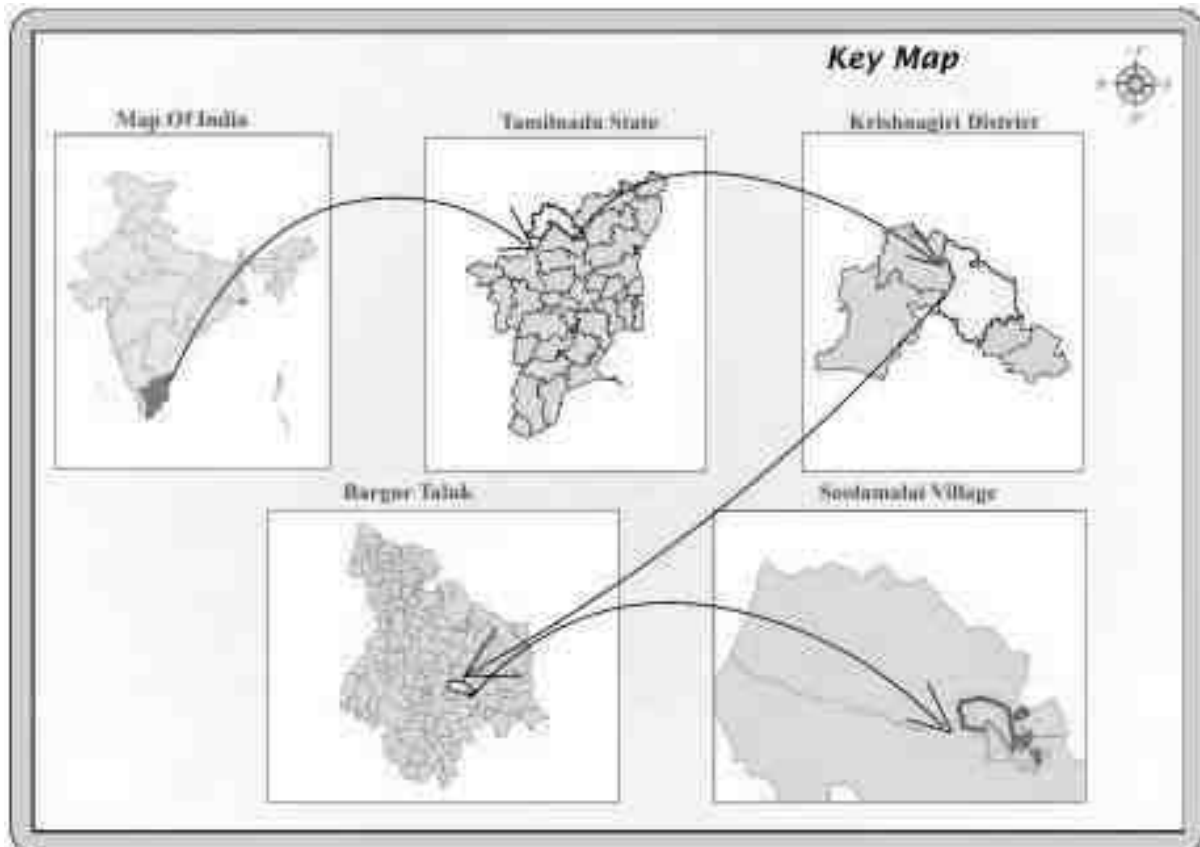
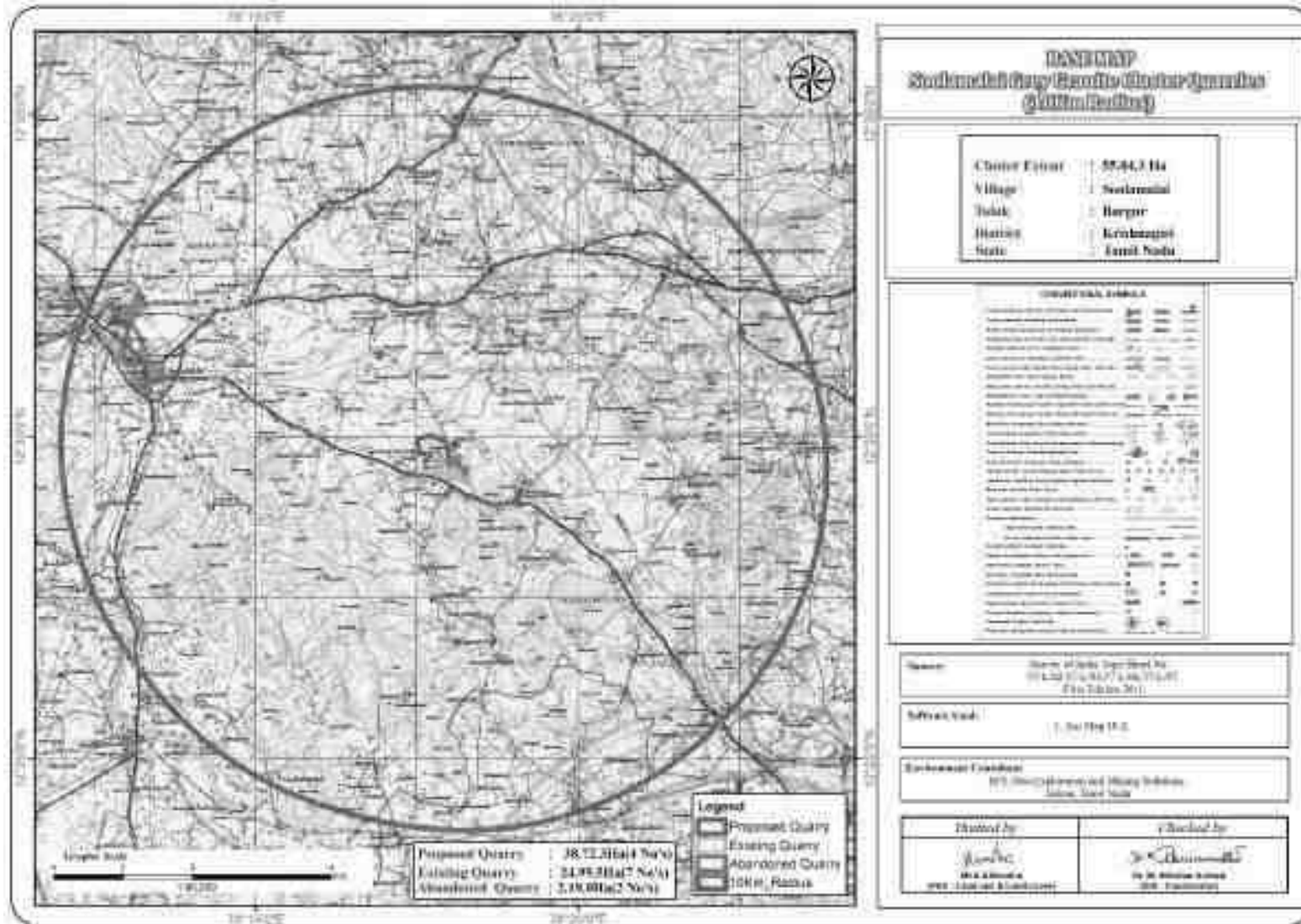


Figure 1.2: Toposheet Map of the Study Area 10 Km Radius



1.11 Environmental Clearance

The Environmental Clearance process for the project will comprise of four stages. These stages in sequential order are given below: -

1. Screening,
2. Scoping
3. Public consultation &
4. Appraisal

SCREENING –P1

- Proponent applied for Colour Granite quarry lease Dated 07.11.2020.
- precise area communication has been granted as per Govt. Letter No. 893/MME.2/ 2021-1, Dated: 26.02.2021 for twenty years.
- Mining plan was approved by the Director of Geology and Mining, Guindy, Chennai Vide Rc. No. 6941/MM4/2020, Dated: 17.05.2023.
- Proponent applied for ToR to get Environmental Clearance vide online Proposal No. SIA/TN/MIN/436906/2023 Dated: 16.07.2023

SCOPING –P1

- The proposal was placed in 407th SEAC meeting held on 07.09.2023 and the committee recommended for issue of ToR.
- The proposal was considered in 658th SEIAA meeting held on 26.09.2023 & 27.09.2023 and issued ToR vide - Lr No. SEIAA-TN/F.No.10247/SEAC/ToR- 1564/2023 Dated:27.09.2023

SCREENING –P2

- Proponent applied for Grey Granite quarry lease Dated 06.06.2022.
- The precise area communication has been granted as per Govt. letter No. 3842275/MME.2/2022-1, Dated: 17.04.2023 for a period of twenty years.
- Mining plan was approved by the Director of Geology and Mining, Guindy, Chennai Vide Rc. No. 7527/MM4/2023 dated: 26.05.2023.
- Proponent applied for ToR to get Environmental Clearance vide online Proposal No. SIA/TN/MIN/441102/2023 Dated: 21.08.2023.

SCOPING –P2

- The proposal was placed in 416th SEAC meeting held on 13.10.2023 and the committee recommended for issue of ToR.
- The proposal was considered in 670th SEIAA meeting held on 06.11.2023 and issued ToR vide Lr No. SEIAA-TN/F.No.10354/SEAC/1(a)ToR-1611/2023 Dated: 06.11.2023.

SCREENING –P3

- Proponent applied for Grey Granite quarry lease Dated 06.06.2022.
- The precise area communication has been granted as per Govt. letter No. 3774007/MME.2/2022-1, Dated: 17.04.2023 for a period of twenty years.
- The mining plan was prepared in respect of Colour granite quarry and the same was approved by the Commissioner, Department of Geology and Mining, Guindy, Chennai vide letter No. 7258/MM4/2022 dated: 26.05.2023.
- Proponent applied for ToR to get Environmental Clearance vide online Proposal No. SIA/TN/MIN/441454/2023 Dated: 23.08.2023.

SCOPING –P3

- The proposal was placed in 416th SEAC meeting held on 13.10.2023 and 670th SEAC meeting held on 06.11.2023 project proponent has been furnished reply date on 26.12.2023.
- The proposal was considered in 685th SEIAA meeting held on 02.01.2024 and issued ToR vide Lr No. SEIAA-TN/F.No.10365/SEAC/ToR-1643/2023 Dated:02.01.2024.

PUBLIC CONSULTATION –

Application to The Member Secretary of the Tamil Nadu Pollution Control Board (TNPCB) to conduct Public Hearing in a systematic, time bound and transparent manner ensuring widest possible public participation

at the project site or in its close proximity in the district is submitted along with this Draft EIA/ EMP Report and the outcome of public hearing proceedings will be detailed in the Final EIA/EMP Report.

APPRAISAL –

Appraisal is the detailed scrutiny by the State Expert Appraisal Committee (SEAC) of the application and other documents like the final EIA & EMP Report, outcome of the Public Consultations including Public Hearing Proceedings, submitted by the proponent to the regulatory authority concerned for grant of environmental clearance.

The report has been prepared using the following references:

Guidance Manual of Environmental Impact Assessment for Mining of Minerals, Ministry of Environment and Forests, February, 2010

EIA Notification, 14th September, 2006

- ToR vide Lr No. SEIAA-TN/F.No.10247/SEAC/ToR- 1564/2023 Dated:27.09.2023 -P1
- ToR vide Lr No. SEIAA-TN/F.No.10354/SEAC/1(a)ToR-1611/2023 Dated: 06.11.2023 -P2
- ToR vide Lr No. SEIAA-TN/F.No.10365/SEAC/ToR-1643/2023 Dated:02.01.2024-P3

Approved Mining Plan of this project In addition, other relevant standards for individual activities such as Sampling and Testing of Environmental attributes have been followed.

1.12 Post Environment Clearance Monitoring

The proposed project proponent shall submit a half-yearly compliance report in respect of stipulated Environmental Clearance terms and conditions to MoEF & CC Regional Office & SEIAA after grant of EC on 1st June and 1st December of each calendar year as per MoEF & CC Notification S.O. 5845 (E) Dated: 26.11.2018.

1.13 Generic Structure of EIA Document

The overall contents of the EIA report follow the list of contents prescribed in the EIA Notification 2006 and the “Environmental Impact Assessment Guidance Manual for Mining of Minerals” published by MoEF & CC.

1.14 Scope of the Study

The main scope of the EIA study is to quantify the cumulative impact in the study area due to cluster quarries and formulate the effective mitigation measures for each individual lease. A detailed account of the emission sources, emissions control equipment, background Air quality levels, Meteorological measurements, Dispersion model and all other aspects of pollution like effluent discharge, Dust generation etc., have been discussed in this report. The baseline monitoring study has been carried out during **the Post monsoon season for Oct 2023 to Dec 2023** for various environmental components so as to assess the anticipated impacts of the cluster quarry projects on the environment and suggest suitable mitigation measures for likely adverse impacts due to the proposed project.

Table 1.4: Environment Attributes

Sl.No.	Attributes	Parameters	Source and Frequency
1	Ambient Air Quality	PM ₁₀ , PM _{2.5} , SO ₂ , NO ₂	Continuous 24-hourly samples twice a week for three months at 8 locations (2 Core & 6 Buffer)
2	Meteorology	Wind speed and direction, temperature, relative humidity and rainfall	Near project site continuous for three months with hourly recording and from secondary sources of IMD station
3	Water quality	Physical, Chemical and Bacteriological parameters	Grab samples were collected at 4 ground water and 2 surface water locations once during study period.
4	Ecology	Existing terrestrial and aquatic flora and fauna within 10 km radius circle.	Limited primary survey and secondary data was
5	Noise levels	Noise levels in dB(A)	8 locations – data monitored once for 24 hours during EIA study
6	Soil Characteristics	Physical and Chemical Parameters	Once at 6 locations during study period
7	Land use	Existing land use for different categories	Based on Survey of India topographical sheet and satellite imagery and primary survey.
8	Socio-Economic Aspects	Socio-economic and demographic characteristics, worker characteristics	Based on primary survey and secondary sources data like census of India 2011.
9	Hydrology	Drainage pattern of the area, nature of streams, aquifer characteristics, recharge and discharge areas	Based on data collected from secondary sources as well as hydro-geology study report prepared.
10	Risk assessment and Disaster Management Plan	Identify areas where disaster can occur by fires and explosions and release of toxic substances	Based on the findings of Risk analysis done for the risk associated with mining.

Source: Onsite Monitoring Data/Sampling by Laboratories

The data has been collected as per the requirement of the ToR issued by SEIAA – TN.

1.7.1 Regulatory Compliance & Applicable Laws/Regulations

- Application for Quarrying Lease as per Tamil Nadu Minor Mineral Concession Rules, 1959
- Obtained Precise Area Communication Letter as per Tamil Nadu Minor Mineral Concession Rules, 1959 for Preparation of Mining Plan and obtaining Environmental Clearance
- The Mining Plan of Granite quarry has been approved under Rule 41 & 42 as amended of Tamil Nadu Minor Mineral Concession Rules, 1959
- ToR vide Lr No. SEIAA-TN/F.No.10247/SEAC/ToR- 1564/2023 Dated:27.09.2023 -P1
- ToR vide Lr No. SEIAA-TN/F.No.10354/SEAC/1(a)ToR-1611/2023 Dated: 06.11.2023 -P2
- ToR vide Lr No. SEIAA-TN/F.No.10365/SEAC/ToR-1643/2023 Dated:02.01.2024 -P3

2. PROJECT DESCRIPTION

2.0 General

Proposed Quarry in Soolamalai Village, Bargur Taluk, Krishnagiri District and Tamil Nadu State falls under Cluster Situation as per MoEF & CC Notification S.O. 2269(E) Dated 1st July 2016 and the total extent of cluster is 55.04.3ha consisting of four proposed and Existing quarries. As the extent of cluster is more than 5 ha, the proposal falls under B1 Category as per the Order Dated: 04.09.2018 & 13.09.2018 passed by Hon'ble National Green Tribunal, New Delhi in O.A. No. 173 of 2018 & O.A. No, 186 of 2016 and MoEF & CC Office Memorandum F. No. L-11011/175/2018-IA-II (M) Dated: 12.12.2018, and requirement for EIA, EMP and Public Consultation for obtaining Environmental Clearance.

2.1 Description of the Project

The Proposed project is located in Soolamalai Village, Bargur Taluk, Krishnagiri District and Tamil Nadu State. The quarry lease was granted in Govt. Letter No. 893/MME.2/ 2021-1, Dated: 26.02.2021 for twenty years. The Mining plan was approved by the Director of Geology and Mining, Guindy, Chennai Vide Rc. No. 6941/MM4/2020, Dated: 17.05.2023. The area over an extent of **1.98.0 Ha** in S.F. Nos 333 (P) to **Thiru.M.Kowshik Dhev** is an Individual is the sole proprietor, Lease period of 20 years.

The Project area is located extent of **1.36.8 Ha**, S.F. Nos 341/1 (Part), Soolamalai Village, Bargur Taluk, Krishnagiri district, Tamil Nadu State. The quarry lease was granted vide Govt. letter No. 3842275/MME.2/2022-1, Dated: 17.04.2023 for a period of twenty years. Mining plan was approved by the Director of Geology and Mining, Guindy, Chennai Vide Rc. No. 7527/MM4/2023 dated: 26.05.2023 to **Thiru.Salman Sathar** is an Individual is the sole proprietor, Lease period of 20 years.

The Project area is located extent of **1.02.0Ha**, S.F. Nos 339/1 (Part), precise area communication has been granted as per Govt. letter No. 3774007/MME.2/2022-1, Dated: 17.04.2023 for a period of twenty years. (Refer Annexure No. I). The mining plan was prepared in respect of Grey Colour granite quarry and the same was approved by the Commissioner, Department of Geology and Mining, Guindy, Chennai vide letter No. 7258/MM4/2022 dated: 26.05.2023. to **M/s.Bismilla Exports Grey Granite Quarry (Managing Partner Thiru. S.Salman, S/o. Sathar)** is Partnership firm, Lease period of 20 years.

Colour Granite quarry operation will be carried out by opencast mechanized method involving Eco-friendly Diamond Wire Saw Cutting, Heavy earth moving machineries like Excavators Trucks for Granite exploitation. Shot hole drilling with controlled blasting using slurry explosives for removal of overburden and Weathered portions during initial stage of quarry operation.

2.2 Location of the Project

- The area is located in **of Soolamalai Village, Bargur Taluk, Krishnagiri District and Tamil Nadu State.**
- The entire quarry lease area falls in the situated in an elevated Undulated and flat terrain.
- The Altitude of the area is ranges from **478m – 487m above from MSL**
- The area is mentioned in GSI Topo sheet No. **57-L/07**
- The Latitude between of **12°29'33.68"N to 12°29'54.51"N**
- The Longitude between of **78°18'0.67"E to 78°18'6.36"E** on WGS 1984 datum.

Table 2.1: Site Connectivity to the Project Area

Nearest Roadway	NH77– Krishnagiri– Uthangarai –600m-S AH-45 – Krishnagiri– Bargur– 4km-NW
Nearest Village	Shendarapalli-840m-S
Nearest Town	Bargur- 7.0km – NE
Nearest Railway Station	Tirupattur Railway Station- 28.0km - E
Nearest Airport	Bangalore Airport - 99.0km - NW
Seaport	Ennore Port- 233km- North East

Source: PFR, Survey of India Toposheet

Table 2.2: Boundary Co-Ordinates of Proposed Project-P1

S.No	Latitude	Longitude
1	12°29'48.6998" N	78°18'3.2773"E
2	12°29'49.5711" N	78°18'1.3437"E
3	12°29'50.7436" N	78°18'0.9548"E
4	12°29'51.7438" N	78°18'2.1770"E
5	12°29'53.7698" N	78°18'3.8207"E
6	12°29'53.9392" N	78°18'5.0194"E
7	12°29'54.5131" N	78°18'6.1344"E
8	12°29'53.1291" N	78°18'7.2621"E
9	12°29'52.7591" N	78°18'8.2169"E
10	12°29'51.5901" N	78°18'7.7472"E
11	12°29'51.5719" N	78°18'7.2462"E
12	12°29'50.8015" N	78°18'6.8697"E
13	12°29'51.0005" N	78°18'6.2472"E
Datum: UTM-WGS84, Zone 44 North		

Table 2.3: Boundary Co-Ordinates of Proposed Project-P2

S.No	Latitude	Longitude
1	12°29'39.1286" N	78°18'04.6583"E
2	12°29'38.5841" N	78°18'07.3894"E
3	12°29'37.7090" N	78°18'09.0436"E
4	12°29'35.6717" N	78°18'08.7747"E
5	12°29'35.3800" N	78°18'08.7502"E
6	12°29'35.6486" N	78°18'06.9974"E
7	12°29'32.7111" N	78°18'06.0235"E
8	12°29'33.3192" N	78°18'05.3881"E
9	12°29'34.5030" N	78°18'05.3868"E
10	12°29'36.1947" N	78°18'05.2442"E
11	12°29'37.9481" N	78°18'04.9593"E
Datum: UTM-WGS84, Zone 44 North		

Table 2.4: Boundary Co-Ordinates of Proposed Project-P3

S.No	Latitude	Longitude
1	12°29'33.6345" N	78°18'02.5405"E
2	12°29'33.6495" N	78°18'00.5655"E
3	12°29'40.2216" N	78°18'00.3456"E
4	12°29'40.0384" N	78°18'01.3208"E
5	12°29'39.3683" N	78°18'01.6558"E
6	12°29'38.9394" N	78°18'01.7661"E
7	12°29'37.3889" N	78°18'02.1678"E
8	12°29'35.8604" N	78°18'02.4165"E
9	12°29'34.3890" N	78°18'02.5405"E
Datum: UTM-WGS84, Zone 44 North		

Figure 2.1: PHOTOGRAPHS OF THE PROJECT AREA -P1



Figure 2.2: PHOTOGRAPHS OF THE PROJECT AREA -P2



Figure 2.3: PHOTOGRAPHS OF THE PROJECT AREA -P3



Figure 2.5: Google Image Showing Project Area-P2

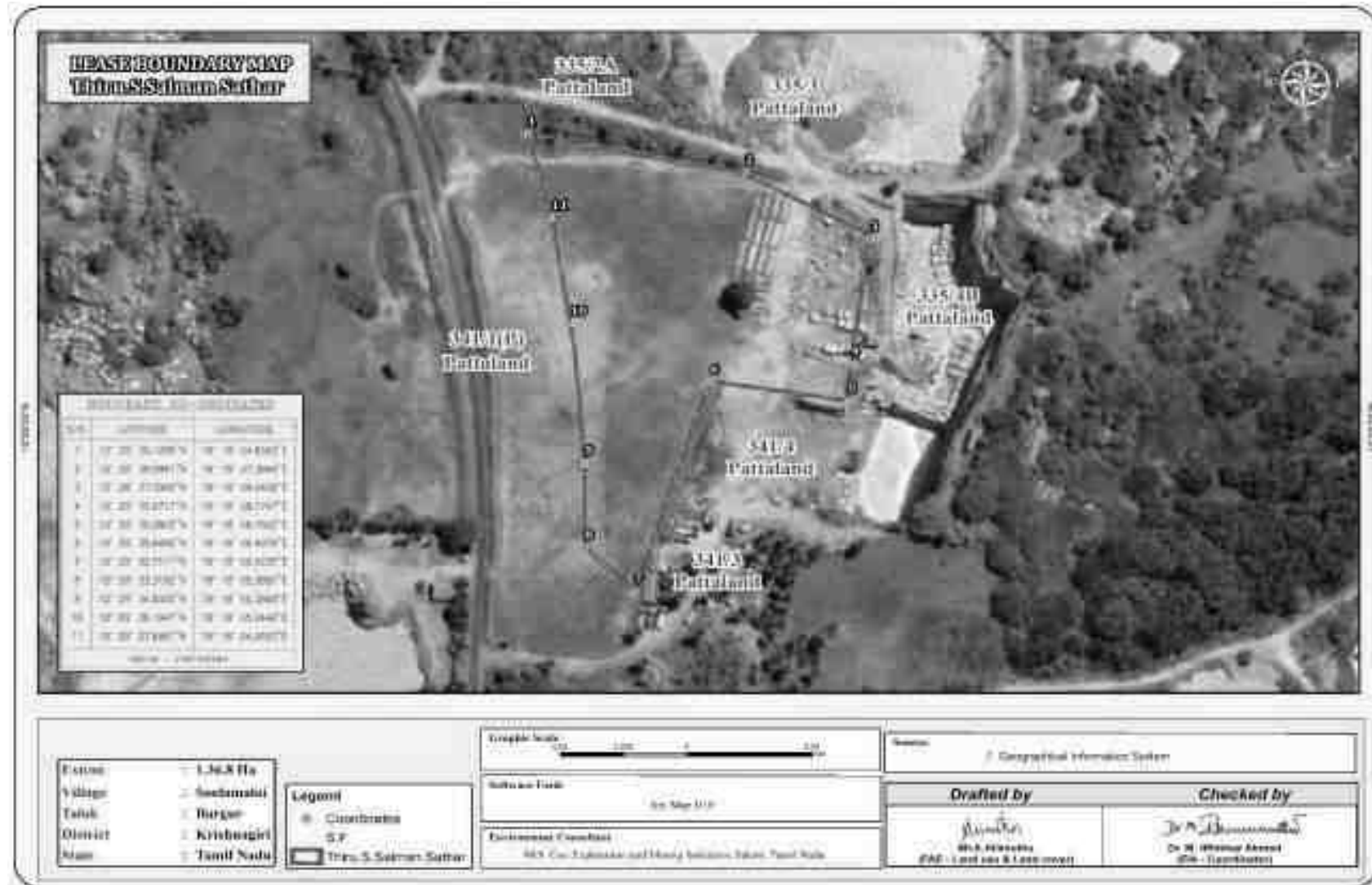


Figure 2.6: Google Image Showing Project Area-P3

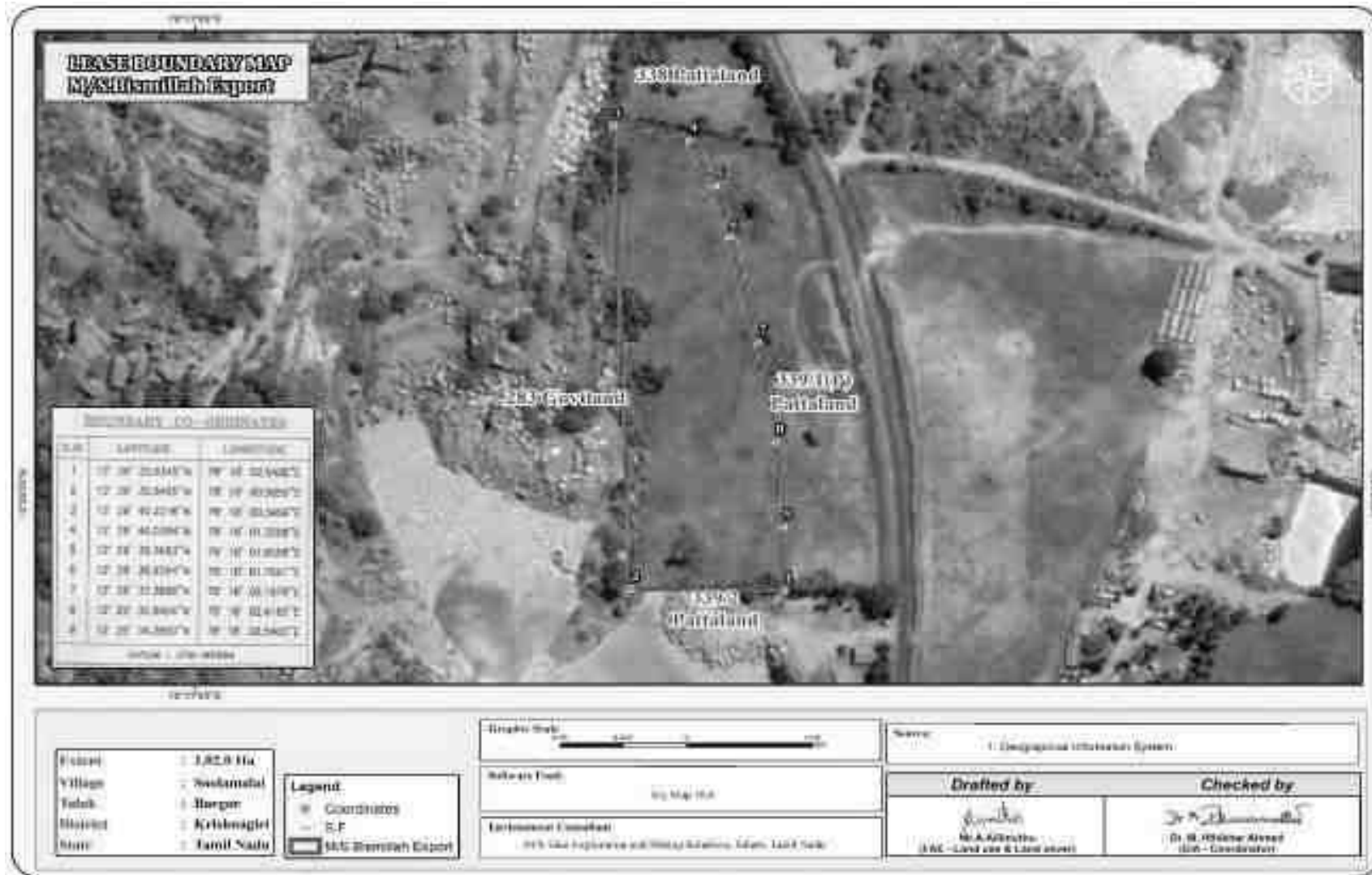


Figure 2.7: Quarry Lease Plan & Surface Plan-P1

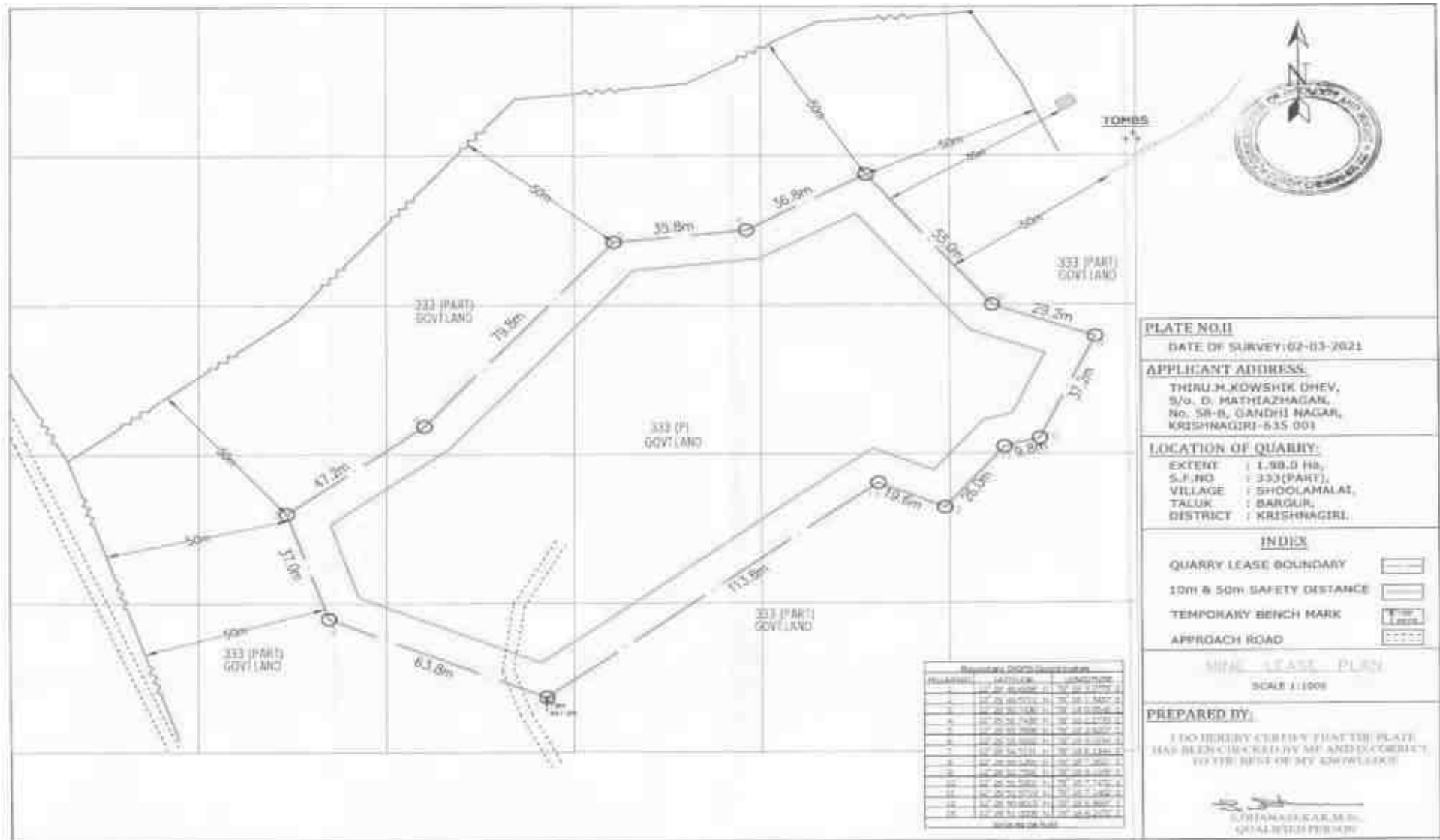


Figure 2.8: Quarry Lease Plan & Surface Plan-P2

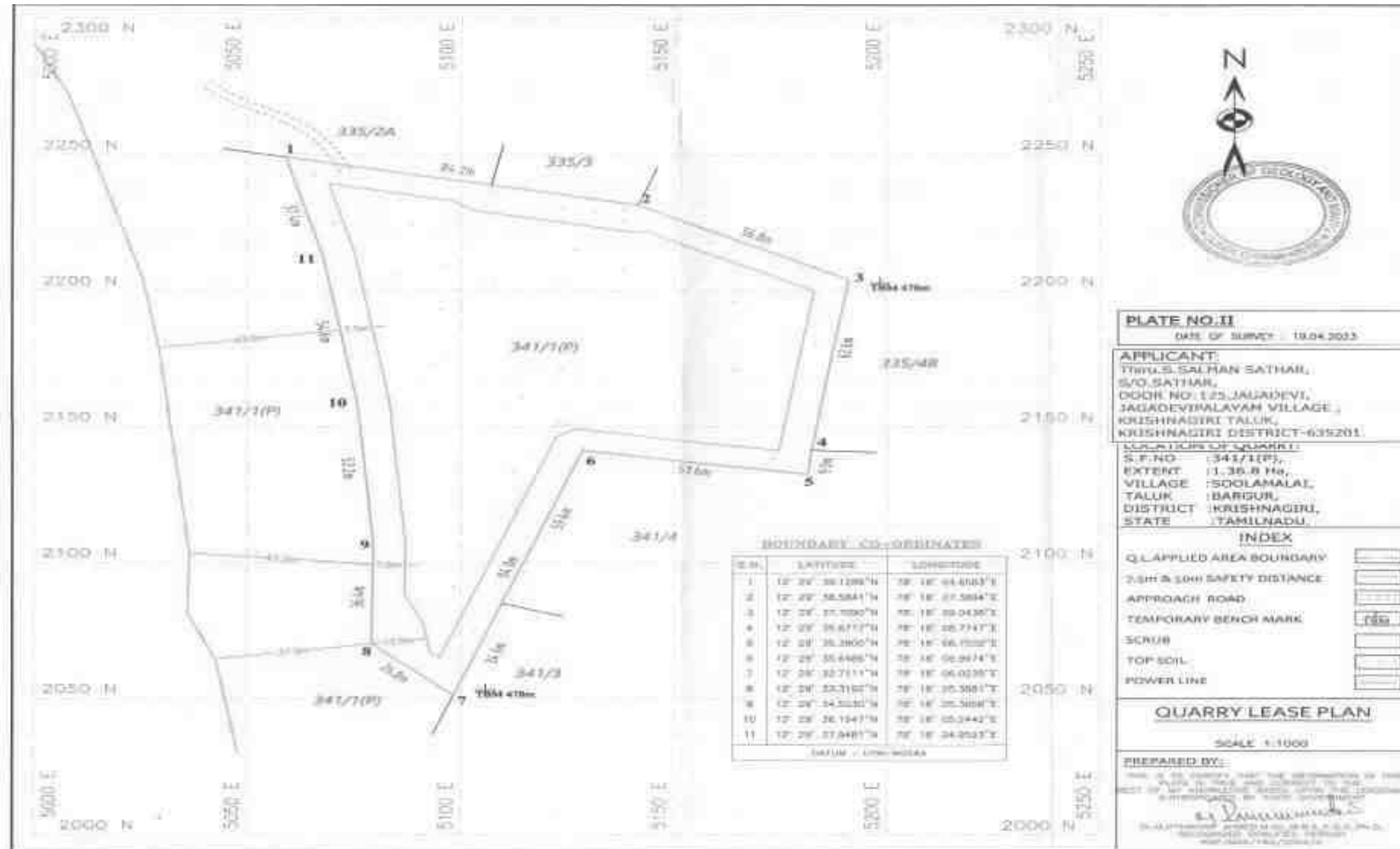


Figure 2.10: Image Showing Superimposed Image Around 10 Km Radius

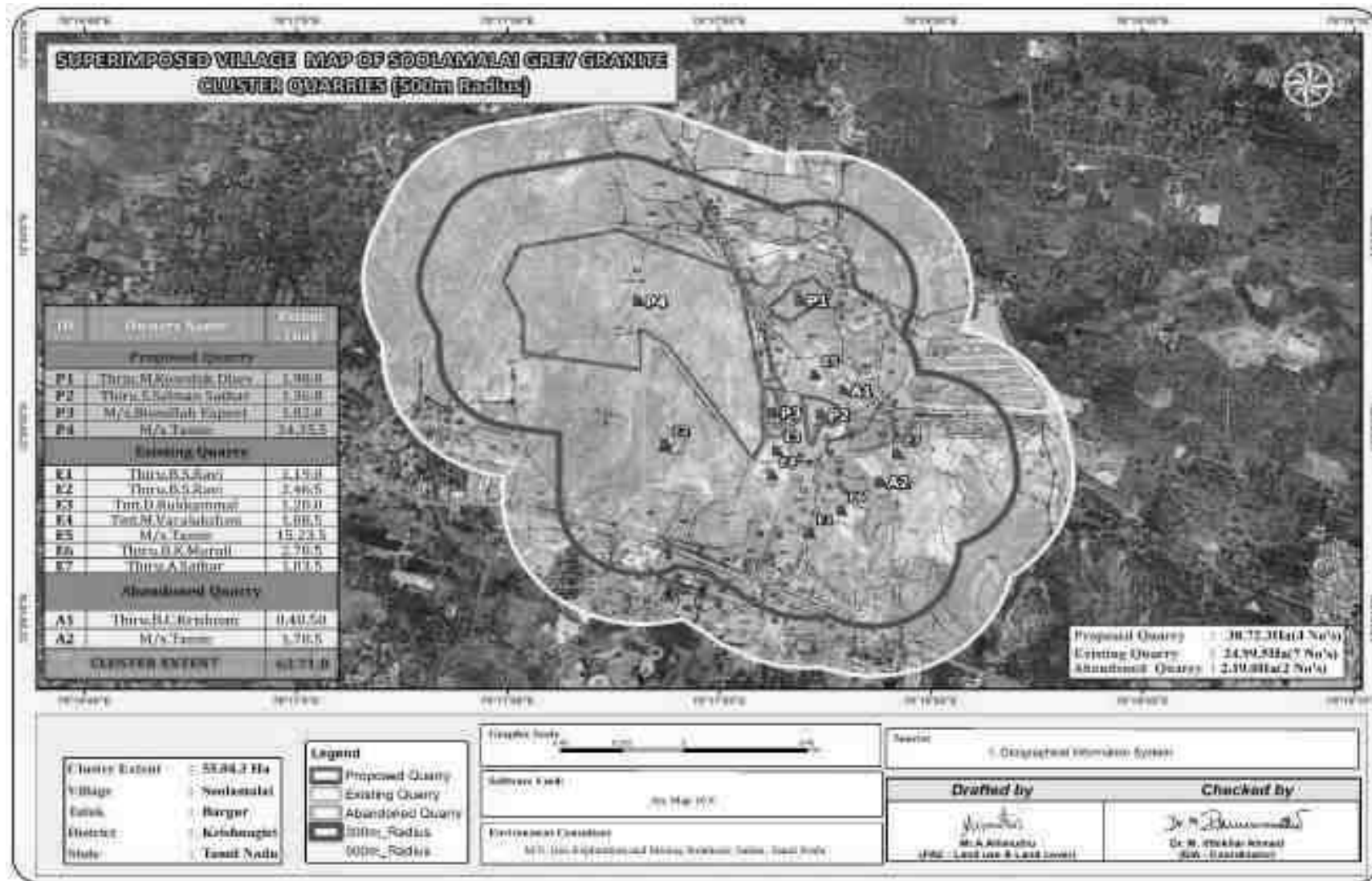


Figure 2.11: Image Showing Surface Features Around 10 Km Radius

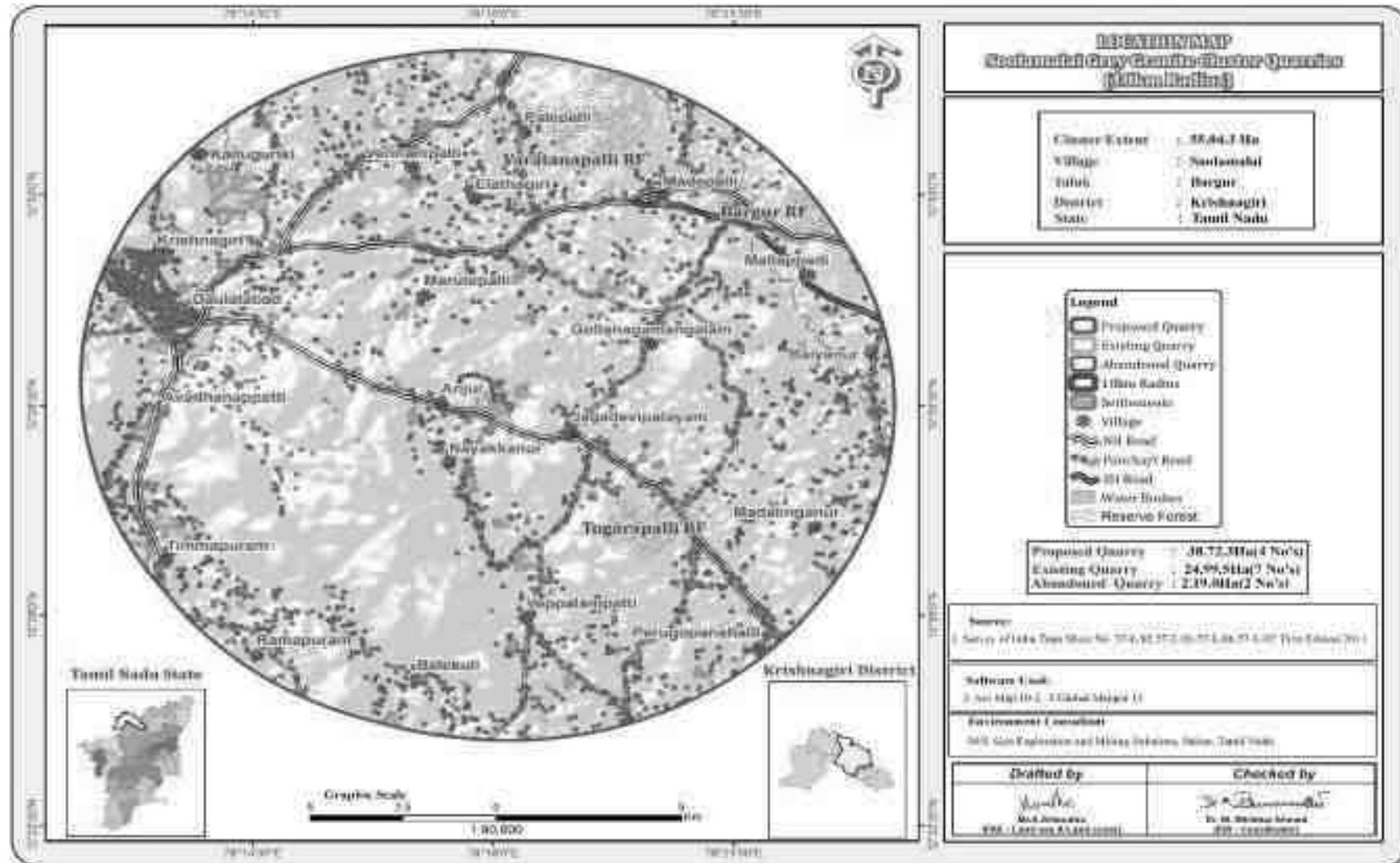


Figure 2.12: Image Showing Surface Features Around 5km Radius

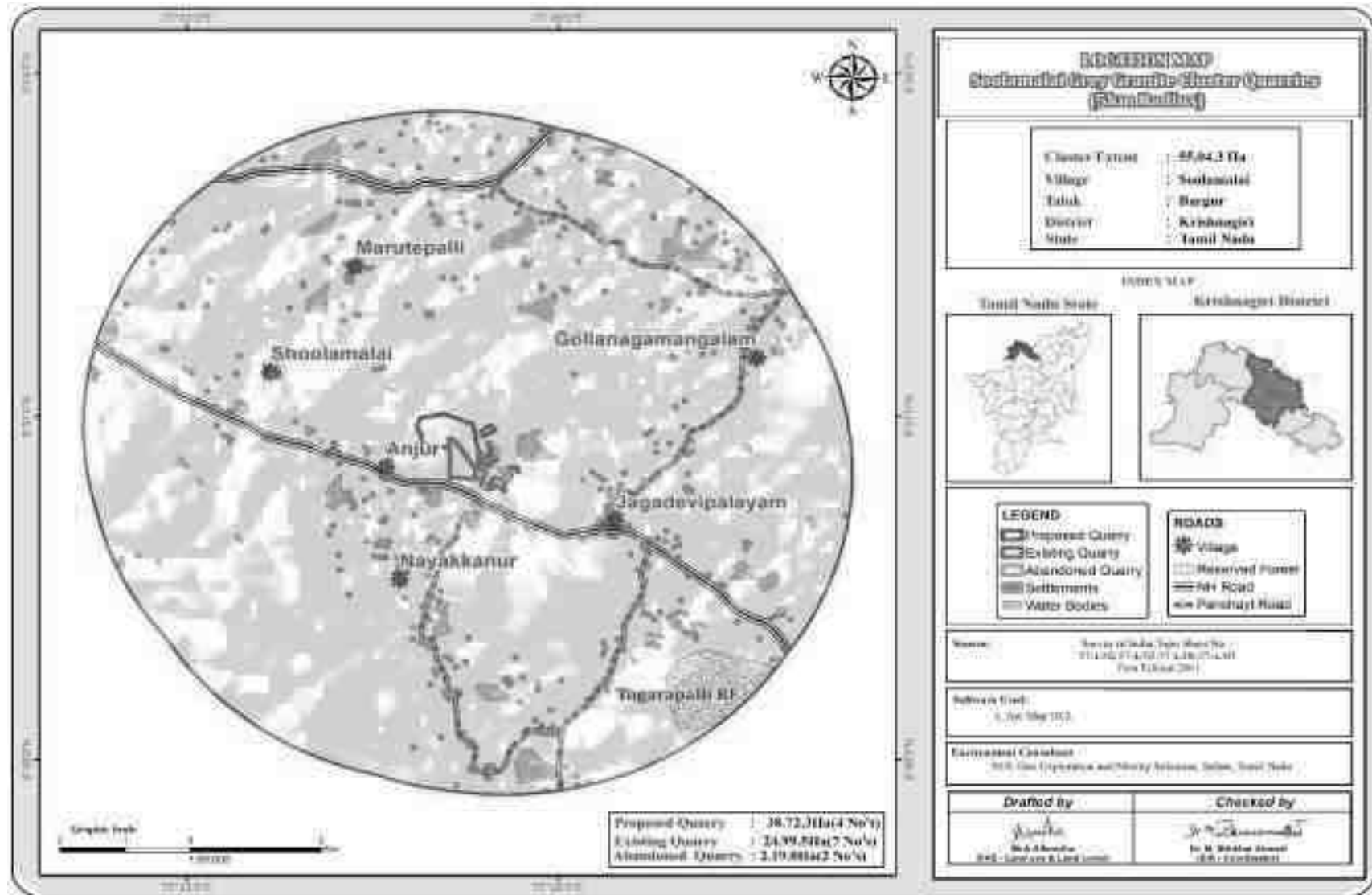
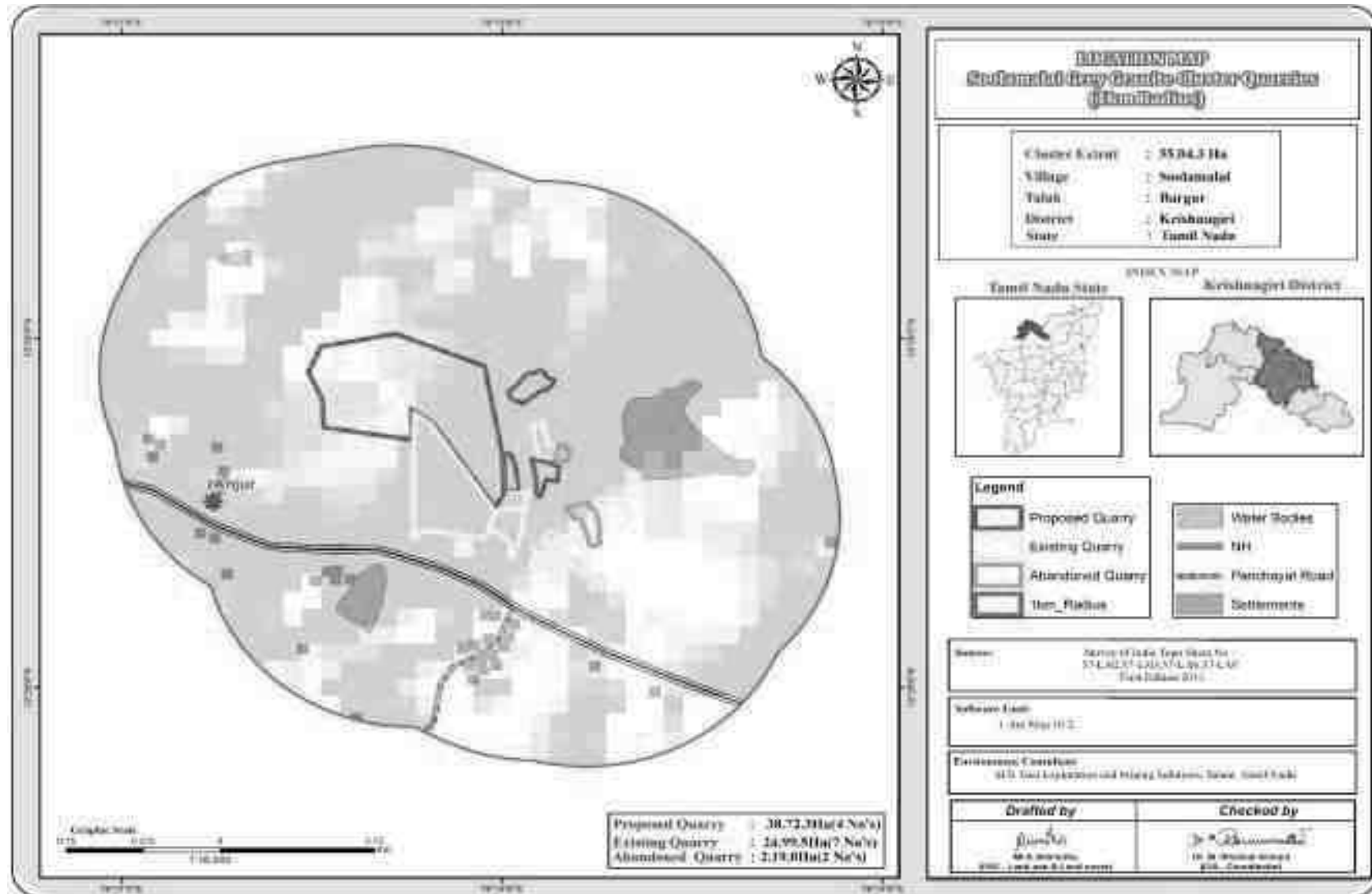


Figure 2.13: Image Showing Surface Features Around 1 Km Radius



2.2.1 Project Area

- The Topography of the Proposed Project is undulated topography, with Granite outcrops, which is site specific, Non – Captive use, opencast Mechanized quarry.
- There is No beneficiation or processing proposed inside the project area.
- Elevation is 478m-487m above from MSL, showing gentle gradient towards Northwest

Table 2.5: Land Use Pattern of the Proposed Project -P1

Description	Present area (Ha)	Area to be required during the present Mining Plan period(ha)	Area at the end of life of quarry (Ha)
Area under quarry	Nil	0.49.0	1.43.0
Dumps	Nil	0.44.0	Backfilling
Stockyard	Nil	Nil	Nil
Infrastructure	Nil	0.01.0	0.01.0
Roads	Nil	0.01.0	0.01.0
Green Belt	Nil	0.53.0	0.53.0
Unutilized area	1.98.0	Nil	Nil
Grand Total	1.98.0	1.48.0	1.98.0

Source: Approved Mining Plan

Table 2.6: Land Use Pattern of the Proposed Project -P2

Description	Present area (Ha)	Area to be required during the present Mining Plan period(ha)	Area at the end of life of quarry (Ha)
Area under quarry	Nil	0.39.77	0.95.17
Waste dump	Nil	0.20.76	#Backfilled
Infrastructure	Nil	0.02.00	0.02.00
Roads	Nil	0.02.00	0.05.00
Green Belt	Nil	0.09.16	0.32.77
Stocking blocks	1.36.80	0.63.11	0.01.86
Grand Total	1.36.80	1.36.80	1.36.80

Table 2.7: Land Use Pattern of the Proposed Project -P3

Description	Present Area (Ha.)	Area required during this period(Ha)	Area at the end of life of quarry (Ha)
Area under quarry	Nil	0.35.83	0.62.14
Waste dump	Nil	0.24.30	#Backfilling
Infrastructure	Nil	0.02.00	0.02.00
Roads	Nil	0.02.00	0.02.00
Green Belt	Nil	0.12.09	0.35.80
Stocking blocks	1.02.0	0.25.78	0.00.06
Grand Total	1.02.0	1.02.0	1.02.00

Source: Approved Mining Plan

2.2.2 Size or Magnitude of Operation

Table 2.8: Operational Details – P1

Description	P1
Geological Resources ROM	3,95,760
Granite Recovery (20 % in m ³)	79,152
Granite Waste (80 % in m ³)	3,16,608
Weathered rock(m ³)	39,576
Side Burden(m ³)	-

Top Soil in m ³	19,788
Mineable Reserves ROM	1,75,300
Granite Recovery (20 % in m ³)	35,060
Granite Waste (80 % in m ³)	1,40,240
Weathered rock (m ³)	26,134
Side Burden (m ³)	-
Top Soil in m ³	13,832
Proposed Production for five years plan period ROM	43,213
Granite Recovery (20% in m ³)	8,643
Granite Waste (80 % in m ³)	34,570
Weathered rock(m ³)	8,910
Top Soil in m ³	4,956
Number of Working Days	300
Production of ROM per day in five-year plan period	29
Production of Granite per day	6
Total Waste per day (Granite waste + Weathered)	29

Source: Approved Mining Plan

Table 2.9: Operational Details - P2

Description	P2
Geological Resources ROM	3,41,350
Granite Recovery (35 % in m ³)	1,19,472
Granite Waste (65 % in m ³)	2,21,877
Weathered rock(m ³)	27,308
Side Burden(m ³)	2,57,550
Total waste (Granite waste + SB)	2,49,185
Top Soil in m ³	13,654
Mineable Reserves ROM	1,12,305
Granite Recovery (35 % in m ³)	39,307
Granite Waste (65 % in m ³)	79,998
Weathered rock (m ³)	17,304
Side Burden (m ³)	-
Total waste (Granite waste + Weathered)	90,302
Top Soil in m ³	9,354
Proposed Production for five years plan period ROM	34,180
Granite Recovery (35% in m ³)	11,963
Granite Waste (65% in m ³)	22,217
Weathered rock(m ³)	7,072
Top Soil in m ³	3,905
Number of Working Days	300
Production of ROM per day in five-year plan period	23
Production of Granite per day	8
Total Waste per day (Granite waste + Weathered)	20

Table 2.9: Operational Details - P3

Description	P3
Geological Resources ROM	1,52,640
Granite Recovery (35 % in m ³)	53,424
Granite Waste (65 % in m ³)	99,216
Weathered rock(m ³)	20,352

Total waste (Granite waste + Weathered)	1,19,568
Top Soil in m ³	10,176
Mineable Reserves ROM	39,420
Granite Recovery (35% in m ³)	13,797
Granite Waste (65% in m ³)	25,623
Weathered rock (m ³)	10,712
Total waste (Granite waste + Weathered)	36,335
Side Burden (m ³)	-
Top Soil in m ³	6,032
Proposed Production for five years plan period ROM	25,840
Granite Recovery (35% in m ³)	9,044
Granite Waste (65 % in m ³)	16,796
Weathered rock(m ³)	6,308
Total waste (Granite waste + Weathered)	23,104
Top Soil in m ³	3526
Number of Working Days	300
Production of ROM per day in five-year plan period	17
Production of Granite per day	6
Total Waste per day (Granite waste + Weathered)	15

Approved Mining Plan

2.3 Geology

2.3.1 Regional Geology

The Grey Granite is medium to coarse grained in size. Orthoclase feldspar and quartz are major constituents and Pyroxene, Biotite, Garnets and other mafic minerals are accessories. The petrological settings of the area are simple and not a complicated phenomenon. There are no major minerals observed in the vicinity of the proposed quarry. A brief description of the regional Geology is discussed below.

This Grey granite is commercially called as “Paradiso” and Petrologically called as “Migmatite” which is widely used for slabs, Tiles and Monuments after cutting and polishing. The Krishnagiri district is underlain by hard Crystalline rocks of Archaean age comprising of various rock types such as Gneiss, Charnockite, etc., The Gneissic type of Crystalline formation is found in the North and Northeastern part of the district. Shoolagiri, Hosur, mattur and soolamalai areas covered by Granitic Gneiss (Migmatite).

The Late Archean crust of Krishnagiri, Tamil Nadu, consists of tonalitic-trondhjemitic-granodioritic (TTG) gneisses with mafic and sedimentary enclaves, formed between 2.7 and 2.5 Ga and metamorphosed at amphibolite facies in the north to granulite facies in the south close to 2.5 Ga. Migmatization occurred at all grades, and numerous small granite bodies were emplaced near the amphibolite-to-granulite facies horizon. This nearly syn-accretion meta-morphism affected the entire crust and left a chemically differentiated section later exposed by uplift and erosion.

Such rocks that were formed at great depths during the Archaean age are now exposed at the surface of the earth as a result of the combined actions of wind, air, water, weathering and denudation over the past several million years.

The Grey granite has the characteristic pink rythmatic banding by which it can be identified even from a distance. These are seen to the central part and SE part of the district, more specifically in Rayakottai, Kaveripattinam, Jagadevi and Velampatti. These dimensional blocks are quarried to make a polished stone, slabs, monuments etc.,

2.3.2. Geology of the lease applied area

The Grey granite deposit is clearly visible right from the nearby existing pits and area are concealed under Reddish gravelly soil having an average thickness of 1m and 2m weathered rock and followed by fresh Grey granite. The rock formation is popularly known as Granitic gneiss essentially made up of a supra crustal assemblages of Quartz and Orthoclase feldspar as major constituents, Pyroxene, Mica, Garnet and other mafic minerals are accessories. The lease applied area comprises Granitic gneiss and popularly termed as “Paradiso”.

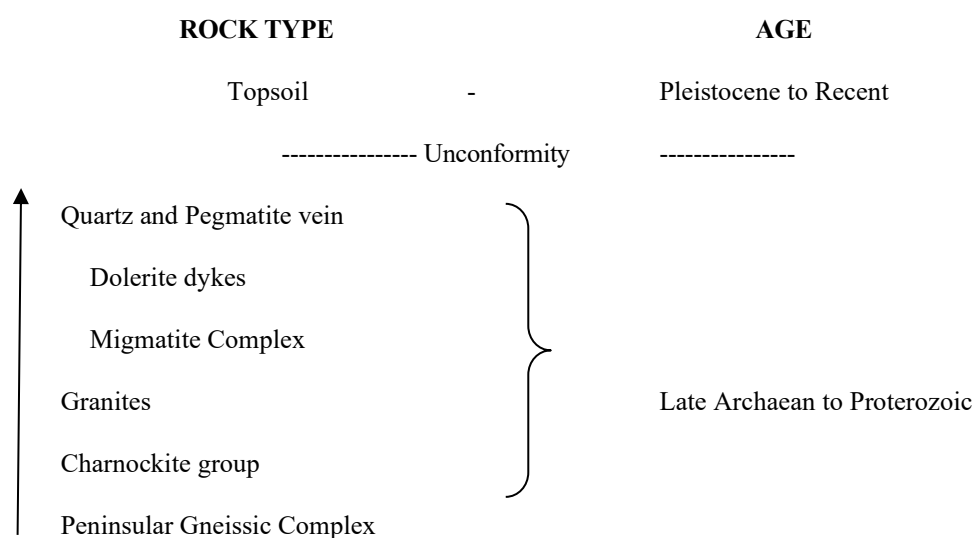
The Granite gneiss is leucocratic, euhedral, medium to coarse grained, inequigranular and well developed gneissic banding of alternate layers of light and dark colour minerals are the specialty of this area which denotes the indicative of flow pattern of the rock mass in North – South (i.e., the cutting direction of the Grey granite). The colour of the rock is pale pink - pale grey as observed on the surface level, the pink colour may decreased in deep seated condition. This pale pink and grey colour which may find a good market for granite dimensional stones.

Some slender pegmatite veins are intruded in a crisscross fashion and well-developed strike and dip joints and xenoliths observed at the surface level which is likely to decrease in deep seated condition. Taking in to consideration of the above geological factors, over burden, inter burden wastage during quarrying, other flaw and flower patches etc, an average recovery of 35% upto 18m (1m Topsoil + 2m Weathered rock + 15m Grey granite) depth has been computed as economically safe and systematic quarrying. This mining plan is discussed based on 35% recovery factor. If there is any considerable increase or decrease in the recovery factor a modified mining plan will be prepared and will be submitted to relevant authorities for subsequent clearance and approval.

STRUCTURAL SETTINGS OF KRISHNAGIRI:

The general geological sequence of the rock types in the area is: -

Order of super position: -



The Physical attitude of the Grey Granite deposit of this area is given below:-

- Strike Direction - N60°E – S60°W
- Dip amount and direction - SE60°.

Exploration studies

As far as Grey Granite deposits are concerned, the only practical method is the systematic geological mapping and delineation of commercial Grey Granite bodies within the field and careful evaluation of body luster, physical properties, engineering properties, commercial aspects etc.

Such an exploration study has already been conducted regionally in this area by the Geological Survey of India (GSI) in the year 1966 and Department of Geology and Mining of Tamil Nadu in year 1992 to 1993.

Based on the valuable geological information and by the field experience. The estimation of geological resources, mineable reserve is arrived at considering to waste and market potential.

2.3.3 Hydrogeology

(i) Major Geological formations: Geology

The geological formations of the Krishnagiri district belong mainly to Archaean age along with rock of Proterozoic age. The former is represented by Khondalite Group of rocks, Charnockite Group of rocks, Migmatites Complex, Sathyamangalam Group of rocks, while the latter is represented by Alkaline rocks.

(ii) **The Bhavani Group** in this area includes fissile hornblende-biotite gneiss, granitoid gneiss and pink migmatite. Amphibolites with barbed ferruginous quartzite and associated quartzo-feldspathic rocks (Champion Gneiss) represent the Kolar group and are found west and southwest of Veppanapalli. Following this there are basic intrusions occurring as dykes.

(iii) **The Charnockite Group** occupies a major part of the south-west portion of this district with small bands of Garneti ferrous quartzo-feldspathic gneiss, Granite gneiss and dolerite dykes. The North-East and Northern part of the district mainly consist of granite gneiss with small patches of Pink Migmatite, hornblende-biotite gneiss and dolerite dykes. The Eastern part of the district consists of Epidote-Hornblende Gneiss, Ultra Mafics, Syenite and Carbonatite. The Alkaline Complex is represented by epidote-hornblende gneiss, ultramafics, syenite and carbonatite and these are distributed in the eastern part of the district. Innumerable basic dykes and felsites, quartz, barites and pegmatite veins form part of the Alkali Complex.

Aquifer parameters

a) Hard rock

The thickness of aquifer in this district varies between 15 to 60m below ground level. The intergranular porosity is essentially dependent upon the intensity degree of weathering and fracture development in the hard rock. The deep weathering has developed in gneissic formation and moderate weathering in Charnockite formation.

The range of aquifer parameters in hard rock areas is given as follows:

Parameters	Range
Well yield in LPM	45-545 lpm
Transmissivity (T) m ² /day	10.2-524.8 m ² /day
Permeability (K) m/day	0.1-50 m/day

Figure 2.14: Regional Geology Map

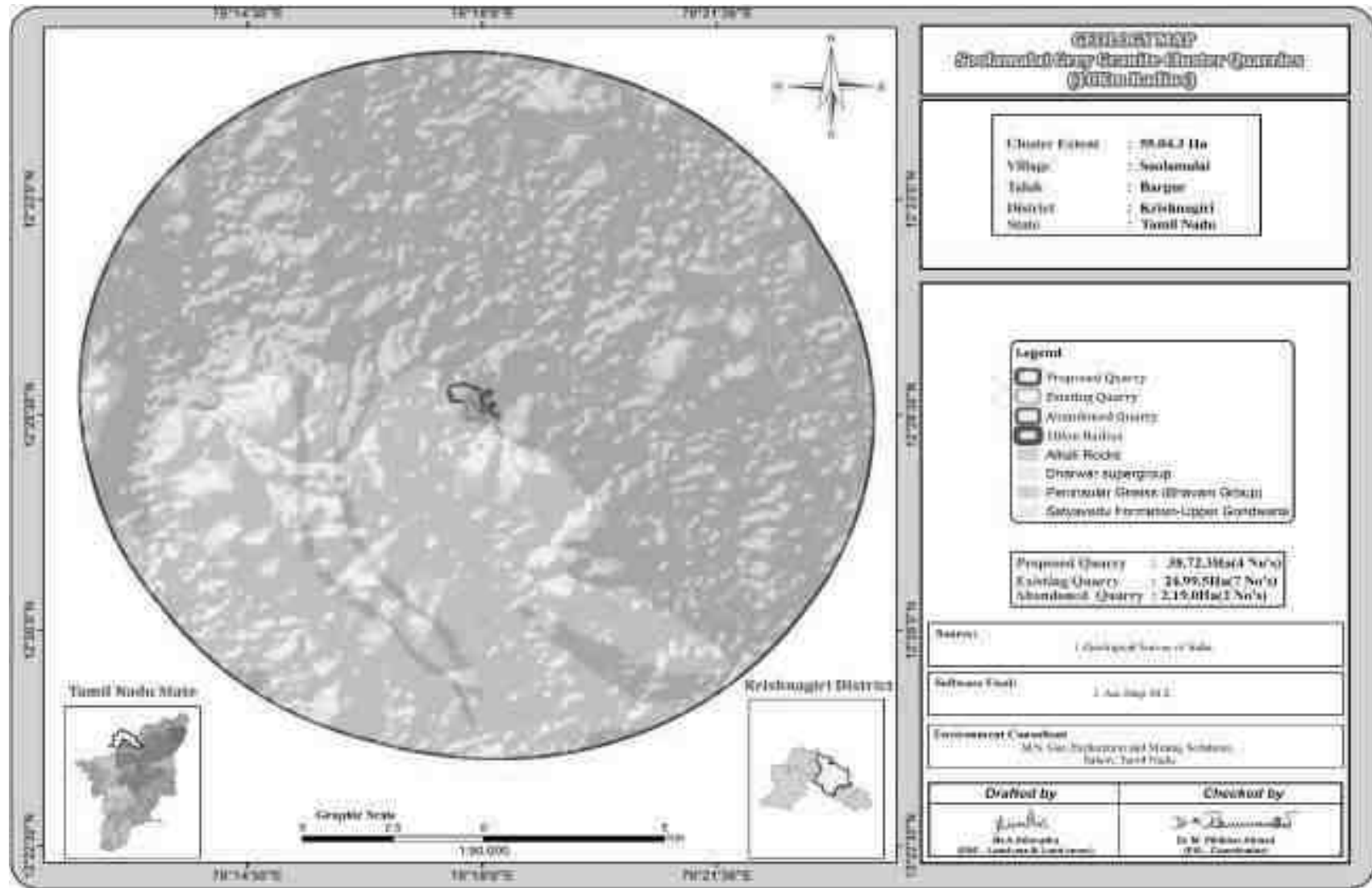


Figure 2.15: Geomorphology Map of The Study Area

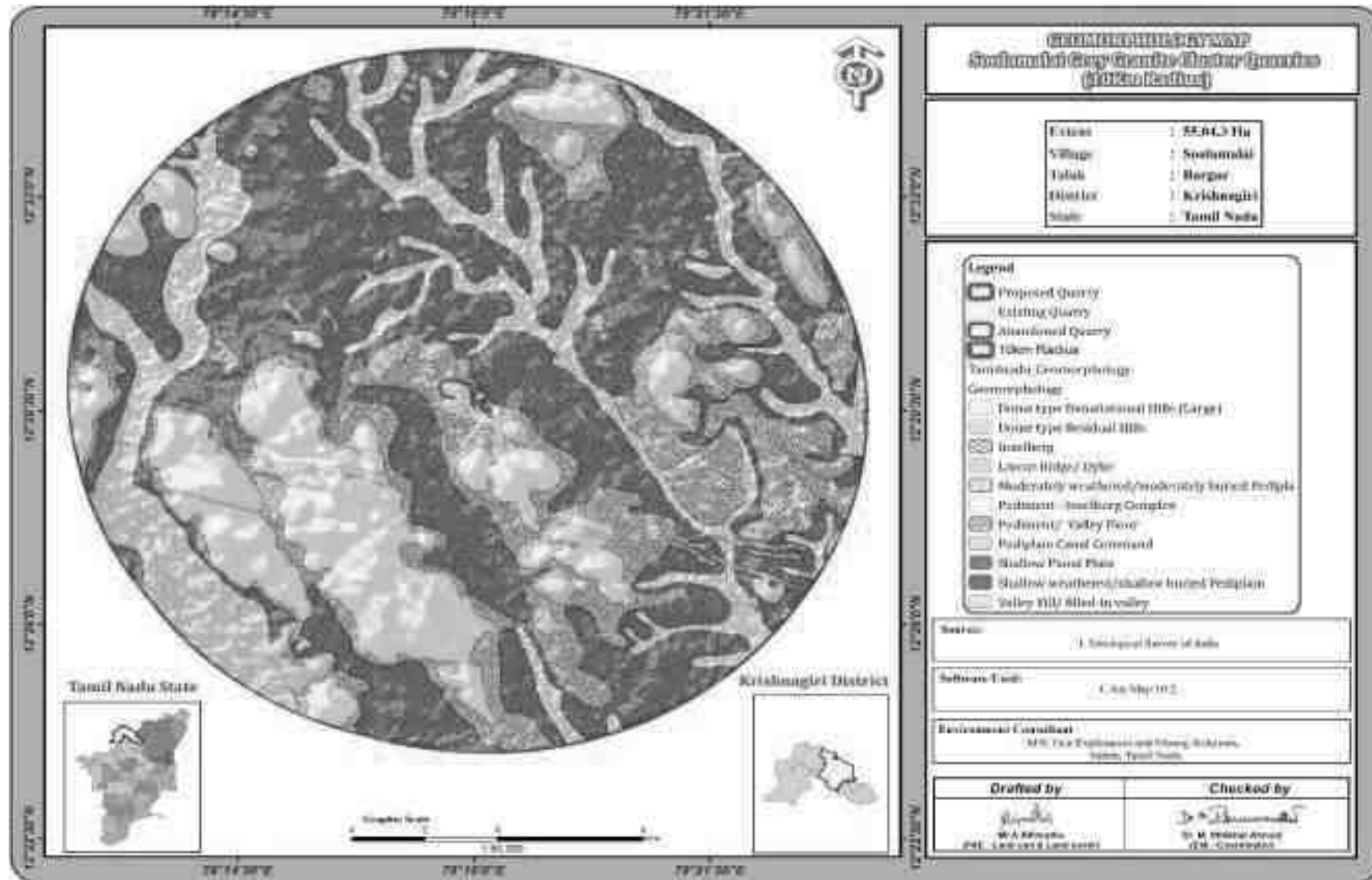
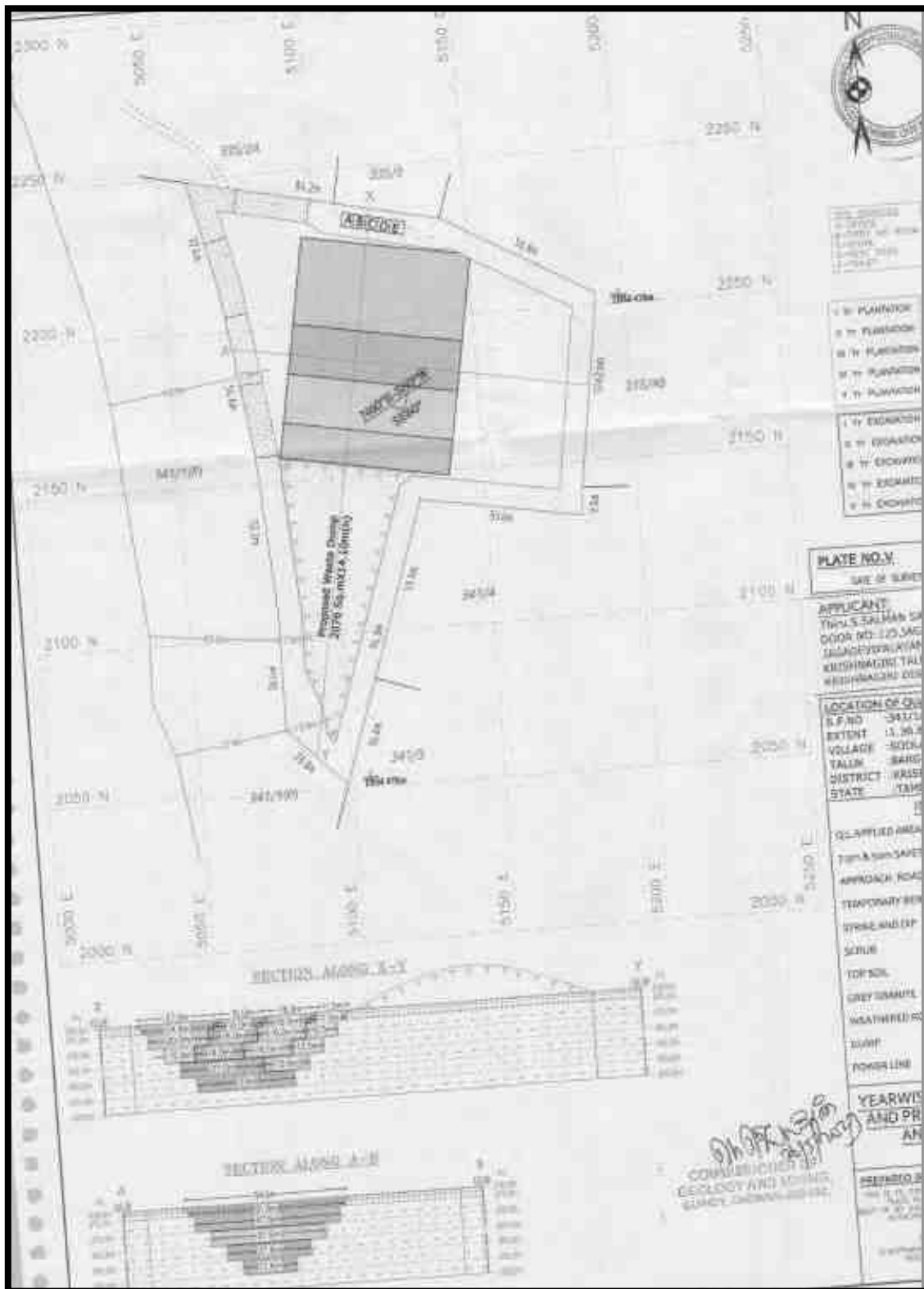


Figure 2.19: Year-Wise Development Production Plan and Section -P1



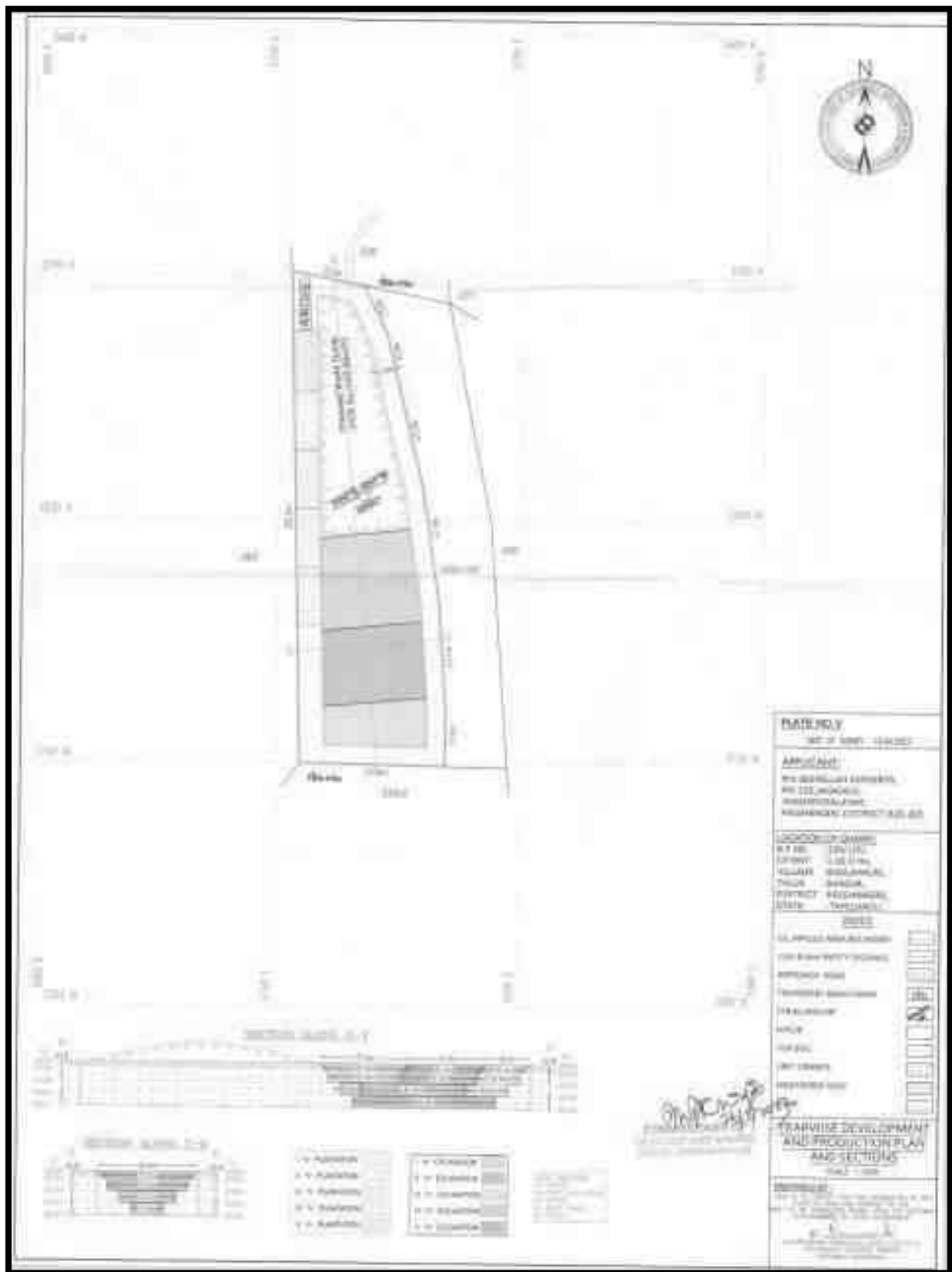
Source: Approved mining Plan

Figure 2.20: Year-Wise Development Production Plan and Section -P2



Source: Approved mining Plan

Figure 2.21: Year-Wise Development Production Plan and Section -P3



Source: Approved mining Plan

2.4 Resources and Reserves

Colour Granite is occurring beneath the surface, Granite outcrops are visible in some places within the project area.

Table 2.16 Resources, Reserves -P1

Description	ROM in m ³	Granite recovery @20 % in m ³	Granite waste @80% recovery	Weathered Rock (m ³)	Top Soil in m ³
Geological Resources	3,95,760	79,152	3,16,608	39,576	19,788
Mineable Reserves	1,75,300	35,060	1,40,240	26,134	13,832

Source: Approved Mining Plan

Table 2.17 Year wise Production plan-P1

Year	ROM (m ³)	Recovery @ 20% (m ³)	Granite Waste @ 80% (m ³)	Weathered Rock (m ³)	Topsoil (m ³)
I	8,008	1,602	6,406	8,910	4,956
II	7,700	1,540	6,160	-	-
III	8,375	1,675	6,700	-	-
IV	9,350	1,870	7,480	-	-
V	9,780	1,956	7,824	-	-
Total	43,213	8,643	34,570	8,910	4,956

Source: Approved Mining Plan

Table 2.18 Resources, Reserves -P2

Description	ROM in m ³	Granite recovery @35 % in m ³	Granite waste @65% recovery	Weathered Rock	Total waste (Granite waste + Weathered)	Side Burden in m ³	Top Soil in m ³
Geological Resources	3,41,350	1,19,472	2,21,877	27,308	2,49,185	-	13,654
Mineable Reserves	1,12,305	39,307	79,998	17,304	90,302	-	9,354

Source: Approved Mining Plan

Table 2.19 Year wise Production plan-P2

Year	ROM (m ³)	Recovery @ 35% (m ³)	Granite Waste @ 65% (m ³)	Weathered Rock (m ³)	Topsoil (m ³)
I	6,700	2,345	4,355	2,496	1,485
II	6,880	2,408	4,472	1,664	880
III	6,880	2,408	4,472	1,664	880
IV	6,830	2,390	4,440	1,248	880
V	6,890	2,412	4,478	-	660
Total	34,180	11,963	22,217	7,072	3,905

Source: Approved Mining Plan

Table 2.20 Resources, Reserves -P3

Description	ROM in m ³	Granite recovery @35 % in m ³	Granite waste @65% recovery	Weathered Rock	Total waste (Granite waste + Weathered)	Side Burden in m ³	Top Soil in m ³
Geological Resources	1,52,640	53,424	99,216	20,352	1,19,568	-	10,176
Mineable Reserves	39,420	13,797	25,623	10,712	36,335	-	6,032

Source: Approved Mining Plan

Table 2.21 Year wise Production plan-P3

Year	ROM in m ³	Granite Recovery @ 35% in m ³	Granite Waste @ 65 % in m ³	Weathers Rock in m ³	Topsoil in m ³
I	5,100	1,785	3,315	2584	1517
II	5,270	1,844	3,425	2356	1271
III	5,220	1,827	3,393	1368	738
IV	5,160	1,806	3,354	-	-
V	5,090	1,781	3,308	-	-
Total	25,840	9,044	16,796	6,308	3,526

Source: Approved Mining Plan

Stacking of Granite Rejects and Disposal of Waste-P1

The quantum of excavation is estimated to be 1,75,300 m³ (ROM 43,213 m³+ Top soil 4956 m³ +Weathered rock 8,910 m³) up to depth of 23m during the entire lease period.

First five years Colour Granite waste forms nearly 80% of ROM and the total quantity of waste in the five years will be around 34,570m³. The Granite waste material will be proposed to dump in the south western side of the lease area.

As and when there is accumulation of waste, the same is loaded into the tipper by loading machines and dumped in the respective places ear-marked for the purpose.

Stacking of Granite Rejects and Disposal of Waste-P2

The quantum of excavation is estimated to be 1,12,305m³ (ROM 34,180 m³+ Top soil 3,905 m³ +Weathered rock 7,072 m³) up to depth of 28m during the entire lease period.

The total waste to be produced during the first five years is around 29,289m³ (Granite Waste 22,217m³ + Weathered rock 7,072m³) the same will be proposed to temporarily dump on the south side with area of 2,076m² x (H)14.10m.

As and when there is accumulation of waste, the same is loaded into the tipper by loading machines and dumped in the respective places ear-marked for the purpose.

Stacking of Granite Rejects and Disposal of Waste-P3

The quantum of excavation is estimated to be 39,420m³ (ROM 25,840 m³+ Top soil 3526 m³ +Weathered rock 6,308 m³) up to depth of 18m during the entire lease period.

The total waste to be produced during the first five years is around 23,104m³ (Granite Waste 16,796m³ + Weathered rock 6,308m³) the same will be proposed to dump on the Northern side with dimension of (Area) 2430m² x (H)9.5m.

As and when there is accumulation of waste, the same is loaded into the tipper by loading machines and dumped in the respective places ear-marked for the purpose.

Conceptual Mining Plan/ Final Mine Closure Plan

Conceptual mining plan is prepared with an object of long-term systematic development of benches, lay outs, selection of permanent ultimate pit limit, depth of quarrying and ultimate pit, selection of sites for construction of infrastructure etc. The ultimate pit size is designed based on certain practical parameters such as economical depth of quarrying, safety zones, permissible area etc.,

Table 2.22 Ultimate Pit Dimension -P1 to P3

P1

Length in m	Width in m	Depth in m
183	84	23

P2

Length in m	Width in m	Depth in m
151	102	28

P3

Length in m	Width in m	Depth in m
184	41	18

Approved Mining Plan

2.5 Method of Mining

- The method of mining is Opencast mechanized method
- Eco-friendly dimensional wire saw cutting for liberation and splitting up of blocks from parent sheet rocks
- Splitting of rock body of considerable volume from the parent rock formation by carefully avoiding visibly seen defects such as patches veins, etc., is done by adopting the method of “Diamond wire cutting” along the horizontal as well as two vertical sides on the front face of the formation.
- Jackhammer drilling with 32mm dia, this huge portion is further split into several blocks of required dimensions, only slurry explosives are used for secondary fragmentation and handling of waste.
- Hydraulic Excavator coupled with tippers is deployed for the formation of benches and loading
- There is no mineral processing or ore beneficiation proposed
- Proposed bench height is 5m and 5m width with 60° slope
- The waste material generated during quarrying activity includes rock fragments of different sizes, and waste chips during dressing of the blocks. The waste materials are taken in tippers and proposed to be dumped in the respective approved places ear-marked for the purpose and the same will be utilized for backfilling in the northern side of the lease area during conceptual stage.

2.5.1 Drilling

Drilling will be carried out as per parameters given below: -

Spacing - 1m, Burden - 0.8m, Depth of hole - 1.5m

2.5.2 Blasting

Blasting will be done as per details below: -

Controlled blasting parameter: -

Spacing – 1m

Burden – 0.8 m

Depth of hole – 1.5 m

Charge per hole – 125 gms

Powder factor – 7.0 tonnes/kg

Dia of hole – 32 mm

Details of blasting design and parameters are discussed in approved mining plan.

2.5.3 Extent of Mechanization**Table 2.8: Machinery Details Proposed-P1**

Drilling Equipment's					
Type	No of Unit	Dia of Hole mm	Size capacity	Make	Motive Power
Jack Hammer	4	32	1.2m to 6m	Atlas Copco	Compressed air
Compressor	2	-	400psi	Atlas Copco	Diesel drive
Diamond Wire Saw	1	-	30m ³ /day	Optima	Diesel Generator
Gen set	1	-	125kva	Powerica	CP 125 DSP (H.P)
Loading Equipment					
Type	No of Unit	Capacity	Make	Motive Power	
Excavator	1	350	Kobelco	Diesel Drive	
Haulage within the Mine & Transport Equipment					
Type	No of Unit	Capacity	Make	Motive Power	
Tipper	3	10 tonnes	Kobelco	Diesel Drive	

Approved Mining Plan

Table 2.9: Machinery Details Proposed-P2

Drilling Equipment's					
Type	No of Unit	Dia of Hole mm	Size capacity	Make	Motive Power
Jack Hammer	6	32	1.2m to 6m	Atlas Copco	Compressed air
Compressor	2	-	400psi	Atlas Copco	Diesel drive
Diamond Wire Saw	3	-	20m ³ /day	Optima	Diesel Generator
Diesel Generator	2	-	125kva	Kirloskar	Diesel
Loading Equipment					
Type	No of Unit	Capacity	Make	Motive Power	
Crawler Crane	1	855	Tata P & H	Diesel Drive	
Excavator	1	300	Tata Hitachi	Diesel Drive	
Haulage within the Mine & Transport Equipment					
Type	No of Unit	Capacity	Make	Motive Power	
Tipper	2	20 tonnes	Tata	Diesel Drive	

Approved Mining Plan

Table 2.10: Machinery Details Proposed-P3

Drilling Equipment's					
Type	No of Unit	Dia of Hole mm	Size capacity	Make	Motive Power
Jack Hammer	4	32	1.2m to 6m	Atlas Copco	Compressed air
Compressor	2	-	140cfm/400psi	Atlas Copco	Diesel drive
Diamond Wire Saw	3	-	20m ³ /day	Optima	Diesel Generator
Diesel Generator	2	-	125kva	Powerica	Diesel
Loading Equipment					
Type	No of Unit	Capacity	Make	Motive Power	

Crawler Crane	1	855	Tata P & H	Diesel Drive
Excavator	1	300	Tata Hitachi	Diesel Drive
Haulage within the Mine & Transport Equipment				
Type	No of Unit	Capacity	Make	Motive Power
Tipper	2	10 tonnes	Tata	Diesel Drive

Approved Mining Plan

2.6 General Features

2.6.1 Existing Infrastructures

Infrastructures like Mine office, Temporary Rest shelters for workers, Latrine and Urinal Facilities will be constructed as per the Mine Rule after the grant of quarry lease.

2.6.2 Drainage Pattern

There are no streams, canals or water bodies crossing within the project area, hence there is no requirement of stream or canals diversion.

2.6.3 Traffic Density

The traffic survey conducted based on the transportation route of material, the Granite will be transported mainly through the identify the traffic route.

Traffic density measurements were performed at Two locations

TS-1- NH Road-Krishnagiri to Chendarapalli Road – 1.4km -SW

TS-2- Panchayat Road- Chendarapalli to Bargur Road- 3.0km- NW

Traffic density measurement were made continuously for 24 hours by visual observation and counting of vehicles under three categories, viz., Heavy motor vehicles, light motor vehicles and two/three wheelers. As traffic densities on the roads are high, two skilled persons were deployed simultaneously at each station during each shift- one person on either direction for counting the traffic. At the end of each hour, fresh counting and recording was undertaken.

Figure. 2.22: Mineral Transportation Route Map



Table.2.9: Traffic Survey Locations

Station Code	Road Name	Distance and Direction	Type of Road
TS1	Krishnagiri to Chendarapalli Road	1.4km -SW	NH Road
TS2	Chendarapalli to Bargur Road	3.0km -NW	Panchayat Road

Source: On-site monitoring by GEMS FAE & TM

Table 2.10: Existing Traffic Volume

Station Code	HMV		LMV		2/3 Wheelers		Total PCU
	Number	PCU	Number	PCU	Number	PCU	
TS1	150	450	200	200	300	150	800
TS2	100	300	100	100	350	175	575

Source: On-site monitoring by GEMS FAE & TM

* PCU conversion factor: HMV (Trucks and Bus) = 3, LMV (Car, Jeep and Auto) = 1 and 2/3 Wheelers = 0.5

Table 2.11: Granite Hourly Transportation Requirement

Transportation of Granite per day			
Capacity of Trucks	No of trips per day	Volume in PCU	PCU considering 8 Hours
20Ts	58	58	174

Source: Data analysed from Approved Mining plan

Table 2.12: Summary of Traffic Volume

Route	Existing Traffic Volume in PCU	Incremental Traffic Due to the project in PCU	Total Traffic Volume in PCU	Hourly Capacity in PCU as per IRC - 1960
Krishnagiri to Chendarapalli Road	800	174	974	1500
Chendarapalli to Bargur Road	575	174	749	1200

Source: On-site monitoring analysis summary by GEMS FAE & TM

Due to this project the existing traffic volume will not exceed

As per the IRC 1960 this existing village road can handle 1,200 PCU in hour and Major district road can handle 1500 PCU in hour hence there will not be any conjunction due to this proposed transportation.

2.6.4 Mineral Beneficiation and Processing

There is no proposal for the mineral processing or ore beneficiation in this project

2.7 Project Requirement – P1 to P3

2.7.1 Water Source & Requirement

Detail of water requirements in KLD as given below:

Table 2.13 Water Requirement for the Projects

Sno	Purpose	Quantity Required			Source
		P1	P2	P3	
1	Domestic & Drinking purpose	0.4 KLD	0.5KLD	0.5KLD	From Existing, bore wells and drinking water will be sourced from Approved Water vendors.
2	Dust Suppression	0.6KLD	0.7KLD	0.7KLD	From Existing bore wells from nearby area
3	Green Belt	0.5 KLD	0.6KLD	0.6KLD	From Existing bore wells from nearby area
Total		1.5 KLD	1.8 KLD	1.8 KLD	

Source: Prefeasibility report

* Drinking water will be sourced from Approved Water Vendors

2.7.2 Power and Other Infrastructure Requirement

The project does not require power supply for the mining operations. The quarrying activity is proposed during day time only (General Shift 8 AM – 5 PM, Lunch Break 1 PM – 2 PM). Electricity for use in office and other internal infrastructure will be obtained from TNEB.

The temporary infrastructures such as Mine Office, First Aid Room, Rest Shelter etc., will be constructed within the project area before commencing the quarry operation. No workshops are proposed inside the project area hence there will not be any process effluent generation from the proposed lease area. Domestic effluent from the mine office will be discharged to septic tank and soak pit. There is no toxic effluent expected to generate in the form of solid, liquid or gaseous form hence there is no requirement of waste treatment plant.

2.7.3 Fuel Requirement -P1 to P3

High speed Diesel (HSD) will be used for mining machineries. Diesel will be brought from nearby Fuel Stations. High speed Diesel (HSD) will be used for mining machineries. Diesel will be brought from nearby Fuel Stations.

One Hydraulic Excavator will excavate and loading into the tippers about 20m³/Hour

Hydraulic Excavator will consume about 16 Ltrs per hour

P1

Per hour Excavator will consume	=	16 liters / hour
Per hour Excavator will excavate	=	10m ³
For 43,213m ³ (for mining plan period)	=	43,213/10 = 4,321m ³
Diesel consume 4,321working hours	=	4,321hours x 16 liters
	=	69,136Ltrs of HSD for mining plan period

The HSD (High Speed Diesel) will be obtained from nearby fuel station near the vicinity of the project site and will be transported in Fuel Barrel specified for transport of HSD (High Speed Diesel).

P2

Per hour Excavator will consume	=	16 liters / hour
Per hour Excavator will excavate	=	10m ³
For 34,180m ³ (for mining plan period)	=	34,180/10
Diesel consume working hours	=	3,418hours x 16 liters
	=	54,688 liters of HSD for first five years

P3

Per hour Excavator will consume	=	16 liters / hour
Per hour Excavator will excavate	=	10m ³
For 25,840m ³ (for mining plan period)	=	25,840/10
Diesel consume 2,584working hours	=	2,584hours x 16 liters
	=	41,344 liters of HSD for first five years

Source: *Prefeasibility Report*

2.8 Employment Requirement: P1 to P3

The skilled, competent qualified statutory persons will be engaged for quarrying operation, preference will be given to the local community.

Table 2.14: Employment Potential -P1 to P3

S.No	Description	Numbers		
		P1	P2	P3
1	Mines Manager	1	1	1
2	Mines Foreman	1	1	1

3	Machinery Operators	2	3	3
4	Skilled labour	9	5	6
5	Semi-skilled	1	18	14
6	Unskilled	4	5	5
	Total	18	33	30

Source: Approved mining Plan

2.9 Project Implementation Schedule

The commercial operation will commence after the grant of Environmental Clearance. CTO will be obtained from the Tamil Nadu State Pollution Control Board. The conditions imposed during the Environmental Clearance will be compiled before the start of mining operation.

Table 2.15 Expected time Schedule

Sl.No	Particulars	Time Schedule (in month)					Remarks if any
		1 st	2 nd	3 rd	4 th	5 th	
1	Environmental Clearance						
2	Consent to operate						Production Start Period
Time line may vary; subjected to rules and regulations /& other unforeseen circumstances							

Source: Anticipated based on Timelines framed in EIA Notification & CPCB Guidelines

Table 2.16 Capital Cost Estimation-P1-P3

S.No	Description	Cost Rs.		
		P1	P2	P3
1	Project Cost	Rs. 3,04,20,000/-	Rs. 2,29,27,000/-	Rs. 4,96,24,000/-
2	EMP Cost	Rs. 3,10,000/-	Rs. 3,80,800/-	Rs. 3,80,000/-
	Total	Rs.3,07,30,000/-/-	Rs. 2,33,07,000	Rs. 5,00,04,000/-

Source: Approved Mining plan

3. DESCRIPTION OF ENVIRONMENT

3.0 General

This chapter presents a regional background to the baseline data at the very onset, which will help in better appreciation of micro-level field data, generated on several environmental and ecological attributes of the study area. The baseline environment quality represents the background environmental scenario of various environmental components such as Land, Water, Air, Noise, Biological and Socio-economic status of the study area. Field monitoring studies to evaluate the base line status of the project site were carried out covering Oct 2023-Dec 2023 with CPCB guidelines. Environmental data has been collected with reference to cluster quarries by EHS 360 Labs Private Limited, – An accredited by ISO/IEC 17025:2017 (NABL) Laboratory for the below attributes- for the below attributes

- Land
- Water
- Air
- Noise
- Biological
- Socio-economic status

Study Area

An area of 10 km radius (aerial distance) from the periphery of the cluster is considered for EIA study. The data collection has been used to understand the existing environment scenario around the cluster against which the potential impacts of the project can be assessed. The study area has been divided into two zones viz core zone and buffer zone where core zone is considered as cluster quarries area and buffer zone taken as 10km radius from the periphery of the Cluster quarries. Both Core zone and Buffer zone is taken as the study area.

Study Period

The baseline study was conducted during the Post monsoon season i.e., Oct 2023-Dec 2023

Study Methodology

- The boundary coordinates were superimposed on the satellite imagery to understand the relief of the area, besides Land use pattern of the area was studied through the Bhuvan (ISRO).
- Soil samples were collected and analysed for relevant physio-chemical characteristics, exchangeable Cations, nutrients & micro nutrients etc., in order to assess the impact due to mining activities and to recommend saplings for Greenbelt development.
- Ground water samples were collected during the study period from the existing bore wells, while surface water was collected from ponds in the buffer zone. The samples were analysed for parameters necessary to determine water quality (based on IS: 10500:2012 criteria) and those which are relevant from the point of view of environmental impact of the proposed mines.
- An onsite meteorological station was setup in project area, to collect data about wind speed, wind direction, temperature, relative humidity, rainfall and general weather conditions were recorded throughout the study period.
- In order to assess the Ambient Air Quality (AAQ), samples of ambient air were collected by installation of Respiratory Dust Samplers (RDS) for Fugitive dust, PM₁₀ and SO₂, NO_x with gaseous attachments & Fine Dust Samplers (FDS) for PM_{2.5} and other parameters as per NAAQ norms and analysed for primary air pollutants to work out the existing status of air quality.
- The Noise level measurements were also made at various locations in different intervals of time with the help of sound level meter to establish the baseline noise levels in the impact zone.
- Baseline biological studies were carried out to assess the ecology of the study area to study the existing flora and fauna pattern of the area.
- Socio-Economic survey was conducted at village and household level in the study area to understand the present socio-economic conditions and assess the extent of impact due to the proposed mining project.

The sampling methodologies for the various environmental parameters required for the study, frequency of sampling, method of samples analysis, etc., are given below Table 3.1.

Table 3.1: Monitoring Attributes and Frequency of Monitoring

Attribute	Parameters	Frequency of Monitoring	No. of Locations	Protocol
Land-use Land cover	Land-use Pattern within 10 km radius of the study area	Data from census handbook 2011 and from the satellite imagery	Study Area	Satellite Imagery Primary Survey
*Soil	Physio - Chemical Characteristics	Once during the study period	6 (1 core & 5 buffer zone)	IS 2720 Agriculture Handbook - Indian Council of Agriculture Research, New Delhi
*Water Quality	Physical, Chemical and Bacteriological Parameters	Once during the study period	6 (2 surface water & 4 ground water)	IS 10500& CPCB Standards
Meteorology	Wind Speed Wind Direction Temperature Cloud cover Dry bulb temperature Rainfall	1 Hourly Continuous Mechanical/Automatic Weather Station	1	Site specific primary data & Secondary Data from IMD Station
*Ambient Air Quality	PM10 PM2.5 SO2 NOX Fugitive Dust	24 hourly twice a week (October – December 2023)	8 (2 core & 6 buffer)	IS 5182 Part 1-23 National Ambient Air Quality Standards, CPCB
*Noise Levels	Ambient Noise	Hourly observation for 24 Hours per location	8 (2 core & 6 buffer zone)	IS 9989 As per CPCB Guidelines
Ecology	Existing Flora and Fauna	Through field visit during the study period	Study Area	Primary Survey by Quadrant & Transect Study Secondary Data – Forest Working Plan
Socio Economic Aspects	Socio-Economic Characteristics, Population Statistics and Existing Infrastructure in the study area	Site Visit & Census Handbook, 2011	Study Area	Primary Survey, census handbook & need based assessments.

Source: On-site monitoring/sampling by EHS 360 Labs Private Limited in association with GEMS

* All monitoring and testing are been carried out as per the Guidelines of CPCB and MoEF & CC.

3.1 Land Environment

The main objective of this section is to provide a baseline status of the study area covering 10km radius around the proposed mine site so that temporal changes due to the mining activities on the surroundings can be assessed in future.

3.1.1 LAND USE/ LAND COVER

To study the land use pattern of the core as well as a buffer zone, land use/land cover details have been identified/ maps have been prepared in accordance with the **Standard ToR point no. 4 & 10 Stating:** Point No. 4 All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/ topo sheet, topographic sheet, geomorphology and geology of the area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).

Point No. 10. Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted.

Current vintage data of Indian Remote Sensing Satellite ResourceSat1 LISSIII (False Color Composite) has been used for Land Use / Land Cover study. Satellite image has been procured from National Remote Sensing Centre, Hyderabad.

3.1.2 OBJECTIVE

The objectives of the LULC study are as follow:

- ☞ To develop the Land use & Land cover map using land coordinates of the quarry area (Core Zone) and 10 km radius from the quarry site (Buffer area).
- ☞ To Identify and mark the important Land use and Land cover features using the primary and secondary data collected.
- ☞ To evaluate the impacts on existing land use/cover features of the buffer area by the Proposed Project activities.
- ☞ To identify the mitigative measures for the sustainable use of land and to protect the buffer zone from the adverse impacts.

Technical specification of Satellite imagery Data Used:

Current vintage data of Indian Remote Sensing Satellite RESOURCESAT1 (LISS-III) digital FCC (False Color Composite) has been used for preparation of Land use/ Land cover thematic map of study area. Satellite image has been procured from National Remote Sensing Centre, Hyderabad. Survey of India Toposheet as a reference map on 1:50,000 scale has been used for preparation of base layer data like road, rail network; village for geo-referencing of satellite image.

Satellite Image - Resourcesat1-LISSIII, 23.5m Resolution

Satellite Data Source - NRSC, Hyderabad

Satellite Vintage - 14st Oct 2022, Swath 141km wide.

SOI Toposheet No - 57- L/7

Software Used - ArcGIS 10.8

The satellite image (FCC colour 3,2,1) of the buffer zone is given in 3.1

The spatial resolution and the spectral bands in which the sensor collects the remotely sensed data are two important parameters for any land use survey. Resourcesat1-LISSIII, 23m Resolution of 23.5m and a 141 km wide swath of the earth in 23.5m resolution covering wide areas the data is collected in 4 visible bands namely band number and Resolution.

TABLE 3.2: Resourcesat1-LISSIII SENSOR characteristics

Band Number	Description	Wavelength	Resolution
Band 1	Green	0.52-0.59 μm	23.5 meters
Band 2	Red	0.62-0.68 μm	23.5meters
Band 3	NIR	0.77-0.86 μm	23.5meters
Band 4	SWIR	1.55-1.70 μm	70meters

Source: NRSC, Hyderabad

3.1.3 METHODOLOGY

The land use / land cover map is prepared by adopting the interpretation techniques of the Satellite image in combination with collateral data such as Survey of India topographical maps. Image classification is done by using visual interpretation techniques and digital classification using any of the image processing software. The various activities for preparation of LULC include pre-processing, rectification, image enhancements and classifying the satellite data for assessing the change in land use land cover due to proposed developmental activities.

- ☞ Preliminary/primary data collection of the study area
- ☞ Satellite data procurement from NRSC
- ☞ Secondary data collection from authorized bodies
- ☞ Survey of India Toposheet (SOI)
- ☞ Mine Layout
- ☞ Cadastral / Khasra map
- ☞ GPS Coordinates of Lease Boundary
- ☞ Processing of satellite data using ArcGIS 10.8 and preparing the Land Use & Land cover maps (e.g. Mine area, Existing Quarries, Settlements, Agriculture land, Non agriculture land, water bodies, etc.) by Digital Image Processing (DIP) technique.
- ☞ Geo-Referencing of the Survey of India Toposheet
- ☞ Geo-Referencing of satellite Imagery with the help of Geo-Referenced Toposheets
- ☞ Enhancement of the Satellite Imagery
- ☞ Base Map layer creation (Roads, Railway, Village Names, and other Secondary data, etc.)
- ☞ Data analysis and Classification using Digital interpretation techniques.
- ☞ Ground truth studies or field Verification.
- ☞ Error fixing / Reclassification
- ☞ Final Map Generation.

The land use/Land cover Map of the buffer zone is given in 3.4(b). Land Use Pattern of the Buffer Zone (Study area) Details of the same are given in Table - 3.3 and the map is shown in Figure - 3.2

TABLE: 3.3 LAND USE / LAND COVER DETAILS OF STUDY AREA

S.No	CLASSIFICATION	AREA HA	AREA %
BUILTUP			
1	Builtup Urban	590.86	1.64
2	Builtup Rural	497.72	1.38
3	Builtup Mining	229.83	0.64
AGRICULTURAL LAND			
4	Crop Land	20874.23	58.03
5	Agriculture Land	1207.97	3.36
6	Fallow Land	3929.12	10.92
BARREN/WASTE LANDS			
7	Barren Rocky	822.21	2.29
8	Scrub Land	4074.95	11.33
FOREST			
9	Forest	2901.53	8.07
WETLANDS/ WATER BODIES			
10	Waterbodies	844.23	2.35
TOTAL		35972.64	100.00

Source: Bhuvan, NRSC.

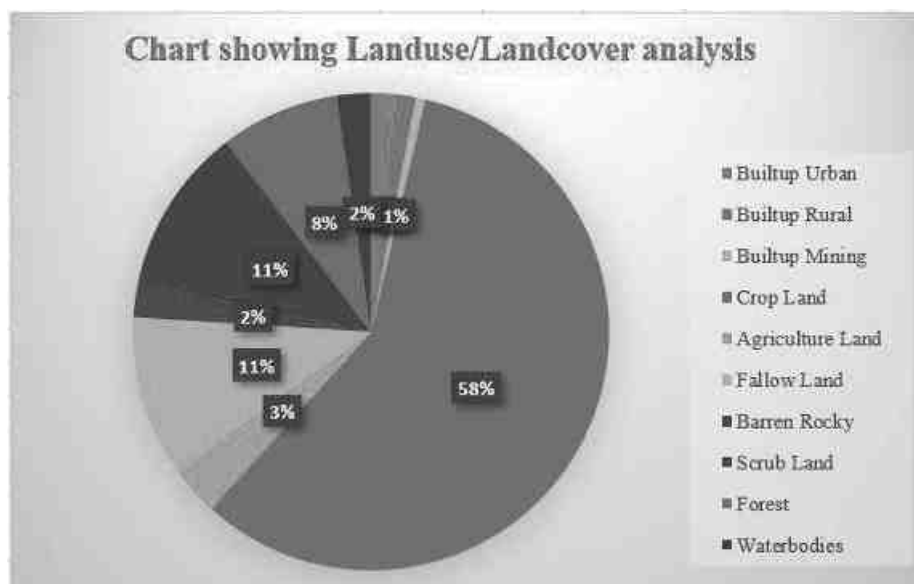


FIGURE 3.1: CHART SHOWING LANDUSE/LANDCOVER ANALYSIS USING LISS III Data

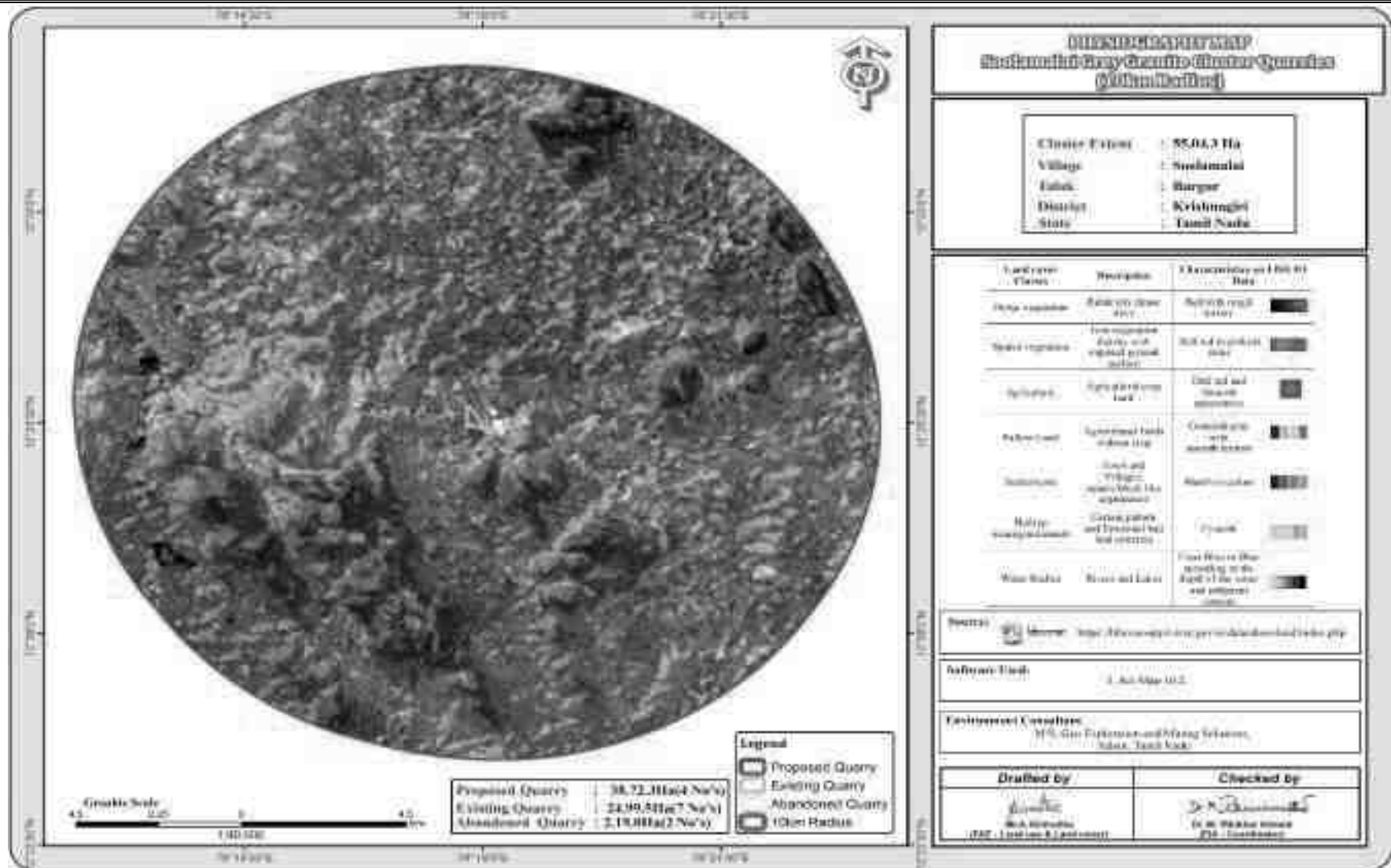


FIGURE 3.2: MAP SHOWING FALSE COLOR COMPOSITE (3,2,1) SATELLITE IMAGERY OF THE STUDY AREA

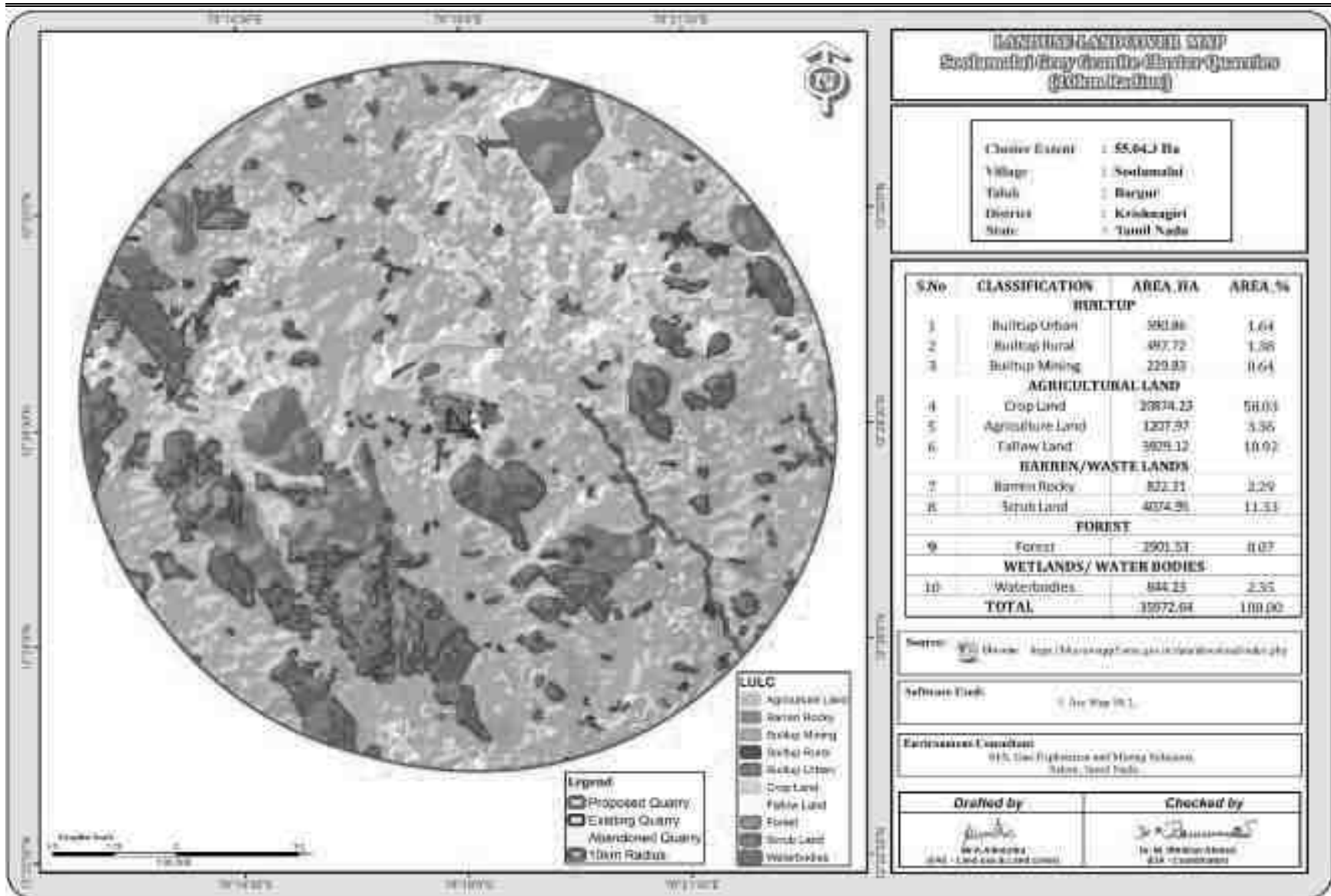


FIGURE 3.3: LAND USE LAND COVER MAP 10KM RADIUS

3.1.4 Interpretation

- ☞ The 10 km radius study area mainly comprises of crop land & Agriculture land accounting of 58.03% & 3.36% of the total study area. The study area also consists of fallow land of 10.92%.
- ☞ Water Bodies such as ponds/ lakes comprises of 2.35% of the core and buffer area.
- ☞ The Scrub land accounts of 11.33%. As per the primary survey, it was observed the scrub land is mainly occupied by the stony waste and left-over domestic waste generated by the nearby areas.
- ☞ 0.64% of the total study area is occupied by the mine industries of captive mines. The area occupied by Mainly Colour/grey granite of the total buffer area. As also observed within the primary survey, the 10 km buffer area is also occupied by the medium scaled granite and marble and small Brick kiln industries also located in the study area.
- ☞ 3% of the area is covered under the human Settlement. The nearest village within the 2 km radius from the project site boundary is observed to be villages like Anchur, Soolamalai, Chendarapalli, Chinnapanamudlu and Jagadevi etc.

3.1.5 TOPOGRAPHY

The lease applied area exhibits flat terrain. The area has gentle sloping towards South western side from Salem district. The altitude of the area is 250-270m above Mean Sea level. Proposed and Existing quarry area.

3.1.5.1 Drainage Pattern of the Area

There are developed surface drainage channels in the study area. The drainage pattern of the area is dendritic it is inferred the rock-hard rock terrain.

The area is studded with few tanks that serve as the source of drinking water and also their surplus feeds adjoining tanks. The area is mostly dry in all seasons except rainy seasons.

During rainy season the surface runoff flows in NE to SW direction. The drainage pattern of the study area is given in Fig. 3.5. The quarrying activity will not hinder the natural flow of rainwater.

3.1.5.2 Seismic Sensitivity

The proposed project site falls in the seismic Zone II (Least active), low damage risk zone as per BMTPC, Vulnerability Atlas of Seismic zone of India IS: 1893 – 2002. The project area falls in the hard rock terrain on the peninsular shield of south India which is highly stable.

3.1.5.3 Environmental Features in the Study Area

Cauvery North Wildlife Sanctuary is situated 36Km West. There are no other Wildlife Sanctuaries, National Park and Archaeological monuments within cluster area. No Protected and Reserved Forest area is involved in the cluster area. Therefore, there will be no need to acquisition/diversion of forest land. The details related to the environment sensitivity around the cluster area i.e., 10km radius, are given in the below Table 3.4.

Table 3.4: Details of Environment Sensitivity around the Cluster

No	Sensitive Ecological Features	Name	Arial Distance in km from Cluster
1	National Park / Wild life Sanctuaries	Cauvery North wild life sanctuary	36km-W
		Cauvery South Wildlife Sanctuary	44km-SW
2	Reserve Forest	Thogarapalli R.F	4.0km -South East
		Varatanapalli R.F	6.0km-NE
3	Lake Reservoir	Krishnagiri Dam	12.0km-W

4	Tiger Reserve/ Elephant Reserve/ Biosphere Reserve	None	Nil within 10KM Radius
5	Critically Polluted Areas	Ranipet – SIPCOT Industrial Complex	120km-NE
6	Mangroves	None	Nil within 10 km Radius
7	Mountains/Hills	None	Nil within 10 km Radius
8	Notified Archaeological Sites	None	Nil within 10 km Radius
9	Industries/ Thermal Power Plants	None	Nil within 10 km Radius
10	Defence Installation	None	Nil within 10 km Radius

Source: Survey of India Toposheet

FIGURE 3.4: LAND USE LAND COVER MAP 500M RADIUS



Table 3.5: LAND USE LAND COVER MAP 500M RADIUS

S.No	LAND USE CLASSIFICATION	AREA_HA
1	Agriculture Land	45.63
2	Barren Land	41.35
3	Barren Rocky	137.79
4	Built-up Area	6.24
5	Built-up Mining	55.21
6	Dump Area	15.34
7	Forest Plantation	29.36
8	Industrial Land	1.27
9	Scrub Land	21.20
10	Trees Plantation	39.51
11	Waterbodies	21.35
TOTAL		414.26

Interpretation

Land use Landcover of the area within 500m radius were studied in detailed that the majority of the land within 500m is Barren rocky (137.79ha) followed by Mining land (55.21ha), Agriculture land (45.63ha) and Barren Land (41.35ha), Trees Plantation (39.51ha) are contributing majority of the land use.

3.1.6 Soil Environment

Soil quality of the study area is one of the important components of the land environment. The composite soil samples were collected from the study area and analysed for different parameters. The locations of the monitoring sites are detailed in Table 3.5 and Figure 3.5

Table 3.5: Soil Sampling Locations

S. No	Location Code	Monitoring Locations	Distance (km) and Direction	Coordinates
1	S-1	Project Area	Core Zone	12°29'50.28"N 78°18'2.78"E
2	S-2	Project Area	Core Zone	12°29'34.62"N 78°18'5.54"E
3	S-3	Achamangalam	2.2km SE	12°29'19.05"N 78°19'17.09"E
4	S-4	Elathagiri	5.5km NW	12°32'53.98"N 78°17'42.82"E
5	S-5	Periyapanmudlu	3.7km West	12°29'49.21"N 78°15'59.89"E
6	S-6	Nakkalpatti	3.5km South	12°27'39.47"N 78°17'43.67"E

Source: On-site monitoring/sampling by EHS 360 Labs Private Limited in association with GEMS.

The objective of the soil sampling is -

- To determine the baseline soil characteristics of the study area;
- To determine the impact of proposed activity on soil characteristics and;
- To determine the impact on soil more importantly agriculture production point of view

Methodology –

For studying soil quality, sampling locations were selected to assess the existing soil conditions in and around the project site representing various land use conditions. The samples were collected by auger boring into the soil up to 90-cm depth. Six (6) locations were selected for soil sampling on the basis of soil types, vegetative cover, industrial & residential activities including infrastructure facilities, which would accord an overall idea of the soil characteristics. The samples were analysed for physical and chemical characteristics. The samples were sent to laboratory for analysis. The samples were filled in Polythene bags, coded and sent to laboratory for analysis and the details of methodology in respect are given in below Table 3.5.

Table 3.6: Methodology of Sampling Collection

Particulars	Details
Frequency	One grab sample from each station-once during the study period
Methodology	Composite grab samples of the topsoil were collected from 3 depths, and mixed to provide a representative sample for analysis. They were stored in airtight Polythene bags and analysed at the laboratory.

Source: On-site monitoring/sampling by EHS 360 Labs Private Limited in association with GEMS

Soil Testing Result –

The samples were analysed as per the standard methods prescribed in “Soil Chemical Analysis (M.L. Jackson, 1967) & Department of Agriculture, Cooperation & Farmers Welfare, Ministry of Agriculture & Farmers Welfare, Government of India”.

Figure 3.5: Soil Sampling Locations Around 10 Km Radius

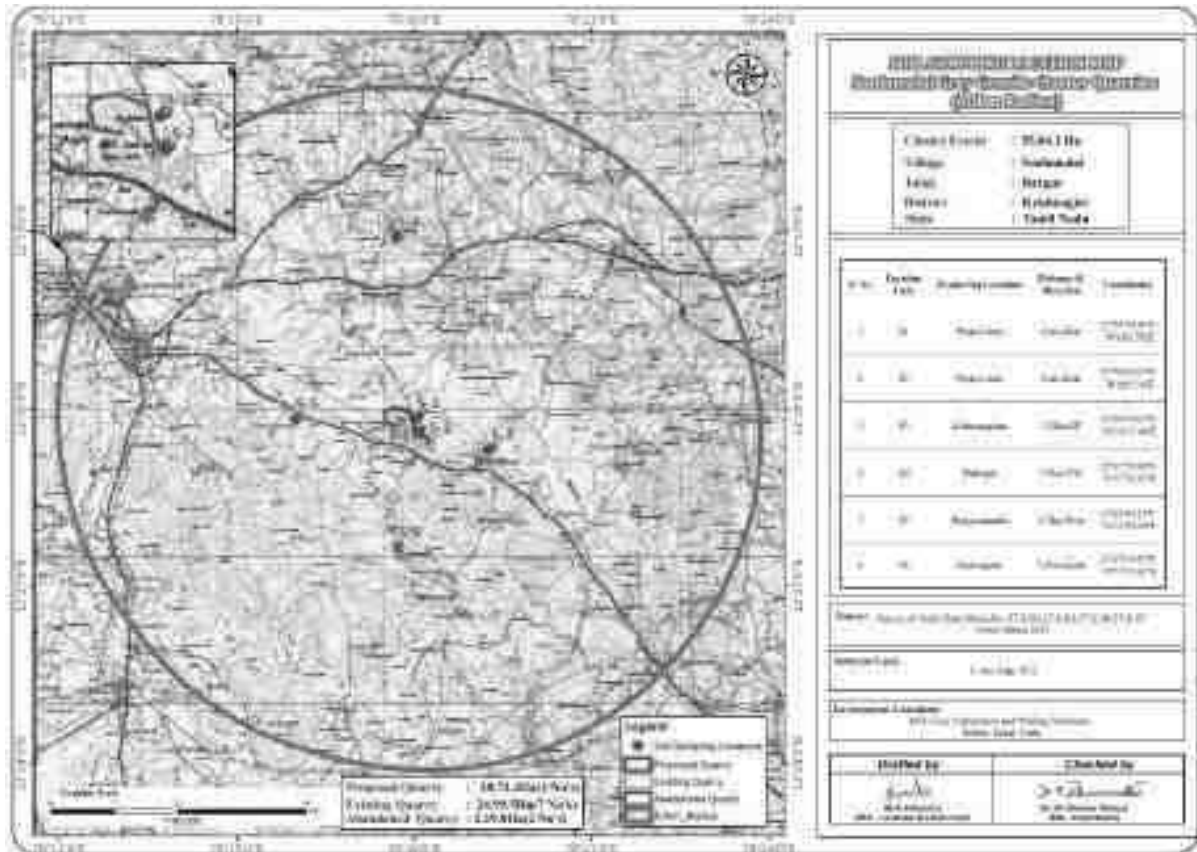


Figure 3.6: Soil Map

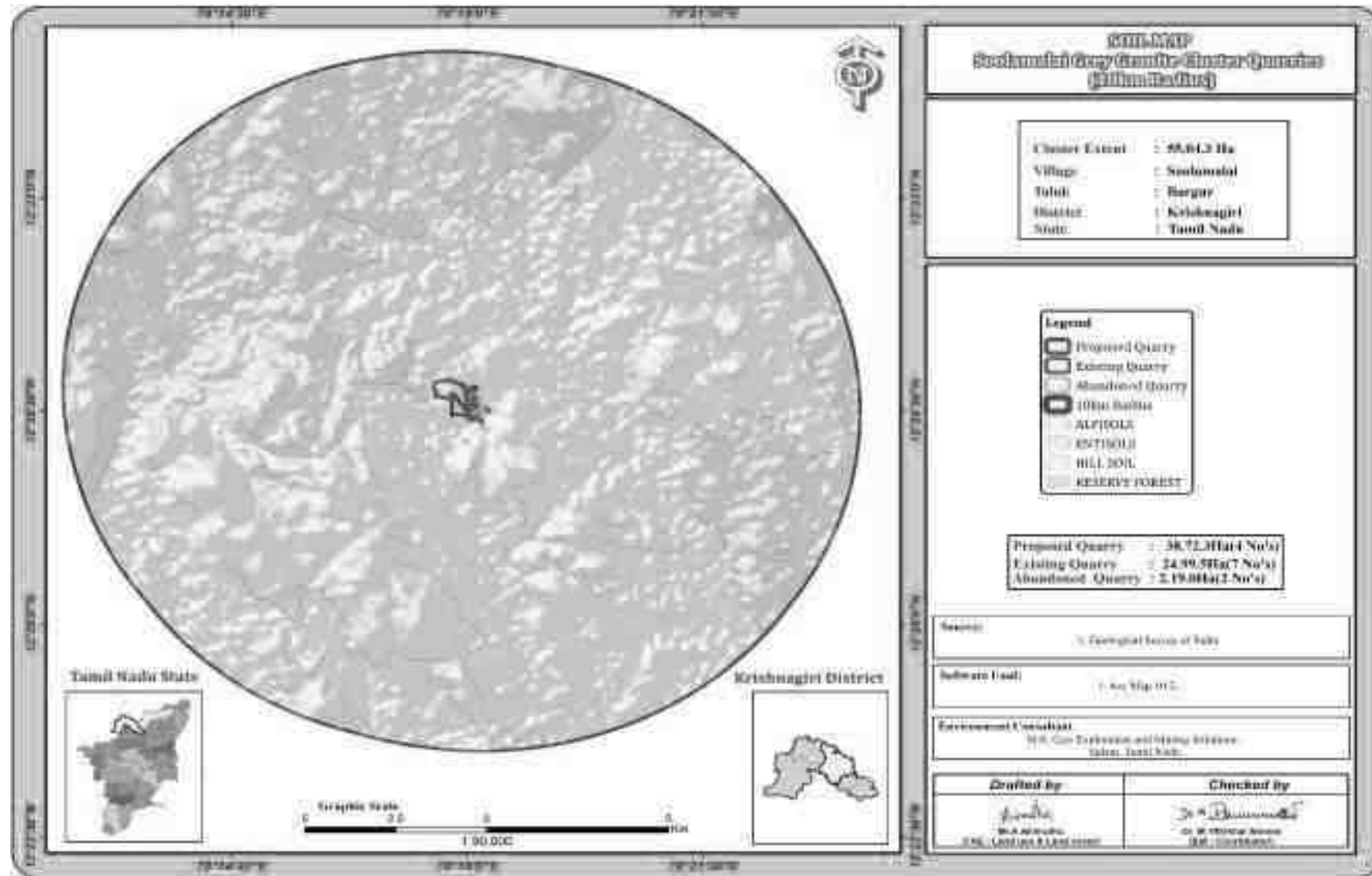


Table 3.7: Soil Quality of the Study Area

S.No	Test Parameters	Protocols	S1- Project area	S2- Project area	S3- Achamangalam	S4- Elathagiri	S5- Periyapanmudlu	S6- Nakkalpatti
1	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff:2016)	8.44	8.75	8.50	8.50	8.57	8.77
2	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2016)	469 µmhos/cm	610 µmhos/cm	423 µmhos/cm	466.3 µmhos/cm	510.7 µmhos/cm	455.7 µmhos/cm
3	Water Holding Capacity	By Gravimetric Method	44.7 %	46.1 %	44.8 %	47.5. %	47.4 %	44.1 %
4	Bulk Density	By Cylindrical Method	1.10 g/cm ³	1.10 g/cm ³	1.13 g/cm ³	1.19 g/cm ³	1.27 g/cm ³	1.10 g/cm ³
5	Porosity	By Gravimetric Method	45.9 %	47.1 %	45.4 %	42.6 %	46.2 %	46.7 %
6	Calcium as Ca	Food and Agriculture organization of the united Nation Rome 2007 : 2018	105.5 mg/kg	126 mg/kg	57.6 mg/kg	157.5 mg/kg	120 mg/kg	90.7 mg/kg
7	Magnesium as Mg		35.1 mg/kg	60.1 mg/kg	55 mg/kg	68.7 mg/kg	71.3 mg/kg	65.5 mg/kg
8	Chloride as Cl	APHA 23 rd Edn 2019 4500 Cl B	70.0 mg/kg	71 mg/kg	97.6 mg/kg	54.9 mg/kg	66.4 mg/kg	80.1 mg/kg
9	Soluble Sulphate as SO ₄	IS 2720 Part 27 : 1977 (Reaff:2015)	0.021 %	0.0018 %	0.0034 %	0.0035 %	0.0014 %	0.0019 %
10	Total Phosphorus as P	IS 10158 : 1982 (Reaff: 2019)	2.26 mg/kg	1.19 mg/kg	2.5 mg/kg	1.20 mg/kg	3.2 mg/kg	5.1 mg/kg
11	Total Nitrogen as N	IS 14684 : 1999 (Reaff:2019)	418.6 mg/kg	400.5 mg/kg	440mg/kg	484.6 mg/kg	350.4 mg/kg	420.8 mg/kg
12	Organic Matter	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.81 %	1.67 %	2.22 %	1.98 %	2.05 %	2.17 %
13	Organic Carbon	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.05 %	0.97 %	1.29 %	1.15 %	1.19 %	1.26 %
14	Texture :							
	Clay	Gravimetric Method	34.8 %	32.7 %	32.6 %	30.9 %	33.1 %	32.2 %
	Sand		31.7 %	32.9 %	33.3 %	34.4 %	31.5 %	33.9 %
	Silt		33.5 %	34.4 %	34.1 %	34.7 %	35.4 %	33.9 %
15	Manganese as Mn	USEPA 3050 B – 1996 &	21.8 mg/kg	25.5 mg/kg	19.4 mg/kg	26.9 mg/kg	15.5 mg/kg	17.4 mg/kg
16	Zinc as Zn	USEPA 6010 C - 2000	1.04 mg/kg	2.9 mg/kg	2.6 mg/kg	1.29 mg/kg	2.25 mg/kg	1.9 mg/kg
17	Boron as B		3.54 mg/kg	1.88 mg/kg	2.34 mg/kg	1.66 mg/kg	1.65 mg/kg	4.4 mg/kg
18	Potassium as K		31.1 mg/kg	30 mg/kg	30.1 mg/kg	44.5 mg/kg	36.7 mg/kg	36.3 mg/kg
19	Cadmium as Cd		BDL (DL : 1.0 mg/kg)	BDL (DL : 1.0 mg/kg)	BDL (DL : 1.0 mg/kg)	BDL (DL : 1.0 mg/kg)	BDL (DL : 1.0 mg/kg)	BDL (DL : 1.0 mg/kg)
20	Total Chromium as Cr		BDL (DL : 1.0 mg/kg)	BDL (DL : 1.0 mg/kg)	BDL (DL : 1.0 mg/kg)	BDL (DL : 1.0 mg/kg)	BDL (DL : 1.0 mg/kg)	BDL (DL : 1.0 mg/kg)
21	Copper as Cu		BDL (DL : 1.0 mg/kg)	BDL (DL : 1.0 mg/kg)	BDL (DL : 1.0 mg/kg)	BDL (DL : 1.0 mg/kg)	BDL (DL : 1.0 mg/kg)	BDL (DL : 1.0 mg/kg)
22	Lead as Pb		1.76 mg/kg	0.69 mg/kg	1.16 mg/kg	1.97 mg/kg	1.15 mg/kg	1.22 mg/kg
23	Iron as Fe		2.66 mg/kg	2.16 mg/kg	2.54 mg/kg	2.01 mg/kg	2.68 mg/kg	2.33 mg/kg
24	Cation Exchange Capacity	USEPA 9080 – 1986	46.7 meq/100g of soil	44.5 meq/100g of soil	43 meq/100g of soil	45.4 meq/100g of soil	45.5 meq/100g of soil	45.3 meq/100g of soil

Source: Sampling Results by EHS 360 Labs Private Limited

Interpretation & Conclusion

The physical properties of the soil samples were examined for texture, bulk density, porosity and water holding capacity. The soil texture found in the study area is Clay Loam Soil 30.9% to 34.8% and Bulk Density of Soils in the study area varied between 1.10– 1.27 g/cc. The Water Holding Capacity 44.1 to 47.5 and Porosity of the soil samples is found to be medium i.e. ranging from 42.6 – 47.1 %.

- The nature of soil is slightly alkaline to strongly alkaline with pH range 8.44 to 8.77
- The available Nitrogen content range between 350.4 to 484.6 mg/kg
- The available Phosphorus content range between 1.19 to 5.1 mg/kg
- The available Potassium range between 30 mg/kg to 44.5 mg/kg
- Whereas, the micronutrient as zinc (Zn) and iron (Fe) were found in the range of 1.04 to 2.9 mg/kg; 2.01 to 2.68 mg/kg.

Observation:

- The pH of the Soil indicates that the soil is Neutral and arid region and ideal for plant growth.

3.2 Water Environment

The water resources, both surface and groundwater play a significant role in the development of the area. The purpose of this study is to assess the water quality characteristics for critical parameters and evaluate the impacts on agricultural productivity, domestic community usage, recreational resources and aesthetics in the vicinity. The water samples were collected and transported as per the norms in pre-treated sampling cans to laboratory for analysis.

3.2.1 Surface Water Resources:

The study area is studded with few tanks that serve as the source of drinking water and also their surplus feeds adjoining tanks. The rainfall over the area is moderate, the rainwater storage in open wells and trenches are in practice over the area and the stored water acts as source of freshwater for couple of months after rainy season.

Table 3.8: Water Bodies in the Buffer Zone

P1			
S.No	NAME	DISTANCE & DIRECTION	Habitation
1	Odai	100m_E	260m NE
2	Narayanapuram Tank	380m_SE	
3	Odai	570m_S	
4	Canal	1Km_NW	
5	Tank	1.1Km_SW	
6	Canal	2.2Km_NE	
7	Chinneri Lake	4Km_NW	
8	Badethala Lake	8Km_NW	

P2			
S.No	NAME	DISTANCE & DIRECTION	Habitation
1	Odai	370m_NE	510m_NE
2	Narayanapuram Tank	280m_NE	
3	Odai	80m_S	
4	Canal	1.2Km_NW	
5	Tank	830m_SW	
6	Canal	2.6Km_NE	
7	Chinneri Lake	4.3Km_NW	

8	Badethala Lake	8.5Km_NW	
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P3			
S.No	NAME	DISTANCE & DIRECTION	Habitation
1	Odai	490m NE	640m_NE
2	Narayanapuram Tank	490m E	
3	Odai	120m SE	
4	Canal	1.1Km NW	
5	Tank	710m SW	
6	Canal	2.6Km NE	
7	Chinneri Lake	4.2Km NW	
8	Badethala Lake	8.3Km_NW	

Source: Survey of India Toposheet

3.2.3 Methodology

Reconnaissance survey was undertaken and monitoring locations were finalized based on;

- Drainage pattern;
- Location of Residential areas representing different activities/likely impact areas; and
- Likely areas, which can represent baseline conditions

Two (2) surface water and four (4) ground water samples were collected from the study area and were analysed for physio-chemical, heavy metals and bacteriological parameters in order to assess the effect of mining and other activities on surface and ground water. The samples were analysed as per the procedures specified by CPCB, IS-10500:2012 and 'Standard methods for the Examination of Water and Wastewater' published by American Public Health Association (APHA). The water sampling locations are given in Table 3.9 and shown as Figure 3.9.

Table 3.9: Water Sampling Locations

S. No	Location Code	Monitoring Locations	Distance & Direction	Coordinates
1	SW1	Narayanapuram Eri	730m SE	12°29'36.69"N 78°18'33.69"E
2	SW2	Badethalav Eri	8.2km NW	12°32'48.40"N 78°14'39.74"E
3	WW-1	Near Project Area	330m NE	12°30'4.03"N 78°18'11.77"E
4	WW-2	Periyapanmudlu	3.7km West	12°29'50.45"N 78°15'50.10"E
5	BW-1	Chendrapalli	770m South	12°29'7.99"N 78°17'59.20"E
6	BW-2	MGR Nagar (Bargur)	6.2km NE	12°31'57.15"N 78°20'52.58"E

Source: On-site monitoring/sampling by EHS 360 Labs Private Limited in association with GEMS.

Figure 3.7: Water Sampling Locations Around 10 Km Radius

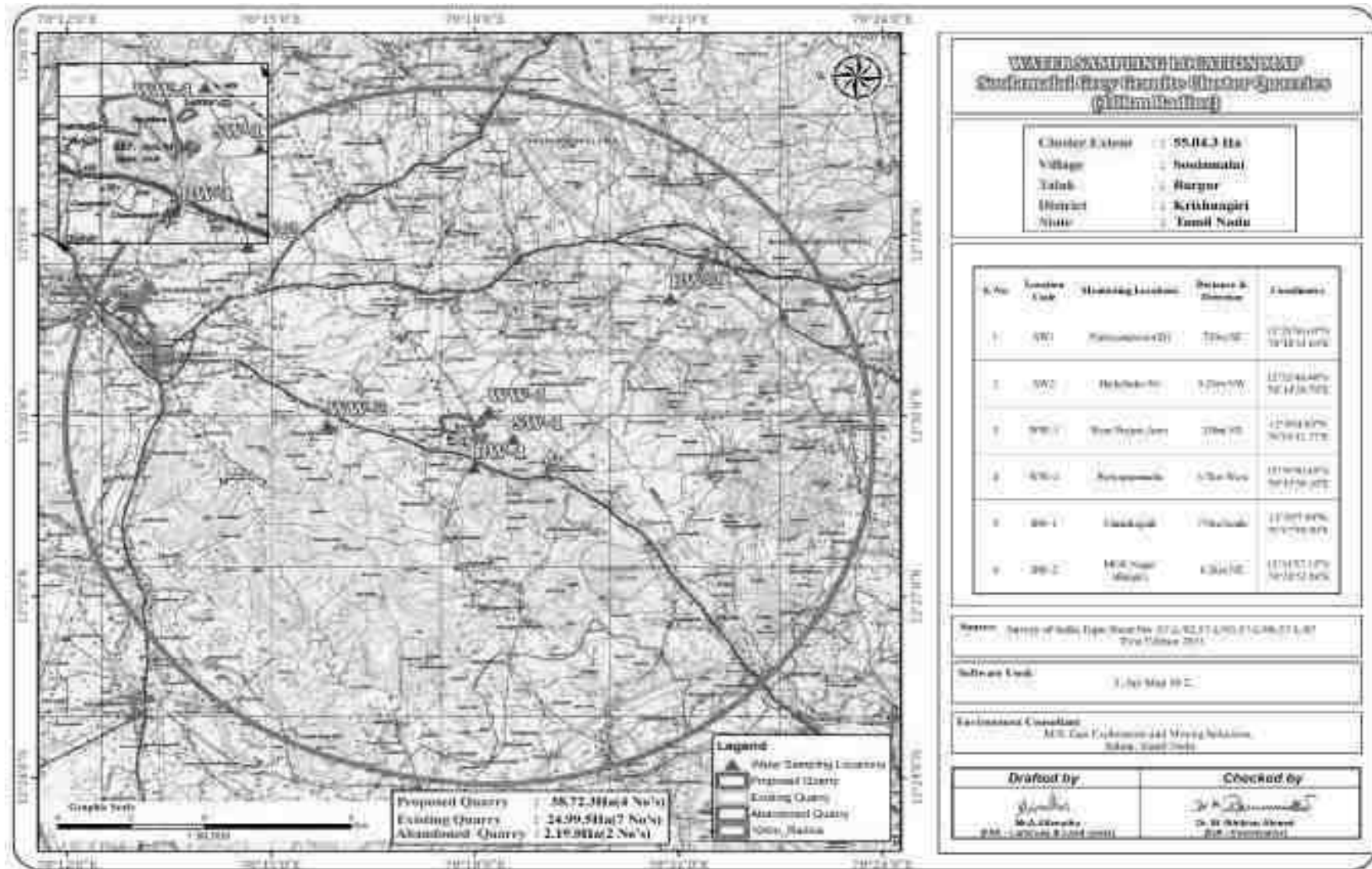


Table 3.10: Ground Water Sampling Results

S.NO	Parameter	Unit	WW1 Near Project Area	WW2 Periyapanmudlu	BW1 Chendrapalli	BW2 MGR Nagar
1	Color	Hazen	5	5	5	5
2	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable
3	pH@ 25°C	-	7.48	7.09	7.10	7.73
4	Electrical Conductivity	µs/cm	681 µmhos/cm	810 µmhos/cm	780 µmhos/cm	732 µmhos/cm
5	Turbidity	NTU	1.1 NTU	1.2 NTU	1.3 NTU	1.4 NTU
6	Total Dissolved Solids	mg/l	402 mg/l	478 mg/l	460 mg/l	432 mg/l
7	Total Hardness as CaCO ₃	mg/l	146.27 mg/l	175.45 mg/l	173.34 mg/l	160.32 mg/l
8	Calcium as Ca	mg/l	25.5 mg/l	31.1 mg/l	29.1 mg/l	28.5 mg/l
9	Magnesium as Mg	mg/l	20.1 mg/l	23.8 mg/l	24.5 mg/l	21.7 mg/l
10	Total Alkalinity	mg/l	135 mg/l	156.2 mg/l	140 mg/l	146 mg/l
11	Chloride as Cl ⁻	mg/l	71.6 mg/l	91 mg/l	88 mg/l	70.5 mg/l
12	Sulphate as SO ₄ ⁻	mg/l	43.3 mg/l	67 mg/l	65.7 mg/l	52 mg/l
13	Iron as Fe	mg/l	0.16 mg/l	0.29 mg/l	0.42 mg/l	0.29 mg/l
14	Free Residual Chlorine	mg/l	BDL (DL:0.1 mg/l)	BDL (DL:0.1 mg/l)	BDL (DL:0.1 mg/l)	BDL (DL:0.1 mg/l)
15	Fluoride as F	mg/l	0.22 mg/l	0.21 mg/l	0.26 mg/l	0.22 mg/l
16	Nitrates as NO ₃	mg/l	4.0 mg/l	3.3 mg/l	4.2 mg/l	5.2 mg/l
17	Copper as Cu	mg/l	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)
18	Manganese as Mn	mg/l	BDL (DL:0.02 mg/l)	BDL (DL:0.02 mg/l)	BDL (DL:0.02 mg/l)	BDL (DL:0.02 mg/l)
19	Mercury as Hg	mg/l	BDL (DL:0.0005 mg/l)	BDL (DL:0.0005 mg/l)	BDL (DL:0.0005 mg/l)	BDL (DL:0.0005 mg/l)
20	Cadmium as Cd	mg/l	BDL (DL:0.001 mg/l)	BDL (DL:0.001 mg/l)	BDL (DL:0.001 mg/l)	BDL (DL:0.001 mg/l)
21	Selenium as Se	mg/l	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)
22	Aluminium as Al	mg/l	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)
23	Lead as Pb	mg/l	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)
24	Zinc as Zn	mg/l	BDL(DL : 0.05 mg/l)	BDL(DL : 0.05 mg/l)	BDL(DL : 0.05 mg/l)	BDL(DL : 0.05 mg/l)
25	Total Chromium	mg/l	BDL(DL : 0.02 mg/l)	BDL(DL : 0.02 mg/l)	BDL(DL : 0.02 mg/l)	BDL(DL : 0.02 mg/l)
26	Boron as B	mg/l	BDL(DL : 0.05 mg/l)	BDL(DL : 0.05 mg/l)	BDL(DL : 0.05 mg/l)	BDL(DL : 0.05 mg/l)
27	Mineral Oil	mg/l	BDL(DL : 0.01 mg/l)	BDL(DL : 0.01 mg/l)	BDL(DL : 0.01 mg/l)	BDL(DL : 0.01 mg/l)
28	Phenolic Compunds	mg/l	BDL (DL:0.0005 mg/l)	BDL (DL:0.0005 mg/l)	BDL (DL:0.0005 mg/l)	BDL (DL:0.0005 mg/l)
29	Anionic Detergents	mg/l	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)
30	Cynaide as CN	mg/l	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)
31	Total Coliform	Per 100ml	120 MPN/100ml	160 MPN/100ml	85 MPN/100ml	123 MPN/100ml
32	E-Coli	Per 100ml	< 1.8 MPN/100ml	< 1.8 MPN/100ml	< 1.8 MPN/100ml	< 1.8 MPN/100ml
33	Barium as Ba	mg/l	BDL(DL:0.05 mg/l)	BDL(DL:0.05 mg/l)	BDL(DL:0.05 mg/l)	BDL(DL:0.05 mg/l)
34	Ammonia (as Total	mg/l	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)
35	Sulphide as H ₂ S	mg/l	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)
36	Molybdenum as Mo	mg/l	BDL (DL:0.02 mg/l)	BDL (DL:0.02 mg/l)	BDL (DL:0.02 mg/l)	BDL (DL:0.02 mg/l)
37	Total Arsenic as	mg/l	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)
38	Total Suspended Solids	mg/l	BDL (DL:1.0 mg/l)	BDL (DL:1.0 mg/l)	BDL (DL:1.0 mg/l)	BDL (DL:1.0 mg/l)

Source: Sampling Results by EHS 360 Labs Private Limited.

Table 3.11: Surface Water Sampling Results

S.NO	Parameter	UNIT	SW1 -Narayanapuram Eri	SW2 - Badethalav Eri
1	Color	Hazen	5 Hazen	5 Hazen
2	Odour	-	Agreeable	Agreeable
3	pH@ 25°C	-	7.66	7.91
4	Electrical Conductivity @ 25°C	µs/cm	1144 µmhos/cm	768 µmhos/cm
5	Turbidity	NTU	7.4 NTU	2.7 NTU
6	Total Dissolved Solids	mg/l	675 mg/l	453 mg/l
7	Total Hardness as CaCO ₃	mg/l	198.66 mg/l	157.17 mg/l
8	Calcium as Ca	mg/l	37.6 mg/l	27.4 mg/l
9	Magnesium as Mg	mg/l	25.5 mg/l	21.6 mg/l
10	Total Alkalinity as CaCO ₃	mg/l	231 mg/l	144.2 mg/l
11	Chloride as Cl ⁻	mg/l	188.7 mg/l	88.54 mg/l
12	Sulphate as SO ₄ ⁻	mg/l	78.4 mg/l	51.7 mg/l
13	Iron as Fe	mg/l	0.18 mg/l	0.26 mg/l
14	Free Residual Chlorine	mg/l	BDL (DL:0.1 mg/l)	BDL (DL:0.1 mg/l)
15	Fluoride as F	mg/l	0.26 mg/l	0.30 mg/l
16	Nitrates as NO ₃	mg/l	6.6 mg/l	7.2 mg/l
17	Copper as Cu	mg/l	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)
18	Manganese as Mn	mg/l	0.11	BDL (DL:0.02 mg/l)
19	Mercury as Hg	mg/l	BDL (DL:0.0005 mg/l)	BDL (DL:0.0005 mg/l)
20	Cadmium as Cd	mg/l	BDL (DL:0.001 mg/l)	BDL (DL:0.001 mg/l)
21	Selenium as Se	mg/l	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)
22	Aluminium as Al	mg/l	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)
23	Lead as Pb	mg/l	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)
24	Zinc as Zn	mg/l	BDL(DL : 0.05 mg/l)	BDL(DL : 0.05 mg/l)
25	Total Chromium	mg/l	BDL(DL : 0.02 mg/l)	BDL(DL : 0.02 mg/l)
26	Boron as B	mg/l	BDL(DL : 0.05 mg/l)	BDL(DL : 0.05 mg/l)
27	Mineral Oil	mg/l	BDL(DL : 0.01 mg/l)	BDL(DL : 0.01 mg/l)
28	Phenolic Compunds as	mg/l	BDL (DL:0.0005 mg/l)	BDL (DL:0.0005 mg/l)
29	Anionic Detergents as	mg/l	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)
30	Cynaide as CN	mg/l	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)
31	Biological Oxygen	mg/l	7.9 mg/l	9.4 mg/l
32	Chemical Oxygen	mg/l	32 mg/l	40 mg/l
33	Dissolved Oxygen	mg/l	5.4 mg/l	5.0 mg/l
34	Total Coliform	Per 100ml	710 MPN/100ml	760 MPN/100ml
35	E-Coli	Per 100ml	100 MPN/100ml	120 MPN/100ml
36	Barium as Ba	mg/l	BDL(DL:0.05 mg/l)	BDL(DL:0.05 mg/l)
37	Ammonia-n (as Total	mg/l	2.5 mg/l	1.3 mg/l
38	Sulphide as H ₂ S	mg/l	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)
39	Molybdenum as Mo	mg/l	BDL (DL:0.02 mg/l)	BDL (DL:0.02 mg/l)
40	Total Arsenic as As	mg/l	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)
41	Total Suspended Solids	mg/l	12.9 mg/l	16.7 mg/l

Source: Sampling Results by EHS 360 Labs Private Limited.

3.2.4 Interpretation & Conclusion

Surface Water

Ph:

The pH varied from 7.66 to 7.91 while turbidity found within the standards (Optimal pH range for sustainable aquatic life is 6.5 to 8.5 pH).

Total Dissolved Solids:

Total Dissolved Solids varied from 453 to 675mg/l, the TDS mainly composed of carbonates, bicarbonates, Chlorides, phosphates and nitrates of calcium, magnesium, sodium and other organic matter.

Other parameters:

Chloride varied between 51.7mg/l and 188.7mg/l. Nitrates varied from 6.6 to 7.2 mg/l, while sulphates varied from 51.7 to 78.4mg/l.

Ground Water

The pH of the water samples collected ranged from 7.09 to 7.73 and within the acceptable limit of 6.5 to 8.5. pH, Sulphates and Chlorides of water samples from all the sources are within the limits as per the Standard. On Turbidity, the water samples meet the requirement. Total Dissolved Solids were found in the range of 402-478 mg/l in all samples. Total hardness varied between 146.27-175.45mg/l.

On Microbiological parameters, the water samples from all the locations meet the requirement. The parameters thus analysed were compared with IS 10500:2012 and are well within the prescribed limits.

3.2.5 Hydrology and Hydrogeological studies

The district is underlain by hard rock formation fissured and fractured crystalline rocks constitute the important aquifer systems in the district. Geophysical prospecting was carried out in that area by SSRMP-80 Instrument by qualified Geo physicist with the help of IGIS software and it was inferred that the low resistance encountered at the depth above 38m. The maximum depth proposed out of proposed projects is 28 m BGL for the entire period. Hence there is no possibilities of water table intersection during the entire mine life period besides it is also inferred topographically that there are no major water bodies intersecting the project area. There is no necessity of stream, channel diversion due to these proposed projects.

During the rainy season there is a possibility of collection of seepage water from the subsurface levels this is due to the high intensity of fracture and weathered portion up to a depth of 18-28m thus the collected seepage water will be stored in the mine sump pits and will be used for dust suppression and greenbelt development and during the end of the life of the mine this collected water will act as a temporary reservoir.

3.2.6 Ground Water Resources:

Krishnagiri district is underlain entirely by Archaean Crystalline formations with Recent alluvial deposits occurring along the river and streams courses and colluvium of valley-fills. The important aquifer systems in the district are constituted by weathered, fissured and fractured crystalline rocks and the recent alluvial deposits.

Ground water occurs under phreatic conditions. The maximum saturated thickness of these aquifers is upto 5 m depending upon the topographic conditions. The study area falls in the Soolamalai which is categorized as Safe (< 70%) as per G.O (MS) No 113 dated 09.06.2016.

There are ten open wells and Eight Bore wells within the radius of 1km Most of the wells are almost in dry conditions: - The details of the well and depth in monsoon and non-monsoon is described below:

Table 3.12: Details of Borewell & Water Level In 1km Radius

S.NO	LABEL	LATITUDE	LONGITUDE	OCT 23	NOV 23	DEC 23
1	BW1	12° 29' 26.90"N	78° 17' 22.83"E	56	56.6	57.2
2	BW2	12° 29' 42.12"N	78° 17' 06.46"E	55.3	55.9	56.5
3	BW3	12° 30' 14.17"N	78° 17' 33.46"E	56.2	56.8	57.4
4	BW4	12° 30' 12.58"N	78° 18' 09.92"E	56.5	57.1	57.7
5	BW5	12° 29' 55.91"N	78° 18' 18.07"E	56.1	56.7	57.3

6	BW6	12° 29' 29.34"N	78° 18' 37.08"E	56.8	57.4	58
7	BW7	12° 29' 01.81"N	78° 18' 23.03"E	56.6	57.2	57.8
8	BW8	12° 29' 05.42"N	78° 17' 56.32"E	57	57.6	58.2

Source: Data obtained by the FAE & Team Members

Table 3.13: Details of Open well & Water Level in 1km Radius

S.NO	LABEL	LATITUDE	LONGITUDE	OCT 23	NOV 23	DEC 23
1	OW1	12° 29' 48.86"N	78° 17' 06.98"E	11	11.6	12.2
2	OW2	12° 30' 15.14"N	78° 17' 04.19"E	11.3	11.9	12.5
3	OW3	12° 30' 04.08"N	78° 18' 11.73"E	11.5	12.1	12.7
4	OW4	12° 29' 56.00"N	78° 18' 26.94"E	11.2	11.8	12.4
5	OW5	12° 29' 52.06"N	78° 18' 45.38"E	11.8	12.4	13
6	OW6	12° 29' 29.68"N	78° 18' 51.41"E	11.1	11.7	12.3
7	OW7	12° 28' 48.93"N	78° 18' 15.75"E	11.4	12	12.6
8	OW8	12° 28' 57.34"N	78° 17' 48.59"E	11.6	12.2	12.8
9	OW9	12° 29' 14.02"N	78° 17' 28.93"E	11.9	12.5	13.1
10	OW10	12° 29' 39.16"N	78° 17' 16.05"E	12	12.6	13.2

Source: Data obtained by the FAE & Team Members

Figure 3.8: Post Monsoon Water Level of Open Well 1 Km Radius

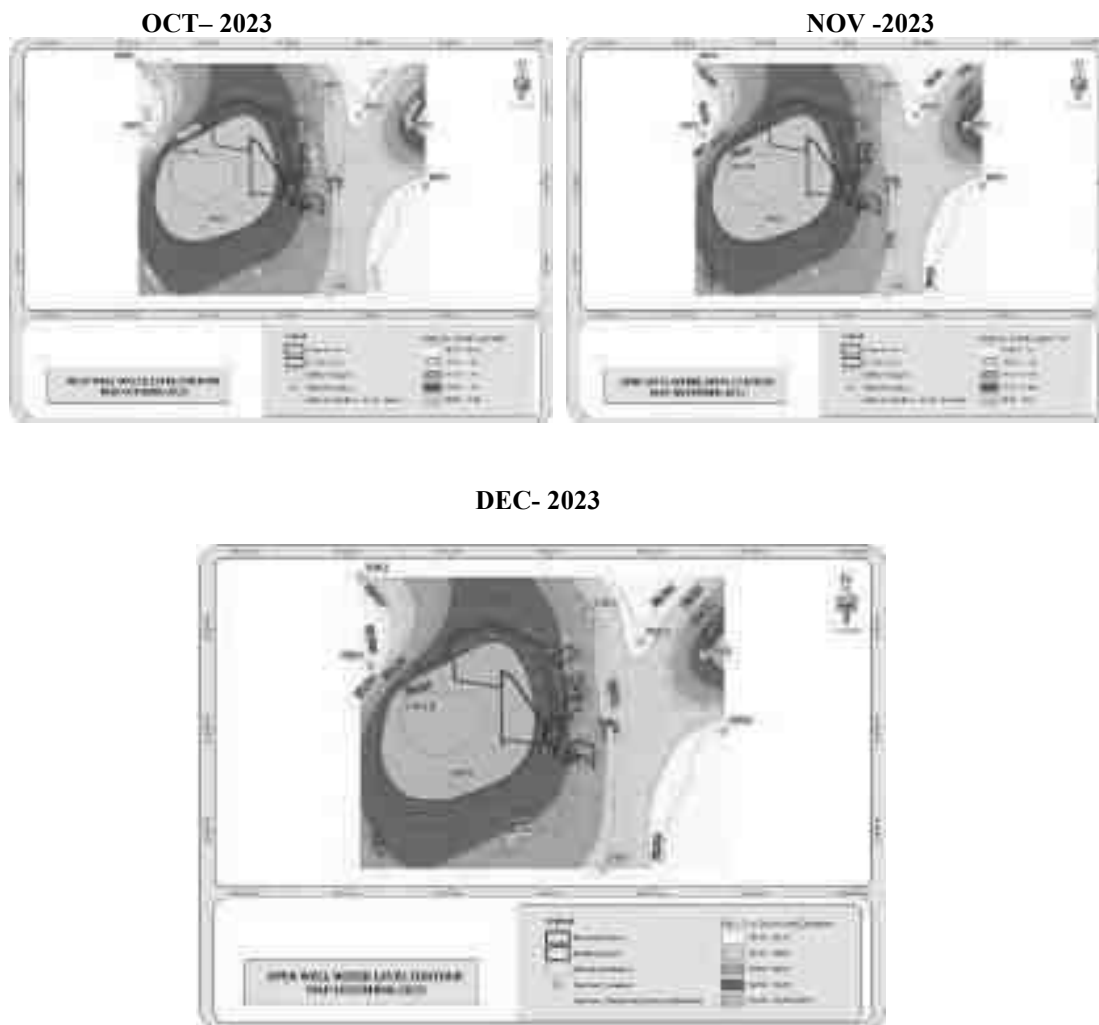


Figure 3.9: Post Monsoon Water Level of Bore Well 1 Km Radius

OCT- 2023

NOV- 2023



DEC-2023



Figure 3.10: Drainage Map Around 10 Km Radius from Project Site

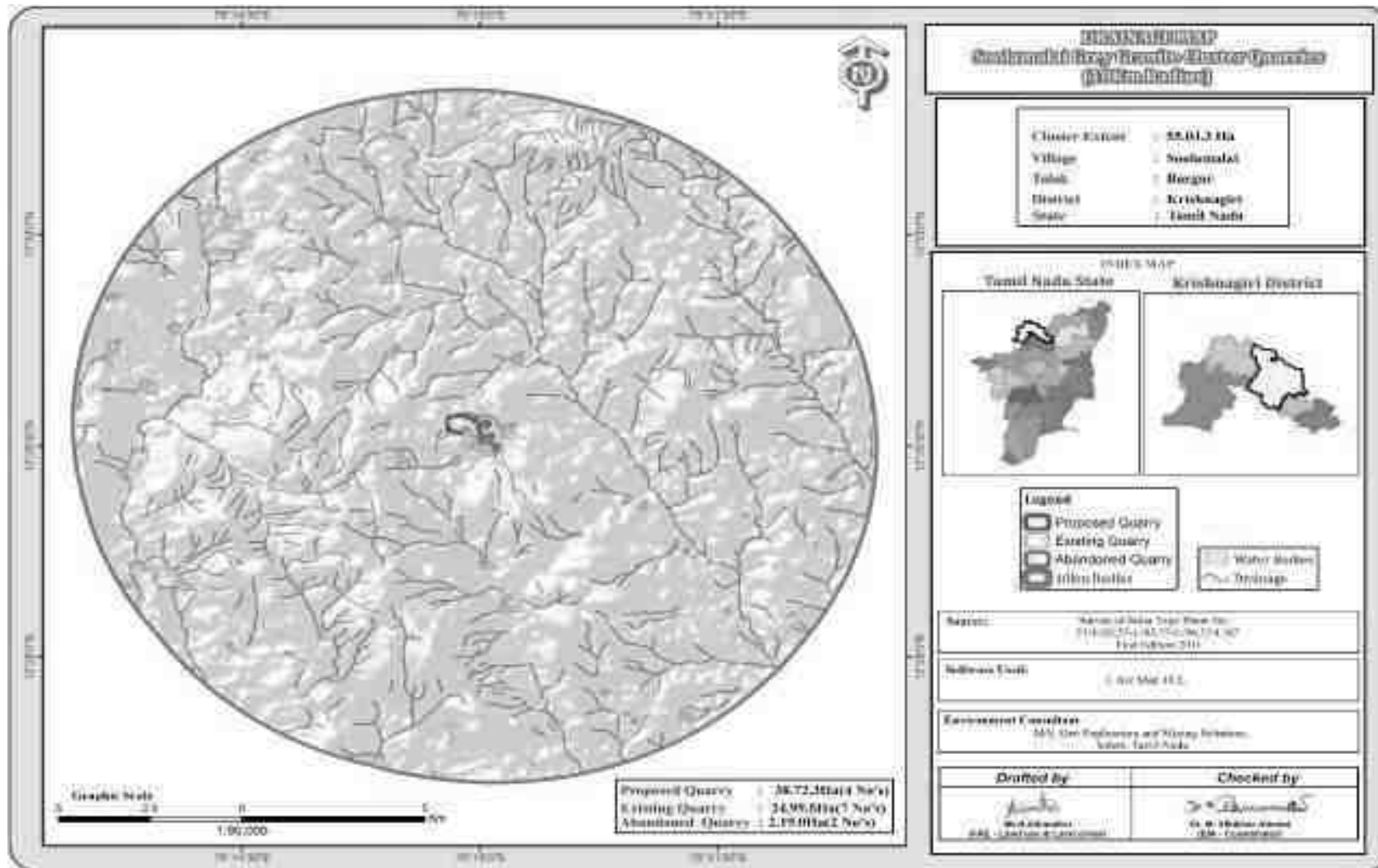
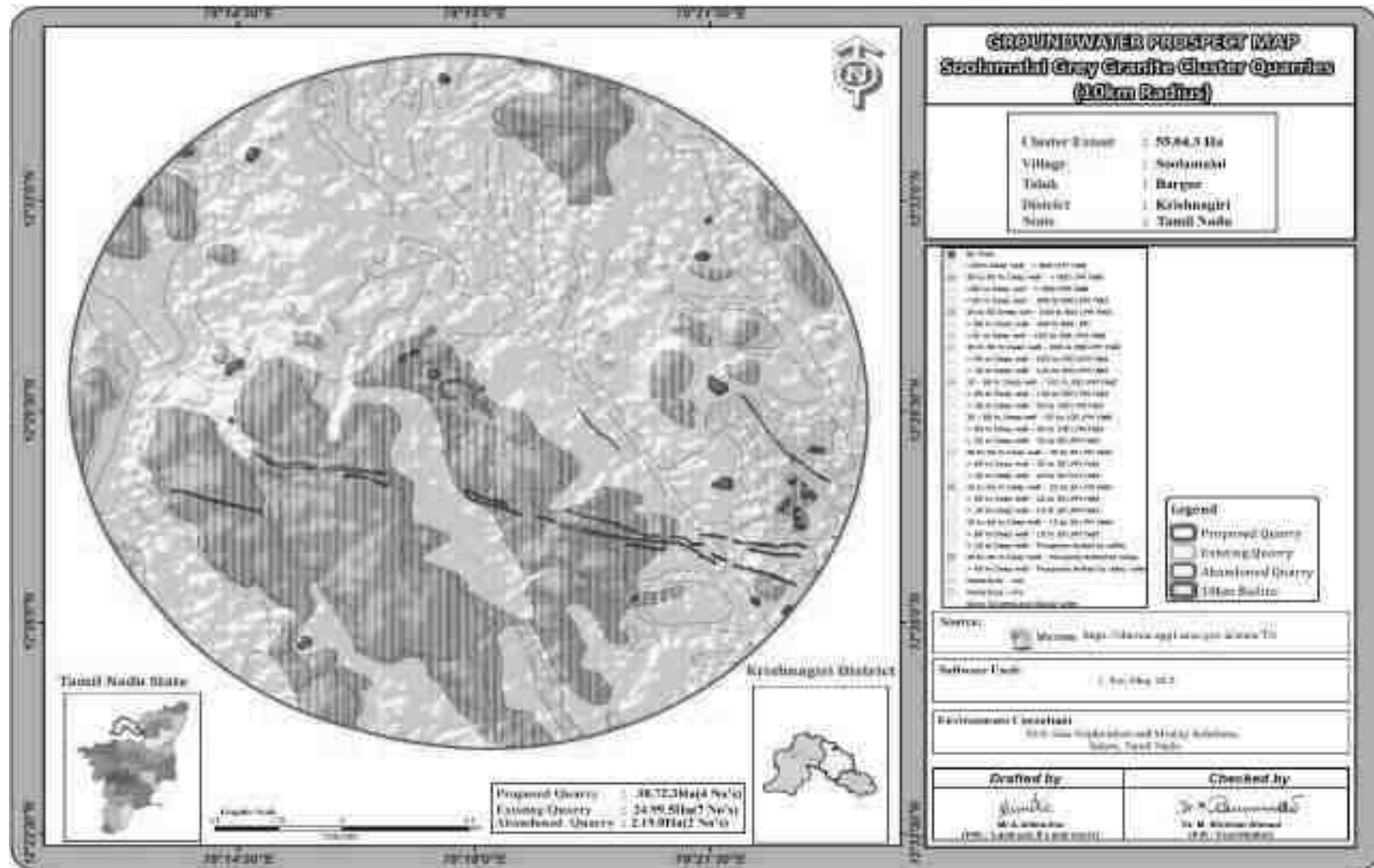


Figure 3.11: Ground Water Prospect Map



3.3 Air Environment

The existing ambient air quality of the area is important for evaluating the impact of mining activities on the ambient air quality. The baseline studies on air environment include identification of specific air pollution parameters and their existing levels in ambient air. The ambient air quality with respect to the study zone of 10 km radius around the cluster forms the baseline information. The sources of air pollution in the region are mostly due to vehicular traffic, dust arising from unpaved village road and domestic & agricultural activities. The prime objective of the baseline air quality study was to establish the existing ambient air quality of the study area. These will also be useful for assessing the conformity to standards of the ambient air quality during the operation of proposed projects in cluster.

This section describes the identification of sampling locations, methodology adopted during the monitoring period and sampling frequency.

3.3.1 Meteorology & Climate

Meteorology is the key to understand the Air quality. The essential relationship between meteorological condition and atmospheric dispersion involves the wind in the broadest sense. Wind fluctuations over a very wide range of time, accomplish dispersion and strongly influence other processes associated with them.

A temporary meteorological station was installed at project site by covering cluster quarries. The station was installed at a height of 3 m above the ground level in such a way that there are no obstructions facilitating flow of wind, wind speed, wind direction, humidity and temperature are recorded on hourly basis.

Climate –

- The climate is tropical in Krishnagiri. In Krishnagiri, the quantity of rainfall during summers surpasses that of winters. This climate is considered to be Aw according to the Köppen-Geiger climate classification. The temperature here averages 25.5 °C | 77.9 °F. The annual precipitation in this location is approximately 773 mm | 30.4 inch.
- Krishnagiri are in the middle of our planet and the summers are not easy to define. The optimal period to plan a visit would be during the months of January, February, March, April, May, June, July, August, September, October, November.
- The driest month is February. There is 6 mm | 0.2 inch of precipitation in February. On average, the highest amount of rainfall occurs during October with a mean value of 144 mm | 5.7 inch.
- With an average of 29.0 °C | 84.2 °F, April is the warmest month. On average, the month of December is considered to be the coldest time of year with temperatures averaging at around 21.9 °C | 71.4 °F. <https://en.climate-data.org/asia/india/tamil-nadu/krishnagiri-34157/>

Rainfall

Table 3.14: Rainfall Data

Actual Rainfall in mm					Normal Rainfall in mm
2017	2018	2019	2020	2021	
1145.6	510.4	730.0	798.6	985.4	985

Source: <https://www.twadboard.tn.gov.in/content/krishnagiri>

Table 3.15: Meteorological Data Recorded at Site

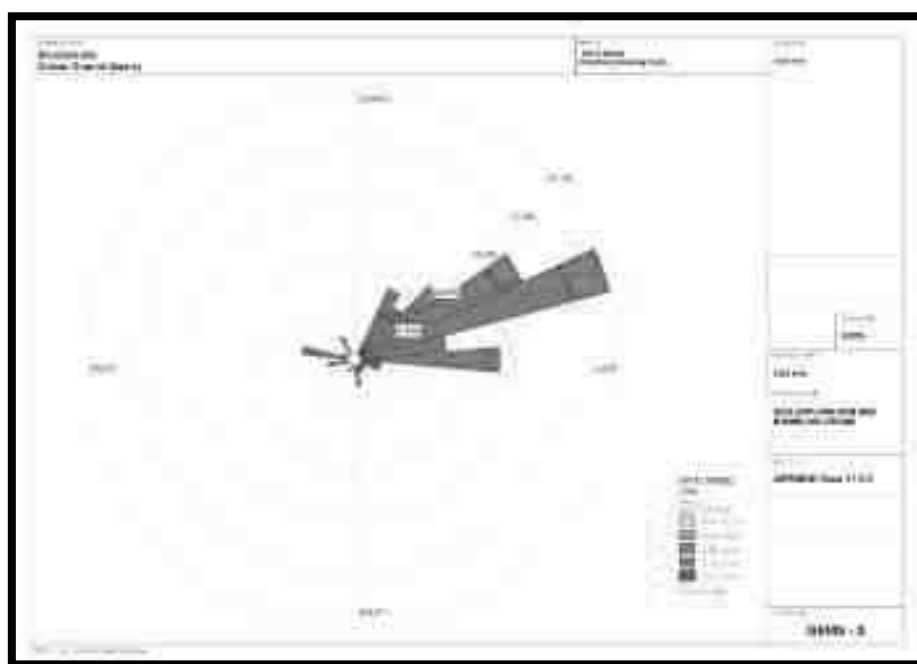
S.No	Parameters		Oct-2023	Nov-2023	Dec-2023
1	Temperature (°C)	Max	25.65	24.22	23.8
		Min	22.01	21.62	19.39
		Avg	23.83	22.92	21.59
2	Relative Humidity (%)	Avg	77.65	88.84	82.87
3	Wind Speed (m/s)	Max	4.85	4.16	4.59

		Min	1.17	1.89	1.66
		Avg	3.01	3.02	3.12
4	Cloud Cover (OKTAS)		0-8	0-8	0-8
5	Wind Direction		ENE,E	ENE,E	ENE,NE

Correlation between Secondary and Primary Data

The meteorological data collected at the site is almost similar to that of secondary data collected from IMD station. A comparison of site data generated during the three months with that of IMD, Wind rose diagram of the study site is depicted in Figure. 3.8. Predominant downwind direction of the area during study season is East North East.

Figure 3.12: Windrose Diagram



Source: Wind Rose plot view, Lake Environmental Software

In the abstract of collected data wind rose were drawn on presented in figure No.3.8 during the monitoring period in the study area

- Predominant winds were from ENE, E,
- Wind velocity readings were recorded between 0.50 to 5.70 m/s
- Temperature readings ranging from 19.39 to 25.65 °C
- Relative humidity ranging from 77.65 to 88.84%

3.3.2 Methodology and Objective

The prime objective of the ambient air quality study is to assess the existing air quality of study area and its conformity to NAAQS. The observed sources of air pollution in the study area are industrial, traffic and domestic activities. The baseline status of the ambient air quality has been established through a scientifically designed ambient air quality monitoring network considering the followings:

- Meteorological condition on synoptic scale;
- Topography of the study area;
- Representatives of regional background air quality for obtaining baseline status;
- Location of residential areas representing different activities;
- Accessibility and power availability, etc.,

3.3.3 Sampling and Analytical Techniques

Parameter	Method	Instrument
PM _{2.5}	Gravimetric Method Beta attenuation Method	Fine Particulate Sampler Make – Thermo Environmental Instruments – TEI 121
PM ₁₀	Gravimetric Method Beta attenuation Method	Respirable Dust Sampler Make –Thermo Environmental Instruments – TEI 108
SO ₂	IS-5182 Part II (Improved West & Gaeke method)	Respirable Dust Sampler with gaseous attachment
NO _x	IS-5182 Part II (Jacob & Hochheiser modified method)	Respirable Dust Sampler with gaseous attachment
Free Silica	NIOSH – 7601	Visible Spectrophotometry

Source: Sampling Methodology followed by EHS 360 Labs Private Limited & CPCB Notification

Table 3.16: National Ambient Air Quality Standards

Sl. No.	Pollutant	Time Weighted Average	Concentration in ambient air	
			Industrial, Residential, Rural & other areas	Ecologically Sensitive area (Notified by Central Govt.)
1	Sulphur Dioxide (µg/m ³)	Annual Avg.* 24 hours**	50.0 80.0	20.0 80.0
2	Nitrogen Dioxide (µg/m ³)	Annual Avg. 24 hours	40.0 80.0	30.0 80.0
3	Particulate matter (size less than 10µm) PM ₁₀ (µg/m ³)	Annual Avg. 24 hours	60.0 100.0	60.0 100.0
4	Particulate matter (size less than 2.5 µm) PM _{2.5} (µg/m ³)	Annual Avg. 24 hours	40.0 60.0	40.0 60.0

Source: NAAQS CPCB Notification No. B-29016/20/90/PCI-I Dated: 18th Nov 2009

*Annual Arithmetic mean of minimum 104 measurements in a year taken twice a Week 24 hourly at uniform interval

** 24 hourly / 8 hourly or 1 hourly monitored value as applicable shall be complied with 98 % of the time in a year. However, 2% of the time, they may exceed the limits but not on two consecutive days of monitoring.

3.3.4 Frequency & Parameters for Sampling

Ambient air quality monitoring has been carried out with a frequency of two samples per week at eight (8) locations, adopting a continuous 24 hourly (3 shift of 8-hour) schedule for the period March to May 2023. The baseline data of ambient air has been generated for PM₁₀, PM_{2.5}, Sulphur Dioxide (SO₂) & Nitrogen Dioxide (NO₂) Monitoring has been carried out as per the CPCB, MoEF guidelines and notifications.

It was ensured that the equipment was placed preferably at a height of at least 3 ± 0.5m above the ground level at each monitoring station, for negating the effects of wind-blown ground dust. The equipment was placed at open space free from trees and vegetation which otherwise act as a sink of pollutants resulting in lower levels in monitoring results.

3.3.5 Ambient Air Quality Monitoring Stations

Eight (8) monitoring stations were set up in the study area as depicted in Figure 3.15 for assessment of the existing ambient air quality. Details of the sampling locations are as per given below.

Table 3.17: Ambient Air Quality (AAQ) Monitoring Locations

S. No	Location Code	Monitoring Locations	Distance & Direction	Coordinates
1	AAQ1	Project Area	Core Zone	12°29'50.59"N 78°18'2.38"E
2	AAQ2	Project Area	Core Zone	12°29'35.57"N 78°18'5.50"E
3	AAQ3	Achamangalam	2.2km SE	12°29'18.77"N 78°19'17.61"E
4	AAQ4	Elathagiri	5.5km NW	12°32'54.24"N 78°17'43.06"E
5	AAQ5	Periyapanmudlu	3.7km West	12°29'49.10"N 78°15'59.42"E
6	AAQ6	Nakkalpatti	3.5km South	12°27'37.96"N 78°17'44.81"E
7	AAQ7	MGR Nagar	6.2km NE	12°31'56.71"N 78°20'52.38"E
8	AAQ8	Kammampalli	5.5km NW	12°32'17.92"N 78°16'4.94"E

Source: On-site monitoring/sampling by EHS Laboratories in association with GEMS

Figure 3.13: Ambient Air Quality Locations Around 10 Km Radius

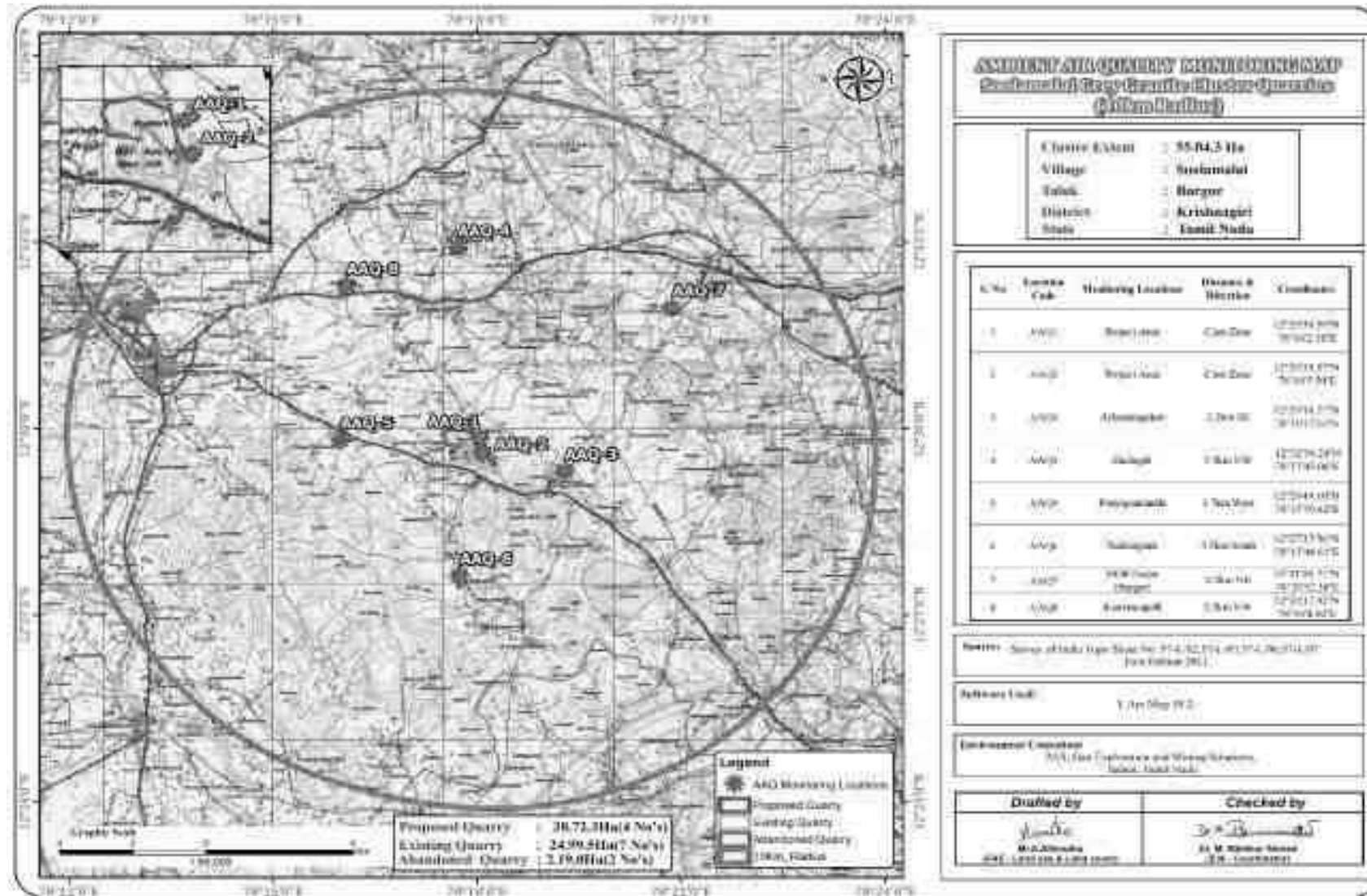


Table 3.18: Abstract of Ambient Air Quality Data

1	Parameter	PM2.5	PM10	SO ₂	NO ₂
2	No. of Observations	260	260	260	260
3	10 th Percentile Value	18.3	41.7	5.3	19.5
4	20 th Percentile Value	18.7	42.3	5.8	20.0
5	30 th Percentile Value	19.5	42.8	6.0	20.6
6	40 th Percentile Value	20.0	43.1	6.2	20.9
7	50 th Percentile Value	20.6	43.8	6.5	21.4
8	60 th Percentile Value	21.0	44.6	6.8	21.6
9	70 th Percentile Value	21.5	45.0	7.0	22.0
10	80 th Percentile Value	21.8	45.6	7.5	22.4
11	90 th Percentile Value	22.6	46.6	7.8	22.9
12	95 th Percentile Value	22.9	46.7	8.0	23.7
13	98 th Percentile Value	23.6	46.8	8.2	24.3
14	Arithmetic Mean	20.9	44.4	6.8	21.8
15	Geometric Mean	20.9	44.4	6.8	21.7
16	Standard Deviation	1.7	1.8	1.0	1.5
17	Minimum	18.3	41.7	5.3	19.5
18	Maximum	23.6	46.8	8.2	24.3
19	NAAQ Norms*	100.0	60.0	80.0	80.0
	% Values exceeding Norms*	0.0	0.0	0.0	0.0

Legend: PM_{2.5}-Particulate Matter size less than 2.5 µm; PM₁₀-Respirable Particulate Matter size less than 10 µm; SO₂-Sulphur dioxide; NO₂-Nitrogen Dioxide; CO-Carbon monoxide; O₃-Ozone; NH₃-Ammonia; Pb-Particulate Lead; As-Particulate Arsenic; Ni-Particulate Nickel; C₆H₆-Benzene & BaP- Benzo (a) pyrene in particulate phase levels were monitored below their respective detectable limits.

* NAAQ Norms-National Ambient Air Quality Norms-Revised as per GSR 826(E) dated 16.11.2009 for Industrial, Residential, Rural and other Area.

Table 3.19: Summary of Ambient Air Quality Data (AAQ1-AAQ8)

PM2.5	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7	AAQ8
Arithmetic Mean	19.8	21.2	21.9	18.8	21.1	21.1	21.7	18.5
Minimum	18.0	20.0	20.6	17.6	18.6	18.5	20.4	17.2
Maximum	22.5	23.8	23.0	19.9	22.9	22.8	23.6	19.7
NAAQ Norms	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0
PM10	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7	AAQ8
Arithmetic Mean	59.2	42.7	45.9	42.2	21.1	20.4	45.2	42.0
Minimum	42.0	40.3	44.8	41.0	42.0	42.8	42.7	41.1
Maximum	441.0	44.0	46.9	43.0	45.8	46.8	46.9	42.9
NAAQ Norms	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
NO2	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7	AAQ8
Arithmetic Mean	20.1	22.0	21.4	22.0	20.6	21.0	21.6	21.3
Minimum	19.0	19.3	19.2	20.4	19.0	19.5	20.4	18.3
Maximum	21.0	23.9	25.8	24.3	22.0	22.9	22.9	23.7
NAAQ Norms	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0
SO2	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7	AAQ8
Arithmetic Mean	6.5	6.1	6.5	7.1	6.2	6.3	6.5	7.5
Minimum	6.0	5.0	5.0	6.0	5.0	5.1	5.1	6.3
Maximum	7.0	7.8	7.9	8.0	7.5	7.8	7.9	8.9
NAAQ Norms	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0

FIGURE 3.14: BAR DIAGRAM OF SUMMARY OF AIR QUALITY MODEL(AAQ1-AAQ8)

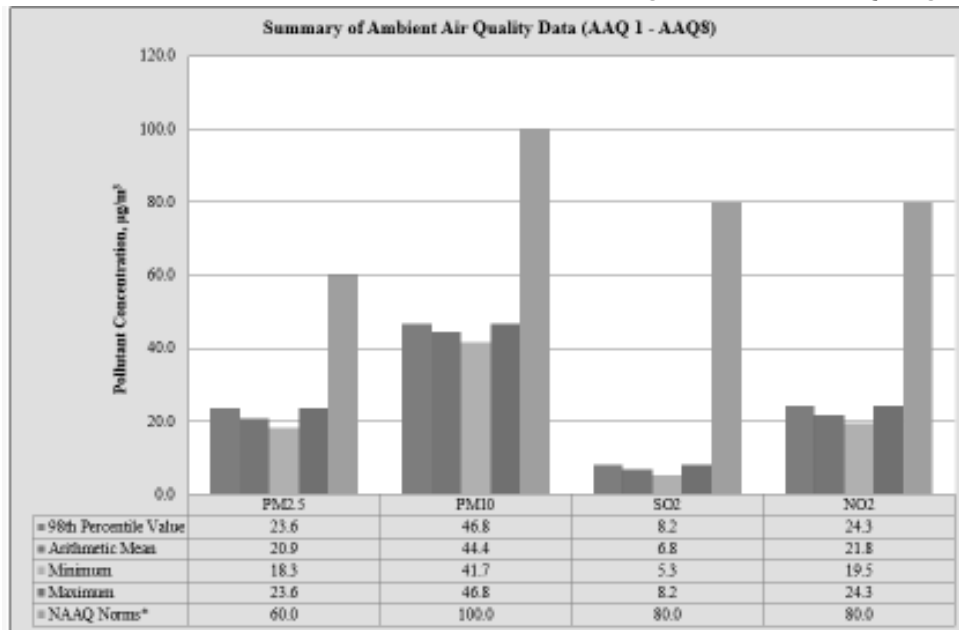


FIGURE 3.15 : BAR DIAGRAM OF PARTICULATE MATTER (PM2.5)

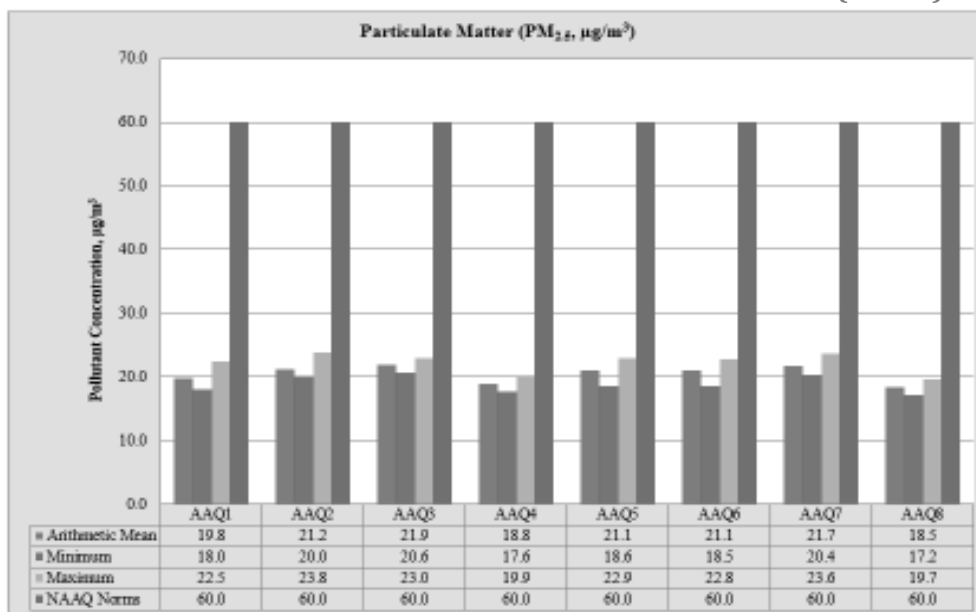


FIGURE 3.16: BAR DIAGRAM OF PARTICULATE MATTER (PM₁₀)

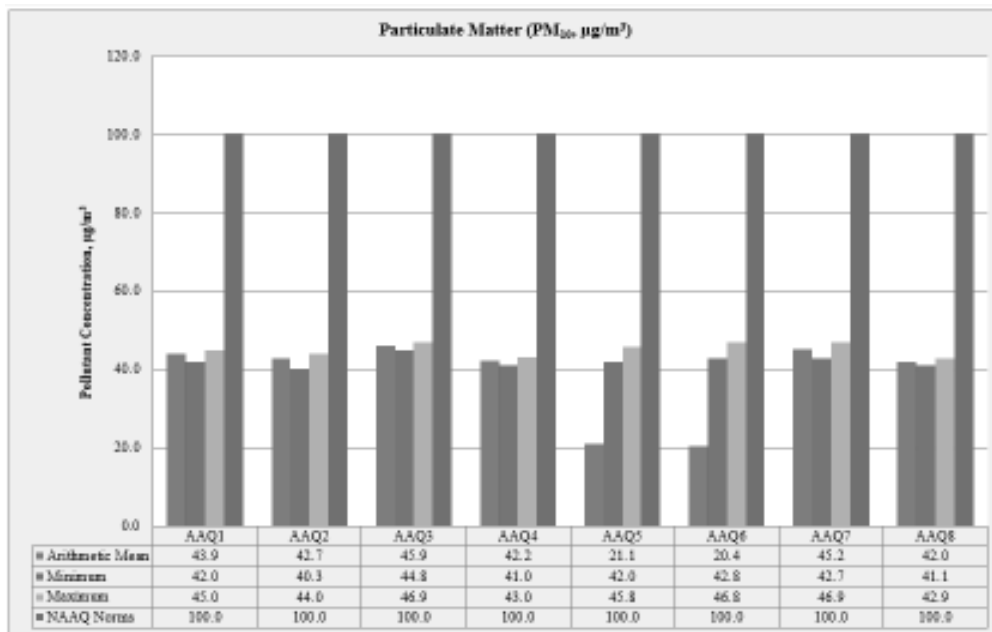


FIGURE 3.17: BAR DIAGRAM OF PARTICULATE MATTER (SO₂)

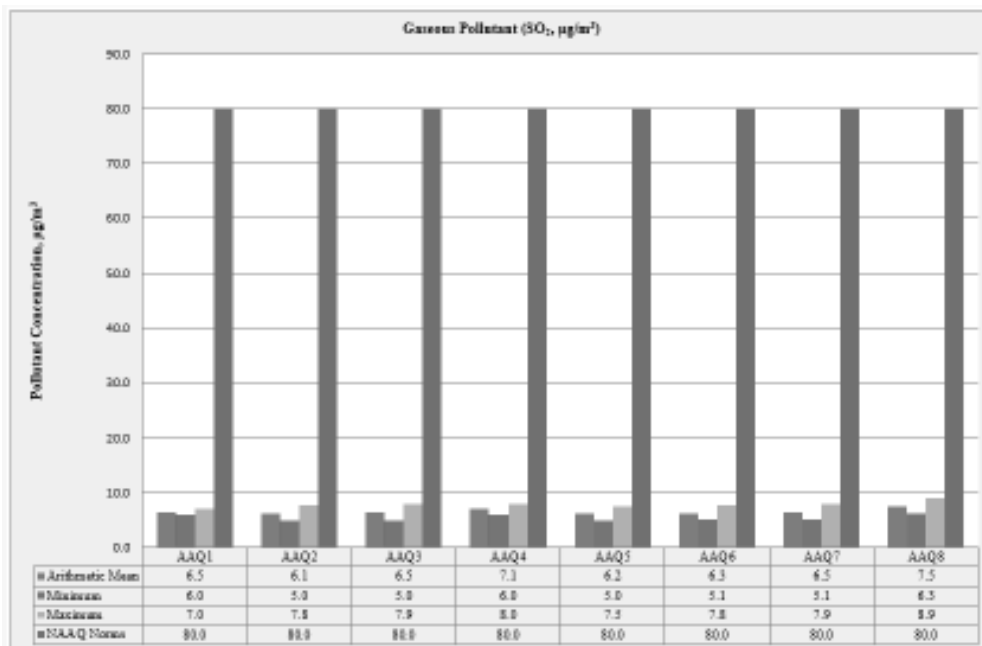
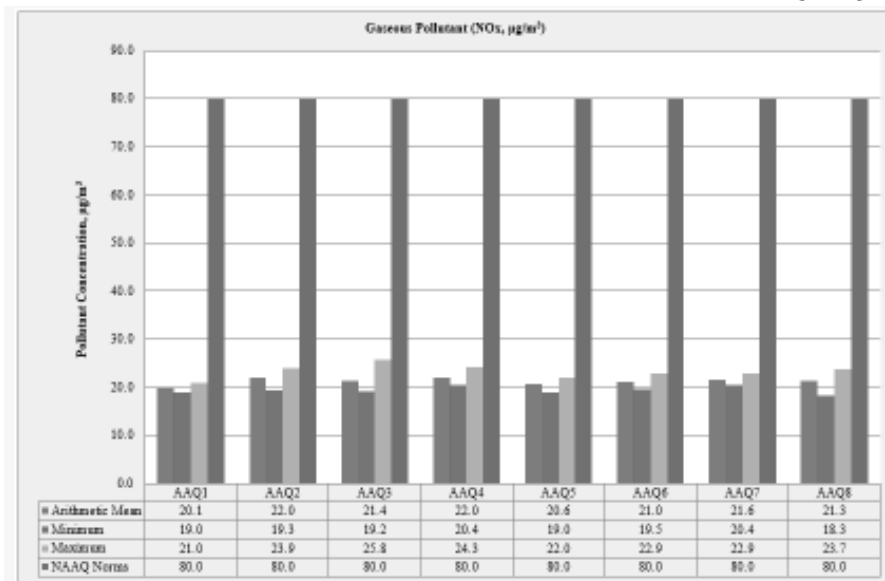


FIGURE 3.18: BAR DIAGRAM OF PARTICULATE MATTER (Nox)



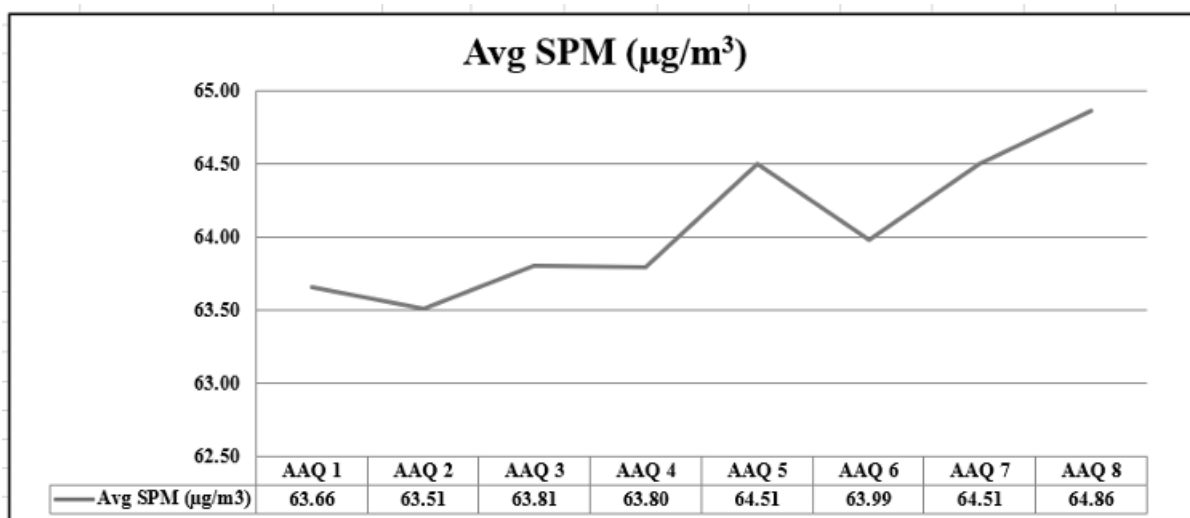
3.3.7 FUGITIVE DUST EMISSION –

Fugitive dust was recorded at 8 AAQ monitoring stations for 30 days average during the study period.

Table 3.20: Average Fugitive Dust Sample Values In mg/m³

AAQ Locations	Avg SPM (µg/m ³)
AAQ 1	63.66
AAQ 2	63.51
AAQ 3	63.81
AAQ 4	63.80
AAQ 5	64.51
AAQ 6	63.99
AAQ 7	64.51
AAQ8	64.86

Source: Onsite monitoring/ sampling by EHS360 Labs Private Limited

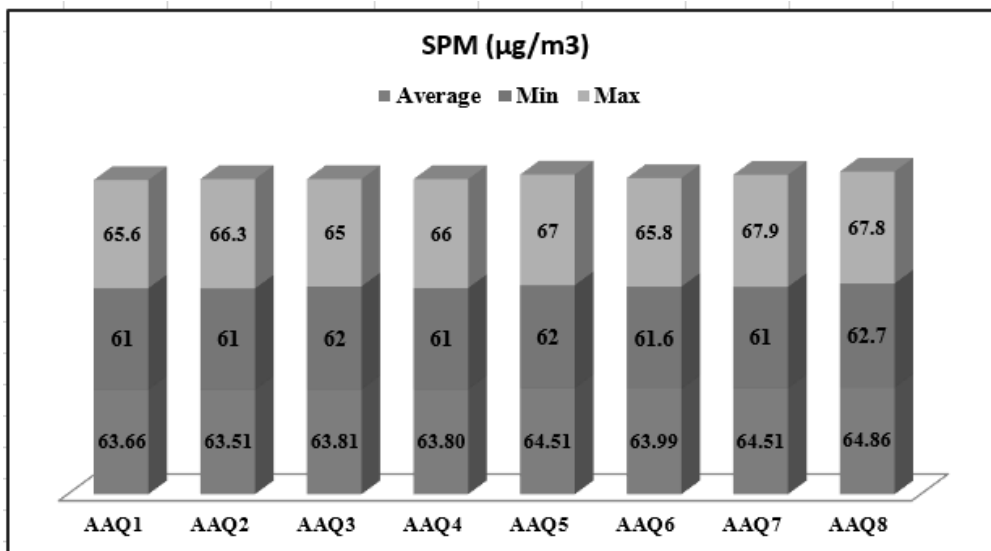


Source: Line Diagram of Table 3.28

Table 3.21 : Fugitive Dust sample values in $\mu\text{g}/\text{m}^3$ -

SPM ($\mu\text{g}/\text{m}^3$)	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7	AAQ8
Average	63.66	63.51	63.81	63.80	64.51	63.99	64.51	64.86
Min	61	61	62	61	62	61.6	61	62.7
Max	65.6	66.3	65	66	67	65.8	67.9	67.8

Source: Field Data's



Source: Bar Diagram of table 3.26

3.3.6 Interpretations & Conclusion

From the above data's, the concentration of main criteria pollutants has been observed that maximum concentration of PM₁₀ is 46.9 µg/m³ recorded at MGR Nagar and minimum is 40.3 µg/m³ recorded at Project area (Core). The concentration of PM_{2.5} varies from Minimum 17.2 µg/m³ was recorded at Kammampalli Village and Maximum concentration of PM_{2.5} recorded at 23.8 µg/m³ Project area (Core). SO₂ concentration level ranged from 8.9 – 5.0 µg/m³ and NO₂ concentration ranged from 25.8– 18.3µg/m³ in the study area. The concentration levels of the above criteria pollutants were observed to be well within the limits of NAAQS prescribed by CPCB.

Toxic Metals (Lead, Nickel & Arsenic): Representative samples from all sampling stations were collected and analysed 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.

The ambient air quality of different locations has been compared with the respective NAAQS. The air quality has been categorized into four broad categories based on an Exceedance Factor (the ratio of average concentration of a pollutant with that of a respective standard).

The four air quality categories are:

- i. Critical pollution (C): when EF is > 1.5
- ii. High pollution (H): when the EF is between 1.0 < 1.5
- iii. Moderate pollution (M): when the EF between 0.5 < 1.0
- iv. Low pollution (L): when the EF is < 0.5

The Exceedance Factor (EF) is calculated for major pollutants as follows:

3.4 Noise Environment

The vehicular movement on road and mining activities is the major sources of noise in study area, the environmental assessment of noise from the mining activity and vehicular traffic can be undertaken by taking into consideration various factors like potential damage to hearing, physiological responses, and annoyance and general community responses.

The main objective of noise monitoring in the study area is to establish the baseline noise level and assess the impact of the total noise expected to be generated during the project operations around the project site.

3.4.1 Identification of Sampling Locations

In order to assess the ambient noise levels within the study area, noise monitoring was carried out at Eight (8) locations. The noise level monitoring locations were carried out by covering commercial, residential, rural areas within the radius of 10 km. A noise monitoring methodology was chosen such that it best suited the purpose and objectives of the study.

Table 3.22: Details of Noise Monitoring Locations

S. No	Location code	Monitoring Locations	Distance & Direction	Coordinates
1	N1	Project Area	Core Zone	12°29'49.71"N 78°18'4.35"E
2	N2	Project Area	Core Zone	12°29'36.17"N 78°18'5.41"E
3	N3	Achamangalam	2.2km SE	12°29'18.46"N 78°19'17.38"E
4	N4	Elathagiri	5.5km NW	12°32'54.43"N 78°17'42.65"E
5	N5	Periyapanmudlu	3.7km West	12°29'48.95"N 78°15'59.13"E
6	N6	Nakkalpatti	3.5km South	12°27'37.93"N 78°17'44.45"E
7	N7	MGR Nagar	6.2km NE	12°31'56.75"N 78°20'51.88"E
8	N8	Kammampalli	5.5km NW	12°32'18.96"N 78°16'9.94"E

Source: On-site monitoring/sampling by EHS 360 Labs Private Limited in association with GEMS

3.4.2 Method of Monitoring

Digital Sound Level Meter was used for the study. All reading was taken on the 'A-Weighting' frequency network, at a height of 1.5 meters from ground level. The sound level meter does not give a steady and consistent reading and it is quite difficult to assess the actual sound level over the entire monitoring period. To mitigate this shortcoming, the Continuous Equivalent Sound level, indicated by Leq, is used. Equivalent sound level, 'Leq', can be obtained from variable sound pressure level, 'L', over a time period by using following equation.

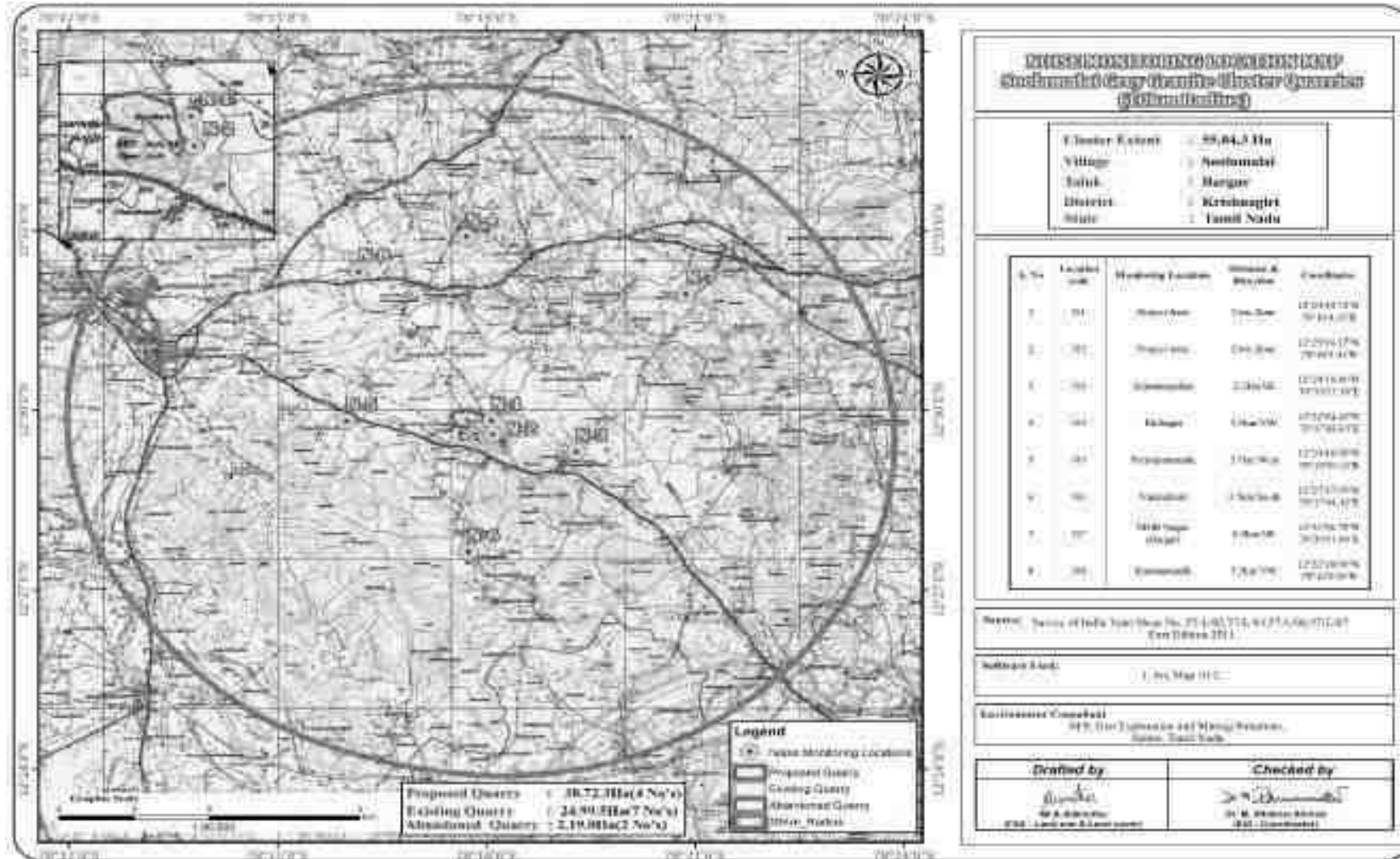
Measured noise levels, displayed as a function of time, is useful for describing the acoustical climate of the community. Noise levels recorded at each station with a time interval of about 60 minutes are computed for equivalent noise levels. Equivalent noise level is a single number descriptor for describing time varying noise levels.

$$Leq = 10 \log L / T \Sigma (10L_n/10)$$

Where L = Sound pressure level at function of time dB (A)

T = Time interval of observation

Figure 3.19: Noise Monitoring Stations Around 10 Km Radius



3.4.3 Analysis of Ambient Noise Level in the Study Area

The Digital Sound pressure level have been measured by a sound level meter (Model: HTC SL-1352) An analysis of the different Leq data obtained during the study period has been made. Variation was noted during the day-time as well as night-time. The results are presented in below Table 3.6

Day time: 6:00 hours to 22.00 hours.

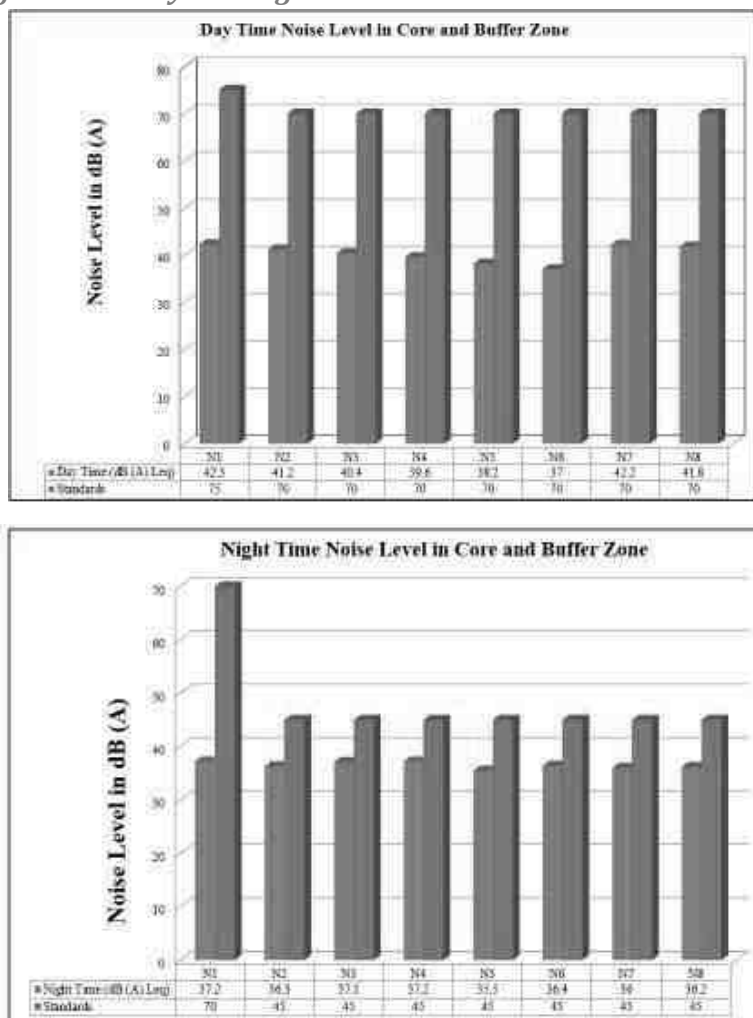
Night time: 22:00 hours to 6.00 hours.

Table 3.23: Ambient Noise Quality Result

S. No	Locations	Noise level (dB (A) Leq)		Ambient Noise Standards
		Day Time	Night Time	
1	Project Area	42.3	37.2	Industrial Day Time- 75 dB (A) Night Time- 70 dB (A)
2	Project Area	41.2	36.3	
3	Achamangalam	40.4	37.1	
4	Elathagiri	39.6	37.2	Residential Day Time- 55 dB (A) Night Time- 45 dB (A)
5	Periyapanmudlu	38.2	35.5	
6	Nakkalpatti	37.0	36.4	
7	MGR Nagar (Bargur)	42.2	36.0	
8	Kammampalli	41.8	36.2	

Source: On-site monitoring/sampling by EHS 360 Labs Private Limited in association with GEMS

Figure 3.20: Day and Night Time Noise Levels in Core and Buffer



3.4.4 Interpretation & Conclusion:

Ambient noise levels were measured at 8 (Eight) locations around the proposed project area. Noise levels recorded in core zone during day time were from 41.2 – 42.3dB (A) Leq and during night time were from 36.3 – 37.2 dB (A) Leq. Noise levels recorded in buffer zone during day time were from 37.0– 42.2 dB (A) Leq and during night time were from 35.5– 37.2 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. Noise monitoring results reveal that the maximum & minimum noise levels at day time were recorded in the range of 45.8 dB(A) Leq in core zone and 36.5 dB(A) Leq in minimum core zone area and 31.7 dB(A) in core zone & 41.4 dB(A) in Project area (Core zone) at night time. Thus, the noise level for Industrial and Residential area meets the requirements of CPCB.

3.5 Ecological Environment

3.5.1. Study area Ecology

In this project, the total area of the Cluster with in 10km radius from the periphery of this quarry is reported as **55.04.3 Ha**. In such Cluster situation, a common Ecology and Biodiversity study for the entire cluster of quarries is enough to capture all the possible externalities. The common EIA/EMP data can be used for all quarries fall under this cluster but the present work was carried out on detailed study of the impacts Soolamalai Village Grey Granite quarry on the ecology and biodiversity of the core lease area with the proper mitigation and sustainable management plan. The proposed area exhibits almost flat terrain. The following methods were applied during the baseline study of flora, fauna and diversity assessment.

3.5.2. Objectives of Biological Studies

- a) Undertake an intensive field survey to assess the status of floral & faunal component in different habitats in the core and buffer areas of the project site.
- b) Identification and listing of flora and fauna which are important as per the Wildlife (Protection) Act 1972.
- c) Suggest Wildlife conservation (species specific/habitat specific) and management plan for the threatened (critically endangered & endangered species - schedule I) faunal species if any reported within the study area.
- d) To identify the impacts of mining on agricultural lands and how it affects.
- e) Proper collection of information about wildlife Sanctuaries/ national parks/ biosphere reserves of the project area.
- f) Devise management & conservation measures for biodiversity.

3.5.2.1. Field surveys

The field visit was carried out to understand and assess the impacts of mining activities on flora & fauna and natural habitats and prediction after the enhancement of the production capacity of the mine. We evaluated the distribution and abundance of flora and fauna in the study area through primary and secondary data sources.

3.5.2.2. Floral Study

- The floral survey of the project area is based on field survey of the area.
- The local flora was identified by their morphological observation, such as the size, age and shape of the leaf, flowers, fruits, and their bark features of the stem, and also documented their habitat viz. Trees, Shrubs, Herbs, Grasses, Climbers etc.
- After surveying the core and the buffer areas, a detailed floral inventory has been compiled. A list of all plants from the study area was prepared and their habitats were recorded.
- Selection of sampling locations was made with reference to topography, land use, vegetation pattern, wind pattern, etc. The observations were taken on natural vegetation, roadside plantations, and non-forest areas (agricultural fields, in plain areas, village wasteland, etc.) for quantitative representation of different species.

3.5.3. Methodology of Sampling

Identification of vegetation in relation to the natural flora and crops was conducted through reconnaissance field surveys and onsite observations in core and buffer zone. The plant species identification was done based on the reference materials and also by examining the morphological characteristics and reproductive materials i.e. flowers, fruits and seeds. Land use pattern in relation to agriculture crop varieties were identified through physical verification of land and interaction with local villagers.

The faunal elements (animal species) of core and buffer zone were identified by direct sightings or indirect evidences viz. pug marks, skeletal remains, scats and droppings etc. (Jayson and Easa 2004). Standard binocular was used for the observations. The authenticity of faunal elements occurrence was confirmed by interaction with the local people. Avifauna identification was done with pictorial descriptions of published literature. Information pertaining to existence of any migratory corridors and paths were obtained from local inhabitants. The status of each faunal element was determined and the Wildlife schedule category was ascertained as per the IUCN-Red Data Book and Indian wildlife (Protection) Act, 1972.

Plot method is used in the floral documentation in the core and buffer zone. For trees (10x10-m), shrubs (5x5-m) and herbs (1x1-m) plots were taken. Birds and butterflies were mainly focused during faunal assessment, transect method was employed for birds and butterflies. Transect is a path along which one counts and records the occurrence of an individual for study. A straight-line walk covering desired distance, within a time span of one hour to 30 minutes was carried out in the proposed region. Bird species were recorded during the hours of peak activity. 0700 to 1100 Hrs and 1430 to 1730 Hrs (Bibby et al. 2000).

Direct observations and bird calls were used for bird documentation. Same transects were used for counting butterflies. Opportunistic observations were made for Amphibians, reptiles and ordimates. Presence of mammals was recorded by direct and indirect signs. All possible transects were taken for birds and butterflies. Birds and butterflies were classified into species level. Recorded bird species were identified to species level using standard books (Ali & Ripley 1987, Grimmett et al., 2016).

3.5.3.1. Sampling

A stratified simple random sampling procedure was employed to obtain a sample from study area. The study area was further stratified in different land use/ecosystems.

3.5.3.2. Sampling Size

Keeping in mind both random sampling technique and covering all land use patterns for the study following sampling locations were chosen depending up on the area of the proposed site.

3.5.3.3. Timing of Study

The study was carried out during morning and evening hours, to cover the different activity phases for important species such as time resting, feeding, hunting, and daily movements.

3.5.3.4. Observations from Sampling

The various observations relating to flora and fauna species are discussed in detail below, in separate sections.

3.5.3.5. Equipment/ References

- Canon Mark III Camera with 50-500mm lens– Snap shots taken
- Leica Binoculars (8x 20) to spot/identify species
- IUCN Red Data Book – <https://www.iucnredlist.org/species>

Ornithological/Entomological/Herpetological/Mammalian catalogues and pictorial descriptions from various authors and websites are followed for species identification

3.5.4. Part I Field Sampling Techniques

3.5.4.1. Transect walk – Birds

Six no transect lines with varying length (100m-300m) and fixed width (2m) were laid which cuts through the core and buffer areas of proposed site. The transect surveys were conducted from 0700 to 1100Hrs and 1430 to 1730Hrs (Bibby et al. 2000). All avifauna found along these transects were recorded for analysing the data. Counts were conducted while there is no heavy rain, mist or strong wind.

3.5.4.2. Modified Pollard Walk – for Butterflies

The Modified Pollard Walk (Pollard 1977, 1993, Walpole 1999) using fixed width transect walk method were employed to investigate butterfly spatial distribution, diversity and abundance at the different survey sites.

3.5.4.3. Visual Encounter Survey (VES) - reptiles and Amphibians

VES is a time-constrained sampling technique (Campbell and Christman, 1982; Corn and Bury, 1990). It needs a systematic search through an area or habitat for a prescribed time period (Campbell and Christman, 1982). The result of VES is measured against the time spent on search. VES technique is one of the simplest methods, and an appropriate technique for both inventory and monitoring Herpetofauna (Heyer et al. 1994).

3.5.4.4. Observational methods- Mammals

For the purpose of recording mammals, we used two different observational techniques: (1) direct observations, and (2) recording of occurrences like holes, markings, scats, hairs, and spines (Menon 2003). For identification confirmations, photographs with a scale reference were used, and locations were recorded using a portable GPS device. Indigenous knowledge particularly that of the locals, was occasionally employed to compile a preliminary list of species and/or aid in the recognition of indicators.

3.5.4.5. Multiple Stage Quadrat – Vegetation

A variety of habitat or vegetation structure variables were measured using the Multiple Stage Quadrat sampling protocol (Sykes and Horrill 1977). All of those areas were sampled, and the major corners were temporarily delineated with colored ribbons. Each site was identified in the field using a compass and clinometer, and the plot's latitude, longitude, and elevation were recorded using a handheld Global Positioning System (Garmin 12XL).

3.5.5. Flora

The quadrat sampling technique was used for sampling vegetation. Sampling quadrats of the regular shape of dimensions 10 × 10 m, 5 × 5 m, and 1 × 1 m, were nested within each other and were defined as the units for sampling the area and measuring the diversity of trees, Shrubs, and herbs respectively.

3.5.5.1. Flora Composition in the Core Zone

Taxonomically a total of 32 species belonging to 17 families have been recorded from the core zone mining lease area. The area is situated on a flat terrain. The gradient is gentle towards southeast and altitude of the area is 478m above from MSL. Based on the habitat classification of the enumerated plants the majority of species were Herbs 11, followed by Trees 8, Shrubs 8, Climber/ Creepers 2 and Grass 3. Details of flora with the scientific name were mentioned in Table No. 3.53. The result of the core zone of flora studies shows that Fabaceae and Poaceae, Euphorbiaceae are the main dominating species in the study area mentioned in Table No.3.32. Distribution of flora life form in the core zone is given in Fig No.3.21. No species were found as threatened category.

Table No: 3.24. Flora in the Core zone of Soolamalai Village, Grey Granite quarry

Sl. No	English Name	Vernacular Name	Scientific Name	Family Name
Trees				
1.	Mesquite	Mullu maram	<i>Prosopis juliflora</i>	Fabaceae
2.	White Bark Acacia	Vela maram	<i>Vachellia leucophloea</i>	Fabaceae
3.	Asian Palmyra palm	Panai maram	<i>Borassus flabellifer</i>	Arecaceae
4.	Wild Date Palm	Icham	<i>Phoenix sylvestris</i>	Arecaceae
5.	Pala indigo	Pala maram	<i>Wrightia tinctoria</i>	Apocynaceae
6.	Gum arabic tree	Karuvelam	<i>Acacia nilotica</i>	Fabaceae
7.	Neem	Vembu	<i>Azadirachta indica</i>	Meliaceae
8.	Bitter Albizia	Arappu Tree	<i>Albizia amara</i>	Fabaceae
Shrubs				
1.	Lantana	Unni chedi	<i>Lantana camara</i>	Verbenaceae
2.	Tanner's cassia	Avaram	<i>Senna auriculata</i>	Fabaceae
3.	Hopbush	Virali	<i>Dodonaea viscosa</i>	Sapindaceae
4.	Indian mallow	Thuthi	<i>Abutilon indicum</i>	Meliaceae
5.	Milk Weed	Erukku	<i>Calotropis gigantea</i>	Apocynaceae
6.	Giant Aloe vera	Kattu katrazhai	<i>Aloe vera</i>	Asphodelaceae
7.	Coromandel Boxwood	Karai	<i>Canthium coromandelicum</i>	Rubiaceae
8.	Triangular spruce	Chaturakalli	<i>Euphorbia antiquorum</i>	Euphorbiaceae
Herbs				
1.	Common leucas	Thumbai	<i>Leucas aspera</i>	Lamiaceae
2.	Asthma-plant	Amman pacharisi	<i>Euphorbia hirta</i>	Euphorbiaceae
3.	Indian doab	Arugampul	<i>Cynodon dactylon</i>	Poaceae

4.	Carrot grass	Partiniyam	Parthenium hysterophorus	Asteraceae
5.	Coat buttons	Thatha poo	Tridax procumbens	Asteraceae
6.	Bindii	Nerunji mullu	Tribulus terrestris	Zygophyllaceae
7.	Holy basil	Thulasi	Ocimum tenuiflorum	Lamiaceae
8.	Pignut	Nattapoochedi	Hyptis suaveolens	Lamiaceae
9.	Christsmas Bush	Poom pul	Chromolaena odorata	Asteraceae
10.	Fish poison	Kolinchi	Tephrosia purpurea	Fabaceae
11.	Prickly chaff flower	Nayuruv	Achyranthes aspera	Amaranthaceae
Grass				
1.	Eragrostis	Pullu	Eragrostis ferruginea	Poaceae
2.	Great brome	Thodappam	Bromus diandrus	Poaceae
3.	Nut grass	Korai	Cyperus rotandus	Poaceae
Climber/ Creepers				
4.	Stemmed vine	Perandai	Cissus quadrangularis	Vitaceae
5.	Stinking passionflower	Poonai puduku chedi	Passiflora foetida	Passifloraceae

(Sources: Species observation in the field study)

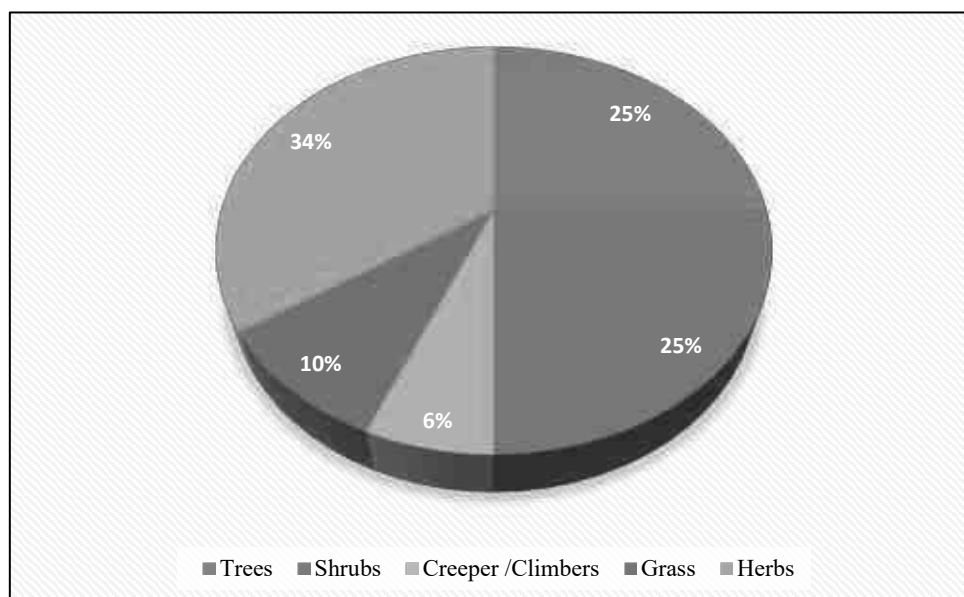


Fig No. 3.21: Graph Showing % Distribution Of Floral Life Forms (Core Zone)



a. *Borassus flabellifer*



b. *Azadirachta indica*



c. *Lantana camara*



d. *Euphorbia antiquorum*



e. *Acacia nilotica*



f. *Parthenium hysterophorus*



Fig No: 3.32. Flora species observation in the Core zone area

Table No: 3.25. Flora in Buffer Zone of Soolamalai Village, Grey Granite Quarry, Krishnagiri District, Tamil Nadu.

S.No.	English Name	Vernacular Name	Scientific Name	Family Name
Trees				
1.	White Bark Acacia	Vela maram	Vachellia leucophloea	Fabaceae
2.	Wild Date Palm	Icham	Phoenix sylvestris	Arecaceae
3.	Blue gum	Thayala maram	Eucalyptus	Myrtaceae
4.	Indian ash tree	Odiya maram	Lannea coromandelica	Anacardiaceae
5.	Neem	Vembu	Azadirachta indica	Meliaceae
6.	Tamarind	Puliyamaram	Tamarindus indica	Legumes
7.	Jackfruit	Palamaram	Artocarpus heterophyllus	Moraceae
8.	Mesquite	Mullu maram	Prosopis juliflora	Fabaceae
9.	Coral Tree	Kalyana murungai	Erythrina variegata	Papilionoide
10.	Asian Palmyra palm	Panai maram	Borassus flabellifer	Arecaceae
11.	Bitter Albizia	Arappu Tree	Albizia amara	Fabaceae
12.	Indian almond	Padam maram	Terminalia catappa	Combretaceae
13.	Banana tree	Vazhaimaram	Musa acuminata	Musaceae
14.	Indian ash tree	Odiya maram	Lannea coromandelica	Anacardiaceae
15.	Curry leaves	Karuveppali	Murraya koenigii	Rutaceae
16.	Lemon	Ezhumuchaipalam	Citrus lemon	Rutaceae
17.	Bidi leaf tree	Thiruvathi Plant	Bauhinia racemosa	Fabaceae
18.	Rusty Acacia	Parambai	Acacia ferruginea	Mimosaceae
19.	Mango	Manga	Mangifera indica	Anacardiaceae
20.	Peepal	Arasanmaram	Ficus religiosa	Moraceae
21.	Yellow flame tree	Perunkondrai	Peltophorum pterocarpum	Fabaceae
22.	Custard apple	Seethapazham	Annona reticulata	Annonaceae
23.	Flamboyant	Cemmayir-konrai	Delonix regia	Fabaceae
24.	Chinaberry	Malai vembu	Melia azedarach	Meliaceae
25.	Monkey pod tree	Thungumoonchi	Samanea saman	Fabaceae
26.	Yellow Flame	Iyalvagai	Peltophorumpterocarpum	Fabaceae
27.	Teak	Thekku	Tectona grandis	Verbenaceae
28.	Indian gooseberry	Nelli	Emblica officinalis	Phyllanthaceae
29.	Henna	Marudaani	Lawsonia inermis	Lythraceae
30.	Black Siris	Karuvagai	Albizia odoratissima	Mimosaceae
31.	Madras thorn	Kudukapuli	Pithecellobium dulce	Fabaceae
32.	-	Karukaya	Ziziphus trinervia	Rhamnaceae
33.	Malayan Cherry	Ten Pazham	Muntingia calabura	Muntingiaceae
34.	Pomegranate	Mathulai	Punica granatum	Lythraceae
35.	Jamun Fruit Plant	Naval maram	Syzygium cumini	Myrtaceae

36.	Banyan tree	Alamaram	Ficus benghalensis	Moraceae
37.	Chinese chaste tree	Nochi	Vitex negundo	Verbenaceae
38.	Ceylon satinwood	Porasu	Chloroxylon swietenia	Rutaceae
39.	Indian Jujube	Ilanthai	Ziziphus jujuba	Rhamnaceae
40.	Millettia pinnata	Pongam oiltree	Pongamia pinnata	Fabaceae
41.	Coconut	Thennai maram	Cocos nucifera	Arecaceae
42.	Guava	Koyya	Psidium guajava	Myrtaceae
43.	Notched Leaf Soapnut	Poovankottai	Sapindus emarginata	Sapindaceae
44.	Pala indigo	Pala maram	Wrightia tinctoria	Apocynaceae
45.	River tamarind	Savundal maram	Leucaena leucocephala	Fabaceae
46.	Portia tree	Poovarasam	Thespesia populnea	Malvaceae
47.	Drumstick tree	Mooring maram	Moringa oleifera	Moringaceae
48.	Sacred Tree	Porasu	Butea monosperma	Fabaceae
49.	Mesquite	Mullu maram	Prosopis juliflora	Fabaceae
50.	Papaya	Pappali maram	Carica papaya L	Caricaceae
51.	Bamboo	Moonghil	Bambusa bambo	Poaceae
Shrubs				
1.	Tanner's cassia	Avaram	Senna auriculata	Fabaceae
2.	Milk Weed	Erukku	Calotropis gigantea	Apocynaceae
3.	Lantana	Unni chedi	Lantana camara	Verbenaceae
4.	Hopbush	Virali	Dodonaea viscosa	Soapberry
5.	Triangular spruge	Chaturakalli	Euphorbia antiquorum	Euphorbiaceae
6.	Night shade plan	Sundaika	Solanum torvum	Solanaceae
7.	-	Odankodi	Hippocratea indica	Odankodi
8.	Broom creeper	Kattukodi	Cocculus hirsutus	Menispermaceae
9.	Solanum pubescens	Malaisundai	Solanum pubescens Wild	Solanaceae
10.	Indian Oleander	Arali	Nerium indicum	Apocynaceae
11.	Shoe flower	Chemparuthi	Hibiscu rosa-sinensis	Malvaceae
12.	Puriging nut	Kattamanakku	Jatropha curcas	Euphorbiaceae
13.	Jackal jujube	Suraimullu	Ziziphus oenoplia	Rhamnaceae
14.	Touch-me-not	Thottalchinungi	Mimosa pudica	Mimosaceae
15.	Chinese chastetree	Nalla nochi	Vitex negundo L	Verbinaceae
16.	Prickly pear	Nagathali	Opuntia dillenii	Cactaceae
17.	Triangular spruge	Chaturakalli	Euphorbia antiquorum	Euphorbiaceae
18.	Thorn apple	Oomathai	Datura stramonium	Solanaceae
19.	Malabar catmint	Pei veratti	Anisomeles malabarica	Lamiaceae
20.	Indian mallow	Thuthi	Abutilon indicum	Meliaceae
21.	Bush Morning Glory	Neiveli Kattamani	Ipomoea carnea	Convolvulaceae
22.	Carray Cheddle	Kaarai	Canthiumparviflorum	Rubiaceae
23.	Castor oil plant	Amanakku	Ricinus communis	Euphorbiaceae
24.	Flame of the Woods	Idlipoo	Xoracoc cineia	Rubiaceae

Herbs				
1.	Eggplant	Kathrikkai	Solanum melongena	Solanaceae
2.	Aloe barbadensis	Katrazhai	Aloe vera	Asphodelaceae
3.	Mountain knotgrass	Thengaipoo kirai	Aerva lanata	Amaranthaceae
4.	Ash Fleabane	Puvangkuruntal	Vernonia cinerea	Asteraceae
5.	Bindii	Nerunchi	Tribulus terrestris	Zygophyllaceae
6.	Fish poison	Kolinchi	Tephrosia purpurea	Fabaceae
7.	Bara Gokhru	Yanainerunjil	Pedaliium murex	Pedaliaceae
8.	Commelina benghalensis	Kanavazha	Commelina benghalensis	Commelinaceae
9.	Coat buttons	Thatha poo	Tridax procumbens	Asteraceae
10.	Indian doab	Arugampul	Cynodon dactylon	Poaceae
11.	Chay root	Chaaya ver	Oldenlandia umbellata	Rubiaceae
12.	Slender dwarf morning-glory	Vittunu-k-kiranti	Evolvulus alsinoides	Convolvulaceae
13.	Spiny amaranth	Mullu keerai	Amaranthus spinosus	Amaranthaceae
14.	Cracker plant	Tapas kaaya	Ruellia tuberosa	Acanthaceae
15.	Chilli	Milakai	Capsicum annuum	Solanaceae
16.	Indian Copperleaf	Kuppaimeni	Acalypha indica	Euphorbiaceae
17.	Madagascar Periwinkle	Nithykalyani Podi	Catharanthus roseus	Apocynaceae
18.	Asian spiderflower	Naaikaduku	Cleome viscosa L	Cleomaceae
19.	Digeria muricata	Thoiya keerai	Digeria muricata	Amaranthaceae
20.	Asthma-plant	Amman pacharisi	Euphorbia hirta	Euphorbiaceae
21.	Tomato	Thakkali	Solanum lycopersicum	Solanaceae
22.	White dammar	Mookutipoondu	Vicoa indica	Asteraceae
23.	Cleome viscosa	Nai kadugu	Celome viscosa	Capparidaceae
24.	Bindii	Nerunji mullu	Tribulus terrestris	Zygophyllaceae
25.	Prickly chaff flower	Nayuruv	Achyranthes aspera	Amaranthaceae
26.	Field beans	Avarai	Hyacinth Beans	Fabaceae
27.	False daisy	Karisalankanni	Eclipta alba	Asteraceae
28.	Sessile Joyweed	Ponnakanni	Alternanthera sessilis	Amaranthaceae
29.	Chilli	Milakai	Capsicum annuum	Solanaceae
30.	Red Spiderling	Mukirattai	Boerhavia diffusa	Nyctaginaceae
31.	Common leucas	Thumbai	Leucas aspera	Lamiaceae
32.	Spiny amaranth	Mullu keerai	Amaranthus spinosus	Amaranthaceae
33.	Holy basil	Thulasi	Ocimum tenuiflorum	Lamiaceae
34.	Coat buttons	Thatha poo	Tridax procumbens	Asteraceae
35.	Indian mint	Karpura valli	Coleus amboinicus	Lamiaceae
36.	Aloe barbadensis	Katrazhai	Aloe vera	Asphodelaceae
37.	Ban Tulsi	Melakai poondu	Croton bonplandianus	Euphorbiaceae
38.	European black nightshade	Manathakkali	Solanum nigrum	Solanaceae
39.	Ladies' fingers	Vendakkai	Abelmoschus esculentus	Malvaceae
40.	Majjigeberru gida	Purpannai	Aerva monsoniae	Amaranthaceae

41.	Vigna mungo	Ulunthu	Vigna mungo	Fabaceae
42.	chicken weed	Sirupasalai	Portulaca quadrifida L	Portulacaceae
43.	Bright eyes	Nithiyakalyani	Catharanthus roseus	Apocynaceae
44.	Carrot grass	Parttiniyam	Parthenium hysterophorus	Asteraceae
45.	Indian mint	Karpura valli	Coleus amboinicus	Lamiaceae
Climber/ Creeper				
1.	Stemmed vine	Perandai	Cissus quadrangularis	Vitaceae
2.	Ivy gourd	Kovai	Coccinia grandis	Cucurbitaceae
3.	Balloon plant	Mudakrttan	Cardiospermum halicacabum	Sapindaceae
4.	Bitter apple	Peikkumatti	Citrullus colocynthis	Cucurbitaceae
5.	Butterfly pea	Sangu poo	Clitoria ternatea	Fabaceae
6.	Wild jasmine	Malli	Jasminum augustifolium	Oleaceae
7.	Betel	Vettilai	Piper betle	Piperaceae
8.	Pointed gourd	Kovakkai	Trichosanthes dioica	Cucurbitaceae
9.	Wild bitter	Pavarkai	Momordica charantia	Cucurbitaceae
10.	Bottle Guard	Sorakkai	Lagenaria siceraria	Cucurbitaceae
11.	White pumpkin	Poosanaikkaai	Cucurbitaceae	Cucurbitaceae
12.	Rosary Pea	Gundumani	Abrus precatorius	Fabaceae
13.	Nut grass	Korai	Cyperus rotundus	Poaceae
14.	Cucumis maderaspatanus	Musumusukkai	Mukia maderaspatana	Cucurbitaceae
Grass				
1.	Jungle rice	Kuthirai vaalKattu arusi	Echinochloa colona	Poaceae
2.	Mauritian Grass	Moongil pul	Apluda mutica	Amaranthaceae
3.	Swollen Windmill Grass	Kondai Pul	Chloris barbata	Poaceae
4.	Needle Grass	Thodappam	Aristida adscensionis	Poaceae
5.	Eragrostis	Pullu	Eragrostis ferruginea	Poaceae
6.	Needle Grass	-	Aristida funiculata	Poaceae
7.	Windmill grass	Chevvarakupul	Chloris barbata	Poaceae

*E- Economical, M- Medicinal, EM- Both Economical and Medicinal, NE- Not evaluated.

3.5.5.2. Economically important Flora of the study area

The major irrigated crops in the district are paddy, ragi, turmeric, sugarcane, banana, tomato, groundnut, cotton, coconut and flowers. The irrigated area under vegetables, fruit and flowers. Farmers have adopted to cultivation methods through judicious use of water with modern water management techniques and technology.

3.5.5.3. Major Crops in the District

Owing to the climate and soil conditions Krishnagiri District suits to diverse type of cultivation. There are about 26 type of crops grown in the District including medicinal plants. Important crops grown in the district are Paddy, Ragi, Cholam, Red gram, Black gram, Horse Gram, Mango, Coconut, Cabbage, Banana, Tomato, Califlower etc., and the major cash crops are groundnut, flowers and cotton.

Source: DDS – Krishnagiri, 2019

3.6. Flora Composition in the Buffer Zone

Similar habitats may be found in the buffer area as well, although there is a wider variety of plants there than in the core zone area. The buffer zone has some forests located away from the proposed project site and there are 141 species in the buffer zone study area in total, based on records. The floral (141) varieties among them Trees 51, Herbs 45, Shrubs 24, Climbers 12, and Grasses 7 were identified. The result of the buffer zone of flora studies shows that Fabaceae and Cucurbitaceous, Euphorbiaceae is the main dominating species in the study area mentioned in Table No.3.34. There are no impacts due to this mining activity. There are no Rare, Endangered, and Threatened Flora species in the mining area and their surrounding study area. Apart from the proposed project area, there is agricultural land. Horticulture and agricultural land are untouched. There are no Rare, Endangered, and Threatened Flora species in the mining area and their surrounding study area. A list of floral species has been prepared based on primary survey (site observations) and discussion with local people. The total number of different plant life forms under Trees, Shrubs, Herbs, and Climbers/Creepers is shown in Table 3.34 and their % distribution is shown in Figure 3.33.

Table 3.26: Number of floral life forms in the Study Area

S. No	Plant Life Form	Number of Species
1	Trees	51
2	Shrubs	24
3	Herbs	45
4	Climber/Creepers	14
6	Grass	7
Total No. of Species		141

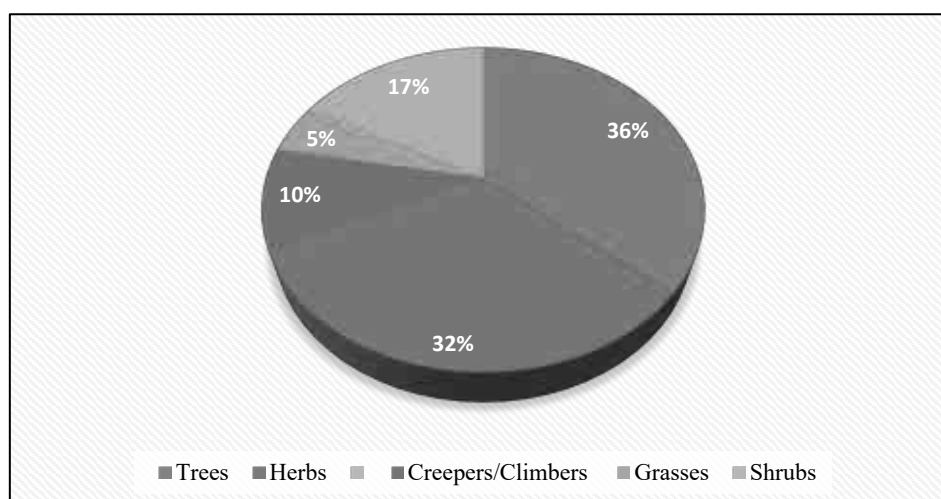


Fig No. 3.33: Graph Showing % Distribution Of Floral Life Forms (Buffer Zone)

3.5.7. The vegetation in the RF / PF areas, ecologically sensitive areas etc.

There are no National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar sites, Tiger/Elephant Reserves/(existing as well as proposed) within 10 km of the mine lease area. There is no Reserve

forest situated within in 1 km radius. The nearest Reserve Forest is Thoragapalli R.F situated at 4.4km on the southeast side. There are no protected forests within the project area. No Wildlife Sanctuary in the study area. In addition, No Biosphere Reserves, Wildlife corridors, or, Tiger / Elephant reserves within 10 km of the project area. No protected (PF) forests either in the mine lease area or in the buffer zone. Thus, no forest land is involved in any manner.

There are no protected or ecologically sensitive areas such as National parks or Important Bird Areas (IBAs), or Wetlands or migratory routes of fauna or water bodies or human settlements within the proposed mine lease area. There are no Biosphere reserves or wildlife sanctuaries or National parks or Important Bird Areas (IBAs), or migratory routes of fauna. Thus, the area under study (Mine lease area and the 10 Km buffer zone) is not ecologically sensitive.

Thus, no forest land is involved in any manner. There are no impacts due to this mining activity. There are neither forests nor forest dwellers nor forest-dependent communities in the mine lease area. There shall be no forest-impacted families (PF) or people (PP). Thus, the rights of Traditional Forest Dwellers will not be compromised on account of the project.

Table No: 3.27. List of medicinal plants recorded from the nearby forest area

S.No	Botanical Name	Family	Local name(s)	Habit	Part(s) used	Uses
1.	<i>Abrus precatorius</i> L.	Fabaceae	Kundumani	CL	Leaves, Seeds	Skin diseases, Eye disease and tooth ache.
2.	<i>Abutilon indicum</i> (L.) Swee	Malvaceae	Thuthi	S	Seed, Root, Barks and Leaves	Urinary troubles, Nervous disorders, Leprosy and Leucorrhoea
3.	<i>Acacia catechu</i> (L.f.) Wild	Mimosaceae	Karungaali	T	Wood	Skin diseases, mouth ulcer, dysentery and Leprosy.
4.	<i>Acacia nilotica</i> (L.) Wild. ex Del. subsp. <i>indica</i> (Benth) Brenan	Mimosaceae	Karuvelam	T	Bark, heartwood, Leaves, Seeds and gum	Urino-genital diseases, wounds, haemorrhage, ulcers, cough and tooth ache.
5.	<i>Acalypha indica</i> L	Euphorbiaceae	Kuppaimeni	H	Whole plant	Eczema, skin diseases, cough and bronchitis, Wounds and ulcer
6.	<i>Erythrina variegata</i>	Papilionoide	Kalyana murungai	T	Whole plant	Laxative, diuretic, anthelmintic, galactagogue and emmenagogue, venereal buboes.
7.	<i>Achyranthes aspera</i> L	Amaranthaceae	Nayurivi	H	Whole plant	Diuretic, astringent, skin diseases and piles
8.	<i>Albizia lebeck</i> (L.) Wild	Mimosaceae	Vaagai	T	Seeds, Leaves, Bark, Flowers and Pod	Eczema, Ulcer, rheumatism, leprosy
9.	<i>Aloe vera</i> (L.) Burm.f.	Asphodelaceae	Choththukathazhai	H	Leaf juice	Dysentery, leucorrhoea, amenorrhoea, menstrual problems, intestinal worms and skin tonics
10.	<i>Azadirachta indica</i> A. Juss	Meliaceae	Vembu	T	Bark, Leaves, Flower, Seeds and Oil	Antiviral, anthelmintic, insecticide, antiseptic, skin diseases, small pox and clean teeth.
11.	<i>Calotropis gigantea</i>	Asclepiadaceae	Erukku	S	Whole plant	Anthelmintic, skin diseases, leprosy, snake bite, ulcers, piles, cough and asthma
12.	<i>Cissus quadrangularis</i> L.	Vitaceae	Pirandai	CL	Stem	Rheumatoid arthritis, appetizer, bone fracture and nervine tonic.
13.	<i>Ormocarpum cochinchinense</i> (Lour.) Merr.	Fabaceae	Elumbotti	S	Bark	Fever, rheumatism and bone setting.
14.	<i>Phyllanthus urinaria</i> L	Euphorbiaceae	Malai Kizhanelli	H	Whole plant	Jaundice, gonorrhoea, urinary diseases, indigestion, bleeding piles and menstrual problems.

H-Herb; S-Shrub; CL- Climber; T-Tree

3.6. FAUNA

The faunal survey has been carried out as per the methodology cited and listed out Mammals, birds, Reptiles, Amphibians, and Butterflies. All the listed species were compared with Red Data Book and Indian Wildlife Protection Act, 1972. There are no rare, endangered, threatened (RET) and endemic species present in the core area.

3.6.1. Fauna Composition in the Core Zone

A total of 26 varieties of species were observed in the Core zone of Soolamalai Village, Grey Granite quarry (Table No.3.57) among them numbers of Insects 7, Reptiles 5, Mammals 3, and Avian 11. A total of 26 species have been recorded from the core mining lease area. None of these species are threatened or endemic in the study area and surroundings. There is no Schedule I species and 17 species are under Schedule IV according to the Indian Wildlife Act 1972. A total of 11 species of bird were sighted in the mining lease area. There are no critically endangered, endangered, vulnerable, and endemic species were observed. Details of fauna in the core zone with the scientific name were mentioned in Table No. 3.57.

Table No: 3.28. Fauna in the Core zone of Soolamalai Village, Grey Granite Quarry, Krishnagiri District, Tamil Nadu

SI. No	Common Name	Scientific Name	Schedule list WPA 1972	IUCN Red List data
Insects/Butterflies				
1.	Striped tiger	<i>Danaus plexippus</i>	Schedule IV	LC
2.	Grey pansy	<i>Junonia atlites</i>	Schedule IV	LC
3.	Common Tiger	<i>Danaus genutia</i>	Schedule IV	LC
4.	Grasshopper	<i>Hieroglyphus sp</i>	NL	LC
5.	Common Tiger	<i>Danaus genutia</i>	NL	NL
6.	Termite	<i>Hamitermes silvestri</i>	NE	LC
7.	Red-veined darter	<i>Sympetrum fonscolombii</i>	NL	LC
Reptiles				
1.	Garden lizard	<i>Calotes versicolor</i>	NL	LC
2.	Common skink	<i>Mabuya carinatus</i>	NL	LC
3.	Common krait	<i>Bungarus caeruleus</i>	Schedule IV	
4.	Rat snake	<i>Ptyas mucosa</i>	Sch II (Part II)	LC
5.	Green vine snake	<i>Ahaetulla nasuta</i>	Schedule IV	NL
Mammals				
1.	Indian Field Mouse	<i>Mus booduga</i>	Schedule IV	NL
2.	Asian Small Mongoose	<i>Herpestes javanicus</i>	Schedule (Part II)	
3.	Common rat	<i>Rattus rattus</i>	Schedule IV	LC
Aves				
1.	Black drongo	<i>Dicrurus macrocercus</i>	Schedule IV	LC
2.	Common myna	<i>Acridotheres tristis</i>	Schedule IV	LC
3.	House crow	<i>Corvus splendens</i>	Schedule V	LC
4.	Sunbird	<i>Cinnyris asiaticus</i>	Schedule IV	LC
5.	Shikra	<i>Laniusexcubitor</i>	Schedule IV	LC
6.	Rose-ringed parakeet	<i>Psittacula krameri</i>	Schedule IV	LC
7.	Common quail	<i>Coturnix coturnix</i>	Schedule IV	LC
8.	Koel	<i>Eudynamis</i>	Schedule IV	LC
9.	Cattle egret	<i>Bubulcus ibis</i>	Schedule IV	LC
10.	Rock pigeon	<i>Columbidae</i>	Schedule IV	LC
11.	Indian Robin	<i>Saxicoloides fulvicata</i>	Schedule IV	LC

*NL- Not listed, LC- Least Concern

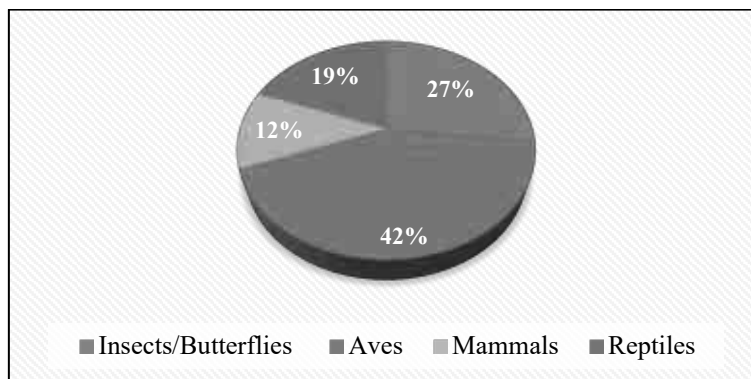


Fig No:3.34. Distribution Of Faunal Communities (Core Zone)

3.6.2. Fauna Composition in the Buffer Zone

As animals, especially vertebrates move from place to place in search of food, shelter, mate or other biological needs, separate lists for core and buffer areas are not feasible however, a separate list of fauna pertaining to core and buffer zone are listed separately. Though there is no reserved forests in the buffer zone. As such there are no chances of occurrence of any rare or endangered or endemic or threatened (REET) species within the core or buffer area.

There are no Sanctuaries, National Parks, Tiger Reserve or Biosphere reserves or Elephant Corridor or other protected areas within 10 km radius of from the core area. It is evident from the available records, reports, and circumstantial evidence that the entire study area including the core and buffer areas were free from any endangered animals. There were no resident birds other than common bird species such as Red-whiskered Bulbul, Asian Koel, House crow, Black drangos, Crows, Pond heron etc.

Taxonomically a total of 79 species have been recorded from the buffer zone area. Based on habitat classification the majority of species were Birds 40 and the list of bird species recorded during the field survey and literature from the study area is given in Table 3.58, followed by Reptiles 9, Mammals 9 (*directly sighted animals & Secondary data), and amphibians 6 and Butterflies 15. Distribution of faunal Communities in the Core Zone is given in Fig No.3.34. There are no critically endangered, endangered, vulnerable, and endemic species were observed. There are no impacts on nearby fauna species. It is apparent from the list that none of the species either spotted or reported is included in Schedule I of the Wildlife Protection Act. Similarly, none of them comes under the REET category.

Table No: 3.29. Faunal Diversity in Buffer Zone of Soolamalai Village, Grey Granite Quarry, Krishnagiri District, Tamil Nadu.

S.No	Scientific Name	English Name	Schedule of Wildlife Protection Act	Status as per IUCN Red Data List	Method
Mammals					
1.	<i>Herpestes edwardsi</i>	Indian Grey Mongoose	II	Least Concern	DS
2.	<i>Mus booduga</i>	Little Indian field mouse	IV	Least Concern	DS
3.	<i>Bandicota bengalensis</i>	Indian mole-rat	IV	Least Concern	DS
4.	<i>Mus musculus</i>	House mouse	IV	Least Concern	DS
5.	<i>Funambulus palmarum</i>	Common Palm Squirrel	IV	Least Concern	DS
6.	<i>Rattus rattus</i>	Black rat	IV	Least Concern	DS
7.	<i>Bandicota indica</i>	Rat	IV	Least Concern	DS
8.	<i>Lepus nigricollis</i>	Indian Hare	IV	Least Concern	DS
9.	<i>Cynopterus sphinx</i>	Short nosed fruit bat	IV	Least Concern	DS
Birds					
1.	<i>Dicrurus adsimilis</i>	Fork-tailed drongo	IV	Least Concern	DS
2.	<i>Alcedo atthis</i>	Common Kingfisher	IV	Least Concern	DS
3.	<i>Copsychus fulicatus</i>	Indian robin	IV	Least Concern	DS
4.	<i>Dicrurus paradiseus</i>	Racket tailed drongo	IV	Least Concern	DS
5.	<i>Corvus splendens</i>	House crow	V	Least Concern	DS
6.	<i>Dicrurus macrocercus</i>	Black Drongo	IV	Least Concern	DS
7.	<i>Halcyon smyrnensis</i>	White-breasted kingfisher	IV	Least Concern	DS
8.	<i>Bubulcus ibis</i>	Cattle Egret	IV	Least Concern	DS
9.	<i>Pelargopsis capensis</i>	Storkbilled kingfisher	IV	Least Concern	DS
10.	<i>Hypsipetes madagascariensis</i>	Black bulbul	IV	Least Concern	DS
11.	<i>Columba livia</i>	Rock pigeon	IV	Least Concern	DS
12.	<i>Turdoides caudatus</i>	Common Babbler	IV	Least Concern	DS
13.	<i>Acridotheres tristis</i>	Common myna	IV	Least Concern	DS
14.	<i>Psittacula krameri</i>	Rose ringed parakeet	IV	Least Concern	DS
15.	<i>Coturnix coturnix</i>	Grey quail	IV	Least Concern	DS
16.	<i>Passer domesticus</i>	House Sparrow	IV	Least Concern	DS
17.	<i>Pycnonotus cafer</i>	Red vented Bulbul	IV	Least Concern	DS
18.	<i>Accipiter badius</i>	Shikra	IV	Least Concern	DS
19.	<i>Megalaima viridis</i>	Small green barbet	IV	Least Concern	DS
20.	<i>Cuculus canorus</i>	Cuckoo	IV	Least Concern	DS
21.	<i>Calidris minuta</i>	Little stint	IV	Least Concern	DS
22.	<i>Merops orientalis</i>	Small green bee eater	IV	Least Concern	DS

23.	<i>Nectarinia minima</i>	Small sunbird	IV	Least Concern	DS
24.	<i>Ardeola grayii</i>	Pond Heron	IV	Least Concern	DS
25.	<i>Spilopelia chinensis</i>	Spotted dove	IV	Least Concern	DS
26.	<i>Milvus migrans</i>	Common Kite	IV	Least Concern	DS
27.	<i>Phalacrocorax niger</i>	Little cormorant	IV	Least Concern	DS
28.	<i>Egretta garzetta</i>	Little Egret	IV	Least Concern	DS
29.	<i>Anthus hodgsoni</i>	Tree pipit	IV	Least Concern	DS
30.	<i>Apus apus</i>	Common swift	IV	Least Concern	DS
31.	<i>Ardea cinerea</i>	Grey heron	IV	Least Concern	DS
32.	<i>Egretta intermedia</i>	Intermediate egret	IV	Least Concern	DS
33.	<i>Megalaima zeylanica</i>	Brown-headed barbet	IV	Least Concern	DS
34.	<i>Eudynamys scolopacea</i>	Koel	IV	Least Concern	DS
35.	<i>Nectarinia zeylonica</i>	Indian Purple rumped sunbird	IV	Least Concern	DS
36.	<i>Coracias benghalensis</i>	Indian roller	IV	Least Concern	DS
37.	<i>Turdoides striatus</i>	Jungle Babbler	IV	Least Concern	DS
38.	<i>Tringa hypoleucos</i>	Common sandpiper	IV	Least Concern	DS
39.	<i>Hydrophasianus chirurgus</i>	Pheasant-tailed Jacana	IV	Least Concern	DS
40.	<i>Haliastur indus</i>	Brahminy kite	IV	Least Concern	DS
Reptiles					
1.	<i>Calotes versicolor</i>	Oriental garden lizard	III	Least Concern	DS
2.	<i>Bungarus caeruleus</i>	Common krait	IV	Least Concern	DS
3.	<i>Hemidactylus flaviviridis</i>	House lizards	IV	Least Concern	DS
4.	<i>Ophisops leschenaultii</i>	Snake eyed lizard	NL	Least Concern	DS
5.	<i>Naja naja</i>	Indian cobra	II	Least Concern	DS
6.	<i>Bungarus caeruleus</i>	Common krait	IV	Least Concern	DS
7.	<i>Ahaetulla nasuta</i>	Green vine snake	IV	Least Concern	DS
8.	<i>Ptyas mucosa</i>	Rat snake	III	Least Concern	DS
9.	<i>Mabuya carinatus</i>	Common skink	NL	Least Concern	DS
Amphibians					
1.	<i>Sphaerotheca breviceps</i>	Indian Burrowing frog	IV	Least Concern	DS
2.	<i>Euphlyctis hexadactylus</i>	Green pond frog	IV	Least Concern	DS
3.	<i>Bufomelanostictus</i>	Common Indian Toad	IV	Least Concern	DS
4.	<i>Hoplobatrachus tigerinu</i>	Indian bull Frog	IV	Least Concern	DS
5.	<i>Microhyla ornata</i>	Ornate Narrow-mouthed Frog	IV	Least Concern	DS
6.	<i>Sphaerotheca rolandea</i>	Southern Burrowing Frog	IV	Least Concern	DS
Butterflies					
1.	<i>Papilio clytia</i>	Common mime	-	Not assessed	DS

2.	Euploea core	Euploea core	-	Least Concern	DS
3.	Pachliopta aristolochiae	Common rose	-	Not assessed	DS
4.	Papilio polytes	Common mormon	-	Not assessed	DS
5.	Spialia galba	Indian Skipper	-	Not assessed	DS
6.	Danaus genutia	Common tiger	-	Not assessed	DS
7.	Pachliopta hector	Crimson rose	-	Not assessed	DS
8.	Eurema brigitta	Eurema brigitta	-	Not assessed	DS
9.	Hypolimnas bolina	Hypolimnas bolina	-	Not assessed	DS
10.	Castalius rosimon	Common Pierrot	-	Not assessed	DS
11.	Curetis thetis	Indian Sunbeam	-	Not assessed	DS
12.	Troides minos	Southern birdwing	-	Least Concern	DS
13.	Papilio demoleus	Lime Butterfly	-	Not assessed	DS
14.	Ariadne merione	Common Castor	-	Not assessed	DS
15.	Neptis hylas	Neptis hylas	-	Not assessed	DS

*NL- Not listed, LC- Least concern, NT- Near threatened

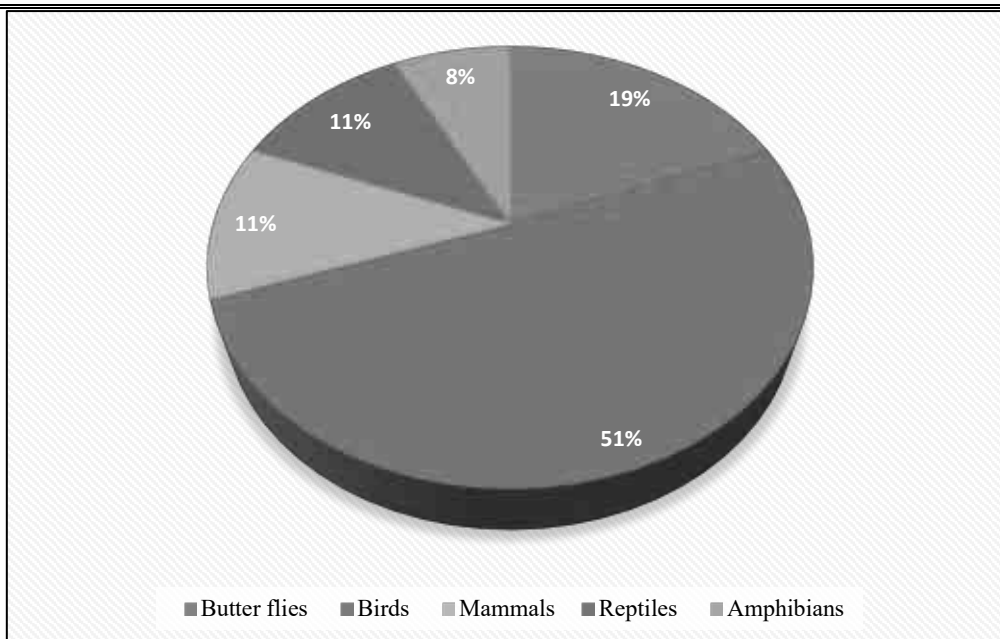


Fig No. 3.35: Diagram showing % distribution of faunal life forms

Livestock like cattle, buffalo, goat, poultry, duck and pig are reared for dairy products, meat, and egg and for agriculture purpose. Majority of cattle and buffalo are of local variety. Backyard poultry farms are mostly common in this area; however, some commercial poultry farms are also recorded in the study area.

The study area is marked with moderate population of flora and fauna. With reference to the Wildlife Protection Act 1972 total number of wildlife tabulated in this study can be characterized as given in the Table 3.59.

Table No: 3.30 Characterization of Fauna in the Study Area (As Per W.P Act, 1972)

S.No	Schedule of Wildlife Protection Act 1972	No. of species	Remark
1.	Schedule I	0	-
2.	Schedule II	2	-
3.	Schedule III	2	-
4.	Schedule IV	57	-
5.	Schedule V	1	-
6.	Schedule VI	0	-

Fig No: 3.36. Schedule Of Wildlife Protection Act 1972

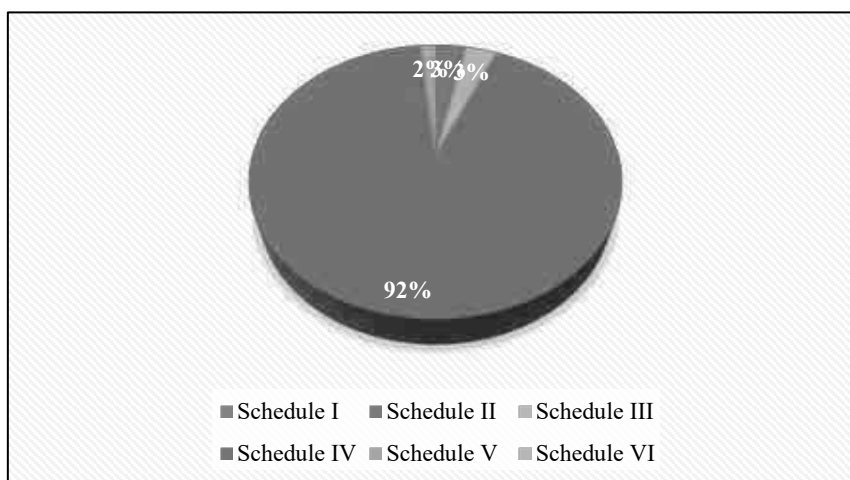


Table 3.31: Description of Flora & Fauna

S.No	Type of Species	Name	Local Name
Flora			
1.	Endangered species	None	None
2.	Threatened species	None	None
3.	Near Threatened species	None	None
4.	Vulnerable species	None	None
Fauna			
5.	Endangered species	None	None
6.	Threatened species	None	None
7.	Near Threatened species	None	None
8.	Vulnerable species	None	None
9.	Migratory Corridors & Flight Paths	No corridors & flight paths	-
10.	Breeding & Spawning grounds	None	-

A comprehensive Central Legislation namely Wild Life (Protection) Act was enforced in 1972 to provide protection to wild animals. Schedule-I of this act contains the list of rare and endangered species, which are completely protected throughout the country. The list of wild animals and their conservation status as per Wild Life Act (1972) presented in Table 3.38 are the species recorded/reported from the study area, out of which 2 species belongs to schedule-II, 2 species belongs to schedule-III, 1 species belongs to schedule-V and rest of the species belongs to schedule-IV of Wildlife protection Act, 1972.

The study area intersected by few natural drainage and lakes. A number of samples were investigated for enumeration of aquatic fauna. In order to study aquatic flora and faunal life one time survey was conducted during the winter season. Major component of the aquatic life under the study area are listed below

- Phytoplankton
- Zooplankton
- Aquatic vertebrates like fish, amphibians etc.

To assess the planktonic profile of Phytoplankton and Zooplankton, few water samples collected from nearby water bodies and etc. of the project side were collected at sub-surface level. The aquatic ecological study was conducted in different water bodies of the study area and the flora and fauna was recorded.

3.6.3. Aquatic Flora

While considering assessment of aquatic pollution and its implications, it must be realized that, despite many changes in the physico-chemical properties of the water body and sediment, the ultimate consequences of pollutants may be reflected inevitably on the biological system. Hence, the investigations of an ecosystem and particularly of its communities constitute an integral part of any ecological assessment. This can be achieved by selecting a few reliable parameters from a complex community structure. The parameters considered have phytoplankton (cell count, and generic diversity), zooplankton (standing stock i.e., biomass and faunal groups), fishery and mammals as well as birds. The first two reflect the productivity of a water column at the primary and secondary levels, respectively. Benthic organisms being sedentary animals associated with the seabed, provide information regarding the integrated effects of stress, if any, and hence serve as good indicators of early warnings of potential damages.

3.6.3.1. Significance of Plankton

Planktons can be broadly grouped into two categories those with plant origin are called 'Phytoplankton' and those with animal origin are called 'Zooplankton'.

3.6.3.2. Significance of Phytoplankton:

In aquatic environments, phytoplanktons are the main primary producers of organic matter, particularly in seas where they account for 90% of the production. When taken as a whole, they either directly or indirectly sustain all animal populations. In the spring, phytoplanktons are exposed to more intense light from the upper sun when the water column becomes shallow. One of the main abiotic elements that promotes phytoplankton growth

is light. The enormous accumulation of phytoplankton in the spring directly supplies fresh organic carbon to nourish the zooplankton, which supports fish, crabs, mollusks, and avian species—larger aquatic animals.

Phytoplankton group reported from the study area were Basillariophyceae, Chlorophyceae, Myxophyceae and Euglenophyceae members. About 10 species of phytoplankton were reported from all the locations. Dominance of Bacillariophyceae members followed by Myxophyceae was observed in studies samples.

Table No: 3.32. Phytoplankton species

S.No	Name of species	Name of Family
1.	Achnanthes affinis	Achnantheaceae
2.	Spirulina sp., Oscillatoria sp.	Myxophyceae
3.	Ankistrodesmus falcatus, Pediastrum boryanum, Scenedesmus bijuga	Chlorophyceae
4.	Synedra balthica	Fragilariaceae

3.6.3.3. Significance of Zooplankton:

Because they help move biological production from phytoplankton to larger species in the food web, zooplanktons are important. Numerous types of phytoplankton are fed on by tiny copepods, tunicates, protozoans, and other crustaceans. These then feed other animals, creating a further link in the food chain. As a result, fluctuations in plankton production would have an impact on the survival of juvenile fish that depend on them.

Table No: 3.33. Zooplankton Species

S.No	Name of species	Name of Family
1.	Mesocyclops leuckarti, Mesocyclops hyalinus	Cyclopidae
2.	Penilia avirostris, Evadna tergestina, Daphnia sp.	Cladocera
3.	Filinia sp., Asplanchna sp.	Rotifera
4.	Keratella monospina, Brachionus caudatus	Brachionidae

3.6.3.4. Aquatic Fish Fauna

Among all the aquatic life in the study area the fish fauna occupies an important place. The fish fauna of the area includes:

Major carps includes Catla, Rahu, Mirgal, Exotic carps includes Silver carp, Grass carp, Minor carps etc.

3.6.4. Aquatic Vegetation

Aquatic weeds are found to be growing everywhere in 10 km radius area, in every water bog, pond, etc. Typha angustata can be found growing all along the drains of villages, small water-logged depressions, and agricultural fields lacking water but containing enough moisture to support its growth. And where water is present, Eichhornia crassipes has taken its roots and covers the entire water surface by its sprawl and invasion. All the aquatic plant species listed in Table 3.42

Table No: 3.34. List of aquatic plants observed in the study area

S.No	Scientific Name	Common Name	Type
1.	Typha angustifolia	Lesser Bulrush	Emergent hydrophytes
2.	Ipomea aquatica	Water Morning Glory	Marshy amphibious hydrophytes
3.	Hydrilla verticillata	Hydrilla	Submerged hydrophytes
4.	Pistia stratiotes	Water lettuce	Free floating hydrophytes
5.	Cyperus articulatus	Jointed flatsedge	Emergent Hydrophytes
6.	Eichhornia crassipes	Common water hyacinth	Free floating hydrophytes

*LC- Least Concern, NA-Not yet assessed

3.7. Findings/Results

The assessment was carried out during the Post monsoon season. The inspection day was quite all right with respectable weather. The details of the flora and fauna observed are given below.

Records of threatened species in the area

No threatened species were observed

Endangered Species as per Wildlife (Protection) Act

No Endangered fauna was recorded in the project area.

Endemic Species of the Project areas

No endemic species were observed in the project area.

Migratory species of the Project areas

No migratory fauna observed in project area.

Migratory corridors and Flight paths

No migratory corridors and Flight paths were observed in project area.

Breeding and spawning grounds

No breeding and spawning grounds were earmarked for the wildlife fauna in project area.

There are no critically endangered, endangered, vulnerable, and endemic species were observed. As the rainfall in the area is scanty and as no toxic wastes are produced or discharged on account of mining, the proposed mining activity is not going to have any additional and adverse impacts on these RET species. There are no ecologically sensitive areas or protected areas within the 10 Km radius. Hence no specific conservation for conservation of any RET species or Wildlife is envisaged.

The nearest Reserve Forest is Thoragapalli R.F situated at 4.4km on the southeast side. There are no National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar sites, Tiger/Elephant Reserves/(existing as well as proposed) within 10 km of the mine lease area. There are no protected forests within the project area. There are no endangered, endemic, and RET Species. There is no Schedule I species in study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] The proposed project is not going to have any direct or indirect adverse impact on the species mentioned above.

3.8. Conclusion

The observations and assessment of the overall ecological scenario involve details such as classification of Biogeographic zone, eco-region, habitat types, and land cover, distances from natural habitats, vegetation/forest types, and sensitive ecological habitats such as Wetlands sites, Important Bird areas, migration corridors of important wildlife etc. Such baseline information provides better understanding of the situation and overall ecological importance of the area. This baseline information viewed against proposed project activities help in predicting their impacts on the wildlife and their habitats in the region. Data collected and information gathered from secondary literature on flora, fauna, protected area, natural habitats, and wildlife species etc., and consulted and discussed with local people, from the villages, herders and farmers who inhabit close to the proposed project area.

3.6 Socio Economic Environment

There is no habitation/ village within the radius of 1km from the project area. Socio-economic study is an essential part of environmental study. It includes demographic structure of the area, provision of basic amenities viz., housing, education, health and medical services, occupation, water supply, sanitation, communication, transportation, prevailing diseases pattern as well as feature like temples, historical monuments etc., at the baseline level. This will help in visualizing and predicting the possible impact depending upon the nature and magnitude of the project.

It is expected that the Socio-Economic Status of the area will slightly improve because of this proposed project. As the proposed project will provide direct and indirect employment and improve the infrastructural facilities in that area and, thus, improve their standard of living.

3.6.1 Objectives of the Study

The objectives of the socio-economic study are as follows:

- To study the socio-economic status of the people living in the study area of the proposed mining project.
- To assess the impact of the project on Quality of life of the people in the study area.
- To recommend Community Development measures needs to be taken up in the study Area.

3.6.2 Scope of Work

- To study the Socio-economic Environment of the area from the secondary sources;
- Data Collection & Analysis
- Prediction of project impact
- Mitigation Measures

3.6.3 Administrative Setup of Krishnagiri District

Krishnagiri district includes 2 Revenue Divisions, 8 Taluks, 7 Town Panchayats. There are 874 Revenue Villages, 352 Village panchayats in this district. In 2011, Krishnagiri district had population of 1,879,809 with a sex-ratio of 963 females for every 1,000 males

3.6.4 Population Projection of the Study Area

Krishnagiri Population 2001– 2030

The last census of Krishnagiri was done in 2011 and next census of 2021 has been postponed or cancelled. But we can do projection of future Krishnagiri 2025,2030 Population on the basis likely Population Growth Rate.

Year	Projected Population (Estimation)
2001	1561118
2011	1879809
2021	2198500
2025	2325976
2030	2485322

Source: <https://www.census2011.co.in>

A population projection is an estimation of the number of people expected to be alive at a future date that is made based on assumptions of population structure, fertility, mortality and migration. It is an essential to assess the need for new jobs, schools, doctors and nurses, planning urban housing, foods, clothing and requirements of energy and resources. It is also needed for policy discourse i.e., helps to the policy-makers to understand the existing problems and finally supports to develop the suitable solutions. A population projection gives a picture of what the future size and structure of the population by sex and age might look like. It is based on knowledge of the past trends, and, for the future, on assumptions made for three components: fertility, mortality and migration.

3.6.5 Study area - Soolamalai Village

Soolamalai is a medium size village located in Krishnagiri Taluka of Krishnagiri district, Tamil Nadu with total 477 families residing. The Soolamalai village has population of 1966 of which 1027 are males while 939 are females as per Population Census 2011.

a) Sex Ratio

In Soolamalai village population of children with age 0-6 is 238 which makes up 12.11 % of total population of village. Average Sex Ratio of Soolamalai village is 914 which is lower than Tamil Nadu state average of 996. Child Sex Ratio for the Soolamalai as per census is 919, lower than Tamil Nadu average of 943.

b) Literacy

Soolamalai village has lower literacy rate compared to Tamil Nadu. In 2011, literacy rate of Soolamalai village was 67.94 % compared to 80.09 % of Tamil Nadu. In Soolamalai Male literacy stands at 77.96 % while female literacy rate was 56.97 %.

c) Workers profile

In Soolamalai village out of total population, 965 were engaged in work activities. 90.05 % of workers describe their work as Main Work (Employment or Earning more than 6 Months) while 9.95 % were involved in Marginal activity providing livelihood for less than 6 months. Of 965 workers engaged in Main Work, 175 were cultivators (owner or co-owner) while 293 were Agricultural labourer.

Table 3.35: Population Characteristics Soolamalai Village

Particulars	Total	Male	Female
Total No. of Houses	477	-	-
Population	1,966	1,027	939

Particulars	Total	Male	Female
Child (0-6)	238	124	114
Schedule Caste	344	179	165
Schedule Tribe	0	0	0
Literacy	67.94 %	77.96 %	56.97 %
Total Workers	965	618	347
Main Worker	869	-	-
Marginal Worker	96	13	83

Source: <https://www.census2011.co.in/data/village/643958-soolamalai-tamil-nadu.html>

Table 3.36: Population Characteristics Around 10km Radius

Total No of Villages	No. of Households	Total Population	Population Male	Population female	SC Population Male	SC Population female	Total Literates Male	Total Literates Female
31	280067	140742	139325	280067	17342	17342	87640	87640

Table 3.37: Occupational Characteristics Around 10km Radius

Main Working Population Male	Main Working Population Female	Main Cultivator Population Male	Main Cultivator Population Female	Main Agricultural Labourers Population Male	Main Agricultural Labourers Population Female	Non-Working Population Male	Non-Working Population Female
68734	29855	10771	6672	10451	10240	62617	100495

Source: Census 2011, Tamil Nadu

Figure 3.37: Soolamalai Village Map around 10km Radius



3.8.5 Basic Amenities

A better network of physical infrastructure facilities (well-built roads, rail links, irrigation, power and telecommunication, information technology, market-network and social infrastructure support, viz. health and education, water and sanitation, veterinary services and co-operative) is essential for development of the rural economy.

A review of infrastructure facilities available in the area has been given on the basis of field survey. In this study the villages which fall within 10 km radius around the site has been covered. Infrastructure facilities available in the area are presented below.

All basic amenities Education (higher education, colleges, universities, medical college, Transport facilities, Railway station, Bus station area available in the district headquarters Salem at a distance of 35km – North East).

3.8.6 Structure details 50m-300m Radius-Soolamalai Village

Figure 3.38 Structure details 50m-300m Radius-P1



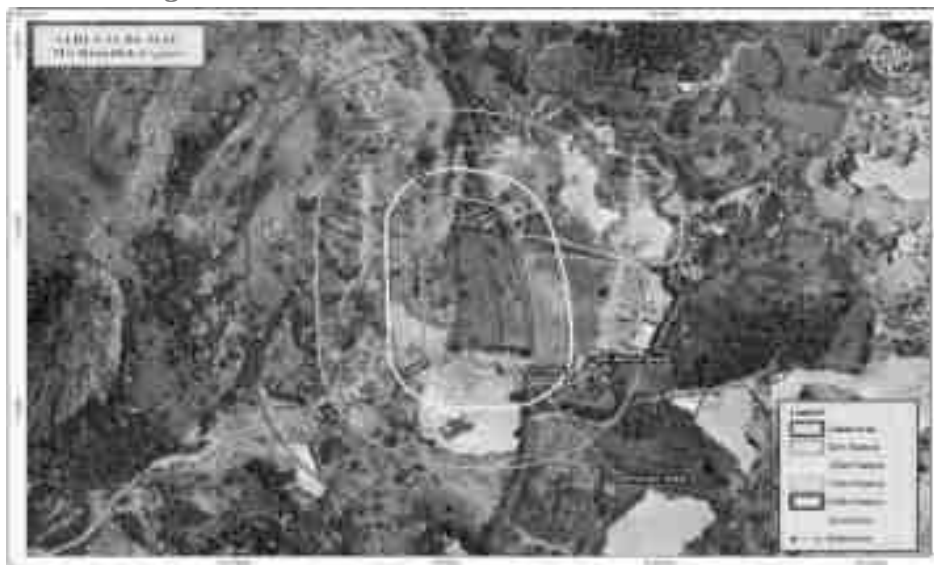
0-50m no structures in the view of the Image							
50-100m only one structures in the view of the Image							
Structure Numbers	Type of Structure	Usage Purpose	Commercial / industry / residential / farm house / Govt. building	Occupants of Building/ Structure	Structure belongs to owner	Structure Not belongs to owner	Remarks
1	90m-NE-Farm House	Agriculture	Farm House	No	No	Yes	No stay
100-200m Number of Structure - 4 Nos							
Structure Numbers	Type of Structure	Usage Purpose	Commercial / industry / residential / farm house / Govt. building	Occupants of Building/ Structure	Structure belongs to owner	Structure Not belongs to owner	Remarks
1	Mines office-140m – SE	Mines	Commercial	Yes	Yes	No Stay	Mines Register entry
2	Shed -170m-E	Agriculture	farm house	No	No	No Stay	Agriculture Equipment and tools
3	Shed-190m-N	Agriculture	farm house	No	No	No Stay	Agriculture Equipment and tools
4	Farmhouse-200m-NE	Agriculture	farm house	Yes	Yes	Yes	1 members two for adult and one for Children
201-300m Number of Structure - 3Nos							

1	Farmhouse – 210m – NE	Agriculture	farm house	Yes	Yes	Yes	1 members two for adult and one for Children
2	Houses- 260m – NE	House	Resident	Yes	Yes	No	Totally 5 houses in the covered area. Each house 3persons main occupant Farmer and daily wages /coolies
3	Mines shed 270m- NW	Mines	Industry	Yes	No	Yes	Mines Kitchen room and rest

Figure 3.39 Structure details 50m-300m Radius-P2



50 only one structures in the view of the Image							
Structure Numbers	Type of Structure	Usage Purpose	Commercial / industry / residential / farm house / Govt. building	Occupants of Building/ Structure	Structure belongs to owner	Structure Not belongs to owner	Remarks
1	Shed – 50m – South West	Mines machinery spare parts storage shed	Industrial	Nil	No	Yes	No stay
100-200m Number of Structure - 1Nos							
Structure Numbers	Type of Structure	Usage Purpose	Commercial / industry / residential / farm house / Govt. building	Occupants of Building/ Structure	Structure belongs to owner	Structure Not belongs to owner	Remarks
1	Shed – 190m – South West	Mines machinery spare parts storage shed	Industrial	Nil	No	Yes	No stay
201-300m Number of Structure Nil							
NIL							

Figure 3.40 Structure details 50m-300m Radius-P3

0 -50m Radius							
Number of Structures - 1 No							
Structure Numbers	Type of Structure	Usage Purpose	Commercial / industry / residential / farm house / Govt. building	Occupants of Building/ Structure	Structure belongs to owner	Structure Not belongs to owner	Remarks
1	Shed – 40m – South East	Mines machinery spare parts storage shed	Industrial	Nil	No	Yes	No stay
50 -100m radius							
Number of Structures – Nil							
100 -200m Radius							
Number of Structures - 1 No							
Structure Numbers	Type of Structure	Usage Purpose	Commercial / industry / residential / farm house / Govt. building	Occupants of Building/ Structure	Structure belongs to owner	Structure Not belongs to owner	Remarks
1	Mines shed – 110m – South East	Mines machinery spare parts storage shed and Labours rest shed	Industrial	Nil	No	Yes	Mines Labours will stay
200 -300m Radius							
Number of Structures - 1 No							
Structure Numbers	Type of Structure	Usage Purpose	Commercial / industry / residential / farm house / Govt. building	Occupants of Building/ Structure	Structure belongs to owner	Structure Not belongs to owner	Remarks
1	Mines shed – 270m – South East	Mines machinery spare parts	Industrial	Nil	No	Yes	No stay

		storage shed					
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3.8.7 Educational Facilities:

- Based on 2011 census data, regarding the educational facilities, all the 30 rural villages have educational facilities.
- There are totally 113 government primary schools functioning in the villages falling in 10 km radius of study area. Among the 30 rural villages, 6 villages have one primary school, 4 villages have 2 primary schools, 5 villages have 3 primary school & 15 villages have more than 3 primary schools available **(Refer TableNo. 3.40)**.

3.8.8 Medical facilities:

As per 2011 Census data, all villages have medical facilities provided by the Government in 10 km radius of the study area. Government Primary Health Centers are available in 6 villages namely Orappam, Jagadevipalayam, Majethgollahalli, Agasipalli, Kattagaram and Puligunta. Primary Health Sub centers are available in 26 villages and maternity and child care centers are available in 9 villages. Dispensaries and veterinary hospitals are available in 6 villages.

3.8.9 Recommendation and Suggestions

The village development plans are made in consultation with the community through Gram Sabha; these appear to address the needs of the community. However, it may be noted that at the implementation stage these plans often are fraught with problem of inadequate funds, lack of proper planning, corruption, vested interests and political agendas. Hence while ascertaining the scope for convergence with the government activities, care must be taken to ascertain realistic possibilities for implementation.

- **Women empowerment**– Home based income generation activities, vocational training programs and common education centre for increasing the literacy rate.
- **Education** – Free uniform, construction of common rooms and library, computer education and physical education, additional schools for girls, furniture and equipment in schools, up-gradation of existing school infrastructure.
- **Agriculture/livestock** – Infrastructure such as agricultural practices, electricity connections, assistance with buying improved tools and equipment, capacity building, supply and/or knowledge of better variety of seeds, pasture land development and trainings on animal husbandry& facility of veterinary doctor.
- **Health** – Improvements in sanitary conditions of villages, assistance with construction of latrines, improvement in drainage system, health camps and awareness campaigns for diseases like Covid-19, malaria, typhoid, tuberculosis, yellow fever and pneumonia. Repairing of PHCs and Anganwadi centers.
- **People with disability** – Establishment of centre for special education, sensitization of the community towards disabled and awareness on Government schemes.
- While **Developing an Action Plan**, it is very important to identify the population who falls under the marginalized and vulnerable groups. So that special attention can be given to these groups with special provisions while making action plans.
- **Connectivity** –Transport connectivity to easiness accessibility to the region.

3.8.10 Conclusion

To evaluate the impacts of proposed Colour granite quarry projects on the surrounding area, it is vital to assess the baseline status of the environmental quality in the locality of the site. Hence it can be concluded that the present environment status of the study area will not be affected by the project as Soolamalai Village Colour Granite Quarry will adopt adequate control measures to protect the surrounding environment and will contribute in development of the study areas. The proposed projects will aim to provide preferential employment to the local people there by improving the employment opportunity in the area and in turn the social standards will improve.

Table 3.38: Population Characteristics Around 10km Radius

SL NO	VILLAGE NAME	R/U	HOUSE HOLDS	POPULATION			SCHEDULE CASTE			SCHEDULE TRIBE			LITRERATES		
				TOTAL	MALE	F.MALE	TOTAL	MALE	F.MALE	TOTAL	MALE	F.Male	TOTAL	MALE	F.MALE
1	Chendarapalli	Rural	1507	6467	3266	3201	1210	609	601	18	9	9	3817	2188	1629
2	Achamangalam	Rural	974	4179	2150	2029	611	314	297	0	0	0	2821	1634	1187
3	Balinayanapalli	Rural	1132	4761	2470	2291	495	258	237	0	0	0	3121	1767	1354
4	Orappam	Rural	1549	6796	3378	3418	779	370	409	0	0	0	4338	2385	1953
5	Soolamalai	Rural	477	1966	1027	939	344	179	165	0	0	0	1174	704	470
6	Jagadevipalayam	Rural	1607	6747	3398	3349	1602	798	804	447	225	222	4474	2464	2010
7	Majethgollahalli	Rural	395	1592	776	816	32	20	12	0	0	0	1004	551	453
8	Modikuppam	Rural	662	2525	1277	1248	213	106	107	23	10	13	1625	951	674
9	Varatanapalli	Rural	1693	7102	3586	3516	365	187	178	97	51	46	4622	2560	2062
10	Kathinayanapalli	Rural	1408	6060	2975	3085	1118	556	562	0	0	0	3971	2194	1777
11	Kammaampalli	Rural	1399	5759	2831	2928	295	139	156	2	1	1	3541	2019	1522
12	Palepalle	Rural	1847	7631	3698	3933	1092	558	534	43	22	21	5448	2832	2616
13	Madepalli	Rural	1790	7341	3683	3658	1474	743	731	27	13	14	5399	2906	2493
14	Kondappanayakempalli	Rural	846	3653	1903	1750	95	48	47	7	4	3	2312	1331	981
15	Boganapalli	Rural	1979	8763	4478	4285	1762	927	835	15	8	7	5518	3156	2362
16	Devasamudiram	Rural	475	2057	1016	1041	395	183	212	55	30	25	1333	724	609
17	Agasipalli	Rural	2811	12915	6548	6367	2275	1153	1122	12	6	6	8199	4578	3621
18	Pasinayanapalli	Rural	631	2441	1224	1217	444	225	219	32	18	14	1394	743	651
19	Batlapalli	Rural	1199	5036	2625	2411	2077	1065	1012	0	0	0	3156	1797	1359
20	Puligunta	Rural	2033	8365	4212	4153	1312	650	662	31	15	16	5342	2978	2364

21	Ikondamkothapalli.	Rural	977	3964	1982	1982	358	189	169	111	56	55	2484	1376	1108
22	Balekuli	Rural	1772	7025	3623	3402	194	102	92	0	0	0	3916	2311	1605
23	Chowttahalli	Rural	2252	8992	4628	4364	448	219	229	0	0	0	5420	3128	2292
24	Sundekuppam	Rural	2073	8661	4386	4275	77	37	40	0	0	0	4847	2798	2049
25	Timmapuram	Rural	1524	6337	3176	3161	1376	676	700	17	6	11	4176	2342	1834
26	Salinayanapalli	Rural	1652	6744	3458	3286	958	494	464	387	193	194	4351	2417	1934
27	Mallapadi	Rural	1840	7707	3902	3805	724	356	368	46	20	26	5084	2846	2238
28	Kaveripattinam	Rural	1976	8078	4038	4040	429	202	227	128	70	58	5198	2906	2292
29	Bargur (TP)	Urban	3760	16366	8316	8050	1731	848	883	208	103	105	11598	6335	5263
30	Krishnagiri (M)	Urban	16386	71323	35395	35928	7589	3672	3917	129	69	60	54766	28523	26243
31	Kattiganapalli (CT)	Urban	5518	22714	11317	11397	2679	1328	1351	46	23	23	17961	9326	8635
Total			66144	280067	140742	139325	34553	17211	17342	1881	952	929	192410	104770	87640

Source: Census 201, Tamil Nadu.

Table 3.39: Occupational Characteristics Around 10km Radius

SL NO	VILLAGE NAME	Rural / urban	MAIN WORKERS		CULTIVATORS		AGRI LABOURS		HOUSE HOLD		OTHERS		MARGINAL WORKERS		NON WORKERS	
			MALE	F.MALE	MALE	F.MALE	MALE	F.MALE	MALE	F.MALE	MALE	F.MALE	MALE	F.MALE	MALE	F.MALE
1	Chendarapalli	Rural	1778	975	492	328	429	450	23	22	834	175	191	140	1297	2086
2	Achamangalam	Rural	1140	548	274	129	318	319	9	5	539	95	170	299	840	1182
3	Balinayanapalli	Rural	506	193	170	59	61	53	13	4	262	77	767	547	1197	1551
4	Orappam	Rural	1471	798	318	96	547	480	17	8	589	214	236	214	1671	2406
5	Soolamalai	Rural	605	264	138	37	153	140	2	1	312	86	13	83	409	592
6	Jagadevipalayam	Rural	1566	527	203	50	445	310	37	15	881	152	345	282	1487	2540
7	Majethgollahalli	Rural	299	211	79	54	101	130	6	1	113	26	122	100	355	505
8	Modikuppam	Rural	661	318	125	66	132	158	1	1	403	93	73	160	543	770
9	Varatanapalli	Rural	1929	1178	494	228	708	598	37	13	690	339	123	174	1534	2164
10	Kathinayanapalli	Rural	1503	807	338	175	475	476	13	11	677	145	48	150	1424	2128
11	Kammaampalli	Rural	1314	769	354	249	381	400	8	5	571	115	231	527	1286	1632
12	Palepalle	Rural	1399	1001	289	198	383	393	25	25	702	385	685	512	1614	2420

13	Madepalli	Rural	1614	856	320	137	221	309	22	20	1051	390	528	414	1541	2388
14	Kondappanayakempalli	Rural	936	509	149	73	350	351	8	2	429	83	185	36	782	1205
15	Boganapalli	Rural	2096	871	157	121	178	282	29	77	1732	391	223	214	2159	3200
16	Devasamudiram	Rural	536	179	17	11	32	35	1	2	486	131	15	25	465	837
17	Agasipalli	Rural	2856	1197	333	235	410	484	82	40	2031	438	469	437	3223	4733
18	Pasinayanapalli	Rural	394	220	54	27	171	153	1	2	168	38	285	284	545	713
19	Batlapalli	Rural	1372	521	176	43	588	248	20	100	588	130	115	303	1138	1587
20	Puligunta	Rural	2002	857	386	208	444	383	19	17	1153	249	443	362	1767	2934
21	Ikondamkothapalli.	Rural	1008	662	170	113	414	465	8	1	416	83	171	144	803	1176
22	Balekuli	Rural	1842	1421	1284	1084	247	266	1	0	310	71	183	178	1598	1803
23	Chowttahalli	Rural	2099	1470	1039	866	368	468	20	23	672	113	715	765	1814	2129
24	Sundekuppam	Rural	2352	1865	1119	905	603	806	10	16	620	138	220	278	1814	2132
25	Timmapuram	Rural	1536	857	445	237	432	379	20	39	639	202	216	151	1424	2153
26	Salinayanapalli	Rural	1822	1087	487	331	389	369	8	16	938	371	291	183	1345	2016
27	Mallapadi	Rural	2130	885	283	140	533	403	24	28	1290	314	96	97	1676	2823
28	Kaveripattinam	Rural	2121	1299	480	235	521	665	107	59	1013	340	300	378	1617	2363
29	Bargur (TP)	Urban	3876	1095	287	188	266	179	54	47	3269	681	818	615	3622	6340
30	Krishnagiri (M)	Urban	18333	4823	162	25	74	25	290	350	17807	4423	738	665	16324	30440
31	Kattiganapalli (CT)	Urban	5638	1592	149	24	77	63	60	62	5352	1443	376	258	5303	9547
	Total		68734	29855	10771	6672	10451	10240	975	1012	46537	11931	9391	8975	62617	100495

Source: Census 2011, Tamil Nadu

Table 3.40: Educational Facilities Within 10km Radius

S. No	Village Name	Govt Primary School (Numbers)	Govt Middle School (Numbers)	Govt Secondary School (Numbers)	Govt Senior Secondary School (Numbers)	Govt Arts and Science Degree College (Numbers)	Govt Engineering College (Numbers)	Govt Medicine College (Numbers)	Govt Management Institute (Numbers)	Govt Polytechnic (Numbers)	Govt Vocational Training School/ITI (Numbers)	Government Non Formal Training Centre (Numbers)	Government School For Disabled (Numbers)
1	Chendarapalli	5	2	1	1	0	0	0	0	0	0	5	0
2	Achamangalam	3	2	0	0	0	0	0	0	0	0	1	0
3	Balinayanapalli	5	2	0	0	0	0	0	0	1	0	5	0
4	Orappam	6	1	1	1	1	0	0	0	1	1	6	0

5	Soolamalai	1	1	0	0	0	0	0	0	0	0	1	0
6	Jagadevipalayam	5	0	0	0	0	0	0	0	0	0	5	0
7	Majethgollahalli	1	1	0	0	0	0	0	0	0	0	1	0
8	Modikuppam	2	1	1	0	0	0	0	0	0	0	2	0
9	Varatanapalli	4	1	1	1	0	0	0	0	0	0	4	1
10	Kathinayanapalli	1	1	1	0	1	0	0	0	0	0	1	0
11	Kammaampalli	3	2	1	0	0	0	0	0	0	0	3	0
12	Palepalle	8	2	2	1	0	0	0	0	0	0	3	0
13	Madepalli	1	1	1	1	0	1	0	0	0	1	1	0
14	Kondappanayakempalli	4	1	1	0	0	0	0	0	0	0	4	0
15	Boganapalli	2	2	0	0	1	0	0	0	1	1	1	0
16	Devasamudiram	1	1	1	1	0	0	0	0	0	0	1	0
17	Agasipalli	8	2	1	0	0	0	0	0	0	0	1	0
18	Pasinayanapalli	3	1	0	0	0	0	0	0	0	0	3	0
19	Batlapalli	6	1	0	0	0	0	0	0	0	0	5	0
20	Puligunta	7	1	3	3	0	0	0	0	0	0	6	0
21	Ikondamkothapalli.	3	1	1	1	0	0	0	0	0	0	3	0
22	Balekuli	2	1	1	1	0	0	0	0	0	0	2	0
23	Chowttahalli	4	1	1	0	0	0	0	0	0	0	4	0
24	Sundekuppam	5	3	0	0	0	0	0	0	0	0	5	0
25	Timmapuram	2	2	1	0	0	0	0	0	0	0	2	0
26	Salinayanapalli	7	2	2	0	0	0	0	0	0	0	7	0
27	Mallapadi	4	1	1	0	0	0	0	0	0	0	1	0
28	Kaveripattinam	1	2	0	0	0	0	0	0	0	0	1	0
	Total	104	39	22	11	3	1	0	0	3	3	84	1

Source: District Primary Census Abstract

Table 3.41: Medical Facilities Within 10km Radius

S. No	Village Name	Status Available for 1/Not Available2	Community Health Centre (Numbers)	Primary Health Centre (Numbers)	Primary Health Sub Centre (Numbers)	Maternity And Child Welfare Centre (Numbers)	TB Clinic (Numbers)	Hospital Allopathic (Numbers)	Hospital Alternative Medicine (Numbers)	Dispensary (Numbers)	Veterinary Hospital (Numbers)	Mobile Health Clinic (Numbers)	Family Welfare Centre (Numbers)
1	Chendarapalli	1	0	0	1	1	0	0	0	0	0	0	0
2	Achamangalam	1	0	0	1	0	0	0	0	0	0	0	0
3	Balinayanapalli	1	0	0	1	0	0	0	0	0	0	0	0
4	Orappam	1	1	1	1	1	1	0	0	1	1	0	1
5	Soolamalai	2	0	0	0	0	0	0	0	0	0	0	0
6	Jagadevipalayam	1	0	1	1	1	1	0	0	1	1	0	1
7	Majethgollahalli	1	0	1	1	1	1	0	0	1	0	0	1
8	Modikuppam	1	0	0	0	0	0	0	0	0	0	0	0
9	Varatanapalli	1	0	0	1	0	0	0	0	0	1	0	0
10	Kathinayanapalli	1	0	0	1	0	0	0	0	0	0	0	0
11	Kammaampalli	1	0	0	1	0	0	0	0	0	0	0	0
12	Palepalle	1	0	0	1	1	0	0	0	0	1	0	0
13	Madepalli	1	0	0	1	0	0	0	0	0	0	0	0
14	Kondappanayakempalli	1	0	0	1	0	0	0	0	0	0	0	0
15	Boganapalli	1	0	0	3	0	0	0	0	0	0	0	0
16	Devasamudiram	2	0	0	0	0	0	0	0	0	0	0	0
17	Agasipalli	1	0	2	1	2	2	0	0	2	0	0	2
18	Pasinayanapalli	2	0	0	0	0	0	0	0	0	0	0	0
19	Batlapalli	1	0	0	3	0	0	0	0	0	0	0	0
20	Puligunta	1	0	1	4	1	1	0	0	1	1	0	1
21	Ikondamkothapalli.	1	0	0	1	0	0	0	0	0	0	0	0

22	Balekuli	1	0	0	1	0	0	0	0	0	0	0	0
23	Chowttahalli	1	0	0	1	1	0	0	0	0	0	0	0
24	Sundekuppam	1	0	0	1	0	0	0	0	0	0	0	0
25	Timmapuram	1	0	0	1	0	0	0	0	0	0	0	0
26	Salinayanapalli	1	0	0	1	0	0	0	0	0	0	0	0
27	Mallapadi	1	0	0	1	0	0	0	0	0	0	0	0
28	Kaveripattinam	1	0	0	1	0	0	0	0	0	0	0	0

Source: District Primary Census Abstract

4. ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

4.0 General

Environmental impacts both direct and indirect on various environmental attributes due to proposed mining activity will be created in the surrounding environment, during the operational and post-operational phases. The occurrence of mineral deposits, being site specific, their exploitation, often, does not allow for any choice except adoption of eco-friendly operation. The methods are required to be selected in such a manner, so as to maintain environmental equilibrium ensuring sustainable development.

In order to maintain the environmental commensuration with the mining operation, it is essential to undertake studies on the existing environmental scenario and assess the impact on different environmental components. This would help in formulating suitable management plans sustainable resource extraction.

The following parameters are of significance in the Environmental Impact Assessment and are being discussed in detail

- Land environment
- Soil environment
- Water Environment
- Air Environment
- Noise Environment
- Socio economic environment
- Biological Environment

Based on the baseline environmental status at the project site, the environmental factors that are likely to be affected (Impacts) are identified, quantified and assessed.

4.1 Land Environment

4.1.1 Anticipated Impact

The main anticipated impact on the Land Environment due to quarrying operation is change in Landscape, change in Land – use Pattern. The total area applied for quarry lease is 4.36.8 Ha, the total extent of the cluster is 55.04.3 Ha (Cluster area is calculated as per MoEF & CC Notification – S.O. 2269 (E) Dated: 01.07.2016) including existing and proposed quarries. The proposed project area is proponent own patta and government/Poramboke land, no forest land involved in this lease applied area. The ultimate depth of the proposed project is quarrying is varying from 18-28m below the ground level and will not intersect the ground water table. The project is site specific.

4.1.2 Mitigation measures

Due to the quarrying activities in the project the land use pattern will be altered. In order to minimize the adverse effects, the following control measures will be implemented:

- In the Opencast Method of Mining the degradation of land is insignificant, after completion of the quarrying operation the land, the land will be partially backfilled with dumped material and part of the area will be allowed to collect rainwater which will act as temporary reservoir, this Granite waste, overburden not produce any toxic effluents in the form of solid, liquid or gas
- Top Soil will be removed and utilized for greenbelt development in the safety barrier
- The periphery of the mining lease area will be converted to a greenbelt to prevent Noise and sound propagation to the nearby lands
- Construction of garland drains all around the quarry pit and construction of check dam at strategic location in lower elevations to prevent soil erosion due to surface runoff during rainfall and also to collect the storm water for various uses within the proposed area
- Barbed wire fencing will be re constructed at the conceptual stage, Security will be posted round the clock, to prevent inherent entry of the public and cattle.

4.1.1.2 Soil Environment

4.1.1.3 Impact on Soil Environment

Erosion and Sedimentation (Removal of protective vegetation cover; Exposure of underlying soil horizons that may be less pervious, or more erodible than the surface layers; Reduced capacity of soils to absorb rainfall; Increased energy in storm-water runoff due to concentration and velocity; and Exposure of subsurface materials which are unsuitable for vegetation establishment).

4.1.1.4 Mitigation measures for Soil Conservation

- The top soil will be preserved in the safety barrier and kept in moisture condition. The preserved top soil will be utilized for greenbelt development in the safety barrier and utilized for plantation on the top bench
- Garland drains will be constructed around the project area to arrest any soil from the quarry area being carried away by the rainwater. This will also avoid the soil erosion and siltation in the mining pits and maintaining the stability of the benches.

4.1.1.5 Waste Dump Management

4.1.1.6.1 Anticipated Impact-P1

There is generation of topsoil is about 4956m³ up to depth for 1m for during this lease period. The quarry which will be utilized for construction of bunds, road and afforestation purpose.

First five years Colour Granite waste forms nearly 80% of ROM and the total quantity of waste in the five years will be around 34,570m³. The Granite waste material will be proposed to dump in the south western side of the lease area.

4.1.1.6.2 Anticipated Impact-P2

There is generation of topsoil is about 3,905m³ during the mining plan period. The excavated topsoil will be spread out all along the boundary barrier and utilized for green belt development purpose.

The total waste to be produced during the first five years is around 29,289m³ (Granite Waste 22,217m³ + Weathered rock 7,072m³) the same will be proposed to temporarily dump on the south side with area of 2,076m² x (H)14.10m.

4.1.1.6.3 Anticipated Impact-P3

There is generation of topsoil is about 3,526m³ up to depth 1m during the mining plan period. The excavated topsoil will be spread out all along the boundary barrier and utilized for green belt development purpose.

The total waste to be produced during the first five years is around 23,104m³ (Granite Waste 16,796m³ + Weathered rock 6,308m³) the same will be proposed to dump on the Northern side with dimension of (Area) 2430m² x (H)9.5m.

4.1.1.7 Mitigation measures

- Retaining wall with weep hole, Garland drain will be provided around the dump areas
- Proper angle of repose to be maintained
- Grasses to be done over the dump areas for stability.
- Soil erosion may also be accelerated on areas where the overburden from the ore excavation operation will be dumped. As there is neither a toxic effluent nor solid waste from the mine, quality of soil is not expected to be adversely affected.

4.2 Water Environment (Impact & Mitigation Measures)

4.2.1 Anticipated Impact on Surface and ground water

The impact due to mining on the water quality is expected to be insignificant because of no use of chemicals or hazardous substances during quarrying process. For the quarrying activity water will be utilized for wire saw cutting (which will be recycled), water sprinkling on haul roads and greenbelt development. The quarrying activity will not intersect ground water table as ultimate depth of the quarry from 18 -28m and water table is found at a depth of 64m summer and 59m rainy season BGL.

4.2.2 Mitigation measures

The following mitigation measures are suggested for water management

The quarrying operation will be carried out well above the water table. There is no intersection of surface water bodies (Streams, Canal, Odai etc.,) in the proposed project area. During rainy season rain water will be collected in the quarry pit and later used for greenbelt development and for the water sprinkling in the haul roads. There is no proposal for discharging of quarry pit water outside the project area.

There is no proposal Granite processing or workshop within the project area thus there is no effluent anticipated in the mine.

Detail of water requirements in KLD as given below:

Table 4.1 Water Requirement for the Project (P1-P3)

Sno	Purpose	Quantity Required			Source
		P1	P2	P3	
1	Domestic & Drinking purpose	0.4 KLD	0.5KLD	0.5KLD	From Existing, bore wells and drinking water will be sourced from Approved Water vendors.
2	Dust Suppression	0.6KLD	0.7KLD	0.7KLD	From Existing bore wells from nearby area
3	Green Belt	0.5 KLD	0.6KLD	0.6KLD	From Existing bore wells from nearby area
Total		1.5 KLD	1.8 KLD	1.8 KLD	

Source: Prefeasibility report

- With respect to Turbidity, Total Iron and Silica, Pre-treatment methods like settling or filtration, Water Softening (Ion Exchange) shall be adopted to make it fit for drinking purposes. But it can be used for other domestic purposes
- 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
- Construction of garland drains to divert surface run-off into the quarrying area
- Retaining walls with weep hole will be constructed around the dump to arrest silt wash off
- Periodic analysis of quarry pit water and ground water quality in nearby villages
- Domestic sewage from site office & urinals/latrines provided in ML is discharged in septic tank followed by soak pits
- Wastewater discharge from mine will be treated in settling tanks before using for dust suppression and tree plantation purposes
- De-silting will be carried out before and immediately after the monsoon season
- Regular monitoring and analysing the quality of water in open well, bore wells and surface water.

4.3 Air Environment (Impact & Mitigation Measures)

The air borne particulate matter is the main air pollutant in this opencast mining. The mining operation will be carried out by Diamond wire saw cutting, jackhammer drilling (35mm dia) and Hydraulic Excavators will be utilized for handling of Granite waste.

4.3.1. Anticipated Impact

The air borne particulate matter generated by quarrying operation, and transportation. The emissions of Sulphur dioxide (SO₂), Oxides of Nitrogen (NO_x) due to excavation/loading equipment and vehicles plying on haul roads are marginal. Loading - unloading and transportation of Granite and overburden, wind erosion of the exposed area and movement of light vehicles will be the main polluting source in the mining activities releasing Particulate Matter (PM₁₀) affecting Ambient Air of the area. Prediction of impacts on air environment has been carried out taking into consideration three proposed quarry aims to Cumulatively production about 1,03,233m³ (ROM) on air environment and net increase in emissions by Open pit source modelling in AERMOD Software.

4.3.2 AERMOD Frame work of Computation & details

By using the above-mentioned inputs, ground level concentrations due to the quarrying activities have been estimated to know the incremental concentration in ambient air quality and impact in the study area. The effect of air pollutants upon receptors are influenced by concentration of pollutants and their dispersion in the atmosphere. Air quality modelling is an important tool for prediction, planning and evaluation of air pollution control activities besides identifying the requirements for emission control to meet the regulatory standards and to apply mitigation measures to reduce impact caused by quarrying activities. PM₁₀ was the major pollutant occurred during quarrying activities. The prediction included the impact of Excavation, Drilling, Blasting (Occasionally), loading and movement of vehicles during transportation and meteorological parameters such as wind speed, wind direction, temperature, rainfall, humidity and Cloud cover.

Impact was predicted over the distance of 10 km around the source to assess the impact at each receptor separately at the various locations and maximum incremental GLC value at the project site. Maximum impact of PM₁₀ was observed close to the source due to low to moderate wind speeds. Incremental value of PM₁₀ was superimposed on the base line data monitored at the proposed site to predict total GLC of PM₁₀ due to combined impacts.

4.3.2.1 Emission Rate

An emissions factor is a representative value that attempts to relate the quantity of a pollutant released to the atmosphere with an activity associated with the release of that pollutant.

The general equation for emissions estimation is:

$$E = A \times EF \times (1-ER/100)$$

Where:

E = Emissions;

A = Activity rate;

EF = Emission factor, and

ER = Overall emission reduction efficiency, %

The proposed mining activity includes various activities like ground preparation, excavation, handling and transport of ore. These activities have been analysed systematically basing on USEPA-Emission Estimation Technique Manual, for Mining AP-42, to arrive at possible emissions to the atmosphere and estimated emissions are given in Table 4-2.

Table 4.2: Estimated Emission Rate for -P1

Activity	Source type	Value	Unit
Drilling	Point Source	0.051441763	g/s
Blasting	Point Source	0.000087135	g/s
Mineral Loading	Point Source	0.036650031	g/s
Haul Road	Line Source	0.002484446	g/s/m
Overall Mine	Area Source	0.050418764	g/s
SO ₂	Point Source	0.00015142	g/s
Nox	Area Source	0.000006699	g/s

Table 4.3: Estimated Emission Rate for -P2

Activity	Source type	Value	Unit
Drilling	Point Source	0.046310552	g/s
Blasting	Point Source	0.000051525	g/s
Mineral Loading	Point Source	0.034636569	g/s
Haul Road	Line Source	0.002483459	g/s/m
Overall Mine	Area Source	0.043334402	g/s
SO ₂	Point Source	8.5957E-05	g/s
Nox	Area Source	0.000002720	g/s

Table 4.4: Estimated Emission Rate for -P3

Activity	Source type	Value	Unit
Drilling	Point Source	0.042732409	g/s

Blasting	Point Source	0.000034467	g/s
Mineral Loading	Point Source	0.033915964	g/s
Haul Road	Line Source	0.002483213	g/s/m
Overall Mine	Area Source	0.038495293	g/s
SO2	Point Source	6.70385E-05	g/s
Nox	Area Source	0.000001628	g/s

4.3.2 Frame work of Computation & Model details

By using the above-mentioned inputs, ground level concentrations due to the quarrying activities have been estimated to know the incremental concentration in ambient air quality and impact in the study area. The effect of air pollutants upon receptors are influenced by concentration of pollutants and their dispersion in the atmosphere. Air quality modelling is an important tool for prediction, planning and evaluation of air pollution control activities besides identifying the requirements for emission control to meet the regulatory standards and to apply mitigation measures to reduce impact caused by quarrying activities. PM₁₀ was the major pollutant occurred during quarrying activities. The prediction included the impact of Excavation, Drilling, Blasting, loading and movement of vehicles during transportation and meteorological parameters such as wind speed, wind direction, temperature, rainfall, humidity and Cloud cover.

Impact was predicted over the distance of 10 km around the source to assess the impact at each receptor separately at the various locations and maximum incremental GLC value at the project site. Maximum impact of PM₁₀ was observed close to the source due to low to moderate wind speeds. Incremental value of PM₁₀ was superimposed on the base line data monitored at the proposed site to predict total GLC of PM₁₀ due to combined impacts.

Figure 4.1: AERMOD Terrain Map

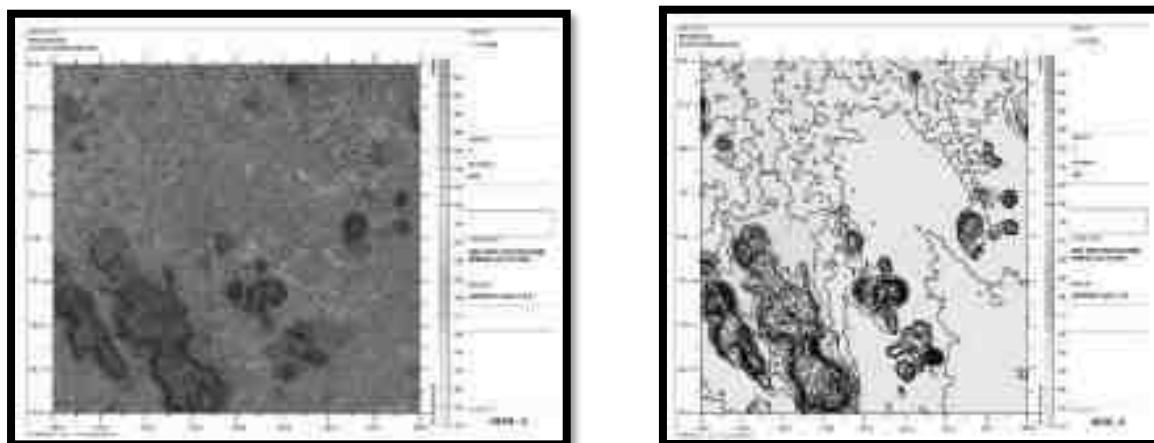


Figure 4.2: Predicted Incremental Concentration of Fugitive Dust

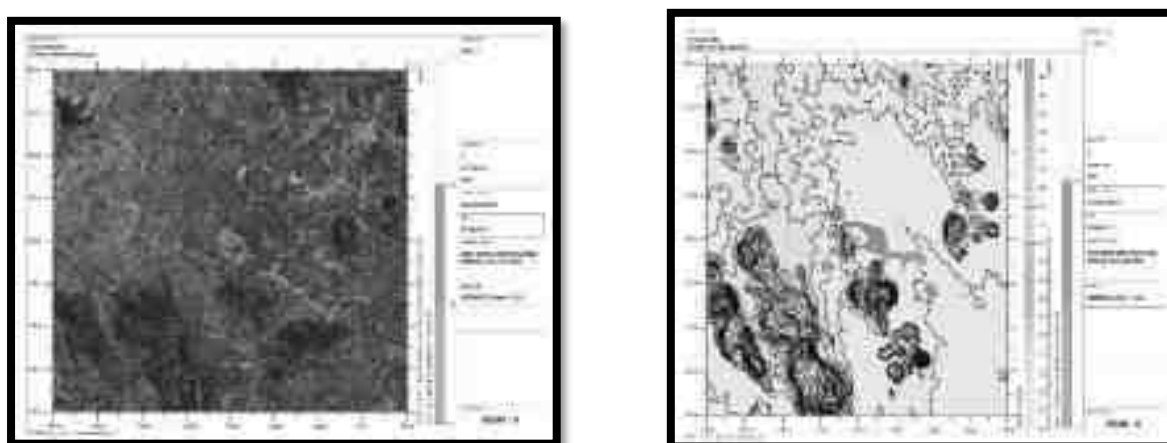


Figure 4.3: Predicted Incremental Concentration of PM₁₀

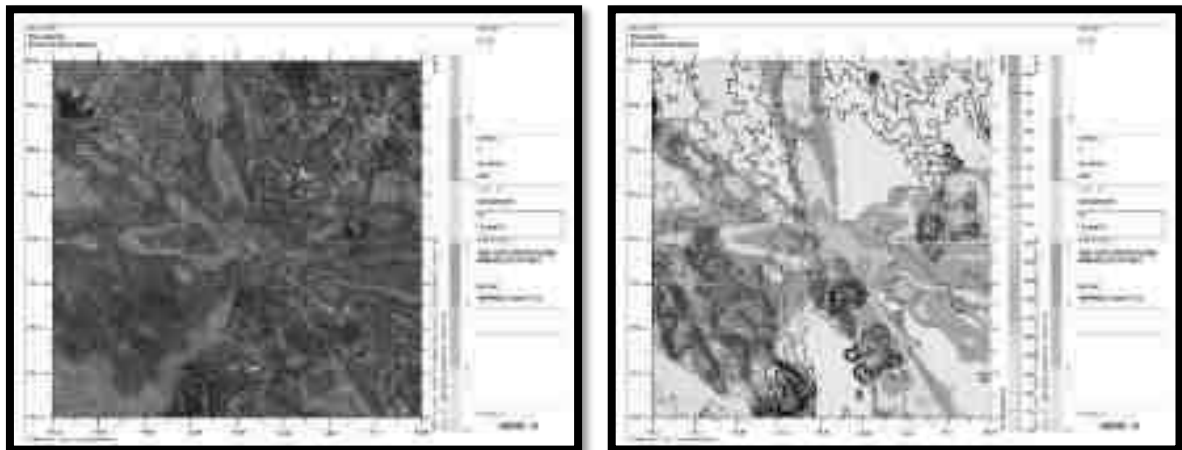


Figure No 4.4: Predicted Incremental Concentration of PM_{2.5}

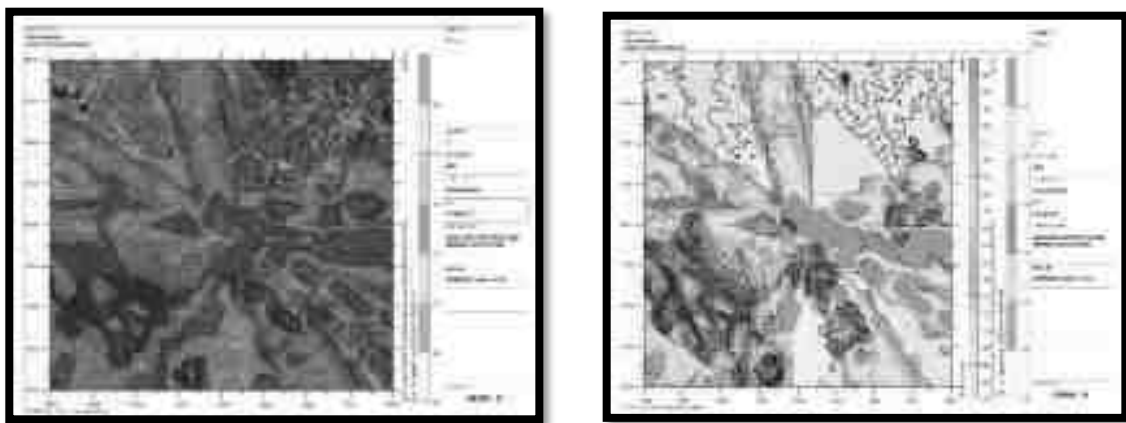


Figure No 4.5: Predicted Incremental Concentration of So₂

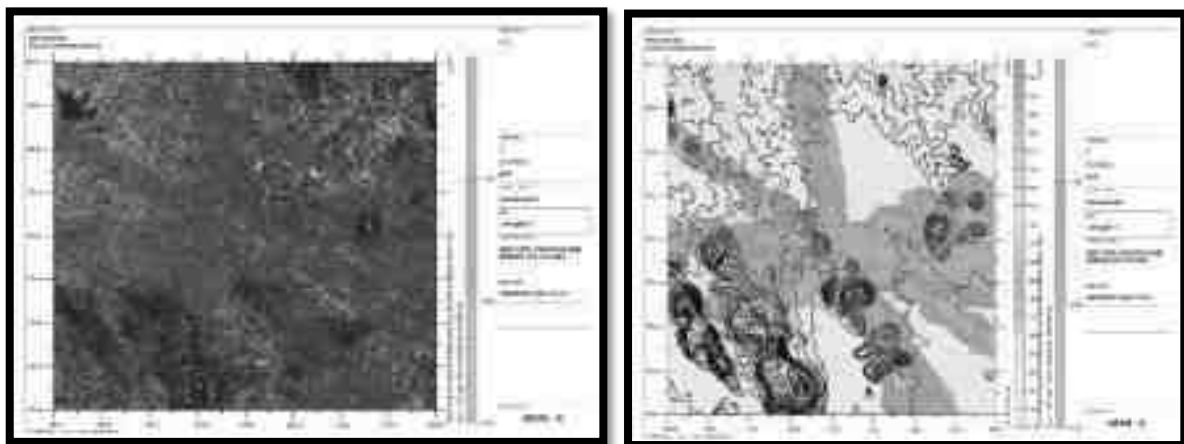
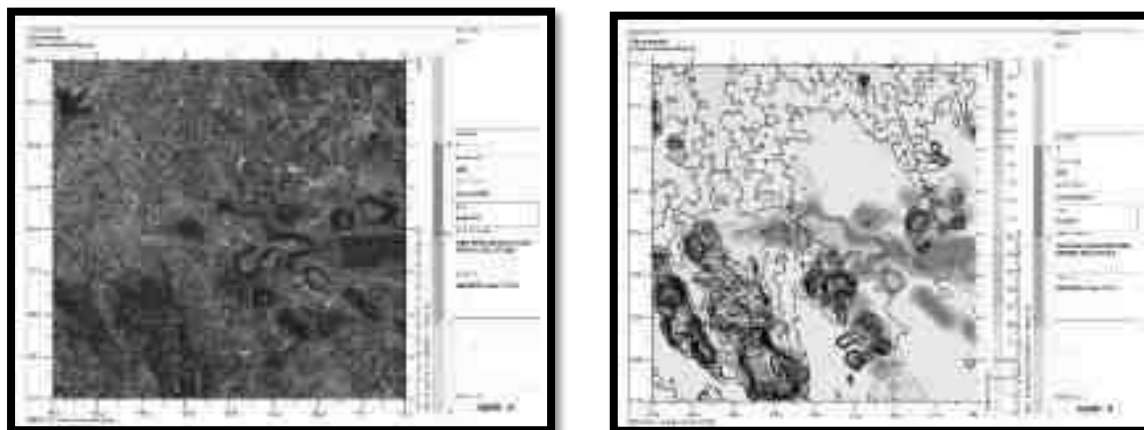


Figure No 4.6: Predicted Incremental Concentration of NO_x 

4.3.2.1 Model Results

The post project Resultant Concentrations of Fugitive Dust emission, PM_{10} , $\text{PM}_{2.5}$, SO_2 & NO_x (GLC) is given in Table below:

Table 4.5: Incremental & Resultant GLC of Fugitive Dust

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline Fugitive ($\mu\text{g}/\text{m}^3$)	Incremental value of Fugitive due to mining ($\mu\text{g}/\text{m}^3$)	Total Fugitive ($\mu\text{g}/\text{m}^3$) (5+6)
AAQ1	12°29'50.59"N 78°18'2.38"E	-70	-8	63.66	23	86.7
AAQ2	12°29'38.69"N 78°18'5.45"E	26	-396	63.51	18	81.5
AAQ3	12°29'18.77"N 78°19'17.61"E	2223	-1019	63.81	0	63.8
AAQ4	12°32'51.50"N 78°17'51.79"E	-390	5593	63.80	0	63.8
AAQ5	12°29'49.10"N 78°15'59.42"E	-3819	-73	64.51	0	64.5
AAQ6	12°27'37.96"N 78°17'44.81"E	-608	-4145	63.99	0	64.0
AAQ7	12°31'56.71"N 78°20'52.38"E	5112	3892	64.51	0	64.5
AAQ8	12°32'17.92"N 78°16'4.94"E	-3651	4553	64.86	0	64.9

Table 4.6: Incremental & Resultant GLC OF PM_{10}

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline PM_{10} ($\mu\text{g}/\text{m}^3$)	Incremental value of PM_{10} due to mining ($\mu\text{g}/\text{m}^3$)	Total PM_{10} ($\mu\text{g}/\text{m}^3$) (5+6)
AAQ1	12°29'50.59"N 78°18'2.38"E	-70	-8	43.9	15.91	59.8
AAQ2	12°29'38.69"N 78°18'5.45"E	26	-396	42.7	15.52	58.2
AAQ3	12°29'18.77"N 78°19'17.61"E	2223	-1019	45.9	15.09	61.0
AAQ4	12°32'51.50"N 78°17'51.79"E	-390	5593	42.2	8	50.2
AAQ5	12°29'49.10"N 78°15'59.42"E	-3819	-73	21.1	0	21.1
AAQ6	12°27'37.96"N 78°17'44.81"E	-608	-4145	20.4	13.88	34.3
AAQ7	12°31'56.71"N 78°20'52.38"E	5112	3892	45.2	5.07	50.3

AAQ8	12°32'17.92"N 78°16'4.94"E	-3651	4553	42.0	2	44.0
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Table 4.7: Incremental & Resultant GLC OF PM_{2.5}

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline PM _{2.5} (µg/m ³)	Incremental value of PM _{2.5} due to mining (µg/m ³)	Total PM _{2.5} (µg/m ³) (5+6)
AAQ1	12°29'50.59"N 78°18'2.38"E	-70	-8	19.8	7.82	27.6
AAQ2	12°29'38.69"N 78°18'5.45"E	26	-396	21.2	7.34	28.5
AAQ3	12°29'18.77"N 78°19'17.61"E	2223	-1019	21.9	7	28.9
AAQ4	12°32'51.50"N 78°17'51.79"E	-390	5593	18.8	4.71	23.6
AAQ5	12°29'49.10"N 78°15'59.42"E	-3819	-73	21.1	0	21.1
AAQ6	12°27'37.96"N 78°17'44.81"E	-608	-4145	21.1	6.5	27.6
AAQ7	12°31'56.71"N 78°20'52.38"E	5112	3892	21.7	3.78	25.5
AAQ8	12°32'17.92"N 78°16'4.94"E	-3651	4553	18.5	2.9	21.4

Table 4.8: Incremental & Resultant GLC OF SO₂

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline SO ₂ (µg/m ³)	Incremental value of SO ₂ due to mining (µg/m ³)	Total SO ₂ (µg/m ³) (5+6)
AAQ1	12°29'50.59"N 78°18'2.38"E	-70	-8	6.5	2.49	8.9
AAQ2	12°29'38.69"N 78°18'5.45"E	26	-396	6.1	2.45	8.6
AAQ3	12°29'18.77"N 78°19'17.61"E	2223	-1019	6.5	2.4	8.9
AAQ4	12°32'51.50"N 78°17'51.79"E	-390	5593	7.1	0.95	8.0
AAQ5	12°29'49.10"N 78°15'59.42"E	-3819	-73	6.2	0	6.2
AAQ6	12°27'37.96"N 78°17'44.81"E	-608	-4145	6.3	1.9	8.2
AAQ7	12°31'56.71"N 78°20'52.38"E	5112	3892	6.5	0.69	7.2
AAQ8	12°32'17.92"N 78°16'4.94"E	-3651	4553	7.5	0	7.5

Table 4.9: Incremental & Resultant GLC OF NO_x

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline NO _x (µg/m ³)	Incremental value of NO _x due to mining (µg/m ³)	Total NO _x (µg/m ³) (5+6)
AAQ1	12°29'50.59"N 78°18'2.38"E	-70	-8	20.1	10.78	30.9
AAQ2	12°29'38.69"N 78°18'5.45"E	26	-396	22.0	10.39	32.4
AAQ3	12°29'18.77"N 78°19'17.61"E	2223	-1019	21.4	10.02	31.4
AAQ4	12°32'51.50"N 78°17'51.79"E	-390	5593	22.0	0	22.0
AAQ5	12°29'49.10"N 78°15'59.42"E	-3819	-73	20.6	0	20.6
AAQ6	12°27'37.96"N 78°17'44.81"E	-608	-4145	21.0	7.61	28.6

AAQ7	12°31'56.71"N 78°20'52.38"E	5112	3892	21.6	0	21.6
AAQ8	12°32'17.92"N 78°16'4.94"E	-3651	4553	21.3	0	21.3

From the resultant of cumulative concentration i.e., Background + Incremental Concentration of pollutant in all the receptor locations without effective mitigation measures are still within the prescribed NAAQ limits of 100, 60, 80 & 80 $\mu\text{g}/\text{m}^3$ for PM_{10} , $\text{PM}_{2.5}$, SO_2 & NO_x respectively. By adopting suitable mitigation measures, the pollutant levels in the atmosphere can be further being controlled.

4.3.3. Mitigation Measures

Drilling – To control dust at source, wet drilling will be practiced. Where there is a scarcity of water, suitably designed dust extractor will be provided for dry drilling along with dust hood at the mouth of the drill-hole collar.

Advantages of Wet Drilling: -

- In this system dust gets suppressed close to its formation. Dust suppression become very effective and the work environment will be improved from the point of occupational comfort and health.
- Due to dust free atmosphere, the life of engine, compressor etc., will be increased.
- The life of drill bit will be increased.
- The rate of penetration of drill will be increased.
- Due to the dust free atmosphere visibility will be improved resulting in safer working conditions.

Blasting –

- Blasting will be carried out only to remove the overburden and weathered portion
- Establish time of blasting to suit the local conditions and water sprinkling on blasting face
- Controlled blasting includes Adoption of suitable explosive charge and short delay detonators, adequate stemming of holes at collar zone and restricting blasting to a particular time of the day i.e. at the time lunch hours, controlled charge per hole as well as charge per round of hole

Haul Road & Transportation –

- Water will be sprinkled on haul roads, Loading Points twice a day to avoid dust generation during transportation
- Transportation of material will be carried out during day time and material will be covered with tarpaulin
- The speed of tippers plying on the haul road will be limited below 20 km/hr to avoid generation of dust.
- Main source of gaseous pollution will be from vehicle used for transportation of mineral; therefore, weekly maintenance of machines improves combustion process & makes reduction in the pollution.
- The un-metalled haul roads will be compacted weekly before being put into use.
- Over loading of tippers will be avoided to prevent spillage.
- It will be ensured that all transportation vehicles carry a valid PUC certificate.
- Grading of haul roads and service roads to clear accumulation of loose materials.

Green Belt –

- Planting of trees all along main mine haul road and regular grading of haul roads will be practiced to prevent the generation of dust due to movement of dumpers/trucks
- Green belt of adequate width will be developed around the project area

Occupational Health –

- Dust mask will be provided to the workers and their use will be strictly monitored
- Annual medical check-ups, trainings and campaigns will be arranged to ensure awareness about importance of wearing dust masks among all mine workers & tipper drivers
- Ambient Air Quality Monitoring will be conducted six months once to assess effectiveness of mitigation measures proposed

4.4 Noise Environment

Noise pollution is mainly due to operation like drilling & blasting (Occasionally) and plying of trucks & HEMM. These activities will not cause any problem to the inhabitants of this area because there is no human

settlement in close proximity to the project area. Noise modelling has been carried out considering blasting and compressor operation (drilling) and transportation activities.

Predictions have been carried out to compute the noise level at various distances around the working pit due to these major noise-generating sources.

Noise at a point generates spherical waves, which are propagated outwards from the source through the air at a speed of 1,100 ft/sec, with the first wave making an ever-increasing sphere with time. As the wave spreads the intensity of noise diminishes as the fixed amount of energy is spread over an increasing surface area of the sphere. The assumption of the model is based on point source relationship i.e., for every doubling of the distance the noise levels are decreased by 6 dB (A).

For hemispherical sound wave propagation through homogeneous loss free medium, one can estimate noise levels at various locations at different sources using model based on first principle.

$$Lp_2 = Lp_1 - 20 \log (r_2/r_1) - Ae_{1,2}$$

Where:

Lp_1 & Lp_2 are sound levels at points located at distances r_1 & r_2 from the source.

$Ae_{1,2}$ is the excess attenuation due to environmental conditions. Combined effect of all sources can be determined at various locations by logarithmic addition.

$$Lp_{total} = 10 \log \{10^{(Lp_1/10)} + 10^{(Lp_2/10)} + 10^{(Lp_3/10)} + \dots\}$$

4.4.1 Anticipated Impact

Attenuation due to Green Belt has been taken to be 4.9 dB (A). The inputs required for the model are:

- Source data
- Receptor data
- Attenuation factor

Source data has been computed considering of all the machinery and activities used in the mining process. Same has been listed in Table 4-8.

The total noise to be produced by mining activity is calculated to be 95.8 dB (A). Generally, most mining operations produce noise between 100-109 dB (A). We have considered equipment and operation noise levels (max) to be approx. 109 dB (A) for noise prediction modelling.

Table 4.10: Predicted Noise Incremental Values

Location ID	N1	N2	N3	N4	N5	N6	N7	N8	
Maximum Monitored Value (Day) dB(A)	45.8	45.2	44.6	44.6	43.2	45.1	45.8	45.7	
Incremental Value dB(A)	60.1	56.6	33.3	25.3	28.7	29.2	24.3	25.3	
Total Predicted Noise level dB(A)	60.26	56.88	44.91	44.65	43.35	45.21	45.83	45.74	
NAAQ Standards	Industrial Day Time- 75 dB (A) & Night Time- 70 dB (A) Residential Day Time- 55 dB (A) & Night Time- 45 dB (A)								

The incremental noise level is found within the range of 56.6-60.1 dB (A) in Core Zone and 24.3 to 33.3 dB (A) in Buffer zone. The noise level at different receptors in buffer zone is lower due to the distance 33.3 involved and other topographical features adding to the noise attenuation. The resultant Noise level due to monitored values and calculated values at the receptors are based on the mathematical formula considering attenuation due to Green Belt as 4.9 dB (A) the barrier effect. From the above table, it can be seen that the ambient noise levels at all the locations are within permissible limits of Industrial area (core zone) & Residential area (buffer zone) as per THE NOISE POLLUTION (REGULATION AND CONTROL) RULES, 2000 (The Principal Rules were published in the Gazette of India, vide S.O. 123(E), dated 14.2.2000 and subsequently amended vide S.O. 1046(E), dated 22.11.2000, S.O. 1088(E), dated 11.10.2002, S.O. 1569 (E), dated 19.09.2006 and S.O. 50 (E) dated 11.01.2010 under the Environment (Protection) Act, 1986.).

4.4.2 Mitigation measures for Control of Noise

The following noise mitigation measures are proposed for control of Noise

- Usage of sharp drill bits while drilling which will help in reducing noise;
- Secondary blasting will be totally avoided and hydraulic rock breaker are utilized for breaking boulders;
- Controlled blasting with proper spacing, burden, stemming and optimum charge/delay will reduce noise;

- The blasting will be carried out during favourable atmospheric condition and less human activity timings by using nonelectrical initiation system;
- Proper maintenance, oiling and greasing of machines will be done every week to reduce generation of noise;
- Provision of sound insulated chambers for the workers working on machines (HEMM) producing higher levels of noise;
- Silencers / mufflers will be installed in all machineries;
- Green Belt will be developed around the project areas and along the haul roads. The plantation minimizes propagation of noise;
- Personal Protective Equipment (PPE) like ear muffs/ear plugs will be provided to the operators of HEMM and persons working near HEMM and their use will be ensured through training and awareness.
- Regular medical check-up and proper training to personnel to create awareness about adverse noise level effects.

4.4.3 Ground Vibrations

Ground vibrations due to mining activities in the project area are anticipated due to operation of Mining Machines like Excavators, drilling and blasting, transportation vehicles, etc. However, the major source of ground vibration from the proposed mine is moving of Heavy Earth Moving Machineries vibration due to blasting is very minimal since the blasting will not carried out frequently in this type of Granite quarry operation. The major impact of the ground vibrations is observed on the domestic houses located in the villages nearby the mine lease area. The kuchha houses are more prone to cracks and damage due to the vibrations induced by blasting whereas RCC framed structures can withstand more ground vibrations. Apart from this, the ground vibrations may develop a fear factor in the nearby settlements.

Another impact due to blasting activities is fly rocks. These may fall on the houses or agricultural fields nearby the mining lease area and may cause injury to persons or damage to the structures. Nearest habitation from the project area is located 350 m South East. The ground vibrations due to the blasting in proposed mine are calculated using the empirical equation.

The empirical equation for assessment of peak particle velocity (PPV) is:

$$V = K [R/Q^{0.5}]^{-B}$$

Where –

V = peak particle velocity (mm/s)

K = site and rock factor constant

Q = maximum instantaneous charge (kg)

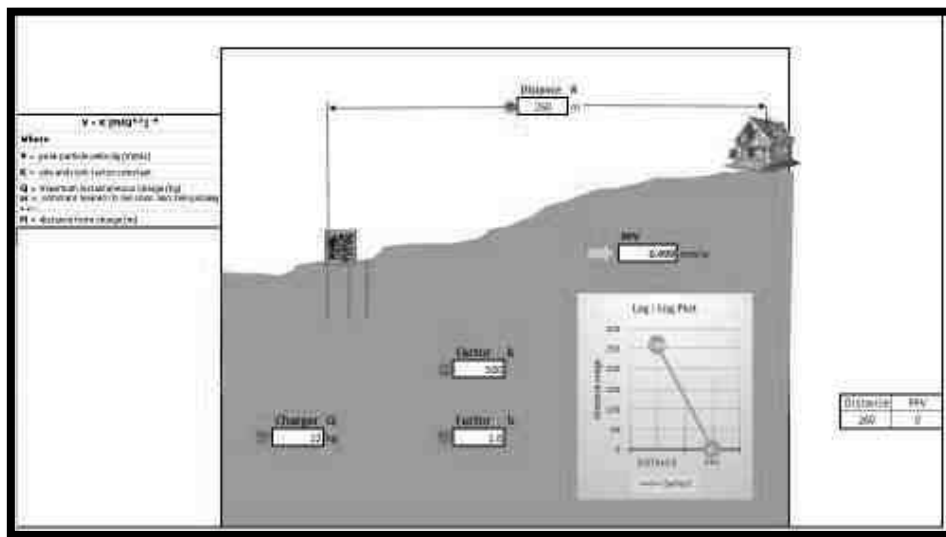
B = constant related to the rock and site (usually 1.6)

R = distance from charge (m)

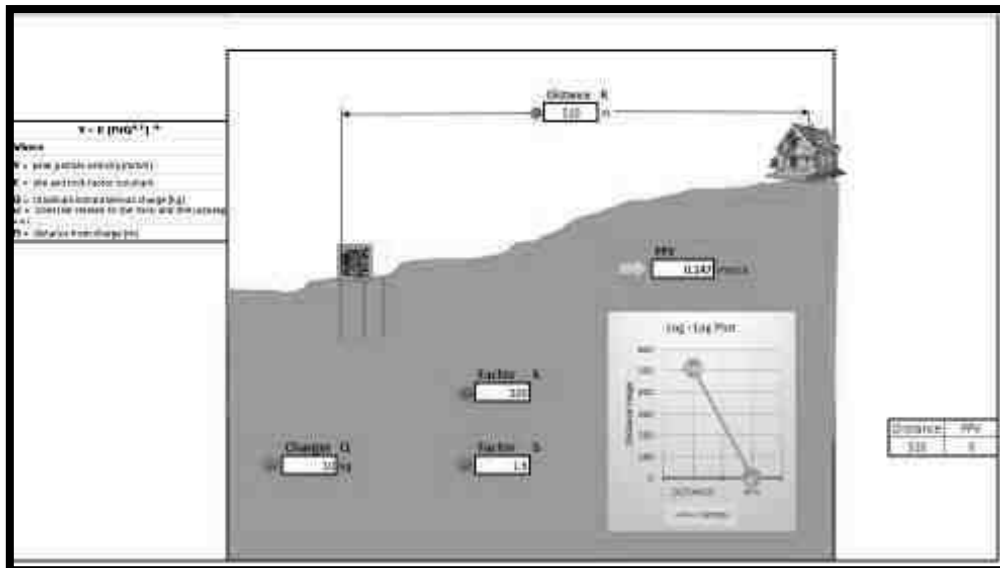
TABLE 4.11: PREDICTED PPV VALUES DUE TO BLASTING P1 to P3

Location ID	Maximum Charge in kgs	Nearest Habitation in m	PPV in m/ms
P1	12	260-NE	0.499
P2	10	510-NE	0.147
P3	7	640m-NE	0.077

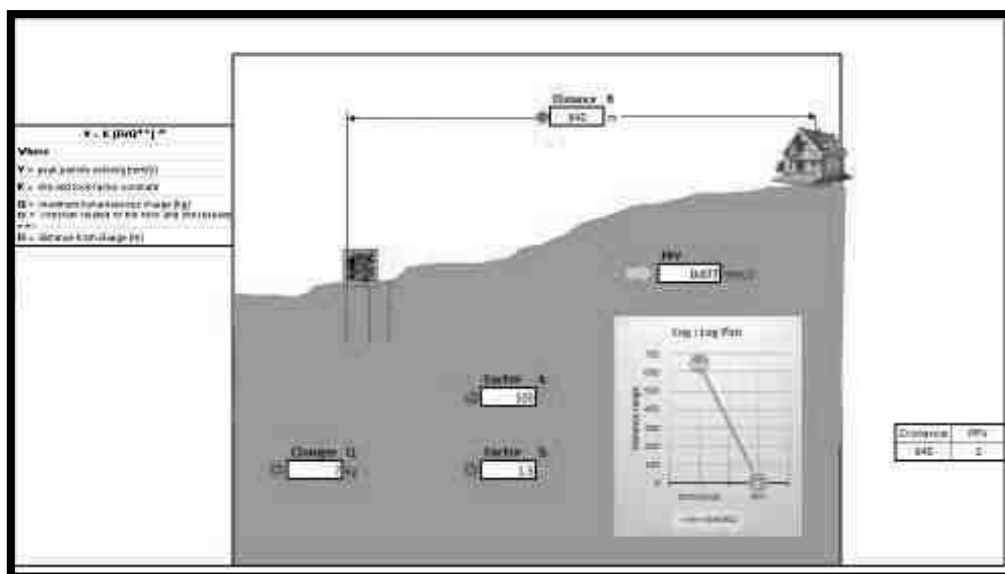
Figure No 4.7: Ground Vibration Prediction -P1



P2



P3



From the above graph, the charge per blast of Maximum 12 kg Minimum 7kg is well below the Peak Particle Velocity of 8 mm/s as per Directorate General of Mines Safety for safe level criteria through Circular No. 7 dated 29/8/1997. It should be ensured that the explosives used for blasting at one blast should not exceed more than 100kg at any point of time. However, as per statutory requirement control measures will be adopted to avoid the impacts due to ground vibrations and fly rocks due to blasting.

4.4.3.1 Mitigation measures for Control of Vibration

- The blasting operations in the mine are proposed to be carried out by jackhammer drilling and blasting using delay detonators, which reduces the ground vibrations;
- Proper quantity of explosive, suitable stemming materials and appropriate delay system should be adopted to avoid overcharging and for safe blasting;
- Adequate safe distance from blasting should be maintained as per DGMS guidelines;
- Blasting shelter will be provided as per DGMS guidelines;
- Blasting operations will be carried out only during day time;
- The charge per delay will be minimized and preferably a greater number of delays will be used per blasts;
- During blasting, other activities in the immediate vicinity shall be temporarily stopped;
- Drilling parameters like depth, diameter and spacing will be properly designed to give proper blast;
- A fully trained explosives blast man (Mining Mate, Mines Foreman, 2nd Class Mines Manager/ 1st Class Mines Manager) will be appointed.

4.5 Ecology and Biodiversity

4.5.1. Impact Identification and Evaluation

In general, impact prediction methods argue that the foremost step in impact appraisal must consider and identify project actions that are likely to bring significant changes in the project environment. The present study determined to predict the likely impacts of the Proposed Grey granite quarry mining Project in the surrounding environment with a specific focus on biological attributes covering habitats/ecosystems and associated biodiversity. Likely impacts identified were categorized into different levels like direct or primary and indirect or secondary impacts based on the influence of sources of impacts.

4.5.2. Impact on Flora

The proposed mine lease area is situated flat terrain and it is not fit for cultivation. It is mostly devoid of any considerable vegetation. The proposed mine lease area (core zone) does not encompass any designated forest land within it. The vegetation is very sparse and scanty. So, there will be no impact on flora from the mining operation. There will not be much contamination of soil or any other materials from the mining operation. No threatened plant species were reported in the core and buffer study area during the field survey.

4.5.2.1. Anticipated Impact on agricultural land associated with flora

1. There are no impacts on the nearby agricultural land due to this mining activity.

2. None of the plants will be cut during the operational phase of the mine.
3. There shall be negligible air emissions or effluents from the project site. During the loading of the truck, dust generation will be likely. This shall be a temporary effect and not anticipated to affect the surrounding vegetation significantly.

Most of the land in the buffer area is undulating terrain with croplands, grass patches, and small shrubs.

Hence, there will be no effect on the flora of the region.

4.5.3 Mitigation Measures

4.5.3.1. General Guidelines for Green Belt Development

Drone survey was covered the green belt and fencing as per the terms of references. The green belt and plantation purposes in and around the proposed mine lease area native species, fruit-bearing trees, medicinal plants, and dense canopy trees should be selected. These species should be tolerant to pollution levels as per Bio-Geography zones of India.

After the operation of mining production capacity, Green belt and Plantation species should be in accordance with the Terms and Conditions of the Environmental Clearance Green belt is created not only for the purpose of protecting sensitive areas or maintaining the ecological balance but because they also act as efficient biological filters or sinks for particulate and gaseous emissions, generated by vehicular movements and various industrial and mining activities. Optimally designed green belts can be effective in reducing the impact of fugitive emissions and pollutants accidentally or otherwise released at ground levels.

4.5.3.2. Proposed Green Belt

Extensive green belt development will be started during the construction phase, which will continue till the operation of the plant. About 1500-2000 trees will be planted per hectare all around the plant, approach roads, and township premises. Locally available types of trees that are resistant to pollutants will be planted. In addition to the above, all open spaces available within the premises will be developed as nurseries, parks, gardens, and other forms of greenery. 5 m wide greenbelt will be developed along the plant premises, as per land available.

4.5.3.3. Guidelines & Techniques for Green Belt Development

An extensive survey of the project area was undertaken to observe the structure and composition of vegetation. Hence a combination of plants is selected depending upon the topographical suitability and species selected as per the SPCB Guideline and ToR. The soil characteristics were kept in mind. Based on this survey and environmental conditions suitable native plant species have been proposed for the green belt development plan.

4.5.3.4. Development of Green Belt

The plantation matrix adopted for the green belt development includes pit of 0.3 m x 0.3 m in size with a spacing of 2 m x 2 m. In addition, earth filling and manure may also be required for the proper nutritional balance and nourishment of the sapling. It is also recommended that the plantation has to be taken up randomly and the landscaping aspects could be taken into consideration. Multi-layered plantations comprising of medium height trees (7 m to 10 m) and shrubs (5 m height) are proposed for the green belt.

A greenbelt is a set of rows of trees planted in such a fashion, to create an effective barrier between the project and its surroundings. The greenbelt helps to capture fugitive emissions, attenuate the noise levels in the existing project, and simultaneously improve aesthetics of the surroundings.

4.5.3.5. Design of Green Belt

The present plan comprises the details of field investigations. Plant species for greenbelt development are selected as per CPCB guidelines. The green belt will be developed along the periphery of the Proposed Grey granite quarry. The greenbelt development plan has been formulated considering the parameters such as climate, soil types, topography, etc.

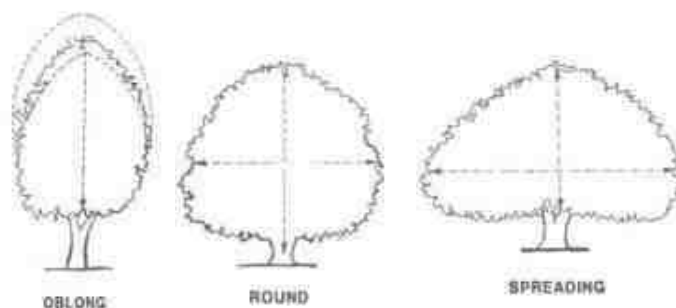
a. Characteristic features of plants to be used for Absorption of pollutant gases

- Plant species should be perennial and evergreen with thick canopy cover.
- The crown of the tree (mass of foliage/leaves and branches growing outward from the trunk of the tree) should be either Oblong, Round, or Spreading for effective absorption of pollutant gases.
- Plant should have foliage of longer duration.
- The foliage should be freely exposed through: Adequate height of crown, Openness of foliage/leaves in canopy, Big leaves (long and broad laminar surfaces).

The purpose of Green belt around the project is to capture the fugitive emissions. Carbon sequestration and to attenuate the noise generated. In addition to improving the aesthetics. A wide range of indigenous plant

species was planted as given in the table No 4.1 & 4.2 in consulted with the DFO. The plant species with dense/moderate canopy of native origin was chosen are given below. Species of small/ medium/tall trees alternating with shrubs was planted.

- Plants that grow fast will be preferred.
- Preference for high canopy covers plants with local varieties.
- Perennial and evergreen plants will be preferred.
- The development of the Green Belt is an important aspect for any plant because:
 - It improves the ambient air quality by controlling Suspended Particulate Matter (SPM) in the air.
 - It helps in noise abatement for the surrounding area.
 - It helps in the settlement of new birds and insects within itself.
 - It maintains the ecological balance.
 - It increases the aesthetic value of the site.



(*Source: Guidance for Developing Green belts Manual, CPCB 2000)

Table No 4.12. List of plant species proposed for Greenbelt development

S. No	Scientific name	Tamil Name
1	Aegle marmelos	Vilva maram
2	Albizia lebbbeck	Vaagai maram
3	Cassia fistula	Konrai tree
4	Lannea coromandelica	Othiyam
5	Limonia acidissima	Vila maram
6	Syzygium cumini	Naval maram
7	Toona ciliata	Santhana Vembu
8	Ficus hispida	Aththi maram
9	Borassus flabellifer	Panai-maram
10	Madhuca longifolia	Illupai maram

(*Source: Term of Reference-ToR)

Table No 4.13. Species suitable for abatement of noise and dust pollution

S. No	Botanical name	Common name
1	Azadirachta indica	Vembhu maram
2	Ficus religiosa	Arasan maram
3	Ficus hispida	Aththi maram
4	Bombax ceiba	Mul Elavu
5	Syzygium cumini	Naval maram
6	Tamarindus indica	Puliyamaram
7	Mangifera indica	Manga maram
8	Harwickia binata	Anjan maram
9	Delonix regia	Neruppu Kondrai
10	Cassia Fistula	Sara Kondrai

(*Source: Guidance for Developing Green belts Manual, CPCB 2000)

The above-suggested list covers species with thick canopy cover, perennial green nature, native origin, and a large leaf area index. The proposed species will help in forming an effective barrier between the mine site area and the surroundings.

These species need to be planted along the periphery of the lease area for absorb fugitive emissions and noise levels which is generated during mining activities. All the open spaces, where tree plantation may not be possible, should be covered with shrubs and grass to prevent erosion of topsoil.

Some of the important aspects to be considered are:

- ✓ Planting of trees in each row will be in staggered orientation.
- ✓ In the front row, shrubs will be grown.
- ✓ Since the trunks of the tall trees are generally devoid of foliage, it will be useful to have shrubs in front of the trees so as to give coverage to this portion.
- ✓ The spacing between the trees will be maintained slightly less than the normal spaces, so that the trees may grow vertically and slightly increase the effective height of the green belt.

4.5.4. Anticipated Impact on Fauna

- Since the terrestrial fauna in the study area are distributed away from the mine site, the impacts of project are likely to be much low on terrestrial fauna of the region. The proposed mining lease area is devoid of any significant vegetation, it is not suitable for permanent habitat for any specific wildlife.
- Habitat degradation and disturbance to faunal group due to ground vibration and increase in noise level will be minimize or resolved by modern technologies. So, from above facts it is revealed that there will be no impact on fauna. No threatened fauna species reported in the core and buffer study area.

4.5.4.1. Measures for protection and conservation of wildlife species

- Topsoil has a large number of seeds of native plant species in the mining area.
- Topsoil will be used for restoration and suitable surfaces for planted seedlings.
- Checks and controls the movement of vehicles in and out of the mine.
- Undertaking mitigative measures for a conducive environment to the flora and fauna in consultation with Forest Department.
- A dust suppression system will be installed within the mine and periphery of the mine.
- Plantation around the mine area will help in creating habitats for small faunal species and create a better environment for various fauna. Creating and developing awareness for nature and wildlife in the adjoining villages.

4.5.3. Impact on Aquatic Biodiversity

Mining activities will not disturb the aquatic ecology as there is no effluent discharge proposed from the Grey granite quarry. There is no natural perennial surface water body within the mine lease area, like wetlands, rivers streams, lakes, and farmer sites. There are few water bodies located in the study area. There are a few Odai and Canals located in the study area. There is no impact on fish habitats and the food WEB/ food chain in the water body and Reservoir. Kindly refer the clause no 3.6.3. Aquatic biodiversity is observed in the study area.

4.5.4. Impacts on Bird Fauna:

The project does not involve any tree felling or removal of vegetation. Therefore, there may not be loss of nesting and roosting habitat of avian fauna.

4.5.5. Impacts on wildlife

There is no National Park, Biosphere Reserve, Wildlife corridors, and Tiger/Elephant Reserve found within 10 km radius of the project site.

4.5.3.2 Afforestation

More number of trees has been observed along the approach road to the lease area, the trees will be maintained in good condition. The 7.5m and 10m Safety distance along the boundary has been identified to be utilized for subsequent Afforestation. However, the afforestation should always be carried out in a systematic and scientific manner. Regional trees like Neem, Pongamia, Pinnata, Casuarina will be planted along the Lease boundary and avenues as well as over non-active dumps at a rate of 50 trees per annum with interval 3m in between. A retaining wall will be constructed around the dumping yard. The rate of survival expected to be 80% in this area. Afforestation Plan is given in Table No.4.11 and preparation of green belt details are given in Table No.4.11.

Table 4.14: Greenbelt development plan-P1

Year	No. of trees proposed to be planted	Area to be covered in m ²	Name of the species to be plant	Survival rate expected in %	No. of trees expected to be grown
I	60	1000	Neem,	70	42
II	60			70	42
III	60			70	42
IV	60			70	42
V	60			70	42

Nearly 1,000 sq.m area is proposed for afforestation by planting 60 Nos. of trees during every year and expected growth is around 42 Nos. of trees at a survival rate of 80%.

Table 4.15: Preparation of green belt details -P1

ACTIVITY	YEAR					RATE	AMOUNT (Rs.)	
	I	II	III	IV	V			
Plantation (In Nos.)	60	60	60	60	60	@100 Rs Per sapling	60,000 /-	
Plantation and Maintenance Cost	6000	6000	6000	6000	6000			
Barbed wire fencing (In Mtrs) 590 Mtrs	1,62,000	-	-	-	-	@300 Rs Per Meter	1,77,000/-	
Garland drain (In Mtrs) 1195Mtrs	1,50,000	-	-	-	-	@300 Rs Per Meter	3,58,000/-	
TOTAL								5,95,000/-

Table 4.16: Greenbelt development plan-P2

Year	No. of trees proposed to be planted	Area to be covered in m ²	Name of the species to be plant	Survival rate expected in %	No. of trees expected to be grown
I	20	916	Neem, Pongamia pinnata, etc., trees	80	16
II	20			80	16
III	20			80	16
IV	20			80	16
V	20			80	16

Nearly 916m² area is proposed for afforestation by planting 100 Nos. of tree saplings during this scheme period and expected growth is around 80 Nos.

Table 4.17: Preparation of green belt details -P2

ACTIVITY	YEAR					RATE	AMOUNT (Rs.)	
	I	II	III	IV	V			
Plantation (In Nos.)	20	20	20	20	20	@200 Rs Per sapling	20,000/-	
Plantation (Safety zone) Cost	4,000	4,000	4,000	4,000	4,000			
Barbed wire fencing (In Mtrs) 560Mtrs	1,68,000/-	-	-	-	-	@300 Rs Per Meter	1,68,000/-	
Garland drain (In Mtrs) 260 Mtrs	78,000/	-	-	-	-	@300 Rs Per Meter	78,000/-	
TOTAL								2,66,000/-

Table 4.18: Greenbelt development plan-P3

Year	No. of trees proposed to be planted	Area to be covered in m ²	Name of the species to be plant	Survival rate expected in %	No. of trees expected to be grown
I	30	1209	Neem, Casuarina, Pongamia pinnata, etc., trees	80	24
II	30			80	24
III	30			80	24
IV	30			80	24
V	30			80	24

Nearly 1,209m² area is proposed for afforestation by planting 150 Nos. of tree saplings during this Mining plan period and expected growth is around 120 Nos.

Table 4.19: Preparation of green belt details -P3

ACTIVITY	YEAR					RATE	AMOUNT (Rs.)
	I	II	III	IV	V		
Plantation (In Nos.)	30	30	30	30	30	@200 Rs Per sapling	30,000/-
Plantation (Safety zone) Cost	6,000	6,000	6,000	6,000	6,000		
Barbed wire fencing (In Mtrs) 490 Mtrs	1,47,000	-	-	-	-	@300 Rs Per Meter	1,47,000/-
Garland drain (In Mtrs) 260 Mtrs	78,000	-	-	-	-	@300 Rs Per Meter	78,000/-
TOTAL							2,55,000/-

Table No: 4.20 Anticipated impact of Ecology and Biodiversity

S.No	Attributes	Assessment
1	Impact of mining activity on agricultural land nearby the proposed project site.	Agricultural land is located away from the proposed project site. There are no impacts on the agricultural land & Horticulture. Kindly refer to the conclusion.
	Activities of the project affect the breeding/nesting sites of birds and animals	No breeding and nesting site was identified in the mining lease site. The fauna sighted mostly migrated from the buffer area.
2	Located near an area populated by rare or endangered species	No Endangered, Critically Endangered, or vulnerable species were sighted in the core mining lease area.
3	Proximity to national park/wildlife sanctuary/reserve forest /mangroves/coastline/estuary/sea	There is no Reserve Forest situated within in 1 km radius. The nearest Reserve Forest is Thoragapalli R.F situated at 4.4km on the southeast side.
4	The proposed project restricts access to waterholes for wildlife	'No'
5	Proposed mining project impact surface water quality that also provides water to wildlife	'No' scheduled or threatened wildlife animals are sighted regularly core in the core area.
6	Proposed mining project increase siltation that would affect nearby biodiversity areas.	Surface runoff management such as drains is constructed properly so there will be no siltation effect in the nearby mining area.
7	Risk of fall/slip or cause death to wild animals due to project activities.	'No'
8	The project release effluents into a water body that also supplies water to a wildlife.	No water body near to core zone so the chances of water becoming polluted is low.

9	Mining projects affect the forest-based livelihood/ any specific forest product on which local livelihood depended.	'No'
10	The project likely to affect migration routes.	'No 'migration route was observed during the monitoring period.
11	The project is likely to affect the flora of an area, which have medicinal value	'No '
12	Forestland is to be diverted, has carbon high sequestration.	'No 'There was no forest land diverted.
13	The project is likely to affect wetlands, Fish breeding grounds, and marine ecology.	'No '. Wetland was not present in the near core Mining lease area. No breeding and nesting ground is present in the core mining area.

*(Format Source: EIA Guidance Manual-Mining and Minerals, 2010)

4.6 Socio Economic

The socio-economic impacts of mining are many. Impacts of a mine project may be positive or Negative. The adverse impacts attribute to physical displacement due to land acquisition, which is followed by loss of livelihood, mental agony, changes in social structure, and risk to food security etc., People are also directly affected due to pollution. Social Impact Assessment (SIA) is a process of analysis, monitoring and managing the social consequences of a project. Study on Socio-economic status has already been carried out using primary socio-economic survey for generating the baseline data of Socio-economic status.

4.6.1 Anticipated Impact

From the primary Socio-economic survey & through secondary data available from established literature and census data 2011, it is found that there would be positive impact on Socio-economic condition of the nearby area. There is no habitation within 600m of the proposed mining lease area. Therefore, no major impact is anticipated on the nearby habitation during the entire life of the mine.

4.6.2 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
- 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, duties, etc., from this project directly and indirectly
- From above details, the quarry operations will have highly beneficial positive impact in the area

4.7 Occupational Health and Safety

Occupational health and safety hazards will occur during the operational phase of mining and primarily include the following:

- Respiratory hazards
- Noise
- Physical hazards
- Explosive storage and handling

4.7.1 Respiratory Hazards

Long-term exposure to silica dust may cause silicosis the following measures are proposed:

- Cabins of excavators and tippers will be enclosed with AC and sound proof
- Use of personal dust masks will be made compulsory

4.7.2 Noise

Workers are likely to get exposed to excessive noise levels during mining activities. The following measures are proposed for implementation

- The use of hearing protection will be enforced actively when the equivalent sound level over 8 hours reaches 85 dB(A), the peak sound levels reach 140 dB(C), or the average maximum sound level reaches 110 dB(A)
- No employee will be exposed to a noise level greater than 85 dB(A) for a duration of more than 8 hours per day without hearing protection
- Ear muffs provided will be capable of reducing sound levels at the ear to at least 85 dB(A)
- Periodic medical hearing checks will be performed on workers exposed to high noise levels

4.7.3 Physical Hazards

The following measures are proposed for control of physical hazards

- Specific personnel training on work-site safety management will be taken up;
- Work site assessment will be done by rock scaling of each surface exposed to workers to prevent accidental rock falling and / or landslide, especially after blasting activities;
- Natural barriers, temporary railing, or specific danger signals will be provided along rock benches or other pit areas where work is performed at heights more than 2m from ground level;
- Maintenance of yards, roads and footpaths, providing sufficient water drainage and preventing slippery surfaces with an all-weather surface, such as coarse gravel will be taken up

4.7.4 Occupational Health Survey

All the persons will undergo pre-employment and periodic medical examination. Employees will be monitored for occupational diseases by conducting the following tests

- General physical tests
- Audiometric tests, Full chest, X-ray, Lung function tests, Spirometric tests
- Periodic medical examination – yearly, Lung function/ Silicosis test – yearly, those who are exposed to dust
- Eye test

Essential medicines will be provided at the site. The medicines and other test facilities will be provided at free of cost. The first aid box will be made available at the mine for immediate treatment. First aid training will be imparted to the selected employees regularly. The lists of first aid trained members shall be displayed at strategic places.

4.7.5 Post COVID Health Management Plan for Workers

The following Health Management plan will be strictly implemented in the Mines, Mine officials like Mines Manager and Foreman will be Act as a Controller of Health Management of the workers.

- Temperature will be checked to all the workers while arriving to work on each day
- If any persons/employees have fever of 100.4 or higher, chills, shortness of breath will be sent to Hospital and the persons will be employed after fourteen days
- All the persons inside the mine area instructed to wear fabric or disposable pleated masks covering Nose and Mouth
- Social distancing of 6 feet will be maintained all the time
- Temporary Hand washing points will be installed near the working places, workers will be initiated to Wash hands frequently with soap and water for a minimum of 20 seconds and advised to avoid touching face. This is an essential contagion-control mechanism

4.7.6 Plastic Waste Management

As per the Tamil Nadu Government Order (Ms) No. 84 Environment and Forest (EC.2) Department Dated 25.06.2018 following kind of plastics will not be used in the mines area.

- Use and throw away plastics such as carry bags, plastic bags, plastic sheets used for food wrapping, spreading, plastic plates, plastic coated tea cups and plastic tumblers will not be used in the mines

Action Plan:

Action Plan	Responsibility
All the employees will be checked for plastics before entering the quarry.	Watchman
Every week or month a meeting of workers under the chairmanship of the mine manager will be held to explain the disadvantages of plastic use.	Mine Foreman & Mining Mate
They will be advised not to bring plastic materials into the mines and those who are involved in such activities will not be allowed to work on the day of the snow.	Mines Manager
The miners will be provided with areca nut plates and mugs to help reduce the use of plastics.	Mines owner

4.8 Mine Closure

Mine closure plan is the most important environmental requirement in mineral mining projects. The mine closure plan should cover technical, environmental, social, legal and financial aspects dealing with progressive and post closure activities. The closure operation is a continuous series of activities starting from the decommissioning of the project.

Objective of Mine closure

- To create a productive and sustainable after-use for the site, acceptable to mine owners, regulatory agencies, and the public
- To protect public health and safety of the surrounding habitation
- To minimize environmental damage
- To conserve valuable attributes and aesthetics
- To overcome adverse socio-economic impacts.

4.8.1 Mine Closure criteria

The criteria involved in mine closure are discussed below:

4.8.1.1 Physical Stability

All anthropogenic structures, which include mine workings, buildings, rest shelters etc., remaining after mine decommissioning should be physically stable. They should present no hazard to public health and safety as a result of failure or physical deterioration and they should continue to perform the functions for which they were designed. The design periods and factors of safety proposed should take full account of extreme events such as floods, hurricane, winds or earthquakes, etc. and other natural perpetual forces like erosion, etc.,

4.8.1.2 Chemical Stability

The solid wastes on the mine site should be chemically stable. This means that the consequences of chemical changes or conditions leading to leaching of metals, salts or organic compounds should not endanger public health and safety nor result in the deterioration of environmental attributes. If the pollutant discharge likely to cause adverse impacts is predicted in advance, appropriate mitigation measures like settling of suspended solids or passive treatment to improve water quality as well as quantity, etc. could be planned. Monitoring should demonstrate that there is no adverse effect of pollutant concentrations exceeding the statutory limits for the water, soil and air qualities in the area around the closed mine.

4.8.1.3 Biological Stability

The stability of the surrounding environment is primarily dependent upon the physical and chemical characteristics of the site, whereas the biological stability of the mine site itself is closely related to rehabilitation and final land use. Nevertheless, biological stability can significantly influence physical or chemical stability by stabilizing soil cover, prevention of erosion/wash off, leaching, etc.,

A vegetation cover over the disturbed site is usually one of the main objectives of the rehabilitation programme, as vegetation cover is the best long-term method of stabilizing the site. When the major earthwork components of the rehabilitation programme have been completed, the process of establishing a stable vegetation community begins. For re-vegetation, management of soil nutrient levels is an important consideration. Additions of nutrients are useful under three situations.

- Where the nutrient level of spread topsoil is lower than material in-situ e.g. for development of social forestry

-
- Where it is intended to grow plants with a higher nutrient requirement than those occurring naturally e.g. planning for agriculture
 - Where it is desirable to get a quick growth response from the native flora during those times when moisture is not a limiting factor e.g. development of green barriers

The Mine closure plan should be as per the approved mine plan. The mine closure is a part of approved mine plan and activities of closure shall be carried out as per the process described in mine closure plan

(Annexure I)

5. ANALYSIS OF ALTERNATIVES (TECHNOLOGY AND SITE)

5.1 Introduction

Consideration of alternatives to a project proposal is a requirement of EIA process. During the scoping process, alternatives to a proposal can be considered or refined, either directly or by reference to the key issues identified. A comparison of alternatives helps to determine the best method of achieving the project objectives with minimum environmental impacts or indicates the most environmentally friendly and cost-effective options.

The quarrying operation like drilling, blasting, excavation, loading & transportation are being carried out. The site has been selected based on geological investigation and exploration as below:

- Transportation facility for materials & manpower
- Overall impact on environment and mitigation feasibility
- Socio – economic background.

Enough infrastructures exists and lesser resources are required to be deployed. Since, any further construction for infrastructure is not required and hence does not affect the environment considerably. The mineral deposits are site specific in nature; hence question of seeking alternate site does not arise for this project.

6. ENVIRONMENTAL MONITORING PROGRAMME

6.0 General

The monitoring and evaluation of environmental parameters indicates potential changes occurring in the environment, which paves way for implementation of rectifying measures wherever required to maintain the status of the natural environment. Evaluation is also a very effective tool to judge the effectiveness or deficiency of the measures adopted and provides insight for future corrections.

The main objective of environmental monitoring is to ensure that the obtained results in respect of environmental attributes and prevailing conditions during operation stage are in conformity with the prediction during the planning stage. In case of substantial deviation from the earlier prediction of results, this forms as base data to identify the cause and suggest remedial measures. Environmental monitoring is mandatory to meet compliance of statutory provisions under the Environment (Protection) Act, 1986, relevant conditions regarding monitoring covered under EC orders issued by the SEIAA as well as the conditions set forth under the order issued by Tamil Nadu Pollution Control Board while granting CTO.

6.1 Methodology of Monitoring Mechanism

Implementation of EMP and periodic monitoring will be carried out by Project Proponent. A comprehensive monitoring mechanism has been devised for monitoring of impacts due to proposed project; Environmental protection measures like dust suppression, control of noise and blast vibrations, maintenance of machinery and vehicles, housekeeping in the mine premises, plantation, implementation of Environmental Management Plan and environmental clearance conditions will be monitored by the Mine Management. On the other hand, implementation of area level protection measures like green belt development, environmental quality monitoring etc., are taken up by a senior executive who reports Mine Management.

An Environment monitoring cell (EMC) will be constituted to monitor the implementation of EMP and other environmental protection measures.

The responsibilities of this cell will be:

- Implementation of pollution control measures
- Monitoring programme implementation
- Post-plantation care
- To check the efficiency of pollution control measures taken
- Any other activity as may be related to environment
- Seeking expert's advice when needed

The environmental monitoring cell will co-ordinate all monitoring programs at site and data thus generated will be regularly furnished to the State regulatory agencies as compliance status reports.

The sampling and analysis report of the monitored environmental attributes will be submitted to the Tamil Nadu Pollution Control Board (TNPCB) at a frequency of half-yearly and yearly. The half-yearly reports are submitted to Ministry of Environment and Forest, Regional Office and SEIAA as well.

The sampling and analysis of the environmental attributes will be as per the guidelines of Central Pollution Control Board (CPCB)/Ministry of Environment, Forest and Climate Change (MoEF & CC).

6.2 Implementation Schedule of Mitigation Measures

The mitigation measures proposed in Chapter-4 will be implemented so as to reduce the impact on the environment due to the operations of the proposed project. Implementation schedule of mitigation measures is given in Table 6.1.

Table 6.1: Implementation Schedule

S.No.	Recommendations	Time Period	Schedule
1	Land Environment Control Measures	Before commissioning of the project	Immediate
2	Soil Quality Control Measures	Before commissioning of the project	Immediate
3	Water Pollution Control Measures	Before commissioning of the project and along with mining operation	Immediate and as project progress
4	Air Pollution Control Measures	Before commissioning of the project and along with mining operation	Immediate and as project progress
5	Noise Pollution Control Measures	Before commissioning of the project and along with mining operation	Immediate and as project progress
6	Ecological Environment	Phase wise implementation every year along with mine operations	Immediate and as project progress

6.3 Monitoring Schedule and Frequency

Monitoring shall confirm that commitments are being met. This may take the form of direct measurement and recording of quantitative information, such as amounts and concentrations of discharges, emissions and wastes, for measurement against statutory standards. Monitoring may include socio-economic interaction, through local liaison activities or even assessment of complaints.

The environmental monitoring will be conducted in the mine operations as follows:

- Air quality;
- Water and wastewater quality;
- Noise levels;
- Soil Quality; and
- Greenbelt Development

The details of monitoring is detailed in Table 6.2

Table 6.2: Monitoring Schedule for the Project Area

S. No.	Environment Attributes	Location	Monitoring		Parameters
			Duration	Frequency	
1	Air Quality	2 Locations (1 Core & 1 Buffer)	24 hours	Once in 6 months	Fugitive Dust, PM2.5, PM10, SO2 and NOx.
2	Meteorology	At mine site before start of Air Quality Monitoring & IMD Secondary Data	Hourly / Daily	Continuous online monitoring	Wind speed, Wind direction, Temperature, Relative humidity and Rainfall
3	Water Quality Monitoring	2 Locations (1SW & 1 GW)	-	Once in 6 months	Parameters specified under IS:10500, 1993 & CPCB Norms
4	Hydrology	Water level in open wells in buffer zone around 1 km at specific wells	-	Once in 6 months	Depth in bgl
5	Noise	2 Locations (1 Core & 1 Buffer)	Hourly – 1 Day	Once in 6 months	Leq, Lmax, Lmin, Leq Day & Leq Night
6	Vibration	At the nearest habitation (in case of reporting)	–	During blasting Operation	Peak Particle Velocity
7	Soil	2 Locations (1 Core & 1 Buffer)	–	Once in six months	Physical and Chemical Characteristics
8	Greenbelt	Within the Project Area	Daily	Monthly	Maintenance

Source: Guidance of manual for mining of minerals, February 2010

6.4 Budgetary Provision for EMP

The cost in respect of monitoring of environmental attributes, parameter to be monitored, sampling/monitoring locations with frequency and cost provision against each proposal is shown in Table 6.3. Monitoring work will be outsourced to external laboratory approved by NABL / MoEF.

The proposed capital cost for Environmental Monitoring Programme is Rs 62,000/- and the recurring cost is Rs 62,000/- per annum-P1 and 76,000 per annum-P2-P3.

Table 6.3: Environmental Monitoring Budget-P1

Sl.No.	Parameter	Capital Cost	Recurring Cost per annum
1	Drinking water facility	Rs. 62,000	Rs. 62,000
2	Safety kits		
3	Water sprinkling		
4	Afforestation		
5	Water Quality test		
6	Air Quality test		
7	Noise/Vibration Study		
Total		Rs 62,000	Rs 62,000

Table 6.4: Environmental Monitoring Budget-P2

Sl.No.	Parameter	Capital Cost	Recurring Cost per annum
1	Air Quality	Rs. 76,000/-	Rs. 76,000/-
2	Meteorology		
3	Water Quality		
4	Hydrology		
5	Soil Quality		
6	Noise Quality		
7	Vibration Study		
Total		Rs 76,000/-	Rs 76,000/-

Table 6.5: Environmental Monitoring Budget-P3

Sl.No.	Parameter	Capital Cost	Recurring Cost per annum
1	Air Quality	Rs. 76,000/-	Rs. 76,000/-
2	Meteorology		
3	Water Quality		
4	Hydrology		
5	Soil Quality		
6	Noise Quality		
7	Vibration Study		
Total		Rs 76,000/-	Rs 76,000/-

Source: Approved Mining Plan

6.5 Reporting Schedules of Monitored Data

The monitored data on air quality, water quality, noise levels and other environmental attributes will be periodically examined by the Mine Management level and Head of Organization for taking necessary corrective measures. The monitoring data will be submitted to Tamil Nadu State Pollution Control Board in the Compliance to CTO Conditions & environmental audit statements every year to MoEF & CC and Half-Yearly Compliance Monitoring Reports to MoEF & CC Regional Office and SEIAA.

Periodical reports to be submitted to: -

- MoEF & CC – Half yearly status report
- TNPCB - Half yearly status report
- Department of Geology and Mining: quarterly, half yearly annual reports

Besides the Mines Manager/Agent will submit the periodical reports to

- Director of mines safety,
- Labour enforcement officer,
- Controller of explosives as per the norms stipulated by the department.

CHAPTER – 7: ADDITIONAL STUDIES

7.0 General

The following Additional Studies were done as per items identified by project proponent and items identified by regulatory authority. And items identified by public and other stakeholders are incorporated after Public Hearing.

- Public Consultation
- Risk Assessment
- Disaster Management Plan

7.1 Public Consultation:

Application to The Member Secretary of the Tamil Nadu Pollution Control Board (TNPCB) to conduct Public Hearing in a systematic, time bound and transparent manner ensuring widest possible public participation at the project site or in its close proximity in the district is submitted along with this Draft EIA / EMP Report and the outcome of public hearing proceedings will be detailed in the Final EIA/EMP Report.

7.2 Risk Assessment

The methodology for the risk assessment has been based on the specific risk assessment guidance issued by the Directorate General of Mine Safety (DGMS), Dhanbad, vide Circular No.13 of 2002, dated 31st December, 2002. The DGMS risk assessment process is intended to identify existing and probable hazards in the work environment and all operations and assess the risk levels of those hazards in order to prioritize those that need immediate attention. Further, mechanisms responsible for these hazards are identified and their control measures, set to timetable are recorded along with pinpointed responsibilities.

The whole quarry operation will be carried out under the direction of a qualified Competent Mine manager holding certificate of competency to manage a metalliferous mine granted by the DGMS, Dhanbad. Risk Assessment is all about prevention of accidents and to take necessary steps to prevent it from happening. Factors of risks involved due to human induced activities in connection with mining & allied activities with detailed analysis of causes and control measures for the mine is given in below Table 7.4.

Table 7.4 Risk Assessment

S. No	Risk factors	Causes of risk	Control measures
1	Accidents due to explosives and heavy mining machineries	Improper handling and unsafe working practice	<ul style="list-style-type: none"> ▪ All safety precautions and provisions of Mine Act, 1952, Metalliferous Mines Regulation, 1961 and Mines Rules, 1955 will be strictly followed during all mining operations; ▪ Entry of unauthorized persons will be prohibited; ▪ Firefighting and first-aid provisions in the mine office complex and mining area; ▪ Provisions of all the safety appliances such as safety boot, helmets, goggles etc. will be made available to the employees and regular check for their use ▪ Working of quarry, as per approved plans and regularly updating the mine plans; ▪ Cleaning of mine faces shall be daily done in order to avoid any overhang or undercut; ▪ Handling of explosives, charging and firing shall be carried out by competent persons only under the supervision of a Mine Manager; ▪ Maintenance and testing of all mining equipment as per manufacturer guidelines.
2	OB / Waste Dump	Sliding of benches Height and slope of the benches	<ul style="list-style-type: none"> ▪ Dumps benches are maintained with proper 3 m height and 37° slope to prevent slope failure and terraced.

		Drainage facilities	<ul style="list-style-type: none"> ▪ Dumping in the waste dump in layers and dozing daily. ▪ Vegetation of the top and slopes of the dump to prevent erosion and providing water drainage channels ▪ Providing proper drainage facilities in mine and dump area. ▪ Construction of retaining wall around dump area to stop sliding of material. ▪ Garland drain to be made around OB dump area
3	Drilling & Wire Saw Cutting	Due to improper and unsafe practices Due to high pressure of compressed air, hoses may burst Drill Rod may break	<ul style="list-style-type: none"> ▪ Safe operating procedure established for drilling (SOP) will be strictly followed. ▪ Only trained operators will be deployed. ▪ No drilling shall be commenced in an area where shots have been fired until the blaster/blasting foreman has made a thorough Examination of all places, ▪ Drill & Wire saw operator shall examine the drilling and wire saw equipment and satisfy himself ▪ Drilling & cutting operations shall not be carried on simultaneously on the benches at places directly one above the other. ▪ Periodical preventive maintenance and replacement of worn-out accessories in the compressor and drill equipment and wire saw equipment as per operator manual. ▪ All drills and wire saw unit shall be provided with wet drilling and cutting arrangement and it shall be maintained in efficient working in condition. ▪ Operator shall regularly use all the personal protective equipment.
4	Blasting	Fly rock, ground vibration, Noise and dust. Improper charging, stemming & Blasting/fining of blast holes Vibration due to movement of vehicles	<ul style="list-style-type: none"> ▪ The maximum charge per delay and by optimum blast hole pattern, vibrations will be controlled within the permissible limit and blast can be conducted safely. ▪ SOP for Charging, Stemming & Blasting/Firing of Blast Holes will be followed by blasting crew during initial stage of operation ▪ Shots are fired during daytime only. ▪ All holes charged on any one day shall be fired on the same day. ▪ The danger zone is and will be distinctly demarcated (by means of red flags)
5	Transportation	Potential hazards and unsafe workings contributing to accident and injuries Overloading of material While reversal & overtaking of vehicle Operator of truck leaving his cabin when it is loaded.	<ul style="list-style-type: none"> ▪ Before commencing work, drivers personally check the dumper/truck/tipper for oil(s), fuel and water levels, tyre inflation, general cleanliness and inspect the brakes, steering system, warning devices including automatically operated audio-visual reversing alarm, rear view mirrors, side indicator lights etc., are in good condition. ▪ Not allow any unauthorized person to ride on the vehicle nor allow any unauthorized person to operate the vehicle. ▪ Concave mirrors should be kept at all corners

			<ul style="list-style-type: none"> ▪ All vehicles should be fitted with reverse horn with one spotter at every tipping point ▪ Loading according to the vehicle capacity ▪ Periodical maintenance of vehicles as per operator manual
6	Natural calamities	Unexpected happenings	<ul style="list-style-type: none"> ▪ Escape Routes will be provided to prevent inundation of storm water ▪ Garland drains will be provided at the toe of dump ▪ Fire Extinguishers & Sand Buckets
7	Failure of Mine Benches and Pit Slope	Slope geometry, Geological structure	Ultimate or over all pit slope shall be below 60° and each bench height shall be 5m height.

7.3 Disaster Management Plan

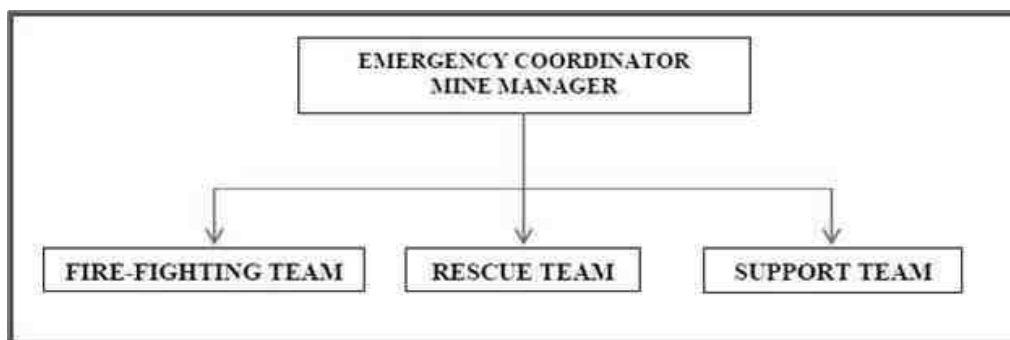
The Disaster Management Plan is aimed to ensure safety of life, protection of environment, protection of installation, restoration of production and salvage operations in this same order of priorities.

The objective of the Disaster Management Plan is to make use of the combined resources of the mine and the outside services to achieve the following:

- Effect the rescue and medical treatment of casualties;
- Safeguard other people;
- Minimize damage to property and the environment;
- Initially contain and ultimately bring the incident under control;
- Secure the safe rehabilitation of affected area; and
- Preserve relevant records and equipment for the subsequent inquiry into the cause and circumstances of the emergency

It is to optimize operational efficiency to rescue rehabilitation and render medical help and to restore normalcy. To tackle the consequences of a major emergency inside the mines or immediate vicinity of the mines, a Disaster Management Plan must be formulated, and this planned emergency document is called “Disaster Management Plan”.

In case a disaster takes place, despite preventive actions, disaster management will have to be done in line with the descriptions below. There is an organization proposed for dealing with the emergency situations and the coordination among key personnel and their team has been shown below –



The emergency organization shall be headed by emergency coordinator who will be qualified competent mine manager. In his absence senior most people available at the mine shall be emergency coordinator till arrival of mine manager. There would be three teams for taking care of emergency situations – Fire-Fighting Team, Rescue Team and Support Team. The proposed composition of the teams is given in Table 7.5.

Table 7.5: Proposed Teams to Deal with Emergency Situation

Designation	Qualification
Fire-Fighting Team	
Team Leader	Mines Manager
Team Member	Mines Foreman
Team Member	Mining Mate
Rescue Team	
Team Leader	Mines Manager
Team Member	Environment Officer
Team Member	Mining Foreman
Support Team	
Team Leader	Mines Manager
Assistant Team Leader	Environment Officer
Team Member	Mining Mate
Security Team	Mines Foreman

Once the mine becomes operational, the above table along with names of personnel will be prepared and made easily available to workers. A mobile communication network and wireless shall connect Mine Emergency Control Room (MECR) to control various departments of the mine, fire station and neighbouring industrial units/mines.

Roles and responsibilities of emergency team –

(a) Emergency coordinator (EC)

The emergency coordinator shall assume absolute control of site and shall be located at MECR.

(b) Incident controller (IC)

Incident controller shall be a person who shall go to the scene of emergency and supervise the action plan to overcome or contain the emergency. Shift supervisor or Environmental Officer shall assume the charge of IC.

(c) Communication and advisory team

The advisory and communication team shall consist of heads of Mining Departments i.e., Mines Manager

(d) Roll call coordinator

The Mine Foreman shall be Rollcall Coordinator. The roll call coordinator will conduct the roll call and will evacuate the mine personnel to assembly point. His prime function shall be to account for all personnel on duty.

(e) Search and rescue team

There shall be a group of people trained and equipped to carryout rescue operation of trapped personnel. The people trained in first aid and fire-fighting shall be included in search and rescue team.

(f) Emergency security controller

Emergency Security Controller shall be senior most security person located at main gate office and directing the outside agencies e.g., fire brigade, police, doctor and media men etc.,

Emergency control procedure –

The onset of emergency, will in all probability, commence with a major fire or explosion or collapse of wall along excavation and shall be detected by various safety devices and also by members of operational staff on duty. If located by a staff member on duty, he (as per site emergency procedure of which he is adequately briefed) will go to nearest alarm call point, break glass and trigger off the alarms. He will also try his best to inform about location and nature of accident to the emergency control room. In accordance with work emergency procedure the following key activities will immediately take place to interpret and take control of emergency.

- On site fire crew led by a fireman will arrive at the site of incident with fire foam tenders and necessary equipment.
- Emergency security controller will commence his role from main gate office
- Incident controller shall rush to the site of emergency and with the help of rescue team and will start handling the emergency.
- Site main controller will arrive at MECR with members of his advisory and communication team and will assume absolute control of the site.

- He will receive information continuously from incident controller and give decisions and directions to:
 - Incident controller
 - Mine control rooms
 - Emergency security controller

Proposed fire extinguishers at different locations –

The following type of fire extinguishers has been proposed at strategic locations within the mine.

Table 7.6: Proposed Type of Fire Extinguishers

Location	Type of Fire Extinguishers
Electrical Equipment's	CO ₂ type, foam type, dry chemical powder type
Fuel Storage Area	CO ₂ type, foam type, dry chemical powder type, Sand bucket
Office Area	Dry chemical type, foam type
Location	Type of Fire Extinguishers

Alarm system to be followed during disaster –

On receiving the message of disaster from Site Controller, fire-fighting team, the mine control room attendant will sound siren wailing for 5 minutes. Incident controller will arrange to broadcast disaster message through public address system.

On receiving the message of "Emergency Over" from Incident Controller the emergency control room attendant will give "All Clear Signal", by sounding alarm straight for 2 minutes.

The features of alarm system will be explained to one and all to avoid panic or misunderstanding during disaster.

In order to prevent or take care of hazard / disasters if any the following control measures have been adopted.

- All safety precautions and provisions of Metalliferous Mines Regulations (MMR), 1961 is strictly followed during all mining operations.
- Observance of all safety precautions for blasting and storage of explosives as per MMR 1961.
- Entry of unauthorized persons into mine & allied areas is completely prohibited.
- Firefighting and first-aid provisions in the mines office complex and mining area are provided.
- Provisions of all the safety appliances such as safety boot, helmets, goggles, dust masks, ear plugs and ear muffs etc. are made available to the employees and the use of same is strictly adhered to through regular monitoring.
- Training and refresher courses for all the employees working in hazardous premises.
- Working of mine, as per approved plans and regularly updating the mine plans.
- Cleaning of mine faces is regularly done.
- Handling of explosives, charging and blasting are carried out only by qualified persons following SOP.
- Checking and regular maintenance of garland drains and earthen bunds to avoid any inflow of surface water in the mine pit.
- Provision of high-capacity standby pumps with generator sets with enough quantity of diesel for emergency pumping especially during monsoon.
- A blasting SIREN is used at the time of blasting for audio signal.
- Before blasting and after blasting, red and green flags are displayed as visual signals.
- Checking of blasting area for any un-blasted hole or material.
- Warning notice boards indicating the time of blasting and NOT TO TRESPASS are displayed at prominent places.
- Regular maintenance and testing of all mining equipment were carried out as per manufacturer's guidelines.

7.4 Cumulative Impact Study

There are 4 Proposed and 3 existing quarries, 5 Expired quarries, 1 Abandoned Quarry within a radius of 500 meters from the proposed project area. The list of quarries is as below

Table 7.7: List of Quarries within 500 Meter Radius from this Proposal

PROPOSED QUARRIES				
CODE	Name of the Owner	S.F.Nos & Village	Extent	Status
P1	Thiru.M.Kowshik Dhev	333 (P), Soolamalai Village	1.98.0	Lr No. SEIAA-TN/F.No.10247/SE AC/ToR- 1564/2023 Dated:27.09.2023
P2	Thiru.Salman Sathar	341/1(P) Soolamalai Village	1.36.80	Lr No. SEIAA-TN/F.No.10354/SE AC/1(a)ToR- 1611/2023 Dated: 06.11.2023
P3	M/s.Bismilla Exports	339/1(P) Soolamalai Village	1.02.0	Lr No. SEIAA-TN/F.No.10365/SE AC/ToR-1643/2023 Dated:02.01.2024
P4	M/s.Tamin	283 (P), Soolamalai Village	34.35.5	Mining Plan forwarded to Directorate Chennai
TOTAL			38.72.3 Ha	
EXISTING QUARRIES				
CODE	Name of the Owner	S.F. Nos & Village	Extent	Status
*E-1	Tmt.Varalakshmi	335/4B, 341/4, Soolamalai Village	1.08.5	14/06/2018 To 13/06/2038
*E-2	M/s.TAMIN	176/1 Chendarapalli Village	15.23.5	29.12.2018 to 28.12.2038
E-3	Thiru.B.K.Murali	382/5A, etc Chendarapalli Village	2.78.5	28.02.2011- 27.02.2031
E-4	Thiru.A.Sathar	375/2A etc., Chendarapalli Village	1.03.5	07.10.2013- 06.10.2033
E-5	Tmt.D.Rukkammal	335/4A1, Soolamalai Village	1.20.0	14.12.2009- 13.12.2029
E-6	Thiru.B.S Ravi	369/2, Chendarapalli Village	2.46.5	10.11.2003 - 09.11.2023
E-7	Thiru.B.S Ravi	339/2, Soolamalai Village	1.19.0	27.03.2006- 26.03.2026
Total			24.99.5 Ha	
EXPIRED/ ABANDONED QUARRIES				
Ex-1	M/s.TAMIN	381, Chendarapalli Village	1.78.5	21.06.1999- 20.06.2019
Ex-2	Thiru.B.C Krishnan	335/2, Soolamalai Village	0.40.50	26.06.1995 - 25.06.2005
TOTAL			2.19.0 Ha	
TOTAL CLUSTER EXTENT			55.04.3 Ha	

Note:- Cluster area is calculated as per MoEF & CC Notification – S.O. 2269 (E) Dated: 01.07.2016

Table 7.8 : Salient Features of Proposed Projects “P1”

Name of the Quarry	Thiru.M.Kowshik Dhev Colour granite quarry
Land type	Government Poramboke Land
Previous lease details	Tender Quarry – Fresh lease

Lease period	20 years	
Mining Lease area	1.98.0 Ha	
Location	333 (P), Soolamalai Village, Bargur Taluk, Krishnagiri District	
Life of the Mine	20 years	
Proposed Depth for five years plan period	23m	
Ultimate Depth	Pit : 183m(L) x 84m(B) x 23m(D)	
Toposheet No	57- L/7	
Latitude between	12°29'48.6998"N to 12°29'54.5131"N	
Longitude between	78°18'0.9548"E to 78°18'8.2169"E	
Topography	The applied lease area is undulated rocky terrain mostly covered up to 1.0m topsoil and below which weathered rock is observed for a thickness of 2.0m followed by fresh colour granite deposits. The average elevation of the study area is about 487m MSL.	
Water level	62m-54m	
Water Requirements	1.5KLD	
Machinery proposed	Jackhammer	4
	Compressor	2
	Excavator	1
	Tipper	3
	Diesel Generator	1
	Diamond wire saw	1
Proposed manpower deployment	18	
A. Project cost	Rs. 30,420,000	
B.EMP Cost	Rs. 3,10,000/-	
C.CER cost	Rs. 5,00,000/-	
Total Project cost	Rs.3,07,30,000/-	
Nearest Habitation	260m-NE	
Reserved Forest	Thogarapalli Extn R.F – 4.83 km – South East	
Wild Life Sanctuary	Cauvery North Wildlife Sanctuary – 36 Km -NW	

Table 7.9: Salient features of proposal “P2”

Name of the Quarry	Thiru.Salman Sathar Grey Granite quarry	
Land type	Patta Land (Patta no 1998)	
Lease period	20 years	
Mining Lease area	1.36.8 Ha	
Location	341/1 (Part) of Soolamalai Village, Bargur Taluk, Krishnagiri District	
Mining Period	5 Years	
Life of the Mine	20 years	
Previous lease particulars	It is an Own patta land	
Proposed Depth	28m	
Ultimate Depth	151m(L) x 102m (W) x 28m (D)	
Toposheet No	57L/07	
Latitude between	12°29'32.7111"N to 12°29'39.1286"N	
Longitude between	78°18'04.6583"E to 78°18'09.0436"E	
Topography	The area is situated in flat terrain. The gradient is gentle towards southeast and altitude of the area is 478m above from MSL. The Grey granite formation is clearly visible right from the adjacent quarry lease.	
Water level	64m-59m	
Water requirement	1.8KLD	
Machinery proposed	Jackhammer	6
	Compressor	2
	Crawler crane	1
	Mobile crane	
	Excavator	1
	Tipper	2
	Diesel Generator	1
	Diamond wire saw	1
Proposed manpower deployment	33	
A. Project cost	Rs. 2,29,27,000/-	
B.EMP Cost	Rs. 3,80,800/-	
C.CER cost	Rs.5,00,000/-	
Total Project cost	Rs. 2,33,07,000	
Nearest Habitation	510m-NE	
Reserved Forest	Thogarapalli Extn R.F – 4.36 km – South East	
Wild Life Sanctuary	Cauvery North Wildlife Sanctuary – 36 Km -W Cauvery South Wildlife Sanctuary 44km-SW	

Source: Approved mining Plan

Table 7.10: Salient features of proposal “P3”

Name of the Quarry	M/s.Bismilla Exports Grey Granite Quarry (Managing Partner Thiru. S.Salman, S/o. Sathar)
Land type	Patta Land (Patta no 2012)
Lease period	20 years
Mining Lease area	1.02.0 Ha
Location	339/1 (Part) of Soolamalai Village, Bargur Taluk, Krishnagiri District
Mining Period	5 Years

Life of the Mine	20 years	
Previous lease particulars	It is an Own patta land	
Proposed Depth	18m	
Ultimate Pit dimension	184m(L) x 41m (W) x 18m (D)	
Toposheet No	57L/07	
Latitude between	12°29'33.6345"N to 12°29'40.2216"N	
Longitude between	78°18'00.3456"E to 78°18'02.5405"E	
Topography	The area is situated in flat terrain. The gradient is gentle towards West and altitude of the area is 478m above from MSL. The Grey granite is clearly visible right from the nearby existing quarry pits and places are concealed under Reddish gravelly soil.	
Water level	64m Bgl	
Water requirement	1.8KLD	
Machinery proposed	Jackhammer	4
	Compressor	2
	Crawler crane	1
	Excavator	1
	Tipper	2
	Diesel Generator	1
	Diamond wire saw	1
Proposed manpower deployment	30	
A. Project cost	Rs. 4,96,24,000/-	
B.EMP Cost	Rs. 3,80,800/-	
C.CER cost	Rs.5,00,000/-	
Total Project cost	Rs. 5,00,04,000/-	
Nearest Habitation	640m-S	
Reserved Forest	Thogarapalli Extn R.F – 4.45 km – South East	
Wild Life Sanctuary	Cauvery North Wildlife Sanctuary – 35.5 Km -W Cauvery South Wildlife Sanctuary 43.4km-SW	

Source: Approved mining Plan

Table 7.11: Salient features of proposal "P4"

Name of the Quarry	M/s.TAMIN
Land type	Government Land
Lease period	20 years
Mining Lease area	34.35.5Ha
Location	283 (P) of Soolamalai Village, Krishnagiri Taluk, Krishnagiri District
Period of Lease	20 Years (21.06.1999 to 20.06.2019)
Life of the Mine	20 years
Previous lease particulars	It is a Government Poramboke land
Production (RoM)	1211 m ³ /year
Mineable reserve (Updated)	415020m ³
Proposed Depth	28m from Hill top
Toposheet No	57L/02, 57L/6 & 57L/7
Latitude between	12°29'23.33" N - 12°30'0.39" N

Longitude between		78°17'29.36" E - 78°18'1.12"E
Topography		The area generally manifests hilly and undulating topography and comprises a number of hillocks rising to a height of few feet to nearly 150m from the ground level.
Water level		24m Bgl
Water requirement		1.8KLD
Machinery proposed	Jackhammer	4
	Compressor	3
	Crane 10ton Capacity	1
	Hydraulic Excavator	1
	Diesel Generator	1
	Diamond wire saw	1
Proposed manpower deployment		54
Water Requirement		2.8 KLD
A. Project cost		Rs. 100,00,000 crore
B.EMP Cost		Rs. 3,80,800/-
C.CER cost		Rs.5,00,000/-
Total Project cost		Rs. 5,00,04,000/-
Nearest Habitation		555m-SE
Reserved Forest		Thogarapalli Extn R.F – 5km – South East

Table 7.12: Salient Features of Existing Quarry "E1"

Name of the Quarry		Tmt.Varalakshmi Grey granite quarry
Land type		Patta Land
Lease period		20 years
Mining Lease area		1.08.5Ha
Location		335/4B, 341/4, of Soolamalai Village, Krishnagiri District
Period of Lease		20 Years
Life of the Mine		20 years
Previous lease particulars		It is a Patta Land (Patta no 360,756)
Production (RoM)		12,510m ³ /year
Geological reserves (ROM)		2,00,700 m ³
Mineable reserve (Updated)		55,640m ³
Proposed Depth		23m Bgl
Ultimate Pit dimension		137m (L) x 73m (W) x 23m (D)
Existing Pit dimension		70m (L) x 20m (W) x 10m (D)
Toposheet No		57L/02, 57L/6 & 57L/7
Latitude between		12°29'33" N - 12°29'39" N
Longitude between		78°18'07" E - 78°18'12"E
Topography		The area exhibits flat terrain. The gradient is gentle towards Eastern side and the altitude of the area is 481m above from MSL
Water level		50-45m Bgl
Water requirement		1.8KLD
Machinery proposed	Jackhammer	6
	Compressor	2
	Hydraulic Crane	1
	Excavator	1
	Tipper	2
Proposed manpower deployment		35
Water Requirement		2.8 KLD

A. Project cost	Rs. 2,70,00,00
B.EMP Cost	Rs. 2,55,000
Total Project cost	Rs.29,55,000
CER cost	Rs.5,00,000/-
Nearest Habitation	230m-S
Reserved Forest	Thogarapalli Extn R.F – 5km – South East

Table 7.13: Salient features of existing quarry “E2”

Name of the Quarry	M/s.TAMIN Colour granite quarry	
Land type	Lease area consists of 15.235 Ha of non-forest Government land and is applied for lease by TAMIN.	
Lease period	20 years	
Mining Lease area	15.23.5Ha	
Location	176/1 (PART) of Chendarapalli Village, Krishnagiri District	
Period of Lease	20 Years	
Life of the Mine	18 years	
Previous lease particulars	Government land	
Production (ROM)	24,230m ³ /annum	
Geological reserves (ROM)	4,88,674 m ³	
Mineable reserve (Updated)	4,33,951 m ³	
Proposed Depth	23m Bgl	
Ultimate Pit dimension	137m (L) x 73m (W) x 23m (D)	
Existing Pit dimension	70m (L) x 20m (W) x 10m (D)	
Toposheet No	57L/02, 57L/6 & 57L/7	
Latitude between	12°29’33” N - 12°29’39” N	
Longitude between	78°18’07” E - 78°18’12”E	
Topography	The lease area is hilly to undulating topography and moderately sloping towards south west ranging from 490 m AMSL to 610 m AMSL	
Water level	50-45m Bgl	
Water requirement	1.8KLD	
Machinery proposed	Jackhammer	6
	Compressor	3
	Hydraulic Crane	-
	Diamond wire saw	1
	Excavator	1
	Hammer	6
	Tipper	2
Proposed manpower deployment	26	
Water Requirement	2.8 KLD	
A. Project cost	Rs.100,000,00/-	
B.EMP Cost	Rs. 18,00,000/-	
Total Project cost	Rs.1,18,000,000/-	
CER cost	Rs.5,00,000/-	
Nearest Habitation	400m-SE	
Reserved Forest	Varatanapali RF - 6.3 km,NE Bargur RF - 9.3 km, NE Togarappali RF - 4.3 km, SE	

Approved Mining Plan

The Cumulative Impact is mainly anticipated due to drilling & blasting and excavation and transportation activities in all the quarries (proposed and existing) within the cluster and major impact anticipated is on Air & Noise Environment Movement of HEMM and operating of machineries in the cluster.

Air Environment –

Calculating the Cumulative Load of Mining within the cluster is as shown in table 7.14.

Table 7.14: Cumulative Production Load of Granite

Quarry	Mineable Reserves ROM in m ³	Mineable Reserves of Granite in m ³	Proposed production of ROM for five-year period in m ³	Production of ROM Per Day in m ³	Production of Granite Per day in m ³	Number of Lorry loads of Granite per day
P1	1,75,300	35,060	43,213	29	6	1
P2	1,12,305	39,307	34,180	23	8	1
P3	39,420	13,797	25,840	17	6	1
P4	4,15,020	41,502	60,213	40	4	1
Total	7,42,045	1,29,666	1,63,446	109	24	4
E1	55,640	11,128	12,510	8	2	1
E2	4,33,951	43,395	1,20,680	80	2	1
Total	4,89,591	54,523	1,33,190	88	4	2
G.Total	12,31,636	1,84,189	2,96,636	197	28	6

Source: Approved Mining plan of Respective mines

On a cumulative basis considering all the 6 quarries (2 Existing and 4 Proposed) it can be seen that the overall production of Granite ROM per day is 197m³ and overall production of Granite is 28m³ per day (recovery percentage is vary from one quarry to another), No of Lorry loads per day is 6.

Based on the above production quantities the emissions due to various activities in all the 3 mines includes various activities like ground preparation, excavation, handling and transport of ore. These activities have been analysed systematically basing on USEPA-Emission Estimation Technique Manual, for Mining AP-42, to arrive at possible emissions to the atmosphere and estimated emissions are given in Table 7.9

Table 7.15: Emission Estimation from Quarries within 500 Meter Radius P1-P3

Estimated Emission Rate for -P1

Activity	Source type	Value	Unit
Drilling	Point Source	0.051441763	g/s
Blasting	Point Source	0.000087135	g/s
Mineral Loading	Point Source	0.036650031	g/s
Haul Road	Line Source	0.002484446	g/s/m
Overall Mine	Area Source	0.050418764	g/s
SO ₂	Point Source	0.00015142	g/s
Nox	Area Source	0.000006699	g/s

Estimated Emission Rate for -P2

Activity	Source type	Value	Unit
Drilling	Point Source	0.046310552	g/s
Blasting	Point Source	0.000051525	g/s
Mineral Loading	Point Source	0.034636569	g/s
Haul Road	Line Source	0.002483459	g/s/m
Overall Mine	Area Source	0.043334402	g/s
SO ₂	Point Source	8.5957E-05	g/s
Nox	Area Source	0.000002720	g/s

Estimated Emission Rate for -P3

Activity	Source type	Value	Unit
Drilling	Point Source	0.042732409	g/s

Blasting	Point Source	0.000034467	g/s
Mineral Loading	Point Source	0.033915964	g/s
Haul Road	Line Source	0.002483213	g/s/m
Overall Mine	Area Source	0.038495293	g/s
SO ₂	Point Source	6.70385E-05	g/s
Nox	Area Source	0.000001628	g/s

Estimated Emission Rate for -P4

Activity	Source type	Value	Unit
Drilling	Point Source	0.027488904	g/s
Blasting	Point Source	0.000003797	g/s
Mineral Loading	Point Source	0.028546364	g/s
Haul Road	Line Source	0.002482347	g/s/m
Overall Mine	Area Source	0.156651950	g/s
SO ₂	Point Source	1.78367E-05	g/s
Nox	Area Source	0.000010241	g/s

Estimated Emission Rate for -E1

Activity	Source type	Value	Unit
Drilling	Point Source	0.034610378	g/s
Blasting	Point Source	0.000012013	g/s
Mineral Loading	Point Source	0.031517963	g/s
Haul Road	Line Source	0.002482665	g/s/m
Overall Mine	Area Source	0.039376027	g/s
SO ₂	Point Source	3.26079E-05	g/s
Nox	Area Source	0.000000836	g/s

Estimated Emission Rate for -E2

Activity	Source type	Value	Unit
Drilling	Point Source	0.033847003	g/s
Blasting	Point Source	0.000010745	g/s
Mineral Loading	Point Source	0.030596498	g/s
Haul Road	Line Source	0.002482535	g/s/m
Overall Mine	Area Source	0.113241448	g/s
SO ₂	Point Source	3.28849E-05	g/s
Nox	Area Source	0.000009087	g/s

Source: Emission Calculations

Table 7.16: Incremental & Resultant GLC within Cluster

PM ₁₀ in µg/m ³	
Location	CORE
Background	43.9
Highest Incremental	15.91
Resultant	59.8
NAAQ standard	100 µg/m ³
PM _{2.5} in µg/m ³	
Location	CORE
Background	19.8
Highest Incremental	7.82
Resultant	27.6
NAAQ standard	60 µg/m ³
SO ₂ in µg/m ³	
Location	CORE
Background	6.5
Highest Incremental	2.49
Resultant	8.9

NAAQ standard	80 µg/m ³
NOx in µg/m ³	
Location	CORE
Background	20.1
Incremental	10.78
Resultant	30.9
NAAQ standard	80 µg/m ³

Noise Environment –

Noise pollution is mainly due to operation like drilling & blasting and plying of trucks & HEMM. Cumulative Noise modelling has been carried out considering blasting and compressor operation (drilling) and transportation activities. Predictions have been carried out to compute the noise level at various distances around the different quarries within the 500 m radius.

For hemispherical sound wave propagation through homogeneous loss free medium, one can estimate noise levels at various locations at different sources using model based on first principle.

$$L_{p2} = L_{p1} - 20 \log (r_2/r_1) - A_{e1,2}$$

Where:

L_{p1} & L_{p2} are sound levels at points located at distances r_1 & r_2 from the source.

$A_{e1,2}$ is the excess attenuation due to environmental conditions. Combined effect of all sources can be determined at various locations by logarithmic addition.

$$L_{p \text{ total}} = 10 \log \{10^{(L_{p1}/10)} + 10^{(L_{p2}/10)} + 10^{(L_{p3}/10)} + \dots\}$$

Attenuation due to Green Belt has been taken to be 4.9 dB (A). The inputs required for the model are:

Source data has been computed considering of all the machinery and activities used in the mining process.

Table 7.17: Predicted Noise Incremental Values from Cluster

Location ID	Background Value (Day) dB(A)	Incremental Value dB(A)	Total Predicted dB(A)	Residential Area Standards dB(A)
Habitation Near P1	47.5	44.5	49.3	55
Habitation Near P2	44.2	42.4	46.4	
Habitation Near P3	43.2	42.4	45.8	
Habitation Near P4	44.2	42.1	46.8	
Habitation Near E1	45.3	49.2	50.7	
Habitation Near E2	42.6	54.1	54.4	

The incremental noise level is found within the range of 41.0 – 49.2 dB (A) in Core Zone. The noise level at different receptors in buffer zone is lower due to the distance involved and other topographical features adding to the noise attenuation. The resultant Noise level due to monitored values and calculated values at the receptors are based on the mathematical formula considering attenuation due to Green Belt as 4.9 dB (A) the barrier effect. From the above table, it can be seen that the ambient noise levels at all the locations near habitations are within permissible limits of Residential Area (buffer zone) as per THE NOISE POLLUTION (REGULATION AND CONTROL) RULES, 2000 (The Principal Rules were published in the Gazette of India, vide S.O. 123E, dated 14.2.2000 and subsequently amended vide S.O. 1046E, dated 22.11.2000, S.O. 1088E, dated 11.10.2002, S.O. 1569E, dated 19.09.2006 and S.O. 50E dated 11.01.2010 under the Environment (Protection) Act, 1986.).

Ground Vibrations

Ground vibrations due to mining activities in the all the 6 Mines within cluster are anticipated due to operation of Mining Machines like Excavators, drilling and blasting, transportation vehicles, etc. However, the major source of ground vibration from the all the 6 mines is blasting. The major impact of the ground vibrations is observed on the domestic houses located in the villages nearby the mine lease area. The kuchha houses are more prone to cracks and damage due to the vibrations induced by blasting whereas RCC framed structures can withstand more ground vibrations. Apart from this, the ground vibrations may develop a fear factor in the nearby settlements.

Another impact due to blasting activities is fly rocks. These may fall on the houses or agricultural fields nearby the mining areas and may cause injury to persons or damage to the structures.

Nearest Habitations from 6 mines respectively are as in below Table 7.12.

TABLE 7.18: NEAREST HABITATION FROM EACH MINE

Location ID	Distance & Direction
Habitation Near P1	260m NE
Habitation Near P2	510m NE
Habitation Near P3	640m NE
Habitation Near P4	555m-SE
Habitation Near E1	230m -S
Habitation Near E2	400m -SE

The ground vibrations due to the blasting in all the mines are calculated using the empirical equation for assessment of peak particle velocity (PPV) is:

$$V = K [R/Q^{0.5}]^{-B}$$

Where –

V = peak particle velocity (mm/s)

K = site and rock factor constant

Q = maximum instantaneous charge (kg)

B = constant related to the rock and site (usually 1.6)

R = distance from charge (m)

TABLE 7.19: GROUND VIBRATIONS AT 6 Quarries

Location ID	Maximum Charge in kgs	Nearest Habitation in m	PPV in m/ms
P1	12	260m NE	0.499
P2	10	510m NE	0.147
P3	7	640m NE	0.077
P4	17	555m-SE	0.196
E1	4	230m -S	0.252
E2	35	400m -SE	0.590

Source: Blasting Calculations

From the above table, the charge per blast is considered as maximum in each mine and the resultant PPV is well below the Peak Particle Velocity of 8 mm/s as per Directorate General of Mines Safety for safe level criteria through Circular No. 7 dated 29/8/1997.

Socio Economic Environment –

The 6mines shall create employment to 196 peoples and revenue will be created to government.

Table 7.20: Socio Economic Benefits from 6 Quarries

Location code	Employment	Project Cost	CER
P1	18	Rs. 3,04,20,000/-	Rs.5,00,000/-
P2	33	Rs. 2,29,27,000/-	Rs.5,00,000/-
P3	30	Rs. 4,96,24,000/-	Rs.5,00,000/-
P4	54	Rs.100,000,00/-	Rs.5,00,000/-
E1	35	Rs. 2,70,00,00/-	Rs.5,00,000/-
E2	26	Rs.100,000,00/-	Rs.5,00,000/-
Total	196		Rs.30,00,000

As per para 6 (II) of the office memorandum, all the mines being a green field project & Capital Investment is ≤ 100 crores, they shall contribute 2% of Capital Investment towards CER as per directions of EAC/SEAC.

- Proposed Projects shall fund towards CER – **Rs 20,00,000/-**
- Existing Projects shall fund towards CER – **Rs.10,00,000/-**
- Projects in Cluster shall fund towards CER – **Rs 30,00,00/-**

A total of 196 people getting and will get employment from these cluster quarries. Allocation for Corporate Environment Responsibility (CER) shall be made as per Government of India, MoEF & CC Office Memorandum F.No.22-65/2017-IA.III, Dated: 01.05.2018 by all the mines

As per para 6 (II) of the office memorandum, all the mines being a green field project & Capital Investment is \leq 100 crores, they shall contribute 2% of Capital Investment towards CER as per directions of EAC/SEAC and the total CER amount from the 3 mines is Rs 15,00,000/-

TABLE 7.21: EMPLOYMENT BENEFITS FROM 6 MINES

Description	Employment
P1	18
P2	33
P3	30
P4	54
Total	135
E1	35
E2	26
Total	61
Grand Total	196

A total of 135 people will get employment due to 4 proposed mines in cluster and 61 people are already employed at 2 existing mines.

TABLE 7.22: GREENBELT DEVELOPMENT

Code	No of Trees proposed to be planted	Survival %	Area to be covered	Name of the Species
P1	990	80 %	Safety barrier & village road	Neem, Casuarina, Pongamia pinnata,
P2	690	80 %		Neem, Casuarina, Pongamia pinnata,
P3	510	80 %		Neem, Casuarina, Pongamia pinnata,
P4	250	80%		
Total	2,440	80 %		Neem, Casuarina, Pongamia pinnata,
E1	100	80 %		Neem, Casuarina, Pongamia pinnata,
E2	250	50 %		Neem, Casuarina, Pongamia pinnata,
Total	350	80 %		Neem, Casuarina, Pongamia pinnata,
G.Total	2,790			

Source: Approved Mining Plan Period

Based on the Proposed Mining Plan it's anticipated that there shall growth of native species of Neem, Casuarina, Pongamia pinnata etc., in the Cluster at a rate of 2,440 Trees Planted over a period of 5 Years with Survival Rate of 80%.

7.5 PLASTIC WASTE MANAGEMENT PLAN

The Project Proponent shall comply with Tamil Nadu Government Order (Ms) No. 84 Environment and Forest (EC.2) Department Dated: 25.06.2018 regarding ban on one time use and throw away plastics irrespective of thickness with effect from 01.01.2019 under Environment (Protection) Act, 1986.

Objective

- To investigate the actual supply chain network of plastic waste.
- To identify and propose a sustainable plastic waste management by installing bins for collection of recyclables with all the plastic waste
- Preparation of a system design layout, and necessary modalities for implementation and monitoring.

TABLE 7.23: ACTION PLAN TO MANAGE PLASTIC WASTE

Sl.No.	Activity	Responsibility
1	Framing of Layout Design by incorporating provision of the Rules, user fee to be charged from waste generators for plastic waste management, penalties/fines for littering, burning plastic waste or committing any other acts of public nuisance	Mines Manager
2	Enforcing waste generators to practice segregation of bio-degradable, recyclable and domestic hazardous waste	Mines Manager
3	Collection of plastic waste	Mines Foreman
4	Setting up of Material Recovery Facilities	Mines Manager
5	Segregation of Recyclable and Non-Recyclable plastic waste at Material Recovery Facilities	Mines Foreman
6	Channelization of Recyclable Plastic Waste to registered recyclers	Mines Foreman
7	Channelization of Non-Recyclable Plastic Waste for use either in Cement kilns, in Road Construction	Mines Foreman
8	Creating awareness among all the stakeholders about their responsibility	Mines Manager
9	Surprise checking's of littering, open burning of plastic waste or committing any other acts of public nuisance	Mine Owner

Source: Proposed by FAE's and EC

7.6 POST COVID HEALTH MANAGEMENT PLAN FOR P1 TO P3

COVID – 19 diseases caused by SARS-CoV-2 Coronavirus is relatively a new disease, with fresh information being known on a dynamic basis about the natural history of the disease, especially in terms of post-recovery events.

After acute COVID-19 illness, recovered patients may continue to report wide variety of signs and symptoms including fatigue, body ache, cough, sore throat, difficulty in breathing, etc. As of now there is limited evidence of post-COVID sequelae and further research is required and is being actively pursued. A holistic approach is required for follow up care and well-being of all post COVID recovering patients.

Post-COVID Follow Up Protocol –

- Continue COVID appropriate behaviour (use of mask, hand & respiratory hygiene, physical distancing).
- Drink adequate amount of warm water (if not contra-indicated).
- Make sure your workplaces are clean and hygienic
- Surfaces (e.g. desks and tables) and objects (e.g. telephones, helmet) need to be wiped with disinfectant regularly
- Put sanitizing hand rub dispensers in prominent places around the workplace. Make sure these dispensers are regularly refilled
- Display posters promoting hand-washing
- Make sure that staff, contractors and customers have access to places where they can wash their hands with soap and water
- Display posters promoting respiratory hygiene.
- Brief your employees, contractors and customers that if COVID-19 starts spreading in your community anyone with even a mild cough or low-grade fever (37.3°C or more) need to stay at home. They should also stay home (or work from home) if they have had to take simple medications, such as paracetamol/acetaminophen, ibuprofen or aspirin, which may mask symptoms of infection
- Keep communicating and promoting the message that people need to stay at home even if they have just mild symptoms of COVID-19.
- Consider whether a face-to-face meeting or event is needed. Could it be replaced by a teleconference or online event?
- Could the meeting or event be scaled down so that fewer people attend?
- Pre-order sufficient supplies and materials, including tissues and hand sanitizer for all employees. Have surgical masks available to offer anyone who develops respiratory symptoms.
- It is also suggested by the Ministry of AYUSH that the use of Chyawanprash in the morning (1 teaspoonful) with luke warm water/milk is highly recommended (under the direction of Registered Ayurveda physician) as in the clinical practice Chyawanprash is believed to be effective in post-recovery period.

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- If there is persistent dry cough / sore throat, do saline gargles and take steam inhalation. The addition of herbs/spices for gargling/steam inhalation. Cough medications, should be taken on advice of medical doctor or qualified practitioner of Ayush.
 - Look for early warning signs like high grade fever, breathlessness, SpO₂ < 95%, unexplained chest pain, new onset of confusion, focal weakness.
 - Avoid smoking and consumption of alcohol.
 - Communicate to your employees and contractors about the plan and make sure they are aware of what they need to do – or not do – under the plan. Emphasize key points such as the importance of staying away from work even if they have only mild symptoms or have had to take simple medications (e.g., paracetamol, ibuprofen) which may mask the symptoms.
 - The plan should address how to keep your business running even if a significant number of employees, contractors and suppliers cannot come to your place of business - either due to local restrictions on travel or because they are ill.

Carbon Emission.

Carbon dioxide (CO₂): Carbon dioxide enters the atmosphere through burning fossil fuels (coal, natural gas, and oil), solid waste, trees and other biological materials. Carbon dioxide is removed from the atmosphere (or "sequestered") when it is absorbed by plants as part of the biological carbon cycle.

Methane (CH₄): Methane is emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from livestock and other agricultural practices, land use and by the decay of organic waste in municipal solid waste landfills.

Nitrous oxide (N₂O): Nitrous oxide is emitted during agricultural, land use, and industrial activities; combustion of fossil fuels and solid waste; as well as during treatment of wastewater.

In this quarrying activities, anticipated GHG is mainly CO₂ as its proposed for usage of HSD (High Speed Diesel) for proposed machinery totally deployed are 2 Compressor, 1 Excavator and 3 Tippers for which an approximate usage of HSD is around 150 Liters per day (as per pre-feasibility report). Which contributes to 40.20 kg of CO₂ for the stretch of daily activity of 20 kms @ 1 Litter Diesel produces 2.68 kg of CO₂ on the contrast 1 tree absorbs approximately 20-40 kgs of CO₂ per year.

- It is proposed to plant 2,440 Nos trees from this project shall absorb 30,000 kgs of CO₂ per year on average basis.
- Apart from which, its proposed for deployment of New Modern Machineries (BSVI) and PUC certified Vehicles

Therefore, the implementation of proposed mitigation measures for winning of mineral may not have much of impact on the surrounding environment leading to release of Greenhouse gases (GHC), rise in temperature & livelihood of local people.

Hydrothermal/Geothermal effect due to destruction in the Environment.

- Hydrothermal – relating to hot water —used especially of the formation of minerals by hot solutions rising from a cooling magma.
- Geothermal – relating to or produced by the internal heat of the earth.
- The proposed activity is for quarrying of grey granite quarry by opencast mechanized mining method for an ultimate depth of above 18-28m bgl.
- The proposed mining area and the surrounding falls under hard rock formation i.e., Charnockite Formation and the district has not recorded any Hydrothermal / Geothermal effect and as per the Seismic Zonation Map of India, the district falls under the Zone II of seismic zones classification.
- The resultant of this open cast mining shall not have any Hydrothermal/Geothermal effect on the surrounding environment.

Bio-geochemical processes and its foot prints including environmental stress.

-
- Bio-geochemical cycle – any of the natural pathways by which essential elements of living matter are circulated. The term biogeochemical is a contraction that refers to the consideration of the biological, geological, and chemical aspects of each cycle.
 - This proposed activity is for quarrying of colour granite quarry and maximum depth of mining is 28 m bgl and the applied area for quarrying is a patta land with no major vegetation and it is proposed for greenbelt development all along the safety barrier and construction of garland drainage and implement the proposed EMP strictly to mitigate the impacts on surrounding environment.
 - No Bio-geochemical processes and its foot prints including environmental stress are anticipated and at the end of life of mine the proposed quarry shall be left as an artificial reservoir structure and allowed to collect rain water and shall enrich the ecosystem.

Sediment's geochemistry in the surface streams.

- Sedimentary Geochemistry has been in use to understand the conditions of deposition, climatic variations, tectonic setting, provenance, reservoir characteristics, etc.,
- The elemental composition of sediments in surface streams is the product of physical and chemical erosion of rocks, which is then transported across drainage networks.
- The project area when broken up lead to create void and land use pattern of the proposed area is alerted by ways of formation of open pit and as mitigation measure its proposed for garland drain all along the boundary barrier to ensure that no natural drainage pattern is disturbed and the garland drains are in turn connected to settlement traps were its ensured that no debris are carried away and hence the proposed activity shall not lead to any deposition of sediments in the nearby surface streams.

CHAPTER – 8: PROJECT BENEFITS

8.0 General

Colour Granite quarry of Soolamalai Village aims to Production of cumulatively is about 1,03,233m³ of ROM and 29,650 m³ Granite recovery (for the entire period) for Life of Mine of 20 Years. This will enhance the socio-economic activities in the adjoining areas and will result in the following benefits

- Increase in Employment Potential
- Improvement in Socio-Economic Welfare
- Improvement in Physical Infrastructure
- Improvement in Social infrastructure
- To meet out the demand supply gap of Granite and enhance the foreign exports

8.1 Employment Potential

It is proposed to provide employment to about 135persons for carrying out mining operations and give preference to the local people in providing employment. In addition, there will be opportunity for indirect employment to many people in the form of contractual jobs, business opportunities, service facilities etc., the economic status of the local people will be enhanced due to mining project.

8.2 Socio-Economic Welfare Measures Proposed

The impact of mining activity in the area will be more positive than negative on the socio-economic environment in the immediate project impact area. The employment opportunities both direct and indirect will contribute to enhanced money incomes to job seekers with minimal skill sets especially among the local communities.

8.3 Improvement in Physical Infrastructure

The proposed mine is located Soolamalai Colour Granite Cluster Quarries, Bargur Taluk, Krishnagiri District of Tamil Nadu and the area have communications, roads and other facilities already well established. The following physical infrastructure facilities will further improve due to proposed mine.

- Road Transport facilities
- Communications
- Medical, Educational and social benefits will be made available to the nearby civilian population in addition to the workmen employed in the mine.

8.4 Improvement in Social Infrastructure

Employment is expected during civil construction period, in trade, garbage lifting, sanitation and other ancillary services, Employment in these sectors will be primarily temporary or contractual and involvement of unskilled labour will be more. A major part of the labour force will be mainly from local villagers who are expected to engage themselves both in agriculture and mining activities. This will enhance their income and lead to overall economic growth of the area.

8.5 Other Tangible Benefits

The proposed mine is likely to have other tangible benefits as given below.

- Indirect employment opportunities to local people in contractual works like construction of infrastructural facilities, transportation, sanitation, for supply of goods and services to the mine and other community services.
- Additional housing demand for rental accommodation will increase
- Cultural, recreation and aesthetic facilities will also improve
- Improvement in communication, transport, education, community development and medical facilities and overall change in employment and income opportunity
- The State Government will also benefit directly from the proposed mine, through increased revenue from royalties, cess, DMF, GST etc.,

8.5.1 Corporate Social Responsibility

The project proponent Soolamalai Colour Granite Cluster Quarries, Bargur Taluk, Krishnagiri District of Tamil Nadu will take responsibility to develop awareness among all levels of their staff about CSR activities and the integration of social processes with business processes. Those involved with the undertaking of CSR activities will be provided with adequate training and re-orientation.

Under this programme, the project proponent will take-up following programmes for social and economic development of villages within 10 km of the project site. For this purpose, separate budget will be provided every year. For finalization of these schemes, proponent will interact with LSG. The schemes will be selected from the following broad areas –

- Health Services
- Social Development
- Infrastructure Development
- Education & Sports
- Self-Employment

8.5.2 CSR Cost Estimation

CSR activities will be taken up in the Soolamalai village mainly contributing to education, health, training of women self-help groups and contribution to infrastructure etc., CSR budget is allocated as 2.5% of the profit.

8.5.3 Corporate Environment Responsibility–

Allocation for Corporate Environment Responsibility (CER) shall be made as per Government of India, MoEF & CC Office Memorandum F.No.22-65/2017-IA.III, Dated: 01.05.2018.

As per para 6 (II) of the office memorandum, being a green field project & Capital Investment is ≤ 100 crores, Soolamalai Colour Granite Cluster Quarries shall contribute 2% of Capital Investment towards CER as per directions of EAC/SEAC.

Table 8.1: CER – Action Plan

Activity	Beneficiaries	Total in Rs
Water Management – Construction of rainwater harvesting structures	Soolamalai village	5,00,000
Sanitation – Maintenance & repairs of toilets in nearby schools	One school in Soolamalai village	
Solar Power – Installation of Solar Street Lamps	Soolamalai village roads	
Total		5,00,000

Source: Field survey conducted by FAE, consultation with project proponent.

CHAPTER – 9: ENVIRONMENTAL COST BENEFIT ANALYSIS

Not Applicable, Since Environmental Cost Benefit Analysis not recommended at the Scoping stage.

CHAPTER - 10: ENVIRONMENTAL MANAGEMENT PLAN -P1

10.0 General

Environment Management Plan (EMP) aims at the preservation of ecological system by considering in-built pollution abatement facilities at the proposed site. Good practices of Environmental Management plan will ensure to keep all the environmental parameters of the project in respect of Ambient Air quality, Water quality, Socio – economic improvement standards.

Mitigation measures at the source level and an overall environment management plan at the study area are elicited so as to improve the supportive capacity of the receiving bodies. The EMP presented in this chapter discusses the administrative aspects of ensuring that mitigative measures are implemented and their effectiveness monitored after approval of the EIA.

10.1 Environmental Policy

The Project Proponent committed to conduct all its operations and activities in an environmentally responsible manner and to continually improve environmental performance.

The Proponent will – **Thiru.M.Kowshik Dhev**

- Allocate necessary resources to ensure the implementation of the environmental policy
- Meet the requirements of all laws, acts, regulations, and standards relevant to its operations and activities
- Implement a program to train employees in general environmental issues and individual workplace environmental responsibilities
- Ensure that an effective closure strategy is in place at all stages of project development and that progressive reclamation is undertaken as early as possible to reduce potential long-term environmental and community impacts
- Implement monitoring programmes to provide early warning of any deficiency or unanticipated performance in environmental safeguards
- Conduct periodic reviews to verify environmental performance and to continuously strive towards improvement

10.1.1 Description of the Administration and Technical Setup –

The Environment Monitoring Cell discussed under Chapter 6 will ensure effective implementation of environment management plan and to ensure compliance of environmental statutory guidelines through Mine Management Level of the proposed quarry.

The said team will be responsible for:

- Analysis of the water and air samples collected through external laboratory
- Monitoring of the water/ waste water quality, air quality and solid waste generated
- Implementation and monitoring of the pollution control and protective measures/ devices which shall include financial estimation, ordering, installation of air pollution control equipment, waste water treatment plant, etc.,
- Co-ordination of the environment related activities within the project as well as with outside agencies
- Collection of health statistics of the workers and population of the surrounding villages
- Green belt development
- Monitoring the progress of implementation of the environmental monitoring programme
- Compliance to statutory provisions, norms of State Pollution Control Board, Ministry of Environment and Forests and the conditions of the environmental clearance as well as the consents to establish and consents to operate.

10.2 Land Environment Management –

Landscape of the area will be changed due to the quarrying operation, restoration of the land by converting the quarry pit into temporary reservoir and the remaining part of the area (un utilized areas, infrastructure, haul Roads) will be utilized for greenbelt development. Aesthetic of the Environment will not be affected. There is no major vegetation in the project area during the course of quarrying operation and after completion of the quarrying operation thick plantation will be developed under greenbelt development programme.

Table 10.1: Proposed Controls for Land Environment

Control	Responsibility
Designing vehicle wash-down system so that all washed water is captured and passed through grease and oil separators.	Mines Manager
Refueling will be carried out in a safe location, away from vehicle movement pathways	Mine Foreman & Mining Mate
No external dumping i.e., outside the project area	Mine Foreman
Greenbelt on dumps and its maintenance	Environment Officer
Garland drains with catch pits to be provided all around the project area to prevent run off affecting the surrounding lands.	Environment Officer
The periphery of Project area will be planted with thick plantation to arrest the fugitive dust, which will also act as acoustic barrier.	Mines Manager
Thick plantation using native flora species will be carried out on the backfilled area.	Mines Manager
There will be formation of a small surface water body in the mined-out area, which can be used for watering the greenbelt at the conceptual stages.	Environment Officer

10.3 Soil Management

10.3.1 Top Soil Management –

It is anticipated to remove 4,956m³ of topsoil and preserve it to facilitate greenbelt development on the backfilled area during mine closure.

10.3.2 Overburden / Waste and Side Burden Management –

It is anticipating to remove 34,570m³ of waste (Granite waste@ 80%) which will temporarily store at predetermined places as per mining plan and will be backfilled during mine closure.

Table 10.2: Proposed Controls for Soil Management

Control	Responsibility
backfilling process during mine closure as per mining plan	Mines Manager
The dump slopes will be planted with deep rooting shrubs, grasses and creepers for stabilizing them	Environment Officer
Garland drains are to be paved around the dump area to arrest possible wash off in the rainy seasons	Mines Manager
Surface run-off from the surface dumps via garland drains will be diverted to the mine pits	Mine Foreman & Mining Mate
The backfilled area shall be covered with the soil for green belt development	Environment Officer
Design haul roads and other access roads with drainage systems to minimize concentration of flow and erosion risk	Environment Officer
keeping records of mitigation of erosion events, to improve on management techniques	Environment Officer
The overall slope of the dump is maintained at angle of repose not exceeding 37° from horizontal	Mines Manager
The retaining wall has to be made to arrest the waste dump spills	Mines Manager
A monitoring map with information including their GPS coordinates, erosion type, intensity, and the extent of the affected area, as well as existing control measures and assessment of their performance	Environment Officer
Empty sediment from sediment traps Maintain, repair or upgrade garland drain system	Environment Officer
Test soils for pH, EC, chloride, exchangeable cations, particle size and water holding capacity	Mines Manager

10.4 Water Management

Water is a key component in mining projects as it is required for, and affected by, mining activities. Effective water management is important for a variety of reasons including: uninterrupted operation of the mine, compliance with operational permissions and applicable legislation, and minimization of effects on the receiving environment.

This section focuses on actions for avoidance, mitigation, and control, as well as a water management monitoring program –

- To protect water-related resources, and avoid harmful impacts;
- To supply and retain water for mine operations;
- to Define water-related environmental control structures; and
- To manage water to ensure that any discharges are following the applicable water quality levels and guidelines.

Table 10.3: Proposed Controls for Water Environment

Control	Responsibility
To maximize the reuse of pit water for water supply	Mines Manager
Temporary and permanent garland drain will be constructed to contain the catchments of the mining area and to divert runoff from undisturbed areas through the mining areas	Environment Officer
Natural drains/nallahs/brooklets outside the project area should not be disturbed at any point of mining operations Safety distance of 50m will be always maintained from the odai and oorani	Mines Manager
Mine pit water is used for dust suppression and greenbelt development utilization of mine pit water is optimal and effective ways	Environment Officer
Ensure there is no process effluent generation or discharge from the project area into water bodies	Environment Officer
Domestic sewage generated from the project area will be disposed in septic tank and soak pit system	Mines Manager
Fast growing grasses, small plants and bushes will be grown on the overburden dumps to control soil erosion and siltation	Mines Manager
Retention walls and garland drains will be constructed around toe of waste dumps to arrest silt wash off from dumps during monsoon	Environment Officer
Rainwater harvesting measures will be adopted in the project area and in nearby villages to maintain and enhance the ground water table of the area	Environment Officer
Regularly assess and modify Water Management Plan to adapt to changing work plans and site conditions	Environment Officer
Familiarize all site personnel with the purpose and content of the Water Management Plan, and their responsibilities in its implementation	Environment Officer
Water management and sediment control structures and facilities will be regularly inspected and maintained according to the monitoring schedules	Environment Officer
Monthly or after rainfall, inspection for performance of water management structures and systems	Environment Officer
Conduct ground water and surface water monitoring for parameters specified by State Pollution Control Board (SPCB)	Mines Manager

Source: Proposed by FAE's & EIA Coordinator

10.5 Air Quality Management

The proposed mining activity would result in the increase of particulate matter concentrations due to fugitive dust. Daily water sprinkling on the haul roads, approach roads in the vicinity would be undertaken and will be continued as there is possibility for dust generation due to truck mobility. It will be ensured that vehicles are properly maintained to comply with exhaust emission requirements.

Table 10.4: Proposed Controls for Air Environment

Control	Responsibility
Generation of dust during excavation is minimized by water sprinkling on working face	Mines Manager
Develop thick Greenbelt with tall growing trees and thick foliage cover all along the boundary of the project (7.5 Meter Buffer Zone) to arrest dust spreading outside the project area and to be maintained. This plantation cover will also act as an acoustic barrier	Environment Officer
Daily maintenance of haul roads and daily water sprinkling to minimize the generation of fugitive dust due to movement of heavy earth moving machineries on it	Mines Manager
Handle the waste from the mine pit to respective dumps and backfilling during closure process, fugitive dust is anticipated. this fugitive emission can be controlled by well-maintained machineries, well maintained haul roads water sprinkling on haul roads twice a day. Besides it is also advised not to handle the waste during high windy periods	Mines Manager & Environment Officer
Wet drilling procedure /drills with dust extractor system to control dust generation during drilling at source itself to be implemented	Environment Officer
Plantation will be carried out on surface dumps, backfilled area and top benches of the mined out area	Environment Officer
Water reservoir will be developed in the left over mined out pit, which will serve as additional surface water resources for the nearby villages	Environment Officer
Maintenance as per operator manual of the equipment and machinery in the mines to minimizing air pollution and noise generation	Mines Manager
Over loading of trucks should be avoided	Mines Manager
All the mining equipment and trucks has been controlled with emission norms	Environment Officer
The village roads used for mineral transport will be maintained weekly and monthly basis to avoid fugitive dust emissions	Mines Manager
Dust mask are provided to the workers working in high dust generating areas and continue to provide the same	Mines Manager
Weekly and Monthly maintenance of deployed machineries, to reduce gaseous emission	Mines Manager
Ambient Air Quality Monitoring carried out in the project area and in surrounding villages to access the impact due to the mining activities and the efficacy of the adopted air pollution control measures	Environment Officer
Monitor meteorological conditions (temperature, wind, rainfall)	Environment Office

Source: Proposed by FAE's & EIA Coordinator

10.6 Noise Management

There will be intermittent noise levels due to vehicular movement, trucks loading, drilling and blasting and cutting activities. No mining activities are planned during night time.

Table 10.5: Proposed Controls for Noise Environment

Control	Responsibility
A thick greenbelt to be developed all along the Buffer Zone (7.5 Meters) of the project area to attenuate the noise and the same will be maintained	Mines Manager
Plantation activities to be carried out on surface dumps and infrastructure facilities, these plantations will help in attenuating the noise levels	Environment Officer
Preventive maintenance of mining machinery and replacement of worn-out accessories to control noise generation	Mines Manager
Deployment of mining equipment with an inbuilt mechanism to reduce noise	Environment Officer
Provision of earmuff / ear plugs to workers working in noise prone zones in the mines	Environment Officer
Provision of effective silencers for mining machinery and transport vehicles	Environment Officer
Provision of sound proof AC operator cabins to HEMM	Environment Officer
Sharp drill bits are used to minimize noise from drilling	Environment Officer
Controlled blasting technologies are adopted by using delay detonators to minimize noise from blasting	Mines Manager
Annual ambient noise level monitoring to be carried out in the project area and in surrounding villages to assess the impact due to the mining activities and the efficacy of the adopted noise control measures. Additional noise control measures will be adopted if required as per the observations during monitoring	Environment Officer
Undertake noise or vibration monitoring in response to a complaint (from any sensitive receptor).	Mines Manager
Change the burden and spacing by altering the drilling pattern and/or delay layout, or altering the hole inclination during initial stage of operation	Mines Manager
If a noise or vibration complaint is received, follow the complaints and inquiries	Environment Officer
Undertake noise or vibration monitoring half yearly	Environment Officer

Source: Proposed by FAE's & EIA Coordinator

10.7 Ground Vibration and Fly Rock Control

Table 10.6: Proposed Controls for Ground vibration & Fly rocks

Control	Responsibility
Controlled blasting using delay detonators will be carried out to maintain the PPV value (below 8Hz) well within the prescribed standards of DGMS	Mines Manager
Drilling and blasting during initial stage will be carried under the supervision of qualified persons	Mines Manager
Proper stemming of holes should be carried out with statutory competent qualified blaster under the supervision of statutory mines manager to avoid any anomalies during blasting	Mines Manager
Prior to blasting within 500 meters of the lease boundary, establish a fly rock exclusion zone within adjacent properties and check with landholders that the area is not occupied by humans, blast clearance zones are applied for all blasts.	Environment Officer
Undertake vibration monitoring	Environment Officer

Source: Proposed by FAE's & EIA Coordinator

10.8 Biological Environment Management

The mine management will take all necessary steps to avoid the impact on the ecology of the area by adopting suitable management measures in the planning and implementation stage. During mining, thick plantation will be carried out around the project periphery, on safety barrier zone, on top benches of mined out area, backfilled area, etc., the water reservoir will be developed in lower benches of the mined-out area at conceptual stage will be used for the maintenance of green belt after the closure of mine.

Following control measures are proposed for its management and will be the responsibility of the environment officer.

- Greenbelt development all along the safety barrier of the project area
- The main attributes that retard the survival of sapling is fugitive dust, this fugitive dust can be controlled by water sprinkling on the haul roads and constructing a sprinkler near the newly planted area.
- Year wise plantation should be recorded and monitored
 - Based on the area of plantation.
 - Period of plantation
 - Type of plantation
 - Spacing between the plants
 - Type of manuring and fertilizers and its periods
 - Lopping period, interval of watering
 - Survival rate
 - Density of plantation
- The ultimate reclamation planned leaves a congenial environment for development of flora & immigration of small fauna through green belt and water reservoir. The green belt and water reservoir developed within the Project at the end of mine life will attract the birds and animals towards the project area in the post mining period.

The objectives of the greenbelt development plan are –

- Provide a green belt around the periphery of the quarry area to combat the dispersal of dust in the adjoining areas,
- Protect the erosion of the soil, Conserve moisture for increasing ground water recharging,
- Restore the ecology of the area, restore aesthetic beauty of the locality and meet the requirement of fodder, fuel and timber of the local community.

A well-planned Green Belt with multi rows (three tiers) preferably with long canopy leaves shall be developed with dense plantations around the boundary and haul roads to prevent air, dust noise propagation to undesired places and efforts will be taken for the enhancement of survival rate.

10.8.1 Species Recommended for Plantation

Following points have been considered while recommending the species for plantation:

- Creating of bio-diversity.
- Fast growing, thick canopy cover, perennial and evergreen large leaf area,
- Efficient in absorbing pollutants without major effects on natural growth

Table 10.7: Recommended Species to Plant in the Greenbelt

<i>SI.No</i>	<i>Name of the plant (Botanical)</i>	<i>Family Name</i>	<i>Common Name</i>	<i>Habit</i>
1	<i>Azadirachta indica</i>	Meliaceae	Neem, Vembu	Tree
2	<i>Albiziafalculatoria</i>	Fabaceae	Tamarind, Puliyamaram	Tree
3	<i>Polyalthialongifolia</i>	Annonaceae	Kattumaram	Tree
4	<i>Borassus Flabellifer</i>	Arecaceae	Palmyra Palm	Tree

Source: Proposed by FAE's & EIA Coordinator

10.9 Occupational Safety & Health Management

Occupational safety and health are very closely related to productivity and good employer-employee relationship. The main factors of occupational health in mines are fugitive dust and noise. Safety of employees during mining operation and maintenance of mining equipment will be taken care as per Mines Act 1952 and Rule 29 of Mines Rules 1955. To avoid any adverse effect on the health of workers due to dust, noise and vibration sufficient measures have been provided.

10.9.1 Medical Surveillance and Examinations –

- Identifying workers with conditions that may be aggravated by exposure to dust & noise and establishing baseline measures for determining changes in health.
- Evaluating the effect of noise on workers
- Enabling corrective actions to be taken when necessary
- Providing health education

The health status of workers in the mine shall be regularly monitored under an occupational surveillance program. Under this program, all the employees are subjected to a detail's medical examination at the time of employment. The medical examination covers the following tests under mines act 1952.

- General Physical Examination and Blood Pressure
- X-ray Chest and ECG
- Sputum test
- Detailed Routine Blood and Urine examination

The medical histories of all employees will be maintained in a standard format annually. Thereafter, the employees will be subject to medical examination annually. The above tests keep upgrading the database of medical history of the employees.

10.9.2 Proposed Occupational Health and Safety Measures –

- Providing a clean working environment that is conducive to safety & health annually
- Employee involvement and commitment in the implementation of health and safety guidelines
- Implementing safety and health management system and assessing the effectiveness through periodic audits
- Setting of safety and health objectives based on comprehensive strategic plans and measure performance against these plans
- Provision of necessary standard personal protective equipment's (PPE)
- Ensuring that all employees at all levels receive appropriate training and are competent to carry out their duties and responsibilities.
- Provision of rest shelters for mine workers with amenities like drinking water, fans, toilets urinals, canteen etc.,
- Rotation of workers exposed to noisy areas.
- Daily dust suppression on haul roads to prevent fugitive dust emission into the air.
- First-aid facility at the mine office.

10.9.3 Health and Safety Training Programme

The company shall provide special induction program along with machinery manufacturers for the operators and co-operators to run and maintain the machinery effectively and efficiently. The training program for the supervisors and office staffs will be arranged in the Group Vocational Training Centres in the State. And engage an Environmental Consultants to provide periodical training to all the employ to carry out the mining operation in and eco-friendly manner.

Table 10.8: List of Periodical Trainings Proposed for employees

Course	Personnel	Frequency	Duration	Instruction
New-hire Training	All new hires exposed to mine hazards	Once	One week	Employee rights, Supervisor responsibilities, Self-rescue Respiratory devices, Transportation controls, Communication systems, Escape and emergency evacuation, Ground control hazards, Occupational health hazards, Electrical hazards, First aid, Explosives
Task Training Like Drilling, Blasting, Stemming, safety, Slope stability, Dewatering, Haul Road maintenance,	Employees assigned to new work tasks	Before new Assignments	Variable	Task-specific health & safety procedures and SOP for various mining activity. Supervised practice in assigned work tasks.
Refresher Training	All employees who received new-hire training	Yearly	One week	Required health and safety standards Transportation controls Communication systems Escape ways, emergency evacuations, Fire warning Ground control hazards First aid, Electrical hazards Accident prevention Explosives, Respirator devices
Hazard Training	All employees exposed to mine hazards	Once	Variable	Hazard recognition and avoidance Emergency evacuation procedures Health standards Safety rules, Respiratory devices

Source: Proposed by FAE's & EIA Coordinator as per DGMS Norms

10.9.4 Budgetary Provision for Environmental Management

Adequate budgetary provision has been made by the Company for execution of Environmental Management Plan. The Table 10.11 gives overall investment on the environmental safeguards and recurring expenditure for successful monitoring and implementation of control measures.

TABLE 10.9: EMP BUDGET FOR PROPOSED PROJECT

	Mitigation Measure	Provision for Implementation	Capital	Recurring
Air Environment	Compaction, gradation and drainage on both sides for Haulage Road	Rental Dozer & drainage construction on haul road @ Rs. 10,000/- per hectare; and yearly maintenance @ Rs. 10,000/- per hectare	19800	19800
	Fixed Water Sprinkling Arrangements + Water sprinkling by own water tankers	Fixed Sprinkler Installation and New Water Tanker Cost for Capital; and Water Sprinkling (thrice a day) Cost for recurring	800000	50000
	Muffle blasting – To control fly rocks during blasting	Blasting face will be covered with sand bags / steel mesh / old tyres / used conveyor belts	0	5000
	Wet drilling procedure / latest eco-friendly drill machine with separate dust extractor unit	Dust extractor @ Rs. 25,000/- per unit deployed as capital & @ Rs. 2500 per unit recurring cost for maintenance - 3 Units	100000	10000
	No overloading of trucks/tippers/tractors	Manual Monitoring through Security guard	0	5000
	Stone carrying trucks will be covered by tarpaulin	Monitoring if trucks will be covered by tarpaulin	0	10000
	Enforcing speed limits of 20 km/hr within ML area	Installation of Speed Governors @ Rs. 5000/- per Tipper/Dumper deployed - 3 Units	15000	750
	Regular monitoring of exhaust fumes as per RTO norms	Monitoring of Exhaust Fumes by Manual Labour	0	5000
	Regular sweeping and maintenance of approach roads for at least about 200 m from ML Area	Provision for 2 labours @ Rs.10,000/labour (Contractual) per Hectare	0	39600
	Installing wheel wash system near gate of quarry	Installation + Maintenance + Supervision	50000	20000
Noise Environment	Source of noise will be during operation of transportation vehicles, HEMM for this proper maintenance will be done at regular intervals.	Provision made in Operating Cost	0	0
	Oiling & greasing of Transport vehicles and HEMM at regular interval will be done	Provision made in Operating Cost	0	0
	Adequate silencers will be provided in all the diesel engines of vehicles.	Provision made in Operating Cost	0	0
	It will be ensured that all transportation vehicles carry a fitness certificate.	Provision made in Operating Cost	0	0
	Safety tools and implements that are required will be kept adequately near blasting site at the time of charging.	Provision made in OHS part	0	0

	Line Drilling all along the boundary to reduce the PPV from blasting activity and implementing controlled blasting.	Provision made in Operating Cost	0	0
	Proper warning system before blasting will be adopted and clearance of the area before blasting will be ensured.	Blowing Whistle by Mining Mate / Blaster / Competent Person	0	0
	Provision for Portable blaster shed	Installation of Portable blasting shelter	50000	2000
	NONEL Blasting will be practiced to control Ground vibration and fly rocks	Rs. 30/- per 6 Tonnes of Blasted Material	0	23166
Waste Management	Waste management (Spent Oil, Grease etc.,)	Provision for domestic waste collection and disposal through authorized agency	5000	20000
		Installation of dust bins	5000	2000
	Bio toilets will be made available outside mine lease on the land of owner itself	Provision made in Operating Cost	0	0
Mine Closure	1. Progressive Closure Activity - Surface Runoff managment	Provision for garland drain @ Rs. 10,000/- per Hectare with maintenance of Rs. 5,000/- per annum	19800	5000
	2. Progressive Closure Activity Barbed Wire Fencing to quarry area will be provisioned.	Per Hectare fencing Cost @ Rs. 2,00,000/- with Maintenance of Rs 10,000/- per annum	396000	10000
	3. Progressive Closure Activity Green belt development - 500 trees per one hectare - Proposal for 990Trees - (390Inside Lease Area & 800 Outside Lease Area)	Site clearance, preparation of land, digging of pits / trenches, soil amendments, transplantation of saplings @ 200 per plant (capital) for plantation inside the lease area and @ 30 per plant maintenance (recurring)	78000	11700
		Avenue Plantation @ 300 per plant (capital) for plantation outside the lease area and @ 30 per plant maintenance (recurring)	240000	24000
	4. Implementation of Final Mine Closure Activity as per Approved Mining Plan on Last Year	Few activities already covered as progressive closure activities as greenbelt development, wire fencing, garland drain. *For Final Closure Activities 15% of the proposed closure cost will be spent during the final mine closure stage - Last Year	89250	0
	5. Contribution towards Green Fund. As per TNMMCR 1959, Rule 35 A	The Contribution towards Green Funds @ 10% of Seigniorage fee are indicated as part of EMP Budge and not necessarily implemented in the Project Site	52569	0

Implementation of EC, Mining Plan & DGMS Condition	Size 6' X 5' with blue background and white letters as mentioned in MoM Appendix II by the SEAC TN	Fixed Display Board at the Quarry Entrance as permanent structure mentioning Environmental Conditions	10000	1000
	Air, Water, Noise and Soil Quality Sampling every 6 Months for Compliance Report of EC Conditions	Submission of 2 Half Yearly Compliance - Lab Monitoring Report as per CPCB norms	0	50000
	Workers will be provided with Personal Protective Equipment's	Provision of PPE @ Rs. 4000/- per employee with recurring based on wear and tear (say, @ Rs. 1000/- per employee) - 18Employees	72000	18000
	Health checkup for workers will be provisioned	IME & PME Health checkup @ Rs. 1000/- per employee	0	18000
	First aid facility will be provided	Provision of 2 Kits per Hectare @ Rs. 2000/-	0	3960
	Mine will have safety precaution signages, boards.	Provision for signages and boards made	10000	2000
	No parking will be provided on the transport routes. Separate provision on the south side of the hill will be made for vehicles /HEMMs. Flaggers will be deployed for traffic management	Parking area with shelter and flags @ Rs. 50,000/- per hectare project and Rs. 10,000/- as maintenance cost	99000	10000
	Installation of CCTV cameras in the mines and mine entrance	Camera 4 Nos, DVR, Monitor with internet facility	30000	5000
	Implementation as per Mining Plan and ensure safe quarry working	Mines Manager (1 st Class / 2 nd Class / Mine Foreman) under regulation 34 / 34 (6) of MMR, 1961 and Mining Mate under regulation 116 of MMR,1961 @ 40,000/- for Manager & @ 25,000/- for Foreman / Mate	0	780000
CER	As per MoEF &CC OM 22-65/2017-IA.III Dated 25.02.2021	Detailed Description in following slides and Budget allocation is included as per MoeEF & CC OM	500000	0
TOTAL			2499600	1150976

In order to implement the environmental protection measures, an amount of Rs.24.99 lakhs as capital cost and recurring cost as Rs. 11.50 lakhs as recurring cost is proposed considering present market price considering present market scenario for the proposed project.

Year Wise Break Up	
1st Year	₹ 36,50,576
2nd Year	₹ 12,08,524.8
3rd Year	₹ 12,68,951
4th Year	₹ 13,32,398.6
5th Year	₹ 14,88,268.5
Total	₹ 89 lakhs

10.11 Conclusion

Various aspects of mining activities were considered and related impacts were evaluated. Considering all the possible ways to mitigate the environmental concerns Environmental Management Plan was prepared and fund has been allocated for the same. The EMP is dynamic, flexible and subjected to periodic review. For project where the major environmental impacts are associated, EMP will be under regular review. Senior Management responsible for the project will conduct review of EMP and its implementation to ensure that the EMP remains effective and appropriate. Thus, the proper steps will be taken to accomplish all the goals mentioned in the EMP and the project will bring the positive impact in the study area.

CHAPTER - 10: ENVIRONMENTAL MANAGEMENT PLAN -P2

10.0 General

Environment Management Plan (EMP) aims at the preservation of ecological system by considering in-built pollution abatement facilities at the proposed site. Good practices of Environmental Management plan will ensure to keep all the environmental parameters of the project in respect of Ambient Air quality, Water quality, Socio – economic improvement standards.

Mitigation measures at the source level and an overall environment management plan at the study area are elicited so as to improve the supportive capacity of the receiving bodies. The EMP presented in this chapter discusses the administrative aspects of ensuring that mitigative measures are implemented and their effectiveness monitored after approval of the EIA.

10.1 Environmental Policy

The Project Proponent committed to conduct all its operations and activities in an environmentally responsible manner and to continually improve environmental performance.

The Proponent will – **Thiru.Salman Sathar**

- Allocate necessary resources to ensure the implementation of the environmental policy
- Meet the requirements of all laws, acts, regulations, and standards relevant to its operations and activities
- Implement a program to train employees in general environmental issues and individual workplace environmental responsibilities
- Ensure that an effective closure strategy is in place at all stages of project development and that progressive reclamation is undertaken as early as possible to reduce potential long-term environmental and community impacts
- Implement monitoring programmes to provide early warning of any deficiency or unanticipated performance in environmental safeguards
- Conduct periodic reviews to verify environmental performance and to continuously strive towards improvement

10.1.1 Description of the Administration and Technical Setup –

The Environment Monitoring Cell discussed under Chapter 6 will ensure effective implementation of environment management plan and to ensure compliance of environmental statutory guidelines through Mine Management Level of the proposed quarry.

The said team will be responsible for:

- Analysis of the water and air samples collected through external laboratory
- Monitoring of the water/ waste water quality, air quality and solid waste generated
- Implementation and monitoring of the pollution control and protective measures/ devices which shall include financial estimation, ordering, installation of air pollution control equipment, waste water treatment plant, etc.,
- Co-ordination of the environment related activities within the project as well as with outside agencies
- Collection of health statistics of the workers and population of the surrounding villages
- Green belt development
- Monitoring the progress of implementation of the environmental monitoring programme
- Compliance to statutory provisions, norms of State Pollution Control Board, Ministry of Environment and Forests and the conditions of the environmental clearance as well as the consents to establish and consents to operate.

10.2 Land Environment Management –

Landscape of the area will be changed due to the quarrying operation, restoration of the land by converting the quarry pit into temporary reservoir and the remaining part of the area (un utilized areas, infrastructure, haul Roads) will be utilized for greenbelt development. Aesthetic of the Environment will not be affected. There is no major vegetation in the project area during the course of quarrying operation and after completion of the quarrying operation thick plantation will be developed under greenbelt development programme.

Table 10.1: Proposed Controls for Land Environment

Control	Responsibility
Designing vehicle wash-down system so that all washed water is captured and passed through grease and oil separators.	Mines Manager
Refuelling will be carried out in a safe location, away from vehicle movement pathways	Mine Foreman & Mining Mate
No external dumping i.e., outside the project area	Mine Foreman
Greenbelt on dumps and its maintenance	Environment Officer
Garland drains with catch pits to be provided all around the project area to prevent run off affecting the surrounding lands.	Environment Officer
The periphery of Project area will be planted with thick plantation to arrest the fugitive dust, which will also act as acoustic barrier.	Mines Manager
Thick plantation using native flora species will be carried out on the backfilled area.	Mines Manager
There will be formation of a small surface water body in the mined-out area, which can be used for watering the greenbelt at the conceptual stages.	Environment Officer

10.3 Soil Management

10.3.1 Top Soil Management –

It is anticipated to remove 3,905m³ of topsoil and preserve it to facilitate greenbelt development on the backfilled area during mine closure

10.3.2 Overburden / Waste and Side Burden Management –

It is anticipating to remove 22,217m³ of waste (Granite waste@ 65%) which will temporarily store at predetermined places as per mining plan and will be backfilled during mine closure.

Table 10.2: Proposed Controls for Soil Management

Control	Responsibility
backfilling process during mine closure as per mining plan	Mines Manager
The dump slopes will be planted with deep rooting shrubs, grasses and creepers for stabilizing them	Environment Officer
Garland drains are to be paved around the dump area to arrest possible wash off in the rainy seasons	Mines Manager
Surface run-off from the surface dumps via garland drains will be diverted to the mine pits	Mine Foreman & Mining Mate
The backfilled area shall be covered with the soil for green belt development	Environment Officer
Design haul roads and other access roads with drainage systems to minimize concentration of flow and erosion risk	Environment Officer
keeping records of mitigation of erosion events, to improve on management techniques	Environment Officer
The overall slope of the dump is maintained at angle of repose not exceeding 37° from horizontal	Mines Manager
The retaining wall has to be made to arrest the waste dump spills	Mines Manager
A monitoring map with information including their GPS coordinates, erosion type, intensity, and the extent of the affected area, as well as existing control measures and assessment of their performance	Environment Officer
Empty sediment from sediment traps Maintain, repair or upgrade garland drain system	Environment Officer
Test soils for pH, EC, chloride, exchangeable cations, particle size and water holding capacity	Mines Manager

10.4 Water Management

Water is a key component in mining projects as it is required for, and affected by, mining activities. Effective water management is important for a variety of reasons including: uninterrupted operation of the mine, compliance with operational permissions and applicable legislation, and minimization of effects on the receiving environment.

This section focuses on actions for avoidance, mitigation, and control, as well as a water management monitoring program –

- To protect water-related resources, and avoid harmful impacts;
- To supply and retain water for mine operations;
- to Define water-related environmental control structures; and
- To manage water to ensure that any discharges are following the applicable water quality levels and guidelines.

Table 10.3: Proposed Controls for Water Environment

Control	Responsibility
To maximize the reuse of pit water for water supply	Mines Manager
Temporary and permanent garland drain will be constructed to contain the catchments of the mining area and to divert runoff from undisturbed areas through the mining areas	Environment Officer
Natural drains/nallahs/brooklets outside the project area should not be disturbed at any point of mining operations Safety distance of 50m will be always maintained from the odai and oorani	Mines Manager
Mine pit water is used for dust suppression and greenbelt development utilization of mine pit water is optimal and effective ways	Environment Officer
Ensure there is no process effluent generation or discharge from the project area into water bodies	Environment Officer
Domestic sewage generated from the project area will be disposed in septic tank and soak pit system	Mines Manager
Fast growing grasses, small plants and bushes will be grown on the overburden dumps to control soil erosion and siltation	Mines Manager
Retention walls and garland drains will be constructed around toe of waste dumps to arrest silt wash off from dumps during monsoon	Environment Officer
Rainwater harvesting measures will be adopted in the project area and in nearby villages to maintain and enhance the ground water table of the area	Environment Officer
Regularly assess and modify Water Management Plan to adapt to changing work plans and site conditions	Environment Officer
Familiarize all site personnel with the purpose and content of the Water Management Plan, and their responsibilities in its implementation	Environment Officer
Water management and sediment control structures and facilities will be regularly inspected and maintained according to the monitoring schedules	Environment Officer
Monthly or after rainfall, inspection for performance of water management structures and systems	Environment Officer
Conduct ground water and surface water monitoring for parameters specified by State Pollution Control Board (SPCB)	Mines Manager

Source: Proposed by FAE's & EIA Coordinator

10.5 Air Quality Management

The proposed mining activity would result in the increase of particulate matter concentrations due to fugitive dust. Daily water sprinkling on the haul roads, approach roads in the vicinity would be undertaken and will be continued as there is possibility for dust generation due to truck mobility. It will be ensured that vehicles are properly maintained to comply with exhaust emission requirements.

Table 10.4: Proposed Controls for Air Environment

Control	Responsibility
Generation of dust during excavation is minimized by water sprinkling on working face	Mines Manager
Develop thick Greenbelt with tall growing trees and thick foliage cover all along the boundary of the project (7.5 Meter Buffer Zone) to arrest dust spreading outside the project area and to be maintained. This plantation cover will also act as an acoustic barrier	Environment Officer
Daily maintenance of haul roads and daily water sprinkling to minimize the generation of fugitive dust due to movement of heavy earth moving machineries on it	Mines Manager
Handle the waste from the mine pit to respective dumps and backfilling during closure process, fugitive dust is anticipated. this fugitive emission can be controlled by well-maintained machineries, well maintained haul roads water sprinkling on haul roads twice a day. Besides it is also advised not to handle the waste during high windy periods	Mines Manager & Environment Officer
Wet drilling procedure /drills with dust extractor system to control dust generation during drilling at source itself to be implemented	Environment Officer
Plantation will be carried out on surface dumps, backfilled area and top benches of the mined out area	Environment Officer
Water reservoir will be developed in the left over mined out pit, which will serve as additional surface water resources for the nearby villages	Environment Officer
Maintenance as per operator manual of the equipment and machinery in the mines to minimizing air pollution and noise generation	Mines Manager
Over loading of trucks should be avoided	Mines Manager
All the mining equipment and trucks has been controlled with emission norms	Environment Officer
The village roads used for mineral transport will be maintained weekly and monthly basis to avoid fugitive dust emissions	Mines Manager
Dust mask are provided to the workers working in high dust generating areas and continue to provide the same	Mines Manager
Weekly and Monthly maintenance of deployed machineries, to reduce gaseous emission	Mines Manager
Ambient Air Quality Monitoring carried out in the project area and in surrounding villages to access the impact due to the mining activities and the efficacy of the adopted air pollution control measures	Environment Officer
Monitor meteorological conditions (temperature, wind, rainfall)	Environment Office

Source: Proposed by FAE's & EIA Coordinator

10.6 Noise Management

There will be intermittent noise levels due to vehicular movement, trucks loading, drilling and blasting and cutting activities. No mining activities are planned during night time.

Table 10.5: Proposed Controls for Noise Environment

Control	Responsibility
A thick greenbelt to be developed all along the Buffer Zone (7.5 Meters) of the project area to attenuate the noise and the same will be maintained	Mines Manager
Plantation activities to be carried out on surface dumps and infrastructure facilities, these plantations will help in attenuating the noise levels	Environment Officer
Preventive maintenance of mining machinery and replacement of worn-out accessories to control noise generation	Mines Manager
Deployment of mining equipment with an inbuilt mechanism to reduce noise	Environment Officer
Provision of earmuff / ear plugs to workers working in noise prone zones in the mines	Environment Officer
Provision of effective silencers for mining machinery and transport vehicles	Environment Officer
Provision of sound proof AC operator cabins to HEMM	Environment Officer
Sharp drill bits are used to minimize noise from drilling	Environment Officer
Controlled blasting technologies are adopted by using delay detonators to minimize noise from blasting	Mines Manager
Annual ambient noise level monitoring to be carried out in the project area and in surrounding villages to assess the impact due to the mining activities and the efficacy of the adopted noise control measures. Additional noise control measures will be adopted if required as per the observations during monitoring	Environment Officer
Undertake noise or vibration monitoring in response to a complaint (from any sensitive receptor).	Mines Manager
Change the burden and spacing by altering the drilling pattern and/or delay layout, or altering the hole inclination during initial stage of operation	Mines Manager
If a noise or vibration complaint is received, follow the complaints and inquiries	Environment Officer
Undertake noise or vibration monitoring half yearly	Environment Officer

Source: Proposed by FAE's & EIA Coordinator

10.7 Ground Vibration and Fly Rock Control

Table 10.6: Proposed Controls for Ground vibration & Fly rocks

Control	Responsibility
Controlled blasting using delay detonators will be carried out to maintain the PPV value (below 8Hz) well within the prescribed standards of DGMS	Mines Manager
Drilling and blasting during initial stage will be carried under the supervision of qualified persons	Mines Manager
Proper stemming of holes should be carried out with statutory competent qualified blaster under the supervision of statutory mines manager to avoid any anomalies during blasting	Mines Manager
Prior to blasting within 500 meters of the lease boundary, establish a fly rock exclusion zone within adjacent properties and check with landholders that the area is not occupied by humans, blast clearance zones are applied for all blasts.	Environment Officer
Undertake vibration monitoring	Environment Officer

Source: Proposed by FAE's & EIA Coordinator

10.8 Biological Environment Management

The mine management will take all necessary steps to avoid the impact on the ecology of the area by adopting suitable management measures in the planning and implementation stage. During mining, thick plantation will be carried out around the project periphery, on safety barrier zone, on top benches of mined out area, backfilled area, etc., the water reservoir will be developed in lower benches of the mined-out area at conceptual stage will be used for the maintenance of green belt after the closure of mine.

Following control measures are proposed for its management and will be the responsibility of the environment officer.

- Greenbelt development all along the safety barrier of the project area
- The main attributes that retard the survival of sapling is fugitive dust, this fugitive dust can be controlled by water sprinkling on the haul roads and constructing a sprinkler near the newly planted area.
- Year wise plantation should be recorded and monitored
 - Based on the area of plantation.
 - Period of plantation
 - Type of plantation
 - Spacing between the plants
 - Type of manuring and fertilizers and its periods
 - Lopping period, interval of watering
 - Survival rate
 - Density of plantation
- The ultimate reclamation planned leaves a congenial environment for development of flora & immigration of small fauna through green belt and water reservoir. The green belt and water reservoir developed within the Project at the end of mine life will attract the birds and animals towards the project area in the post mining period.

The objectives of the greenbelt development plan are –

- Provide a green belt around the periphery of the quarry area to combat the dispersal of dust in the adjoining areas,
- Protect the erosion of the soil, Conserve moisture for increasing ground water recharging,
- Restore the ecology of the area, restore aesthetic beauty of the locality and meet the requirement of fodder, fuel and timber of the local community.

A well-planned Green Belt with multi rows (three tiers) preferably with long canopy leaves shall be developed with dense plantations around the boundary and haul roads to prevent air, dust noise propagation to undesired places and efforts will be taken for the enhancement of survival rate.

10.8.1 Species Recommended for Plantation

Following points have been considered while recommending the species for plantation:

- Creating of bio-diversity.
- Fast growing, thick canopy cover, perennial and evergreen large leaf area,
- Efficient in absorbing pollutants without major effects on natural growth

Table 10.7: Recommended Species to Plant in the Greenbelt

<i>SI.No</i>	<i>Name of the plant (Botanical)</i>	<i>Family Name</i>	<i>Common Name</i>	<i>Habit</i>
1	<i>Azadirachta indica</i>	Meliaceae	Neem, Vembu	Tree
2	<i>Albiziafalcatorea</i>	Fabaceae	Tamarind, Puliyamaram	Tree
3	<i>Polyalthialongifolia</i>	Annonaceae	Kattumaram	Tree
4	<i>Borassus Flabellifer</i>	Arecaceae	Palmyra Palm	Tree

Source: Proposed by FAE's & EIA Coordinator

10.9 Occupational Safety & Health Management

Occupational safety and health are very closely related to productivity and good employer-employee relationship. The main factors of occupational health in mines are fugitive dust and noise. Safety of employees during mining operation and maintenance of mining equipment will be taken care as per Mines Act 1952 and Rule 29 of Mines Rules 1955. To avoid any adverse effect on the health of workers due to dust, noise and vibration sufficient measures have been provided.

10.9.1 Medical Surveillance and Examinations –

- Identifying workers with conditions that may be aggravated by exposure to dust & noise and establishing baseline measures for determining changes in health.
- Evaluating the effect of noise on workers
- Enabling corrective actions to be taken when necessary
- Providing health education

The health status of workers in the mine shall be regularly monitored under an occupational surveillance program. Under this program, all the employees are subjected to a detail's medical examination at the time of employment. The medical examination covers the following tests under mines act 1952.

- General Physical Examination and Blood Pressure
- X-ray Chest and ECG
- Sputum test
- Detailed Routine Blood and Urine examination

The medical histories of all employees will be maintained in a standard format annually. Thereafter, the employees will be subject to medical examination annually. The above tests keep upgrading the database of medical history of the employees.

10.9.2 Proposed Occupational Health and Safety Measures –

- Providing a clean working environment that is conducive to safety & health annually
- Employee involvement and commitment in the implementation of health and safety guidelines
- Implementing safety and health management system and assessing the effectiveness through periodic audits
- Setting of safety and health objectives based on comprehensive strategic plans and measure performance against these plans
- Provision of necessary standard personal protective equipment's (PPE)
- Ensuring that all employees at all levels receive appropriate training and are competent to carry out their duties and responsibilities.
- Provision of rest shelters for mine workers with amenities like drinking water, fans, toilets urinals, canteen etc.,
- Rotation of workers exposed to noisy areas.
- Daily dust suppression on haul roads to prevent fugitive dust emission into the air.
- First-aid facility at the mine office.

10.9.3 Health and Safety Training Programme

The company shall provide special induction program along with machinery manufacturers for the operators and co-operators to run and maintain the machinery effectively and efficiently. The training program for the supervisors and office staffs will be arranged in the Group Vocational Training Centres in the State. And engage an Environmental Consultants to provide periodical training to all the employ to carry out the mining operation in and eco-friendly manner.

Table 10.8: List of Periodical Trainings Proposed for employees

Course	Personnel	Frequency	Duration	Instruction
New-hire Training	All new hires exposed to mine hazards	Once	One week	Employee rights, Supervisor responsibilities, Self-rescue Respiratory devices, Transportation controls, Communication systems, Escape and emergency evacuation, Ground control hazards, Occupational health hazards, Electrical hazards, First aid, Explosives
Task Training Like Drilling, Blasting, Stemming, safety, Slope stability, Dewatering, Haul Road maintenance,	Employees assigned to new work tasks	Before new Assignments	Variable	Task-specific health & safety procedures and SOP for various mining activity. Supervised practice in assigned work tasks.
Refresher Training	All employees who received new-hire training	Yearly	One week	Required health and safety standards Transportation controls Communication systems Escape ways, emergency evacuations, Fire warning Ground control hazards First aid, Electrical hazards Accident prevention Explosives, Respirator devices
Hazard Training	All employees exposed to mine hazards	Once	Variable	Hazard recognition and avoidance Emergency evacuation procedures Health standards Safety rules, Respiratory devices

Source: Proposed by FAE's & EIA Coordinator as per DGMS Norms

10.9.4 Budgetary Provision for Environmental Management

Adequate budgetary provision has been made by the Company for execution of Environmental Management Plan. The Table 10.9 gives overall investment on the environmental safeguards and recurring expenditure for successful monitoring and implementation of control measures.

TABLE 10.9: EMP BUDGET FOR PROPOSED PROJECT

	Mitigation Measure	Provision for Implementation	Capital	Recurring
Air Environment	Compaction, gradation and drainage on both sides for Haulage Road	Rental Dozer & drainage construction on haul road @ Rs. 10,000/- per hectare; and yearly maintenance @ Rs. 10,000/- per hectare	13680	13680
	Fixed Water Sprinkling Arrangements + Water sprinkling by own water tankers	Fixed Sprinkler Installation and New Water Tanker Cost for Capital; and Water Sprinkling (thrice a day) Cost for recurring	800000	50000
	Muffle blasting – To control fly rocks during blasting	Blasting face will be covered with sand bags / steel mesh / old tyres / used conveyor belts	0	5000
	Wet drilling procedure / latest eco-friendly drill machine with separate dust extractor unit	Dust extractor @ Rs. 25,000/- per unit deployed as capital & @ Rs. 2500 per unit recurring cost for maintenance - 3 Units	150000	15000
	No overloading of trucks/tippers/tractors	Manual Monitoring through Security guard	0	5000
	Stone carrying trucks will be covered by tarpaulin	Monitoring if trucks will be covered by tarpaulin	0	10000
	Enforcing speed limits of 20 km/hr within ML area	Installation of Speed Governors @ Rs. 5000/- per Tipper/Dumper deployed - 2Units	10000	500
	Regular monitoring of exhaust fumes as per RTO norms	Monitoring of Exhaust Fumes by Manual Labour	0	5000
	Regular sweeping and maintenance of approach roads for at least about 200 m from ML Area	Provision for 2 labours @ Rs.10,000/labour (Contractual) per Hectare	0	27360
	Installing wheel wash system near gate of quarry	Installation + Maintenance + Supervision	50000	20000
Noise Environment	Source of noise will be during operation of transportation vehicles, HEMM for this proper maintenance will be done at regular intervals.	Provision made in Operating Cost	0	0
	Oiling & greasing of Transport vehicles and HEMM at regular interval will be done	Provision made in Operating Cost	0	0
	Adequate silencers will be provided in all the diesel engines of vehicles.	Provision made in Operating Cost	0	0
	It will be ensured that all transportation vehicles carry a fitness certificate.	Provision made in Operating Cost	0	0

	Safety tools and implements that are required will be kept adequately near blasting site at the time of charging.	Provision made in OHS part	0	0
	Line Drilling all along the boundary to reduce the PPV from blasting activity and implementing controlled blasting.	Provision made in Operating Cost	0	0
	Proper warning system before blasting will be adopted and clearance of the area before blasting will be ensured.	Blowing Whistle by Mining Mate / Blaster / Competent Person	0	0
	Provision for Portable blaster shed	Installation of Portable blasting shelter	50000	2000
	NONEL Blasting will be practiced to control Ground vibration and fly rocks	Rs. 30/- per 6 Tonnes of Blasted Material	0	18387
Waste Management	Waste management (Spent Oil, Grease etc.,)	Provision for domestic waste collection and disposal through authorized agency	5000	20000
		Installation of dust bins	5000	2000
	Bio toilets will be made available outside mine lease on the land of owner itself	Provision made in Operating Cost	0	0
Mine Closure	1. Progressive Closure Activity - Surface Runoff management	Provision for garland drain @ Rs. 10,000/- per Hectare with maintenance of Rs. 5,000/- per annum	13680	5000
	2. Progressive Closure Activity Barbed Wire Fencing to quarry area will be provisioned.	Per Hectare fencing Cost @ Rs. 2,00,000/- with Maintenance of Rs 10,000/- per annum	273600	10000
	3. Progressive Closure Activity Green belt development - 500 trees per one hectare - Proposal for 690Trees - (210inside Lease Area & 620 Outside Lease Area)	Site clearance, preparation of land, digging of pits / trenches, soil amendments, transplantation of saplings @ 200 per plant (capital) for plantation inside the lease area and @ 30 per plant maintenance (recurring)	42000	6300
		Avenue Plantation @ 300 per plant (capital) for plantation outside the lease area and @ 30 per plant maintenance (recurring)	186000	18600

	4. Implementation of Final Mine Closure Activity as per Approved Mining Plan on Last Year	Few activities already covered as progressive closure activities as greenbelt development, wire fencing, garland drain. *For Final Closure Activities 15% of the proposed closure cost will be spent during the final mine closure stage - Last Year	39900	0
	5. Contribution towards Green Fund. As per TNMMCR 1959, Rule 35 A	The Contribution towards Green Funds @ 10% of Seigniorage fee are indicated as part of EMP Budge and not necessarily implemented in the Project Site	41725	0
Implementation of EC, Mining Plan & DGMS Condition	Size 6' X 5' with blue background and white letters as mentioned in MoM Appendix II by the SEAC TN	Fixed Display Board at the Quarry Entrance as permanent structure mentioning Environmental Conditions	10000	1000
	Air, Water, Noise and Soil Quality Sampling every 6 Months for Compliance Report of EC Conditions	Submission of 2 Half Yearly Compliance - Lab Monitoring Report as per CPCB norms	0	50000
	Workers will be provided with Personal Protective Equipment's	Provision of PPE @ Rs. 4000/- per employee with recurring based on wear and tear (say, @ Rs. 1000/- per employee) - 33Employees	132000	33000
	Health check up for workers will be provisioned	IME & PME Health check up @ Rs. 1000/- per employee	0	33000
	First aid facility will be provided	Provision of 2 Kits per Hectare @ Rs. 2000/-	0	2736
	Mine will have safety precaution signages, boards.	Provision for signages and boards made	10000	2000
	No parking will be provided on the transport routes. Separate provision on the south side of the hill will be made for vehicles /HEMMs. Flaggers will be deployed for traffic management	Parking area with shelter and flags @ Rs. 50,000/- per hectare project and Rs. 10,000/- as maintenance cost	68400	10000
	Installation of CCTV cameras in the mines and mine entrance	Camera 4 Nos, DVR, Monitor with internet facility	30000	5000

	Implementation as per Mining Plan and ensure safe quarry working	Mines Manager (1 st Class / 2 nd Class / Mine Foreman) under regulation 34 / 34 (6) of MMR, 1961 and Mining Mate under regulation 116 of MMR, 1961 @ 40,000/- for Manager & @ 25,000/- for Foreman / Mate	0	780000
CER	As per MoEF & CC OM 22-65/2017-IA.III Dated 25.02.2021	Detailed Description in following slides and Budget allocation is included as per MoeEF & CC OM	500000	0
TOTAL			2349360	1150563.2

In order to implement the environmental protection measures, an amount of Rs.23.49 lakhs as capital cost and recurring cost as Rs. 11.50 lakhs as recurring cost is proposed considering present market price considering present market scenario for the proposed project.

Year Wise Break Up	
1st Year	₹ 34,99,923.2
2nd Year	₹ 12,08,091.4
3rd Year	₹ 12,68,495.9
4th Year	₹ 13,31,920.7
5th Year	₹ 14,38,416.8
Total	₹ 87 lakhs

10.11 Conclusion

Various aspects of mining activities were considered and related impacts were evaluated. Considering all the possible ways to mitigate the environmental concerns Environmental Management Plan was prepared and fund has been allocated for the same. The EMP is dynamic, flexible and subjected to periodic review. For project where the major environmental impacts are associated, EMP will be under regular review. Senior Management responsible for the project will conduct review of EMP and its implementation to ensure that the EMP remains effective and appropriate. Thus, the proper steps will be taken to accomplish all the goals mentioned in the EMP and the project will bring the positive impact in the study area.

CHAPTER - 10: ENVIRONMENTAL MANAGEMENT PLAN -P3

10.0 General

Environment Management Plan (EMP) aims at the preservation of ecological system by considering in-built pollution abatement facilities at the proposed site. Good practices of Environmental Management plan will ensure to keep all the environmental parameters of the project in respect of Ambient Air quality, Water quality, Socio – economic improvement standards.

Mitigation measures at the source level and an overall environment management plan at the study area are elicited so as to improve the supportive capacity of the receiving bodies. The EMP presented in this chapter discusses the administrative aspects of ensuring that mitigative measures are implemented and their effectiveness monitored after approval of the EIA.

10.1 Environmental Policy

The Project Proponent committed to conduct all its operations and activities in an environmentally responsible manner and to continually improve environmental performance.

The Proponent will – **M/s.Bismilla Exports**

- Allocate necessary resources to ensure the implementation of the environmental policy.
- Meet the requirements of all laws, acts, regulations, and standards relevant to its operations and activities.
- Implement a program to train employees in general environmental issues and individual workplace environmental responsibilities.
- Ensure that an effective closure strategy is in place at all stages of project development and that progressive reclamation is undertaken as early as possible to reduce potential long-term environmental and community impacts.
- Implement monitoring programmes to provide early warning of any deficiency or unanticipated performance in environmental safeguards.
- Conduct periodic reviews to verify environmental performance and to continuously strive towards improvement.

10.1.1 Description of the Administration and Technical Setup –

The Environment Monitoring Cell discussed under Chapter-6 will ensure effective implementation of environment management plan and to ensure compliance of environmental statutory guidelines through Mine Management Level of the proposed quarry.

The said team will be responsible for:

- Analysis of the water and air samples collected through external laboratory
- Monitoring of the water/ waste water quality, air quality and solid waste generated
- Implementation and monitoring of the pollution control and protective measures/ devices which shall include financial estimation, ordering, installation of air pollution control equipment, waste water treatment plant, etc.,
- Co-ordination of the environment related activities within the project as well as with outside agencies
- Collection of health statistics of the workers and population of the surrounding villages
- Green belt development
- Monitoring the progress of implementation of the environmental monitoring programme
- Compliance to statutory provisions, norms of State Pollution Control Board, Ministry of Environment and Forests and the conditions of the environmental clearance as well as the consents to establish and consents to operate.

10.2 Land Environment Management –

Landscape of the area will be changed due to the quarrying operation, restoration of the land by converting the quarry pit into temporary reservoir and the remaining part of the area (un utilized areas, infrastructure, haul Roads) will be utilized for greenbelt development. Aesthetic of the Environment will not be affected. There is no major vegetation in the project area during the course of quarrying operation and after completion of the quarrying operation thick plantation will be developed under greenbelt development programme.

Table 10.1: Proposed Controls for Land Environment

Control	Responsibility
Designing vehicle wash-down system so that all washed water is captured and passed through grease and oil separators.	Mines Manager
Refuelling will be carried out in a safe location, away from vehicle movement pathways	Mine Foreman & Mining Mate
No external dumping i.e., outside the project area	Mine Foreman
Greenbelt on dumps and its maintenance	Environment Officer
Garland drains with catch pits to be provided all around the project area to prevent run off affecting the surrounding lands.	Environment Officer
The periphery of Project area will be planted with thick plantation to arrest the fugitive dust, which will also act as acoustic barrier.	Mines Manager
Thick plantation using native flora species will be carried out on the backfilled area.	Mines Manager
There will be formation of a small surface water body in the mined-out area, which can be used for watering the greenbelt at the conceptual stages.	Environment Officer

10.3 Soil Management

10.3.1 Top Soil Management –

It is anticipated to remove 3,526m³ of topsoil and preserve it to facilitate greenbelt development on the backfilled area during mine closure.

10.3.2 Overburden / Waste and Side Burden Management –

It is anticipating to remove 16,796m³ of waste (Granite waste@ 65%) which will temporarily store at predetermined places as per mining plan and will be backfilled during mine closure.

Table 10.2: Proposed Controls for Soil Management

Control	Responsibility
backfilling process during mine closure as per mining plan	Mines Manager
The dump slopes will be planted with deep rooting shrubs, grasses and creepers for stabilizing them	Environment Officer
Garland drains are to be paved around the dump area to arrest possible wash off in the rainy seasons	Mines Manager
Surface run-off from the surface dumps via garland drains will be diverted to the mine pits	Mine Foreman & Mining Mate
The backfilled area shall be covered with the soil for green belt development	Environment Officer
Design haul roads and other access roads with drainage systems to minimize concentration of flow and erosion risk	Environment Officer
keeping records of mitigation of erosion events, to improve on management techniques	Environment Officer
The overall slope of the dump is maintained at angle of repose not exceeding 37° from horizontal	Mines Manager
The retaining wall has to be made to arrest the waste dump spills	Mines Manager
A monitoring map with information including their GPS coordinates, erosion type, intensity, and the extent of the affected area, as well as existing control measures and assessment of their performance	Environment Officer
Empty sediment from sediment traps Maintain, repair or upgrade garland drain system	Environment Officer
Test soils for pH, EC, chloride, exchangeable cations, particle size and water holding capacity	Mines Manager

10.4 Water Management

Water is a key component in mining projects as it is required for, and affected by, mining activities. Effective water management is important for a variety of reasons including: uninterrupted operation of the mine, compliance with operational permissions and applicable legislation, and minimization of effects on the receiving environment.

This section focuses on actions for avoidance, mitigation, and control, as well as a water management monitoring program –

- To protect water-related resources, and avoid harmful impacts;
- To supply and retain water for mine operations;
- to Define water-related environmental control structures; and
- To manage water to ensure that any discharges are following the applicable water quality levels and guidelines.

Table 10.3: Proposed Controls for Water Environment

Control	Responsibility
To maximize the reuse of pit water for water supply	Mines Manager
Temporary and permanent garland drain will be constructed to contain the catchments of the mining area and to divert runoff from undisturbed areas through the mining areas	Environment Officer
Natural drains/nallahs/brooklets outside the project area should not be disturbed at any point of mining operations Safety distance of 50m will be always maintained from the odai and oorani	Mines Manager
Mine pit water is used for dust suppression and greenbelt development utilization of mine pit water is optimal and effective ways	Environment Officer
Ensure there is no process effluent generation or discharge from the project area into water bodies	Environment Officer
Domestic sewage generated from the project area will be disposed in septic tank and soak pit system	Mines Manager
Fast growing grasses, small plants and bushes will be grown on the overburden dumps to control soil erosion and siltation	Mines Manager
Retention walls and garland drains will be constructed around toe of waste dumps to arrest silt wash off from dumps during monsoon	Environment Officer
Rainwater harvesting measures will be adopted in the project area and in nearby villages to maintain and enhance the ground water table of the area	Environment Officer
Regularly assess and modify Water Management Plan to adapt to changing work plans and site conditions	Environment Officer
Familiarize all site personnel with the purpose and content of the Water Management Plan, and their responsibilities in its implementation	Environment Officer
Water management and sediment control structures and facilities will be regularly inspected and maintained according to the monitoring schedules	Environment Officer
Monthly or after rainfall, inspection for performance of water management structures and systems	Environment Officer
Conduct ground water and surface water monitoring for parameters specified by State Pollution Control Board (SPCB)	Mines Manager

Source: Proposed by FAE's & EIA Coordinator

10.5 Air Quality Management

The proposed mining activity would result in the increase of particulate matter concentrations due to fugitive dust. Daily water sprinkling on the haul roads, approach roads in the vicinity would be undertaken and will be continued as there is possibility for dust generation due to truck mobility. It will be ensured that vehicles are properly maintained to comply with exhaust emission requirements.

Table 10.4: Proposed Controls for Air Environment

Control	Responsibility
Generation of dust during excavation is minimized by water sprinkling on working face	Mines Manager
Develop thick Greenbelt with tall growing trees and thick foliage cover all along the boundary of the project (7.5 Meter Buffer Zone) to arrest dust spreading outside the project area and to be maintained. This plantation cover will also act as an acoustic barrier	Environment Officer
Daily maintenance of haul roads and daily water sprinkling to minimize the generation of fugitive dust due to movement of heavy earth moving machineries on it	Mines Manager
Handle the waste from the mine pit to respective dumps and backfilling during closure process, fugitive dust is anticipated. this fugitive emission can be controlled by well-maintained machineries, well maintained haul roads water sprinkling on haul roads twice a day. Besides it is also advised not to handle the waste during high windy periods	Mines Manager & Environment Officer
Wet drilling procedure /drills with dust extractor system to control dust generation during drilling at source itself to be implemented	Environment Officer
Plantation will be carried out on surface dumps, backfilled area and top benches of the mined-out area	Environment Officer
Water reservoir will be developed in the left over mined out pit, which will serve as additional surface water resources for the nearby villages	Environment Officer
Maintenance as per operator manual of the equipment and machinery in the mines to minimizing air pollution and noise generation	Mines Manager
Over loading of trucks should be avoided	Mines Manager
All the mining equipment and trucks has been controlled with emission norms	Environment Officer
The village roads used for mineral transport will be maintained weekly and monthly basis to avoid fugitive dust emissions	Mines Manager
Dust mask are provided to the workers working in high dust generating areas and continue to provide the same	Mines Manager
Weekly and Monthly maintenance of deployed machineries, to reduce gaseous emission	Mines Manager
Ambient Air Quality Monitoring carried out in the project area and in surrounding villages to access the impact due to the mining activities and the efficacy of the adopted air pollution control measures	Environment Officer
Monitor meteorological conditions (temperature, wind, rainfall)	Environment Office

Source: Proposed by FAE's & EIA Coordinator

10.6 Noise Management

There will be intermittent noise levels due to vehicular movement, trucks loading, drilling and blasting and cutting activities. No mining activities are planned during night time.

Table 10.5: Proposed Controls for Noise Environment

Control	Responsibility
A thick greenbelt to be developed all along the Buffer Zone (7.5 Meters) of the project area to attenuate the noise and the same will be maintained	Mines Manager
Plantation activities to be carried out on surface dumps and infrastructure facilities, these plantations will help in attenuating the noise levels	Environment Officer
Preventive maintenance of mining machinery and replacement of worn-out accessories to control noise generation	Mines Manager
Deployment of mining equipment with an inbuilt mechanism to reduce noise	Environment Officer
Provision of earmuff / ear plugs to workers working in noise prone zones in the mines	Environment Officer
Provision of effective silencers for mining machinery and transport vehicles	Environment Officer
Provision of sound proof AC operator cabins to HEMM	Environment Officer
Sharp drill bits are used to minimize noise from drilling	Environment Officer
Controlled blasting technologies are adopted by using delay detonators to minimize noise from blasting	Mines Manager
Annual ambient noise level monitoring to be carried out in the project area and in surrounding villages to assess the impact due to the mining activities and the efficacy of the adopted noise control measures. Additional noise control measures will be adopted if required as per the observations during monitoring	Environment Officer
Undertake noise or vibration monitoring in response to a complaint (from any sensitive receptor).	Mines Manager
Change the burden and spacing by altering the drilling pattern and/or delay layout, or altering the hole inclination during initial stage of operation	Mines Manager
If a noise or vibration complaint is received, follow the complaints and inquiries	Environment Officer
Undertake noise or vibration monitoring half yearly	Environment Officer

Source: Proposed by FAE's & EIA Coordinator

10.7 Ground Vibration and Fly Rock Control

Table 10.6: Proposed Controls for Ground vibration & Fly rocks

Control	Responsibility
Controlled blasting using delay detonators will be carried out to maintain the PPV value (below 8Hz) well within the prescribed standards of DGMS	Mines Manager
Drilling and blasting during initial stage will be carried under the supervision of qualified persons	Mines Manager
Proper stemming of holes should be carried out with statutory competent qualified blaster under the supervision of statutory mines manager to avoid any anomalies during blasting	Mines Manager
Prior to blasting within 500 meters of the lease boundary, establish a fly rock exclusion zone within adjacent properties and check with landholders that the area is not occupied by humans, blast clearance zones are applied for all blasts.	Environment Officer
Undertake vibration monitoring	Environment Officer

Source: Proposed by FAE's & EIA Coordinator

10.8 Biological Environment Management

The mine management will take all necessary steps to avoid the impact on the ecology of the area by adopting suitable management measures in the planning and implementation stage. During mining, thick plantation will be carried out around the project periphery, on safety barrier zone, on top benches of mined out area, backfilled area, etc., the water reservoir will be developed in lower benches of the mined-out area at conceptual stage will be used for the maintenance of green belt after the closure of mine.

Following control measures are proposed for its management and will be the responsibility of the environment officer.

- Greenbelt development all along the safety barrier of the project area
- The main attributes that retard the survival of sapling is fugitive dust, this fugitive dust can be controlled by water sprinkling on the haul roads and constructing a sprinkler near the newly planted area.
- Year wise plantation should be recorded and monitored
 - Based on the area of plantation.
 - Period of plantation
 - Type of plantation
 - Spacing between the plants
 - Type of manuring and fertilizers and its periods
 - Lopping period, interval of watering
 - Survival rate
 - Density of plantation
- The ultimate reclamation planned leaves a congenial environment for development of flora & immigration of small fauna through green belt and water reservoir. The green belt and water reservoir developed within the Project at the end of mine life will attract the birds and animals towards the project area in the post mining period.

The objectives of the greenbelt development plan are –

- Provide a green belt around the periphery of the quarry area to combat the dispersal of dust in the adjoining areas,
- Protect the erosion of the soil, Conserve moisture for increasing ground water recharging,
- Restore the ecology of the area, restore aesthetic beauty of the locality and meet the requirement of fodder, fuel and timber of the local community.

A well-planned Green Belt with multi rows (three tiers) preferably with long canopy leaves shall be developed with dense plantations around the boundary and haul roads to prevent air, dust noise propagation to undesired places and efforts will be taken for the enhancement of survival rate.

10.8.1 Species Recommended for Plantation

Following points have been considered while recommending the species for plantation:

- Creating of bio-diversity.
- Fast growing, thick canopy cover, perennial and evergreen large leaf area,
- Efficient in absorbing pollutants without major effects on natural growth

Table 10.7: Recommended Species to Plant in the Greenbelt

<i>SI.No</i>	<i>Name of the plant (Botanical)</i>	<i>Family Name</i>	<i>Common Name</i>	<i>Habit</i>
1	<i>Azadirachta indica</i>	Meliaceae	Neem, Vembu	Tree
2	<i>Albiziafalcatorea</i>	Fabaceae	Tamarind, Puliyamaram	Tree
3	<i>Polyalthialongifolia</i>	Annonaceae	Kattumaram	Tree
4	<i>Borassus Flabellifer</i>	Arecaceae	Palmyra Palm	Tree

Source: Proposed by FAE's & EIA Coordinator

10.9 Occupational Safety & Health Management

Occupational safety and health are very closely related to productivity and good employer-employee relationship. The main factors of occupational health in mines are fugitive dust and noise. Safety of employees during mining operation and maintenance of mining equipment will be taken care as per Mines Act 1952 and Rule 29 of Mines Rules 1955. To avoid any adverse effect on the health of workers due to dust, noise and vibration sufficient measures have been provided.

10.9.1 Medical Surveillance and Examinations –

- Identifying workers with conditions that may be aggravated by exposure to dust & noise and establishing baseline measures for determining changes in health.
- Evaluating the effect of noise on workers
- Enabling corrective actions to be taken when necessary
- Providing health education

The health status of workers in the mine shall be regularly monitored under an occupational surveillance program. Under this program, all the employees are subjected to a detail's medical examination at the time of employment. The medical examination covers the following tests under mines act 1952.

- General Physical Examination and Blood Pressure
- X-ray Chest and ECG
- Sputum test
- Detailed Routine Blood and Urine examination

The medical histories of all employees will be maintained in a standard format annually. Thereafter, the employees will be subject to medical examination annually. The above tests keep upgrading the database of medical history of the employees.

10.9.2 Proposed Occupational Health and Safety Measures –

- Providing a clean working environment that is conducive to safety & health annually
- Employee involvement and commitment in the implementation of health and safety guidelines
- Implementing safety and health management system and assessing the effectiveness through periodic audits
- Setting of safety and health objectives based on comprehensive strategic plans and measure performance against these plans
- Provision of necessary standard personal protective equipment's (PPE)
- Ensuring that all employees at all levels receive appropriate training and are competent to carry out their duties and responsibilities.
- Provision of rest shelters for mine workers with amenities like drinking water, fans, toilets urinals, canteen etc.,
- Rotation of workers exposed to noisy areas.
- Daily dust suppression on haul roads to prevent fugitive dust emission into the air.
- First-aid facility at the mine office.

10.9.3 Health and Safety Training Programme

The company shall provide special induction program along with machinery manufacturers for the operators and co-operators to run and maintain the machinery effectively and efficiently. The training program for the supervisors and office staffs will be arranged in the Group Vocational Training Centres in the State. And engage an Environmental Consultants to provide periodical training to all the employ to carry out the mining operation in and eco-friendly manner.

Table 10.8: List of Periodical Trainings Proposed for employees

Course	Personnel	Frequency	Duration	Instruction
New-hire Training	All new hires exposed to mine hazards	Once	One week	Employee rights, Supervisor responsibilities, Self-rescue Respiratory devices, Transportation controls, Communication systems, Escape and emergency evacuation, Ground control hazards, Occupational health hazards, Electrical hazards, First aid, Explosives
Task Training Like Drilling, Blasting, Stemming, safety, Slope stability, Dewatering, Haul Road maintenance,	Employees assigned to new work tasks	Before new Assignments	Variable	Task-specific health & safety procedures and SOP for various mining activity. Supervised practice in assigned work tasks.
Refresher Training	All employees who received new-hire training	Yearly	One week	Required health and safety standards Transportation controls Communication systems Escape ways, emergency evacuations, Fire warning Ground control hazards First aid, Electrical hazards Accident prevention Explosives, Respirator devices
Hazard Training	All employees exposed to mine hazards	Once	Variable	Hazard recognition and avoidance Emergency evacuation procedures Health standards Safety rules, Respiratory devices

Source: Proposed by FAE's & EIA Coordinator as per DGMS Norms

10.9.4 Budgetary Provision for Environmental Management

Adequate budgetary provision has been made by the Company for execution of Environmental Management Plan. The Table 10.9 gives overall investment on the environmental safeguards and recurring expenditure for successful monitoring and implementation of control measures.

TABLE 10.9: EMP BUDGET FOR PROPOSED PROJECT

	Mitigation Measure	Provision for Implementation	Capital	Recurring
Air Environment	Compaction, gradation and drainage on both sides for Haulage Road	Rental Dozer & drainage construction on haul road @ Rs. 10,000/- per hectare; and yearly maintenance @ Rs. 10,000/- per hectare	10200	10200
	Fixed Water Sprinkling Arrangements + Water sprinkling by own water tankers	Fixed Sprinkler Installation and New Water Tanker Cost for Capital; and Water Sprinkling (thrice a day) Cost for recurring	800000	50000
	Muffle blasting – To control fly rocks during blasting	Blasting face will be covered with sand bags / steel mesh / old tyres / used conveyor belts	0	5000
	Wet drilling procedure / latest eco-friendly drill machine with separate dust extractor unit	Dust extractor @ Rs. 25,000/- per unit deployed as capital & @ Rs. 2500 per unit recurring cost for maintenance - 3 Units	100000	10000
	No overloading of trucks/tippers/tractors	Manual Monitoring through Security guard	0	5000
	Stone carrying trucks will be covered by tarpaulin	Monitoring if trucks will be covered by tarpaulin	0	10000
	Enforcing speed limits of 20 km/hr within ML area	Installation of Speed Governors @ Rs. 5000/- per Tipper/Dumper deployed - 2Units	10000	500
	Regular monitoring of exhaust fumes as per RTO norms	Monitoring of Exhaust Fumes by Manual Labour	0	5000
	Regular sweeping and maintenance of approach roads for at least about 200 m from ML Area	Provision for 2 labours @ Rs.10,000/labour (Contractual) per Hectare	0	20400
	Installing wheel wash system near gate of quarry	Installation + Maintenance + Supervision	50000	20000
Noise Environment	Source of noise will be during operation of transportation vehicles, HEMM for this proper maintenance will be done at regular intervals.	Provision made in Operating Cost	0	0
	Oiling & greasing of Transport vehicles and HEMM at regular interval will be done	Provision made in Operating Cost	0	0
	Adequate silencers will be provided in all the diesel engines of vehicles.	Provision made in Operating Cost	0	0
	It will be ensured that all transportation vehicles carry a fitness certificate.	Provision made in Operating Cost	0	0
	Safety tools and implements that are required will be kept adequately near blasting site at the time of charging.	Provision made in OHS part	0	0

	Line Drilling all along the boundary to reduce the PPV from blasting activity and implementing controlled blasting.	Provision made in Operating Cost	0	0
	Proper warning system before blasting will be adopted and clearance of the area before blasting will be ensured.	Blowing Whistle by Mining Mate / Blaster / Competent Person	0	0
	Provision for Portable blaster shed	Installation of Portable blasting shelter	50000	2000
	NONEL Blasting will be practiced to control Ground vibration and fly rocks	Rs. 30/- per 6 Tonnes of Blasted Material	0	16401
Waste Management	Waste management (Spent Oil, Grease etc.,)	Provision for domestic waste collection and disposal through authorized agency	5000	20000
		Installation of dust bins	5000	2000
	Bio toilets will be made available outside mine lease on the land of owner itself	Provision made in Operating Cost	0	0
Mine Closure	1. Progressive Closure Activity - Surface Runoff management	Provision for garland drain @ Rs. 10,000/- per Hectare with maintenance of Rs. 5,000/- per annum	10200	5000
	2. Progressive Closure Activity Barbed Wire Fencing to quarry area will be provisioned.	Per Hectare fencing Cost @ Rs. 2,00,000/- with Maintenance of Rs 10,000/- per annum	204000	10000
	3. Progressive Closure Activity Green belt development - 500 trees per one hectare - Proposal for 510Trees - (310inside Lease Area & 300 Outside Lease Area)	Site clearance, preparation of land, digging of pits / trenches, soil amendments, transplantation of saplings @ 200 per plant (capital) for plantation inside the lease area and @ 30 per plant maintenance (recurring)	62000	9300
		Avenue Plantation @ 300 per plant (capital) for plantation outside the lease area and @ 30 per plant maintenance (recurring)	90000	9000
	4. Implementation of Final Mine Closure Activity as per Approved Mining Plan on Last Year	Few activities already covered as progressive closure activities as greenbelt development, wire fencing, garland drain. *For Final Closure Activities 15% of the proposed closure cost will be spent during the final mine closure stage - Last Year	38250	0
	5. Contribution towards Green Fund. As per TNMMCR 1959, Rule 35 A	The Contribution towards Green Funds @ 10% of Seigniorage fee are indicated as part of EMP Budge and not necessarily implemented in the Project Site	37217	0

Implementation of EC, Mining Plan & DGMS Condition	Size 6' X 5' with blue background and white letters as mentioned in MoM Appendix II by the SEAC TN	Fixed Display Board at the Quarry Entrance as permanent structure mentioning Environmental Conditions	10000	1000
	Air, Water, Noise and Soil Quality Sampling every 6 Months for Compliance Report of EC Conditions	Submission of 2 Half Yearly Compliance - Lab Monitoring Report as per CPCB norms	0	50000
	Workers will be provided with Personal Protective Equipment's	Provision of PPE @ Rs. 4000/- per employee with recurring based on wear and tear (say, @ Rs. 1000/- per employee) - 30Employees	120000	30000
	Health checkup for workers will be provisioned	IME & PME Health checkup @ Rs. 1000/- per employee	0	30000
	First aid facility will be provided	Provision of 2 Kits per Hectare @ Rs. 2000/-	0	2040
	Mine will have safety precaution signages, boards.	Provision for signages and boards made	10000	2000
	No parking will be provided on the transport routes. Separate provision on the south side of the hill will be made for vehicles /HEMMs. Flaggers will be deployed for traffic management	Parking area with shelter and flags @ Rs. 50,000/- per hectare project and Rs. 10,000/- as maintenance cost	51000	10000
	Installation of CCTV cameras in the mines and mine entrance	Camera 4 Nos, DVR, Monitor with internet facility	30000	5000
Implementation as per Mining Plan and ensure safe quarry working	Mines Manager (1 st Class / 2 nd Class / Mine Foreman) under regulation 34 / 34 (6) of MMR, 1961 and Mining Mate under regulation 116 of MMR,1961 @ 40,000/- for Manager & @ 25,000/- for Foreman / Mate	0	780000	
CER	As per MoEF &CC OM 22-65/2017-IA.III Dated 25.02.2021	Detailed Description in following slides and Budget allocation is included as per MoeEF & CC OM	500000	0
TOTAL			2117400	1119840.8

In order to implement the environmental protection measures, an amount of Rs.21.17 lakhs as capital cost and recurring cost as Rs. 11.19 lakhs as recurring cost is proposed considering present market price considering present market scenario for the proposed project.

Year Wise Break Up	
1st Year	₹32,37,240.8
2nd Year	₹11,75,832.8
3rd Year	₹12,34,624.5
4th Year	₹12,96,355.7
5th Year	₹13,99,423.5
Total	₹ 83 lakhs

10.10 Conclusion

Various aspects of mining activities were considered and related impacts were evaluated. Considering all the possible ways to mitigate the environmental concerns Environmental Management Plan was prepared and fund has been allocated for the same. The EMP is dynamic, flexible and subjected to periodic review. For project where the major environmental impacts are associated, EMP will be under regular review. Senior Management responsible for the project will conduct review of EMP and its implementation to ensure that the EMP remains effective and appropriate. Thus, the proper steps will be taken to accomplish all the goals mentioned in the EMP and the project will bring the positive impact in the study area.

CHAPTER – 11: SUMMARY AND CONCLUSIONS

Soolamalai Village Colour Granite Cluster Quarries over an Extent of (55.04.3ha) falls under “B” category as per MoEF & CC Notification (S.O. 3977 (E)).

Now, as per Order Dated: 04.09.2018 & 13.09.2018 passed by Hon'ble National Green Tribunal, New Delhi in O.A. No. 173 of 2018 & O.A. No, 186 of 2016 and MoEF & CC Office Memorandum F. No. L-11011/175/2018-IA-II (M) Dated: 12.12.2018 clarified the requirement for EIA, EMP and therefore, Public Consultation for all areas from 5 to 25 ha falling in Category B-1 and appraised by SEAC/ SEIAA as well as for cluster situation.

A detailed Draft EIA/ EMP Report is prepared for public and other stakeholders' suggestions and a Final EIA/ EMP Report will be prepared based on the outcome of Public Consultation.

Environmental monitoring and audit mechanism have been recommended before and after commencement of the project, where necessary, to verify the accuracy of the EIA predictions and the effectiveness of recommended mitigation measures.

The main scope of the EIA study is to quantify the cumulative impact in the study area due to cluster quarries and formulate the effective mitigation measures for each individual leases. A detailed account of the emission sources, emissions control equipment, background Air quality levels, Meteorological measurements, Dispersion model and all other aspects of pollution like effluent discharge, Dust generation etc., have been discussed in this report. The baseline monitoring study has been carried out during the month of Oct to Dec 2023 for various environmental components so as to assess the anticipated impacts of the cluster quarry projects on the environment and suitable mitigation measures for likely adverse impacts due to the cluster proposed project is suggested individually for the respective proposed project under Chapter 10.

The project proponent ensures to obtain necessary clearances and quarrying will be carried out as per rules and regulations. The Mining Activity will be carried out in a phased manner as per the approved mining plan after obtaining EC, CTO from TNPCB, execution of lease deed and obtaining DGMS Permission and working will be carried out under the supervision of Competent Persons employed.

Overall, the EIA report has predicted that the project will comply with all environment standards and legislation after commencement of the project and operational stage mitigation measures are implemented.

Mining operations has positive impact on environment and socio economy such as landscape improvement, water as by-product, economy development and better public services, providing and supply of Colour Granite Quarry as per market demand.

Sustainable and modern mining leads us to see positive impact of mining operation and providing consistent employment for nearly 81 people directly in the cluster and indirectly around 200 people.

As discussed, it is safe to say that the proposed quarries are not likely to cause any significant impact to the ecology of the area, as adequate preventive measures will be adopted to keep the various pollutants within the permissible limits. Green belt development around the area will also be taken up as an effective pollution mitigate technique, as well as to serve as biological indicators for the pollutants released from Soolamalai Village, Colour Granite Cluster Quarries over an Extent of 55.04.3 ha.

12. DISCLOSURE OF CONSULTANTS

Soolamalai Colour Granite Cluster Quarries have engaged M/s Geo Exploration and Mining Solutions, an Accredited Organization under Quality Council of India – National Accreditation Board for Education & Training, New Delhi, for carrying out the EIA Study as per the ToR Issued.

Name and address of the consultancy:

GEO EXPLORATION AND MINING SOLUTIONS

No 17, Advaita Ashram Road,
Alagapuram, Salem – 636 004
Tamil Nadu, India
Email: infogeoexploration@gmail.com
Web: www.gemssalem.com
Phone: 0427 2431989.

The Accredited Experts and associated members who were engaged for this EIA study as given below

Sl.No.	Name of the expert	In house/ Empanelled	EIA Coordinator		FAE	
			Sector	Category	Sector	Category
1	Dr. M. Ifthikhar Ahmed	In-house	1	A	WP GEO SC	B A A
2	Dr. P. Thangaraju	In-house	-	-	HG GEO	A A
3	Mr. A. Jagannathan	In-house	-	-	AP NV SHW	B A B
4	Mr. N. Senthilkumar	Empanelled	38 28	B B	AQ WP RH	B B A
5	Mrs. Jisha parameswaran	In-house	-	-	SW	B
6	Mr. Govindasamy	In-house	-	-	WP	B
7	Mrs. K. Anitha	In-house	-	-	SE	A
8	Mrs. Amirtham	In-house	-	-	EB	B
9	Mr. Alagappa Moses	Empanelled	-	-	EB	A
10	Mr. A. Allimuthu	In-house	-	-	LU	B
11	Mr. S. Pavel	Empanelled	-	-	RH	B
12	Mr. J. R. Vikram Krishna	Empanelled	-	-	SHW RH	A A

Abbreviations	
EC	EIA Coordinator
AEC	Associate EIA Coordinator
FAE	Functional Area Expert
FAA	Functional Area Associates
TM	Team Member
GEO	Geology
WP	Water pollution monitoring, prevention and control
AP	Air pollution monitoring, prevention and control
LU	Land Use
AQ	Meteorology, air quality modeling, and prediction
EB	Ecology and bio-diversity
NV	Noise and vibration
SE	Socio economics
HG	Hydrology, ground water and water conservation
SC	Soil conservation
RH	Risk assessment and hazard management
SHW	Solid and hazardous wastes
MSW	Municipal Solid Wastes
ISW	Industrial Solid Wastes
HW	Hazardous Wastes

DECLARATION BY EXPERTS CONTRIBUTING TO THE EIA/EMP

Declaration by experts contributing to the EIA/EMP for Soolamalai Colour Granite Cluster Quarries over an **Extent of 55.04.3 ha** in Soolamalai Village of Bargur Taluk, Krishnagiri District of Tamil Nadu. It is also certified that information furnished in the above EIA study are true and correct to the best of our knowledge.

I, hereby, certify that I was a part of the EIA team in the following capacity that developed the EIA/EMP Report.

Name: **Dr. M. Ifthikhar Ahmed**

Designation: **EIA Coordinator**

Date & Signature:




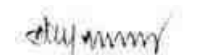

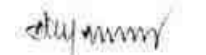












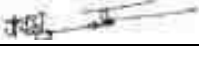

Period of Involvement: **Oct 2023 to till date**

Associated Team Member with EIA Coordinator:

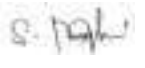



1. Mr.S.Nagamani
2. Mr. P.Viswanathan
3. Mr. Santhoshkumar
4. Mr. S. Ilavarasan





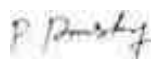

FUNCTIONAL AREA EXPERTS ENGAGED IN THE PROJECT

Sl. No.	Functional Area	Involvement	Name of the Expert/s	Signature
1	AP	<ul style="list-style-type: none"> ▪ Identification of different sources of air pollution due to the proposed mine activity ▪ Prediction of air pollution and propose mitigation measures / control measures 	Mr. A. Jagannathan	
2	WP	<ul style="list-style-type: none"> ▪ Suggesting water treatment systems, drainage facilities ▪ Evaluating probable impacts of effluent/waste water discharges into the receiving environment/water bodies and suggesting control measures. 	Dr. M. Ifthikhar Ahmed	
			Mr. N. Senthilkumar	
3	HG	<ul style="list-style-type: none"> ▪ Interpretation of ground water table and predict impact and propose mitigation measures. ▪ Analysis and description of aquifer Characteristics 	Dr. P. Thangaraju	
4	GEO	<ul style="list-style-type: none"> ▪ Field Survey for assessing the regional and local geology of the area. ▪ Preparation of mineral and geological maps. ▪ Geology and Geo morphological analysis/description and Stratigraphy/Lithology. 	Dr. M. Ifthikhar Ahmed	
			Dr. P. Thangaraju	
5	SE	<ul style="list-style-type: none"> ▪ Revision in secondary data as per Census of India, 2011. ▪ Impact Assessment & Preventive Management Plan ▪ Corporate Environment Responsibility. 	Mrs. K. Anitha	
6	EB	<ul style="list-style-type: none"> ▪ Collection of Baseline data of Flora and Fauna. ▪ Identification of species labelled as Rare, Endangered and threatened as per IUCN list. ▪ Impact of the project on flora and fauna. ▪ Suggesting species for greenbelt development. 	Mrs. Amirtham	
			Mr. Alagappa Moses	

7	RH	<ul style="list-style-type: none"> ▪ Identification of hazards and hazardous substances ▪ Risks and consequences analysis ▪ Vulnerability assessment ▪ Preparation of Emergency Preparedness Plan ▪ Management plan for safety. 	Mr. N. Senthilkumar	
			Mr. S. Pavel	
			Mr. J. R. Vikram Krishna	
8	LU	<ul style="list-style-type: none"> ▪ Construction of Land use Map ▪ Impact of project on surrounding land use ▪ Suggesting post closure sustainable land use and mitigative measures. 	Mr. A. Allimuthu	
9	NV	<ul style="list-style-type: none"> ▪ Identify impacts due to noise and vibrations ▪ Suggesting appropriate mitigation measures for EMP. 	Mr. A. Jagannathan	
10	AQ	<ul style="list-style-type: none"> ▪ Identifying different source of emissions and propose predictions of incremental GLC using AERMOD. ▪ Recommending mitigations measures for EMP 	Mr. N. Senthilkumar	
11	SC	<ul style="list-style-type: none"> ▪ Assessing the impact on soil environment and proposed mitigation measures for soil conservation 	Dr. M. Ifthikhar Ahmed	
12	SHW	<ul style="list-style-type: none"> ▪ Identify source of generation of non-hazardous solid waste and hazardous waste. ▪ Suggesting measures for minimization of generation of waste and how it can be reused or recycled. 	Mr. A. Jagannathan	
			Mr. J. R. Vikram Krishna	

LIST OF TEAM MEMBERS ENGAGED IN THIS PROJECT

Sl.No.	Name	Functional Area	Involvement	Signature
1	Mr. S. Nagamani	AP; GEO; AQ	<ul style="list-style-type: none"> ▪ Site Visit with FAE ▪ Provide inputs & Assisting FAE with sources of Air Pollution, its impact and suggest control measures ▪ Provide inputs on Geological Aspects ▪ Analyse & provide inputs and assist FAE with meteorological data, emission estimation, AERMOD modelling and suggesting control measures 	
2	Mr. Viswanathan	AP; WP; LU	<ul style="list-style-type: none"> ▪ Site Visit with FAE ▪ Provide inputs & Assisting FAE with sources of Air Pollution, its impact and suggest control measures ▪ Assisting FAE on sources of water pollution, its impacts and suggest control measures ▪ Assisting FAE in preparation of land use maps 	
3	Mr. Santhoshkumar	GEO; SC	<ul style="list-style-type: none"> ▪ Site Visit with FAE ▪ Provide inputs on Geological Aspects ▪ Assist in Resources & Reserve Calculation and preparation of Production Plan & Conceptual Plan ▪ Provide inputs & Assisting FAE with soil conservation methods and identifying impacts 	
4	Mr. Umamahesvaran	GEO	<ul style="list-style-type: none"> ▪ Site Visit with FAE ▪ Provide inputs on Geological Aspects 	

			<ul style="list-style-type: none"> ▪ Assist in Resources & Reserve Calculation and preparation of Production Plan & Conceptual Plan 	
5	Mr. A. Allimuthu	SE	<ul style="list-style-type: none"> ▪ Site Visit with FAE ▪ Assist FAE with collection of data's ▪ Provide inputs by analysing primary and secondary data 	
6	Mr. S. Ilavarasan	LU; SC	<ul style="list-style-type: none"> ▪ Site Visit with FAE ▪ Assisting FAE in preparation of land use maps ▪ Provide inputs & Assisting FAE with soil conservation methods and identifying impacts 	
7	Mr. E. Vadivel	HG	<ul style="list-style-type: none"> ▪ Site Visit with FAE ▪ Assist FAE & provide inputs on aquifer characteristics, ground water level/table ▪ Assist with methods of ground water recharge and conduct pump test, flow rate 	
8	Mr. D. Dinesh	NV	<ul style="list-style-type: none"> ▪ Site Visit with FAE ▪ Assist FAE and provide inputs on impacts due to proposed mine activity and suggest mitigation measures ▪ Assist FAE with prediction modelling 	
9	Mr. Panneer Selvam	EB	<ul style="list-style-type: none"> ▪ Site Visit with FAE ▪ Assist FAE with collection of baseline data ▪ Provide inputs and assist with labelling of Flora and Fauna 	
10	Mrs. Nathiya	EB	<ul style="list-style-type: none"> ▪ Site Visit with FAE ▪ Assist FAE with collection of baseline data ▪ Provide inputs and assist with labelling of Flora and Fauna 	

DECLARATION BY THE HEAD OF THE ACCREDITED CONSULTANT ORGANIZATION

I, Dr. M. Ifthikhar Ahmed, Managing Partner, Geo Exploration and Mining Solutions, hereby, confirm that the above-mentioned Functional Area Experts and Team Members prepared the EIA/EMP for Soolamalai Colour Granite Cluster Quarries over an **Extent of 55.04.3 ha** in Soolamalai Village of Bargur Taluk, Krishnagiri District of Tamil Nadu. It is also certified that information furnished in the EIA study are true and correct to the best of our knowledge.

Signature & Date:



Name:

Dr. M. Ifthikhar Ahmed

Designation:

Managing Partner

Name of the EIA Consultant Organization:

M/s. Geo Exploration and Mining Solutions

NABET Certificate No & Issue Date:

NABET/EIA/2225/RA0276 Dated: 20-02-2023

Validity:

Valid till 06.08.2025

ANNEXURE

SOOLAMALAI COLOUR GRANITE CLUSTER QUARRIES

Soolamalai Village,
Bargur Taluk,
Krishnagiri District

CLUSTER EXTENT: 55.04.3ha

ToR obtained

P1- Lr No.SEIAA-TN/F.No.10247/SEAC/ToR- 1564/2023 Dated:27.09.2023.

P2- Lr No. SEIAA-TN/F.No.10354/SEAC/1(a)ToR-1611/2023 Dated: 06.11.2023

P3- Lr No. SEIAA-TN/F.No.10365/SEAC/ToR-1643/2023 Dated: 02.01.2024

Code	P1	P2	P3
PROJECT LOCATION	Thiru.M.Kowshik Dhev, Extent: 1.98.0 Ha S.F. No: 333 (P), Soolamalai Village, Bargur Taluk, Krishnagiri District	Thiru.Salman Sathar, Extent: 1.36.8 Ha S.F. No: 341/1 (Part), Soolamalai Village, Bargur Taluk, Krishnagiri District	M/s.Bismilla Exports, Extent: 1.02.0 Ha S.F. No: 339/1 (Part) Soolamalai Village, Bargur Taluk, Krishnagiri District.

LIST OF ANNEXURES

ANNEXURES	DESCRIPTION	PAGE NOS
P1- Thiru.M.Kowshik Dhev,	COPY OF TERMS OF REFERENCE	1A-25A
	COPY OF 500M RADIUS QUARRIES DETAILS LETTER	26A-28A
	COPY OF 300m & VAO ATTESTATION LETTER	29A-30A
	COPY OF MINING PLAN APPROVED LETTER	31A-40A
	COPY OF APPROVED MINING PLAN WITH PLATES	41A-116A
	COPY OF HYDROGEOLOGICAL REPORT	117A-125A
	COPY OF EXPLOSIVE LETTER	126A
	COPY OF COURT ORDER	127A-131A
P2- Thiru.Salman Sathar,	COPY OF TERMS OF REFERENCE	132A-154A
	COPY OF 500M RADIUS QUARRIES DETAILS LETTER	155A-156A
	COPY 300m LETTER	157A
	COPY OF MINING PLAN APPROVED LETTER	158A-166A
	COPY OF APPROVED MINING PLAN WITH PLATES	167A-231A
	COPY OF HYDROGEOLOGICAL REPORT	232A-241A
	COPY OF INSPECTION LETTER	242A-249A
COPY OF DFO LETTER	250A-252A	
	COPY OF TERMS OF REFERENCE	253A-275A

P3- M/s.Bismilla Exports,	COPY OF 500M RADIUS QUARRIES DETAILS LETTER	276A-277A
	COPY 300m LETTER	278A
	COPY OF MINING PLAN APPROVED LETTER	279A-286A
	COPY OF APPROVED MINING PLAN WITH PLATES	287A-358A
	COPY OF HYDROGEOLOGICAL REPORT	359A-368A
	COPY OF DFO LETTER	369A-371A
	COPY OF INSPECTION LETTER	372A-383A
	COPY OF PARTNERSHIP DEED	384A-390A
P4- M/s.TAMIN	COPY OF TOR	391A-398A
E1- Tmt.Varalakshmi,	COPY OF APPROVED MINING PLAN WITH PLATES	399A-450A
E2- M/s.TAMIN,	COPY OF TOR	451A-452A
E3 Thiru.B.K.Murali,	COPY OF 500M RADIUS QUARRIES DETAILS LETTER	453A-455A
E6 Thiru.B.S Ravi,	COPY OF APPROVED MINING PLAN WITH PLATES	456A-458A
E7 Thiru.B.S Ravi,	COPY OF APPROVED MINING PLAN WITH PLATES	459A-528A
	COPY OF BASE LINE MONITORING DATA	529A-572A
	COPY OF CONSULTANT ACCREDITATION CERTIFICATE	573A



THIRU.DEEPAK S.BILGI, L.F.S.,
MEMBER SECRETARY

STATE LEVEL ENVIRONMENT IMPACT
ASSESSMENT AUTHORITY – TAMIL
NADU

3rd Floor, Panagal Maaligai,
No.1, Jeenis Road, Saidapet,
Chennai-15.
Phone No: 044-24359973
Fax No. 044-24359975

TERMS OF REFERENCE (ToR)

Lr No.SEIAA-TN/F.No.10247/SEAC/ToR-1564/2023 Dated:27.09.2023

To

Mr.Kowshik, Dhev,
D.no:58b, Gandhi nagar,
Basheer mohammed lay out,
Krishna giri,
Tamil nadu-635001.

Sir / Madam,

Sub: SEIAA, Tamil Nadu – **Terms of Reference with Public Hearing (ToR)** for the Proposed Colour granite quarry over an extent of 1.98.0Ha at S.F. No: 333(Part) of Shoolamalai village, Bargur taluk, Krishnagiri District, Tamil Nadu by Mr.Kowshik Dhev. - under project category – “B1” and Schedule S.No. 1(a) – ToR issued along with Public Hearing- preparation of EIA report – Regarding.

Ref:

1. Online proposal No. SIA/TN/MIN/436906/2023, Dated:16.07.2023.
2. Your application submitted for Terms of Reference dated: 26.07.2023.
3. Minutes of the 407th Meeting of SEAC held on 07.09.2023.
4. Minutes of the 658th meeting of Authority held on 26.09.2023 & 27.09.2023.

Kindly refer to your proposal submitted to the State Level Impact Assessment Authority for Terms of Reference.

The proponent, MR.Kowshik dhev has submitted application for ToR, in Form-I, Pre-Feasibility report for the the Proposed colour granite quarry over an extent of 1.98.0Ha at SF.No. 333(Part) of Shoolamalai village, Bargur taluk, Krishnagiri District, Tamil Nadu.


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Discussion by SEAC and the Remarks:-

Proposed Colour granite quarry over an extent of 1.98.0Ha at SF.No. 333(Part) of Shoolamalai village, Bargur taluk, Krishnagiri District, Tamil Nadu by Thiru.M.Kowshik Dhev-For Terms of Reference. (SIA/TN/MIN/436906/2023, Dated:16.07.2023).

The proposal was placed in this 407th Meeting of SEAC held on 07.09.2023. The details of the project furnished by the proponent are available in the website (parivesh.nic.in).

The SEAC noted the following:

1. The Project Proponent, Thiru.M.Kowshik Dhev has applied for Terms of Reference for the Proposed colour granite quarry over an extent of 1.98.0Ha at SF.No. 333(Part) of Shoolamalai village, Bargur taluk, Krishnagiri District, Tamil Nadu.
2. The proposed quarry/activity is covered under Category "BI" of Item 1(a) "Mining Projects" of the Schedule to the EIA Notification, 2006.
3. As per the mining plan the lease period is 20 years. The mining plan is for the period of five years & production should not exceed 43213 m³ of ROM, 8643 m³ of Colour Granite Recovery @20% & 34570 m³ of Granite Waste @80% with ultimate depth of mining 23m.
4. Precise area communication letter vide letter No.893/MME.2/2021-1, Dated 26.02.2021 under para 2

"I am directed to declare you as successful bidder to grant quarry lease for quarrying of Colour Granite over an extent of 1.98.0 hectares of Government Poramboke land in S.F.No.333 (Part) in Shoolamalai Village of Bargur Taluk, Krishnagiri District for a period of 20 years under rule B-A of the Tamil Nadu Minor Mineral Concession Rules, 1959 subject to the outcome of W.P.No.18317 of 2020 and W.P.No.16060/2020 and W.M.P.No.19999 of 2020. The District Collector shall comply with the directions of the Hon'ble High Court of Madras in W.P.No.18317 of 2020 and W.P.No.16060/2020 and W.M.P.No.19999 of 2020 and undertake the activities mentioned in para 3 below strictly in compliance with the directions of the Hon'ble High Court of Madras."

Based on the presentation made by the proponent, SEAC decided to recommend for grant of Terms of Reference (TOR) with Public Hearing, subject to the following TORs, in addition to the standard terms of reference for EIA study for non-coal mining projects and


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details issued by the MOEF & CC to be included in EIA/EMP Report:

1. The PP shall furnish the details of **W.P.No.18317 of 2020 and W.P.No.16060/2020 and W.M.P.No.19999 of 2020 which is pending with Hon'ble Madras High Court.**
2. The structures within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m shall be enumerated with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places of worship, industries, factories, sheds, etc.
3. SEAC has noted that the school situated at a distance of 310 m, hence the PP shall submit details of mining methodology and impact of dust/particulate emission and vibration on the surrounding environment in regard to peak production of the cluster area along with details of transport route of quarried minerals & mitigation measures adopted for fugitive emission due vehicular movement/ transport route.
4. The PP shall furnish revised CER details.
5. The project proponent shall enumerate on the details of Trees existing in the proposed mining area, Age of trees & its yield details.

ANNEXURE-I

1. In the case of existing/operating mines, a letter obtained from the concerned AD (Mines) shall be submitted and it shall include the following:
 - (i) Original pit dimension
 - (ii) Quantity achieved Vs EC Approved Quantity
 - (iii) Balance Quantity as per Mineable Reserve calculated.
 - (iv) Mined out Depth as on date Vs EC Permitted depth
 - (v) Details of illegal/illicit mining
 - (vi) Violation in the quarry during the past working.
 - (vii) Quantity of material mined out outside the mine lease area
 - (viii) Condition of Safety zone/benches
 - (ix) Revised/Modified Mining Plan showing the benches of not exceeding 6 m height and ultimate depth of not exceeding 50m.
2. Details of habitations around the proposed mining area and latest VAO certificate regarding the location of habitations within 300m radius from the periphery of the site.
3. The proponent is requested to carry out a survey and enumerate on the structures located within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m (v) 500m


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- shall be enumerated with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places of worship, industries, factories, sheds, etc with indicating the owner of the building, nature of construction, age of the building, number of residents, their profession and income, etc.
4. The PP shall submit a detailed hydrological report indicating the impact of proposed quarrying operations on the waterbodies like lake, water tanks, etc are located within 1 km of the proposed quarry.
 5. The Proponent shall carry out Bio diversity study through reputed Institution and the same shall be included in EIA Report.
 6. The DFO letter stating that the proximity distance of Reserve Forests, Protected Areas, Sanctuaries, Tiger reserve etc., up to a radius of 25 km from the proposed site.
 7. In the case of proposed lease in an existing (or old) quarry where the benches are not formed (or) partially formed as per the approved Mining Plan, the Project Proponent (PP) shall the PP shall carry out the scientific studies to assess the slope stability of the working benches to be constructed and existing quarry wall, by involving any one of the reputed Research and Academic Institutions - CSIR-Central Institute of Mining & Fuel Research / Dhanbad, NIRM/Bangalore, Division of Geotechnical Engineering-IIT-Madras, NIT-Dept of Mining Engg. Surathkal, and Anna University Chennai-CEG Campus. The PP shall submit a copy of the aforesaid report indicating the stability status of the quarry wall and possible mitigation measures during the time of appraisal for obtaining the EC.
 8. However, in case of the fresh/virgin quarries, the Proponent shall submit a conceptual 'Slope Stability Plan' for the proposed quarry during the appraisal while obtaining the EC, when the depth of the working is extended beyond 30 m below ground level.
 9. The PP shall furnish the affidavit stating that the blasting operation in the proposed quarry is carried out by the statutory competent person as per the MMR 1961 such as blaster, mining mate, mine foreman, II/I Class mines manager appointed by the proponent.
 10. The PP shall present a conceptual design for carrying out only controlled blasting operation involving line drilling and muffle blasting in the proposed quarry such that


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the blast-induced ground vibrations are controlled as well as no fly rock travel beyond 30 m from the blast site.

11. The EIA Coordinators shall obtain and furnish the details of quarry/quarries operated by the proponent in the past, either in the same location or elsewhere in the State with video and photographic evidences.
12. If the proponent has already carried out the mining activity in the proposed mining lease area after 15.01.2016, then the proponent shall furnish the following details from AD/DD, mines.
13. What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?
14. Quantity of minerals mined out.
 - Highest production achieved in any one year
 - Detail of approved depth of mining.
 - Actual depth of the mining achieved earlier.
 - Name of the person already mined in that leases area.
 - If EC and CTO already obtained, the copy of the same shall be submitted.
 - Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.
15. All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/Topo sheet, topographic sheet, geomorphology, lithology and geology of the mining lease area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).
16. The PP shall carry out Drone video survey covering the cluster, green belt, fencing, etc.,
17. The proponent shall furnish photographs of adequate fencing, green belt along the periphery including replantation of existing trees & safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan.
18. The Project Proponent shall provide the details of mineral reserves and mineable reserves, planned production capacity, proposed working methodology with justifications, the anticipated impacts of the mining operations on the surrounding environment, and the remedial measures for the same.


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19. The Project Proponent shall provide the Organization chart indicating the appointment of various statutory officials and other competent persons to be appointed as per the provisions of the Mines Act'1952 and the MMR, 1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment.
20. The Project Proponent shall conduct the hydro-geological study considering the contour map of the water table detailing the number of groundwater pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds, etc. within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD / TWAD so as to assess the impacts on the wells due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided.
21. The proponent shall furnish the baseline data for the environmental and ecological parameters with regard to surface water/ground water quality, air quality, soil quality & flora/fauna including traffic/vehicular movement study.
22. The Proponent shall carry out the Cumulative impact study due to mining operations carried out in the quarry specifically with reference to the specific environment in terms of soil health, biodiversity, air pollution, water pollution, climate change and flood control & health impacts. Accordingly, the Environment Management plan should be prepared keeping the concerned quarry and the surrounding habitations in the mind.
23. Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.
24. Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.


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25. Details of the land for storage of Overburden/Waste Dumps (or) Rejects outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be provided.
26. Proximity to Areas declared as 'Critically Polluted' (or) the Project areas which attracts the court restrictions for mining operations, should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the TNPCB (or) Dept. of Geology and Mining should be secured and furnished to the effect that the proposed mining activities could be considered.
27. Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.
28. Impact on local transport infrastructure due to the Project should be indicated.
29. A tree survey study shall be carried out (nos., name of the species, age, diameter etc.,) both within the mining lease applied area & 300m buffer zone and its management during mining activity.
30. A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.
31. As a part of the study of flora and fauna around the vicinity of the proposed site, the EIA coordinator shall strive to educate the local students on the importance of preserving local flora and fauna by involving them in the study, wherever possible.
32. The purpose of Green belt around the project is to capture the fugitive emissions, carbon sequestration and to attenuate the noise generated, in addition to improving the aesthetics. A wide range of indigenous plant species should be planted as given in the appendix-I in consultation with the DFO, State Agriculture University. The plant species with dense/moderate canopy of native origin should be chosen. Species of small/medium/tall trees alternating with shrubs should be planted in a mixed manner.
33. Taller/one year old Saplings raised in appropriate size of bags, preferably ecofriendly bags should be planted as per the advice of local forest authorities/botanist/Horticulturist with regard to site specific choices. The proponent shall earmark the greenbelt area with GPS coordinates all along the boundary of the project site with at least 3 meters wide and in between blocks in an organized manner


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34. A Disaster management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.
35. A Risk Assessment and management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.
36. Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.
37. Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.
38. The Socio-economic studies should be carried out within a 5 km buffer zone from the mining activity. Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.
39. Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.
40. Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.
41. If any quarrying operations were carried out in the proposed quarrying site for which now the EC is sought, the Project Proponent shall furnish the detailed compliance to EC conditions given in the previous EC with the site photographs which shall duly be certified by MoEF&CC, Regional Office, Chennai (or) the concerned DEE/TNPCB.
42. The PP shall prepare the EMP for the entire life of mine and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine.
43. Concealing any factual information or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of


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this Terms of Conditions besides attracting penal provisions in the Environment (Protection) Act, 1986.

Appendix -I
List of Native Trees Suggested for Planting

No	Scientific Name	Tamil Name	Tamil Name
1	<i>Aegle marmelos</i>	Vilvam	விளவம்
2	<i>Adenanthera pavonina</i>	Marjadi	மஞ்சாடி, ஆனைக்கூண்டுமணி
3	<i>Albizia lebbek</i>	Vaagai	வாளை
4	<i>Albizia amara</i>	Usil	உசில்
5	<i>Bauhinia purpurea</i>	Mantharai	மந்தாரை
6	<i>Bauhinia racemosa</i>	Aathi	ஆத்தி
7	<i>Bauhinia tomentosa</i>	Iruvathi	இருவாத்தி
8	<i>Buchanania axillaris</i>	Kattuna	காட்டுமா
9	<i>Borassus flabellifer</i>	Panai	பனை
10	<i>Butea monosperma</i>	Murukkamaram	முருக்கமரம்
11	<i>Bobax ceiba</i>	Ilavu, Sevvilavu	இலவு
12	<i>Calophyllum inophyllum</i>	Purnai	புனை
13	<i>Cassia fistula</i>	Sarakondrai	சரகொண்டரை
14	<i>Cassia roxburghii</i>	Sengondrai	செங்கொண்டரை
15	<i>Chloroxylon swietenia</i>	Purasamaram	புசாமரம்
16	<i>Cochlospermum religiosum</i>	Kongu, Marjallavu	கோங்கு, மஞ்சள் இலவு
17	<i>Cordia dichotoma</i>	Naruvuli	நருவூளி
18	<i>Creteva adansonii</i>	Mavalingum	மாவலங்கம்
19	<i>Dillenia indica</i>	Uva, Uzha	உவா
20	<i>Dillenia pentagyna</i>	SiruUva, Sitruzha	சீறு உவா
21	<i>Diospyro ebenum</i>	Karungali	கருங்காளி
22	<i>Diospyro schloroxylon</i>	Vaganai	வாகளை
23	<i>Ficus amplissima</i>	Kallichi	கல் இச்சி
24	<i>Hibiscus tiliaceou</i>	Aatrupoovarasu	ஆற்றுப்பூவரசு
25	<i>Hardwickia binata</i>	Aacha	ஆச்சா
26	<i>Holoptelia integrifolia</i>	Aayili	ஆயா மரம், ஆயிலி
27	<i>Lantana coromandélica</i>	Odham	ஓதீயம்
28	<i>Layerstroemia speciosa</i>	Poo Marudhu	பூ மருது
29	<i>Lepisanthus tetraphylla</i>	Neikottaimaram	நெய் கொட்டை மரம்
30	<i>Limonia acidissima</i>	Vila maram	வில்லா மரம்
31	<i>Litsea glutinosa</i>	Pizupattai	பிசுப்பா பிச்சிப்பட்டை
32	<i>Madhuca longifolia</i>	Illupai	இலுப்பை
33	<i>Mankara hexandra</i>	UlkaiPaalai	உலகை பாலை
34	<i>Mimusops elengi</i>	Magizhamaram	மகிழாமரம்
35	<i>Mitragyna parvifolia</i>	Kadambu	கடம்பு
36	<i>Morinda pubescens</i>	Nunia	நுணா
37	<i>Morinda citrifolia</i>	Vellai Nunia	வெள்ளை நுணா
38	<i>Phoenix sylvestre</i>	Eachai	எச்சமரம்
39	<i>Pongamia pinnat</i>	Pungam	புங்கம்

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40	<i>Premna mollisima</i>	Munru	முருகு
41	<i>Premna serratifolia</i>	Narunuru	நடு முருகு
42	<i>Premna tomentosa</i>	Malappoovarasu	மலர் முருகு
43	<i>Prosopis cinerea</i>	Vanni maram	வண்டி மரம்
44	<i>Pterocarpus marsupium</i>	Vengai	வேங்கை
45	<i>Pterospermum canescens</i>	Vennangu, Tada	வேண்டங்கு
46	<i>Pterospermum xylocarpum</i>	Polavu	புலவு
47	<i>Putranjiva roxburghii</i>	Karpala	கர்பலா
48	<i>Salvadora persica</i>	Ugaa Maram	உகை மரம்
49	<i>Sapindus emarginatus</i>	Manpungan, Soapuka	மண்புண்டை சோபுகா
50	<i>Saraca asoca</i>	Asoca	அசுகை
51	<i>Strobilus asper</i>	Piray maram	பிரை மரம்
52	<i>Strychnos nuxvomica</i>	Yethi	யேதி
53	<i>Strychnos potatorum</i>	Therthang Kottai	தேர்தங்க கெட்டை
54	<i>Syzygium cumini</i>	Naval	நாவல்
55	<i>Terminalia bellerica</i>	Thandri	தாந்திரி
56	<i>Terminalia arjuna</i>	Ven marudhu	வேள் மருது
57	<i>Toona ciliata</i>	Sandharia vembu	சாந்தாரி வேம்பு
58	<i>Thespesia populnea</i>	Puvarasu	புவராசு
59	<i>Walsuratrifoliata</i>	valoura	வால்லூரா
60	<i>Wrightia tinctoria</i>	Veppalai	வேப்பலை
61	<i>Pithecellobium dulce</i>	Kodukkapuli	கொடுக்கபுளி

Discussion by SEIAA and the Remarks:-

The subject was placed in the 658th Authority meeting held on 26.09.2023. The Authority noted that the subject was appraised in the 407th Meeting of SEAC held on 07.09.2023. After detailed discussions, the Authority accepts the recommendation of SEAC and decided to grant **Terms of Reference (ToR) along with Public Hearing** under cluster for undertaking the combined Environment Impact Assessment Study and preparation of separate Environment Management Plan subject to the conditions as recommended by SEAC & normal conditions and conditions in **Annexure 'B'** of this minutes in addition to the following conditions.

1. The kml uploaded by the PP shows that existence of dense flora and fauna. Hence, the flora and fauna to be listed by the PP and furnish the same. The action taken report also needed.
2. The PP shall obtain a letter from the Concerned Director of Agriculture stating that proposed mining activity has no impact on the surrounding Agriculture.
3. Also, the PP shall enumerate on the details of no. of trees available in the proposed project site and shall furnish the protection and conservation plan.


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Annexure 'B'**Cluster Management Committee**

1. Cluster Management Committee shall be framed which must include all the proponents in the cluster as members including the existing as well as proposed quarry.
2. The members must coordinate among themselves for the effective implementation of EMP as committed including Green Belt Development, Water sprinkling, tree plantation, blasting etc.,
3. The List of members of the committee formed shall be submitted to AD/Mines before the execution of mining lease and the same shall be updated every year to the AD/Mines.
4. Detailed Operational Plan must be submitted which must include the blasting frequency with respect to the nearby quarry situated in the cluster, the usage of haul roads by the individual quarry in the form of route map and network..
5. The committee shall deliberate on risk management plan pertaining to the cluster in a holistic manner especially during natural calamities like intense rain and the mitigation measures considering the inundation of the cluster and evacuation plan.
6. The Cluster Management Committee shall form Environmental Policy to practice sustainable mining in a scientific and systematic manner in accordance with the law. The role played by the committee in implementing the environmental policy devised shall be given in detail.
7. The committee shall furnish action plan regarding the restoration strategy with respect to the individual quarry falling under the cluster in a holistic manner.
8. The committee shall furnish the Emergency Management plan within the cluster.
9. The committee shall deliberate on the health of the workers/staff involved in the mining as well as the health of the public.
10. The committee shall furnish an action plan to achieve sustainable development goals with reference to water, sanitation & safety.
11. The committee shall furnish the fire safety and evacuation plan in the case of fire accidents.

Impact study of mining


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12. Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area covering the entire mine lease period as per precise area communication order issued from reputed research institutions on the following.
- Soil health & soil biological, physical land chemical features.
 - Climate change leading to Droughts, Floods etc.
 - Pollution leading to release of Greenhouse gases (GHG), rise in Temperature, & Livelihood of the local people.
 - Possibilities of water contamination and impact on aquatic ecosystem health.
 - Agriculture, Forestry & Traditional practices.
 - Hydrothermal/Geothermal effect due to destruction in the Environment.
 - Bio-geochemical processes and its foot prints including environmental stress.
 - Sediment geochemistry in the surface streams.

Agriculture & Agro-Biodiversity

- Impact on surrounding agricultural fields around the proposed mining Area.
- Impact on soil flora & vegetation around the project site.
- Details of type of vegetations including no. of trees & shrubs within the proposed mining area and. If so, transplantation of such vegetations all along the boundary of the proposed mining area shall committed mentioned in EMP.
- The Environmental Impact Assessment should study the biodiversity, the natural ecosystem, the soil micro flora, fauna and soil seed banks and suggest measures to maintain the natural Ecosystem.
- Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.
- The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands, Horticulture, Agriculture and livestock.

Forests

- The project proponent shall detailed study on impact of mining on Reserve forests free ranging wildlife.
- The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.
- The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection.


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22. The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site.

Water Environment

23. Hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) so as to assess the impacts on the nearby waterbodies due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided, covering the entire mine lease period.
24. Erosion Control measures.
25. Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area on the nearby Villages, Water-bodies/ Rivers, & any ecological fragile areas.
26. The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir.
27. The project proponent shall study and furnish the details on potential fragmentation impact on natural environment, by the activities.
28. The project proponent shall study and furnish the impact on aquatic plants and animals in water bodies and possible scars on the landscape, damages to nearby caves, heritage site, and archaeological sites possible land form changes visual and aesthetic impacts.
29. The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components.
30. The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites.

Energy

31. The measures taken to control Noise, Air, Water, Dust Control and steps adopted to efficiently utilise the Energy shall be furnished.

Climate Change

32. The Environmental Impact Assessment shall study in detail the carbon emission and also suggest the measures to mitigate carbon emission including development of carbon sinks and temperature reduction including control of other emission and climate mitigation activities.


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33. The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock.

Mine Closure Plan

34. Detailed Mine Closure Plan covering the entire mine lease period as per precise area communication order issued.

EMP

35. Detailed Environment Management Plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued.
36. The Environmental Impact Assessment should hold detailed study on EMP with budget for Green belt development and mine closure plan including disaster management plan.

Risk Assessment

37. To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining.

Disaster Management Plan

38. To furnish disaster management plan and disaster mitigation measures in regard to all aspects to avoid/reduce vulnerability to hazards & to cope with disaster/untoward accidents in & around the proposed mine lease area due to the proposed method of mining activity & its related activities covering the entire mine lease period as per precise area communication order issued.

Others

39. The project proponent shall furnish VAO certificate with reference to 300m radius regard to approved habitations, schools, Archaeological sites, Structures, railway lines, roads, water bodies such as streams, odai, vaari, canal, channel, river, lake pond, tank etc.
40. As per the MoEF& CC office memorandum F.No.22-65/2017-IA.III dated: 30.09.2020 and 20.10.2020 the proponent shall address the concerns raised during the public consultation and all the activities proposed shall be part of the Environment Management Plan.
41. The project proponent shall study and furnish the possible pollution due to plastic and microplastic on the environment. The ecological risks and impacts of plastic &


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microplastics on aquatic environment and fresh water systems due to activities, contemplated during mining may be investigated and reported.

A. STANDARD TERMS OF REFERENCE

- 1) Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification 1994 came into force, w.r.t. the highest production achieved prior to 1994.
- 2) A copy of the document in support of the fact that the Proponent is the rightful lessee of the mine should be given.
- 3) All documents including approved mine plan, EIA and Public Hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and should be in the name of the lessee.
- 4) All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/ topo sheet, topographic sheet, geomorphology and geology of the area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).
- 5) Information should be provided in Survey of India Topo sheet in 1:50,000 scale indicating geological map of the area, geomorphology of land forms of the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics.
- 6) Details about the land proposed for mining activities should be given with information as to whether mining conforms to the land use policy of the State; land diversion for mining should have approval from State land use board or the concerned authority.
- 7) It should be clearly stated whether the proponent Company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA Report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/ violation of the environmental or forest norms/ conditions? The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at


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large, may also be detailed in the EIA Report.

- 8) Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.
- 9) The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc. should be for the life of the mine / lease period.
- 10) Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.
- 11) Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.
- 12) Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area. In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees.
- 13) Status of forestry clearance for the broken up area and virgin forestland involved in the Project including deposition of Net Present Value (NPV) and Compensatory Afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.
- 14) Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.
- 15) The vegetation in the RF//PF areas in the study area, with necessary details, should be given.
- 16) A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding



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- and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted.
- 17) Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/ Elephant Reserves/(existing as well as proposed), if any, within 10 km of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished.
 - 18) A detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled-I fauna found in the study area, the necessary plan along with budgetary provisions for their conservation should be prepared in consultation with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost.
 - 19) Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravali Range', (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Department should be secured and furnished to the effect that the proposed mining activities could be considered.
 - 20) Similarly, for Coastal Projects, a CRZ map duly authenticated by one of the authorized agencies demarcating LTL, HTL, CRZ area, location of the mine lease with respect to CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).
 - 21) R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and


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- submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine lease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspects should be discussed in the Report.
- 22) One season (non-monsoon) [i.e. March-May (Summer Season); October-December (post monsoon season) ; December-February (winter season)] primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.
- 23) Air quality modeling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of Vehicles for transportation of mineral. The details of the model used and input parameters used for modeling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map.
- 24) The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated.
- 25) Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.
- 26) Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.
- 27) Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided.
- 28) Based on actual monitored data, it may clearly be shown whether working will intersect


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- groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter-alia, shall include details of the aquifers present and impact of mining activities on these aquifers. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.
- 29) Details of any stream, seasonal or otherwise, passing through the lease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be brought out.
 - 30) Information on site elevation, working depth, groundwater table etc. Should be provided both in AMSL and bgl. A schematic diagram may also be provided for the same.
 - 31) A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the Project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The details of plantation already done should be given. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution.
 - 32) Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines.
 - 33) Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.
 - 34) Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report.
 - 35) Occupational Health impacts of the Project should be anticipated and the proposed


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preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.

- 36) Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.
- 37) Measures of socio economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.
- 38) Detailed Environmental Management Plan (EMP) to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project.
- 39) Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.
- 40) Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.
- 41) The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.
- 42) A Disaster management Plan shall be prepared and included in the EIA/EMP Report.
- 43) Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.
- 44) Besides the above, the below mentioned general points are also to be followed:-
 - a) Executive Summary of the EIA/EMP Report
 - b) All documents to be properly referenced with index and continuous page numbering.
 - c) Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated.
 - d) Project Proponent shall enclose all the analysis/testing reports of water, air, soil,


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noise etc. using the MoEF&CC/NABL accredited laboratories. All the original analysis/testing reports should be available during appraisal of the Project.

- e) Where the documents provided are in a language other than English, an English translation should be provided.
- f) The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted.
- g) While preparing the EIA report, the instructions for the Proponents and instructions for the Consultants issued by MoEF&CC vide O.M. No. J-11013/41/2006-IA.II(I) dated 4th August, 2009, which are available on the website of this Ministry, should be followed.
- h) Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the PFR for securing the TOR) should be brought to the attention of MoEF&CC with reasons for such changes and permission should be sought, as the ToR may also have to be altered. Post Public Hearing changes in structure and content of the draft EIA/EMP (other than modifications arising out of the P.H. process) will entail conducting the PH again with the revised documentation.
- i) As per the circular no. J-11011/618/2010-IA.II(I) dated 30.5.2012, certified report of the status of compliance of the conditions stipulated in the Environment Clearance for the existing operations of the project, should be obtained from the Regional Office of Ministry of Environment, Forest and Climate Change, as may be applicable.
- j) The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and sections and (iii) sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area.

In addition to the above, the following shall be furnished:-

The Executive summary of the EIA/EMP report in about 8-10 pages should be prepared incorporating the information on following points:

1. Project name and location (Village, District, State, Industrial Estate (if applicable).
2. Process description in brief, specifically indicating the gaseous emission, liquid effluent and solid and hazardous wastes.
3. Measures for mitigating the impact on the environment and mode of discharge or


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disposal.

4. Capital cost of the project, estimated time of completion.
5. The proponent shall furnish the contour map of the water table detailing the number of wells located around the site and impacts on the wells due to mining activity.
6. A detailed study of the lithology of the mining lease area shall be furnished.
7. Details of village map, "A" register and FMB sketch shall be furnished.
8. Detailed mining closure plan for the proposed project approved by the Geology of Mining department shall be submitted along with EIA report.
9. Obtain a letter /certificate from the Assistant Director of Geology and Mining standing that there is no other Minerals/resources like sand in the quarrying area within the approved depth of mining and below depth of mining and the same shall be furnished in the EIA report.
10. EIA report should strictly follow the Environmental Impact Assessment Guidance Manual for Mining of Minerals published February 2010.
11. Detail plan on rehabilitation and reclamation carried out for the stabilization and restoration of the mined areas.
12. The EIA study report shall include the surrounding mining activity, if any.
13. Modeling study for Air, Water and noise shall be carried out in this field and incremental increase in the above study shall be substantiated with mitigation measures.
14. A study on the geological resources available shall be carried out and reported.
15. A specific study on agriculture & livelihood shall be carried out and reported.
16. Impact of soil erosion, soil physical chemical and biological property changes may be assumed.
17. Site selected for the project - Nature of land - Agricultural (single/double crop), barren, Govt./ private land, status of acquisition, nearby (in 2-3 km.) water body, population, with in 10km other industries, forest, eco-sensitive zones, accessibility, (note - in case of industrial estate this information may not be necessary)
18. Baseline environmental data - air quality, surface and ground water quality, soil characteristic, flora and fauna, socio-economic condition of the nearby population
19. Identification of hazards in handling, processing and storage of hazardous material and safety system provided to mitigate the risk.
20. Likely impact of the project on air, water, land, flora-fauna and nearby population


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SEIAA-TN

21. Emergency preparedness plan in case of natural or in plant emergencies
22. Issues raised during public hearing (if applicable) and response given
23. CER plan with proposed expenditure.
24. Occupational Health Measures
25. Post project monitoring plan
26. The project proponent shall carry out detailed hydro geological study through intuitions/NABET Accredited agencies.
27. A detailed report on the green belt development already undertaken is to be furnished and also submit the proposal for green belt activities.
28. The proponent shall propose the suitable control measure to control the fugitive emissions during the operations of the mines.
29. A specific study should include impact on flora & fauna, disturbance to migratory pattern of animals.
30. Reserve funds should be earmarked for proper closure plan.
31. A detailed plan on plastic waste management shall be furnished. Further, the proponent should strictly comply with, Tamil Nadu Government Order (Ms) No.84 Environment and forests (EC.2) Department dated 25.06.2018 regarding ban on one time use and throw away plastics irrespective of thickness with effect from 01.01.2019 under Environment (Protection) Act, 1986. In this connection, the project proponent has to furnish the action plan.

Besides the above, the below mentioned general points should also be followed:-

- a. A note confirming compliance of the TOR, with cross referencing of the relevant sections / pages of the EIA report should be provided.
- b. All documents may be properly referenced with index, page numbers and continuous page numbering.
- c. Where data are presented in the report especially in tables, the period in which the data were collected and the sources should be indicated.
- d. While preparing the EIA report, the instructions for the proponents and instructions for the consultants issued by MoEF& CC vide O.M. No. J-11013/41/2006-IA.II (I) dated 4th August, 2009, which are available on the website of this Ministry should also be followed.


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e. The consultants involved in the preparation of EIA/EMP report after accreditation with Quality Council of India (QCI)/National Accreditation Board of Education and Training (NABET) would need to include a certificate in this regard in the EIA/EMP reports prepared by them and data provided by other organization/Laboratories including their status of approvals etc. In this regard circular no F. No.J -11013/77/2004-IA-II(I) dated 2nd December, 2009, 18th March 2010, 28th May 2010, 28th June 2010, 31st December 2010 & 30th September 2011 posted on the Ministry's website <http://www.moef.nic.in/> may be referred.

- After preparing the EIA (as per the generic structure prescribed in Appendix-III of the EIA Notification, 2006) covering the above mentioned points, the proponent will take further necessary action for obtaining environmental clearance in accordance with the procedure prescribed under the EIA Notification, 2006.
- The final EIA report shall be submitted to the SEIAA, Tamil Nadu for obtaining Environmental Clearance.
- The TORs with public hearing prescribed shall be **valid for a period of three years** from the date of issue, for submission of the EIA/EMP report as per OMNo.J-11013/41/2006-IA-II(I)(part) dated 29th August, 2017.


MEMBER SECRETARY
SEIAA-TN

Copy to:

1. The Additional Chief Secretary to Government, Environment & Forests Department, Govt. of Tamil Nadu, Fort St. George, Chennai - 9
2. The Chairman, Central Pollution Control Board, Parivesh Bhavan, CBD Cum-Office Complex, East Arjun Nagar, New Delhi 110032.
3. The Member Secretary, Tamil Nadu Pollution Control Board, 76, Mount Salai, Guindy, Chennai-600 032.
4. The APCCF (C), Regional Office, MoEF & CC (SZ), 34, HEPC Building, 1st & 2nd Floor, Cathedral Garden Road, Nungambakkam, Chennai -34.
5. Monitoring Cell, IA Division, Ministry of Environment, Forests & CC,

Paryavaran Bhavan, CGO Complex, New Delhi 110003

6. The District Collector, Krishnagiri District.
7. Stock File.

From

Dr. S.Vediappan, M.Sc.,Phd.,
Deputy Director,
Dept of Geology and Mining,
Krishnagiri.

To

Thiru.M.KowshikDhev,
S/o.D.Mathiazhagan,
No.58-B, Gandhi Nagar,
Krishnagiri Taluk & District.

Roc.No.1045/2020 /Mines dated: 02.06.2023.

Sir,

Sub: Mines and Minerals – Krishnagiri District – Colour Granite
- Tender Cum Auction for Granite quarries conducted
under the provisions of rule 8(A) of TNMMCR 1959 on
07.11.2020 – Colour Granite quarry area over an extent of
1.98.0 hecets of Government land in S.F.No. 333 (Part) in
Shoolamalai village, Bargur Taluk, Krishnagiri District -
Precise area communicated to the highest bidder
Thiru.M.KowshikDhev – Mining Plan approved - Details of
quarries situated within 500 mts radial distance –
Requested by the applicant– Details furnished - reg.

Ref: 1. The District Collector, Krishnagiri, Roc.
No.1045/2020/Mines, dated: 03.12.2020.
2. The Principal Sectary to Government, Industries (MME-
2), Department, Secretariat, Chennai – 600009 Lr. No.
893/MME-2/2021- 1, dated:26.02.2021.
3. Mining plan approved by the Commissioner of Geology
and Mining in letter No. 6941/MM4/2020 Dated:
17.05.2023.
4. Thiru.M.KowshikDhev, letter dated: 02.06.2023.

Kind attention is invited to the reference cited.

2) Tender Cum Auction was conducted in Krishnagiri District on
07.11.2020 for Colour granite quarry area situated over an extent of 1.98.0
hect of Government land in S.F.No.333 (Part) of Shoolamalai village, Bargur
Taluk, Krishnagiri District. Thiru.M.KowshikDhev, had offered a highest
bid/tender amount of Rs.1,93,00,000/- as one time lease amount. Hence
necessary proposals had been forwarded by the District Collector to the
Government through the Commissioner of Geology and Mining, Chennai for

grant of Colour granite quarry lease in favour of the highest bidder Thiru.M.KowshikDhev over the subject area for a period of 20 years vide letter dated: 03.12.2020.

3. Government had issued precise area vide letter dated: 26.02.2021 with a direction to submit approved mining plan.

4. Accordingly, the applicant has submitted draft Mining plan and the same has approved by the Commissioner of Geology and Mining in letter dated: 17.05.2023.

5. In this connection, the details of quarries situated within 500mts for the subject quarry requested by the applicant vide letter dated: 02.06.2023 to furnish the same before SELAA in orders to get Environmental Clearance.

6. As requested by the applicant the details of quarries situated within 500m radius is furnished as follows:

I. Details of Existing quarries.

Sl. No	Name of the Lessee and address	Mineral	GO No & Date	Taluk & Village	S.F.No & Extent	Period of lease	Last Permit Obtained
1.	B.S.Ravi	Colour Granite	GO 3D No.30 Ind. (MMB3) Dept dt. 2.2.2006	Soolamalai, Bargur Taluk	339/2 1.19.00	27.03.2006 to 26.03.2026	19.10.2014
2.	D. Rukkammal	Colour Granite	GO (3D) No. 34 Ind.(MME-2) Dept. Dt.3.10.2009	Soolamalai, Bargur Taluk	335/4A1 1.20.00	14.12.2009 to 13.12.2029	13.12.2013
3.	Varalakshmi	Colour Granite	G.O (3D) No 24 Industries (MME.2) Department Dated 16.04.2018	Soolamalai, Bargur Taluk	335/4B, 341/4 1.08.50	14.06.2018 to 13.06.2038	08.06.2023

II. Details of abandoned/Old quarries.

Sl. No.	Name of the lessee	GO.No. & Dated	Village & Taluk	S.F No.	Extent in Het	Lease period.
1.	B.C. Krishnan	G.O.2D.No.98 Ind. Dept., dated:30.05.1995	Soolamalai, Bargur Taluk	335/2	0.40.50	26.06.1995 to 25.06.2005

III. Details of other Proposed/applied quarries

Sl. No.	Name of the lessee	Mineral	GO.No. & Dated	Village & Taluk	S.F No.	Extent in Het	Lease period
1.	Thiru.M.KowshikDhev, S/o.D.Mathiazhagan, No.58-B, Gandhi Nagar, Krishnagiri Taluk & District.	Colour Granite	Rc.no, 1045/2020/ Mines, dated: 03.12.2020.	Soolamalai, Bargur Taluk	333 (P)	1.98.0	Mining plan approved
2.	M/s.Bismillah Exports	Colour Granite	----	Soolamalai, Bargur Taluk	339/1(P)	1.02.0	Mining plan approved
3.	Salman Sathar	Colour Granite	----	Soolamalai, Bargur Taluk	341/1(P)	1.36.80	Mining plan approved
4.	M/s. TAMIN	Colour Granite	----	Soolamalai, Bargur Taluk	283 (P)	34.35.5	Mining plan forwarded to Directorate, Chennai.

[Signature]
Deputy Director,

Dept of Geology and Mining,
Krishnagiri.

Copy to :-

The Chairman, Tamil Nadu State Environment
Impact Assessment Authority,
3rd Floor, Panakal Maligai,
No. 1 Jeenes Road, Saidapet,
Chennai -15.

சான்று

சி.குஷ்ணகிரி மாவட்டம் பர்கர் வட்டம் பாலையாச்சி உள்வட்டம்
12. குலாமலை தர்ப்பு கிராம புல எண் 333 கமர்த்த பர்ப்பு
4-61-50 கமர்த்தபர்ப்பு 1.98.00 கமர்த்த பர்ப்பு கமர்த்த மட்டம்
சுமையுள்ள கமர்த்த தேய் அப்பவருக்கே கமர்த்தமகா
பலவண்ண கிராம கமர்த்த கமர்த்த கமர்த்த 20 மீ கமர்த்தமகா
கமர்த்தமகா பகர்த்தமகா, கமர்த்தமகா, கமர்த்தமகா, கமர்த்தமகா
கமர்த்தமகா கமர்த்த கிராம கமர்த்தமகா கமர்த்தமகா கமர்த்தமகா
கமர்த்தமகா கமர்த்த கமர்த்தமகா கமர்த்தமகா கமர்த்தமகா

ச. குஷ்ண
11/7/20
கிராம நிர்வாக அலுவலர்
12, குலாமலை
பர்கர்-வட்டம்
சி.குஷ்ணகிரி-மாவட்டம்,

**TOPOGRAPHICAL VIEW OF SHOOLAMALAI
COLOUR GRANITE QUARRY LEASE AREA**




Name of the Lessee : **M. KowshikDhev,**
Address : No. 58-B, Gandhi Nagar,
Krishnagiri District,
Tamil Nadu State - 635 001.

LOCATION DETAILS

Extent : 1.98.0 ha
S.F.No. : 333 (P)
Village : Shoolamalai
Taluk : Bargur
District : Krishnagiri
State : Tamil Nadu

Signature of the lessee


(M. KowshikDhev)


(Witness)
கிராம நிர்வாக அலுவலர்
12, குடியலை
பர்சூர்-வட்டம்
கிருஷ்ணகிரி-மாவட்டம்.

COMMISSIONERATE OF GEOLOGY AND MINING

From

Thiru J.Jayakanthan, I.A.S.,
Commissioner of Geology and Mining,
Industrial Estate,
Guindy,
Chennai - 600 032.

To

Thiru. M.Kowshik Dhev,
S/o. D.Mathizhagan,
No.58-B, Gandhi Nagar,
Krishnagiri- 635 001.

Rc.No. 6941/MM4/2020 Dated .05.2023

Sir,

Sub: Mines and Minerals - Minor Mineral - Colour Granite -
Krishnagiri district - Tender Cum Auction for Granite
quarries conducted under the provisions of rule 8-Aof
TNMMCR 1959 on 07.11.2020 -over an extent of 1.98.0
ha of Government land in S.F.No.333 (Part) in
Shoolamalai village, Bargur taluk, Krishnagiri district -
Precise area communicated to the highest bidder
Thiru.M.KowshikDhev- Draft Mining Plan submitted by
the applicant - Forwarded by the Deputy Director (G&M),
Krishnagiri - Approval accorded.

- Ref: 1. Krishnagiri district Gazette Extraordinary issue in
English No.20 and Tamil No.35 dated: 09.10.2020.
2. Application of the Thiru.M.KowshikDhev,
S/o.D.Mathiazhagan, dated: 07.11.2020 and two
others.
3. The Commissioner of Geology and Mining, N.F.
Rc.No. 6941/MM4/2020 dated 22.01.2021.
4. The Principal Secretary to Government, Industries
(MME.2) Department, Secretariat, Chennai -
600009 Lr.No.893/ MME.2/2021-1, dated:
26.02.2021.
5. Draft Mining Plan Submitted by
Thiru.M.KowshikDhev, dated: 03.05.2021.
6. The District Collector, Krishnagiri Letter
Rc.No.1045/2020/Mines dated 02.07.2021.

7. Writ Petition filed by Thiru A. Chellakumar before Hon'ble High Court Madras in W.P.No. 16060/2020.
8. Writ Petition filed by Thiru R. Thamaraiselvan before Hon'ble High Court Madras in W.P.No. 13811/2020
9. The Commissioner of Geology and Mining, Chennai Lr.Rc.No.3256/MM4/2022 dated: 05.01.2023.
10. The Deputy Director (G&M), Krishnagiri letter Rc.No.1045/2020/Mines dated 13.02.2023.

-oOo-

Kind attention invited to the above references cited.

2) The applicant Thiru.M.KowsikDhev vide reference 5th cited had submitted the draft mining plan to district office on 03.05.2021 for colour granite quarry area situated over an extent of 1.98.0 ha of Government land in S.F.No.333 (Part) of Shoolamalai village, Bargur taluk, Krishnagiri district.

3) The Deputy Director (G&M), Krishnagiri has forwarded the mining plan submitted by the applicant Thiru.M.KowsikDhev and reported as follows.,

- i. Tender Cum Auction was conducted in Krishnagiri district on 07.11.2020 for colour granite quarry area situated over an extent of 1.98.0 ha of Government land in S.F.No.333 (Part) of Shoolamalai village, Bargur taluk, Krishnagiri district under the rule 8-A of Tamilnadu Minor Mineral Concession Rules, 1959.
- ii. Thiru.M.KowshikDhev, had offered a highest bid/tender amount of Rs.1,93,00,000/- as one time lease amount. Hence necessary proposals had been forwarded by the District Collector, Krishnagiri to the Government through the Commissioner of Geology and Mining, Chennai for grant of Colour granite quarry lease infavour of the highest bidder

Thiru.M.KowshikDhev over the subject area for a period of 20 years vide letter dated: 03.12.2020.

- iii. The Government after detailed examination has issued precise area vide reference 4th cited dated 26.02.2021 for the proposed grant of colour granite quarry lease in favour of the highest bidder over an extent of 1.98.0 ha in Government land in S.F.No. 333(P) of Shoolamalai village, Bargur taluk, Krishnagiri district and directed the highest bidder Thiru. M.KowshikDhev to remit the balance amount of Rs.1,68,00,000/- (Rupees One Crore Sixty-Eight Lakhs Only) within one month from the date of receipt of the communication after deducting the EMD of Rs. 25,00,000/- already remitted by the applicant and directed to submit the approved mining plan and Environmental Clearance.
- iv. Thiru.M.KowshikDhev, vide letter dated 05.04.2021 has stated that they had received the precise area communication letter from the Government and had submitted the balance amount Rs. 1,68,00,000/- through the Demand Draft No. 577968 dated 03.04.2021 to district office and the same had been remitted to the Government account.
- v. In response to the Government letter, the applicant had submitted 6 copies of draft mining plan vide reference 5th cited, duly prepared by the qualified person on 03.05.2021 for approval. The said mining plan had been scrutinized and it is found that some corrections are needed in it and hence, the draft mining plan had been returned to the applicant with direction to make corrections.
- vi. In this stage the applicant Thiru.KowshikDhev vide letter dated 15.06.2021, stated that due to the spreading of covid 2nd wave

and due to imposition of lockdown it was not possible for them to submit the correct draft mining plan for approval within the prescribed time limit. The representation was forwarded by the District Collector, Krishnagiri vide letter dated 02.07.2021 and the orders from the Government is awaited.

- vii. Further, the Commissioner of Geology and Mining, Chennai vide letter dated 05.01.2023 has instructed to forward all the pending mining plans and scheme of mining plan to Commissionerate immediately for taking further action.
- viii. The draft mining plan submitted by the applicant have been verified by the Assistant Geologist (G&M), Krishnagiri with reference to field conditions. The draft mining plan has been prepared by the Recognized Qualified person. The details such as Geological Reserves, Mineable Reserves, Year wise production and Development programme have been incorporated in the draft mining plan. The special conditions imposed in the precise area communication are also incorporated in the draft mining plan.
- ix. The year wise production quantity mention in the mining plan is given as detailed below.

Year	Rom (m³)	Recovery @ 20% (m³)
1 st Year	8008	1602
2 nd Year	7700	1540
3 rd Year	8375	1675
4 th Year	9350	1870
5 th Year	9780	1956
Total	43213	8643

- x. Further, other quarries situated within 500m radial distance are as follows.

Sl. No	Name of the Lessee and address	Mineral	Go.No& Date	Taluk& Village	S.F.No & Extent	Period of lease
1	Thiru.M.Kows hikDhev S/o Mathiazhagan, No.58- B,Gandhi Nagar, Krishnagiri	Colour Granite	Rc.No. 1045/ 2020/Mines	Shoolama lai Village, Bargur	333(P) & 1.98.0 hects	Instant Proposal (Precise area given)
2	M/s. Bismillah Exports	Colour Granite	-----	Shoolama lai Village, Bargur	339/1(P)1.02. 0 hects	Precise area given
3	Salman Sathar	Colour Granite	-----	Shoolama lai Village, Bargur	341/1(P)1.36. 80 hects	Precise area given
4	B.S.Ravi	Colour Granite	G.O 3D.No. 30 Ind.(MMB3)D ept dated. 02.02.2006	Shoolama lai Village, Bargur	339/2 1.19.0 0 hects	27.03.2006 to 26.03.2026
5	D.Rukkammal	Colour Granite	G.O 3D.No. 34 Ind.(MMB3)D ept dated. 03.10.2009	Shoolama lai Village, Bargur	335/4 A1 1.20.0 0 hects	14.12.2009 To 13.12.2029
6	Varalakshmi	Colour Granite	G.O 3D.No. 24 Ind.(MMB3)D ept dated. 16.04.2018	Shoolama lai Village, Bargur	335/4 B,341/ 4 1.08.5 0 hects	14.06.2018 To 13.06.2038
7	M/s Tamin	Colour Granite	G.O. 2 .No. 68 Ind.(MMB3)D ept dated. 30.03.1999	Shoolama lai Village, Bargur	283, 34.35. 5 hects	21.06.1999 To 20.06.2019
8	B.C. Krishnan	Colour Granite	G.O 2D.No. 98 Ind.(MMB3) Dept dated. 30.05.945	Shoolama lai Village, Bargur	335/2 0.40.5 0 hects	26.06.1995 To 25.06.2005

- xi. There are no archeological monuments within 300m radius and no Wild life sanctuary within 1 km radius.
- xii. Hence, the Deputy Director (G&M), Krishnagiri has forwarded the Mining plan submitted by the applicant

Thiru.M.KowshikDhev in respect of Govt land S.F.No 333 (P) of Shoolamalai village for approval, subject to the condition that,

- The applicant should obtain prior environmental clearance from the competent authority.
- The applicant should obey the final orders if any passed by the Hon'ble High Court of Madras in connection with the pending writ petitions filed against the Tender Cum Action conducted for the grant of quarry leases in Govt land in respect of Granite.

Finally, the Deputy Director (G&M), Krishnagiri has forwarded the Mining Plan submitted by the applicant Thiru.M.KowshikDhev to the Commissioner of Geology and Mining for approval.

5) The mining plan is in accordance with the precise area communicated for grant of lease to the subject area. Based on the report of the Deputy Director (G&M), Krishnagiri district, the Mining plan submitted by Thiru.M.KowshikDhev is hereby approved subject to the following conditions in addition to the conditions stipulated in the precise area communication issued by the Government:

- i. The applicant should obtain prior environmental clearance from the competent authority.
- ii. The applicant should obey the final orders if any passed by the Hon'ble High Court of Madras in connection with the pending writ petitions filed against the Tender Cum Action conducted for the grant of quarry leases in Govt land in respect of Granite.
- iii. This mining plan is approved without prejudice to any other Law applicable to the quarry lease from time to time whether such Laws are made by the Central Government, State Government or any other authority.

- iv. The approval of the mining plan does not in any way imply the approval of the Government in terms of any other provisions of the Mines and Minerals (Development and Regulation) Act 1957, or any other connected laws including Forest (Conservation) Act, 1980, Forest Conservation Rules, 1981, Environment Protection Act, 1980, Indian Explosives Act, 1884 (Central Act IV of 1884) and the rules made there under and the Tamil Nadu Minor Mineral Concession Rules, 1959.
- v. This mining plan including Progressive mine closure plan is approved without prejudice to any other order or direction from any court of competent jurisdiction.
- vi. Provisions of the Mines Act, 1952 and the Rules and Regulations made there under including submission of notice of opening, appointment of manager and other statutory officials as required under Mines Act, 1952 shall be complied with.
- vii. Provisions made under Mines and Minerals (Development & Regulation) Act, 1957, MMDR Amendment Act, 2015 and Granite conservation and Development Rules, 1999 made there under shall be complied with.
- viii. The applicant should provide 7.5 m safety distance to the adjacent patta lands in all the sides.
- ix. Granite waste materials should be dumped within the quarry lease area and should not be dumped outside the boundary of the lease area.
- x. No hindrance should be caused to the adjacent pattadhars and public while quarrying and transportation of minerals from the subject area.
- xi. Environmental Clearance should be obtained from the authority in respect of the subject area as per rule 42 of the Tamil Nadu

Minor Mineral Concession Rules, 1959 and as per the notification of the Ministry of Environment and Forest and any other clearances if any.

- xii. The four boundaries of the applied area are fixed and the quarrying activity should be restricted within the area granted on lease.
- xiii. The applicant should fence the lease granted area with barbed wire before the execution of lease deed as follows: -
 - The pillar post shall be firmly grounded with concrete foundation of height not less than 2mts with a distance between two pillars shall not be more than 3mts.
 - The applicant shall incorporate the DGPS readings for the entire boundary pillars of the area and the same should be clearly shown in the mining plan.
 - A soft copy of the digitized map with DGPS readings should be submitted in the CD to the Deputy Director (G&M), Krishnagiri.
- xiv. Barbed wire fencing or Compound wall should be erected all along the boundary of the lease granted area.
- xv. The applicant should use mild explosives during quarrying.
- xvi. The applicant should ensure that while starting the quarry work, all the quarry workers working under their control are registered in the Labour Welfare Board and also enrolled in the ongoing insurance scheme.
- xvii. The conditions mentioned in G.O. (Ms) No.79, Industries (MMC.1) Department, dated 06.04.2015 should be complied with.
- xviii. The applicant should comply with the conditions stipulated in the Government of India, Ministry of Mines order No.11/02/2020, dated 14.01.2020 issued as per the orders of the Hon'ble Supreme Court of India dated 08.01.2020 that, "the mining leaseholders shall after ceasing mining operations,

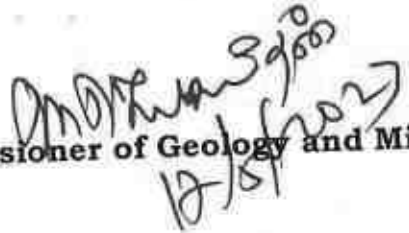
undertake re-grassing the mining area and any other area which may have been disturbed due to this mining activities and restore the land to a condition which is fit for growth of fodders, flora and fauna etc."

- xix. The applicant shall submit scheme of mining, mine closure plan and other statutory requirements within the time stipulated for submission of the above, as per rules.
- xx. If any violation is found during quarrying operation, the penal provisions of the Tamil Nadu Minor Mineral Concession Rules, 1959 and other rules and act in force will attract.
- xxi. As per rule 12 (v) of the Mineral (other than Atomic and Hydro Carbons Energy Minerals) Concession Rules, 2016, the applicant shall at his own expense, erect, maintain and keep in repair all boundary pillars.
- xxii. Quarrying activity should be carried out from 07.00 AM to 05.00 PM only.
- xxiii. A Green belt should be constructed to prevent sound and air pollution due to the proposed quarrying activity by planting at least 500 seedlings of Neem and Pungan all around the area.
- xxiv. The applicant may use mild explosives during quarrying, and storing of explosives if required, by obtaining valid licence under Explosive Act and Rules.
- xxv. If any violation is found during quarrying operation, the penal provisions of Tamil Nadu Minor Mineral Concession Rules, 1959 and other rules and act in force will attract.
- xxvi. Child labour should not be engaged in the quarry works and the quarry workers should be enrolled in the insurance scheme through the Labour Department.

xxvii. The applicant should carry out DGPS survey and erection of RCC boundary pillars as per the norms stipulated in the EOI notification in Rc.No.2921/MM4/2019 dated.01.02.2018 and subsequent corrigendum dated 13.08.2019 through the empanelled agencies.

xxviii. The applicant should follow the mining method during the quarrying operation as mentioned in the mining plan.

Encl: Two copies of Approved Mining Plan


Commissioner of Geology and Mining

Copy Submitted to:

The Additional Chief Secretary
to Government,
Industries, Investment Promotion
and Commerce Department,
Secretariat,
Chennai-600009.

Copy to

1. The District Collector,
Krishnagiri District.

MINING PLAN FOR SHOOLAMALAI COLOUR GRANITE

(Under Rule 8-A of TNMMCR 1959 & Rule 12 of GCDR, 1999)

EXTENT : 1.98.0 HA
S.F. NO : 333 (PART)
VILLAGE : SHOOLAMALAI
TALUK : BARGUR
DISTRICT : KRISHNAGIRI
STATE : TAMIL NADU

APPLICANT

THIRU. M. KOWSHIK DHEV,
S/o. D. MATHIAZHAGAN,
.No. 58-B, GANDHI NAGAR,
KRISHNAGIRI – 635 001.

Prepared by

S. DHANASEKAR, M.Sc.(Geol),M.M.E.A.I.,

QUALIFIED PERSON,
NO. 5/30-7 B, AVVAI NAGAR,
PONKUMAR MINES ROAD,
JAGIR AMMAPALAYAM,
SALEM DISTRICT – 636 302.

E-mail: geodhana@yahoo.co.in

CELL: 98946 28970 & 73733-74702.





M. KOWSHIK DHEV,
S/o. D. MATHIAZHAGAN,
No.58-B, GANDHI NAGAR,
KRISHNAGIRI - 635 001.

CONSENT LETTER FROM APPLICANT

The Mining Plan in respect of Colour Granite Quarry over an Extent of 1.98.0Ha. of Government Poramboke Land in S.F. No.333 (Part) in Shoolamalai Village, Bargur Taluk, Krishnagiri District, Tamilnadu State has been prepared by Mr. S.Dhanasekar.M.Sc., Qualified Person.

I request the Director, Department of Geology and Mining, Chennai to make further correspondence regarding the modification/clarification in respect of the Mining Plan with the said Qualified Person at the following address.

S.Dhanasekar.M.Sc.,(Geol),M.M.E.A.I.,
Qualified Person,
No.5/30-7B, Avvai Nagar,
Ponkumar Mines Road,
Jagirammalayam,
Salem- 636 302.

I hereby undertake that all the modifications, if any made in the mining plan by the Qualified Person may be deemed to have been made with my knowledge and consent and shall be acceptable to me and binding on me in all respects.


(M. KOWSHIK DHEV)
Signature of the Applicant

Place: Krishnagiri
Date:



M. KOWSHIK DHEV,
S/o. D. MATHIAZHAGAN,
No.58-B, GANDHI NAGAR,
KRISHNAGIRI – 635 001.

DECLARATION OF MINE OWNER

The Mining Plan in respect of Colour Granite Quarry over an Extent of 1.98.0Ha. of Government Poramboke land in S.F. No.333 (Part) in Shoolamalai Village, Bargur Taluk, Krishnagiri District, Tamilnadu State has been prepared in full consultation with me by Mr. S.Dhanasekar.M.Sc., Qualified Person.

I have understood its contents and agree to implement the same in accordance with Laws applicable to Mines.

M. Kowshik Dhev
(M. KOWSHIK DHEV)
Signature of the Applicant

Place: Krishnagiri
Date:



S.Dhanasekar.M.Sc.,(Geol),M.M.E.A.I.,
Qualified Person,
No.5/30-7B, Avvai Nagar,
Ponkumar Mines Road,
Jagirammalayam,
Salem- 636 302.

CERTIFICATE FROM THE QUALIFIED PERSON

This is to certify that the Provisions of Granite Conservation and Development Rules, 1999 and Tamil Nadu Minor Mineral Concession Rules, 1959 have been observed in the preparation of Mining Plan for Colour Granite Quarry over an Extent of 1.98.0Ha. of Government Poramboke Land in S.F.No.333 (Part) in Shoolamalai Village, Bargur Taluk, Krishnagiri District, Tamilnadu State . The Mining Plan has been prepared for Thiru. M. Kowshik Dhev, S/o. D. Mathiazhagan, No. 58-B, Gandhi Nagar, Krishnagiri – 635 001.

Whenever specific permissions/exemptions/ relaxations and approvals are required, the applicant will approach the concerned authorities of Department of Geology and Mining, Government of Tamilnadu, Guindy, Chennai– 600 032 for such permissions/ exemptions /relaxations and approvals.

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

Certified

Signature of Qualified Person.

S.DHANASEKAR, M.Sc.,(Geo)

Qualified Person

Place: Salem,

Date:



S.Dhanasekar.M.Sc.,(Geol),M.M.E.A.I.,
Qualified Person,
No.5/30-7B, Avvai Nagar,
Ponkumar Mines Road,
Jagirampalayam,
Salem- 636 302.

CERTIFICATE FROM THE QUALIFIED PERSON

Certified that the Provisions of Mines Act, Rules and Regulations made there under have been observed in the preparation of Mining Plan for Colour Granite over an Extent of 1.98.0Ha. of Government Poramboke land in S.F.No.333 (Part) in Shoolamalai Village, Bargur Taluk, Krishnagiri District, Tamilnadu. This Mining Plan has been prepared for Thiru. M. Kowshik Dhev, S/o. D. Mathiazhagan, No. 58-B, Gandhi Nagar, Krishnagiri - 635 001.

Wherever specific permissions/exemptions/ relaxations and approvals are required, the applicant will approach the concerned authorities of the Director General of Mines Safety (DGMS), No. 5, IInd Street, Block – AA, Anna Nagar, Chennai, Tamil Nadu for such permissions/ exemptions /relaxations and approvals.

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

Certified


Signature of Qualified Person.

S.DHANASEKAR, M.Sc.,(Geo)
Qualified Person

Place: Salem,
Date:



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MINING PLAN FOR SHOOLAMALAI COLOUR GRANITE

(Under Rule 8-A of TNMMCR 1959 & Rule 12 of Granite Conservation and Development Rules, 1999)

I. INTRODUCTION:

The present mining plan and Environmental Management Plan has been prepared in favour of **Thiru. M. Kowshik Dhev, S/o. Thiru. D. Mathiazhagan, No. 58-B, Gandhi Nagar, Krishnagiri District - 635 001** who has been granted to quarry **Colour Granite** over an Extent of **1.98.0 Ha** in S.F. No. **333 (Part)** in **Shoolamalai Village, Bargur Taluk, Krishnagiri District** for a period of twenty years vide the precise area communication **letter No.893/MME.2/2021-1 dated 26.02.2021** With the following conditions

- 1) A safety distance of 50 meters shall be provided to the low tension EB line passing on the North side and West side, a house and tombs on the North east corner of the lease area.
- 2) No hindrance shall be made to the odal situated on the east side at a distance of 50 meters away from the lease area.
- 3) A safety distance of 10 meters to the Government lands shall be provided.
- 4) A safety distance of 7.5 meters to the adjacent patta lands to be maintained and should not cause any hindrance to them while quarrying and transportation.
- 5) All conditions stipulated in the District Gazette Extra ordinary notification English No.20 and Tamil No.35 dated 09.10.2020 should be adhered by the Tender applicants/Bidders.
- 6) The waste materials generated during the course of quarrying should be dumped only within the lease hold area.
- 7) Environmental Clearance should be obtained from the State Level Environmental Impact Assessment Authority before grant of quarry lease as per Rule 42 of the Tamil Nadu Minor Mineral Concession Rules, 1959.
- 8) The applicant firm should fence the lease granted area with barbed wire before the execution of lease deed as follows:-
 - The pillar post shall be firmly grounded with concrete foundation of height not less than 2 meters with a distance between two pillars shall not be more than 3 meters.
 - The applicant firm shall incorporate the DGPS readings for the entire boundary Pillars of the lease area and the same should be clearly shown in the mining plan.


S.DHANASEKAR, M.Sc.(Geo)
 Qualified Person



- A soft copy of the digitized map with DGPS readings should be submitted in the CD form of the Assistant Director (I/c), Krishnagiri.
- 9) The District Administration and Geology and Mining Department should ensure the conditions imposed in G.O.(Ms).No.79, Industries Department, dated 06.04.2015.
 - 10) As per Rule 12(V) of Minerals (other than Atomic & Hydrocarbon Energy Minerals) Concession Rules, 2016, the applicant firm shall at their own expenses erect, maintain and keep in repair all the boundary pillars.
 - 11) The applicant firm should use mild explosives during quarrying.
 - 12) Child Labourers should not be engaged in quarry works.
 - 13) If any violation is found during quarrying operation, the penal provisions of the Tamil Nadu Minor Mineral Concession Rules, 1959 and other rules and act in force will attract.
 - 14) The applicant firm should ensure that while starting the quarry work, all the quarry workers working under his control are registered in the Labour Welfare Board and also enrolled in the ongoing insurance scheme.
 - 15) The District Collector, Krishnagiri shall obtain a sworn-in-affidavit from the applicant firm containing the above conditions before execution of lease deed and also ensure that the instructions issued in Government Letter No.12789/MMB2/2002-7, Industries Department, Dated: 9.1.2003 are complied with.
 - 16) The grant of quarry lease to the applicant firm in the applied area will be based on the Judgment of Hon'ble High Court of Madras in W.P.No.18317 of 2020 and W.M.P.No.16060/2020 and W.M.P.No.19999 of 2020.

This mining plan has been prepared incorporating the above conditions, complying the Rules and Regulations stipulated by the Government of Tamilnadu before and during the course of quarry operation.

The area applied for is a fresh lease over an extent of 1.98.0 Hectares Government Poramboke Land in S.F.No.333 (Part) in Shoolamalai Village, Bargur Taluk, Krishnagiri District, Tamil Nadu State. This mining plan is prepared as per the Rule 8-A of TNMMCR 1959 & Rule 12 of Granite Conservation and Development Rules, 1999.

The quarry lease applied area is an Undulated rocky elevated terrain. Colour Granite deposit is observed below the topsoil and weathered rock.

The Colour Granite outcrops are clearly visible in the lease area. Open cast semi mechanized mining method should be adopted to win the Colour Granite dimensional stones occurring in this area.



The following Open cast method will be adopted to win the Colour granite dimensional stones occurring in this area.

The Top soil is removed by using excavator. The soil type of the area is gravelly in nature and it is having a thickness upto 1.0m & weathered rock is observed for a depth of 2.0m and below which massive formation of colour granite may be encountered.

Usage of explosives is very minimal. Mild blasting with explosives in holes drilled by jack hammer of 32mm dia. will be adopted. No deep hole blasting is proposed.

Diamond wire saw cutting method: By this method the dimensional granite stones will be splitted from the parent rock.

Using feather and wedges the defective portions are removed. Experienced Chisel men are used for dressing the blocks into required rectangular shaped dimensional stones without much wastage.

These rectangular dimensional granite stones are marketed to different needy customers by adopting strict quality control measures by experienced markers.

2.0 GENERAL

2.1 NAME OF THE APPLICANT WITH ADDRESS:

Name : Thiru. M. Kowshik Dhev,

Address : S/o. Thiru. D. Mathiazhagan,
No.58-B, Gandhi Nagar,
Krishnagiri.

District : Krishnagiri.

Pin code : 635 001.

Mobile No: +91 94432 44390

2.2 STATUS OF THE APPLICANT

The applicant Thiru. M. Kowshik Dhev is an Individual.

2.3 MINERAL WHICH THE APPLICANT INTENDS TO MINE

The applicant intends to quarry Colour Granite Dimensional Stone.



2.4 NAME AND ADDRESS OF THE QUALIFIED PERSON WHO PREPARED THE MINING PLAN

Name : S.DHANASEKAR.M.Sc.,(Geol),M.M.E.A.I.,
QUALIFIED PERSON,

Address : 5/30-7B, Avvai Nagar,
Ponkumar Mines Road,
Jagir Ammapalayam,
Salem- 636 302.
Mobile No: +91 98946 28970
Mail:geodhana@yahoo.co.in

2.5 NAME AND ADDRESS OF THE PROSPECTING AGENCY

Long time back in the year 1992-93 the State Geology and Mining Dept, Govt. of Tamil Nadu, has also carried out the prospecting and exploration in these areas.

A detailed mapping of the commercial granite deposits of Tamilnadu has also been carried out by the Geological Survey of India. Apart from the survey conducted by the GSI, the Qualified Person along with his experienced team members made a detailed geological investigation of the area and demarcated the deposit clearly with a mine surveyor. The Colour Granite outcrops are clearly visible in the lease area with intermittent topsoil cover, the average thickness of the top soil is about 1.0m.

Address of the prospecting Agency:

- (i) Department of Geology and Mining
O/O The Commissioner of Geology and Mining
Tiru Ve Ka Industrial Estate,
Guindy, Chennai - 32.
- ii) GEOLOGICAL SURVEY OF INDIA,
Elliot Beach Road,
Rajaji Bhavan,
C.G.O Complex,
Besant Nagar,
Chennai - 600 090.

2.6 DETAILS OF THE AREA

a. The area is marked by the Geological Survey of India, Topo Sheet No.57-L/7.

b. The details of the land covered by the area is given below. Table -1

District & State	Taluk	Village	S.F.No.	Area in Hect.	Ownership occupancy
Krishnagiri & Tamilnadu	Bargur	Shoolamalal	333(Part)	1.98.0	Government Poramboke land
Total Extent				1.98.0	

The area lies the North Latitude $12^{\circ}29'48.6998''N$ to $12^{\circ}29'54.5131''N$ and East Longitude of $78^{\circ}18'0.9548''E$ to $78^{\circ}18'8.2169''E$ on WGS datum-1984. (Plate No. II).



Satellite Map Showing on the Lease Applied Area Boundary Pillars GPS-Coordinates



2.7 WHETHER THE AREA RECORDED TO BE IN FOREST DEPARTMENT:

The area does not falls under forest land of any category. It is a Government Poramboke Land.

2.8 PERIOD FOR WHICH THE MINING AREA IS REQUIRED:

The quarry lease for **Colour Granite** is applied for a period of Twenty years.

2.9 INFRASTRUCTURE:

The quarry lease applied area is situated at a distance of about 2.8kms from Shoolamalai Village. Shoolamalai is at a distance of 7.2Kms from Krishnagiri. Please refer Route Map - Plate No.I A.



TABLE - 2

Particulars	:	Location	Distance from the Investigated area
Nearest Post Office	:	Elathagiri	3.4 kms -N
Nearest Town	:	Krishnagiri	10.0 kms -W
Nearest Police Station	:	Krishnagiri	10.0 kms -W
Nearest Hospital	:	Krishnagiri	10.0 kms -W
Nearest School	:	Jagadevi	2.5kms -S
Nearest D.S.P. Office	:	Krishnagiri	10.0kms -W
Nearest Railway Station	:	Rayakottai	30.0kms -W
Nearest Seaport	:	Chennai	245.0kms - NE
Nearest Airport	:	Bangalore	105.0kms - NW

WATER:

Good drinking water is available from the nearby community wells and approved water vender situated in Shoolamalai Village also supplies drinking water. Besides, the ground water is potable without any adverse health effects.

RIVERHEAD:

There is no Rivers/Stream, Lakes, Reservoir or any water bodies within the 50m distance to the lease applied area.

3.0 GEOLOGY AND RESERVES**3.1 PHYSIOGRAPHY**

The applied lease area is Undulated rocky terrain mostly covered up to 1.0m topsoil and below which weathered rock is observed for a thickness of 2.0 mts followed by fresh Colour Granite deposits. Some detached weathering and fractured are observed along the strike which is the characteristic of granite deposits.

The average elevation of the study area is about 487 mts above M.S.L. The trend of the rock formation is $N20^{\circ}E - S20^{\circ}W$ direction dipping gently towards South east.

There are few villages located within the 5kms radius of quarry site and approximate distance with direction & population are given below.

S.No	Name of the Village	Direction	Approximate Distance	Approximate population
1.	Elathagiri	North	3.4kms	350
2.	Kondappanayakempalli	East	4.5kms	220
3.	Jagadevi	South	2.5kms	500
4.	Shoolamalai	West	2.8kms	250



Water table is found at a depth of 62m in summer and at 54m in rainy season. The area receives rain fall of about 700 to 800 mm/per annum and the rainy period is mainly from Oct – Jan during Northeast monsoon. The summer is hot with maximum temperature up to 38°C.

The topsoil is to a thickness of about 1.0m. The area experiences moderate climate and there is scanty growth of vegetation in and around the quarry lease applied area.

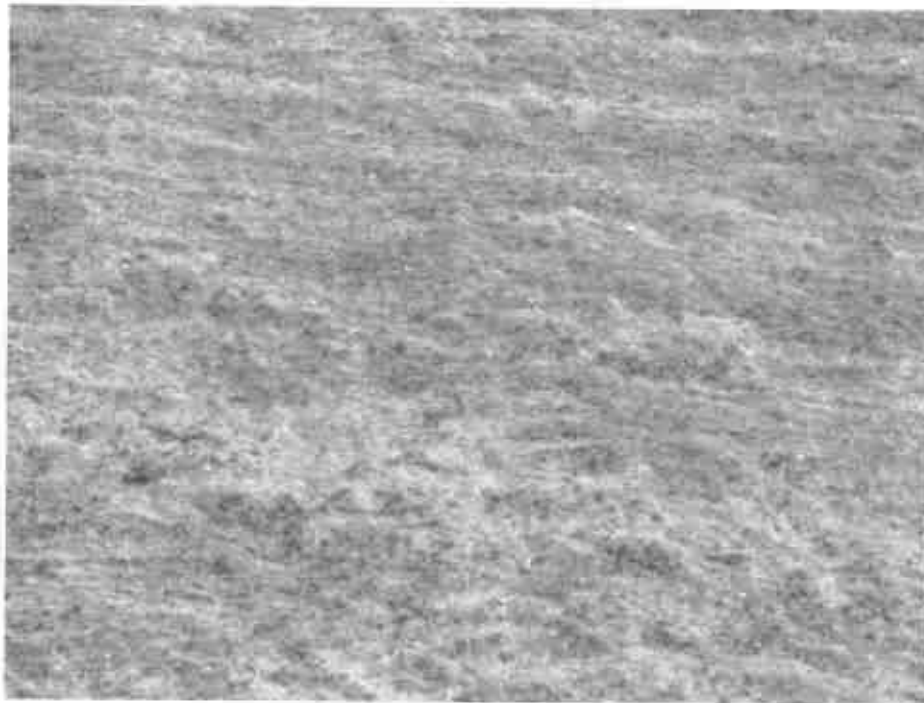
Topographical View of the Colour Granite Quarry Lease Applied Area





Photo View of the Colour Granite

Megascopic Colour and Texture of Minerals



3.2 GEOLOGY

a. REGIONAL GEOLOGY:

Krishnagiri District is comprised of Archaean peninsular gneisses such as Charnockites, Hornblende gneisses, Biotite gneisses and migmatites, dolerites and are intruded by younger formations like pegmatite and quartz veins. The peninsular gneisses/migmatite consists of biotite mica, plagioclase and orthoclase feldspar and quartz and are found as heat rocks running to several kms from NNE-SSW as a massive rock formation.

The order of superposition of geological sequence are given as under,

ROCK TYPE:

Topsoil (red soil)	- Recent Age
Pegmatite and Quartz veins	- Archaean Age
Dolerite Dyke	- Archaean Age
Migmatites (Paradiso& Multi)	- Archaean Age (Kolar Group)
Biotite Gneisses	- Archaean Complex

The Regional rocks mostly composed of quartz, plagioclase feldspar, orthoclase feldspar and accessories like mica.



b. GEOLOGY OF THE LEASE APPLIED AREA:

i) **Mineralogy:**

The Colour Granite deposits of this area are rich in orthoclase feldspar with excellent wave pattern. It is commercially called as **Paradiso**. It is mainly composed of mineral constituents such as biotite, Quartz, orthoclase feldspar and less plagioclase feldspar. It is a type of Para gneiss with alternative bands of orthoclase and dark minerals. The biotite is fine grained and other minerals like alkaline and soda feldspars are medium grained. The flow structure, equigranular texture and presence of fresh orthoclase feldspars indicates that it is a type of Migmatite with purple colour feldspar. Presence of Xenoliths is common in this Colour Granite. Dimensional cutting and polishing of these type of hard and compact rocks exhibits an attractive alternative bands of light pink and dark minerals with excellent wave patterns.

It is a Colour Granite covered partly by red soil. The rock is hard, compact and sheet in nature so as to cut required sizes of blocks. The mineral constituents of the rock mass shall be about Orthoclase feldspar 45%, Quartz roughly 20%, Plagioclase feldspar 15%, mica 15% and others 5%.

ii) **Geological setting and structure:**

The order of geological sequence are,

Description	Geological Age
Top Soil- (Intermittent)	- Recent
Migmatite (Paradiso) with wave Pattern	- Archaean
Biotite Gneisses (Peninsular Gneisses)	- Archaean

The Topsoil cover is found all around the exposures of outcrops of Colour Granite. The trend of the rock formation is N20°E - S20°W direction dipping gently towards South east. The regional trend is shown in the geological plan. The Colour Granite that occurs in this area is massive with less boulders of fractures. It is suitable for commercial exploitation of gang saw size rough blocks.

c. QUALITY OF THE DEPOSIT:

The granite gneiss is inequigranular, fine to medium grained having wavy pattern. Because of having flow texture with feldspar, quartz and other mafic minerals, the gneissic rock is suitable for ornamental purposes after cutting and polishing.

The physical attitude of the Colour Granite deposits of this area are given below.

Area in Ha	-	1.98.0 Ha
Strike Direction	-	N20°E - S20°W
Dip direction	-	SE



3.3 DETAILS OF EXPLORATION

3.3.1 ALREADY CARRIED OUT

As far as Colour Granite deposits are concerned, the only practical method is the systematic geological mapping, delineation of commercial Colour Granite bodies within the field and careful evaluation of body luster, physical properties, commercial aspects etc.

Explorations were conducted by the Central and State Governments.

1. In the year 1966 the Government of India conducted exploration study of the availability of Granite blocks in this area through Geological Survey of India.
2. Between the year 1992 to 1993 the State government represented by the Department of Geology and Mining conducted the exploration study for granite in this area.

Based on the valuable geological information available by the exploration conducted by the Central and the State Government, the geological reserves are estimated. Considering the waste expected, mineable reserves are arrived.

3.3.2 PROPOSED STUDY TO BE CARRIED OUT:

The petrogenetic Character of the Colour granite stone may be beyond 23.0m depth but the economically viable depth persistence of the Colour Granite Stone has been taken to calculate all the categories of proved, probable and possible reserves as 23.0m only (1.0m Topsoil + 2.0m Weathered rock + 20.0m Colour Granite). The recovery of saleable Colour Granite stones (Gang saw size) has been taken as 20%.

The proposal depth of the quarry for the **first 5 years** is given upto **22.0m** below ground level. The quarrying activities during the first 5 years with deep cut as envisaged in the mining plan may render additional data as may be required for future planning.

3.4 METHOD OF ESTIMATION OF RESERVES

The geological plan has been prepared in 1:1000 scale (Plate No.IV). Totally three sections have been drawn, one section (X-Y) drawn as lengthwise and another one section (A-B) is drawn as widthwise. These Sections are suitably chosen to cover maximum area.

The proved depth persistence of 23.0m (1.0m Topsoil + 2.0m Weathered rock + 20.0m Colour Granite) has been worked out for each cross sectional area. The cross sectional area multiplied by its length of influence on the longer axis gives the volume. The total of the insitu reserves available within the individual cross sectional area gives the Geological Resources of the quarry lease applied area.

The quantity of saleable granite stones and quantity of granite waste generation are computed by applying recovery factor of about 20% from the total geological resources. The salable Colour Granite stone are in terms of cubic meters (Volume) only. This differs from the other Major minerals which are quantified in Tonnage. In Granite the geological resources, mineable reserves and quantum of waste generated etc, are given only in terms of cubic meters (Volume).

The details of estimation of Geological Resources and Mineable Reserves with reference to the Geological Plan & Cross section and Conceptual Plan & Section as shown in (Plate no.IV and VIII) have been furnished in Table - 4 & Table - 5 respectively.

3.5.0 GEOLOGICAL RESOURCES:

Table -4

GRANITE GEOLOGICAL RESERVES											
Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume In m ³	Total Reserves in m ³	Colour Granite 20% in m ³	Granite Waste 80% in m ³	Top Soil in m ³	Weathered rock in m ³	Total Waste in m ³
XY-AB	I	204	97	1	19788				19788		19788
	II	204	97	2	39576					39576	39576
	III	204	97	5	98940	98940	19788	79152			79152
	IV	204	97	5	98940	98940	19788	79152			79152
	V	204	97	5	98940	98940	19788	79152			79152
	VI	204	97	5	98940	98940	19788	79152			79152
TOTAL						395760	79152	316608	19788	39576	375972

Topssoil	=	19788 m ³
Weathered rock	=	39576 m ³
Total Reserves ROM	=	395760 m ³
Colour Granite 20% Recovery	=	79152 m ³
Granite Waste @ 80%	=	316608 m ³
Total Waste	=	375972 m ³
Granite Waste ratio	=	1:4.75



MINEABLE RESERVES:

Table -5

MINEABLE RESERVES											
Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume In m3	Total Reserves in m3	Colour Granite 20% in m3	Granite Waste 80% in m3	Top Soil in m3	Weathered rock in m3	Total Waste in m3
XY-AB	I	182	76	1	13832				13832		13832
	II	179	73	2	26134					26134	26134
	III	175	69	5	60375	60375	12075	48300			48300
	IV	165	59	5	48675	48675	9735	38940			38940
	V	155	49	5	37975	37975	7595	30380			30380
	VI	145	39	5	28275	28275	5655	22620			22620
TOTAL						175300	35060	140240	13832	26134	180206

Topsoil

= 13832 m³

Weathered rock

= 26134 m³

Total Reserves ROM

= 175300 m³

Colour Granite 20% Recovery

= 35060 m³

Granite Waste @ 80%

= 140240 m³

Total Waste

= 180206 m³

Granite Waste ratio

= 1:5.13





The geological resources computed based on the geological cross sections up to the economically workable depth of 23.0m from the top surface of the area wise (1.0m Topsoil + 2.0m Weathered rock + 20.0m Colour Granite) works out to 79152m³ (20% recovery) cubic meters (Table-4) and mineable reserves have been computed as 35060m³ (Table-5) at the rate of 20% recovery upto a depth of 23.0m(1.0m Topsoil + 2.0m Weathered rock + 20.0m Colour Granite).

The mineable reserve is found out by deducting the locked up area in safety distance all along the perimeter of the lease boundaries. Proved & possible reserves are categorized up to 23.0m depth (1.0m Topsoil + 2.0m Weathered rock + 20.0m Colour Granite).

The Colour Granite body occurring in this area exhibits more or less uniform color and texture and sold in par with commercial granite deposit. If any variations occur locally during mining such as cracks flaws and patches, the defective area is removed during dressing & marketed. The deposit is uniform and no gradational change is noticed except some shear, cracks, xenoliths and slender pegmatite veins.

4.0 MINING

Under the regulation 106 (2) (b) of the Metallurgical Mines Regulation 1961, in all open cast mining, the bench height should not exceed 5.0m and bench width should not be less than bench height . The slope of the bench should not exceed 60° from horizontal.

Due to the prevailing difficulties in mining granite dimensional stone, it is proposed to obtain relaxation to the provisions of the above regulation from the Director of Mines Safety Chennai for which necessary provision is available with the Regulation 106 (2) (b).

The production of Colour Granite dimensional stone is contrary to the method of mining of other major minerals.

The following methods are familiar with the production of Colour Granite dimensional stone:

PRIMARY CUTTING: By adopting the method of Diamond wire cutting considerable volume of the Colour granite dimensional stone is carefully removed by splitting from the parent rock. Special care is being taken to avoid any visibly seen defects such as cracks.

This liberation of huge volume of granite body from the parent rock is called "primary cutting". This huge portion is further split into several blocks of desirable dimension.

Hydraulic cranes are used to lift the blocks splitted and shifted to the dressing yard for further processing.

Skilled laborers will be engaged for removing the defective portions and dressing them in to dimensional blocks by manual methods using feather and wedges and chiseling respectively.



Under the continuous supervision of experienced personals the defects free, dimensional stone of different sizes are thus produced by the method as described above. The marketable grade of Colour granite dimensional stone is segregated depending upon the need of customers.

The Granite wastes(80%) are taken in tippers and proposed to dumped in the Southwestern side of the quarry lease applied area for the first 5 years and proposed mineable waste will be used for Back-filling at the end of quarry after the entire lease period which will be temporarily used as waste dump.

The excavated top soil will be utilized for afforestation and construction of bunds and haul roads.

4.1 YEAR WISE DEVELOPMENT AND PRODUCTION FOR THE FIRST FIVE YEARS

Table -6

YEARWISE DEVELOPMENT & PRODUCTION																		
Year	Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume In m3	Total Reserves in m3	Colour Granite 20% in m3	Granite Waste 80% in m3	Top Soil in m3	Weathered rock in m3	Total Waste in m3						
I YEAR	XY-AB	I	59	84	1	4956				4956		4956						
		II	55	81	2	8910					8910	8910						
		III	26	77	4	8008	8008	1602	6406			6406						
TOTAL											8008	1602	6406	4956	8910	20272		
II YEAR	XY-AB	III	25	77	4	7700	7700	1540	6160			6160						
		TOTAL											7700	1540	6160			6160
III YEAR	XY-AB	IV	25	67	5	8375	8375	1675	6700			6700						
		TOTAL											8375	1675	6700			6700
		IV	16	67	5	5360	5360	1072	4288			4288	4288					
IV YEAR	XY-AB	V	14	57	5	3990	3990	798	3192			3192						
		TOTAL											9350	1870	7480			7480
V YEAR	XY-AB	V	17	57	5	4845	4845	969	3876			3876						
		VI	21	47	5	4935	4935	987	3948			3948						
		TOTAL											9780	1956	7824			7824
GRAND TOTAL											43213	8643	34570	4956	8910	48436		





Topsoil	= 4956 m ³
Weathered rock	= 8910 m ³
Total Reserves ROM first five years	= 43213 m ³
Colour Granite 20% Recovery first five years	= 8643 m ³
Granite waste @ 80%	= 34570 m ³
Total Waste	= 48436 m ³
Granite Waste ratio	= 1:5.60

Estimated Life of the quarry

Mineable ROM	= 175300 m ³
Mineable Recoverable Reserves 20%	= 35060 m ³
Average production per year	= 1729 m ³
Estimated Life of the Quarry	= 35060 / 1729 = 20.2 years

Life = 20 years

The year wise quantum of work proposed and the details of estimation of production quantity and generation of waste are furnished in Table-6 with reference to Year wise Development and Production plan (Plate No.V).

The quarrying block is shown in such a way to meet the average annual production. The average annual production for the first five years is 1729m³ at the rate of 20% recovery. (Refer Table No.6).

For achieving this rate of production a total quarrying block with dimension of 83m (L) x 59m (W) x 22m (D) from the first year to fifth year is selected from the Northeastern side of the lease applied area. More details of the five year wise production parameter are explained with bench length, width and height in Plate No.V & Table No.6.

4.2 PROPOSED RATE OF PRODUCTION WHEN THE QUARRY IS FULLY DEVELOPED

The proposed rate of production when the quarry is fully developed is 8643m³ per annum and 1729m³ for the first five years @ 20% recovery. (Table-6)

4.3 MINEABLE RESERVES AND ANTICIPATED LIFE OF MINE

The Colour Granite is deep seated in nature. The depth persistence of the Colour Granite will be beyond the economically workable depth. The method of extraction of rock mass from Colour Granite rock is highly expensive affair at greater depths.

An optimum depth of 23.0m (1.0m Topsoil + 2.0m Weathered rock + 20.0m Colour Granite) for entire lease period has been established as economically viable depth. Eventually this depth is the optimum depth for safe and scientific quarrying.



The mineable reserves are calculated by excluding the mining loss due to formation of benches, ultimate depth of mine, the mineral reserve held up within the safety distances all along the boundary of quarry lease applied area.

The mineable reserves for this Colour Granite quarry is thus arrived as **35060 m³** (Table-5) and **ROM 175300 m³** (Table-5) for an assumed depth of 23.0m from top surface (1.0m Topsoil + 2.0m Weathered rock + 20.0m Colour Granite). The details of estimation of five years development plan (plate no.V) is furnished in Table-6.

The average rate of production of Colour Granite from this quarry is 1729m³ per year and mineable reserves 35060m³.

Based on the above, and taking into consideration of the available Mineable Reserves, **the life of mine will be about 20 years**, if the quarry is being worked continuously with prevailing market conditions and according to this mining plan.

4.3.1 CONCEPTUAL MINING PLAN

Conceptual mining plan is prepared with an object of long term systematic development of benches; lay outs, selection of permanent ultimate pit limit, depth of mining and ultimate pit, selection of sites for construction of infrastructure etc.

The ultimate pit size is designed based on certain practical parameters such as economical depth of mining, safety zones, permissible area etc. The ultimate pit dimensions of the quarry are given below. (Please refer Plate No.VII).

ULTIMATE PIT DIMENSION		
Length	Width	Depth
183m	84m	23.0m

However, during extraction of blocks each bench will be of 5 mts height & Width with vertical slope for proper dimensional cutting. The quantum of excavation is estimated to be 35060 m³ for depth of 23.0m (1.0m Topsoil + 2.0m Weathered rock + 20.0m Colour Granite)(refer Table-5).

The waste is estimated at 140240m³, (Table-5) and marketable granite blocks as 35060m³. (Plate No-VIII).

Waste dump - the excavated granite waste will be used for Back-filling at the end of quarry. (Please refer to plate No.VIII).

4.4.0 METHOD OF MINING

4.4.1 OPEN CAST WORKING

In accordance with the Regulation 106 (2) (b) of the Metalliferous Mines Regulations 1961, in all open cast working where the ore body forms hard rock, the working faces and sides should be adequately benched and sloped; a bench height not exceeding 5m and a bench width not less than the bench height has to be maintained. The slope angle of such benches and sides should not exceed 60° from horizontal.



However, observance of these statutory provisions in granite dimensional stone mining is seldom possible due to the field difficulties and technical reasons as below:

1. Complying the statutory parameters, series blasting may not be possible due to formation of benches and sides. Special care to be taken for the production of undamaged rectangular dimensional blocks. Due to the generation of blasting cracks the marketable granite stone may get spoiled.
2. The 60° slope formation poses practical difficulty in forming benches within the granite deposit. The granite portion confined within the 60° while extracted as blocks will generate mineral waste while shaping into rectangular blocks.
3. The size of the granite blocks extracted plays a major role in the industry. Huge blocks with measurements up to 3 m x 2 m x 2 m. is not at all possible with a moving bench of 5m height. Production of such huge blocks in turn increases the recovery and reduces the mineral waste during dressing. Smaller size of blocks of certain varieties of granite are not marketable now-a-days (or) has a less commercial value.
4. The problem of mineral locked up prevails during the Formation of too many benches with more height and the width equal to the height.

To facilitate economical mining operations, it is proposed to obtain relaxation to the provisions of Regulation 106 (2) (b) Metalliferous Mines Regulations 1961 up to a bench parameter of 5.0m height & 5.0m width with vertical faces. Since the entire terrain is made up of hard rock, compact sheet and possess high stability on slope even at higher vertical angles the proposed bench parameters may not be detrimental to the DGMS.

4.4.2 EXTENT OF MECHANIZATION / COST OF MACHINERY:

The following machineries are utilized on rental basis for the development and production work at this mine.

I. DRILLING MACHINE

S.No	Type	Nos	Dia Hole mm	Size Capacity	Make	Motive power
1	Jack hammer & Accessories	4	32	1.2m to 6m	Atlas Copco	Compressed air
2	Compressor	2		400 psi	Atlas Copco	Diesel Drive
3	Diamond wire saw	1	-	30m ³ /Day	Optima	Diesel Generator
4	Gen set	1	-	Powerica	-	CP 125 D5P (H.P)



II. LOADING EQUIPMENT

S.No.	Type	Nos	Capacity	Make	Motive Power
1	Excavator	1	350	Kobelco	Diesel Drive

III. HAULAGE WITHIN THE MINE & TRANSPORT EQUIPMENT

S.No.	Type	Nos	Capacity	Make	Motive Power
1	Tipper	3	10 tonnes	Tata	Diesel Drive

IV. TRANSPORT FROM THE QUARRY HEAD TO DESTINATION

The Raw blocks from Quarry head is transported to the Dressing Site, then to desired destination by trucks or by trailers.

V. MISCELLANEOUS:

Apart from the above the following tools and tackles are required for quarry operation.

A. For operation

The operation of granite quarry requires the following loose tools material and have to be kept sufficiently in stock for non - interruption of the quarry work.

1. Drill roads - 0.3m ,0.4m , 0.5 m ,0.6m , 0.75m ,1.65m, 2.25m, 3m, 3.6m, 3.6m, 4.6m, 5.6m & 6.6m.
2. Steel Alloy chains of sufficient length of 12mm, 16mm and 18mm, sizes.
3. 'D' shackets to link the chain lengths.
4. Rubber hose of required length.
5. Hose clamps to link the compressor delivery hoses.
6. Feather and wedges of 6" and 12" dia sizes utilize for splitting the block from the parent rock. This is an important tool in the operation of a quarry.
7. Crow bars.
8. Spades.
9. Sludge Hammer
10. Iron Pans
11. Pitcher Hammer
12. Chisels.
13. Consumables, such as diesel, Hydraulic oil, grease, abrasive wheels, welding Machiners etc.
14. Stock of essential spare parts of machinery.

In addition to the above diamond wire saw equipment with accessories are required to remove rock from parent body rapidly with minimum damage.

The above machineries are adequate to meet out the simultaneous development and production schedule drawn out in this mining plan.



5. BLASTING

During future development of quarrying, removal of over burden will be done by excavator and mild blasting with explosives in holes drilled by jack hammer of 32mm dia especially. No deep hole blasting is proposed. Portable magazine has been proposed to install in the ear marked places. Authorized explosive dealers supply the explosive at site as per the requirement.

6.0 MINE DRAINAGE

Quarry operation is confined to 22m which is well above the water table which is 62m in summer and 54m during rainy season. This water table is observed in nearby wells. Even during rainy season if there is any water seepage the same may be drained out using diesel pumps and will be utilized for afforestation area.

7.0 STACKING OF MINERAL WASTE AND DISPOSAL OF WASTE

a) Topsoil:

The thickness of 1m topsoil will measure about 4956m³ of the quarry which will be utilized for construction of bunds, road and afforestation purpose.

b) Granite waste:

First five years Colour Granite waste forms nearly 80% of ROM and the quantity of waste in the five years will be around 34570m³. The Granite waste material will be proposed to dump in the Southwestern side of the lease area.

c) Land chosen for disposal of waste:

The Proposed granite waste (80%), and weathered rock waste will be dumped in the Southwestern side of the lease applied area which will also accommodate the waste generated during the first five years. (Plate No. V and VIII).

d) Manner of disposal of waste:

As and when there is accumulation of waste, the same is loaded into the tipper by loading machines and dumped in the respective places ear-marked for the purpose.

The waste management plan with reference to the quantum of waste generated (Table No-6) is shown in Mine layout and Afforestation plan (Plate No.VI).



8.0 USE OF THE GRANITE STONE

The quarried Colour Granite blocks are either exported as raw blocks or processed as value added products such as slabs, tiles, fancy items, Monuments, precision surface plates for engineering application.

The export market for granite is china, European Country, North America, Middle East, Far East, Japan, Taiwan & Canada besides catering local markets.

9.0 QUALITY CONTROL

The Colour Granite deposit occurring in this quarry shows uniform quality throughout and hence will be quarried and marketed as a single variety.

The excavated blocks will be carefully inspected for any natural defects such as joints, cracks, xenoliths growth etc and such defects are be removed manually using feather and wedges and the blocks are then shaped into perfect rectangular dimensional stone blocks by chiseling. Different price for each quality material have been fixed and the entire production quantity is marketed accordingly.

10. SURFACE TRANSPORT

The mode of transport of the granite blocks produced and marketed is by road to various customer destinations and granite processing units located at different parts of the country. The Colour Granite blocks approved for export market are shipped from Tuticorin Harbour to various countries and if required the blocks may be shifted to Chennai Harbour which depend upon the exporters' destination.

11. SITE SERVICES

The simple methods adopted and the limited scale of activities involved in granite dimensional stone quarrying does not require high tension electric power supply or huge workshop facilities. The quarry operation is restricted to one general shift during day time only. Machinery repair works are attended at Krishnagiri (10.0kms) town. Minor repairs carried out by applicant staff at the quarry site itself.

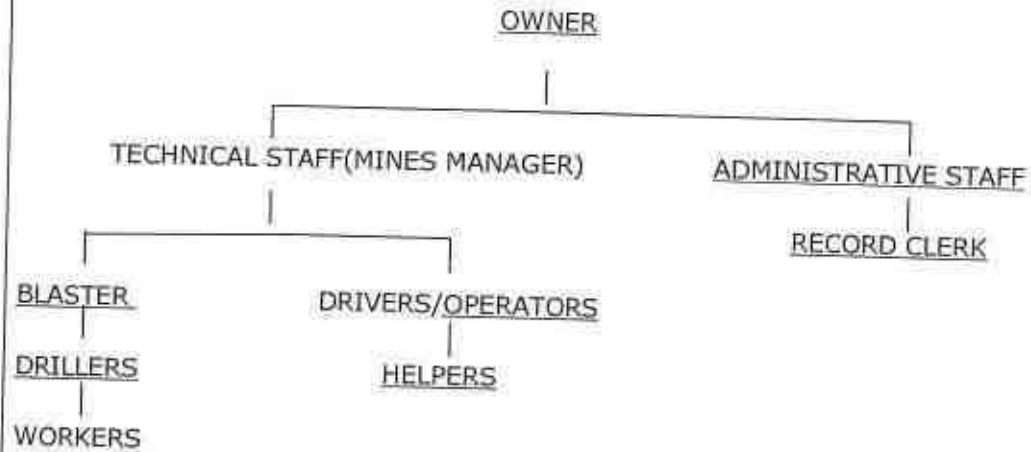
Potable drinking water will be supplied from the nearby community wells and approved water vender can be transported to the work site through tanker placed on tippers. Quarry office, first-aid room, store room, rest shed, toilet etc, will be provided on semi - permanent structures within the quarry lease applied area (Plate No - V - IX).



12. EMPLOYMENT POTENTIAL

The man power is proposed for the Colour Granite Quarry to look after and carry out the day-to-day quarrying activities, and achieves targeted production duly comply with the statutory provisions of the Quarry is as summarized below:

ORGANISATION CHART



The strength of man power requirement is proportionate to the proposed production for the Colour Granite Quarry in the referred area as detailed below:

1.	Project Manager	:	1
2.	Record Clerk	:	1
	Total	:	2 Nos.

Highly skilled, Skilled, Semi-skilled and Unskilled:

Supervisor Cum Blaster	:	1
Skilled:		
Compressor and Wagon Drill operators	:	2
Drillers / Workers	:	4
Excavator / Rock Breaker Operators	:	2
Vehicle Drivers	:	1
Total	:	11 Nos
Semi-skilled:		
Watchman	:	1
Total	:	1 Nos
Unskilled - Cleaner	:	4
Total	:	4 Nos
Grand Total	:	18 Nos

The man power strength is subject to the extent of mechanizations. The above mentioned technical staff and administrative staff are to be considered to meet out the production schedule and to comply with the statutory provisions of the Mines Safety Regulations.



13.0 ENVIRONMENTAL MANAGEMENT PLAN

13.1 BASELINE INFORMATION

The following observations are made for environmental management plan.

I. EXISTING LAND USE PATTERNS:

The quarry lease applied area Undulated rocky terrain and altitude of the area is 487m from above MSL. The area receives 700 - 800mm rainfall/annum and the ground water occurs at a depth of 62m in summer and 54m during rainy season. Villagers use water for drinking and other domestic purposes without any adverse health effect. Agricultural activities are carried out by utilizing well water (lift irrigation). The area experiences moderate climate and there is scanty growth of vegetation in and around the quarry lease applied area.

II. WATER REGIME:

Quarry operation is confined to 23m which is well above the water table which is 62m in summer and 54m during rainy season. This water table is observed in nearby wells. The water level would not be affected by the quarry operation. There is no lake, river or reservoir within 50m radius of the quarry lease applied area.

III. FLORA AND FAUNA:

The main crops are Neem, Mango, Palm, Julia flora, aspera.,etc. In some places lift irrigation is carried out. There is no wild life, bird sanctuary, reserve or social forest within 500m radius of the quarry lease applied area.

IV. CLIMATIC CONDITIONS:

The prevailing climatic condition experienced in the quarry lease applied area is semi-arid with maximum temperature up to 43°C in summer is very dry and falls down to 22° C during winter seasons. The area receives 700 - 800mm rainfall per annum during both south west and north east monsoons.

V. HUMAN SETTLEMENT:

There are few villages located within the radius of 5km from the quarry lease applied area. It is rural area with small hamlets scattered all around the area. The approximate distance and population are given below.

S.No	Name of the Village	Direction	Approximate Distance	Approximate population
1.	Elathagiri	North	3.4kms	350
2.	Kondappanayakempalli	East	4.5kms	220
3.	Jagadevi	South	2.5kms	500
4.	Shoolamalai	West	2.8kms	250



Basic human welfare amenities such as health center, schools, communication facilities, commercial centers etc are available in Krishnagiri town which is at a distance of about 10.0kms towards Western side of the lease applied area.

VI. PUBLIC BUILDINGS, MONUMENTS AND PLACES OF WORSHIPS:

There are no permanent structures like National Monuments, Places of Worship, Residential Areas and Places of Archaeological Interest within 300m radius from the area applied for quarrying lease.

13.2 ENVIRONMENT IMPACT ASSESSMENT STATEMENT

The mining plan is proposed for production of Colour Granite dimensional stone without involving deep hole drilling. Mild blasting is done to minimize the shattering effect. Such limited mining activity will not cause any adverse impact on environment as far as pollution of air, water and noise is concerned.

(a) Four Boundaries of the Lease applied area:

Applied Area S.F.No.	Direction	S.F.No	Classification
333(Part)	North	333(Part)	Government Poramboke land
	East	333(Part)	Government Poramboke land
	South	333(Part)	Government Poramboke land
	West	333(Part)	Government Poramboke land

(b) Approach road facility:

Approach road facility is available.

(c) Environmental Aspects:

The applied area is situated in an Undulated rocky terrain with gentle slope towards Eastern. The soil type of the area is red soil in nature and is having an average thickness of about 1.0m. Hence, there is no chance for slope destabilization of the area. There is no fauna and flora of botanical importance noticed. Hence there will be no chance for the degradation of environment and ecology of the area due to the proposed quarrying activity.

(d) Whether HACA Clearance has been obtained:

The lease applied area Shoolamalal village of Bargur Taluk is not classified under hill area as per G.O.M.S.No.49 Housing & Urban Development (UD 22) Department dated 24.03.2003 and hence obtaining clearance from Hill area conservation authority does not arise.



e) PROPOSED ENVIRONMENT MANAGEMENT(EMP) FOR FIXED ASSET COST AND OPERATIONAL COST:

A.FIXED ASSET COST:

SL.No	Description	Amount (Rs)
1	Land cost(Tender Amount For Government Poramboke Land)	1,93,00,000
2	Labour shed	1,60,000
3	Sanitary facility	70,000
4	Fencing cost	90,000
Total		1,96,20,000

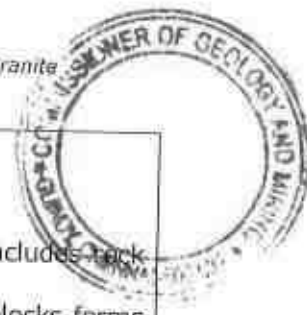
B.OPERATIONAL COST:

SL.No	Description	Approximate Amount (Rs)
1	Excavator	52,00,000
2	Tipper	30,00,000
3	Wire saw	8,00,000
4	Compressor with loose tools	20,00,000
Total		1,08,00,000

C. EMP COST:

SL.No	Description	Approximate Amount (Rs)
1	Drinking water facility	1,00,000
2	Safety kits	40,000
3	Water sprinkling	70,000
4	Afforestation	20,000
5	Water quality test	30,000
6	Air quality test	30,000
7	Noise / Vibration test	20,000
Total		3,10,000

Total Project Cost (A+B+C) =Rs. 3,07,30,000/-



13.3.0 ENVIRONMENT MANAGEMENT PLAN

13.3.1 PROPOSAL FOR WASTE MANAGEMENT

The Top soil, the waste material generated during quarrying activity includes rock fragments of different sizes and waste chips (Rubble) during dressing of the blocks forms the total waste.

During the mining plan period (five years) of quarry, the total waste to be produced will be 48436m³. (Refer Table - 6).

The waste management plan with reference to the quantum of waste generated (Table - 6) is shown in Mine layout plan (Plate No. VI). The southwestern side of the area will be used as temporary waste dump.

The generated top soil during the quarrying period will be utilized for construction of bunds, road and afforestation purpose. The granite waste generated during the quarrying will be dumped in the demarcated Southwestern side of the lease applied area. Suitable specific trees to be grown over in such soil dumps will be identified with the help of agriculture experts to evolve proper afforestation plan.

13.3.2 PROPOSAL FOR RECLAMATION OF LAND AFFECTED BY MINING ACTIVITIES DURING & AT THE END OF QUARRYING

The depth persistence of the granite body in this quarry is beyond the workable limits due to nature of occurrence of massive granite formation. In the proposed mining plan only 23m depth (1.0m topsoil + 2.0m Weathered rock + 20.0m Colour Granite) has been envisaged as workable depth for safe, systematic & economic mining. The Proposed waste will also be used for Back-filling at the end of quarry lease. The quarried out pits will be protected by providing fencing with barbed wire.

13.3.3 PHASED PROGRAMME OF PLANTING TREES

The essential safety distance provided along the lease boundary has been identified for dumping the over burden soil wastes to maintain afforestation. Appropriate species of Neem trees will be planted in a phased manner as described below.



Table -8

Year	No. of trees proposed to be planted	Name of the species	Survival rate expected in %	No. of trees expected to be grown
I	60	Neem	70	42
II	60	Neem	70	42
III	60	Neem	70	42
IV	60	Neem	70	42
V	60	Neem	70	42

Nearly 1000Sq.m area is proposed for afforestation by planting 60 Nos. of Neem trees during every year and expected growth is around 42 no. of Neem trees at a survival rate of 70%. The afforestation plan is shown in Plate No.VI.

13.3.4 MEASURES FOR DUST SUPPRESSION:

Diamond wire saw cutting will minimize the shattering effect. As the granite rocks are mined without involving deep hole drilling and mild blasting for shattering effect, fragmentation and generation of lumps, fines or dust is negligible. This quantum of quarrying activity will not generate the dust which is detrimental to the health of the persons employed. The approach roads and waste dumps will be sprinkled with water for the suppression of air borne dust from quarry on regular intervals using water tankers. Drilling of blast holes of 32 mm dia will be always under wet conditions to prevent flying of dusts. In the unloading points, water will be sprinkled through tippers to suppress dust. The drillers are provided with respirators in accordance with the Mines Regulations.

13.3.5 MEASURES TO MINIMIZE GROUND VIBRATION DUE TO BLASTING AND CHECK NOISE POLLUTION

Special care will be taken to minimize ground vibration due to blasting and check noise pollution. Shallow holes of 32 mm diameter will be drilled and conventional low explosives such as gun powder, ordinary safety fuse will be used for removal of side burden. Hence ground vibration and noise pollution will be minimal and restricted with the quarry workings. The blasting will be taken up at appointed timing and with sufficient caution to the public. The noise produced by diamond wire saw cutting will be negligible.



13.3.5.1 STABILIZATION AND VEGETATION OF DUMPS

There is a stable temporary dump even at higher slopes will be formed by the waste generation in the quarry which includes hard rock fragments of considerable size and irregular shape with varying angularity. To increase the stability of the sides of the waste dumps suitable soil will be brought from outside and also used for planting trees over safety zone in a phased manner as discussed in chapter 13.3.3.

14.0 PROGRESSIVE MINE CLOSURE PLAN

In the Colour Granite quarry operations the maximum depth proposed is **23.0m depth for the entire life of quarrying operations**, this is based on the market potential at present scenario and **22.0m depth during the first five year plan period**.

The waste generated during the quarrying operation is proposed to dump in the Southwestern side and proposed to construct safety barrier in the quarried out pits after the end of the life of the quarry period.

After completion of quarry operation the quarried out land will be fenced and maintained with barbed wire to prevent inherent entry of the public and cattle's. Garland drains will be constructed around the quarry to prevent the surface run off of the rain water.

Afforestation and Green belt development will be maintained in all the boundaries, till the trees attain the stabilize level.

Land use pattern
Table-9

Description	Present Area (Ha.)	Area to be required at the present Mining Plan period (Ha)	End of life of Quarrying Period (Ha.)
Area under Quarry	Nil	0.49.0	1.43.0
Dumps	Nil	0.44.0	Backfilling
Stockyard	Nil	Nil	Nil
Infrastructure	Nil	0.01.0	0.01.0
Roads	Nil	0.01.0	0.01.0
Green Belt	Nil	0.53.0	0.53.0
Unutilized area	1.98.0	Nil	Nil
Grand Total	1.98.0	1.48.0	1.98.0



15.0 MINERAL CONSERVATION AND DEVELOPMENT

The aspects of Granite Conservation and development is fully covered in this mining plan. The proposed working of the quarry to the maximum possible workable depth is focused towards the future plan. Recovery of the maximum saleable quality and quantity of Colour Granite dimensional stones is ensured by proper supervision of experienced skilled technical personals. This quality control measures propagate full utilization of the consumer requirements.

By adopting systematic and scientific quarrying special care is taken to safeguard the material quarried in an efficient and economical manner.

16.0 STATUTORY PROVISIONS

The provisions of the Mines Act, Rules and Regulations and orders made there under shall be complied with, so that the safety of the mine, machinery and person will be well protected. Permission, relaxation or exemption wherever required for the safe and scientific quarrying of the deposit will be obtained from the Department of Mines Safety, Chennai. Any violation pointed out by the inspecting authorities shall be rectified as per the guidelines of the department.

Certified that this Mining Plan has been Prepared in Accordance with the Mines Act, Rules and Regulations and orders made there under and also in Conformity with the Rule 8-A of TNMMCR 1959 & Rule 12 of Granite Conservation and Development Rules, 1999.

S. DHANASEKAR, M.Sc. (Geo)
Qualified Person

COMMISSIONER
GEOLOGY AND MINING
CHENNAI-600 032.

This Mining Plan is Approved
Subject to the Conditions/ Stipulation
Indicated in the Mining Plan Approval
Letter No./6941/HN4/2020 Dated 17.05.23



ANNEXURE-

Industries (MME.2) Department,
Secretariat, Chennai - 600 009



Letter No.893/MME.2/2021 - 1, Dated 26.02.2021

From

Thiru N. Muruganandam, I.A.S.,
Principal Secretary to Government.

To

Thiru.M.Kowshik Dhev,
S/o D.Mathiazhagan,
No.58-B, Gandhi Nagar,
Krishnagiri - 635 001.

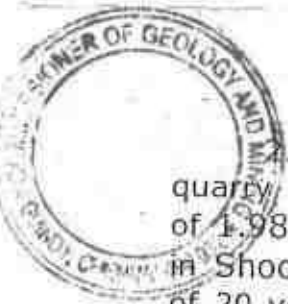
Sir,

Sub: Mines and Minerals - Minor Mineral - Colour Granite -
Shoolamalal Village - Bargur Taluk - Krishnagiri District -
S.F.No.333 (Part) - Over an extent of 1.98.0 hectares of
Government Poramboke land - Highest Bid amount
offered by Thiru.M.Kowshik Dhev, Krishnagiri - Precise
Area Communicated - Balance Lease Amount - Approved
mining Plan and Environmental Clearance - Called for.

- Ref: 1. Krishnagiri District Gazette Extraordinary issue in
English No.20 and Tamil No. 35 dated:09.10.2020.
2. Application of Highest Bidder of Thiru.M.Kowshik
Dhev, Krishnagiri on 07.11.2020.
3. Proposal of the District Collector, Krishnagiri, in file
No.1045/2020 (Mines), dated 03.12.2020.
4. From the Commissioner of Geology and Mining, File
Rc. No.6941/ MM4/2020, dated: 22.01.2021 and
08.02.2021.

I am directed to state that in the references third and fourth cited,
the District Collector, Krishnagiri and the Commissioner of Geology and
Mining have recommended to declare you as successful bidder and to
grant quarry lease for quarrying of Colour Granite over an extent
of 1.98.0 hectares of Government Poramboke land in S.F.No.333 (Part)
in Shoolamalal Village of Bargur Taluk, Krishnagiri District for a period of
20 years under rule 8-A of the Tamil Nadu Minor Mineral Concession
Rules, 1959.

//p.t.o//




I am directed to declare you as successful bidder to grant quarry lease for quarrying of Colour Granite over an extent of 1.98.0 hectares of Government Poramboke land in S.F.No.333 (Part) in Shoolamalai Village of Bargur Taluk, Krishnagiri District for a period of 20 years under rule 8-A of the Tamil Nadu Minor Mineral Concession Rules, 1959 subject to the outcome of W.P.No.18317 of 2020 and W.P.No.16060/2020 and W.M.P.No.19999 of 2020. The District Collector shall comply with the directions of the Hon'ble High Court of Madras in W.P.No.18317 of 2020 and W.P.No.16060/2020 and W.M.P.No.19999 of 2020 and undertake the activities mentioned in para 3 below strictly in compliance with the directions of the Hon'ble High Court of Madras.

3. In this connection, I am directed to request you to remit the balance lease amount of Rs.1,68,00,000/- in the District Treasury concerned and to submit the original challan to Government within a period of one month from the date of this communication and to submit the approved Mining Plan as per Rule 12 of Granite Conservation and Development Rules, 1999 through the Commissioner of Geology and Mining to Government within the period of 3 months from the date of receipt of this communication as per Rule 8-A(8)(a)(ii) of the Tamil Nadu Minor Mineral Concession Rules, 1959 and also to produce Environmental Clearance obtained from the Competent Authority for the above said area as per the conditions stipulated in the prescribed Act and Rules in addition to the following conditions:-


- 1) A safety distance of 50 meters shall be provided to the low tension EB line passing on the North side and west side, a house and tombs on the North east corner of the lease area.
- 2) No hindrance shall be made to the odai situated on the east side at a distance of 50 meters away from the lease area.
- 3) A safety distance of 10 meters to the Government lands shall be provided.
- 4) A safety distance of 7.5 meters to the adjacent patta lands to be maintained and should not cause any hindrance to them while quarrying and transportation.
- 5) All conditions stipulated in the District Gazette Extra ordinary notification English No.20 and Tamil No.35 dated 09.10.2020 should be adhered by the Tender applicants / Bidders.
- 6) The waste materials generated during the course of quarrying should be dumped only within the lease hold area.
- 7) Environmental clearance should be obtained from the State Level Environmental Impact Assessment Authority before grant of quarry lease as per Rule 42 of the Tamil Nadu Minor Mineral Concession Rules, 1959.

- 8) The applicant should fence the lease granted area with barbed wire before the execution of lease deed as follows: -
- The pillar post shall be firmly grounded with concrete foundation of height not less than 2 meters with a distance between two pillars shall not be more than 3 meters.
 - The applicant shall incorporate the DGPS readings for the entire boundary Pillars of the area and the same should be clearly shown in the mining plan.
 - A soft copy of the digitized map with DGPS readings should be submitted in the CD form to the Assistant Director (i/c), Krishnagiri.
- 9) The District Administration and Geology and Mining Department should ensure the conditions imposed in G.O.(Ms).No.79, Industries Department, dated 06.04.2015.
- 10) As per Rule 12(V) of Minerals (other than Atomic & Hydrocarbon Energy Minerals) Concession Rules, 2016, the applicant shall at his own expenses erect, maintain and keep in repair all the boundary pillars.
- 11) The applicant should use mild explosives during quarrying.
- 12) Child Labourers should not be engaged in quarry works.
- 13) If any violation is found during quarrying operation, the penal provisions of the Tamil Nadu Minor Mineral Concession Rules, 1959 and other rules and act in force will attract.
- 14) The applicant should ensure that while starting the quarry work, all the quarry workers working under his control are registered in the Labour Welfare Board and also enrolled in the ongoing insurance scheme.
- 15) The District Collector, Krishnagiri shall obtain a sworn-in-affidavit from the applicant containing the above conditions before execution of lease deed and also ensure that the instructions issued in Government Letter No.12789/MMB2/2002-7, Industries Department, Dated: 9.1.2003 are complied with.
- 16) The grant of quarry lease to the applicant in the applied area will be based on the Judgement of Hon'ble of High Court of Madras in W.P.No.18317 of 2020 and W.P.No.16060/2020 and W.M.P.No.19999 of 2020.

Yours faithfully,


26.2.2021

for Principal Secretary to Government


26/2/2021


S.DHANASEKAR, I.A.S. (Retd.)
Qualified Person

Copy to:

The Commissioner of Geology and Mining,
Guindy, Chennai -600 032.

✓ The District Collector,
Krishnagiri. (for necessary followup action)



KRISHNAGIRI DISTRICT GAZETTE

EXTRAORDINARY

PUBLISHED BY AUTHORITY

No. 20]

KRISHNAGIRI, OCTOBER 9, 2020
(Sarvari, Purattasi 23 - Thiruvalluvar Aandu 2051)

NOTIFICATION BY THE COLLECTOR

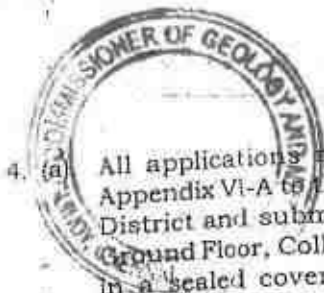
[*Roc. No. 90/2017/(Mines), Dated: 09.10.2020*]

[Notice Inviting Tender Applications for the Grant of Quarry Lease for Black/ Multi Colour Granite situated in Government land in Krishnagiri District under Tender-Cum-Auction system as per Rule 8-A of the Tamil Nadu Minor Mineral Concession Rules, 1959].

Last date and time for submission of tender application : 31.10.2020 upto 4.00 pm

Date and time on which open auction will be conducted and opening of tender application } : 02.11.2020 from 11.00 am onwards

1. For and on behalf of the Government of Tamil Nadu sealed Tender applications in Triplicate are invited by the District Collector Krishnagiri at collectorate, Krishnagiri up to 4.00 pm on 31.10.2020 (as per the office clock of the Assistant Director of Geology and Mining, Krishnagiri, Room No.30, Ground Floor, Collectorate, Krishnagiri) from the individuals or companies or partnership firms for the purpose for obtaining quarry lease to quarry black / multi color granite from the areas situated in Government lands in Krishnagiri District specified in the schedule for a period twenty years in accordance with the Tamilnadu Minor Mineral Concession Rules, 1959 more specifically as per Rule 8-A of the above said rules notified in G.O.Ms.No.103/ Industries/MMC1/Department Dt:13.07.1996 and published in Tamilnadu Government Gazette, Extraordinary No.337, part-III, section 1(a) Dt:13.07.1996 and subsequently amended.
2. The tender applications submitted as per the notification shall be in the form prescribed as per appendix VI-A of Tamil Nadu Minor mineral concession Rules, 1959. Model application form is enclosed with this gazette notification. The applications not submitted as prescribed in appendix VI-A and the applications without statutory enclosures shall not be entertained.
3. The tenderers / Bidders shall make their own arrangements to visit the notified proposed quarry sites, assess the quantity and the quality of granite before making their offers. They should also make their own arrangements for providing necessary infrastructure including approach roads, etc., for quarrying granite, if the area is allotted to them on lease eventually.



4. (a) All applications made in response to this notification shall be in the form prescribed in Appendix VI-A to these rules and they shall be sent directly to The District Collector, Krishnagiri District and submitted to the O/o The Assistant Director, Geology and Mining, Room No.30, Ground Floor, Collectorate, Krishnagiri on or before 4.00 PM of 31.10.2020 in person or by RPAD in a sealed cover superscribed as "TENDER APPLICATION FOR GRANT OF QUARRYING LEASE-ITEM SL.No.....IN THE NOTICE/ ADVERTISEMENT, DATED.....". The name and address of the applicant shall also be legibly written on the sealed cover. For each item of area specified in the District Gazette Notification or in the news paper advertisement separate tender application shall be made.
- b. Every tender application made for grant of quarrying lease shall be accompanied by:-
- (i) Original challan for payment of Rs.5000/- (Rupees Five Thousand only) towards non-refundable application fee in a Government Treasury in the District concerned. The amount can also be remitted through demand draft drawn in favour of the District Collector, Krishnagiri obtained from any Nationalized Bank or Co-Operative Bank and the original Demand Draft should be enclosed.
 - (ii) A demand draft for (Rs.25,00,000/-) (Rupees Twenty Five Lakhs only) towards Earnest Money Deposit in favour of the District Collector, Krishnagiri.
 - (iii) An affidavit showing the particulars of the areas mineral wise in each district of the State, which the applicant or any person jointly with him :-
 - (i). already holds under a quarrying lease
 - (ii). already applied for but not yet granted
 - (iii). is being applied for simultaneously;
 - (iv). A valid mining dues clearance certificate obtained from the Collector of the District where the quarrying or mining lease area is situated in the form prescribed in Appendix-VIII to these rules for having paid the mining dues, such as royalty, seigniorage fee, lease amount, dead rent, surface rent, area assessment, penalty amount or any other dues payable under the Act or these rules or under the lease deed or agreement already executed or entered into by the applicant if the applicant is not having any Mining/Quarrying lease in the State of TamilNadu an Affidavit towards no mining dues also to be enclosed.
 - (v). An affidavit stating that the applicant has:-
 - i. Filed upto date Income tax return.
 - ii. Paid the income tax assessed on him.
 - iii. Paid the income tax on the basis of the self assessment as provided in the Income Tax Act, 1961 (Central Act 43 of 1961) or any other later instructions of the Central Government
- (c). **The application thus made shall contain the particulars about the maximum amount the applicant is willing to offer for getting the area applied for by him on lease for quarrying purpose.**
- (d) All applications shall reach the addressee specified in the notice or advertisement within the specified time and date.
5. (a) Where the application is delivered personally, its receipt shall be acknowledged in the form in Appendix-IX to the rules of TNMMCR, 1959. Where an application is sent by post it shall be sent by registered post and its receipt shall also be acknowledged to the applicant by RPAD within three days from the date of receipt of date. The District Collector shall have no responsibility for any delay in receipt or loss in postal transit of any application or communication.

- (b) If any application is made for an area when there is no invitation of application, it shall summarily be rejected as premature application. If any application is received after, the due time and date fixed for receipt of application, it shall be rejected by the District Collector as time barred application. Failure to satisfy the conditions and to comply with the requirements specified above will result in summary rejection of an application for participation in auction or tender proceedings and the person who made such application is not entitled to participate in the auction or tender as the case may be. The rejection order passed on such application with the demand draft if any shall be sent through registered post to the applicant within seven days from the date of receipt of the application retaining the application and the cover.

TENDER - CUM - AUCTION PROCEDURE

6. (a) (i) Before opening tender applications received for each area for which applications are invited through notification and advertisement, an auction shall be conducted in which all tender applicants and also others who consider themselves as eligible and pay an Earnest Money Deposit of (Rs.25,00,000/-) by a bank draft can participate. The auction bids of the non-tender applicants will be accepted subject to verification of their eligibility and subject to their submitting the application form with statutory enclosures and payment of application fee before commencement of the tender-cum-auction proceedings. For people who have already paid Earnest Money Deposit in tender, no separate fee need be levied for participating in auction.
- (ii) In the absence of the applicant one nominee of the applicant may be permitted to participate in the auction and allowed to be present when the tender applications are opened provided the nominee produces a letter from the applicant authorising the nominee to do so and signed before a Notary Public who shall attest the signature of the applicant and his nominee.
- (b) (i) Before opening tender applications received for each area, auction shall be conducted by the District Collector or the officer authorized by the District Collector allowing all eligible applicants to bid at the auction for making their offer of lease amount to obtain the area on lease. Immediately after conclusion of the auction, all the valid tender applications for the area shall be opened and examined by the District Collector or the authorized officer.
- (ii) The sealed tender applications shall be opened in the presence of the tender applicants or their nominees who may choose to be present. Failure on the part of any tender applicant or his nominee to be present on the date and time of auction or at the time of opening of the sealed tender applications shall not prevent the authorities concerned from conducting the auction and opening of the sealed tender applications with the participation of the other tender applicants or their nominees or others.
- (iii) Where the receipt of total no. of Tender cum Auction applications are less than three, auction process shall be annulled and recommended for a retender for one time within one month.
- (iv) The authorized officer shall declare the total number of valid applications received for an area, names of the applicants and the tender amount offered for the area by each of the applicants. He shall also declare the highest bid amount offered at the auction and the highest tender amount quoted in the tender applications and the names of the highest offerers of the bid amount and the tender amount before concluding the proceedings.
- (v) In a case where the highest auction amount is found to be less than the highest tender amount and where the said highest tender amount has been quoted by two or more applicants, the District Collector or the officer authorized by the District Collector shall call such applicants alone to make their further offers.

(vi) After declaring the name of the highest bidder/tender applicant for an area, the EMD received from the applicant bidders other than the highest bidder/tender applicant shall be returned forthwith to the applicants/bidders present on obtaining acknowledgement for receipt of the same or sent by registered post in due course, if they are not present. The Earnest Money Deposit made by the highest bid amount or tender amount offeror, as the case may be, shall be adjusted towards payment of lease amount in case he is selected for grant of the area on lease to him for quarrying purpose.

7. The District Collector after the conclusion of the Auction Cum Tender procedures, shall forward all the applications received to the State Government through the Director of Geology and Mining. On receipt of the proposal from the District Collector, the Director of Geology and Mining shall forward the same to the State Government with his recommendations.

8 (a) (i). On receipt of the recommendation of the Director of Geology and Mining for grant of lease for an area the State Government shall communicate its decision to grant the lease to the applicant who is declared as the successful offer or of the bid amount or Tender amount whichever is greater.

(ii). The State Government shall communicate its decision to grant the lease for the precise area directing to remit the balance amount indicated in the order of the State Government in the District Treasury concerned and to submit the original challan to the State Government within one month from the date of receipt of such communication and to submit the approved mining plan as per Rule 12 of the Granite Conservation and Development Rules, 1999 to the State Government within a period of three months from the date of receipt of the communication from the State Government.

(iii). Where the applicants fail to remit the balance amount within the stipulated period, the amount already remitted shall be forfeited and the communication issued, shall be deemed to be cancelled. When the said applicants have remitted the amount within the stipulated period but are not able to submit the approved mining plan as per Rule 12 of the Granite Conservation and Development Rules, 1999 to the State Government within the stipulated period for reasons beyond their control, they may apply for extension of time for submission of the approved mining plan. The State Government on receipt of such request and after satisfying that the balance amount has been paid within the prescribed period, may grant extension of time for a further period not exceeding three months, if satisfied with the reasons furnished by the applicant. In case the applicant fails to submit the approved mining plan as per Rule 12 of the Granite Conservation and Development Rules, 1999 even in the extended period, the amounts remitted by the applicant shall be forfeited and the communication letter shall be deemed to be cancelled.

(iv). The applicant shall also submit the Environmental Clearance from the competent authority as per Rule 42 of Tamilnadu Minor Mineral Concession Rules 1959 within the time limit as prescribed by the State Government.

(v). The applicant shall have to submit the NOC obtained from District Forest Officer, Hosur for the proposed granite quarry.

(vi). On receipt of the approved mining plan as per Rule 12 of the Granite Conservation and Development Rules, 1999 and the Environmental Clearance from the competent authority as per Rule 42 of Tamilnadu Minor Mineral Concession Rules 1959 and NOC from the Forest Department, the State Government shall issue the order granting the lease.

(b) Where the State Government is satisfied that the highest amount offered by the applicant is not reasonable in the circumstances of the case and that it will not be in the interest of mineral development to grant the lease to the said applicant, an order refusing to grant the lease to the applicant shall be passed by the State Government, communicating the reasons there for to the applicant.

- (c) The lease deed shall be executed by the applicant with the district Collector concerned within one month from the date of receipt of the order of the State Government or within such further period not exceeding a period of thirty days as the District Collector may allow in this behalf. The lease deed shall be executed by the applicant on the appointed day and time with a map of the demarcated leased out area signed by the District Collector and the lessee, appended to it.
- (d) Where the State Government has granted a quarrying lease, to an applicant, if the applicant fails to produce the signed copy of the demarcated map of the area or fails to produce the required stamp papers for preparing the lease deed or fails to execute the lease deed within the stipulated time, the State Government may cancel the order granting the lease to the defaulter and forfeit all amounts paid by him to the State Government. In the case of an area for which there are two or more applicants, after cancellation of the order granting the quarrying lease to the defaulter the State Government may grant the quarrying lease in favour of the next below highest bidder or tender applicant, Subject to the provision of clauses (a) and (b) If the next highest bidder or tender applicant is not communicating his acceptance of such an offer of the State Government within fifteen days from the date of receipt of the State Government's offer, the State Government shall call for fresh tender applications for the area concerned.

CONDITIONS FOR CARRYING OUT QUARRYING OPERATIONS.

9. (a) The date of commencement of the period for which the quarry lease is granted under this Rule shall be the date on which the lease deed is executed.
- (b) Before execution of the lease deed the successful bidder/tender applicant shall deposit as security @ twenty percent (20%) of the bid/tender amount for which the lease has been granted by the State Government.
- (c) All the lessees, besides the onetime payment of the bid amount / tender amount which is the lease amount, shall also pay
- seigniorage fee or dead rent whichever is more in respect of the actual quantity of the mineral removed or consumed at the rates prescribed from time to time in Appendix-II to these rules. Besides the onetime payment of lease amount and seigniorage fee or dead rent whichever is greater the lessee shall pay such other levies as may be prescribed by the State Government from time to time.
- In the event of failure to pay the seigniorage fee or dead rent whichever is greater the lease shall be cancelled.
- Provided that the lessee shall pay the dead rent for the first year of the lease before the execution of the lease deed and for the subsequent years thirty days before the date of commencement of each year of the lease period.
- Provided further that the lessee is entitled to obtain transport permit and dispatch slips for removal of the mineral from the leasehold area without paying seigniorage fee until the amount of dead rent already paid is got adjusted towards seigniorage fee payment.
- (d) No lessee is entitled to raise any dispute with reference to the survey and demarcation of the area leased out to him after execution of the lease deed.
- (e) The lease shall expire on the date specified in the lease deed and in no case extension of the period of the lease shall be made.
- (f) No lessee shall commence any quarrying operation in any area without executing the lease deed. No lessee shall continue quarrying in the area after the expiry of the stipulated lease period. If any quarrying or transportation of the mineral is done without complying with or in violation of the above conditions, it shall be treated as illicit quarrying and illicit transportation and the lessee is liable to be punished for the offence without prejudice to any other actions that can be taken on the person as provided in these Rules or the Act.

(g) The lessee shall remove and transport the mineral from the leasehold area after obtaining transport permit from the District Collector concerned or any Officer authorized by him in this behalf and complying with the other conditions stipulated in these Rules.

(h) The lessee shall not quarry any other mineral other than the purpose for which the lease is granted. If, any other mineral / valuable metal is found to be noticed, the quarrying operation shall be stopped at once and intimated to the District Collector / Government.

(i) The lessee shall not without the previous consent in writing of the State Government assign, sublet, mortgage or in any other manner transfer the quarrying lease as specified in Rule-36F of Tamil Nadu Minor Mineral Concession Rule 1959.

(j) The lessee shall keep correct accounts showing the quantity and other particulars of all minerals quarried and transported from the quarry site. The lessee shall also allow any officer authorized by the State Government or the Director of Geology and Mining or the District Collector in this behalf to inspect the quarry and verify the records and accounts and to furnish such information and returns as may be required by him.

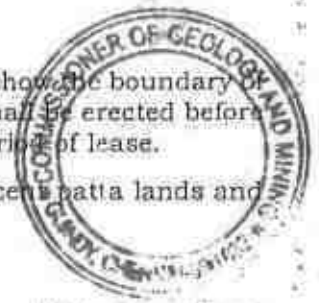
10. (a) The lessee shall carryout the quarrying operations in a skilful, scientific and systematic manner keeping in view the proper safety of the labour, conservation of minerals and preservation of the environment and ecology of the area.

(b) The lessee shall allow any officer authorized by State Government, or the Director of Geology and Mining, or the District Collector concerned to enter upon the leasehold area and inspect for the purpose mentioned in clause (a) and for any other purpose which may be required for compliance of the provisions of the Act and these rules or any other Act or Rules framed by the Central Government or the State Government.

11. The lease granted under this rule may be renewed for a period not exceeding twenty years, provided that renewal of lease shall be subject to the satisfactory performance of the lessee in the past in fulfilling the conditions of lease and as per the other rule provisions of Tamil Nadu Minor Mineral Concession Rules 1959.

12. CONDITIONS

1. The period for which the area granted on lease for quarrying under this rules is only for twenty years.
2. The quarrying lease will be granted only in the name of the successful Tenderer/bidder declared by the state Government.
3. No quarrying activities commenced there to shall be done before the execution of the agreement.
4. The Executed lease deed shall be registered at the cost of the lessee.
5. While quarrying no hindrance shall be caused to the adjoining pattadars and public.
6. The lessee should restrict his mining operations strictly within the permitted area as defined in the sketch without any encroachments.
7. The lessee should maintain, at his cost proper signboards indicating the survey numbers, years of lease, name of the lease holder and lease period to the satisfaction of the District Collector and Commissioner/ Director of Geology and Mining and maintain it all time at the quarry site.
8. The lessee should make his/her own arrangement to form the approach road from the public road to the place of the quarry.
9. The lessee shall abide to all the provisions of Mines and Minerals (Development and Regulation) Act, 1957, The Metalliferous Mines Regulations 1961 or any other connected Laws including Forest (Conservation) Act, 1980, Forest Conservation Rules, 1981, Environment Protection Act, 1980, Indian Explosives Act 1884, (Central Act IV of 1884) and the Rules made there under and the Tamil Nadu Minor Minerals Concession Rules, 1959.



10. Quarry lease area should be demarcated state on ground with wire fencing to show the boundary the lease area on all sides with red flags on every pillar with DGPS reading shall be erected before commencement of quarrying and it should be maintained throughout the period of lease.
11. No quarrying shall be made within the safety distance of 7.5 mts to the adjacent patta lands and 10 mts to the adjacent Government Poramboke land.
12. Pit Mouth register should be maintained in the quarry site.
13. A minimum distance of 50 mts. from any Civil structure/ habitation, Electric / Telephone lines, Railway line, Reservoir canal, National highways and other public works shall be kept from the periphery of any excavation area and 10mts safety distance to the village roads shall be kept and maintained during the entire lease period.
14. Quarry operations shall be carried only after appointing Mines Manager/Mines Mate and it should be carried out on the supervision of Mines Manager/Mines Mate.
15. Notice of opening of the quarry should be sent to the Director of Mines safety, Bangalore.
16. In any accident occur in the quarry area the lessees should give intimation to the Director of Mines safety Bangalore and District Collector, Krishnagiri at once and lessee is solely responsible for any violation.
17. The lessee should get the consent for establishment and for operation from the Tamil Nadu Pollution Control Board before the commencement of quarrying operation.
18. The conditions imposed by the TNPCB in the consent order should be adhered without any omission.
19. The Environmental clearance and the consent of the TNPCB should be renewed periodically without any lapse.
20. If any quarrying is found in the area granted on lease before the date of execution of lease deed, the lease is liable to be cancelled and criminal action will be initiated.
21. No lease granted under this rule shall be extended.
22. The lessee shall provide safety distance in the area as per the rules in force or any rule which may be imposed by Government. He must also take up all safety measures as directed by the Government at his own cost.

13. SPECIAL CONDITIONS

1. The Government reserves the right to accept or reject any or all tender / bid applications either in part or in full without any liability to the Government or any of the officers of the Government.
2. The authority for acceptance of tender / bid shall rest with the Government. The Government do not bind themselves to accept the highest or any other tender / bid applications.
3. The applicants participating in the tender / bid either should have (or) shall obtain a valid Permanent Account Number issued by the Income Tax department of Government of India.
4. The successful bidder shall pay 2% on the total tender / bid amount into the TAN number CHEDO5905E as TDS to IT Department and produce the remittance challan to the Assistant Director of Geology and Mining, Krishnagiri.
5. After execution of the lease deed the lessees shall have to pay as 2% on the seigniorage fee as TDS to Income Tax Department on the total Seigniorage Fee paid for the total volume of transportation at the time of obtaining transport permit.
6. The lessee shall pay 10% of the total amount of the seigniorage fee paid for obtaining transport permit towards the contribution of Krishnagiri District Mineral Foundation Trust Fund and the said amount should be remitted to current account number 37243080996 @ the State Bank of India, Krishnagiri Branch then and there without fail.

7. Transportation of Black Granite/ Colour Granite blocks should not be carried out from 6.00 P.M to 6.00 A.M.
8. The lessee shall strictly adhere to the statutory and safety requirements.
9. The waste materials generated during quarrying operation shall be dumped only within the area granted under lease.
10. Quarrying shall be done as per the approved Mining Plan and as such laws made by the Central Government/State Government and any other notifications issued then and there.
11. The lessee/grantee shall submit scheme of mining, mine closure plan and other statutory requirements within the time stipulated for submission of the above as per rules.
12. The lessee shall submit half yearly returns in form 'F' and Annual returns in Form 'G' as per GCDR 1999 within the prescribed time limit.
13. The lessee should strictly adhere all the conditions imposed by the state Government, in the lease granting order, conditions imposed in the Environmental Clearance certificate, conditions imposed by the Director of Geology and Mining, the District Collector, Krishnagiri and any other directions / instructions issued from time to time.
14. Any other conditions stipulated by other Statutory/Government authorities shall be complied with.

14.SCHEDULE

KRISHNAGIRI DISTRICT

Areas notified for lease under Tender-Cum-Auction as per Rule 8-A of Tamil Nadu Minor Mineral Concession Rules, 1959.

Sl. No	Taluk	Village	S.F. No.	Extent Proposed for lease (In hecets.)	Classification of land	Mineral
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	Bargur	Pasinayana palli	73(P)	4.25.0	Parai	Black Granite
2	Bargur	Guttur	362/1(P) BIT-1	1.02.0	Kallankuthu	Black Granite
3	Bargur	Guttur	362/1(P) BIT-2	1.42.0	Kallankuthu	Black Granite
4	Bargur	Guttur	309(P)	1.64.0	Kallankuthu	Black Granite
5	Bargur	Guttur	397/1 & 404/1	2.80.0	Kallankuthu UAW	Black Granite
6	Bargur	Pasinayana palli	10(P)	3.46.0	UAW Parai	Colour Granite
7	Bargur	Modikuppam	121(P)	2.52.0	UAW	Colour Granite



(1)	(2)	(3)	(4)	(5)	(6)	(7)
8	Bargur	Shoolamalai	333(P)	1.98.0	UAW	Colour Granite
9	Bargur	Ikondam kothapalli	337/1(P)	2.54.0	Karadu	Colour Granite
10	Bargur	Puligunda	345(P) BIT-1	1.28.0	Kallankuthu	Colour Granite
11	Bargur	Puligunda	345(P) BIT-2	1.78.0	Kallankuthu	Colour Granite
12	Bargur	Jagadevi palayam	366(P)	1.87.0	UAW Parai	Colour Granite
13	Pocham palli	Nagojana halli	609A(P) BIT-1	2.92.0	UAW Malai	Colour Granite
14	Pocham palli	Nagojana halli	609A(P) BIT-2	4.10.0	UAW Malai	Colour Granite
15	Pocham palli	Nagojana halli	609A(P) BIT-3	3.23.0	UAW Malai	Colour Granite
16	Pocham palli	Nagojana halli	609A(P) BIT-4	1.80.0	UAW Malai	Colour Granite
17	Pocham palli	Nagojana halli	609A(P) BIT-5	1.54.0	UAW Malai	Colour Granite
18	Denkani kottai	Irudhu kottai	1160/1 (Part)	1.09.0	Podukal	Colour Granite

Krishnagiri,
09-10-2020.

V. JAYA CHANDRA BHANU REDDY,
District Collector,
Krishnagiri District.


S. DHANASEKAR, M.Sc. (G.M.)
Qualified Person

தமிழ்நாடு வனத்துறை

அனுப்பதல்

திரு. தியக் எஸ். பிங்கி, இ.வய.,
வன உயிரின காப்பாளர்,
மத்தியி, ஓரூர் - 635 110.
தொலைபேசி எண். 04344-262259.

பெறுதல்

மாவட்ட ஆட்சித் தலைவர்,
கிருஷ்ணகிரி மாவட்டம்,
கிருஷ்ணகிரி.

ந.க.எண்.5279/2019-எல் நாள்.27.11.2019
(ஸ்ரீ லீகாரி வகுடம், காந்திக்கை II, திருவள்ளூர் ஆண்டு 2050)

அப்பா,

பொருள் : கனிமங்களும் குவாரிகளும் - சிறுகனிமம் - கிராண்டை கற்கள் - கிருஷ்ணகிரி மாவட்டத்தில் அரசு புறம்போக்கு நிலங்களில் உள்ள கிராண்டை கற்கள் வெட்டியெடுக்க டெண்டருடன் இணைந்த ஏலமுறையில் குவாரி குத்தகை வழங்குதல் குறித்து வனத்துறையின் தடைபின்மைச் சான்று கோருதல் - வனத்துறை நோக்கிலான கருத்து தெரிவித்தல்-தொடர்பாக.

- பார்வை :**
1. மாவட்ட ஆட்சித் தலைவர், கிருஷ்ணகிரி மாவட்டம் ந.க.எண். 90/2017/கனிமம் நாள்.20.05.2019.
 2. வனச்சரக அலுவலர், தேன்கனிகோட்டை சரகம் ந.க.எண்.178/2019 நாள்.18.11.2019.
 3. வனச்சரக அலுவலர், கிருஷ்ணகிரி சரகம் ந.க.எண்.560/2019 நாள்.25.11.2019.

பார்வை 1-ல் கண்ட கிருஷ்ணகிரி மாவட்ட ஆட்சித் தலைவர் அவர்களது கடிதத்தில், கிருஷ்ணகிரி மாவட்டத்தில் உள்ள அரசு புறம்போக்கு நிலங்களில் கிராண்டை கற்கள் வெட்டி எடுக்க டெண்டர் / பொது ஏலம் மூலம் குத்தகைக்கு வழங்க, வனத்துறை நோக்கிலான கருத்து மற்றும் வனத்துறையின் தடைபின்மை சான்று வழங்க வேண்டி கேட்கப்பட்டுள்ளது.

மேற்படி மனு மீது நடவடிக்கை எடுக்கும் பொருட்டு, கிருஷ்ணகிரி வனச்சரக அலுவலரால் 25.11.2019ந்தேதியும் மற்றும் தேன்கனிகோட்டை வனச்சரக அலுவலரால் 18.11.2019ந்தேதியும் சரக பணியாளர்களுடன் தணிக்கை மேற்கொண்டு அறிக்கை சமர்ப்பித்துள்ளனர்.

கிருஷ்ணகிரி மற்றும் தேன்கனிகோட்டை வனச்சரக அலுவலர்கள் அறிக்கைகளின் அடிப்படையில், கிராண்டை கற்கள் வெட்டி எடுக்க டெண்டர் / பொது ஏலம் மூலம் குத்தகைக்கு வழங்க அனுமதி கோரியுள்ள பகுதிகளை வன உயிரின காப்பாளரால், சரக பணியாளர்களுடன் தணிக்கை செய்யப்பட்டதில், கீழ்க்கண்ட அட்டவணை 1-ல் உள்ள குவாரிப் பகுதிகளுக்கு கிராண்டை கற்கள் வெட்டி எடுக்க டெண்டர் / பொது ஏலத்தில் குத்தகைக்குவிட கீழ்க்கண்டவாறு இயல்புவசைத்தின் கருத்து தெரிவிக்கப்படுகிறது.



- i) கிராண்ட் கற்குவாரி குத்தகை வழங்க ஒப்பந்தம் செய்வதற்கு (Lease deed agreement) முன்பு ஒவ்வொரு குவாரிப் பகுதிக்கும் தனித்தனியாக வளத்துறையின் நிபந்தனை மற்றும் குறிப்புகளுடன் முன் அனுமதி பெற்றப்பின் குவாரிப் பணி செய்ய பணி ஆணை (Work order) வழங்கப்பட வேண்டும்.
- ii) காவேரி வடக்கு வன உயிரின சரணாலயத்திற்கான Eco Sensitive Zone எல்லை நிர்ணயம் செய்ய பிரேரிக்கப்பட்டு ஆணை எதிர்நோக்கியுள்ள சூழலில், மேற்படி கிராண்ட் கற்குவாரி குத்தகை கோரும் புலங்கள் காவேரி வடக்கு வன உயிரின சரணாலய எல்லையிலிருந்து 10 கி.மீ-க்குள் அமைந்திருப்பின் தேசிய வன உயிரின வாரியத்தின் முன் அனுமதி (National Board for Wildlife) பெறப்பட வேண்டும்.
- iii) மலைதள பாதுகாப்பு பரிந்துரை குழு (Hill Area Conservation Authority)-ன்படி அறிவிக்கை செய்யப்பட்ட கிராம எல்லைக்குள் கற்குவாரி பணி செய்ய அனுமதி கோரியுள்ள புலங்கள் அமைந்திருப்பின், மலைதள பாதுகாப்பு பரிந்துரை குழு (Hill Area Conservation Authority)-ன் கீழ் முன் அனுமதி பெறப்பட வேண்டும்.
- iv) கிராண்ட் கற்கள் வெட்டி எடுக்க டெண்டர் / பொது ஏலத்தில் குத்தகைக்குவிட அனுமதி கோரும் புலங்கள் வருவாய்த்துறை ஆணைங்களில் "காடு" என வகைப்படுத்தப்பட்ட புலங்களில் கற்குவாரிப் பணிசெய்ய அனுமதிக்கக் கூடாது.
- v) கிராண்ட் கற்கள் வெட்டி எடுக்க டெண்டர் / பொது ஏலத்தில் குத்தகைக்குவிட அனுமதி கோரும் புலங்கள் தமிழ்நாடு வனச்சட்டம் 1882-ன் பிரிவு 4 மற்றும் 16-ன் கீழ்காப்பு நிலம் / காப்புக்காடு என அறிவிக்கை செய்யப்பட்ட புலங்களாக இருத்தல் கூடாது.
- vi) கிராண்ட் கற்கள் வெட்டி எடுக்க டெண்டர் / பொது ஏலத்தில் குத்தகைக்குவிட அனுமதி கோரும் புலங்கள் தமிழ்நாடு வனச்சட்டம் 1882-ன் பிரிவு 26-ன் கீழ் அறிவிக்கை செய்யப்பட்ட புலங்களாக இருத்தல்கூடாது.
- vii) கிராண்ட் கற்கள் வெட்டி எடுக்க டெண்டர் / பொது ஏலத்தில் குத்தகைக்குவிட அனுமதி கோரும் புலங்கள் காப்புக்காட்டின் எல்லைக்கு அருகில் அமைந்திருப்பின், Standing Orders of the Board of Revenue- volume - I Section III, Sub-Section 38 (III) வருவாய் வாரிய நிலை ஆணை தொகுப்பு 1, பிரிவு 3, உட்பிரிவு 38 (III)-ன்படி காப்புக்காட்டிற்கு அருகில் உள்ள நிலத்தில் இதர பயன்பாட்டிற்கு உட்படுத்த நடவடிக்கை மேற்கொள்ளப்படும் போது காப்புக் காட்டின் எல்லையிலிருந்து குறைந்தபட்சம் 60 மீட்டர் (3 Chain) தொலைவிற்கு அப்பாற்பட்டிருக்க வேண்டும் என்ற நிபந்தனையை கடைபிடிக்கப்பட வேண்டும்.
- viii) அரசாணை (நிலை) எண்.79 தொழில் (கனிமம் 1) துறை நாள்.06.04.2015-ல் குறிப்பிட்டுள்ள நிபந்தனைகளை மாவட்ட நிர்வாகம் / கனிம வளத்துறை கவனத்தில் கொள்ளவேண்டும்.

அட்டவணை - 1

கிராமன்ட் கற்கள் வெட்டி எடுக்க டெண்டருடன் இணைந்த ஏலமுறை வழங்க பரிந்துரை செய்யப்படும் குவாரிப் பகுதிகள் விபரம்



Sl. No.	Taluk	Village	Survey Number	Propoed area (In Ha)
1	BARGUR	PASINAYANAPALLI	10(P)	3.69.0
2	BARGUR	MODIKUPPAM	121(P)	2.85.0
3	BARGUR	SHOOLAMALAI	333(P)	2.00.0
4	BARGUR	IKONDAM-KOTHAPALLI	337/1(P) Bit 2	2.54.0
5	BARGUR	PULIGUNDA	345(P) BIT-1	1.67.0
6	BARGUR	PULIGUNDA	345(P) BIT-2	1.78.0
7	BARGUR	JAGADEVIPALAYAM	366(P)	1.87.0
8	BARGUR	PASINAYANAPALLI	73(P)	4.25.0
9	BARGUR	GUTTUR	309(P)	2.50.0
10	BARGUR	GUTTUR	362/1(P) BIT-1	1.02.0
11	BARGUR	GUTTUR	362/1(P) BIT-2	1.62.0
12	BARGUR	GUTTUR	397/1 & 404/1	2.80.0
13	POCHAMPALLI	NAGOJANAHALLI	609A(P) BIT-1	2.92.0
14	POCHAMPALLI	NAGOJANAHALLI	609A(P) BIT-2	4.10.0
15	POCHAMPALLI	NAGOJANAHALLI	609A(P) BIT-3	3.23.0
16	POCHAMPALLI	NAGOJANAHALLI	609A(P) BIT-4	1.80.0
17	POCHAMPALLI	NAGOJANAHALLI	609A(P) BIT-5	1.54.0
18	DENKANIKOTTAI	IRUDHUKOTTAI	1160	3.06.0

கீழ்க்கண்ட அட்டவணை 2-ல் குறிப்பிடப்பட்டுள்ள பகுதிகளில் குவாரிப் பணி செய்ய டெண்டருடன் இணைந்த ஏலமுறையில் விடுவதை தற்போது நிறுத்திவைக்கலாம் என்பதை தெரிவித்துக்கொள்கிறேன்.

அட்டவணை - 2

கீழ்க்கண்ட பகுதிகளில் கிராமன்ட் கற்கள் வெட்டி எடுக்க டெண்டருடன் இணைந்த ஏலமுறை விடுவதை தற்போது நிறுத்திவைக்கலாம்

Sl. No.	Taluk	Village	Survey Number	Propoed area (In Ha)
1	BARGUR	MODIKUPPAM	143/2(P)	1.60.0
2	BARGUR	IKONDAM-KOTHAPALLI	337/1(P) Bit 1	2.96.0
3	POCHAMPALLI	NAGOJANAHALLI	642(P)	1.00.0
4	UTHANGARAI	KUNNATHUR	220/1 & 220/2	1.89.0



5	DENKANIKOTTAI	HANUMANTHA-PURAM	287	1.62.0
6	DENKANIKOTTAI	HANUMANTHA-PURAM	288/4	1.73.0
7	DENKANIKOTTAI	THAVAKARAI	348(P) BIT-1	2.50.0
8	DENKANIKOTTAI	THAVAKARAI	348(P) BIT-2	2.50.0
9	DENKANIKOTTAI	THAVAKARAI	348(P) BIT-3	2.50.0

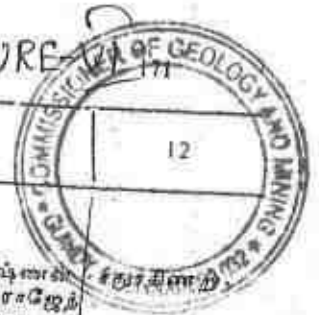
மேற்கண்ட அட்டவணை 1-ல் கண்ட இணங்களுக்கு மட்டும் டெண்டர் / பொது ஏலத்தில் குத்தகைக்குவிட மட்டுமே தடையில்லாத் சான்று தற்போது அளிக்கப்படுகிறது. ஒவ்வொரு குவாரிப் பகுதிகளுக்கும் வனத்துறையின் சூலம் தனித்தனியாக தணிக்கை மேற்கொண்டு, அதற்கேற்ப சட்ட திட்டங்களுக்கு உட்பட்டு, மாண்புமிகு உச்சநீதி மன்ற ஆணைகளை கடைபிடிக்க (Compensatory planting), மனித - வன விலங்கு மோதல்கள் மற்றும் மாக கட்டுப்பாடு போன்றவற்றை கருத்தில் கொண்டு வனத்துறையின் கருத்துகள் மற்றும் நியந்தனைகளை பெற ஒவ்வொரு குத்தகைக்கும் தனித்தனியாக விண்ணப்பிக்க வேண்டும் என்பதை அன்புடன் தெரிவித்துக்கொள்கிறேன்.

தங்கள் அன்புள்ள,
ஓம்/-தீபக் எஸ். பில்கி,
வனஉயிரின காப்பாளர்,
ஓசூர் வனக்கோட்டம்.

//உ.ந.உ.ப//

சுமதி
கண்காணிப்பாளர் 29/11/19

S. DHANASEKAR, M.Sc. (Geo)
Qualified Person



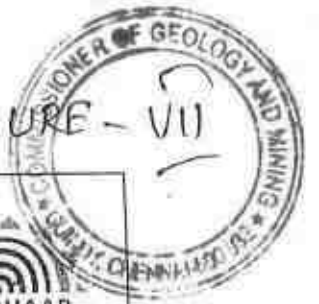
2	3	4	5	6	7	8	9	10	11	12	
						கு. எய்.	தொ. அளவு	கு. எய்.			
102-1ur	ர	4	...	7-2	3	3 38	0 03.0	0 10	1036 பெ. சி. குடிமகன் (1). பெ. ராஜேத் திரன் (2), மு. கண்ணையநாயுடு (3).		
1ur	ர	4	...	7-2	3	3 38	0 15.0	0 50	139 பெ. சி. குடிமகன்.		
1ur	ர	4	...	7-2	3	3 38	0 04.0	0 15	733 பெ. ராஜேத்தி ரன்.		
1B	1ur	ர	4	...	7-2	3	3 38	0 06.0	0 20	733 பெ. ராஜேத் திரன்.	
1E	1ur	ர	4	...	7-2	3	3 38	0 08.0	0 25	93 மு. கண்ணைய நாயுடு.	
2A	2ur	ர	4	...	7-2	3	3 38	0 09.0	0 30	968 சி. முனிசுந்திரன் (1), மு. சின்ன ராஜம்மாள் (2).	வ. L. சின்னா
	2ur	ர	4	...	7-2	3	3 38	0 16.5	0 55	359 மு. சின்னராஜம் மாள்.	
	2ur	ர	4	...	7-2	3	3 38	0 30.0	1 00	671 சி. முனிசுந்திரன்.	
	2ur	ர	4	...	7-2	3	3 38	0 07.5	0 25	159 மு. சின்னராஜம் மாள்.	
	2ur	ர	4	...	7-2	3	3 38	0 55.5	1 90	94 சி. கண்ணன்.	சு. திரசினா
							1 54.5	5 20			
333	அ. தி. ச. த.	...	...	...	...	4 61.5	...	...	...
1	ர	4	...	7-3	4	2 77	0 82.0	2 25	94 சி. கண்ணன்.	பாண்ட	
2	ர	4	...	7-3	4	2 77	0 49.0	1 35	94 சி. கண்ணன்.		
3	ர	4	...	7-3	4	2 77	0 98.0	2 70	969 சி. கண்ணன் (1), பெ. சின்னராஜ் (2).		
4	ர	4	...	7-3	4	2 77	0 35.5	1 00	94 சி. கண்ணன்.		
5	ர	4	...	7-3	4	2 77	0 42.0	1 15	94 சி. கண்ணன்.		
6	ர	4	...	7-3	4	2 77	0 49.5	1 35	513 ரா. வெண்பா.		
						3 56.0	9 80				
	ர	4	...	7-3	4	2 77	0 78.0	2 15	62 சி. வெண்பாத்திரன்.	21/06/2014	
	ர	4	...	7-3	4	2 77	0 76.5	2 10	343 சி. சல்லாபி.		
	அ. தி. ச. த.	...	...	...	...	0 62.5	...	...	...	பாண்ட



District:Krishnagiri Taluk:BARGUR Village:SULAMALAI

புல எண்	உட்பிரிவு எண்	பழைய புல எண் - உட்பிரிவு எண்	பகுதி	அரசு - ரயத்துவாரி	நிலத்தின் வகை	பாசன ஆதாரம்	இரு போகமா	மண் வயனமும் ரகமும்	மண் தரம்	தீர்வை		மொத்த தீர்வை	பட்டா எண்	குறிப்பு
										கு	பை			
332	1C	1	P	ரயத்துவாரி	பஞ்சை			7-2	3	38	0 4.00	0 15	139-அ	குழைகள்
332	1D	1	P	ரயத்துவாரி	பஞ்சை			7-2	3	38	0 6.00	0 20	733-ஈ	சேந்திர
332	1E	1	P	ரயத்துவாரி	பஞ்சை			7-2	3	38	0 8.00	0 25	93-க	சுண்டி
332	2A	-2	P	ரயத்துவாரி	பஞ்சை			7-2	3	38	0 9.00	0 30	968-ம	எரித்தி
332	2B	-2	P	ரயத்துவாரி	பஞ்சை			7-2	3	38	0 16.50	0 55	359-ம	எரித்தி
332	2C	-2	P	ரயத்துவாரி	பஞ்சை			7-2	3	38	0 30.00	1 00	671-ம	எரித்தி
332	2D	-2	P	ரயத்துவாரி	பஞ்சை			7-2	3	38	0 7.50	0 25	359-ம	எரித்தி
332	2E	-2	P	ரயத்துவாரி	பஞ்சை			7-2	3	38	0 55.50	1 90	94-ஆ	குறித்து
333	-	333	P	அரசு	தீர்வை விடுபட்டத	0	0	0	0	00	1 54.50	5 20		



S.DHANASEKAR, M.Sc. (Geol)
Qualified Person



இந்திய அரசாங்கம்
Government of India

இந்திய தனிப்பட்ட அடையாள ஆணைய அமைப்பு
Unique Identification Authority of India

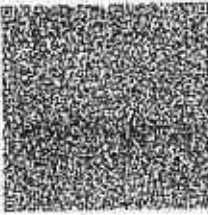
பதிவேட்டு எண் / Enrolment No.: 2043/99107/01532

Download Date: 23/10/2020

To
எம்.கொஷிக் தேவ்
M.Kowshik Dhev
S/O: Mathiazhagan
D NO 58B
GANDHI NAGAR
KRISHNAGIRI
BASHEER MOHAMMED LAYOUT
Krishnagiri
Krishnagiri
Krishnagiri Tamil Nadu - 635001
9443244390



Issue Date: 13/12/2014

Signature Not Verified



உங்கள் ஆதார் எண் / Your Aadhaar No. :
8065 5954 7556
VID : 9192 4092 7012 2639

எனது ஆதார், எனது அடையாளம்

தகவல்

- ஆதார் அடையாளத்திற்கான சான்று மூலப்படி அல்ல
- பாதுகாப்பான ஓர் குறியீடு ஆப்களின் XML / ஆப்களின் அகமிகாரத்தைப் பயன்படுத்தி அடையாளத்தை சரிபார்க்கவும்
- இது எலக்ட்ரானிக் செயல்முறை மூலம் தயாரிக்கப்பட்ட கடிதமாகும்.

INFORMATION

- Aadhaar is a proof of identity, not of citizenship.
- Verify identity using Secure QR Code/ Offline XML/ Online Authentication.
- This is electronically generated letter.

- ஆதார் நாடு முழுவதிலும் செல்லுபடியாகும்.
- பல்வேறு அரசு மற்றும் அரசு சாரா சேவைகளை எளிதில் பெற ஆதார் உதவுகிறது.
- உங்கள் மொபைல் எண் மற்றும் மின்னஞ்சல் மூலம் ஆதாரில் புதுப்பிக்கவும்.
- மக்களின் செயலியைப் பயன்படுத்தி உங்கள் எம்.எம்.டி. போனில் ஆதாரை எடுத்துச் செல்லுங்கள்.

- Aadhaar is valid throughout the country.
- Aadhaar helps you avail various Government and non-Government services easily.
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Download Date: 23/10/2020



எம்.கொஷிக் தேவ்
M.Kowshik Dhev
தேற்ற நாள்/DOB: 30/01/1995
ஆண்/ MALE

Issue Date: 13/12/2014

8065 5954 7556
VID : 9192 4092 7012 2639

எனது ஆதார், எனது அடையாளம்




தகவல்:
தலை: மதியழகம், கள்ள 58B, காந்தி நகர், பட்டிர் மூலத்து செ.அமைப்பு, கிருஷ்ணகிரி, கிருஷ்ணகிரி, கிருஷ்ணகிரி, தமிழ் நாடு - 635001.

Address:
S/O: Mathiazhagan, D NO 58B, GANDHI NAGAR, BASHEER MOHAMMED LAYOUT, KRISHNAGIRI, Krishnagiri, Krishnagiri, Tamil Nadu - 635001.



8065 5954 7556
VID : 9192 4092 7012 2639

1947 | help@uidai.gov.in | www.uidai.gov.in

M. Kowshik Dhev

S. Dhanasekar

S.DHANASEKAR, M.Sc.(Geo)
Qualified Person

Reg. No 01BBB1005

Col Code 106 / 106

ANNEXURE VIII



அறிவியல் புலம்

FACULTY OF SCIENCE

பெரியார் பல்கலைக்கழக ஆட்சிக்குழு 2003 ஆம் ஆண்டு ஏப்ரல் மாதம் நடந்த பயன்பாட்டு புவியமைப்பியல் தேர்வில் S தனசேகர் என்பவர் முதல் வகுப்பில் தேர்ச்சி பெற்றார் என்று தக்க தேர்வாளர்கள் சான்றளித்தபடி அறிவியல் நிறைஞர் என்னும் பட்டத்தை அவருக்குப் பல்கலைக்கழக இலச்சினையுடன் வழங்குகிறது.

The Syndicate of the Periyar University hereby makes known that **DHANASEKAR S** *has been admitted to the* **DEGREE OF MASTER OF SCIENCE in APPLIED GEOLOGY** *he/she having been certified by duly appointed Examiners to be qualified to receive the same and was placed in the* **FIRST CLASS** *at the Examination held in* **APRIL 2003**



Given under the seal of this University


S. DHANASEKAR, M.Sc. (Geo)
Qualified Person

நாள்

Dated 15-09-2004

சேலம் 636011, தமிழ்நாடு, இந்தியா.
Salem 636011, TamilNadu, India.


பதிவாளர்
Registrar


குணவைத்தர்
Vice-Chancellor

ANNEXURE - IX



☎ : 04288 - 262489

PRITHVI MINERALS,



VARANALLAMPALAYAM,
ALATHUR POST - 637 303.
SANKARI Tk, Salem Dt. Tamil Nadu

Date : 15.11.10

TO WHOMSOEVER IT MAY CONCERN

This is to certify that Shri. S. DHANASEKAR, S/o. Shri. A. Sundaram residing at No. 8/3, Kullappan Street, Omalur Taluk, Salem District - 636 455 is working in our mines from 15.10.2003 to 05.07.2005 as Part time Geologist. From 06.07.2005 to till date he is working as Full time Geologist. During the above tenure of service his execution of the assigned work is exemplary and worth mentioning.

We wish him success in his future endeavors.

For PRITHVI MINERALS,

(T. P. THANGAVEL)

Partner

S. DHANASEKAR, M.Sc. (Geo)

Qualified Person

12°29'52.7591"N

Madanapalle

ANDHRA PRADESH

Pallipattu

Puttu

Dod Ballapur

Chik Ballapur

Palmaner

CHITTOOR

Tiruttani

KOLAR

Venkatagiri

Sholinghur

Changala

BANGALORE

Bannerghatta

Kolar Gold Fields

Gudiyattam

Katpadi

Ranippettai

KA

KRISHNAGIRI

VELLORE

KANCHI

Hosur

KRISHNAGIRI

Ambur

Arcot

Tiruvettipura

Kanakapura

Rayakottai

Vaniyambadi

TIRUVANNAMALAI

Denkanikota

Kaveripattinam

Tiruppattur

Polur

Chetpet

Vandavasi

ivasamudram

Anchetti

Palakkodu

Uttangarai

Chengam

Gingee

leswara Hills

Hogenakal Falls

Pennagaram

DHARMAPURI

Sathanur

TIRUVANNAMALAI

Muttattur

Hills

Adiyamankottai

Stanley

DHARMAPURI

Harur

Tirukkovilur

Ma

Hills

Mettur

Yercaud

SALEM

Papireddippatti

VILUPPURAM

Paruti

Burgur

Omalur

Taramangalam

SALEM

Valapadi

Kallakkurichchi

Vadur

Satyamangalam

Bhavani

Sankagiri

Rasipuram

Attur

Veppur

Vridhachalam

Neyveli

Sagar

Nambur

Tiruchengodu

Attur

Tittagudi

CUDDALORE

12°29'50.7436"N

101 A



PLATE NO:J

DATE OF SURVEY:02-03-2021

APPLICANT ADDRESS:

THIRU.M.KOWSHIK DHEV,
S/o. D. MATHIAZHAGAN,
No. 58-B, GANDHI NAGAR,
KRISHNAGIRI-635 001

INDEX

QUARRY LEASE AREA : ●

TOPO SHEET NO : 37-I/7

LATITUDE : 12°29'52.7591"N to 12°29'50.7436"N

LONGITUDE : 78°18'9.2169"E to 78°18'0.9548"E

LOCATION OF QUARRY:

EXTENT : 1.98.0 Ha.
S.F.NO : 333(PART),
VILLAGE : SHOOLAMALAI,
TALUK : BARGUR,
DISTRICT : KRISHNAGIRI.

LOCATION PLAN

NOT TO SCALE

PREPARED BY:


I DO HEREBY CERTIFY THAT THE PLATE
HAS BEEN CHECKED BY ME AND IS CORRECT
TO THE BEST OF MY KNOWLEDGE.


S. SRIKANATH KUMAR,
QUALIFIED PERSON

78°18'0.9548"E

78°18'8.2169"E



PLATE NO. IA	
DATE OF SURVEY: 02-03-2021	
APPLICANT ADDRESS:	
THIRU. M. KOWSHIK DHEV, S/o. D. MATHIAZHAGAN, No. 58-B, GANDHI NAGAR, KRISHNAGIRI-635 001	
INDEX	
QUARRY LEASE AREA	
ROAD	
LOCATION OF QUARRY:	
EXTENT	: 1.98.0 Ha,
S.F. NO	: 333(PART),
VILLAGE	: SHOOLAMALAI,
TALUK	: BARGUR,
DISTRICT	: KRISHNAGIRI.
KEY MAP/ROUTE MAP	
NOT TO SCALE	
PREPARED BY:	
I DO HEREBY CERTIFY THAT THE PLATE HAS BEEN CHECKED BY ME AND IS CORRECT TO THE BEST OF MY KNOWLEDGE	
 S. DHYANASHIKAR, M.Sc., QUALIFIED PERSON	

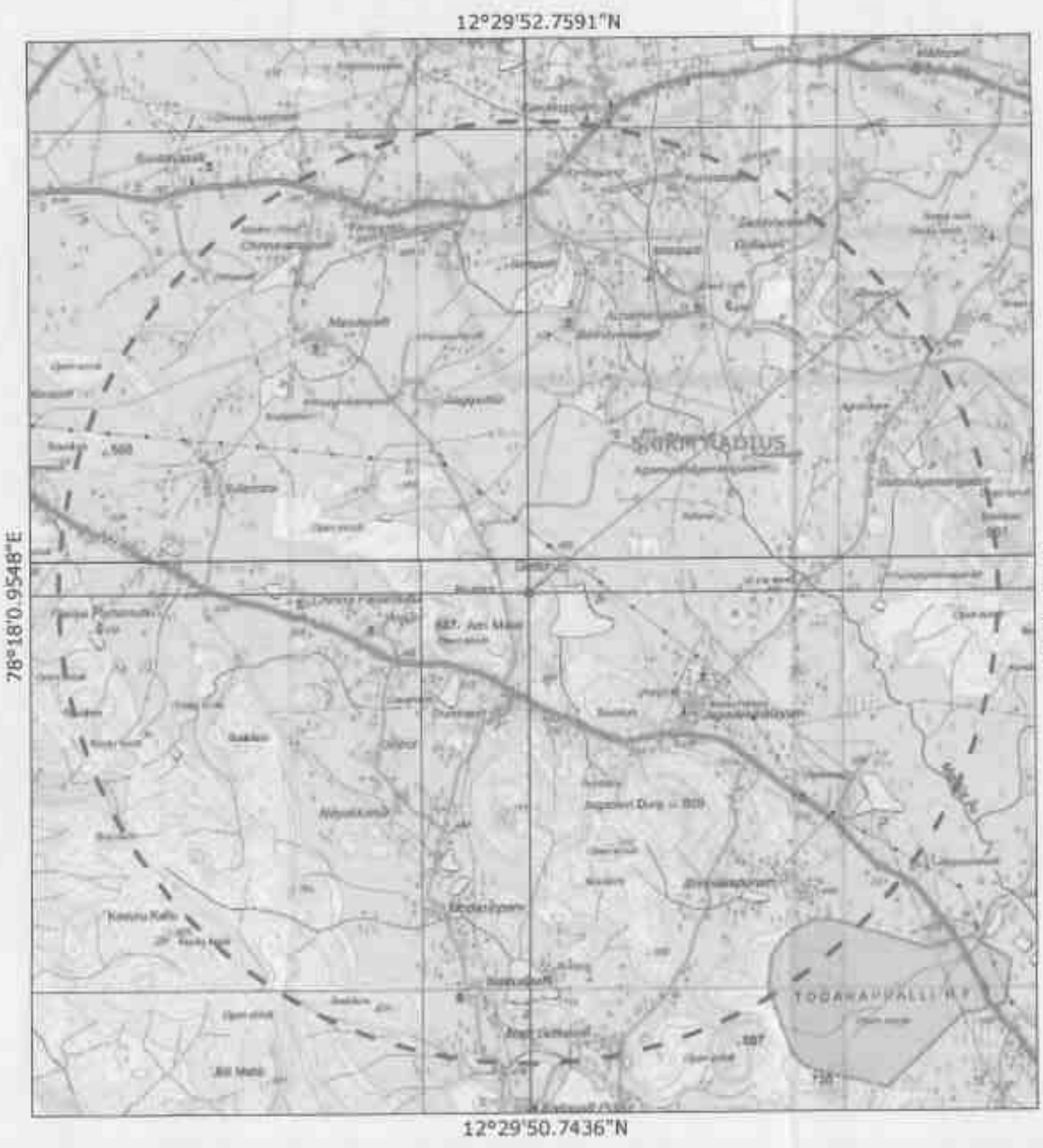


PLATE NO. IB
 DATE OF SURVEY: 02-03-2021

APPLICANT ADDRESS:
 THIRU. M. KOWSHIK DHEV,
 S/o. D. MATHIAZHAGAN,
 No. 58-B, GANDHI NAGAR,
 KRISHNAGIRI-635 001

INDEX

QUARRY LEASE AREA

5.0 KM RADIUS

TOPO SHEET NO : 57-L/7

LATITUDE : 12°29'52.7591"N to 12°29'50.7436"N
 LONGITUDE : 78°18'0.2169"E to 78°18'0.9548"E

SYMBOLS	
	Quarry Lease Area
	5.0 km Radius
	Contour Lines
	Roads
	Rivers
	Place Names
	Spot Heights
	Boundaries
	Cultivated Land
	Forest Land
	Water Bodies
	Dotted Lines
	Dashed Lines
	Dash-dot Lines
	Long-dash Lines
	Short-dash Lines
	Dotted-dash Lines
	Long-short-dash Lines
	Short-long-dash Lines
	Dotted-dot-dash Lines
	Long-dot-dash Lines
	Short-dot-dash Lines
	Dotted-dot-dot-dash Lines
	Long-dot-dot-dash Lines
	Short-dot-dot-dash Lines
	Dotted-dot-dot-dot-dash Lines
	Long-dot-dot-dot-dash Lines
	Short-dot-dot-dot-dash Lines
	Dotted-dot-dot-dot-dot-dash Lines
	Long-dot-dot-dot-dot-dash Lines
	Short-dot-dot-dot-dot-dash Lines

LOCATION OF QUARRY:

EXTENT : 1.98.0 Ha,
 S.F. NO : 333(PART),
 VILLAGE : SHOOLAMALAI,
 TALUK : BARGUR,
 DISTRICT : KRISHNAGIRI.

TOPOSHEET MAP
 SCALE : 1 : 50000

PREPARED BY:
 I DO HEREBY CERTIFY THAT THE PLATE
 HAS BEEN CHECKED BY ME AND IS CORRECT
 TO THE BEST OF MY KNOWLEDGE

S. HANANUR RAHMAN,
 QUALIFIED PERSON



Boundary DRTS Coordinates

VILLAGE NO	LONGITUDE	LATITUDE
1	12° 28' 46.0000" N	76° 28' 2.0000" E
2	12° 28' 46.8347" N	76° 28' 3.3467" E
3	12° 28' 46.5000" N	76° 28' 4.0000" E
4	12° 28' 51.4000" N	76° 28' 2.0000" E
5	12° 28' 52.0000" N	76° 28' 3.0000" E
6	12° 28' 51.0000" N	76° 28' 3.0000" E
7	12° 28' 46.8347" N	76° 28' 3.3467" E
8	12° 28' 46.0000" N	76° 28' 2.0000" E
9	12° 28' 52.0000" N	76° 28' 3.0000" E
10	12° 28' 51.0000" N	76° 28' 3.0000" E
11	12° 28' 46.8347" N	76° 28' 3.3467" E
12	12° 28' 52.0000" N	76° 28' 3.0000" E
13	12° 28' 51.0000" N	76° 28' 3.0000" E

WGS 84 DATUM



PLATE NO. IC

DATE OF SURVEY: 02-03-2021

APPLICANT ADDRESS:

THIRU. M. KOWSHIK DHEV,
S/o. D. MATHIAZHAGAN,
No. 58-B, GANDHI NAGAR,
KRISHNAGIRI-635 001

LOCATION OF QUARRY:

EXTENT : 1.98.0 Ha,
S.F.NO : 333(PART),
VILLAGE : SHOOLAMALAI,
TALUK : BARGUR,
DISTRICT : KRISHNAGIRI.

INDEX

QUARRY LEASE BOUNDARY

SATELLITE IMAGE

(LEASE AREA)

SCALE 1:1000

PREPARED BY:

I DO HEREBY CERTIFY THAT THE PLATE
HAS BEEN CHECKED BY ME, AND IS CORRECT
TO THE BEST OF MY KNOWLEDGE

S. DHYANAKARM,
QUALIFIED PERSON

12° 29' 54.5131" N
78° 18' 6.1344" E



PLATE NO.ID	
DATE OF SURVEY:02-03-2021	
APPLICANT ADDRESS:	
TTHIRU.M.KOWSHIK OHEV, S/o. D. MATHIAZHAGAN, No. 58-B, GANDHI NAGAR, KRISHNAGIRI-635 001	
LOCATION OF QUARRY:	
EXTENT	: 1.95.0 Ha,
S.F.NO	: 333(PART),
VILLAGE	: SHOOLAMALAI,
TALUK	: BARGUR,
DISTRICT	: KRISHNAGIRI.
INDEX	
QUARRY LEASE BOUNDARY	
500m RADIUS	
300m RADIUS	
SATELLITE IMAGE (200m RADIUS)	
SCALE 1:1000	
PREPARED BY:	
I DO HEREBY CERTIFY THAT THE PLATE HAS BEEN CHECKED BY ME AND IS CORRECT TO THE BEST OF MY KNOWLEDGE	
 S.STHANASEKARAM S., QUALIFIED PERSON	



12° 29' 50.7436" N
78° 18' 0.9548" E

12° 29' 52.7591" N
78° 18' 8.2169" E

12° 29' 48.6998" N
78° 18' 3.2773" E

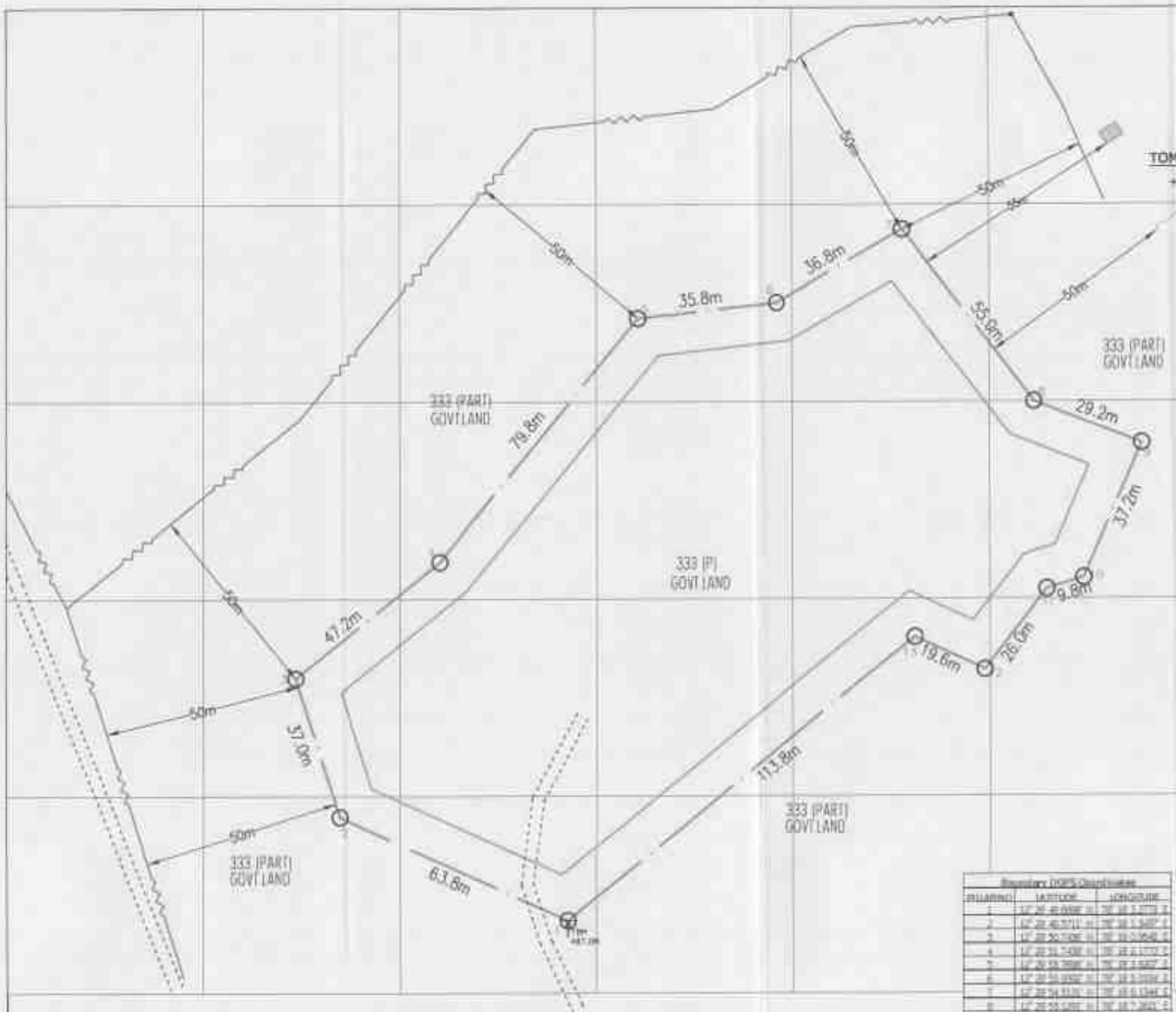


PLATE NO. II
 DATE OF SURVEY: 02-03-2023

APPLICANT ADDRESS:
 THIRU. M. KOWSHIK DHEV,
 S/o. D. MATHIAZHAGAN,
 No. 58-B, GANDHI NAGAR,
 KRISHNAGIRI-635 001

LOCATION OF QUARRY:
 EXTENT : 1.08.0 Ha,
 S.F.NO : 333(PART),
 VILLAGE : SHDOLAMALAL,
 TALUK : BARGUR,
 DISTRICT : KRISHNAGIRI.

INDEX

QUARRY LEASE BOUNDARY	
10m & 50m SAFETY DISTANCE	
TEMPORARY BENCH MARK	
APPROACH ROAD	

MINE LEASE PLAN
 SCALE 1:1000

PREPARED BY:
 I DO HEREBY CERTIFY THAT THE PLATE
 HAS BEEN CHECKED BY ME AND IS CORRECT
 TO THE BEST OF MY KNOWLEDGE.

S. DHANASEKAR M.S.,
 QUALIFIED PERSON

SL. NO.	BOUNDARY POINT NO.	EASTING	NORTHING
1	1	70 28 5 377 2	70 28 5 377 2
2	2	70 28 5 377 2	70 28 5 377 2
3	3	70 28 5 377 2	70 28 5 377 2
4	4	70 28 5 377 2	70 28 5 377 2
5	5	70 28 5 377 2	70 28 5 377 2
6	6	70 28 5 377 2	70 28 5 377 2
7	7	70 28 5 377 2	70 28 5 377 2
8	8	70 28 5 377 2	70 28 5 377 2
9	9	70 28 5 377 2	70 28 5 377 2
10	10	70 28 5 377 2	70 28 5 377 2
11	11	70 28 5 377 2	70 28 5 377 2
12	12	70 28 5 377 2	70 28 5 377 2
13	13	70 28 5 377 2	70 28 5 377 2

WARRANTY

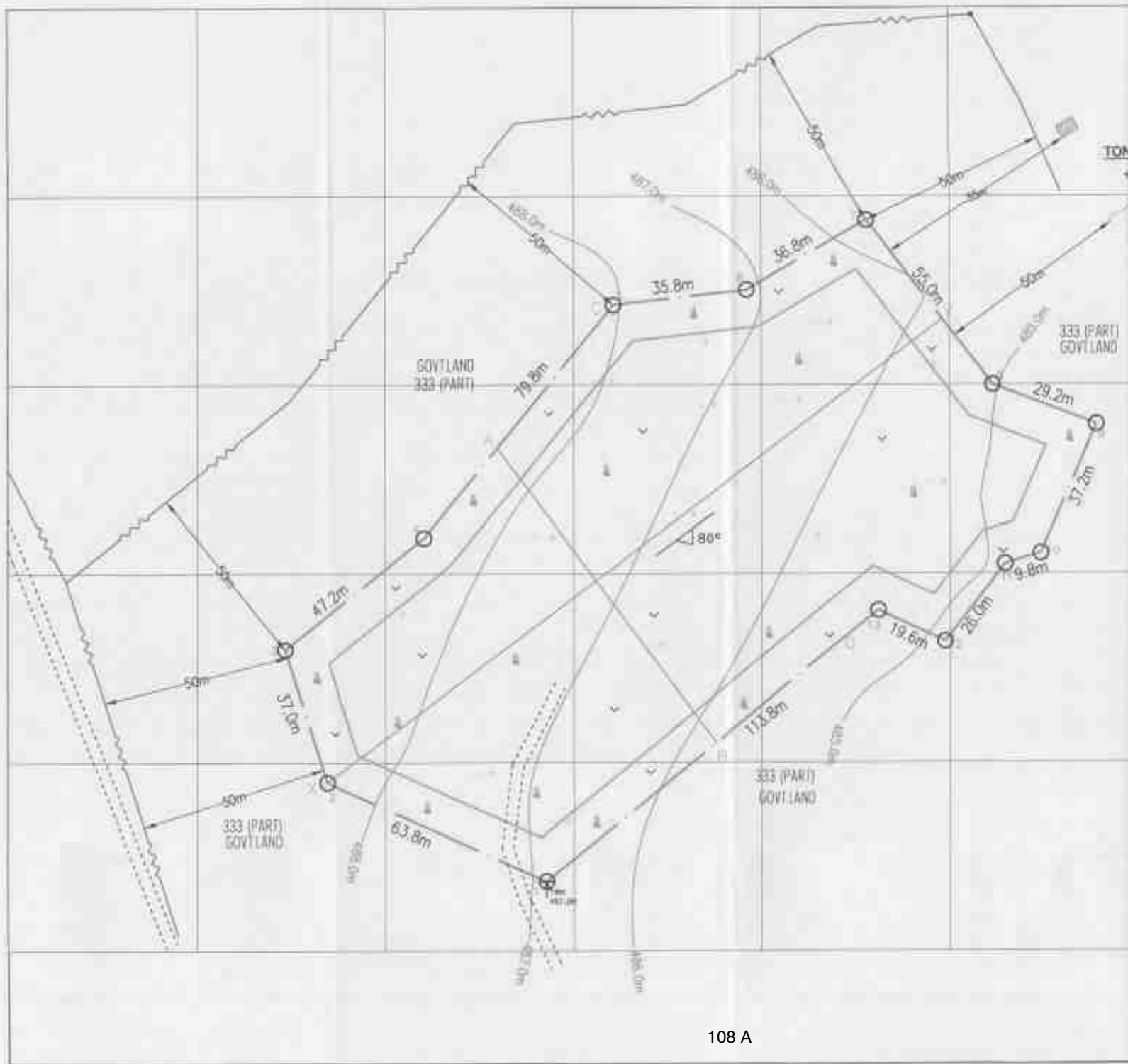


PLATE NO.IV
 DATE OF SURVEY: 02-03-2021

APPLICANT ADDRESS:
 THIRU.M.KOWSHIK DHEV,
 S/o. D. MATHIAZHAGAN,
 No. 58-B, GANDHI NAGAR,
 KRISHNAGIRI-635 001

LOCATION OF QUARRY:
 EXTENT : 1.98.0 Ha,
 S.F.NO : 333(PART),
 VILLAGE : SHOOLAMALAI,
 TALUK : BARGUR,
 DISTRICT : KRISHNAGIRI.

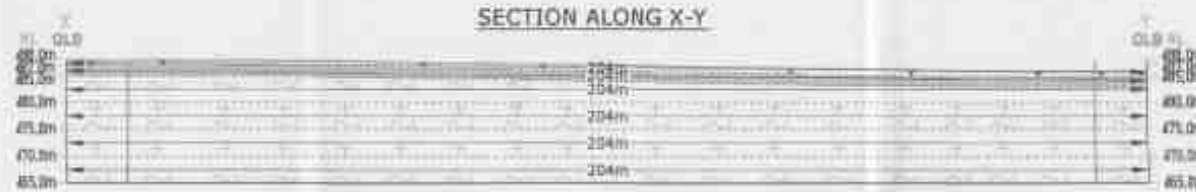
INDEX

QUARRY LEASE BOUNDARY	
10m & 50m SAFETY DISTANCE	
TEMPORARY BENCH MARK	
QUARRY ROAD	
TOP SOIL	
COLOUR GRANITE	
SHRUB	
CONTOUR LINE	
STRIKE AND DIP	

GEOLOGICAL PLAN
 SCALE 1:1000

PREPARED BY:
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 TO THE BEST OF MY KNOWLEDGE

S. Shan
 S. SHANASEKARAN,
 QUALIFIED PERSON



TOTAL DEPTH = 23M



GRANITE GEOLOGICAL RESERVES											
Section	Bench	length in (m)	Width in (m)	Depth in (m)	Volume in m ³	Total Reserves ROM in m ³	Colour Granite 20% in m ³	Granite Waste 80% in m ³	Top Soil in m ³	Weathered Rock in m ³	Total Waste in m ³
XY-AB	I	204	97	1	19788				19788		19788
	II	204	97	2	39576					39576	39576
	III	204	97	5	98940	98940	19788	79152			79152
	IV	204	97	5	98940	98940	19788	79152			79152
	V	204	97	5	98940	98940	19788	79152			79152
	VI	204	97	5	98940	98940	19788	79152			79152
TOTAL						395760	79152	316608	19788	39576	375972

PLATE NO.IV-A

DATE OF SURVEY:02-03-2021

APPLICANT ADDRESS:

THIRU.M.KOWSHIK DHEV,
S/o. D. MATHIAZHAGAN,
No. 58-B, GANDHI NAGAR,
KRISHNAGIRI-635 001

LOCATION OF QUARRY:

EXTENT : 1.98.0 Ha,
S.F.NO : 333(PART),
VILLAGE : SHOOLAMALAI,
TALUK : BARGUR,
DISTRICT : KRISHNAGIRI.

INDEX

- QUARRY LEASE BOUNDARY
- 10.0m SAFETY DISTANCE
- TOP SOIL
- WEATHERED ROCK
- COLOUR GRANITE

GEOLOGICAL SECTIONS

SCALE 1:1000

PREPARED BY:

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HAS BEEN CHECKED BY ME AND IN CONCORD
TO THE BEST OF MY KNOWLEDGE.

S. DEBANASEKAR M.S.
QUALIFIED PERSON



PLATE NO. V

DATE OF SURVEY: 02-03-2021

APPLICANT ADDRESS:
 THIRU. M. KOWSHIK DHEV,
 S/o. D. MATHIAZHAGAN,
 No. 5B-B, GANDHI NAGAR,
 KRISHNAGIRI-635 001

LOCATION OF QUARRY:
 EXTENT : 1.98.0 Ha,
 S.F. NO : 333(PART),
 VILLAGE : SHOCLAMALAI,
 TALUK : BARGUR,
 DISTRICT : KRISHNAGIRI.

INDEX

QUARRY LEASE BOUNDARY	
10m & 50m SAFETY DISTANCE	
TEMPORARY BENCH MARK	
QUARRY ROAD	
TOP SOIL	
COLOUR GRANITE	
SHRUB	
CONTOUR LINE	

YEARWISE DEVELOPMENT AND PRODUCTION PLAN
 SCALE 1:1000

PREPARED BY:

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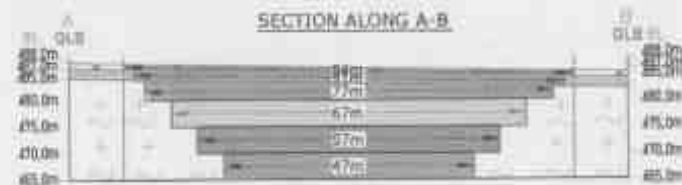
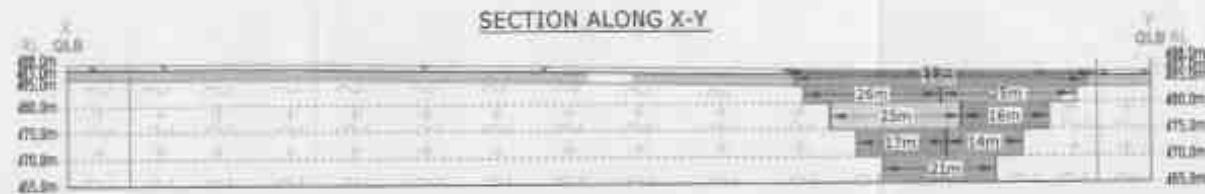
V. RAMESH KUMAR,
 QUALIFIED PERSON

I - Year PROPOSED EXCAVATION	
II - Year PROPOSED EXCAVATION	
III - Year PROPOSED EXCAVATION	
IV - Year PROPOSED EXCAVATION	
V - Year PROPOSED EXCAVATION	

COMMISSIONER
 GEOLOGY AND MINING,
 CHENNAI-600 032.



TOTAL DEPTH = 23M



- I - Year PROPOSED EXCAVATION
- II - Year PROPOSED EXCAVATION
- III - Year PROPOSED EXCAVATION
- IV - Year PROPOSED EXCAVATION
- V - Year PROPOSED EXCAVATION

YEARWISE DEVELOPMENT & PRODUCTION												
Year	Section	Bench	length in (m)	Width in (m)	Depth in (m)	Volume In m ³	Total Reserves ROM in m ³	Colour-Granite 20% in m ³	Granite Waste 80% in m ³	Top Soil in m ³	Weathered Rock in m ³	Total Waste in m ³
I YEAR	XY-AB	I	59	94	1	4956				4956		4956
		II	55	81	2	8910					8910	8910
		III	26	77	4	8008	8008	1602	6406			6406
		TOTAL						8008	1602	6406	4956	8910	20272
II YEAR	XY-AB	III	23	77	4	7700	7700	1540	6160			6160
		TOTAL					7700	1540	6160			6160
III YEAR	XY-AB	IV	25	67	5	8375	8375	1675	6700			6700
		TOTAL					8375	1675	6700			6700
IV YEAR	XY-AB	IV	16	67	5	5360	5360	1072	4288			4288
		V	17	57	5	4845	4845	969	3876			3876
		TOTAL					10205	2041	8164			8164
V YEAR	XY-AB	V	14	57	5	3990	3990	798	3192			3192
		VI	21	47	5	4935	4935	987	3948			3948
		TOTAL					8925	1785	7140			7140
GRAND TOTAL						43213	8643	34570	4956	8910	48436	

PLATE NOV-A

DATE OF SURVEY: 02-03-2021

APPLICANT ADDRESS:

THIRU.M.KOWSHIK DHEV,
S/o. D. MATHIAZHAGAN,
No. 58-B, GANDHI NAGAR,
KRISHNAGIRI-635 001

LOCATION OF QUARRY:

EXTENT : 1.98.0 Ha.
S.F.NO : 333(PART),
VILLAGE : SHOOLAMALAI,
TALUK : BARGUR,
DISTRICT : KRISHNAGIRI.

INDEX

- QUARRY LEASE BOUNDARY
- 10.0m SAFETY DISTANCE
- TOP SOIL
- WEATHERED ROCK
- COLOUR GRANITE

YEARWISE DEVELOPMENT AND PRODUCTION SECTIONS.

SCALE 1:1000

PREPARED BY:

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SRIKANTH KUMAR,
QUALIFIED PERSON



LANDUSE PATTERN				
DESCRIPTION	PRESENT AREA (Ha)	AREA TO BE ACQUIRED AT THE PRESENT BY PERMISSION	END OF USE OF QUARRYING PERIOD (Ha)	Color Code
AREA UNDER QUARRY NL	2.49.0	1.43.0		
DUMPS	NL	0.44.0	BACK FILLING	7777
STOCKYARD	NL	NL	NL	
INFRASTRUCTURE	NL	0.01.0	0.01.0	8888
ROADS	NL	0.01.0	0.01.0	9999
GREEN BELT	NL	0.53.0	0.53.0	1111
UNUTILIZED AREA	1.98.0	NL	NL	
TOTAL	1.98.0	1.48.0	1.98.0	

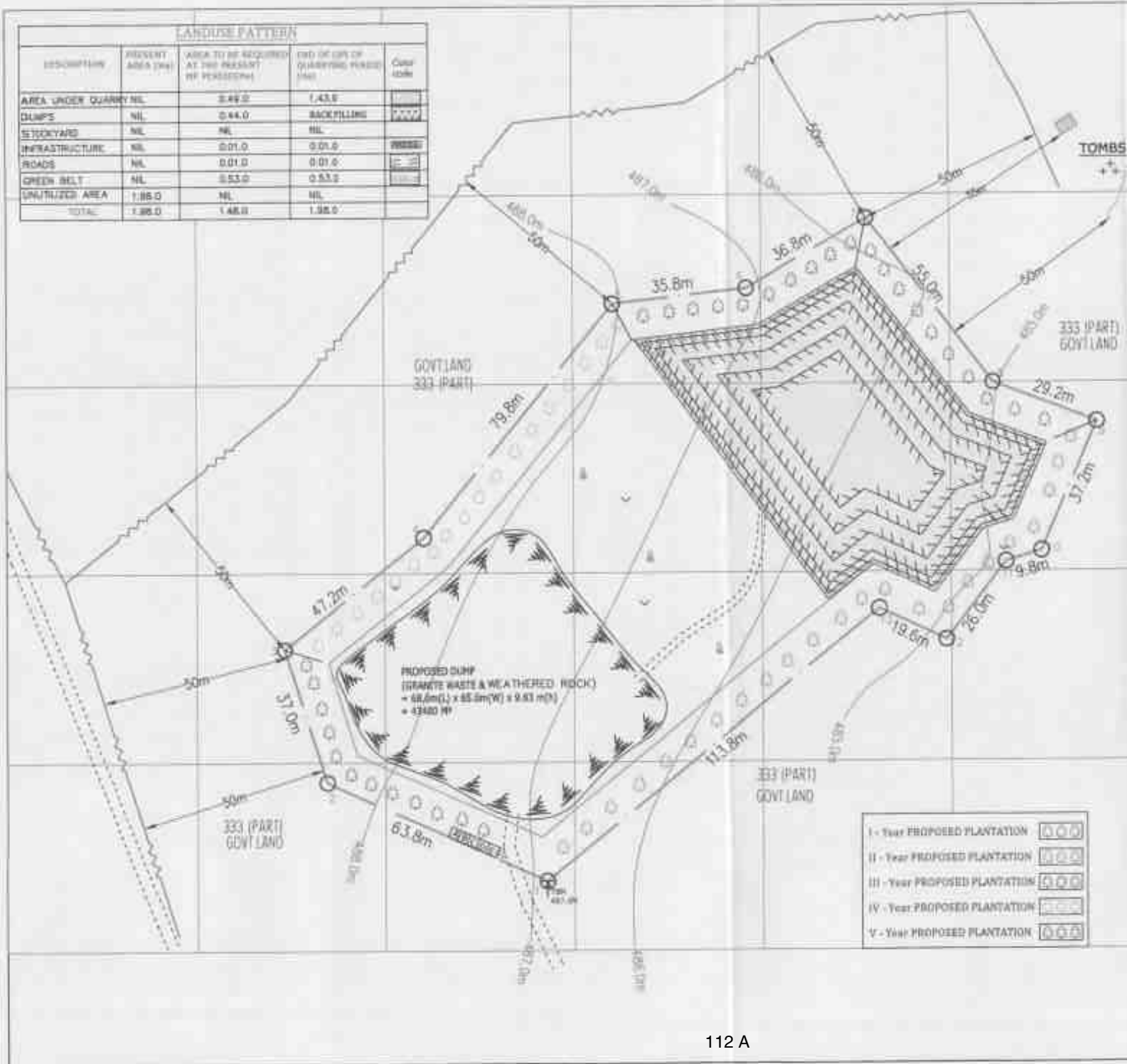


PLATE NO.VI

DATE OF SURVEY:02-03-2021

APPLICANT ADDRESS:

THIRU.M.KOWSHIK DHEV,
S/o. D. MATHIAZHAGAN,
No. 58-B, GANDHI NAGAR,
KRISHNAGIRI-635 001.

LOCATION OF QUARRY:

EXTENT : 1.98.0 Ha,
S.F.NO : 333(PART),
VILLAGE : SHOOLAMALAI,
TALUK : BARGUR,
DISTRICT : KRISHNAGIRI.

INDEX

- QUARRY LEASE BOUNDARY
- 10m & 50m SAFETY DISTANCE
- TEMPORARY BENCH MARK
- QUARRY ROAD
- TOP SOIL
- COLOUR GRANITE
- CONTOUR LINE
- PROPOSED DUMP
- MINE LAYOUT

MINELAYOUT AND LANDUSE PATTERN & APPROPRIATION PLAN

SCALE 1:1000

PREPARED BY:

I DO HEREBY CERTIFY THAT THE PLATE HAS BEEN CHECKED BY ME AND IS CORRECT TO THE BEST OF MY KNOWLEDGE

S. MAHANARAYAN,
QUALIFIED PERSON.



PLATE NO.VII
 DATE OF SURVEY: 22-03-2021

APPLICANT ADDRESS
 TTHIRU, M.KOWSHIK DHEV,
 S/o. D. MATHIAZHAGAN,
 No. 58-B, GANDHI NAGAR,
 KRISHNAGIRI-635 001

LOCATION OF QUARRY:
 EXTENT : 1.98.0 Ha,
 S.P.NO : 333(PART),
 VILLAGE : SHOOLAMALAL,
 TALUK : BARGUR,
 DISTRICT : KRISHNAGIRI.

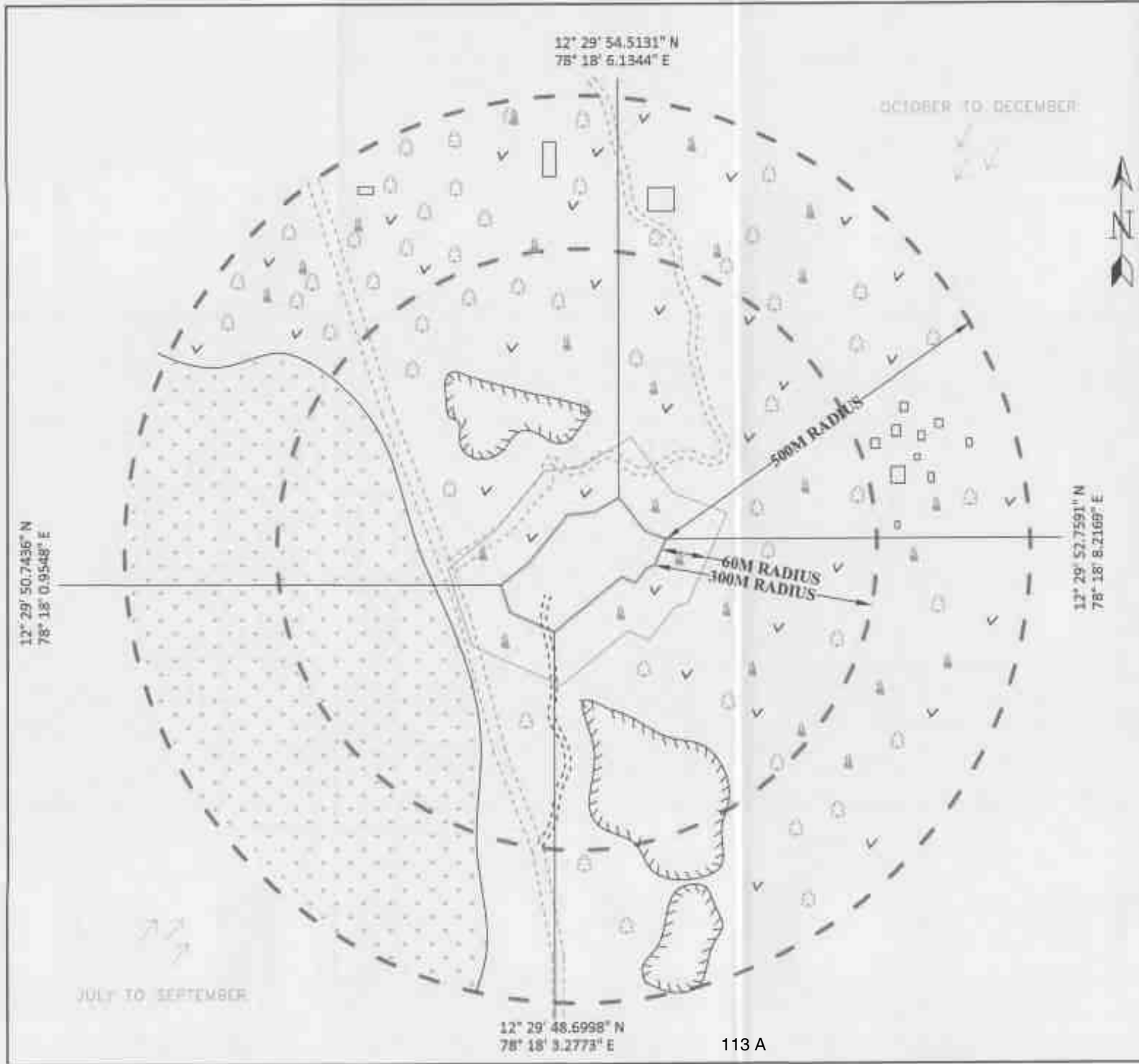
INDEX

QUARRY LEASE BOUNDARY	
500M RADIUS	
300M RADIUS	
60M RADIUS	
CART TRACK	
QUARRY ROAD	
TREES	
SHRUB	
INFRASTRUCTURES	
DRY AGRICULTURAL LAND	
WIND DIRECTION	
ADJACENT QUARRY	
SMALL HELLOCK	

ENVIRONMENT PLAN
 SCALE 1:5000

PREPARED BY:
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 HAS BEEN CHECKED BY ME AND IS CORRECT
 TO THE BEST OF MY KNOWLEDGE

S. HANASEKARAM
 QUALIFIED PERSON



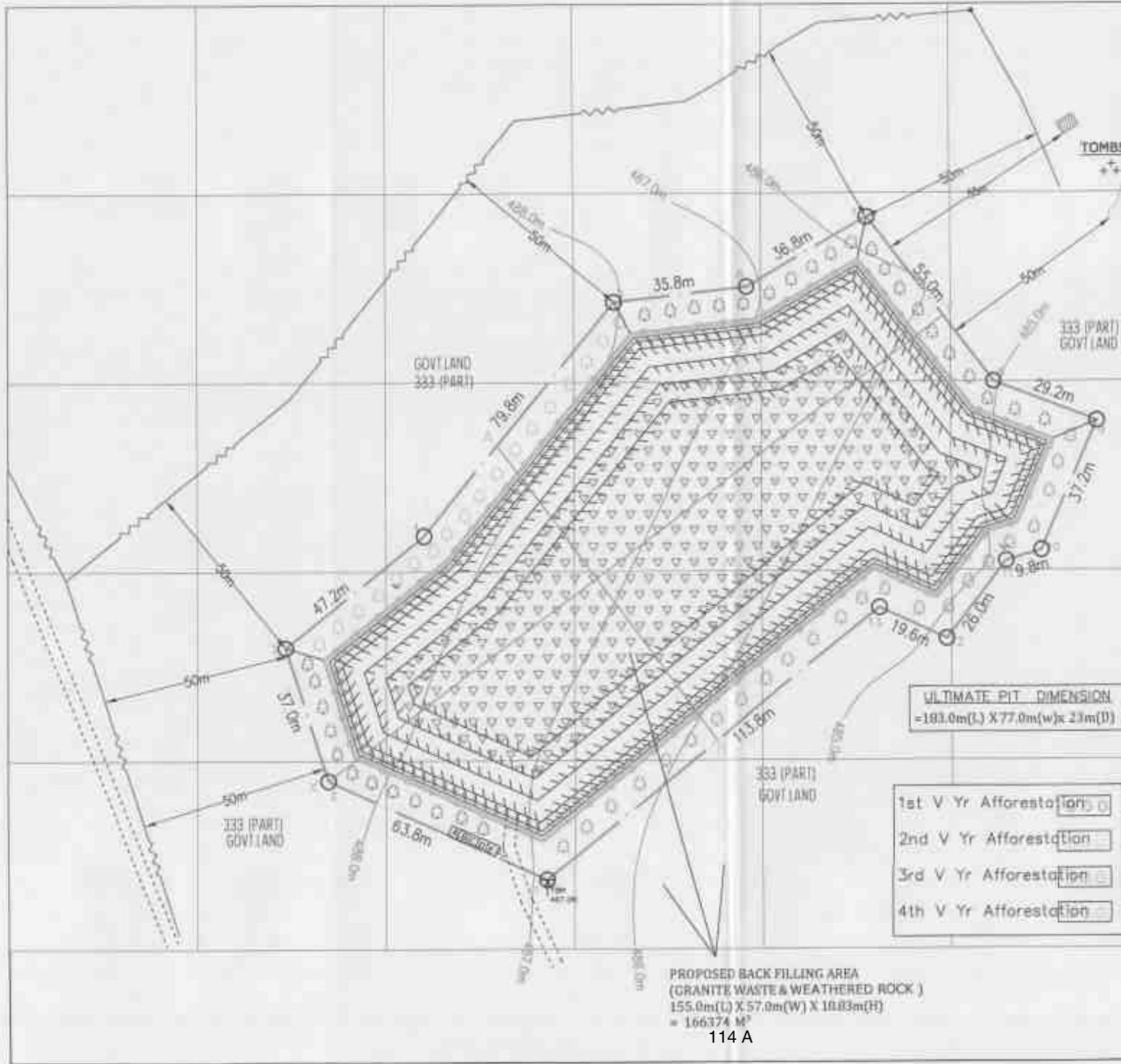


PLATE NO.VIII

DATE OF SURVEY:02-03-2021

APPLICANT ADDRESS:

THIRU.M.KOWSHIK DHEV,
S/o. D. MATHIAZHAGAN,
No. 58-B, GANDHI NAGAR,
KRISHNAGIRI-635 001

LOCATION OF QUARRY:

EXTENT : 1.98.0 Ha,
S.F.NO : 333(PART),
VILLAGE : SHOOLAMALAI,
TALUK : BARGUR,
DISTRICT : KRISHNAGIRI.

INDEX

QUARRY LEASE BOUNDARY	
10m & 50m SAFETY DISTANCE	
TEMPORARY BENCH MARK	
QUARRY ROAD	
TOP SOIL	
COLOUR: GRANITE	
CONTOUR LINE	
FENCING	
PARAPET WALL	
ULTIMATE PIT LIMIT	
PROPOSED BACKFILLING AREA	

CONCEPTUAL / FINAL MINE CLOSURE PLAN

SCALE 1:1000

PREPARED BY:

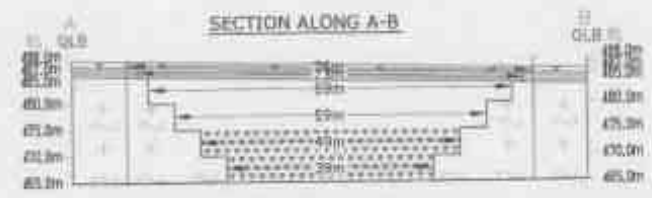
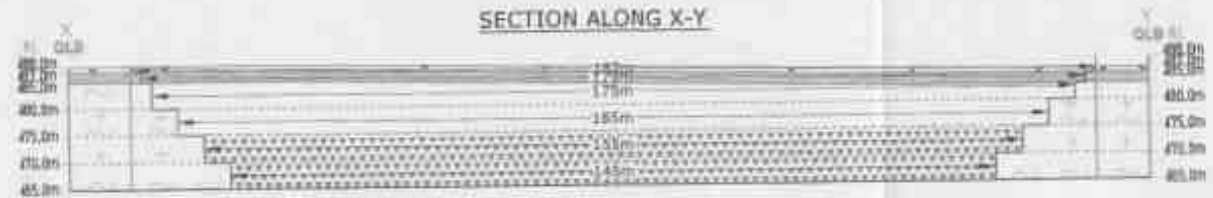
I DO HEREBY CERTIFY THAT THE PLAN HAS BEEN CHECKED BY ME AND IS CORRECT TO THE BEST OF MY KNOWLEDGE

U. DIANANTKAR, M.Sc.
QUALIFIED PERSON

PROPOSED BACK FILLING AREA
(GRANITE WASTE & WEATHERED ROCK)
155.0m(L) X 57.0m(W) X 10.83m(H)
= 1,663,74 M³



TOTAL DEPTH 23M



ULTIMATE PIT DIMENSION
=183.0m(L) X 84.0m(w) x 23m(D)

PLATE NO.VIII-A
DATE OF SURVEY:02-03-2021

APPLICANT ADDRESS:
THIRU.M.KOWSHIK DHEV,
5/o. D. MATHIAZHAGAN,
No. 58-B, GANDHI NAGAR,
KRISHNAGIRI-635 001

LOCATION OF QUARRY:
EXTENT : 1.98,D Ha,
S.F.NO : 333(PART),
VILLAGE : SHOOLAMALAI,
TALUK : BARGUR,
DISTRICT : KRISHNAGIRI.

INDEX

QUARRY LEASE BOUNDARY	
10.0m SAFETY DISTANCE	
TOP SOIL	
WEATHERED ROCK	
COLOUR GRANITE	
ULTIMATE PIT SLOPE	
PROPOSED BACKFILLING AREA	

CONCEPTUAL / FINAL MINE
CLOSURE SECTIONS
SCALE 1:1000

PREPARED BY:
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HAS BEEN CHECKED BY ME AND IS CORRECT
TO THE BEST OF MY KNOWLEDGE.

S.DHANASEKAR,M.S.,
QUALIFIED PERSON

MINEABLE RESERVES											
Section	Bench	length in (m)	Width in (m)	Depth in (m)	Volume in m ³	Total Reserves ROM in m ³	Colour Granite 20% in m ³	Granite Waste 80% in m ³	Top Soil in m ³	Weathered Rock in m ³	Total Waste in m ³
XY-AB	I	182	76	1	13832				13832		13832
	II	179	73	2	26134					26134	26134
	III	173	69	5	60375	60375	12075	48300			48300
	IV	165	59	5	48675	48675	9735	38940			38940
	V	155	49	5	37975	37975	7595	30380			30380
	VI	145	39	5	28275	28275	5655	22620			22620
TOTAL						175300	35060	140240	13832	26134	180206

LANDUSE PATTERN				
DESCRIPTION	PRESNT AREA (Ha)	AREA TO BE REQUIRED AT THE PRESENT OR FUTURE	END OF LIFE OF QUARRYING PERIOD (Yrs)	CODE
AREA UNDER QUARRY NIL	0.49.0	1.43.0		
DUMPS NIL	0.44.0	BACK FILLING		
STOCKYARD NIL	NIL	NIL		
INFRASTRUCTURE NIL	0.01.0	0.01.0		
ROADS NIL	0.01.0	0.01.0		
GREEN BELT NIL	0.53.0	0.53.0		
UNUTILIZED AREA	1.98.0	NIL	NIL	
TOTAL	1.98.0	1.48.0	1.98.0	

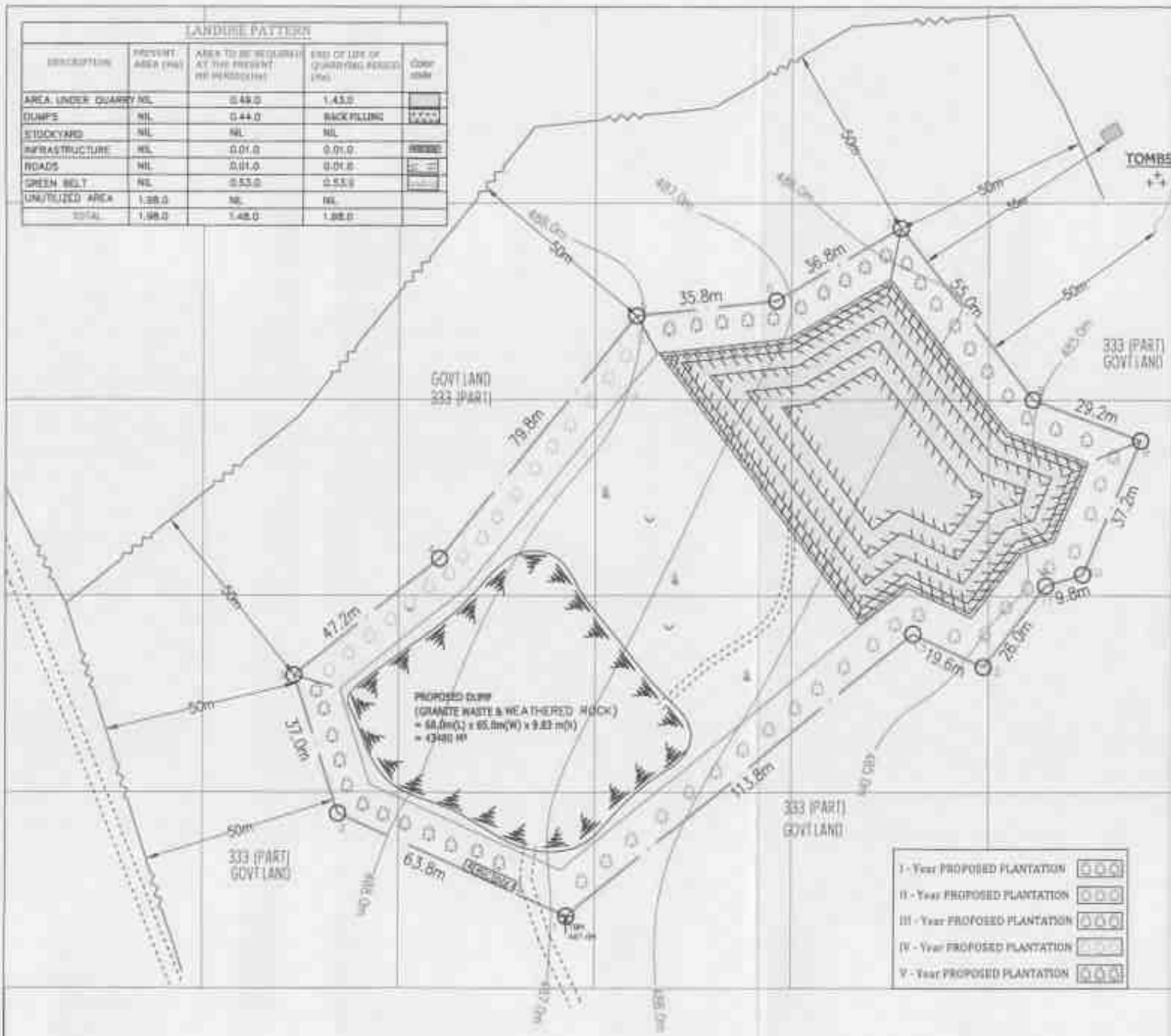


PLATE NO.IX
DATE OF SURVEY:02-03-2021

APPLICANT ADDRESS:
THIRU.M.KOWSHIK DHEV,
S/o. D. MATHIAZHAGAN,
No. 58-B, GANDHI NAGAR,
KRISHNAGIRI-635 001

LOCATION OF QUARRY:
EXTENT : 1.98.0 Ha,
S.F.NO : 333(PART),
VILLAGE : SHOOLAMALAI,
TALUK : BARGUR,
DISTRICT : KRISHNAGIRI.

INDEX

QUARRY LEASE BOUNDARY	
10m & 50m SAFETY DISTANCE	
TEMPORARY BENCH MARK	
QUARRY ROAD	
TOP SOIL	
COLOR GRANITE	
CONTOUR LINE	
PROPOSED DUMP	
MINE LAYOUT	

I - Year PROPOSED PLANTATION	
II - Year PROPOSED PLANTATION	
III - Year PROPOSED PLANTATION	
IV - Year PROPOSED PLANTATION	
V - Year PROPOSED PLANTATION	

PROGRESSIVE MINE CLOSURE PLAN
SCALE 1:1000

PREPARED BY:
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S. PRANASHEKAR, M.S.,
QUALIFIED PERSON

Hydrogeological Report for
Colour Granite Quarry Over an extent of 1.9 .0Ha of
Government Poramboke land in S.F.No. 333 (Part) of
Shoolamalai Village, Argur Taluk, Krishnagiri District,
Tamilnadu.

HYDROGEOLOGICAL REPORT FOR SHOOLAMALAI
COLOUR GRANITE QUARRY

1. INTRODUCTION

Name of the Applicant with Address-

Name of the applicant : **M. Kowshik Dhev,**
Address with contact Number: S/o. D. Mathiazhagan,
No:58-B, Gandhi Nagar,
Krishnagiri District - 635 001
Mobile No: +91 9443244390

Details of the Area-

Land Classification : Government Poramboke land
Survey No : 333 (Part)
Extent in Hectares : 1.98.0Ha
Village : Shoolamalai
Taluk : Bargur
District : Krishnagiri

The Client requires detailed information on Ground Water Occurrences at Proposed Project Site of Colour Granite Quarry. The objective of the present study is to assess the availability of groundwater and comment on aspects of depth to potential aquifers, aquifer availability and type, possible yields and water quality. For this purpose all available hydrogeological information of the areas has been analyzed, and a geophysical survey was done.

The investigations involved hydrogeological, geophysical field investigations and a detailed study in which the available relevant geological and hydrogeological data were collected, analyzed, collated and evaluated within the context of the Client's requirements.

The data sources consulted were mainly:

- a) Central Ground Water Board (CGWB) Data
- b) State & District Geological and Hydrogeological Reports and Maps.
- c) Technical reports of the area by various organizations.

2. SCOPE OF THE WORKS –

The scope of works includes:

- Site visits to familiarize with the project areas. Identify any issues that might impact the Ground Water Scenario due to proposed mining activities.
- To obtain, study and synthesize background information including the geology, hydrogeology and existing borehole data, for the purpose of improving the quality of assessment and preparing comprehensive hydrogeological reports,
- To carry out hydrogeological evaluation and geophysical investigations in the selected sites in order to determine potential for groundwater at project site.
- To prepare hydrogeological survey reports in conformity with the provisions of the rules and procedure outlined by the Central Ground Water Board (CGWB), by Assessment of water quality and potential infringement of National standards, Assessment of availability of groundwater and Impact of proposed activity on aquifer, water quality and other abstractors.

3. BACKGROUND INFORMATION

Location

The area is marked in the Survey of India, Topo Sheet No. 57-L/07. The area lies between the Latitudes of 12°29'48.6998"N to 12°29'54.5131"N and Longitudes of 78°18'0.9548"E to 78°18'8.2169"E on WGS datum-1984.

REGIONAL GEOLOGY OF KRISHNAGIRI DISTRICT-

The Colour Granite is fine to medium grained in size. Orthoclase feldspar and quartz are major constituents and Pyroxene, Biotite, Garnets and other mafic minerals are accessories. The petrological settings of the area are simple and not a complicated phenomena. There are no major minerals observed in the vicinity of the proposed quarry. A brief description of the regional Geology is discussed below.

This Colour granite is commercially called as “**Paradiso**” and Petrologically called as “**Pink Migmatite**” which is widely used for slabs, Tiles and Mounments after cutting and polishing. The Krishnagiri district is underlain by hard Crystalline rocks of Archaean age comprising of various rock types such as Gneiss, Charnockite, etc.,. The Gneissic type of Crystalline formation is found in the North and Northeastern part of the District. Shoolagiri, Hosur, mattur and soolamalai areas covered by Granitic Gneiss (Pink Migmatite).

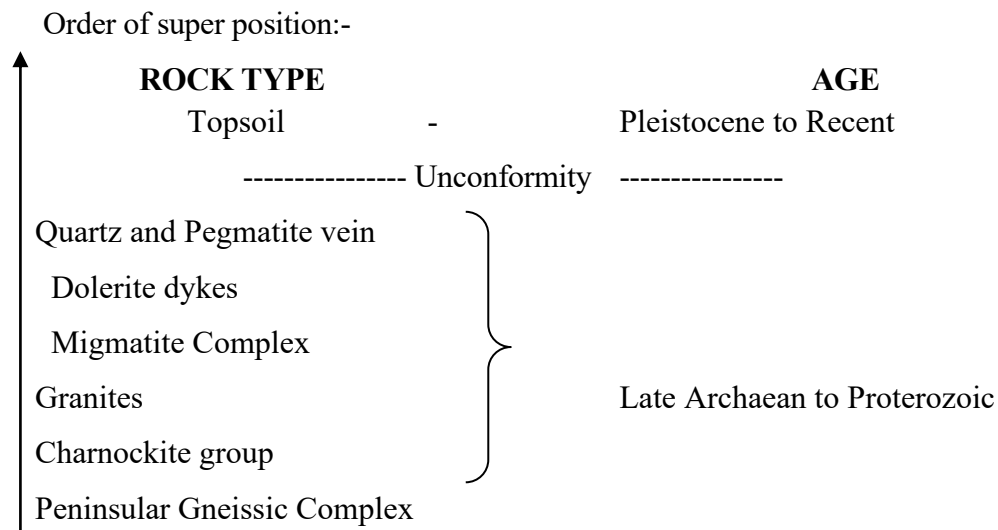
The Late Archean crust of Krishnagiri, Tamil Nadu, consists of tonalitic-trondhjemitic-granodioritic (TTG) gneisses with mafic and sedimentary enclaves, formed

between 2.7 and 2.5 Ga and metamorphosed at amphibolite facies in the north to granulite facies in the south close to 2.5 Ga. Migmatization occurred at all grades, and numerous small granite bodies were emplaced near the amphibolite-to-granulite facies horizon. This nearly syn-accretion meta-morphism affected the entire crust and left a chemically differentiated section later exposed by uplift and erosion. Such rocks that were formed at great depths during the Archaean age are now exposed at the surface of the earth as a result of the combined actions of wind, air, water, weathering and denudation over the past several million years.

The Colour granite has the characteristic pink rythmatic banding by which it can be identified even from a distance. These are seen to the central part and SE part of the district, more specifically in Rayakottai, Kaveripattinam, Jagadevi and Velampatti. These dimensional blocks are quarried to make a polished stone, slabs, monuments etc.,

STRUCTURAL SETTINGS OF KRISHNAGIRI:

The general geological sequence of the rock types in the area is:-



Geomorphology

Krishnagiri district forms part of the upland plateau region with many hill ranges and undulating plains. The western part of the district has hill ranges of Mysore plateau with a chain of undulating hills and deep valleys extending in NNE-SSW direction. The plains of the district have an average elevation of 488 m amsl. The plateau region along the western boundary and the northwestern part of the district has an average elevation of 914 m amsl. The GuthrayanDurg with an elevation of 1395 m amsl is the highest peak in the district.

Soils

Soils have been classified into Black soil, mixed soil, red loamy soil, gravelly and sandysoils. Red loamy and sandy soils are predominant in Hosurtaluk. Vast stretches of loam soils and black soils occur in Krishnagiri district.

4. GEOPHYSICAL INVESTIGATION METHODS

A variety of methods are available to assist in the assessment of geological sub-surface conditions. The main emphasis of the fieldwork undertaken was to determine the thickness and composition of the sub-surface formations and to identify water-bearing zones. This information was principally obtained in the field using, and vertical electrical soundings (VES). The VES probes the resistivity layering below the site of measurement. This method is described below.

Resistivity Method

Vertical electrical soundings (VES) were carried out to probe the condition of the sub-surface and to confirm the existence of deep groundwater. The VES investigates the resistivity layering below the site of measurement.

Basic Principles

The electrical properties of rocks in the upper part of the earth's crust are dependent upon the lithology, porosity, and the degree of pore space saturation and the salinity of the pore water. Saturated rocks have lower resistivity than unsaturated and dry rocks. The higher the porosity of the saturated rock, or the higher the salinity of the saturating fluids, the lower is the resistivity. The presence of clays and conductive minerals also reduces the resistivity of the rock.

The resistivity of earth materials can be studied by measuring the electrical potential distribution produced at the earth's surface by an electric current that is passed through the earth. Current is moved through the subsurface from one current electrode to the other and the potential difference is recorded as the current passes. From this information, resistivity values of various layers are acquired and layer thickness can be identified.

The apparent resistivity values determined are plotted as a log function versus the log of the spacing between the electrodes. These plotted curves identify thickness of layers. If there are multiple layers (more than 2), the acquired data is compared to a master curve to determine layer thickness.

This method is least influenced by lateral in-homogeneities and capable of providing higher depth of investigation.

The resistance R of a certain material is directly proportional to its length L and cross-sectional area A, expressed as:

$$R = R_s * L/A \text{ (in Ohm)}$$

Where R_s is known as the specific resistivity (characteristic of the material and independent of its shape or size)

With Ohm's Law,

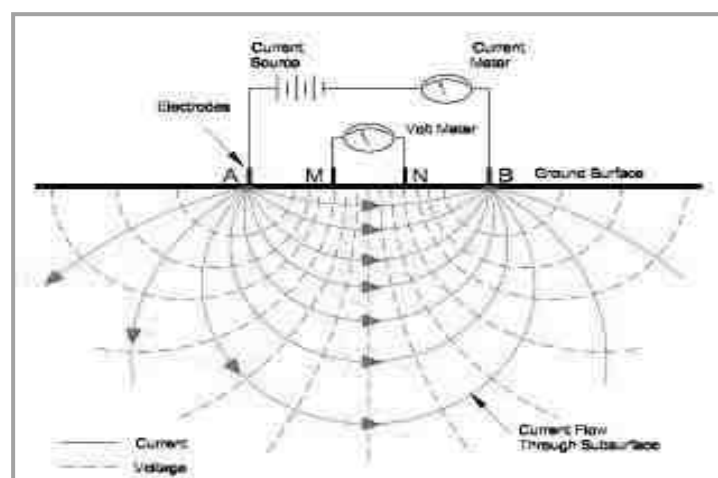
$$R = dV/I \text{ (Ohm)}$$

Where dV is the potential difference across the resistor and I is the electric current through the resistor. The specific resistivity may be determined by:

$$R_s = (A/L) * (dV/I) \text{ (in Ohm m)}$$

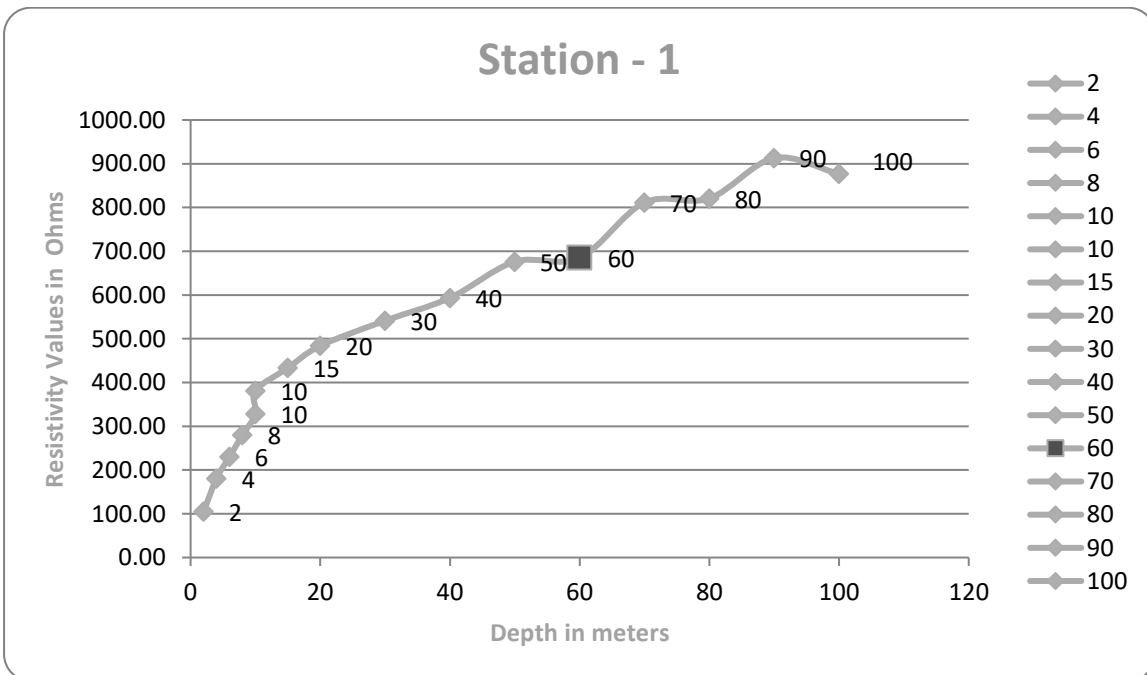
Vertical Electrical Sounding (VES)

When carrying out a resistivity sounding, current is led into the ground by means of two electrodes. With two other electrodes, situated near the center of the array, the potential field generated by the current is measured. From the observations of the current strength and the potential difference, and taking into account the electrode separations, the ground resistivity can be determined. During resistivity sounding, the separation between the electrodes is step-wise increased (known as a Schlumberger Array), thus causing the flow of current to penetrate greater depths. When plotting the observed resistivity values against depth on double logarithmic paper, a resistivity graph is formed, which depicts the variation of resistivity with depth. This graph can be interpreted with the aid of a computer, and the actual resistivity layering of the subsoil is obtained. The depths and resistivity values provide the hydro geologist with information on the geological layering and thus the occurrence of groundwater.



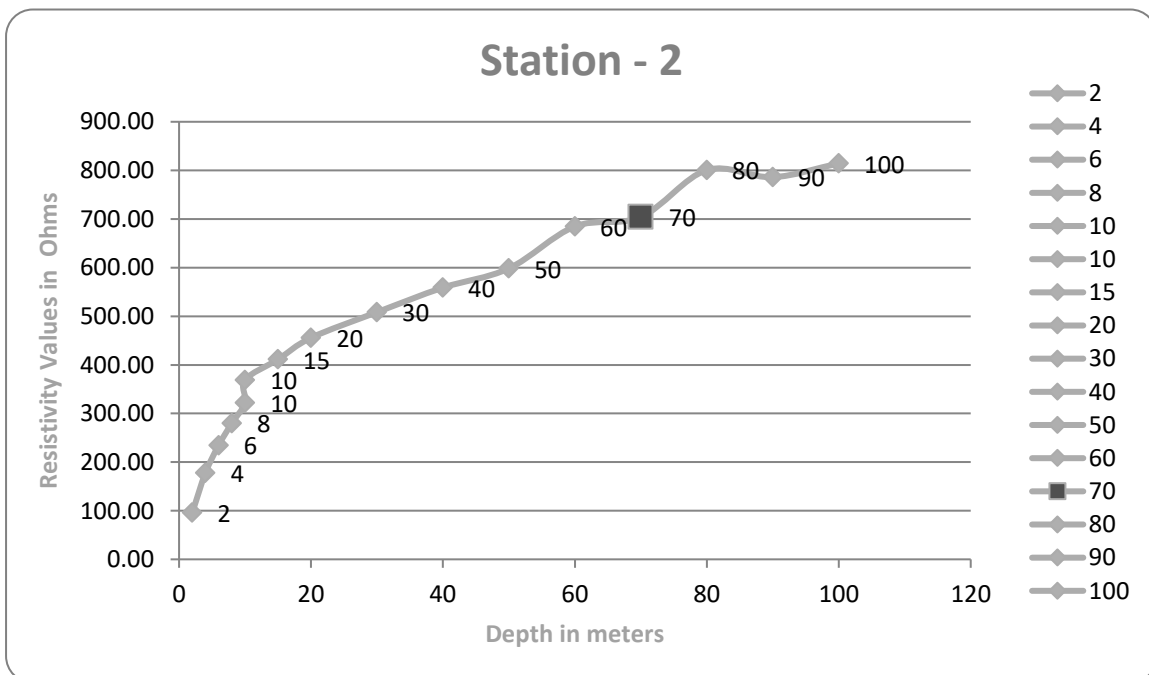
Vertical Electrical Sounding data's and Diagram

STATION-1					
GPS Coordinates 12°29'48.6998"N 78°18'0.9548"E					
S.No	Ab/2(m)	Mn/2(m)	Geometrical factor (G)	Resistance Value in Ohms	Apparent Resistance in Ohms
1	2	1	4.71	22.25	104.80
2	4	1	23.55	7.67	180.63
3	6	1	54.95	4.19	230.24
4	8	1	98.91	2.83	279.92
5	10	1	155.45	2.11	328.00
6	10	5	23.55	16.19	381.27
7	15	5	62.80	6.90	433.32
8	20	5	117.75	4.11	483.95
9	30	5	274.75	1.97	541.26
10	40	5	494.55	1.20	593.46
11	50	5	777.15	0.87	676.12
12	60	5	1122.55	0.61	684.76
13	70	5	1530.75	0.53	811.30
14	80	5	2001.75	0.41	820.72
15	90	5	2535.55	0.36	912.80
16	100	5	3132.15	0.28	877.00



◆ A vertical electrical Sounding Graph diagram purple level is fracture zone.

STATION-2					
GPS Coordinates - 12°29'54.5131"N 78°18'8.2169"E					
S.No	Ab/2(m)	Mn/2(m)	Geometrical factor (G)	Resistance Value in Ohms	Apparent Resistance in Ohms
1	2	1	4.71	20.35	95.85
2	4	1	23.55	7.55	177.80
3	6	1	54.95	4.27	234.64
4	8	1	98.91	2.83	279.92
5	10	1	155.45	2.07	321.78
6	10	5	23.55	15.67	369.03
7	15	5	62.80	6.55	411.34
8	20	5	117.75	3.87	455.69
9	30	5	274.75	1.85	508.29
10	40	5	494.55	1.13	558.84
11	50	5	777.15	0.77	598.41
12	60	5	1122.55	0.61	684.76
13	70	5	1530.75	0.46	704.15
14	80	5	2001.75	0.40	800.70
15	90	5	2535.55	0.31	786.02
16	100	5	3132.15	0.26	814.36



◆ A vertical electrical Sounding Graph diagram purple level is fracture zone.

5. Conclusions –

Based on the available information and the geophysical investigations it is concluded that the project area is considered to have medium groundwater potential. Productive aquifers are expected at depth of 75m to 80m where minor fractures are observed and shallow aquifers are expected above 60-65m BGL. The ultimate pit limit as per the approved mining plan depth is 22m which will have no impact on the Ground Water.



Dr. P. Thangaraju, M.Sc., Ph.D.,

Govt. Approved Hydro Geologist

M/s. Geo Exploration and Mining Solutions,

Regd. Office: No. 17, Advaita Ashram Road,

Alagapuram, Salem – 636 004, Tamil Nadu

Mobile: +91 - 94433 56539

E-Mail: jfogeoexploration@gmail.com

IN THE HIGH COURT OF JUDICATURE AT MADRAS

(Special Original Jurisdiction)

Thursday, the Eighth day of October Two Thousand Twenty

PRESENT

THE HON`BLE MR JUSTICE M. SATHYANARAYANAN

AND

THE HON`BLE MRS JUSTICE R. HEMALATHA

WP Nos.13811 AND 14092 of 2020

R.THAMARAISELVAN [PETITIONER IN WP No.13811 of 2020]
ADVOCATE
D.NO 5 / 1551 SALEM MAIN ROAD
ELAKKIYAMPATTI COLLECTORATE (POST)
DHARMAPURI 636 705

J.ABDUL MATHEEN [PETITIONER IN WP No.14092 of 2020]

Vs

1 GOVERNMENT OF INDIA [RESPONDENTS IN WP No.13811 of 2020]
REPRESENTED BY JOINT SECRETARY TO GOVERNMENT
MINISTRY OF MINES SHASTRI BHAWAN DR.
RAJENDRA PRASAD ROAD, NEW DELHI 110 001

2 GOVERNMENT OF TAMIL NADU
REPRESENTED BY PRINCIPAL SECRETARY TO GOVERNMENT
INDUSTRIES (MMC) DEPARTMENT,
SECRETARIAT, CHENNAI 600 009

3 THE DISTRICT COLLECTOR
DHARMAPURI DISTRICT
DHARMAPURI 636 705

4 THE JOINT DIRECTOR OF GEOLOGY AND MINES,
DHARMAPURI 636 705

5 THE DEPUTY DIRECTOR OF GEOLOGY AND MINES,
DHARMAPURI 636 705

1 UNION OF INDIA [RESPONDENTS IN WP No.14092 of 2020]
REP.BY JOINT SECRETARY TO GOVERNMENT OF INDIA,
MINISTRY OF MINES, SHASTRI BHAWAN,
NEW DELHI -110 001.

2 INDUSTRIES (MMC.1) DEPARTMENT,
REP.BY THE PRINCIPAL SECRETARY,
GOVERNMENT OF TAMIL NADU,
FORT ST.GEORGE, CHENNAI -9.

3 THE DISTRICT COLLECTOR,
DHARMAPURI DISTRICT,
COLLECTORATE, DHARMAPURI -636705.

4 THE DIRECTOR,
DEPARTMENT OF GEOLOGY AND MINING,
GUINDY, CHENNAI -32.

5 THE DEPUTY DIRECTOR, GEOLOGY
AND MINING,, 2ND FLOOR, DRDA BUILDING,
COLLECTORATE, DHARMAPURI.

Writ petitions under article 226 of the Constitutions of India praying that in these circumstances stated therein and in the respective affidavits filed their with the High Court will pleased to

(I) Issue a writ of certiorarified mandamus or any other appropriate writ, direction order in the nature of a writ, Calling for the records of the 2nd respondnet relating to Notification Roc No 410 / 2016 (Mines) dated 08.09.2020 published in the English Daily The Hindu and Tamil Daily Dhinamani dated 10.09.2020 either on 28.09.2020 as published in The Hindu dated 10.09.2020 quash the same as without jurisdiction and to issue consequential direction to the respondents to scrupulously implement the guidelines issued by the 1st respondent, Government of India Ministry of Mines, New Delhi in their order No. 16.4.2020 M-VI dated 03.06.2020 and then initiate steps afresh to grant quarrying lease of granite as per law and pass IN WP.NO.13811 OF 2020 AND;

(II) Issue a writ of certiorarified or any other writ, or direction in the nature of a writ of certiorari, Calling for the records of the 3rd Respondent comprised in the Notification Roc.No.410/2016(Mines) dated 02.09.2020 published in the Dharmapuri District Gazatte, and all proceedings consequent thereto, and quash the same as being wholly illegal and arbitrary and pass IN WP.NO.13811 OF 2020

Order : Ths petition coming on for orders upon perusing the petition and the affidavit filed in support thereof and upon hearing the arguments of MR.VIDUTHALAI, SENIOR COUNSEL FOR MR. D.BASKAR, Advocate IN WP.NO.13811 OF 2020 AND M/S.S.JANANI, ADVOCATE IN WP.NO.14092 OF 2020) for the petitioner and of MR.R.SANKARANARAYANAN, ASSISTANT SOLICITOR GENERAL for 1st RESPONDENT AND OF MR.VIJAY NARAYAN, ADVOCATE GENERAL ASSISTED BY MR.E.MANOCHARAN, SPECIAL GOVERNMENT PLEADER appearing for the respondents 2 to 5 the court made the following order:-

<https://hcservices.ecourts.gov.in/hcservices/>

[Order of the Court was made by M.SATHYANARAYANAN, J.]

The learned counsel appearing for the petitioner in W.P.No.13811 of 2020 prays for short accommodation, as he is being led by Mr.Viduthalai, learned Senior Advocate. Mr.R.Sankaranarayanan, learned Assistant Solicitor General of India appearing for the 1st respondent prays for some accommodation to get instructions as to the mandatory or directory nature of the guidelines.

2. Mr.Vijay Narayan, learned Advocate General assisted by Mr.E.Manoharan, learned Special Government Pleader appearing for the respondents 2 to 5 would submit that counter affidavit has been filed and he is ready to advance arguments and in the light of the interim orders in operation, some difficulties being faced and prays for restriction of the interim order as well as for early hearing. It is the further submission of the learned Advocate General that in the light of the fact that guidelines issued by Ministry of Mines pertains to auction of mineral blocks without pre-embedded clearance are only directory in nature and respondents may be permitted to consider the application and assures that no final orders would be passed, granting license/permission to concerned identified persons and that the possession of the land will not be handed over and that Lease Deed would not be executed also.

3. In the light of the above facts and circumstances, the 3rd respondent is permitted to go ahead with the further process in terms of the Guidelines issued by the 1st respondent dated 03.06.2020 and impugned notification 10.09.2020. Paragraph no.6 of the order dated 30.09.2020, is modified and the 3rd respondent is permitted to proceed further and however, shall not execute the Lease Deed in favour of the successful tenderer / bidder and shall not handover the possession of the sites, till 03.11.2020.

Call on 03.11.2020.

-sd/-

08/10/2020

/ TRUE COPY /

Sub-Assistant Registrar (Statistics / C.S.)
High Court, Madras - 600 104.

TO

1 THE JOINT SECRETARY TO GOVERNMENT
GOVERNMENT OF INDIA
MINISTRY OF MINES SHASTRI BHAWAN
DR.RAJENDRA PRASAD ROAD, NEW DELHI 110 001

2 THE PRINCIPAL SECRETARY TO GOVERNMENT
GOVERNMENT OF TAMIL NADU
INDUSTRIES (MMC) DEPARTMENT,
SECRETARIAT, CHENNAI 600 009

<https://hcservices.ecourts.gov.in/hcservices/>

3 THE DISTRICT COLLECTOR
DHARMAPURI DISTRICT
DHARMAPURI 636 705

4 THE JOINT DIRECTOR OF GEOLOGY AND MINES,
DHARMAPURI 636 705

5 THE DEPUTY DIRECTOR OF GEOLOGY AND MINES,
DHARMAPURI 636 705

6 THE JOINT SECRETARY TO GOVERNMENT OF INDIA,
UNION OF INDIA
MINISTRY OF MINES, SHASTRI BHAWAN,
NEW DELHI -110 001.

7 THE DIRECTOR,
DEPARTMENT OF GEOLOGY AND MINING,
GUINDY, CHENNAI -32.

8 THE DEPUTY DIRECTOR, GEOLOGY
AND MINING,, 2ND FLOOR, DRDA BUILDING,
COLLECTORATE,
DHARMAPURI.

C.C. to MR. D.BASKAR, Advocate on payment of necessary charges

C.C. TO AND M/S.S.JANANI, Advocate on payment of necessary charges

The Government Advocate, High Court, Madras - 104.

Order

in

WP Nos.13811 AND 14092 of 2020

Date :08/10/2020

From 26.2.2001 the Registry is issuing certified
copies of the Interim Orders in this format
VC (13/10/2020)

WEB COPY



Case Details

Filing Number	WP /64278/2020	Filing Date	25-09-2020
Registration Number	WP /13811/2020	Registration Date	25-09-2020
CNR Number	HCMA01-091167-2020		

Case Status

First Hearing Date	
Next Hearing Date	25th October 2021
Stage of Case	ADJOURNED ADMISSION (WP)
Coram	Honourable The CHIEF JUSTICE , Honourable Mr Justice P.D.AUDIKEVALU
Bench Type	Division Bench
Judicial Branch	WRITSECTION
State	TAMIL NADU
District	Dharmapuri

Petitioner and Advocate

1) R.Thamaraiselvan

Advocate- M.Geetha Thamaraiselvan,R.Dhanasekar, D.BASKAR,R.Dhanasekar

Respondent and Advocate

1) Government of India

Advocate - K.SUBBU RANGA BHARATHI-MS/1348/2003 FOR R1 MEMO DT 30.09.2020,
MR.E. MANOHARAN SPL.G.P. FOR RR2 TO 5

2) Government of Tamil Nadu

3) The District Collector

4) The Joint Director of geology and Mines

5) The Deputy Director of geology and Mines

Acts

Under Act(s)

Under Section(s)

131 A





THIRU.DEEPAK S. BILGI, I.F.S.
MEMBER SECRETARY

STATE LEVEL ENVIRONMENT IMPACT
ASSESSMENT AUTHORITY-TAMILNADU

3rd Floor, Panagal Maaligai,
No.1, Jeenis Road, Saidapet,
Chennai - 600 015.
Phone No. 044-24359973
Fax No. 044-24359975

TERMS OF REFERENCE (ToR)

Lr No.SEIAA-TN/F.No.10354/SEAC/1(a)ToR- 1611/2023 Dated: 06.11.2023.

To

Thiru. Salman Sathar,
S/o. Sathar,
No. 125, Jagadevi, Jagadevipalayam,
Krishnagiri District – 635 203.

Sir / Madam,

Sub: SEIAA, Tamil Nadu –Proposed Grey Granite quarry lease over an extent of 1.36.8 Ha at SF.Nos. 341/1 (Part) of Soolamalai Village, Bargur Taluk, Krishnagiri District, Tamil Nadu by Thiru. Salman Sathar - under project category – “B1” and Schedule S.No.1 (a)“Mining of Minerals Projects” – **ToR issued along with Public Hearing-** preparation of EIA report – Regarding.

Ref: 1. Online proposal No.SIA/TN/MIN/441102/2023, Dated: 21.08.2023.
2. Your application submitted for Terms of Reference dated: 24.08.2023.
3. Minutes of the 416th SEAC meeting held on 13.10.2023.
4. Minutes of the 670th SEIAA meeting held on 06.11.2023.

Kindly refer to your proposal submitted to the State Level Impact Assessment Authority for Terms of Reference.

The proponent, Thiru. Salman Sathar has submitted an application for Terms of Reference (ToR) on 24.08.2023, for the Proposed Grey Granite quarry lease over an extent of 1.36.8 Ha at SF.Nos. 341/1 (Part) of Soolamalai Village, Bargur Taluk, Krishnagiri District, Tamil Nadu.


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Discussion by SEAC and the Remarks:-

The proposal was placed for appraisal in this 416th SEAC meeting held on 13.10.2023. The details of the project furnished by the proponent are given in the website (parivesh.nic.in).

The SEAC noted the following:

1. The project proponent, Thiru. Salman Sathar has applied for Terms of Reference for the Proposed Grey Granite quarry lease over an extent of 1.36.8 Ha at SF.Nos. 341/1 (Part) of Soolamalai Village, Bargur Taluk, Krishnagiri District, Tamil Nadu.
2. The project/activity is covered under Schedule 1(a) "Mining Projects" of the Schedule to the EIA Notification, 2006.
3. As per the mining plan, the lease period is for 20 years. The production not to exceed 34,180m³ of RoM, 11,963 m³ of grey granite (Recovery @ 35%) & 22,217m³ of Granite Waste (@65%) to an ultimate depth of Mining 23m Below ground level.

Now, the proposal was placed in the 416th SEAC meeting held on 13.10.2023. Based on the presentation made by the proponent SEAC recommended grant of Terms of Reference (TOR) with Public Hearing, subject to the following TORs as per the **Annexure I** of this minute, in addition to the standard terms of reference for EIA study for non-coal mining projects and details issued by the MOEF & CC to be included in EIA/EMP Report:

1. The proponent shall transplant the Banyan tree, that is in the proposed mining area, to a new place outside the mining area and the evidence for transplantation in the form of photograph/videograph must be submitted along with EIA report.
2. The PP shall mark the DGPS reference pillars painted with blue & white colour indicating the safety barrier of 7.5 m to be left under the Rule 13 (1) of MCDR, 1988 within the lease boundary and protective bunds.
3. The PP shall develop Green belt/plantation all along the mining lease boundary in a safety barrier.
4. The PP shall furnish the total manpower required for the proposed mining project including Statutory officials, Geologist, Supervisory staff, Skilled, Semi-skilled & Unskilled staff with showing the representation of the local people as per their eligibility and experience.

ANNEXURE I

1. In the case of existing/operating mines, a letter obtained from the concerned AD (Mines) shall be submitted and it shall include the following:


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- (i) Original pit dimension
 - (ii) Quantity achieved Vs EC Approved Quantity
 - (iii) Balance Quantity as per Mineable Reserve calculated.
 - (iv) Mined out Depth as on date Vs EC Permitted depth
 - (v) Details of illegal/illicit mining
 - (vi) Violation in the quarry during the past working.
 - (vii) Quantity of material mined out outside the mine lease area
 - (viii) Condition of Safety zone/benches
 - (ix) Revised/Modified Mining Plan showing the benches of not exceeding 6 m height and ultimate depth of not exceeding 50m.
2. Details of habitations around the proposed mining area and latest VAO certificate regarding the location of habitations within 300m radius from the periphery of the site.
 3. The proponent is requested to carry out a survey and enumerate on the structures located within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m (v) 500m shall be enumerated with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places of worship, industries, factories, sheds, etc with indicating the owner of the building, nature of construction, age of the building, number of residents, their profession and income, etc.
 4. The PP shall submit a detailed hydrological report indicating the impact of proposed quarrying operations on the waterbodies like lake, water tanks, etc are located within 1 km of the proposed quarry.
 5. The Proponent shall carry out Bio diversity study through reputed Institution and the same shall be included in EIA Report.
 6. The DFO letter stating that the proximity distance of Reserve Forests, Protected Areas, Sanctuaries, Tiger reserve etc., up to a radius of 25 km from the proposed site.
 7. In the case of proposed lease in an existing (or old) quarry where the benches are not formed (or) partially formed as per the approved Mining Plan, the Project Proponent (PP) shall the PP shall carry out the scientific studies to assess the slope stability of the working benches to be constructed and existing quarry wall, by involving any one of the reputed Research and Academic Institutions - CSIR-Central Institute of Mining & Fuel Research/ Dhanbad, NIRM/Bangalore, Division of Geotechnical Engineering-IIT-Madras, NIT-Dept of Mining Engg. Surathkal, and Anna University Chennai-CEG Campus. The PP shall


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- submit a copy of the aforesaid report indicating the stability status of the quarry wall and possible mitigation measures during the time of appraisal for obtaining the EC.
8. However, in case of the fresh/virgin quarries, the Proponent shall submit a conceptual 'Slope Stability Plan' for the proposed quarry during the appraisal while obtaining the EC, when the depth of the working is extended beyond 30 m below ground level.
 9. The PP shall furnish the affidavit stating that the blasting operation in the proposed quarry is carried out by the statutory competent person as per the MMR 1961 such as blaster, mining mate, mine foreman, II/I Class mines manager appointed by the proponent.
 10. The PP shall present a conceptual design for carrying out only controlled blasting operation involving line drilling and muffle blasting in the proposed quarry such that the blast-induced ground vibrations are controlled as well as no fly rock travel beyond 30 m from the blast site.
 11. The EIA Coordinators shall obtain and furnish the details of quarry/quarries operated by the proponent in the past, either in the same location or elsewhere in the State with video and photographic evidences.
 12. If the proponent has already carried out the mining activity in the proposed mining lease area after 15.01.2016, then the proponent shall furnish the following details from AD/DD, mines,
 13. What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?
 14. Quantity of minerals mined out.
 - Highest production achieved in any one year
 - Detail of approved depth of mining.
 - Actual depth of the mining achieved earlier.
 - Name of the person already mined in that leases area.
 - If EC and CTO already obtained, the copy of the same shall be submitted.
 - Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.
 15. All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/Topo sheet, topographic sheet, geomorphology, lithology and geology of the mining lease area should be provided. Such an Imagery of the proposed area should


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- clearly show the land use and other ecological features of the study area (core and buffer zone).
16. The PP shall carry out Drone video survey covering the cluster, green belt, fencing, etc.,
 17. The proponent shall furnish photographs of adequate fencing, green belt along the periphery including replantation of existing trees & safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan.
 18. The Project Proponent shall provide the details of mineral reserves and mineable reserves, planned production capacity, proposed working methodology with justifications, the anticipated impacts of the mining operations on the surrounding environment, and the remedial measures for the same.
 19. The Project Proponent shall provide the Organization chart indicating the appointment of various statutory officials and other competent persons to be appointed as per the provisions of the Mines Act'1952 and the MMR, 1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment.
 20. The Project Proponent shall conduct the hydro-geological study considering the contour map of the water table detailing the number of groundwater pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds, etc. within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD / TWAD so as to assess the impacts on the wells due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided.
 21. The proponent shall furnish the baseline data for the environmental and ecological parameters with regard to surface water/ground water quality, air quality, soil quality & flora/fauna including traffic/vehicular movement study.
 22. The Proponent shall carry out the Cumulative impact study due to mining operations carried out in the quarry specifically with reference to the specific environment in terms of soil health, biodiversity, air pollution, water pollution, climate change and flood control & health impacts. Accordingly, the Environment Management plan should be prepared keeping the concerned quarry and the surrounding habitations in the mind.
 23. Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.


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24. Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.
25. Details of the land for storage of Overburden/Waste Dumps (or) Rejects outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be provided.
26. Proximity to Areas declared as 'Critically Polluted' (or) the Project areas which attracts the court restrictions for mining operations, should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the TNPCB (or) Dept. of Geology and Mining should be secured and furnished to the effect that the proposed mining activities could be considered.
27. Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.
28. Impact on local transport infrastructure due to the Project should be indicated.
29. A tree survey study shall be carried out (nos., name of the species, age, diameter etc..) both within the mining lease applied area & 300m buffer zone and its management during mining activity.
30. A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.
31. As a part of the study of flora and fauna around the vicinity of the proposed site, the EIA coordinator shall strive to educate the local students on the importance of preserving local flora and fauna by involving them in the study, wherever possible.
32. The purpose of Green belt around the project is to capture the fugitive emissions, carbon sequestration and to attenuate the noise generated, in addition to improving the aesthetics. A wide range of indigenous plant species should be planted as given in the appendix-I in consultation with the DFO, State Agriculture University. The plant species with dense/moderate canopy of native origin should be chosen. Species of small/medium/tall trees alternating with shrubs should be planted in a mixed manner.


MEMBER SECRETARY
SEIAA-TN

33. Taller/one year old Saplings raised in appropriate size of bags, preferably ecofriendly bags should be planted as per the advice of local forest authorities/botanist/Horticulturist with regard to site specific choices. The proponent shall earmark the greenbelt area with GPS coordinates all along the boundary of the project site with at least 3 meters wide and in between blocks in an organized manner
34. A Disaster management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.
35. A Risk Assessment and management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.
36. Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.
37. Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.
38. The Socio-economic studies should be carried out within a 5 km buffer zone from the mining activity. Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.
39. Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.
40. Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.
41. If any quarrying operations were carried out in the proposed quarrying site for which now the EC is sought, the Project Proponent shall furnish the detailed compliance to EC conditions given in the previous EC with the site photographs which shall duly be certified by MoEF&CC, Regional Office, Chennai (or) the concerned DEE/TNPCB.
42. The PP shall prepare the EMP for the entire life of mine and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine.


MEMBER SECRETARY
SEIAA-TN

43. Concealing any factual information or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this Terms of Conditions besides attracting penal provisions in the Environment (Protection) Act, 1986.

Appendix -I
List of Native Trees Suggested for Planting

No	Scientific Name	Tamil Name	Tamil Name
1	<i>Aegle marmelos</i>	Vilvam	விலவம்
2	<i>Adenanthera pavonina</i>	Manjadi	மஞ்சாடி, ஆனைக்குன்றம்
3	<i>Albizia lebbek</i>	Vaagai	வாகை
4	<i>Albizia amara</i>	Usil	உசில்
5	<i>Bauhinia purpurea</i>	Mantharai	மந்தாரை
6	<i>Bauhinia racemosa</i>	Aathi	ஆத்தி
7	<i>Bauhinia tomentosa</i>	Iruvathi	இருவாத்தி
8	<i>Buchanania axillaris</i>	Kattuma	காட்டுமா
9	<i>Borassus flabellifer</i>	Panai	பனை
10	<i>Butea monosperma</i>	Murukkamarai	முருக்கமரம்
11	<i>Bobax ceiba</i>	Ilavu, Sevvilavu	இலவு
12	<i>Calophyllum inophyllum</i>	Punnai	புள்ளை
13	<i>Cassia fistula</i>	Sarakondrai	சரக்கொன்றை
14	<i>Cassia roxburghii</i>	Sengondrai	செங்கொன்றை
15	<i>Chloroxylon sweetenia</i>	Purasamaram	பரசு மரம்
16	<i>Cochlospermum religiosum</i>	Kongu, Manjalilavu	கோங்கு, மஞ்சள் இலவு
17	<i>Cordia dichotoma</i>	Naruvuli	நருவூளி
18	<i>Creteva adansonii</i>	Mavalangum	மாவலங்கம்
19	<i>Dillenia indica</i>	Uva, Uzha	உசா
20	<i>Dillenia pentagyna</i>	SiruUva, Sitruzha	சிறு உசா
21	<i>Diospyro sebenum</i>	Karungali	கருங்காலி
22	<i>Diospyro schloroxylon</i>	Vaganai	வாகளை
23	<i>Ficus amplissima</i>	Kallitchi	கல் இச்சி
24	<i>Hibiscus tiliaceou</i>	Aatrupoovarasu	ஆற்றுப்பலரசு
25	<i>Hardwickia binata</i>	Aacha	ஆச்சா
26	<i>Holoptelia integrifolia</i>	Aavili	ஆவா மரம், ஆயில்
27	<i>Lannea coromandelica</i>	Odham	ஓதீயம்
28	<i>Lagerstroemia speciosa</i>	Poo Marudhu	பூ மருது
29	<i>Lepisanthus tetraphylla</i>	Neikottaimaram	நெய் கொட்டை மரம்
30	<i>Limonia acidissima</i>	Vila maram	வில்லா மரம்
31	<i>Litsea glutinos</i>	Pisinpattai	பிசம்பா பிசிப்படை
32	<i>Madhuca longifolia</i>	Illuppai	இலுப்பை
33	<i>Manilkara hexandra</i>	UlakkaiPaalai	உலக்கை பாலை
34	<i>Mimusops elengi</i>	Magizhamaram	மகிழ்மரம்
35	<i>Mitragyna parvifolia</i>	Kadambu	கடம்பு
36	<i>Morinda pubescens</i>	Nuna	நுணா
37	<i>Morinda citrifolia</i>	Vellai Nuna	வெள்ளை நுணா
38	<i>Phoenix sylvestre</i>	Eachai	எச்சமரம்
39	<i>Pongamia pinnat</i>	Pungam	புங்கம்


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40	<i>Premna mollissima</i>	Murrai	முள்ளை
41	<i>Premna serratifolia</i>	Narumurrai	நறு முள்ளை
42	<i>Premna tomentosa</i>	Malaiipoovarasu	மலை பூவரசு
43	<i>Prosopis cinerica</i>	Vaasu maram	வள்ளி மரம்
44	<i>Pterocarpus marsupium</i>	Vengai	வேங்கை
45	<i>Pterospermum canescens</i>	Vennangu, Tada	வெண்ணாங்கு
46	<i>Pterospermum xylocarpum</i>	Polavu	புலவு
47	<i>Putranjiva roxburghii</i>	Karipala	கறிபாலா
48	<i>Salvadora persica</i>	Ugaa Maram	ஊகா மரம்
49	<i>Sapindus emarginatus</i>	Manipurgar, Soapukai	மணிப்புங்கள் சோப்புக்காய்
50	<i>Saraca asoca</i>	Asoca	அசோகா
51	<i>Streblus asper</i>	Piray maram	பிராய் மரம்
52	<i>Strychnos nuxvomica</i>	Yetti	எட்டி
53	<i>Strychnos potatorum</i>	Therthang Kottai	தேத்தான் கொட்டை
54	<i>Syzygium cumini</i>	Naval	நாவல்
55	<i>Terminalia belleric</i>	Thandri	தான்றி
56	<i>Terminalia arjuna</i>	Ven marudhu	வெண் மருது
57	<i>Toona ciliata</i>	Sandhana vembu	சந்தன வேம்பு
58	<i>Theopesia populnea</i>	Puvarasu	பூவரசு
59	<i>Walsuratrifoliata</i>	valsura	வால்கரா
60	<i>Wrightia tinctoria</i>	Veppalai	வேப்பாலை
61	<i>Pithecellobium dulce</i>	Kodukkapuli	கொடுக்காப்புளி

Discussion by SEIAA and the Remarks:-

The subject was placed in the 670th authority meeting held on 06.11.2023. The authority noted that the subject was appraised in 416th SEAC meeting held on 13.10.2023.

Based on the presentation and documents furnished by the project proponent, SEAC after detailed deliberations, decided to **recommend the proposal for the grant of Terms of Reference (ToR).**

After detailed discussions, the Authority accepts the recommendation of SEAC and decided to grant **Terms of Reference (ToR) along with Public Hearing** under cluster for undertaking the combined Environment Impact Assessment Study and preparation of separate Environment Management Plan subject to the conditions as recommended by SEAC & normal conditions in addition to the following conditions and the conditions mentioned in 'Annexure B' of this minute:

Annexure 'B'

Cluster Management Committee

1. Cluster Management Committee shall be framed which must include all the proponents in the cluster as members including the existing as well as proposed quarry.


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2. The members must coordinate among themselves for the effective implementation of EMP as committed including Green Belt Development, Water sprinkling, tree plantation, blasting etc.,
3. The List of members of the committee formed shall be submitted to AD/Mines before the execution of mining lease and the same shall be updated every year to the AD/Mines.
4. Detailed Operational Plan must be submitted which must include the blasting frequency with respect to the nearby quarry situated in the cluster, the usage of haul roads by the individual quarry in the form of route map and network.
5. The committee shall deliberate on risk management plan pertaining to the cluster in a holistic manner especially during natural calamities like intense rain and the mitigation measures considering the inundation of the cluster and evacuation plan.
6. The Cluster Management Committee shall form Environmental Policy to practice sustainable mining in a scientific and systematic manner in accordance with the law. The role played by the committee in implementing the environmental policy devised shall be given in detail.
7. The committee shall furnish action plan regarding the restoration strategy with respect to the individual quarry falling under the cluster in a holistic manner.
8. The committee shall furnish the Emergency Management plan within the cluster.
9. The committee shall deliberate on the health of the workers/staff involved in the mining as well as the health of the public.
10. The committee shall furnish an action plan to achieve sustainable development goals with reference to water, sanitation & safety.
11. The committee shall furnish the fire safety and evacuation plan in the case of fire accidents.

Impact study of mining

12. Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area covering the entire mine lease period as per precise area communication order issued from reputed research institutions on the following
 - a) Soil health & soil biological, physical land chemical features.
 - b) Climate change leading to Droughts, Floods etc.
 - c) Pollution leading to release of Greenhouse gases (GHG), rise in Temperature. & Livelihood of the local people.
 - d) Possibilities of water contamination and impact on aquatic ecosystem health.
 - e) Agriculture, Forestry & Traditional practices.


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- f) Hydrothermal/Geothermal effect due to destruction in the Environment.
- g) Bio-geochemical processes and its foot prints including environmental stress.
- h) Sediment geochemistry in the surface streams.

Agriculture & Agro-Biodiversity

- 13. Impact on surrounding agricultural fields around the proposed mining Area.
- 14. Impact on soil flora & vegetation around the project site.
- 15. Details of type of vegetations including no. of trees & shrubs within the proposed mining area and. If so, transplantation of such vegetations all along the boundary of the proposed mining area shall committed mentioned in EMP.
- 16. The Environmental Impact Assessment should study the biodiversity, the natural ecosystem, the soil micro flora, fauna and soil seed banks and suggest measures to maintain the natural Ecosystem.
- 17. Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.
- 18. The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands, Horticulture, Agriculture and livestock.

Forests

- 19. The project proponent shall detailed study on impact of mining on Reserve forests free ranging wildlife.
- 20. The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.
- 21. The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection.
- 22. The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site.

Water Environment

- 23. Hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) so as to assess the impacts on the nearby waterbodies due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided, covering the entire mine lease period.


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24. Erosion Control measures.
25. Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area on the nearby Villages, Water-bodies/ Rivers, & any ecological fragile areas.
26. The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir.
27. The project proponent shall study and furnish the details on potential fragmentation impact on natural environment, by the activities.
28. The project proponent shall study and furnish the impact on aquatic plants and animals in water bodies and possible scars on the landscape, damages to nearby caves, heritage site, and archaeological sites possible land form changes visual and aesthetic impacts.
29. The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components.
30. The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites.

Energy

31. The measures taken to control Noise, Air, Water, Dust Control and steps adopted to efficiently utilise the Energy shall be furnished.

Climate Change

32. The Environmental Impact Assessment shall study in detail the carbon emission and also suggest the measures to mitigate carbon emission including development of carbon sinks and temperature reduction including control of other emission and climate mitigation activities.
33. The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock.

Mine Closure Plan

34. Detailed Mine Closure Plan covering the entire mine lease period as per precise area communication order issued.

EMP

35. Detailed Environment Management Plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued.
36. The Environmental Impact Assessment should hold detailed study on EMP with budget for Green belt development and mine closure plan including disaster management plan.


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Risk Assessment

37. To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining.

Disaster Management Plan

38. To furnish disaster management plan and disaster mitigation measures in regard to all aspects to avoid/reduce vulnerability to hazards & to cope with disaster/untoward accidents in & around the proposed mine lease area due to the proposed method of mining activity & its related activities covering the entire mine lease period as per precise area communication order issued.

Others

39. The project proponent shall furnish VAO certificate with reference to 300m radius regard to approved habitations, schools, Archaeological sites, Structures, railway lines, roads, water bodies such as streams, odai, vaari, canal, channel, river, lake pond, tank etc.
40. As per the MoEF& CC office memorandum F.No.22-65/2017-IA.III dated: 30.09.2020 and 20.10.2020 the proponent shall address the concerns raised during the public consultation and all the activities proposed shall be part of the Environment Management Plan.
41. The project proponent shall study and furnish the possible pollution due to plastic and microplastic on the environment. The ecological risks and impacts of plastic & microplastics on aquatic environment and fresh water systems due to activities, contemplated during mining may be investigated and reported.

A. STANDARD TERMS OF REFERENCE

- 1) Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification 1994 came into force, w.r.t. the highest production achieved prior to 1994.
- 2) A copy of the document in support of the fact that the Proponent is the rightful lessee of the mine should be given.
- 3) All documents including approved mine plan, EIA and Public Hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and should be in the name of the lessee.
- 4) All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/


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topo sheet, topographic sheet, geomorphology and geology of the area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).

- 5) Information should be provided in Survey of India Topo sheet in 1:50,000 scale indicating geological map of the area, geomorphology of land forms of the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics.
- 6) Details about the land proposed for mining activities should be given with information as to whether mining conforms to the land use policy of the State; land diversion for mining should have approval from State land use board or the concerned authority.
- 7) It should be clearly stated whether the proponent Company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA Report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/ violation of the environmental or forest norms/ conditions? The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large, may also be detailed in the EIA Report.
- 8) Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.
- 9) The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc. should be for the life of the mine / lease period.
- 10) Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.
- 11) Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.
- 12) Certificate from the Competent Authority in the State Forest Department should be provided,


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confirming the involvement of forest land, if any, in the project area. In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees.

- 13) Status of forestry clearance for the broken up area and virgin forestland involved in the Project including deposition of Net Present Value (NPV) and Compensatory Afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.
- 14) Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.
- 15) The vegetation in the RF / PF areas in the study area, with necessary details, should be given.
- 16) A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted.
- 17) Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/ Elephant Reserves/(existing as well as proposed), if any, within 10 km of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished.
- 18) A detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled-I fauna found in the study area, the necessary plan along with budgetary provisions for their conservation should be prepared in consultation with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost.
- 19) Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravali Range', (attracting court restrictions for mining operations), should


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also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Department should be secured and furnished to the effect that the proposed mining activities could be considered.

- 20) Similarly, for Coastal Projects, a CRZ map duly authenticated by one of the authorized agencies demarcating LTL, HTL, CRZ area, location of the mine lease with respect to CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).
- 21) R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine lease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspects should be discussed in the Report.
- 22) One season (non-monsoon) [i.e. March-May (Summer Season); October-December (post monsoon season) ; December-February (winter season)] primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.
- 23) Air quality modeling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of Vehicles for transportation of mineral. The details of the model used and input parameters used for modeling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the


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habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map.

- 24) The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated.
- 25) Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.
- 26) Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.
- 27) Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided.
- 28) Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter-alia, shall include details of the aquifers present and impact of mining activities on these aquifers. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.
- 29) Details of any stream, seasonal or otherwise, passing through the lease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be brought out.
- 30) Information on site elevation, working depth, groundwater table etc. Should be provided both in AMSL and bgl. A schematic diagram may also be provided for the same.
- 31) A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the Project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The details of plantation already done should be given. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution.
- 32) Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those


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outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines.

- 33) Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.
- 34) Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report.
- 35) Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.
- 36) Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.
- 37) Measures of socio economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.
- 38) Detailed Environmental Management Plan (EMP) to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project.
- 39) Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.
- 40) Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.
- 41) The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.
- 42) A Disaster management Plan shall be prepared and included in the EIA/EMP Report.


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- 43) Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.
- 44) Besides the above, the below mentioned general points are also to be followed:-
- a) Executive Summary of the EIA/EMP Report
 - b) All documents to be properly referenced with index and continuous page numbering.
 - c) Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated.
 - d) Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise etc. using the MoEF&CC/NABL accredited laboratories. All the original analysis/testing reports should be available during appraisal of the Project.
 - e) Where the documents provided are in a language other than English, an English translation should be provided.
 - f) The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted.
 - g) While preparing the EIA report, the instructions for the Proponents and instructions for the Consultants issued by MoEF&CC vide O.M. No. J-11013/41/2006-IA.II (I) dated 4th August, 2009, which are available on the website of this Ministry, should be followed.
 - h) Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the PFR for securing the TOR) should be brought to the attention of MoEF&CC with reasons for such changes and permission should be sought, as the ToR may also have to be altered. Post Public Hearing changes in structure and content of the draft EIA/EMP (other than modifications arising out of the P.H. process) will entail conducting the PH again with the revised documentation.
 - i) As per the circular no. J-11011/618/2010-IA.II(I) dated 30.5.2012, certified report of the status of compliance of the conditions stipulated in the Environment Clearance for the existing operations of the project, should be obtained from the Regional Office of Ministry of Environment, Forest and Climate Change, as may be applicable.
 - j) The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and sections and (iii) sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area.


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In addition to the above, the following shall be furnished:-

The Executive summary of the EIA/EMP report in about 8-10 pages should be prepared incorporating the information on following points:

1. Project name and location (Village, District, State, Industrial Estate (if applicable).
2. Process description in brief, specifically indicating the gaseous emission, liquid effluent and solid and hazardous wastes.
3. Measures for mitigating the impact on the environment and mode of discharge or disposal.
4. Capital cost of the project, estimated time of completion.
5. The proponent shall furnish the contour map of the water table detailing the number of wells located around the site and impacts on the wells due to mining activity.
6. A detailed study of the lithology of the mining lease area shall be furnished.
7. Details of village map, "A" register and FMB sketch shall be furnished.
8. Detailed mining closure plan for the proposed project approved by the Geology of Mining department shall be shall be submitted along with EIA report.
9. Obtain a letter /certificate from the Assistant Director of Geology and Mining standing that there is no other Minerals/resources like sand in the quarrying area within the approved depth of mining and below depth of mining and the same shall be furnished in the EIA report.
10. EIA report should strictly follow the Environmental Impact Assessment Guidance Manual for Mining of Minerals published February 2010.
11. Detail plan on rehabilitation and reclamation carried out for the stabilization and restoration of the mined areas.
12. The EIA study report shall include the surrounding mining activity, if any.
13. Modeling study for Air, Water and noise shall be carried out in this field and incremental increase in the above study shall be substantiated with mitigation measures.
14. A study on the geological resources available shall be carried out and reported.
15. A specific study on agriculture & livelihood shall be carried out and reported.
16. Impact of soil erosion, soil physical chemical and biological property changes may be assumed.
17. Site selected for the project - Nature of land - Agricultural (single/double crop), barren, Govt./ private land, status of is acquisition, nearby (in 2-3 km.) water body, population, with in 10km other industries, forest , eco-sensitive zones, accessibility, (note - in case of


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- industrial estate this information may not be necessary)
18. Baseline environmental data - air quality, surface and ground water quality, soil characteristic, flora and fauna, socio-economic condition of the nearby population
 19. Identification of hazards in handling, processing and storage of hazardous material and safety system provided to mitigate the risk.
 20. Likely impact of the project on air, water, land, flora-fauna and nearby population
 21. Emergency preparedness plan in case of natural or in plant emergencies
 22. Issues raised during public hearing (if applicable) and response given
 23. CER plan with proposed expenditure.
 24. Occupational Health Measures
 25. Post project monitoring plan
 26. The project proponent shall carry out detailed hydro geological study through intuitions/NABET Accredited agencies.
 27. A detailed report on the green belt development already undertaken is to be furnished and also submit the proposal for green belt activities.
 28. The proponent shall propose the suitable control measure to control the fugitive emissions during the operations of the mines.
 29. A specific study should include impact on flora & fauna, disturbance to migratory pattern of animals.
 30. Reserve funds should be earmarked for proper closure plan.
 31. A detailed plan on plastic waste management shall be furnished. Further, the proponent should strictly comply with, Tamil Nadu Government Order (Ms) No.84 Environment and forests (EC.2) Department dated 25.06.2018 regarding ban on one time use and throw away plastics irrespective of thickness with effect from 01.01.2019 under Environment (Protection) Act, 1986. In this connection, the project proponent has to furnish the action plan.

Besides the above, the below mentioned general points should also be followed:-

- a. A note confirming compliance of the TOR, with cross referencing of the relevant sections / pages of the EIA report should be provided.
- b. All documents may be properly referenced with index, page numbers and continuous page numbering.


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- c. Where data are presented in the report especially in tables, the period in which the data were collected and the sources should be indicated.
- d. While preparing the EIA report, the instructions for the proponents and instructions for the consultants issued by MoEF& CC vide O.M. No. J-11013/41/2006-IA.II (I) dated 4th August, 2009, which are available on the website of this Ministry should also be followed.
- e. The consultants involved in the preparation of EIA/EMP report after accreditation with Quality Council of India (QCI)/National Accreditation Board of Education and Training (NABET) would need to include a certificate in this regard in the EIA/EMP reports prepared by them and data provided by other organization/Laboratories including their status of approvals etc. In this regard circular no F. No.J -11013/77/2004-IA-II(I) dated 2nd December, 2009, 18th March 2010, 28th May 2010, 28th June 2010, 31st December 2010 & 30th September 2011 posted on the Ministry's website <http://www.moef.nic.in/> may be referred.
- After preparing the EIA (as per the generic structure prescribed in Appendix-III of the EIA Notification, 2006) covering the above mentioned points, the proponent will take further necessary action for obtaining environmental clearance in accordance with the procedure prescribed under the EIA Notification, 2006.
 - The final EIA report shall be submitted to the SEIAA, Tamil Nadu for obtaining Environmental Clearance.
 - The TORs with public hearing prescribed shall be **valid for a period of three years** from the date of issue, for submission of the EIA/EMP report as per OMNo.J-11013/41/2006-IA-II(I)(part) dated 29th August, 2017.


MEMBER SECRETARY
SEIAA-TN

Copy to:

1. The Additional Chief Secretary to Government, Environment & Forests Department, Govt. of Tamil Nadu, Fort St. George, Chennai - 9
2. The Chairman, Central Pollution Control Board, Parivesh Bhavan, CBD Cum-Office Complex, East Arjun Nagar, New Delhi 110032.
3. The Member Secretary, Tamil Nadu Pollution Control Board, 76, Mount Salai, Guindy, Chennai-600 032.

4. Monitoring Cell, IA Division, Ministry of Environment, Forests & CC, Paryavaran Bhavan, CGO Complex, New Delhi 110003
5. The District Collector, Krishnagiri District.
6. Stock File.

From
Dr. S.Vediappan, M.Sc.,Ph.D.,
Deputy Director,
Dept of Geology and Mining,
Krishnagiri.

To
Thiru. Salman Sathar,
No.125, Jagadevi,
Jagadevipalayam Post,
Bargur Taluk,
Krishnagiri District.

Roc.No. 914/2022/Mines dated: .05.2023.

Sir,

Sub: Mines and Minerals – Krishnagiri District – Grey Granite – Bargur Taluk – Soolamalai Village S.F.No.341/1(Part) over an extent of 1.36.8 hecets - Quarry lease application for Grey Granite preferred by Thiru. S.Salman Sathar S/o. Sathar - Mining plan approved – Details of quarries situated within 500 mts radial distance - Requested by the lessee – Details furnished - reg.

Ref: 1. The District Collector, Krishnagiri letter Roc. No.914/2022/Mines dated : 21.10.2022.
2. Mining plan approved by the Commissioner of Geology and Mining in letter No. 7527/MM4/2023 Dated: 26.05.2023.
3. Thiru. Salman Sathar, letter dated: 29.05.2023.

kind attention is invited to the reference cited.

2) Thiru. Salman Sathar has preferred a quarry lease application for the grant of quarry lease for quarrying Grey Granite over an extent of 1.36.8 Hecets in patta lands in S.F.No.341/1(Part) of Soolamalai Village, Bargur Taluk, Krishnagiri District for a period of 20 years as per Rule 19A of Tamil Nadu Minor Mineral Concession Rules, 1959 vide in the reference 1st cited.

3) The Mining plan for the 1st five years which was approved by the Commissioner of Geology and Mining, vide letter dated: 26.05.2023.

4) In this connection, Thiru. Salman Sathar has requested the details of quarries situated within 500mts for the subject quarry vide letter dated: 29.05.2023.

5) As requested by the lessee the details of quarries situated within 500m radius is furnished as follows:

i) Details of Existing quarries


Sl. No.	Name and Address of the Lessee	Village and Taluk	SF No (s).	Extent (in Hects.)	G.O No. and Date	Lease Period	Last Permit Obtained
1	B.S.Ravi	Soolamalai, Bargur Taluk	339/2	1.190	GO 3D No.30 Ind. (MMB3) Dept dt. 22.2.2006	27.03.2006 to 26.03.2026	19.10.2014
2	B.S.Ravi	Chendarapalli Bargur Taluk	369/2	2.46.5	GO 3D No.35 Ind. (MMB3) Dept dt. 16.09.2003	10.11.2003 to 09.11.2023	09.01.2017
3	D. Rukkammal	Soolamalai, Bargur Taluk	335/4A1	1.20.0	GO (3D) No. 34 Ind.(MME-2) Dept. Dt.03.10.2009	14.12.2009 to 13.12.2029	13.12.2013
4	Varalakshmi	Soolamalai, Bargur Taluk	335/4B, 341/4	1.08.5	G.O (3D) No 24 Industries (MME.2) Department Dated 16.04.2018	14.06.2018 to 13.06.2038	29.05.2023
5	M/s. TAMIN	Chendarapalli Bargur Taluk	176/1	15.23.5	G.O.Ms.No.32 Ind. Dept., dated: 15.06.2018	29.12.2018 to 28.12.2038	31.03.2020
6	B.K.Murahi	Chendarapalli Bargur Taluk	382/5A etc.,	2.78.5	G.O.Ms.No.34 Ind. Dept., dated: 25.02.2011	28.02.2011 to 27.02.2031	25.10.2016
7	A.Sathar	Chendarapalli Bargur Taluk	375/2A etc.,	1.03.5	G.O.Ms.No.13 Ind. Dept., dated: 03.09.2013	07.10.2013 to 06.10.2033	09.03.2018
			Total	24.99.5			

ii) Details of Expired/ Abandoned quarries

Sl. No	Name of the Lessee and address	GO No & Date	Taluk & Village	S.F.No	Extent in Hectares	Period of lease
1.	M/s. TAMIN	G.O.Ms.No.237 Ind. Dept., dated: 17.03.1999	Chendarapalli Bargur Taluk	381	1.78.5	21.06.1999 to 20.06.2019

iii) Details of other proposal / Applied quarries

Sl.No	Name of the Lessee and address	GO No & Date	Taluk & Village	S.F.No.	Extent in Hectares	Period of lease
1	Thiru. Salman Sathar	-	Soolamalai, Bargur Taluk	341/1(P)	1.36.8	Instant Proposal Precies area given Mining Plan Approved
2	M/s.Bismillah Exports	-	Soolamalai, Bargur Taluk	339/1(P)	1.02.0	Precies area given Mining Plan Approved
3	M/s. TAMIN	-	Soolamalai, Bargur Taluk	283	34.35.5	Precies area given


 Deputy Director,
 Dept of Geology and Mining,
 Krishnagiri.

Copy to :-

The Chairman, Tamil Nadu State Environment Impact Assessment Authority,
 3rd Floor, Panakal Maligai,
 No. 1 Jeenes Road, Saidapet, Chennai -15.

சான்று

கிருஷ்ணகிரி மாவட்டம் பர்கூர் வட்டம் உள்ள வட்டம் சூலாமலை வருவாய் கிராமம் கிராம புல எண் 341/1(P) பரப்பு 1.36.8 இதில் S.S.சல்மான் சத்தார் என்பவர் குவாரி பணி குத்தகை செய்ய அரசிடம் விண்ணப்பித்துள்ளார். மேலும் இந்த குவாரியை சுற்றி 500 மீட்டர் சுற்றளவில் வீடுகள் வழிபாட்டுத்தலங்கள் மற்றும் புராதான சின்னங்கள் பள்ளிக்கூடம் ஆறுகள் மயாணம் எதுவும் இல்லை என சான்றளிக்கிறேன்.


கிராமம் நிர்வாக அலுவலர்
12, சூலாமலை
பர்கூர்-வட்டம்
கிருஷ்ணகிரி-மாவட்டம்.

COMMISSIONERATE OF GEOLOGY AND MINING

From

Thiru J.Jayakanthan, I.A.S.,
Commissioner of Geology and
Mining,
Industrial Estate,
Guindy,
Chennai - 600 032.

To

Thiru.Salman Sathar,
S/o.Sathar,
125, Jegadevi,
Jagadevipalayam,
Krishnagiri District - 635 203.

Roc.No.7527/MM4/2023 Dated: .05.2023

Sir,

Sub: Mines and Minerals - Minor Mineral - Grey Granite-
Krishnagiri District - Bargur Taluk - Soolamalai Village
S.F.No.341/1(Part) over an extent of 1.36.8 hecets - Quarry
lease application for Grey Granite preferred by
Thiru. S.Salman Sathar S/o. Sathar - Precise area
Communicated - Draft Mining Plan submitted for
approval- Recommended and forwarded by the Deputy
Director (G&M), Krishnagiri - Approval accorded.

- Ref:
1. Quarry lease application for Grey granite referred by
Thiru.Salman Sathar, S/o. Sathar, No.125, Jagadevi,
Jagadevipalayam, Krishnagiri -635203. Dated:
06.06.2022.
 2. The District Collector, Krishnagiri letter Roc.
No.914/2022/Mines dated : 21.10.2022.
 3. The Commissioner of Geology Chennai, Lr
No.7257/MM4/2022 dated: 28.12.2022.
 4. The Additional Chief Secretary to Government,
Industries Investment Promotion & Commerce
(MME.2) Department Secretariat, Chennai-600 009
LetterNo.3842275/MME-2/2022-1dated:17.04.2023.
 5. Draft Mining plan submitted by
Thiru.Salman Sathar, S/o. Sathar, Dated :
27.04.2023.
 6. Assistant Geologist (Mines) report dated. 13.05.2023.
 7. The Deputy Director (G&M), Krishnagiri Letter
Rc.No.914/2022/Mines dated 15.05.2023.

-oOo-

Kind attention is invited to the references cited.

2) Thiru.S.Salman Sathar has preferred a quarry lease application for the grant of quarry lease for quarrying grey granite over an extent of 1.36.8 Hect in patta land in S.F.No. 341/1(Part) in Soolamalai Village, Bargur Taluk, Krishnagiri District for a period of 20 years as per Rule 19A of Tamil Nadu Minor Mineral Concession Rules, 1959 vide in the reference 1st cited.

3) The above said quarry lease application has been recommended and forwarded to Government vide reference 3rd cited. The Government vide letter dated: 17.04.2023 has issued precise area communication over an extent of 1.36.8 hectares of patta land in S.F.No. 341/1(Part) in Soolamalai Village, Bargur Taluk, Krishnagiri District to furnish the approved Mining Plan and environmental clearance from the competent authority for the above said area. Accordingly, the applicant has submitted five copies of the draft mining plan for approval vide reference 5th cited.

4) The Deputy Director (G&M), Krishnagiri has forwarded the mining plan submitted by the applicant Thiru.S.Salman Sathar and reported as follows.

- i. The draft Mining Plan submitted by Thiru.Salman Sathar S/o. Sathar has been verified with reference to field conditions. The draft Mining Plan has been prepared by the Recognized Qualified person. The details such as Geological Reserves, Mineable Reserves, Year wise production and Development programme have been incorporated in the draft Mining Plan. The Special conditions imposed in the precise area communication are also incorporated in the draft mining plan.
- ii. The year wise production quantity mention in the mining plan is given as detailed below.

Year	Rom (m ³)	Recovery @ 35 % (m ³)	Granite Waste @ 65 % (m ³)	Weathered Rock (m ³)	Top Soil (m ³)
1 st Year	6700	2345	4355	2496	1485
2 nd year	6880	2408	4472	1664	880
3 rd year	6880	2408	4472	1664	880
4 th year	6830	2390	4440	1248	660
5 th year	6890	2412	4478	-	-
Total	34180	11963	22217	7072	3905

iii. The proposed rate of saleable production of Grey granite is around 2393 cbm per year and by considering the mineable reserves mentioned in the mining plan is 39307 cbm.

iv. Further, other quarries situated within 500 mts radial distance are as follows.

a. Details of Existing quarries

Sl. No.	Name and Address of the Lessee	Village and Taluk	SF No (s).	Extent (in Hects.)	G.O No. and Date	Lease Period
1	B.S.Ravi	Soolamalai, Bargur Taluk	339/2	1.190	GO 3D No.30 Ind. (MMB3) Dept dt. 22.2.2006	27.03.2006 to 26.03.2026
2	B.S.Ravi	Chendarapalli Bargur Taluk	369/2	2.46.5	GO 3D No.35 Ind. (MMB3) Dept dt. 16.09.2003	10.11.2003 to 09.11.2023
3	D. Rukkammal	Soolamalai, Bargur Taluk	335/4A1	1.20.0	GO (3D) No. 34 Ind.(MME-2) Dept. Dt.03.10.2009	14.12.2009 to 13.12.2029
4	Varalakshmi	Soolamalai, Bargur Taluk	335/4B, 341/4	1.08.5	G.O (3D) No 24 Industries (MME,2) Department Dated 16.04.2018	14.06.2018 to 13.06.2038
5	M/s. TAMIN	Chendarapalli Bargur Taluk	176/1	15.23.5	G.O.Ms.No.32 Ind. Dept., dated: 15.06.2018	29.12.2018 to 28.12.2038
6	B.K.Murali	Chendarapalli Bargur Taluk	382/5A etc.,	2.78.5	G.O.Ms.No.34 Ind. Dept., dated:	28.02.2011 to

					25.02.2011	27.02.2031
7	A.Sathar	Chendarapalli Bargur Taluk	375/2A etc.,	1.03.5	G.O.Ms.No.13 Ind. Dept., dated: 03.09.2013	07.10.2013 to 06.10.2033
			Total	24.99.5		

b. Details of Expired/ Abandoned quarries

Sl. No	Name of the Lessee and address	GO No & Date	Taluk & Village	S.F. No	Extent in Hectares	Period of lease
1.	M/s. TAMIN	G.O.Ms.No.237 Ind. Dept., dated: 17.03.1999	Chendarapalli Bargur Taluk	381	1.78.5	21.06.1999 to 20.06.2019
			Total		1.78.5	

c. Details of other proposal / Applied quarries

Sl. No	Name of the Lessee and address	GO No & Date	Taluk & Village	S.F.No.	Extent in Hectares	Period of lease
1	Thiru. Salman Sathar	-	Soolamalai, Bargur Taluk	341/1(P)	1.36.8	Instant Proposal (Precise area given)
2	M/s.Bismillah Exports	-	Soolamalai, Bargur Taluk	339/1(P)	1.02.0	(Precise area given)
3	M/s. TAMIN	-	Soolamalai, Bargur Taluk	283	34.35.5	(Precise area given)
			Total		36.74.3	

- v. There are no archeological monuments situated within the radial distance of 300m from the subject area and no wild life sanctuary with in 1.0km radius satisfies Rule 36 (1-A) of amended Tamil Nadu Minor Mineral Concession Rules 1959.
- vi. Finally, the Deputy Director, Geology and Mining, Krishnagiri has recommended and forwarded the draft Mining Plan

submitted by the applicant Thiru. Salman Sathar for approval, subject to the condition that the applicant should obtain prior environmental clearance from the competent authority.

5) The mining plan is in accordance with the precise area communicated for grant of lease to the subject area. Based on the recommendation of the Deputy Director (G&M), Krishnagiri district, the Mining plan submitted by Thiru. Salman Sathar is hereby approved subject to the following conditions in addition to the conditions stipulated in the precise area communication issued by the Government:

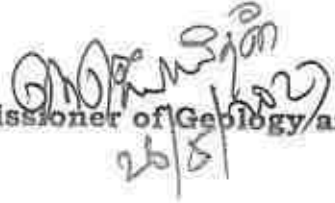
- i. This mining plan is approved without prejudice to any other Law applicable to the quarry lease from time to time whether such Laws are made by the Central Government, State Government or any other authority.
- ii. The approval of the mining plan does not in any way imply the approval of the Government in terms of any other provisions of the Mines and Minerals (Development and Regulation) Act 1957, or any other connected laws including Forest (Conservation) Act, 1980, Forest Conservation Rules, 1981, Environment Protection Act, 1980' Indian Explosives Act, 1884 (Central Act IV of 1884) and the rules made there under and the Tamil Nadu Minor Mineral Concession Rules, 1959.
- iii. This mining plan including Progressive mine closure plan is approved without prejudice to any other order or direction from any court of competent jurisdiction.
- iv. Provisions of the Mines Act, 1952 and the Rules and Regulations made there under including submission of notice of opening, appointment of manager and other statutory officials as required under Mines Act, 1952 shall be complied with.

- v. Provisions made under Mines and Minerals (Development & Regulation) Act, 1957, MMDR Amendment Act, 2015 and Granite conservation and Development Rules, 1999 made there under shall be complied with.
- vi. The applicant should provide 7.5 m safety distance to the adjacent patta lands in all the sides.
- vii. Granite waste materials should be dumped within the quarry lease area and should not be dumped outside the boundary of the lease area.
- viii. No hindrance should be caused to the adjacent pattadhars and public while quarrying and transportation of minerals from the subject area.
- ix. Environmental Clearance should be obtained from the authority in respect of the subject area as per rule 42 of the Tamil Nadu Minor Mineral Concession Rules, 1959 and as per the notification of the Ministry of Environment and Forest and any other clearances if any.
- x. The four boundaries of the applied area are fixed and the quarrying activity should be restricted within the area granted on lease.
- xi. The applicant should fence the lease granted area with barbed wire before the execution of lease deed as follows: -
 - The pillar post shall be firmly grounded with concrete foundation of height not less than 2mts with a distance between two pillars shall not be more than 3mts.
 - The applicant shall incorporate the DGPS readings for the entire boundary pillars of the area and the same should be clearly shown in the mining plan.

- A soft copy of the digitized map with DGPS readings should be submitted in the CD to the Deputy Director (G&M), Krishnagiri.
- xii. Barbed wire fencing or Compound wall should be erected all along the boundary of the lease granted area.
- xiii. The applicant should ensure that while starting the quarry work, all the quarry workers working under their control are registered in the Labour Welfare Board and also enrolled in the ongoing insurance scheme.
- xiv. The conditions mentioned in G.O. (Ms) No.79, Industries (MMC.1) Department, dated 06.04.2015 should be complied with.
- xv. The applicant should comply with the conditions stipulated in the Government of India, Ministry of Mines order No.11/02/2020, dated 14.01.2020 issued as per the orders of the Hon'ble Supreme Court of India dated 08.01.2020 that, "the mining leaseholders shall after ceasing mining operations, undertake re-grassing the mining area and any other area which may have been disturbed due to this mining activities and restore the land to a condition which is fit for growth of fodders, flora and fauna etc."
- xvi. The applicant shall submit scheme of mining, mine closure plan and other statutory requirements within the time stipulated for submission of the above, as per rules.
- xvii. If any violation is found during quarrying operation, the penal provisions of the Tamil Nadu Minor Mineral Concession Rules, 1959 and other rules and act in force will attract.
- xviii. As per rule 12 (v) of the Mineral (other than Atomic and Hydro Carbons Energy Minerals) Concession Rules, 2016, the

- applicant firm shall at his own expense, erect, maintain and keep in repair all boundary pillars.
- xix. Quarrying activity should be carried out from 07.00 AM to 05.00 PM only.
 - xx. A Green belt should be constructed to prevent sound and air pollution due to the proposed quarrying activity by planting at least 500 seedlings of Neem and Pungan all around the area.
 - xxi. The applicant may use mild explosives during quarrying, and storing of explosives if required, by obtaining valid licence under Explosive Act and Rules.
 - xxii. Child labour should not be engaged in the quarry works and the quarry workers should be enrolled in the insurance scheme through the Labour Department.
 - xxiii. The lessee should carry out DGPS survey and erection of RCC boundary pillars as per the norms stipulated in the EOI notification in Re.No.2921/MM4/2019 dated.01.02.2018 and subsequent corrigendum dated 13.08.2019 through the empanelled agencies.
 - xxiv. The applicant should follow the mining method during the quarrying operation as mentioned in the mining plan.

Encl: Two copies of Approved Mining Plan


Commissioner of Geology and Mining

Copy Submitted to:

The Additional Chief Secretary
to Government,
Industries, Investment Promotion
and Commerce Department,
Secretariat,
Chennai-600009.

Copy to:

1. The District Collector,
Krishnagiri District.

**MINING PLAN ALONG WITH
PROGRESSIVE QUARRY CLOSURE PLAN FOR
SOOLAMALAI GREY GRANITE**



(Under Rule 19A of TNMMCR 1959 & Rule 12, 13 & 16 of Granite
Conservation and Development Rules, 1999)
Patta Land/ Lease Period: 20 Years

IN

LOCATION OF THE QUARRY LEASE APPLIED AREA

EXTENT : 1.36.8 HECTARES
S.F.No. : 341/1 (Part)
VILLAGE : SOOLAMALAI
TALUK : BARGUR
DISTRICT : KRISHNAGIRI
STATE : TAMIL NADU

FOR

APPLICANT / LESSEE

THIRU. SALMAN SATHAR

S/o. Sathar,
No.125, Jagadevi, Jagadevipalayam,
Krishnagiri District,
Tamil Nadu State - 635 203.

PREPARED BY

Dr. M. IFTHIKHAR AHMED, M.Sc., M.B.A., F.G.S., Ph.D.,

Recognized Qualified Person

RQP/MAS/183/2004/A

No.17, Advaita Ashram Road,
Alagapuram, Salem - 636 004.

Cell: +91 94422 78601, 94433 56539

E-mail: infogeoexploration@gmail.com

Salman Sathar,
S/o. Sathar,
No.125, Jagadevi, Jagadevipalayam,
Krishnagiri District,
Tamil Nadu State - 635 203.



CONSENT LETTER FROM APPLICANT

The Mining Plan and Progressive Quarry Closure Plan in respect of Soolamalai Grey Granite over an extent of 1.36.8 Hectares of Patta land in S.F.No.341/1 (Part) of Soolamalai Village, Bargur Taluk, Krishnagiri District, Tamil Nadu State has been prepared by

Dr. M. Ifthikhar Ahmed, M.Sc., M.B.A., F.G.S., Ph.D.,
Recognized Qualified Person
RQP/MAS/183/2004/A

I request the Commissioner of Geology and Mining, Chennai to make further correspondence regarding the modification of the Mining Plan with the said Recognized Qualified Person at his following address.

Dr. M. Ifthikhar Ahmed, M.Sc., M.B.A., F.G.S., Ph.D.,
No. 17, Advaita Ashram Road,
Alagapuram, Salem - 636 004.
Cell: 94422 78601, 94433 56539

I hereby undertake that all the modifications, if any made in the mining plan by the Recognized Qualified Person may be deemed to have been made with my knowledge and consent and shall be acceptable to me and binding on me in all respects.

Signature of the applicant


(Salman Sathar)

Place: Krishnagiri

Date: 18.04.2023

Salman Sathar,
S/o. Sathar,
No.125, Jagadevi, Jagadevipalayam,
Krishnagiri District,
Tamil Nadu State - 635 203.



DECLARATION OF APPLICANT

The Mining Plan and Progressive Quarry Closure Plan in respect of Soolamalai Grey Granite over an extent of 1.36.8 Hectares of Patta land in S.F.No.341/1 (Part) of Soolamalai Village, Bargur Taluk, Krishnagiri District, Tamil Nadu State has been prepared in full consultation with me by

Dr. M. Ifthikhar Ahmed, M.Sc., M.B.A., F.G.S., Ph.D.,
Recognized Qualified Person
RQP/MAS/183/2004/A

I have understood its contents and agree to implement the same in accordance with Laws applicable to Mines.

Signature of the applicant

(Salman Sathar)

Place: Krishnagiri

Date: 18.04.2023

Dr. M. Ifthikhar Ahmed, M.Sc., M.B.A., F.G.S., Ph.D.,
No. 17, Advaita Ashram Road,
Alagapuram, Salem - 636 004.
Cell: 94422 78601, 94433 56539



CERTIFICATE FROM THE RECOGNIZED QUALIFIED PERSON


This is to certify that the Provisions of Granite Conservation and Development Rules, 1999 as amended in Tamil Nadu Minor Mineral Concession Rules, 1959 have been observed in the preparation of Mining Plan and Progressive Quarry Closure Plan for Soolamalai Grey Granite over an extent of 1.36.8 Hectares of Patta land in S.F.No.341/1 (Part) of Soolamalai Village, Bargur Taluk, Krishnagiri District, Tamil Nadu State has been prepared for

Thiru. Salman Sathar,
S/o. Sathar,
No.125, Jagadevi, Jagadevipalayam,
Krishnagiri District,
Tamil Nadu State - 635 203.

Whenever specific permissions/exemptions/ relaxations and approvals are required, the applicant will approach the concerned authorities of Commissioner of Geology and Mining, Government of Tamil Nadu, Guindy, Chennai- 600 032 for such permissions/ exemptions/ relaxations and approvals.

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

Signature of the RQP


Dr. M. Ifthikhar Ahmed, M.Sc., M.B.A., F.G.S., Ph.D.,
RQP/MAS/183/2004/A

Place: Salem

Date: 26.04.2023

Dr. M. Ifthikhar Ahmed, M.Sc., M.B.A., F.G.S., Ph.D.,
No. 17, Advaita Ashram Road,
Alagapuram, Salem - 636 004.
Cell: 94422 78601, 94433 56539



CERTIFICATE FROM THE RECOGNIZED QUALIFIED PERSON

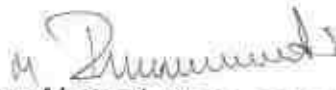
Certified that the Provisions of Mines Act, Rules and Regulations made there under have been observed in the preparation of Mining Plan and Progressive Quarry Closure Plan for Soolamalai Grey Granite over an extent of 1.36.8 Hectares of Patta land in S.F.No.341/1 (Part) of Soolamalai Village, Bargur Taluk, Krishnagiri District, Tamil Nadu State has been prepared for

Thiru. Salman Sathar,
S/o. Sathar,
No.125, Jagadevi, Jagadevipalayam,
Krishnagiri District,
Tamil Nadu State - 635 203.

Whenever specific permissions/exemptions/ relaxations and approvals are required, the applicant will approach the concerned authorities of the Director of Mines Safety, No. 5, IInd Street, Block - AA, Anna Nagar, Chennai, Tamil Nadu State for such permissions/ exemptions /relaxations and approvals.

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

Signature of the RQP


Dr. M. Ifthikhar Ahmed, M.Sc., M.B.A., F.G.S., Ph.D.,
RQP/MAS/183/2004/A

Place: Salem

Date: 26.04.2023

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MINING PLAN ALONG WITH PROGRESSIVE QUARRY**CLOSURE PLAN FOR**
SOOLAMALAI GREY GRANITE

(Under Rule 19A of Tamil Nadu Minor Mineral Concession Rules, 1959 and 12, 13 and 16 of Granite Conservation and Development Rules, 1999)

1.0 INTRODUCTION

The present Mining Plan is prepared for quarry Grey Granite belonging to **Thiru.Salman Sathar**, S/o. Sathar, residing at No.125, Jagadevi, Jagadevipalayam, Krishnagiri District, Tamil Nadu State – 635 203, for which precise area communication has been granted as per Govt. letter No. **3842275/MME.2/2022-1, Dated: 17.04.2023** with the conditions to provide:

1. A safety distance of 7.5m shall be maintained for the adjacent patta lands.
2. A safety distance of 10m shall be maintained for the Government land in S.F.No.335/3 situated on the Northern side of the applied area.
3. A safety distance of 50m shall be maintained for the power line situated at a distance of 37m from the Southwestern boundary and at a distance of 43m from the Northwestern boundary.
4. The quarrying operation should be restricted only in the area granted on lease.
5. Barbed wire fencing or compound wall should be erected all along the boundary of the lease granted area.
6. The waste materials generated during the course of quarrying should be dumped only within the lease hold area.
7. Environment Clearance should be obtained from the competent authority in respect of the subject area as per Rule 42 of Tamil Nadu Minor Mineral Concession Rules, 1959 and as per the notification of the Ministry of Environment and Forest and any other clearances if any.
8. The applicant should fence the lease granted area with barbed wire before the execution of lease deed as follows:
 - ❖ The pillar post shall be firmly grounded with concrete foundation of height not less than 2 meters with a distance between two pillars shall not be more than 3 meters.
 - ❖ The applicant shall incorporate the DGPS readings for the entire boundary pillars of the area and the same should be clearly shown in the mining plan.
 - ❖ A soft copy of the digitalized map with DGPS readings should be submitted in the CD to the Deputy Director, Krishnagiri.
9. The conditions mentioned in G.O.(Ms) No.79, Industries (MMC.1) Department, Dated 06.04.2015 should be complied with.

10. As per rule 12 (V) of Mineral (other than Atomic and Hydro Carbon Energy Mineral) Concession Rules, 2016, the applicant shall at his own expenses erect, maintain and keep in repair all the boundary pillars.
11. The applicant should comply with the additional conditions stipulated in the Government of India, Ministry of Mines order No.11/02/2020, dated 14.01.2020 issued as pass the order of Hon'ble Supreme Court of India, dated 08.01.2020 that states "The mining lease holders shall after ceasing mining operations, under take re-grassing the mining area and any other area which may have been disturbed due to this mining activities and restore the land to a condition which is fit for growth of fodder, flora and fauna etc.,"
12. The applicant should carry out DGPS survey and erection of RCC boundary pillars as per the norms stipulated in the EOI notification in Rc.No.2921/MM4/2019, Dated: 01.02.2018 and subsequent corrigendum dated: 13.08.2019 before execution of quarry lease through the empaneled agencies.
13. The applicant shall submit scheme of mining; mine closure plan and other statutory requirements within the time stipulated for submission of the above, as per Rules.
14. The applicant should use mild explosives during quarrying.
15. Child labour should not be engaged in the quarry works.
16. If any violation is found during quarrying operation, the penal provisions of the Tamil Nadu Minor Mineral Concession Rules, 1959 and other Rules and Act in force will attract.
17. Quarrying shall be done as per the approved Mining Plan and that the mining plan is approved without prejudice to any other law applicable to the quarry lease from time to time whether such laws are made by the Central Government, State Government or any other authority.
18. All the quarry labour should be registered with the Labour Welfare Board of Government of Tamil Nadu and to be enrolled in the Grant Insurance Scheme.

(Please refer Annexure No. I).

The applicant ensures to comply all the condition stipulated by the Government before the execution of lease deed and during the course of quarrying operations.

This mining plan has been prepared by keeping and considering all the parameters stipulated by the Government of Tamil Nadu before and during the course of quarry operations.

The area applied for Grey Granite quarry lease is over an extent of **1.36.8 Hectares** of Patta land in **S.F.No.341/1 (Part) of Soolamalai Village, Bargur Taluk, Krishnagiri District**. It is a Patta land, registered in the name of applicant vide Patta No. 1998 (Please refer Annexure No. IV to VI).

The lease applied area is situated in flat terrain, the area is concealed under Reddish gravelly soil having an average thickness of 1m and 2m weathered rock totally overburden having an average thickness of 3m and followed by fresh Grey granite, it is clearly visible right from the adjacent quarry lease. Slender pegmatite veins, Joints, Cracks, segregation and color variation are common in this formation.

Diamond wire saw cutting method is being proposed to liberate granite dimensional stones from the parent granite body. Cutting into required size, removal of defective portions are done manually using feather and wedges. The dressing of blocks into the required rectangular shaped dimensional stones are done manually by chiseling with experienced chisel men for the maximum recovery of defect free salable material. Marketing of these stones blocks to customers is being ensured by strict quality control measures adopted by the Company's marketing personnel.

2.0 GENERAL

2.0 NAME OF THE APPLICANT WITH ADDRESS

Name : **Thiru. Salman Sathar,**
S/o. Sathar
Address : No.125, Jagadevi,
Jagadevipalayam,
District : Krishnagiri
State : Tamil Nadu
Pin code : 635 203
Phone : +91 95244 50667
E-mail ID : salman01@gmail.com
Aadhaar No. : 5130 7972 6350 (Refer Annexure No. VII).

2.1 STATUS OF THE APPLICANT

The applicant is an individual.

2.2 MINERAL WHICH THE APPLICANT INTENDS TO MINE

The applicant intends to quarry **Grey Granite** dimensional stone.

2.3 NAME, REGISTRATION NUMBER AND ADDRESS OF THE RECOGNISED QUALIFIED PERSON WHO PREPARED THE MINING PLAN

Name : **Dr. M. IFTHIKHAR AHMED, M.Sc., M.B.A., F.G.S., Ph.D.,**
Recognised Qualified Person
RQP/MAS/183/2004/A
Address : No.17, Advaita Ashram Road,
Alagapuram, Salem District - 636 004.
Mobile : +91 94433 56539 & 94422 78601
Telephone : 0427- 2431989 (Office)
E-mail ID : infogeoexploration@gmail.com

(Refer Annexure No. VIII).

2.4 NAME AND ADDRESS OF THE PROSPECTING AGENCY

State Geology and Mining Dept, Govt. of Tamil Nadu, has carried out the regional prospecting and exploration in these areas during 1992 to 1993.

Geological Survey of India has carried out detailed mapping of the commercial granite deposits of Tamil Nadu. Besides, the RQP and his team members made a detailed geological study of the area and demarcated clearly the Grey Granite deposit with a mine surveyor. The granite formation is clearly visible right from the adjacent quarry lease. No detailed prospecting carried out by any agencies.

Address of the prospecting Agency:

- (i) STATE GEOLOGICAL DEPARTMENT,
O/o The Commissioner of Geology and Mining,
Thiru Ve Ka Industrial Estate,
Guindy, Chennai - 32.

2.2 DETAILS OF THE AREA

The area is marked in the Survey of India, Topo Sheet No. 57-L/07. The details of the land covered by the area is given below:

Table - 1

District and State	Taluk	Village	S.F. No.	Area in Ha.	Patta No.	Classification
Krishnagiri and Tamil Nadu	Bargur	Soolamalai	341/1 (Part)	1.36.8	1998	Applicant's own Patta Land (Refer Annexure Nos. IV - VI)

The area lies between the Latitudes of 12°29'32.7111"N to 12°29'39.1286"N and Longitudes of 78°18'04.6583"E to 78°18'09.0436"E on WGS datum-1984. (Plate No. I & II).

2.7 WHETHER THE AREA RECORDED TO BE IN FOREST DEPARTMENT:

The area does not falls under forest land of any category. It is a Patta land.

2.8 PERIOD FOR WHICH THE MINING AREA IS REQUIRED

Twenty years only.

2.9 INFRASTRUCTURE

The lease applied area is situated about 3.5km Southeast side of Soolamalai hamlet and 8km Southwest of Bargur town. (Please refer Plate Nos. I and IA).

The nearest town is Bargur which is located about 8km Northeast side of the area, where all basic facilities like Hospital, Communication centre, Schools, Police Station and Bus terminus are available. The District Headquarters and District Administrative Office are available in Krishnagiri located at 10km on the Northwest side of the area.

There is good approach road is already existence on the Southwest side of the area, which is leads to Krishnagiri - Uthangarai (NH-77) road located at 600m on the Southern side. There is no other Patta lands are encountered for the haulage of Grey Granite (Please refer Plate Nos. I to ID).

Table - 2

Particulars	Location	Approximate Aerial Distance and Direction from the lease applied area
Nearest Post Office	Jagadevipalayam	2km - SE
Nearest Dispensary	Jagadevipalayam	2km - SE
Nearest School	Jagadevipalayam	2km - SE
Nearest Police Station	Bargur	8km - NE
Nearest Hospital	Bargur	8km - NE
Nearest Town	Bargur	8km - NE
Nearest D.S.P. Office	Bargur	8km - NE
Nearest State Highway	Bargur - Tirupattur (SH-131)	8km - NE
Nearest National Highway	Krishnagiri - Uthangarai (NH-77)	600m - South
Nearest Railway Line	Tirupattur - Morappur	24km - SE
Nearest Railway Station	Tirupattur	28km - East
Nearest Airport	Bengaluru	93km - NW
Nearest Seaport	Chennai	223km - NE
District Head Quarters	Krishnagiri	10km - NW

There is no National Monuments, Places of Worship, Places of Public Interest and Permanent structures situated around 300m radius from the lease applied area.

WATER:

Packaged drinking water is available from the nearby water vendors in Bargur located at 8km on the Northeast side of the area, the ground water also potable without adverse any health effects. The water table is found 64m below from ground level this is observed from the nearby borewells with water level indicator.

RIVER HEAD:

No major water body like River, Reservoir and Canal located within 50m radius of the area.

3.0 GEOLOGY AND RESERVES

3.1 PHYSIOGRAPHY

The area is situated in flat terrain. The gradient is gentle towards southeast and altitude of the area is 478m above from MSL. The Grey granite formation is clearly visible right from the adjacent quarry lease. The Grey Granite is medium to coarse grained with quartz and feldspar as major constituents, Pyroxene, Mica, Garnet and other mafic minerals are accessories. This gneissic formation is having wavy pattern of alternate layer of light and dark colour minerals which adds the aesthetic beauty for this rock.

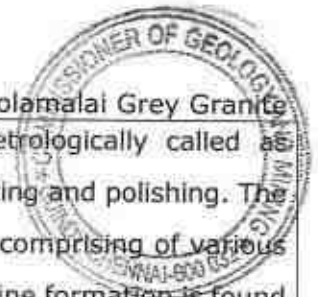
Topographical view of the Soolamalai Grey Granite quarry lease applied area



The area receives average rainfall about 985mm per annum and the rainy season is mainly from Oct - Jan during North East monsoon. The summer is hot with maximum temperature of 42°C and winter records a minimum temperature of 18°C. The water level is found to occur at a depth of 64m below from the ground level.

3.2 REGIONAL GEOLOGY & GEOLOGICAL SUCCESSION

The Grey Granite is medium to coarse grained in size. Orthoclase feldspar and quartz are major constituents and Pyroxene, Biotite, Garnets and other mafic minerals are accessories. The petrological settings of the area are simple and not a complicated phenomenon. There are no major minerals observed in the vicinity of the proposed quarry. A brief description of the regional Geology is discussed below.



This Grey granite is commercially called as **"Paradiso"** and Petrologically called as **"Migmatite"** which is widely used for slabs, Tiles and Monuments after cutting and polishing. The Krishnagiri district is underlain by hard Crystalline rocks of Archaean age comprising of various rock types such as Gneiss, Charnockite, etc.,. The Gneissic type of Crystalline formation is found in the North and Northeastern part of the District. Shoolagiri, Hosur, Mattur and Soolamalai areas covered by Granitic Gneiss (Migmatite).

The Late Archean crust of Krishnagiri, Tamil Nadu, consists of tonalitic-trondhjemitic-granodioritic (TTG) gneisses with mafic and sedimentary enclaves, formed between 2.7 and 2.5 Ga and metamorphosed at amphibolite facies in the north to granulite facies in the south close to 2.5 Ga. Migmatization occurred at all grades, and numerous small granite bodies were emplaced near the amphibolite-to-granulite facies horizon. This nearly syn-accretion metamorphism affected the entire crust and left a chemically differentiated section later exposed by uplift and erosion.

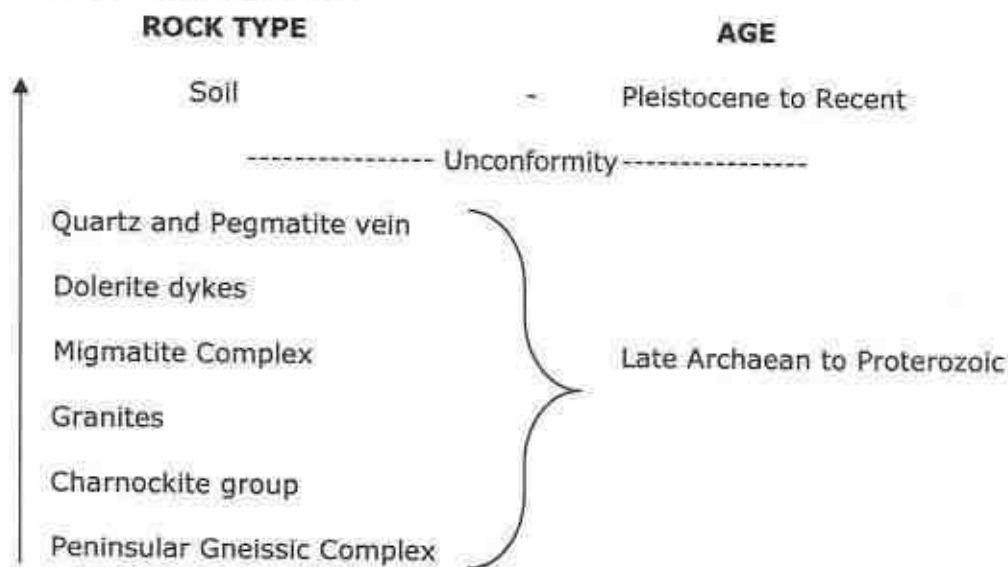
Such rocks that were formed at great depths during the Archaean age are now exposed at the surface of the earth as a result of the combined actions of wind, air, water, weathering and denudation over the past several million years.

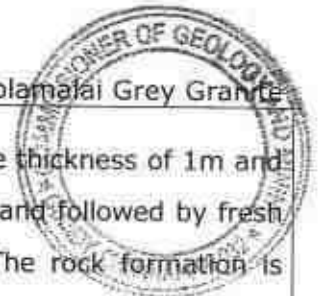
The Grey granite has the characteristic pink rhythmic banding by which it can be identified even from a distance. These are seen to the central part and SE part of the district, more specifically in Rayakottai, Kaveripattinam, Jagadevi and Velampatti. These dimensional blocks are quarried to make a polished stone, slabs, monuments etc.,

STRUCTURAL SETTINGS OF KRISHNAGIRI:

The general geological sequence of the rock types in the area is:

Order of super position:





3.2.1. Geology of the lease applied area

The area is concealed under Reddish gravelly soil having an average thickness of 1m and 2m weathered rock totally overburden having an average thickness of 3m and followed by fresh Grey granite, it is clearly visible right from the adjacent quarry lease. The rock formation is popularly known as Granitic gneiss essentially made up of a supra crustal assemblages of Quartz and Orthoclase feldspar as major constituents, Pyroxene, Mica, Garnet and other mafic minerals are accessories. The lease applied area comprises Granitic gneiss and popularly termed as "Paradiso".

The Granite gneiss is leucocratic, euhedral, medium to coarse grained, inequigranular and well-developed gneissic banding of alternate layers of light and dark colour minerals are the specialty of this area which denotes the indicative of flow pattern of the rock mass in North - South (i.e., the cutting direction of the Grey Granite). The colour of the rock is pale pink - pale grey as observed on the surface level, the pink colour may decreased in deep seated condition. This pale pink and grey colour which may find a good market for granite dimensional stones.

Some slender pegmatite veins are intruded in a crisscross fashion and well developed strike and dip joints and xenoliths observed at the surface level which is likely to decrease in deep seated condition. Taking in to consideration of the above geological factors, over burden, inter burden wastage during quarrying, other flaw and flower patches etc, an average recovery of 35% upto 28m (1m Topsoil + 2m Weathered Rock + 25m Grey Granite) depth has been computed as economically safe and systematic quarrying. This mining plan is discussed based on 35% recovery factor. If there is any considerable increase or decrease in the recovery factor a modified mining plan will be prepared and will be submitted to relevant authorities for subsequent clearance and approval.

The Physical attitude of the Grey Granite deposit of this area is given below:

Strike Direction	-	N60°E - S60°W
Dip amount and direction	-	SE60°

3.3 DETAILS OF EXPLORATION

3.3.1. ALREADY CARRIED OUT

As far as Grey Granite deposits are concerned, the only practical method is the systematic geological mapping and delineation of commercial Grey Granite bodies within the field and careful evaluation of body luster, physical properties, engineering properties, commercial aspects etc.

Such an exploration study has already been conducted regionally in this area by the Geological Survey of India (GSI) in the year 1966 and Department of Geology and Mining of Tamil Nadu in year 1992 to 1993.

Based on the valuable geological information and by the field experience. The estimation of geological resources, mineable reserve is arrived at considering to waste and market potential.

3.3.2 PROPOSED STUDY TO BE CARRIED OUT

Even though the depth persistence of the Grey Granite stone may be beyond 28m from the Petrogenetic character of the rock, only 28m (1m Topsoil + 2m Weathered Rock + 25m Grey Granite) depth persistent has been taken as economically viable (at present scenario considering for the entire lease Period) to calculate categories of proved, probable, and possible reserves.

The recovery of saleable Grey Granite stones has been taken as 35% and if the recovery percentage is good or bad, it may enhance or decrease respectively.

No definite programs for future exploration have been drawn. The quarrying activities for the next five years with deep cut as envisaged in the mining plan may render additional data as may be required for future planning. The total depth persistence and recovery percentage of commercial viable granite deposit will be discussed in the ensuing scheme period.

3.4 METHOD OF ESTIMATION OF RESERVES

The Geological plan demarcating the commercially marketable granite body has been prepared in 1:1000 scale, totally three sections have been drawn, one along the vertically as (X-Y) length wise and other two cross sections are drawn horizontally as (A-B and C-D) width wise, Which are suitably chosen to cover the maximum area, in the scale of 1:1000 (Refer Plate No. IV).

The cross-sectional area for the proved depth persistence of 28m has been worked out for each section. The cross-sectional area multiplied by its length x breadth x Depth gives the volume (insitu) in the area wise. The sum total of the insitu reserves available within the block gives the geological resources of the quarry lease applied area.

From the total geological insitu resources, the quantity of saleable granite stones, quantity of rejects and waste generation are computed by applying recovery factor as 35% by its volume. Highly efficient technology machineries, quarry masters, Market demand significantly determine the recovery percentage of granite quarries. The estimated recovery is based on today market scenario and the same recovery has been considered as normative recovery. When the market demands, the applicant may take necessary steps to deploy a quarry masters with latest innovative machineries technology. So, the recovery enhancement may raise to the peak production resulting more than 35%. During the operation the method of quarry, deployment of men and machineries will not have any negative impact on the Environment. It is worthening the recovery anticipate the normative production has been scientifically converted into commercial production resulting in the decrease dump of waste inside the quarry. Due to the micro fractures, flaws, patches, xenoliths, required dimension, dressing, etc., the recovery in the granite could not be 100% of the R.O.M.

As the sale of Grey Granite stone are in terms of cubic metres (Volume) only and not in terms of tonnage as in the case of major industrial mineral, the geological resources, Mineable reserves and quantum of waste generated etc., are given only in terms of cubic meters (Volume).

The details of estimation of geological resources and mineable reserves with reference to the geological plan & cross sections and conceptual plan and sections as shown in Plate No. IV and IX respectively has been furnished.

**3.5 GEOLOGICAL RESOURCES AND GRADE:**

Maximum Length : 178m

Maximum Width : 118m (max)

Maximum Depth : 28m (3m over burden + 25m Grey Granite)

Table - 3

Section	Bench	Length (m)	Width (m)	Depth (m)	ROM (m ³)	Recovery @35% (m ³)	Granite Waste @65% (m ³)	Weathered Rock (m ³)	Topsoil (m ³)
XY-AB	I	80	118	1	-	-	-	-	9440
	II	80	118	2	-	-	-	18880	-
	III	80	118	5	47200	16520	30680	-	-
	IV	80	118	5	47200	16520	30680	-	-
	V	80	118	5	47200	16520	30680	-	-
	VI	80	118	5	47200	16520	30680	-	-
	VII	80	118	5	47200	16520	30680	-	-
Total					236000	82600	153400	18880	9440
X1Y1-CD	I	98	43	1	-	-	-	-	4214
	II	98	43	2	-	-	-	8428	-
	III	98	43	5	21070	7374.5	13695.5	-	-
	IV	98	43	5	21070	7374.5	13695.5	-	-
	V	98	43	5	21070	7374.5	13695.5	-	-
	VI	98	43	5	21070	7374.5	13695.5	-	-
	VII	98	43	5	21070	7374.5	13695.5	-	-
Total					105350	36872.5	68477.5	8428	4214
Grand Total					341350	119472.5	221877.5	27308	13654

Total Geological Resources in ROM	=	3,41,350m ³
Total Recoverable Resources @35%	=	1,19,472.5m ³
Granite waste @65%	=	2,21,877.5m ³
Weathered Rock	=	27,308m ³
Total Waste (Granite waste + Weathered)	=	2,49,185.5m ³
Topsoil	=	13,654m ³
Granite: waste ratio	=	1:2.08

The Geological resources computed based on the geological cross sections up to the economically workable depth of 28m below from the existing ground profile of the area at the rate of 35% recovery yields 1,19,472.5m³ and 3,41,350m³ of ROM. The total geological resources are computed as 28m depth for economically viable at present market scenario.

**3.6 MINEABLE RESERVES AND GRADE:**

Maximum Length : 152m
 Maximum Width : 102m (max)
 Maximum Depth : 28m

Table - 4

Section	Bench	Length (m)	Width (m)	Depth (m)	ROM (m ³)	Recovery @35% (m ³)	Granite Waste @65% (m ³)	Weathered Rock (m ³)	Topsoil (m ³)
XY-AB	I	70	102	1	-	-	-	-	7140
	II	68	99	2	-	-	-	13464	-
	III	66	95	5	31350	10973	20377	-	-
	IV	61	84	5	25620	8967	16653	-	-
	V	56	74	5	20720	7252	13468	-	-
	VI	46	64	5	14720	5152	9568	-	-
	VII	36	54	5	9720	3402	6318	-	-
Total					102130	35746	66384	13464	7140
X1Y1-CD	I	82	27	1	-	-	-	-	2214
	II	80	24	2	-	-	-	3840	-
	III	77	20	5	7700	2695	5005	-	-
	IV	55	9	5	2475	866	1609	-	-
Total					10175	3561	6614	3840	2214
Grand Total					112305	39307	72998	17304	9354

Total Mineable Reserves ROM	=	1,12,305m ³
Total Mineable Recoverable Reserves @35%	=	39,307m ³
Granite waste @65%	=	72,998m ³
Weathered Rock	=	17,304m ³
Total Waste (Granite waste + Weathered)	=	90,302m ³
Topsoil	=	9,354m ³
Granite: waste ratio	=	1:2.3

Mineable reserves have been computed as 39,307m³ at the rate of 35% recovery and 1,12,305m³ of ROM upto a depth of 28m from the ground level. The mineable reserves are calculated by deducting the mineral locked up area under safety distance and bench loss. Hence the remaining area is taken for calculation of mineable reserves upto 28m depth.

The Grey Granite body occurring in this area exhibits more or less uniform colour and texture. If any variation occurs during quarrying, such as cracks, joints, patches, colour variations etc., the defective area will be removed. The formation is uniform and no gradational change is noticed except some shears and cracks.



4.0 MINING

Open cast semi mechanized mining with 5.0 meter vertical bench with bench width of 5.0 meter is being proposed.

Under the regulation 106 (2) (b) of the Metallurgical Mines Regulation 1961, in all open cast mining, the bench height should not exceed, 5.0 meter and bench width should not be less than bench height of the vertically cut face.

But as far as the mining of granite dimension stones are concerned, observance of the provisions of Regulation 106(2) (b) is available with Director General of Mines Safety. If the applicant intends to modify the dimensions of benches, relaxation and permission are available with Director General of Mines Safety under 106 (2) (b) of Metalliferous Mines Regulations, 1961. In such a scenario if there is any drastic change in the Resources and Reserves a modified plan will be submitted to the concerned authority for necessary relaxation, clearance and permission. This relaxation will be applied and obtained after the execution of lease/Commencement of quarry operation.

The production of Grey Granite dimension stone in this quarry involves the following method which is typical for granite stone quarrying in contrast to other major mineral mining. Splitting of rock body of considerable volume from the parent rock formation by carefully avoiding visibly seen defects such as patches veins, etc., is done by adopting the method of "diamond wire cutting" along the horizontal as well as two vertical sides on the front face of the formation.

This liberation of huge volume of granite body from the parent sheet rock is called "primary cutting". This huge portion is further split in to several blocks of desirable dimensions. The blocks thus splitted are removed from the pit to the dressing yard, by using Crawler crane, for further dressing. Removing the defective portions and dressing them in to the dimension blocks are done manually using feather and wedges and chiseling respectively by the experienced skilled labours or by innovative machineries.

The defect free, dimensional stone of different sizes as approved in the market are thus produced by the method as described above, and the process is continuously monitored by applicant's experienced quality control personnel.

The waste material generated during quarrying activity includes rock fragments of different sizes, and also during dressing of the blocks. As and when there is accumulation of waste, the same is loaded into the tipper by loading machines and dumped in the respective places earmarked for the purpose (Plate. No. VI). The quarried-out topsoil will be preserved all along the safety zone and utilized for construction of bund and afforestation purpose.

**4.1 YEAR WISE DEVELOPMENT AND PRODUCTION FOR THE FIRST FIVE YEARS:**

Total Length = 71m

Maximum Width = 55m

Maximum Depth = 23m

Table - 5

Years	Section	Bench	Length (m)	Width (m)	Depth (m)	ROM (m ³)	Recovery @35% (m ³)	Granite Waste @65% (m ³)	Weathered Rock (m ³)	Top soil (m ³)
I	XY-AB	I	27	55	1	-	-	-	-	1485
		II	24	52	2	-	-	-	2496	-
		III	20	48	5	4800	1680	3120	-	-
		IV	10	38	5	1900	665	1235	-	-
		Total					6700	2345	4355	2496	1485
II	XY-AB	I	16	55	1	-	-	-	-	880
		II	16	52	2	-	-	-	1664	-
		III	16	48	5	3840	1344	2496	-	-
		IV	16	38	5	3040	1064	1976	-	-
		Total					6880	2408	4472	1664	880
III	XY-AB	I	16	55	1	-	-	-	-	880
		II	16	52	2	-	-	-	1664	-
		III	16	48	5	3840	1344	2496	-	-
		IV	16	38	5	3040	1064	1976	-	-
		Total					6880	2408	4472	1664	880
IV	XY-AB	I	12	55	1	-	-	-	-	660
		II	12	52	2	-	-	-	1248	-
		III	11	48	5	2640	924	1716	-	-
		IV	11	38	5	2090	731	1359	-	-
		V	15	28	5	2100	735	1365	-	-
Total					6830	2390	4440	1248	660	
V	XY-AB	V	28	28	5	3920	1372	2548	-	-
		VI	33	18	5	2970	1040	1930	-	-
Total					6890	2412	4478	-	-	
Grand Total						34180	11963	22217	7072	3905

Total Proposed Reserves ROM	=	34,180m ³
Total Year wise Recoverable Reserves @35%	=	11,963m ³
Granite waste @65%	=	22,217m ³
Weathered Rock	=	7,072m ³
Total Waste (Granite waste + Weathered)	=	29,289m ³
Topsoil	=	3,905m ³
Granite: waste ratio	=	1:2.4

Estimated Life of Quarry

Total Mineable Recoverable Reserves @35%	=	39,307m ³
Average Production per Year @35%	=	11,963m ³ /5 = 2,393m ³
Estimated Life of the Quarry	=	39,307m ³ /2,393m ³ = 17 Years

The proposed year wise quantum of excavation and the details of estimation of production quantity and generation of waste are furnished with reference to the year wise development and production plan (Plate No. V).

The quarrying block is shown in such a way to meet out the average annual production. The average annual production per year would be 2,393m³ for the first five years plan period considering at the rate of 35% recovery. More details of the year wise production parameters are explained with bench length, width and height in Plate No. V.

4.2 PROPOSED RATE OF PRODUCTION WHEN THE MINE IS FULLY DEVELOPED.

The proposed rate of production where the quarry is fully developed is 2,393m³ per annum @35% recovery. The production schedule in the subsequent five years are drawn mainly in consideration of reserves position, market demand and the cost of production.

4.3 MINEABLE RESERVES AND ANTICIPATED LIFE OF QUARRY

The depth persistence of the formation will be beyond the economically workable depth. The method of extraction from the sheet rock is highly expensive affair at greater depths.

An optimum depth of 28m depth has been proposed as economically viable depth. Eventually this depth is the optimum for safe and scientific quarrying.

The mineable reserves are calculated by excluding the quarry loss due to formation of benches with suitable height & width upto ultimate depth of quarry and the mineral reserve held up within the safety distance all along the area boundary.

The Mineable Reserves for this Grey Granite quarry is thus arrived as **39,307m³ @35% recovery** and **1,12,305m³ of ROM** for an assumed **depth of 28m** below from the existing ground profile. The details of estimation of five years Development and Production Plan (Plate No. V) is furnished.

The average rate of production of Grey Granite from this quarry is **2,393m³ per year** and Mineable Reserves **39,307m³** considering 35% recovery for the entire life of the quarry.

Based on the above, and taking into consideration of the available Mineable reserves, **the life of quarry will be about 17 years** (considering all the safety factors) at 35% recovery, if the quarry is being worked continuously with an average annual production of 2,393m³. This calculation is based on the plan approved by Director of Mines Safety leaving Benches and Safety barriers. If the annual production increases considerably and consistently a modified mining plan will be prepared under Granite Conservation and Development Rules 1999 the same will be submitted to the relevant authorities for subsequent clearance and approval.



4.3.1 CONCEPTUAL MINING PLAN

Conceptual mining plan is prepared with an object of long term systematic development of benches; lay outs, selection of permanent ultimate pit limit, depth of quarrying and ultimate pit, selection of sites for construction of infrastructure, etc.,

The ultimate pit size is designed based on certain practical parameters such as economical depth of quarrying, safety zones, permissible area, etc.,

The ultimate pit dimension of the quarry is given below.

ULTIMATE PIT DIMENSIONS

Table - 6

Maximum Dimensions in meters		
Length	Width (max)	Depth
151	102	28

However, during extraction of blocks each bench will be of 5m height with vertical slope for proper dimension cutting. The quantum of excavation is estimated to be 1,38,963m³ (ROM 1,12,305m³ + Topsoil 9,354m³ + Weathered Rock 17,304m³) to a depth of 28m. The generation of total waste is estimated about 29,289m³ (Granite Waste 22,217m³ + Weathered Rock 7,072m³) and marketable Grey Granite as 11,963m³.

The excavated waste (29,289m³) will be proposed to dump on the Southern side with an area 2,076m² x 14.10m (H) during the first five years. After expiry of lease period if the mineral reserves available and Market persist, the lessee may apply a renewal of quarry lease as to develop and conserve mineral reserves.

If permission is granted for removal of waste from the concerned authorities, the waste material will be supplied to the needy crusher for convert to the M-Sand, building and road construction material after paying the seniorage fee and obtained necessary clearance and approval from concerned department for handling the waste. If permission granted for handling of waste, the over burden only will be utilized for backfilling to part of the pit and remaining pit will be allowed to collect the seepage and rainwater and the water storage will be act as temporary reservoir for charging the nearby wells also utilized for green belt development purpose.

When the entire mineral reserves will be completely exhausted if permission not obtained for handling of waste from the concerned authority, backfilling will be carried out nearly existing ground profile and spread out the preserved topsoil to facilitate afforestation in the backfilled area.

The quarry area will be fenced with barbed wire fencing also safety bund constructed around the quarry to prevent inadvertent entry of public and cattle. (Please refer plate No. VI and IX).

4.4 METHOD OF MINING**4.4.1 OPEN CAST WORKING**

In accordance with the Regulation 106 (2) (b) of the Metalliferous Mines Regulations 1961 in all open cast working where the ore body forms hard rock, the working faces and sides should be adequately benched and sloped; a bench height not exceeding 5m and a bench width not less than the bench height has to be maintained. The slope angle of such benches and sides should not exceed 60° from horizontal. However, observance of these statutory provisions in granite dimensional stone quarrying is difficult due to the field difficulties and technical reasons as below:

1. Recovery of the granite mineral is to be as undamaged rectangular dimensional blocks. In the attempt to form the benches and sides with the above statutory parameters haphazard blasting may be involved. In which case the commercial granite body may get spoiled inevitably due to generation of blasting cracks.
2. In the exercise of forming the benches with 60° slope within the granite deposit, the portion confined within the 60° as well as its complimentary part in the extricated block will become as mineral waste while shaping them into rectangular blocks.
3. The granite industry need blocks as huge as a few cubic meter volumes with measurements up to 3m x 2m x 2m. Production of such huge blocks with a moving bench of 5.0m height is not possible. Production of such huge blocks in turn increases the recovery and reduces the mineral waste during dressing. Blocks of smaller size of certain varieties of granite are now marketable and have a good commercial value.
4. Formation of too many benches with more height and the width equal to the height may lead to mineral lock up.

Hence, in order to avoid granite waste and to facilitate economical mining operations, it is proposed to obtain relaxation to the provisions of Regulation 106 (2) (b) upto a bench parameter of 5m height & 5m width with vertical faces. Such a provision of relaxation of the Regulation has been provided within the regulation 106 (2) (b). Further, it is to be noteworthy that open cast granite quarrying operations with the above proposed bench parameters may not be detrimental to mines safety, since the entire terrain is made up of hard rock, compact sheet and possess high stability on slope even at higher vertical angles.

4.4.2 EXTENT OF MECHANIZATION

The following machineries are utilized for the development and production work at this quarry.

Table - 7

I. DRILLING AND CUTTING MACHINE

S.No.	Type	Nos	Dia Hole mm	Size Capacity	Make	Motive power
1	Jack hammer	6	32	1.2m to 6m	Atlas Copco	Compressed air
2	compressor	2	-	400psi	Atlas Copco	Diesel drive
3	Diamond Wire saw	1	-	20m ³ /day	Optima	Diesel Generator
4	Diesel Generator	1	-	125kva	Kirloskar	Diesel



Table - 8

II. LOADING EQUIPMENT

S.No.	Type	Nos	Capacity	Make	Motive Power
1	Crawler Crane	1	855	Tata P&H	Diesel Drive
2	Excavator	1	300	Tata Hitachi	Diesel Drive

Table - 9

III. HAULAGE WITHIN THE QUARRY & TRANSPORT EQUIPMENT

S.No.	Type	Nos	Capacity	Make	Motive Power
1	Tipper	2	20 tons	Tata	Diesel Drive

IV. TRANSPORT FROM THE QUARRY HEAD TO DESTINATION

Transportation from quarry head to customer destination is done by truck or by trailers.

V. MISCELLANEOUS:

Apart from the above the following tools and tackles are required for quarry operation.

For operation

The operation of granite quarry requires the following loose tools material and have to be kept sufficiently in stock for non - interruption of the quarry work.

1. Drill rods - 0.3m, 0.5m, 0.75m, 1.65m, 2.25m, 3m, 3.6m, 5m upto 9m,
2. Steel Alloy chains of sufficient length of 10m, 12m, 16m, 18m etc., sizes,
3. 3.'D' shackles to link the chain lengths,
4. Rubber hose of required length,
5. Hose clamps to link the compressor delivery hoses,
6. Feather and wedges of 6" and 12" dia sizes utilize for splitting the block from the mother rock. This is an important tool in the operation of a quarry,
7. Crow bars,
8. Spades,
9. Sludge Hammer,
10. Iron Pans,
11. Pitcher Hammer,
12. Chisels,
13. Consumables, such as diesel, Hydraulic oil, grease, abrasive wheels, welding machines etc.,
14. Stock of essential spare parts of machinery,
15. Explosive as per the licensed quantity,
16. Diamond Wire Required length
17. Besides diamond wire saw equipment and new innovative machine specifically for granite with accessories are required to liberate the rock from to parent body to minimize damage and to obtain good recovery.

Splitting the sheet rock by Diamond wire sawing which increases substantial recovery potential. Hence it is proposed to adopt "Diamond wire saw cutting" for best recovery.

The above machineries are adequate to meet out the development and production schedule drawn out in this mining plan.

5.0 BLASTING

During future development of quarrying, removal of rock mass will be done by mild blasting with explosives in holes drilled by Jack hammer of 32mm dia especially. No deep hole blasting is proposed.

Portable magazine 'M' type has been proposed to install in the ear marked places, and the Company is advised to get necessary license for storing explosives in the above area after the grant of quarry lease.

The explosive that will be used are D-Cord and Gelatin sticks which are indicated below:

D Cord - 5mg

Gelatin Sticks.

6.0 MINE DRAINAGE

The water table in this area is about 64m as observed in nearby bore wells. Quarry operations are confined to well above the water table. If water is encountered at due to rain water and seepage, the same will be drained out by 10HP motor pumps and the drained out water will be utilized for afforestation.

7.0 STACKING OF MINERAL WASTE AND DISPOSAL OF WASTE**a) Topsoil:**

There is generation of topsoil is about 3,905m³ during the mining plan period. The excavated topsoil will be spread out all along the boundary barrier and utilized for green belt development purpose.

b) Granite waste and Land chosen for disposal of waste:

The total waste to be produced during the first five years is around 29,289m³ (Granite Waste 22,217m³ + Weathered rock 7,072m³) the same will be proposed to temporarily dump on the south side with area of 2,076m² x (H)14.10m.

c) Manner of disposal of waste:

As and when there is accumulation of waste, the same is loaded into the tipper by loading machines and dumped in the respective places ear-marked for the purpose.

The waste management plan with reference to the quantum of waste generated is shown in quarry layout and Afforestation plan (Plate No.VI).

There is no slurry anticipated in the quarry operation. Besides the granite waste does not produce any toxic effluent in the form of solid, liquid or gas.



8.0 USE OF THE GRANITE

The quarried Grey Granite blocks are either exported as rough blocks or processed as value added products such as slabs, tiles, fancy items and, precision surface plates for construction and engineering application.

The export markets for the rock under discussion are for European Countries, North America, Middle East & Far East besides catering domestic demand.

9.0 QUALITY CONTROL

The Grey Granite deposit occurring in this quarry shows uniform quality throughout and hence quarried and marketed as a single variety.

The exploited blocks are carefully examined for any natural defects such as joints, cracks, xenoliths, secondary Pegmatitic growth etc and such defects is removed manually using feather and wedges and the blocks are then shaped into perfect rectangular dimensional stone blocks by chiseling. Different price for each quality material have been fixed and the entire production quantity is marketed accordingly.

10.0 SURFACE TRANSPORT

The mode of transport of the granite blocks produced and marketed is by road to various customer destinations and granite processing units located at different parts of the country. The Grey Granite blocks approved for export market are shipped from Chennai Port to various countries and if required the blocks may be shifted from Thoothukudi Port which depend upon the exporter's destination from time to time.

11.0 SITE SERVICES

The simple methods adopted and the limited scale of activities involved in granite dimensional stone quarrying does not require High Tension Electric Power supply or huge workshop facilities. The quarrying work is restricted to one general shift during day time only. Major Machinery repair works are attended at Bargur town (8km-NE) and minor repairs are carried out by the applicant's personnel at the quarry site itself.

Packaged drinking water is available from the water vender in Bargur also from nearby applicant's borewell can be transported to the work site in tippers if neccassary, it will be supply after treatment through the water purifier. Quarry office, store room, toilet, first-aid room and, magazine will be provided on semi - permanent structures within the lease applied area (Plate No VI).

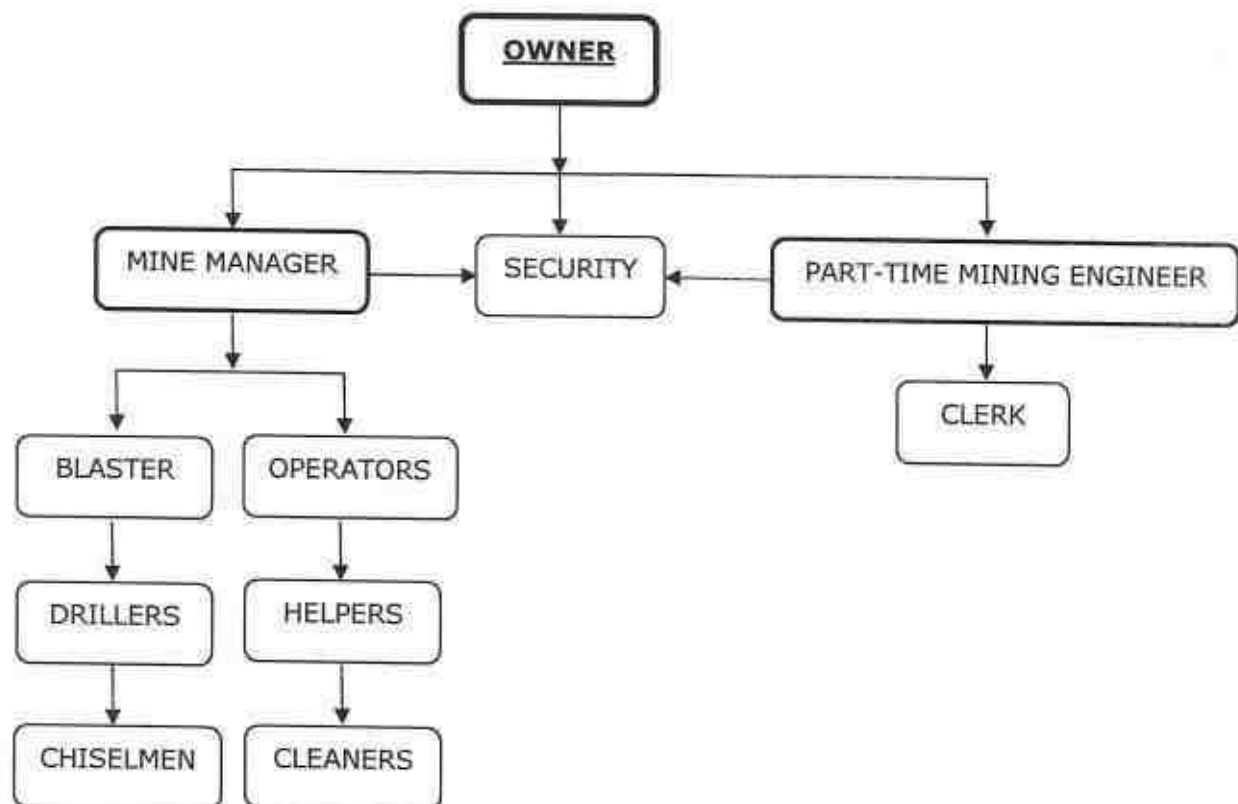
12.0 EMPLOYMENT POTENTIAL

The following manpower for machineries as well as for operational activities are proposed to carry out the day-to-day quarrying activities aimed at the proposed production target and also to comply with the statutory provisions of the metalliferous mines regulations, 1961.

1. Mines manager (with valid statutory qualification) : 1
2. Mines foreman (with valid statutory qualification) : 1
3. Machinery operators (Certified) : 3

WORKERS:

a.	Skilled labour	: 5
b.	Semi-skilled	: 18
c.	Unskilled	: 5
	Total	: 33

ORGANIZATION CHART

The above manpower is adequate to meet out the production schedule and the machinery strength envisaged in the mining plan and to comply with the statutory provisions of the Mines Safety Regulations.



13.0 ENVIRONMENTAL MANAGEMENT PLAN:

13.1 BASELINE INFORMATION

The following observations are made for environmental management plan.

I. EXISTING LAND USE PATTERNS:

The area is situated in flat terrain. The gradient is gentle towards southeast and altitude of the area is 478m above from MSL. The area is a dry barren land and part of the area covered by rocky outcrops hence, the area didn't used for agricultural activity. The region experiences semi - humid climate and there is scanty growth of vegetation around the area (seasonal cultivation is mostly practiced).

Existing Land use pattern

Table - 10

Description	Area at present (ha)	Utilized (%)
Area under quarry	Nil	-
Waste dump	Nil	-
Infrastructure	Nil	-
Roads	Nil	-
Green Belt	Nil	-
Unutilized	1.36.8	100
Grand Total	1.36.8	100

II. WATER REGIME:

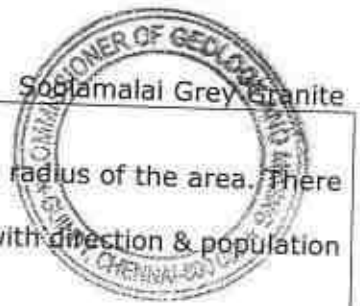
Ground water occurrence in this area is 64m depth below ground level. The quarry operation will be restricted to 28m below from the existing ground level, which is well above the water table; hence the quarry operation will not be affected by the ground water in any manner.

III. FLORA AND FAUNA:

The main crops are Garlic, Groundnut and there are Main floras of Neem, Cocos nucifera, Mango trees, Tamarind, Cactus, Calatropis, Shrub and thorny bushes are found around the area and Rat, rabbit, Squirrel, Cow, Goat and Crow faunas are found around the area. No plants of botanical interest or animals of zoological interest are recorded within 500m radius.

IV. CLIMATIC CONDITIONS:

The area receives an average rainfall of about 985mm/per annum and the rainy season is mainly from Oct - Jan during North East, monsoon. The summer is hot with maximum temperature of 42°C and winter encounters a minimum temperature of 18°C.



V. HUMAN SETTLEMENT:

There is no approved habitation / Village situated within 300m radius of the area. There are few villages located within the 5km radius, approximate distance with direction & population are furnished below.

Table - 11

S. No.	Name of the Village	Direction	Approximate Distance	Approximate population
1.	Achamangalam	NE	4km	4200
2.	Chendarapalli	SW	1km	6500
3.	Orappam	NW	4km	6900
4.	Jagadevipalayam	SE	2km	6800
5.	Soolamalal	NW	3.5km	2000

Basic human welfare amenities such as Health Center, Schools, Communication Facilities, and Commercial Centers etc., are available at Bargur which is located at a distance of 8km Northeast side of the area.

VI. PUBLIC BUILDINGS, MONUMENTS AND PLACES OF WORSHIPS:

There is no Public Building, Historical or National Monument or Place of Worship situated within 300m radius of the area.

VII. WHEATHER THE AREA FALLS UNDER NOTIFIED AREA UNDER WATER ACT, 1974.:

The area falls under notified area under water Act, 1974.

13.2 ENVIRONMENT IMPACT ASSESSMENT STATEMENT

The mining plan is proposed for very small production of granite dimensional stone without involving deep hole drilling and heavy blasting. Such limited quarrying activity is not likely to cause any impact adversely on environment as far as pollution of air, water and noise is concerned.

Table - 12

S. No.	Salient Features at Presently bounded the quarry site	Prescribed safety distance	If any present within prescribed distance its actual distance and direction from the site			
1.	Railways, Highways, Tank, Lake, Odai, Canal, Stream, River and Reservoir	50m	No features located within 50m radius of the area.			
2.	Village Road	10m	There is no village road located within 10m radius.			
3.	Habitation / Village/ Public Building, Historical Monument/ Worship	300m	There is no approved habitation/village located within 300m radius.			
4.	Adjacent Land Patta / Govt.	7.5m / 10m	Direction	S.F. Nos.	Classification	Safety Distance
			North	335/2A & 4B	Patta land	7.5m
				335/3	Govt. land	10m
			East	335/4B & 341/4	Patta land	7.5m
			South	341/1 (P) & 341/3	Patta land	7.5m
West	341/1 (P)	Patta land	50m to the Power line			
(Please refer Plate No. II).						
5.	Housing area, EB line (HT & LT Line)	50m	There is an EB-LT line passing on the Western side at 37m on the Southwest corner and 43m on the Northwest side of the lease applied area, a safety distance of 50m has provided to the power line. There is no other LT/HT line or Housing area located within 50m radius. (Please refer Plate No. II).			
6.	Boundaries of the permitted area	7.5m	North - S.F.Nos.335/2A, 3 & 4B East - S.F.Nos.335/4B & 341/4 South - S.F.Nos.341/1 (P) & 341/3 West - S.F.Nos.341/1 (P) (Please refer Plate No. II).			
7.	Reserve forest	60m	There is no Reserve Forest situated within 60m radius of the area. The nearest Reserved forests is Thogarapalli R.F. situated at 4.4km on the Southeast side (Refer Plate No. IA).			
8.	Protected area / ECO sensitive area/State or National border	10Km	There is no protected area of Wildlife sanctuary/ ECO sensitive area/ State border/ HACA/ CRZ/ Critically polluted area situated within 10km radius of the applied area. (Please refer Plate No. IA).			

Proposed Financial Estimate for Quarry and Environment Management (EMP).

Table - 13

A. Project Cost

S. No.	Description	Approximate Cost (Rs.)
1.	Land Cost (As per Govt. Guideline value) 1.36.8Ha x Rs. 6,80,000/Ha = Rs. 9,30,240/-	9,31,000
2.	Labour Shed	3,00,000
3.	Sanitary Facility	80,000
4.	First aid Room and Accessories	50,000
5.	Excavator (1 Nos.)	56,00,000
6.	Crawler Crane (1 No.)	75,00,000
7.	Diesel Generator (1 No.)	7,50,000
8.	Tipper (2 Nos.)	50,00,000
9.	Wire Saw (1 No.)	4,00,000
10.	Compressor with loose tools (2 Nos.)	15,00,000
11.	Jack Hammer (6 Nos.)	3,00,000
12.	Drinking Water Facility	1,00,000
13.	Safety Kits	50,000
14.	Fencing Cost (560m length x Rs. 300/- per meter)	1,68,000
15.	Garland drain (260m length x Rs. 300/- per meter)	78,000
16.	Green belt development under safety zone during this scheme period (100m sapling x Rs. 200/- per sapling)	20,000
17.	Water sprinkling	1,00,000
Total Cost		2,29,27,000

B. Proposed financial estimate / budget for (EMP) Environmental Management Plan:

Budget Provision for the 5 years mining plan period

S. No.	Monitory and Analysis Description	Rate per location	No. of location	Total Charges/ six months	Total Charges/ year	Total Charges For Mining plan period
1	Ambient air quality monitoring	6500	4	26000	52000	2,60,000
2	Noise level monitoring	250	4	1000	2000	10,000
3	Ground vibration monitoring	1000	2	2000	4000	20,000
4	Water sampling and analysis	9000	1	9000	18000	90,000
Total EMP Cost/ year					76,000	3,80,000

The EMP cost for the 5 years mining plan period would be around **Rs. 3,80,000/-**.

Total Cost of the Project including EMP Cost	
Description	Amount (Rs)
A. Project Cost	2,29,27,000
B. EMP Cost	3,80,000
Total Project Cost (A+B)	2,33,07,000
The applicant Indents to involve corporate Environment responsibilities (CER) activity like Water purifier, Avenue plantation, Books to library, Sanitary facilities and as per requirement to the Jagadevipalayam Govt. School at 2.0% from the total project cost. The cost would be around Rs. 4,66,000/ .	4,66,000
Total Cost	2,37,73,000

(Total project cost including EMP cost is about rupees two crore thirty seven lakh and seventy three thousand only).

13.3 ENVIRONMENT MANAGEMENT PLAN

13.3.1 PROPOSAL FOR WASTE MANAGEMENT

The mine waste in the mine includes, rock fragments, rock chips, rubbles generated as mineral waste during production work.

The total waste to be produced during the mining plan (first five year) period will be around 29,289m³. The excavated waste will be proposed to temporarily dump on the south side with area of 2076sq.m x (H)14.10m.

The generated top soil during the entire life of the quarry will be preserved all along the boundary barrier and utilized for construction of bund and afforestation purpose.

The waste management plan with reference to the quantum of waste generated is shown in quarry layout plan (Please refer Plate No.VI).

13.3.2 PROPOSAL FOR RECLAMATION OF LAND AFFECTED BY MINING ACTIVITIES DURING & AT THE END OF MINING

Due to nature of occurrence of sheet rocks, the depth persistence of the Grey Granite in this quarry is beyond the workable limits. In the proposed mining plan only 28m depth has been envisaged as workable depth for safe & economic quarrying for the entire lease period. After expiry of lease period if the mineral reserves available and Market persist, the lessee may apply a renewal of quarry lease as to develop and conserve mineral reserves. If permission is granted for removal of waste from the concerned authorities, the waste material will be supplied to the needy crusher for convert to the M-Sand, building and road construction material after paying the seniorage fee. If permission granted for handling of waste, the over burden only will be utilized for backfilling to part of the pit and remaining pit will be allowed to collect the seepage and rainwater and the water storage will be act as temporary reservoir for charging the nearby wells also utilized for green belt development purpose.

When the entire mineral reserves will be completely exhausted if permission not obtained for handling of waste from the concerned authority, backfilling will be carried out nearly existing ground profile and spread out the preserved topsoil to facilitate afforestation in the backfilled area.

The quarry area will be fenced with barbed wire fencing also safety bund constructed around the quarry to prevent inadvertent entry of public and cattle. (Please refer plate No. VI and IX).

13.3.3 PHASED PROGRAMME OF PLANTING TREES

It is proposed to plant 20 saplings during every year an expecting survival at the rate of 80% which will work out 16-18 plants. The applicant ensure to maintaining the plantations not less than 320 plants at the end of life of quarry. The safety zone along the North and Western side lease boundary has been utilized for green belt development. Appropriate species of Neem, Pongamia pinnata, etc., trees will be planted in a phased manner as described below.

Table - 14

Year	No. of trees proposed to be planted	Area to be covered in m ²	Name of the species	Survival rate expected in %	No. of trees expected to be grown
I	20	184	Neem, Pongamia pinnata, etc.,	80	16
II	20	183		80	16
III	20	183		80	16
IV	20	183		80	16
V	20	183		80	16

Nearly 916m² area is proposed for afforestation by planting 20 Nos. of tree sapling during every year and expected growth is around 16 Nos. of trees at a survival rate of 80%. The afforestation plan is shown in Plate No.VI.

13.3.4 MEASURES FOR DUST SUPPRESSION:

As the granite stones are quarried as undamaged dimensional stones without involving deep hole drilling and heavy blasting, fragmentation and generation of lumps, fines or dust is negligible. This quantum of quarrying activity will not cause the dust detrimental to the health of the persons employed. Nevertheless, Mist water spray will be sprinkled for the suppression air borne dust from quarry approach roads waste dumps on regular intervals using water tankers. Drilling of blast holes of 32mm dia will be always under wet conditions to prevent flying of dusts. In the unloading points, water will be sprinkled through tippers to suppress dust. The drillers are provided with respirators in accordance with the Mines Safety Regulations.

13.3.5 MEASURES TO MINIMIZE GROUND VIBRATION DUE TO BLASTING AND CHECK NOISE POLLUTION

Shallow holes of 32 mm diameter will be drilled and conventional low explosives such as D-Cord and Gelatin sticks will be used for removal of over burden. Hence ground vibration and noise pollution will be minimal and restricted with the quarry workings. The blasting will be taken up at appointed timing and with sufficient caution to the public under the advice of qualified and competent personals. The noise produced by diamond wire saw cutting will be negligible.

13.3.6 STABILIZATION AND VEGETATION OF DUMPS

As the waste generation in the mine includes hard rock fragments of considerable size of irregular shape with varying angularity, the waste dump will be stable on its own even at higher slopes of the sides, besides excavated topsoil will be spread out and plantation will be carried out over and sides of the in-active waste dump for increasing the stability and to prevent erosion during rainy season.



14.0 PROGRESSIVE QUARRY CLOSURE PLAN:

14.1 Introduction

The Progressive Quarry Closure Plan for Grey Granite quarry lease applied area over an extent of 1.36.8 Hectares of Patta land in S.F.No.341/1 (Part) of Soolamalai Village, Bargur Taluk, Krishnagiri District, Tamil Nadu State has been prepared for **Thiru.Salman Sathar**, S/o.Sathar, residing at No.125, Jagadevi, Jagadevipalayam, Krishnagiri District, Tamil Nadu State – 635 203.

14.2 Present Land use pattern:

Land Use Table – 15

Description	Present area in (Ha)
Area under Quarry	Nil
Dump	Nil
Infrastructure	Nil
Roads	Nil
Green Belt	Nil
Unutilized	1.36.8
Grand Total	1.36.8

14.3 Mineral Processing Operations:

The quarried out Rough granite blocks are marketed by road to various customer destinations and granite processing units located at different parts of the country. The Grey Granite blocks approved for export market are shipped from Chennai Port to various countries and if required the blocks may be shifted from Thoothukudi Port which depend upon the exporter's destination from time to time. No Mineral processing is involved within the applied area.

14.4 Reasons for closure:

The mineral is not going to be exhausted during the proposed Mining Plan period hence, immediate closure is not planned due to sufficient reserves are available for the entire life of quarry. Hence, the reason for closure will be discussed an ensuing scheme period or in Final Mine Closure Plan.

14.5 Statutory obligations:

All the conditions stipulated in the Precise area communication letter was fulfilled and maintained during the course of quarry operations.

**14.6 Progressive quarry closure plan preparation:**

Name, register number and address of the Recognized Qualified Person who prepared the progressive closure plan and name, register number and address of the executing agency who is involved in the Preparation of progressive quarry closure plan.

Dr. M. IFTHIKHAR AHMED, M.Sc., M.B.A., F.G.S., Ph.D.,

Recognized Qualified Person

RQP/MAS/183/2004/A

No.17, Advaita Ashram Road,

Alagapuram, Salem-636 004.

Cell: +91 94433 56539, 94422 78601

The applicant will himself implement the closure plan; no outside agency will be involved.

14.7 Review of Implementation of Mining Plan including Progressive Closure Plan upto the Final Closure Plan:

The Mining Plan and Progressive quarry closure plan are being submitted for the first time. In the mining plan is discussed for Reclamation and Rehabilitation will be carried out only at the end of life of quarry. The Grey granite mineral reserves are available for the entire life of quarry. Hence, review of implementation of progressive quarry closure does not arise at present. However, if any work done for progressive quarry closure during this Mining Plan period, it will be discussing an ensuing Scheme period.

14.8 Closure Plan:**(i) Mined Out Land:**

At the end of mining plan period only 0.39.77Ha area to a depth of 23m will be utilized for quarry operation out of 0.95.17Ha of total mineable area upto a depth of 28m. When the remaining reserves will be completely exhausted, the mine closure plan will be prepared and submitted to the competent authority to obtain approval and the same will be implemented. Land use at various stages is given in the table below.

Land use pattern

Table - 16

Description	Present area (Ha)	Area to be required during the present Mining Plan period(ha)	Area at the end of life of quarry (Ha)
Area under quarry	Nil	0.39.77	0.95.17
Waste dump	Nil	0.20.76	#Backfilled
Infrastructure	Nil	0.02.00	0.02.00
Roads	Nil	0.02.00	0.05.00
Green Belt	Nil	0.09.16	0.32.77
Stocking blocks	1.36.80	0.63.11	0.01.86
Grand Total	1.36.80	1.36.80	1.36.80

If permission is granted for disposal of waste from the State Government, the overburden only will be utilized for backfilling. If permission not obtained for disposal of waste, backfilling will be carried out with waste and spread out the preserved topsoil to facilitate afforestation in the backfilled area.



(ii) Water quality management:

Following control measures will be adopted for controlling water pollution

- Garland drain will be Constructed around the quarry to prevent surface run-off rain water entering in to the quarry pit.
- Construction of check dams / gully plugs at strategic places to arrest silt wash off from broken up area.
- Collection of surface run-off from broken up area in mine pits for settling and only properly settled excess water from mine pit will be discharged to nearby users. The storm water/ mine water will be used for dust suppression, greenbelt development, etc.
- Periodic analysis of mine pit water and ground water quality in nearby villages.
- Domestic sewage from site office & urinals/latrines provided in QL is discharged in septic tank followed by soak pits.

(iii) Air Quality Management:

The proposed mining method is not likely to produce much of dust and fugitive emissions to cause damage to ambient air quality of the area. All personnel protective equipment like Nose-mask, earplug/ muffs will be provided to the Workers. For air pollution management at the progressive quarry closure plan, greenbelt will be developed to prevent and control air pollution.

(iv) Top Soil and Waste Management:

There is generation of topsoil is about 3,905m³ during the Mining Plan period. It will be preserved all along the safety barrier and utilized for construction of bund and green belt development purpose.

Total waste produced during the Mining Plan period will be around 29,289m³. The total waste material will be proposed to dump on the South side with an area of 2076m² x (H)14.10m during the first five years. If permission is granted for removal of waste from concerned authorities, the waste material will be supplied to the needy crusher for convert to the M-sand, building and road construction material after paying the seniorage fee and obtained necessary clearance and approval from concerned department for handling the waste. When the entire mineral reserves will be completely exhausted if permission not obtained for handling of waste from the concerned authority, backfilling will be carried out nearly existing ground profile and spread out the preserved topsoil to facilitate afforestation in the backfilled area.

(v) Disposal of mining machinery:

All the Machineries will be purchased by fresh condition and the same has been maintained in good condition during entire life of quarry. After completion of quarry operation all machineries will be utilized at another quarry area or sold out to the second hand. Hence, disposal or decommissioning of mining machinery does not arise.

**(vi) Safety & Security:**

Safety measures will be implemented to prevent access in the excavation area an authorized persons as per Mine Act 1952, MMR 1961.

- Safety measures will be implemented as per Mine Act 1952, MMR 1961, and Mines Rules 1955.
- Provisions of MMR 1961 shall be strictly followed and all roads shall be wider than the height of the bench or equal to the height of the bench and have a gradient of not more than 1 in 16.
- The bench height will be 5.0m.
- Width of working bench will be kept about 5.0m for ease of operations and provide sufficient room for the movement of equipments.
- Protective equipment like dust masks, ear-plugs/ muffs and other equipments shall be provided for use by the working personnel.
- Notices giving warning to prevent inadvertent entry of persons shall be displayed at all conspicuous places and in particular near mine entries. Sufficient caution and sign boards will be kept in and around the quarry to induct public for awareness.
- Blasting will be carried out in a specific time after giving sufficient caution to the public such as danger signs shall be displayed near the excavations and siren alarm signal will be provide before small amount of blasting time for precautionary action of accident (blasting is carried out only for secondary fragments and not to liberate the Granite body from the parent rock mass).
- Security guards will be posted to prevent inadvertent entry of public.
- In the event of temporary closer, approaches will be fenced off and notice displayed.

(vii) Disaster Management and Risk Assessment:

This should deal with action plan for high risk accidents like landslides, subsidence, flood, fire, seismic activities, tailing dam failures etc. and emergency plan proposed for quick evacuation, ameliorative measures to be taken etc. The capability of applicant to meet such eventualities and the assistance to be required from the local authorities should be described.

- The mechanized mining activities in the area may involve any high risk accident due to side falls/collapse.
- The complete mining operation will be carried out under the Management and control of experienced and qualified Mines Manager having Certificate of Competency to manage the mines granted by DGMS.
- All the provisions of Mines Act 1952, MMR 1961 and Mines Rules 1955, TNMMCR 1959 and other laws applicable to mine will be strictly complied with.
- During heavy rainfall the mining activities will be suspended.
- All persons in supervisory capacity will be provided with proper communication facilities.
- Competent persons will be provided FIRST AID kits which they will always carry.



(viii) Care and Maintenance during Temporary Discontinuance:

In case of any temporary discontinuance due to court order or due to statutory requirement or any other unforeseen circumstance following measures shall be taken for care, maintenance and monitoring of conditions.

- Notice of temporary discontinuance of work in mine shall be given to the DGMS as per the MMR 1961.
- All the mining machinery shall be shifted to a safe place.
- Entrance to the mine or part of the mine, to be discontinued shall be fenced off. Fencing shall be as per the circular 11/1959 from DGMS.
- Security Guards shall be posted for the safety and to prevent any unauthorized entry to the area.
- Carry out regular maintenance of the facilities/area detailed below in such a way as would have been done as if the mines were operation:

Mine roads and approach roads,

Fencing on approach roads,

Checking and maintenance of machines and equipment,

Drinking water arrangements,

Mine office, first aid stations etc.

- Competent persons shall inspect the area regularly.
- Air, water and other environmental monitoring shall be carried out as per CPCB Guideline.
- Care and upkeep of plantation shall be carried out on regular basis.
- Status of the working and status monitoring for re-opening of the mines shall be discussed daily.

In case of discontinuance due to any natural calamities/abnormal conditions, mining operation will be restarted as early as possible after completing rescue work, restoring safety and security, repairs of roads etc.

(ix) Economic Repercussion of Closure of Quarry and manpower Retrenchments:

The quarry Lease is granted for a period of twenty years only. As per the production Programme envisaged, there will be no effect on the man power as the majority of persons belong to nearby villages and will have an option either to be available for employment for the next contract/ lease or do the agriculture in their fields.

**(x) Time Scheduling For Abandonment:**

The lease applied area has enormous potential for continuance of operations even after expiry of the lease period. The details of time schedule of all abandonment will be given at the time of final closure plan.

(xi) Abandonment Cost:

As at present mining is not going to be closed so abandonment cost could not be assessed. However, based on the progressive quarry closure activities during the plan period, cost is assessed as given below:

Table - 17

ACTIVITY	YEARS					RATE	AMOUNT (Rs.)
	I	II	III	IV	V		
Plantation (In Nos.)	20	20	20	20	20	@200 Rs Per sapling	20,000
Plantation (Safety zone) Cost	4,000	4,000	4,000	4,000	4,000		
Barbed wire fencing (In Mtrs) 560 Mtrs	1,68,000	-	-	-	-	@300 Rs Per Meter	1,68,000
Garland drain (In Mtrs) 260 Mtrs	78,000	-	-	-	-	@300 Rs Per Meter	78,000
TOTAL							2,66,000

15.0 MINERAL CONSERVATION AND DEVELOPMENT:

The mining plan proposed has fully covered all the aspects of Granite Conservation and development rules 1999, with a future plan to extend the proposed working of the quarry to the maximum possible workable depth of the deposit. Extreme care is taken to ensure proper supervision of quality control of the Granite dimensional stone aimed at the recovery of the maximum saleable quality and quantity of granite dimensional stones suitable for full utilization of the consumers.

Care is been taken for each process just to safeguard the material quarried in an economical and efficient manner by adopting systematic and scientific quarrying with the consultation and supervision of well experienced quarry persons.

16.0 STATUTORY PROVISIONS:

The provisions of the Mines Act, Rules and Regulations and orders made there under shall be complied with, so that the safety of the mine, machinery and person will be well protected. Permission, relaxation or exemption wherever required for the safe and scientific quarrying of the deposit will be obtained from the Department of Mines Safety, Chennai. Any violation pointed out by the inspecting authorities shall be rectified and modified after scrutiny comments as per the guidelines of the Concerned Department and Authorities.

Certified that this Mining Plan has been Prepared in Accordance with the Mines Act, Rules and Regulations and orders made there under and also in Conformity with the Provisions Sub Rule (13) of Rule 19A of Tamil Nadu Minor Mineral Concession Rules, 1959, Rules 12, 13, 16 of Granite Conservation and Development Rules, 1999 and 13, 14 & 15 of Minerals (Other than Atomic and Hydro Carbons Energy Minerals) Concession Rules, 2016.

Prepared by



Dr. M. IFTHIKHAR AHMED, M.Sc., M.B.A., F.G.S., Ph.D.,
Recognized Qualified Person
RQP/MAS/183/2004/A

Place: Salem

Date: 26.04.2023

DONATE RED

SPREAD GREEN

SAVE BLUE


COMMISSIONER OF
GEOLOGY AND MINING,
GUINDY, CHENNAI-600 032.

This Mining Plan is Approved
Subject to the Conditions/ Stipulation
Indicated in the Mining Plan Approval.

Letter No. / 7257 / Mucp / 2022 Dated 26/04/2023



Industries, Investment Promotion and
Commerce (MME.2) Department,
Secretariat, Chennai-600 009



Letter No.3842275/MME.2/2022-1, dated 17.04.2023

From
Thiru S. Krishnan, I.A.S.,
Additional Chief Secretary to Government.

To
Thiru. Salman Sathar, S/o. Sathar,
No.125, Jagadevi, Jagadevipalayam,
Krishnagiri - 635 203.

Sir,

Sub: Industries, Investment Promotion and Commerce - Mines and Minerals - Grey Granite - Krishnagiri District - Bargur Taluk- Soolamalai Village - Over an extent of 1.36.8 hectares of Patta land in S.F.No.341/1 (Part) - Quarry Lease Application preferred by Thiru. Salman Sathar - Precise Area Communicated - Approved mining Plan and Environmental Clearance - Called for.

- Ref: 1 Your Quarry Lease Application, dated 06.06.2022.
2 From the District Collector, Krishnagiri File Roc. No.914/2022/Mines, dated 21.10.2022.
3 From the Commissioner of Geology and Mining, File Rc. No.7257/MM4/2022, dated 28.12.2022.

I am directed to invite attention to the references second and third cited wherein the District Collector, Krishnagiri and the Commissioner of Geology and Mining, Chennai have recommended and forwarded your quarry lease application for grant of quarry lease for quarrying of Grey Granite over an extent of 1.36.8 hectares of Patta land in S.F.No.341/1(Part) of Soolamalai Village, Bargur Taluk, Krishnagiri District for a period of 20 years under rule 19-A of the Tamil Nadu Minor Mineral Concession Rules, 1959.

2. The Government carefully examined the recommendations of the District Collector, Krishnagiri and the Commissioner of Geology and Mining to communicate precise area for the extent of 1.36.8 hectares of Patta land in S.F.No.341/1(Part) of Soolamalai Village, Bargur Taluk, Krishnagiri

District and accordingly, the Government hereby communicate above area as precise area under sub-rule (13) of Rule 19-A of the Tamil Nadu Minor Mineral Concession Rules, 1959 for grant of lease.



3. I therefore request you to furnish the Approved Mining Plan for the above mentioned Precise Area through the Commissioner of Geology and Mining within a period of 3 months as per sub-rule (13) of Rule 19-A of the Tamil Nadu Minor Mineral Concession Rules, 1959 and to produce Environmental Clearance obtained from the competent authority for the above said area for grant of quarry lease for a period of 20 years subject to the following conditions:-

1. A safety distance of 7.5 m shall be maintained for the adjacent patta lands.
2. A safety distance of 10m shall be maintained for the Government land in S.F.No.335/3 situated on the northern side of the applied area.
3. A safety distance of 50 m shall be maintained for the power line situated at a distance of 37 m from the south western boundary and at a distance of 43 m from the north western boundary.
4. The quarrying operation should be restricted only in the area granted on lease.
5. Barbed wire fencing or compound wall should be erected all along the boundary of the lease granted area.
6. The waste materials generated during the course of quarrying should be dumped only within the lease hold area.
7. Environment Clearance should be obtained from the competent authority in respect of the subject area as per rule 42 of Tamil Nadu Minor Mineral Concession Rules, 1959 and as per the notification of the Ministry of Environment and Forest and any other clearances if any.
8. The applicant should fence the lease granted area with barbed wire before the execution of lease deed as follows:
 - The pillar post shall be firmly grounded with concrete foundation of height not less than 2 meters with a distance between two pillars shall not be more than 3 meters.
 - The applicant shall incorporate the DGPS readings for the entire boundary Pillars of the area and the same should be clearly shown in the mining plan.



- A soft copy of the digitized map with DGPS readings should be submitted in the CD to the Deputy Director, Krishnagiri.

9. The conditions mentioned in G.O. (Ms) No. 79, Industries (MMC.1) Department, dated 06.04.2015 should be complied with.
10. As per rule 12 (V) of Mineral (other than Atomic and Hydro Carbons Energy Minerals) Concession Rules, 2016, the applicant shall at his own expenses erect, maintain and keep in repair all the boundary pillars.
11. The applicant should comply with the additional conditions stipulated in the Government of India, Ministry of Mines order No.11/02/2020, dated 14.01.2020 issued as pass the order of Hon'ble Supreme Court of India, dated 08.01.2020 that states "The mining lease holders shall after ceasing mining operations, under take re-grassing the mining area and any other area which may have been disturbed due to this mining activities and restore the land to a condition which is fit for growth of fodder, flora and fauna etc.,"
12. The applicant should carry out DGPS survey and erection of RCC boundary pillars as per the norms stipulated in the EOI notification in Rc.No.2921/MM4/2019, dated 01.02.2018 and subsequent corrigendum dated 13.08.2019 before execution of quarry lease though the empanelled agencies.
13. The applicant shall submit scheme of mining; mine closure plan and other statutory requirements within the time stipulated for submission of the above, as per rules.
14. The applicant should use mild explosives during quarrying.
15. Child labour should not be engaged in the quarry works.
16. If any violation is found during quarrying operation, the penal provisions of the Tamil Nadu Minor Mineral Concession Rules, 1959 and other rules and Act in force will attract.
17. Quarrying shall be done as per the approved Mining Plan and that the mining plan is approved without prejudice to any other law applicable to the quarry lease from time to time whether such laws are made by the Central Government, State Government or any other authority.
18. All the quarry Labour should be registered with the Labour Welfare Board of Government of Tamil Nadu and to be enrolled in the Grant Insurance Scheme.

4. The District Collector, Krishnagiri is instructed to obtain a sworn in-affidavit from the applicant containing the above conditions before execution of lease deed and also ensure that the instructions issued in Government Letter No. 12789 / MMB.2 / 2002-7, Industries Department, dated 09.01.2003 are complied with.

Yours faithfully,

for Additional Chief Secretary to Government


17/4/2023

Copy to:

The Commissioner of Geology and Mining,
Guindy, Chennai - 600 032.

The District Collector,
Krishnagiri.



LEASE APPLIED AREA 



தமிழக அரசு

வருவாய்த் துறை

நில உரிமை விபரங்கள் : இ. எண் 10(1) பிரிவு

மாவட்டம் : கிருஷ்ணகிரி

வட்டம் : பர்கூர்

வருவாய் கிராமம் : சூலாமலை

பட்டா எண் : 1998

உரிமையாளர்கள் பெயர்

1. சத்தார் மகன் சல்மான்

புல எண்	உட்பிரிவு	புன்செய்		நன்செய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	
341	1	2 - 40.00	6.65	--	--	--	--	2022/0103 /31/205954--- -- 24-01-2022
		2 - 40.00	6.65					

குறிப்பு2 :



1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 31/06/118 /01998/20847 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 25-01-2022 அன்று 07:18:02 PM நேரத்தில் அச்சடிக்கப்பட்டது.
3. கைப்பேசி கேமராவின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

S. S. S. R.
SIGNATURE OF THE APPLICANT



11/6/2017

http://mamilan.in.gov.in/Revenue/Checklist.html

341		-2	P	ரயத்துவாரி	பஞ்சை	7-3	4	2	77	2	40.00	6	65	முடிவடை
341	2	-2	P	ரயத்துவாரி	பஞ்சை	7-3	4	2	77	0	22.50	0	60	671-முடிவடை
341	3	-3	P	ரயத்துவாரி	பஞ்சை	7-3	4	2	77	0	44.00	1	20	671-முடிவடை
341	4	-4	P	ரயத்துவாரி	பஞ்சை	7-3	4	2	77	0	60.50	1	65	360-புறமுகி
341	5	-5	P	அரசு	தீர்வை விதிக்கப்படாத தரிக	0-	0	0	00	0	43.50	0	00	குன்று
TOTAL FOR SURVEY NUMBER- 341														
342	1A	342-1	P	ரயத்துவாரி	பஞ்சை	7-3	4	2	77	0	68.50	1	90	243-முடிவடை
342	1B	-1	P	ரயத்துவாரி	பஞ்சை	7-3	4	2	77	0	27.00	0	75	243-முடிவடை
342	1C		P	ரயத்துவாரி	பஞ்சை	7-3	4	2	77	0	37.00	1	60	243-முடிவடை
342	1D	-1	P	ரயத்துவாரி	பஞ்சை	7-3	4	2	77	0	22.50	0	60	243-முடிவடை
342	1E	-1	P	ரயத்துவாரி	பஞ்சை	7-3	4	2	77	0	26.50	0	75	970-துறைமுகி
342	2	-2	P	அரசு	புறமுகி	0-	0	0	00	0	14.00	0	00	முன்று
342	3	-3	P	ரயத்துவாரி	பஞ்சை	7-3	4	2	77	0	22.00	0	75	243-முடிவடை
342	4	-4	P	ரயத்துவாரி	பஞ்சை	7-3	4	2	77	0	6.50	0	20	243-முடிவடை
TOTAL FOR SURVEY NUMBER- 342														
343	-	343	P	அரசு	தீர்வை விதிக்கப்படாத தரிக	0-	0	0	00	3	45.50	0	00	குன்று

http://mamilan.in.gov.in/Revenue/Checklist.html

Village, Administrative Office,
118, 85000A, MMBAA, V, Madurai
E: 099944KK, KeisanganrD@

555
SIGNATURE OF THE APPLICANT



உங்கள் ஆதார் எண் / Your Aadhaar No. :

5130 7972 6350

VID: 9146 9363 8708 5982

எனது ஆதார், எனது அடையாளம்







பெயர்/Name
Salman Sathar
பிறந்த நாள்/DOB: 01/04/1995
பாலினம்/MALE



5130 7972 6350
VID: 9146 9363 8708 5982

எனது ஆதார், எனது அடையாளம்





முகவரி:
S/O: Sathar, NO 125, Jagadevi,
Jagadevipalayam, Krishnagiri,
தமிழ் நாடு - 635203

Address:
S/O: Sathar, NO 125, JAGADEVI,
Jagadevipalayam, Krishnagiri,
Tamil Nadu - 635203



5130 7972 6350
VID: 9146 9363 8708 5982

Handwritten signature of the applicant.

SIGNATURE OF THE APPLICANT



M. Dharmalingam

अर्हताप्राप्त व्यक्ति के रूप में मान्यता प्रमाण पत्र
(खनिज रियायत नियमावली, 1960 के नियम 22सी के तहत)
CERTIFICATE OF RECOGNITION AS QUALIFIED PERSON
(Under Rule 22C of Mineral Concession Rules, 1960)

श्री एम. इफ्तिकार अहमद, 129/8, 11वीं क्रॉस, सिवया नगर, अलघापुरम-पी.आ., सेलम - 636 004, तमिल नाडु, जिनका फोटो और हस्ताक्षर ऊपर दिया हुआ है, तथा जिनहोंने अपनी अर्हता और अनुभव का संतोषजनक साक्ष्य दिया है, को खनन योजना तैयार करने हेतु खनिज रियायत नियमावली 1960 के नियम 22सी के तहत अर्हताप्राप्त व्यक्ति के रूप में मान्यता प्रदान की जाती है।

Shri M. Ifthikhar Ahmed, 129/8, 11th Cross, Sivaya Nagar, Alagapuram (PO), Salem - 636 004, Tamilnadu, whose **Photograph and signature** is affixed herein above, having given satisfactory evidence of his qualifications & experience hereby **RECOGNISED** under Rule 22C of the Mineral Concession Rule, 1960 as a Qualified Person to prepare Mining Plans.

उनकी पंजीयन संख्या है
His registration number is

RQP /MAS/183/2004/A

यह मान्यता 10 वर्षों की अवधि के लिए मान्यता है जो दिनांक 10.01.2024 को समाप्त होगी।
This recognition is valid for a period of 10 years ending on 10.01.2024

उनके द्वारा प्रस्तुत खनन योजना में गलत जानकारी / दस्तावेज पाए जाने की स्थिति में यह प्रमाण पत्र वापस लिया जाएगा / निरस्त किया जाएगा।

This certificate will be liable to be withdrawn / cancelled in the event of furnishing the wrong information / documents in the Mining Plan submitted by him.

स्थान / Place : Chennai
दिनांक / Date : 02.01.2014

क्षेत्रीय खान नियंत्रक / Regional Controller of Mines
भारतीय खान ब्यूरो / Indian Bureau of Mines
चेन्नई क्षेत्र / Chennai Region

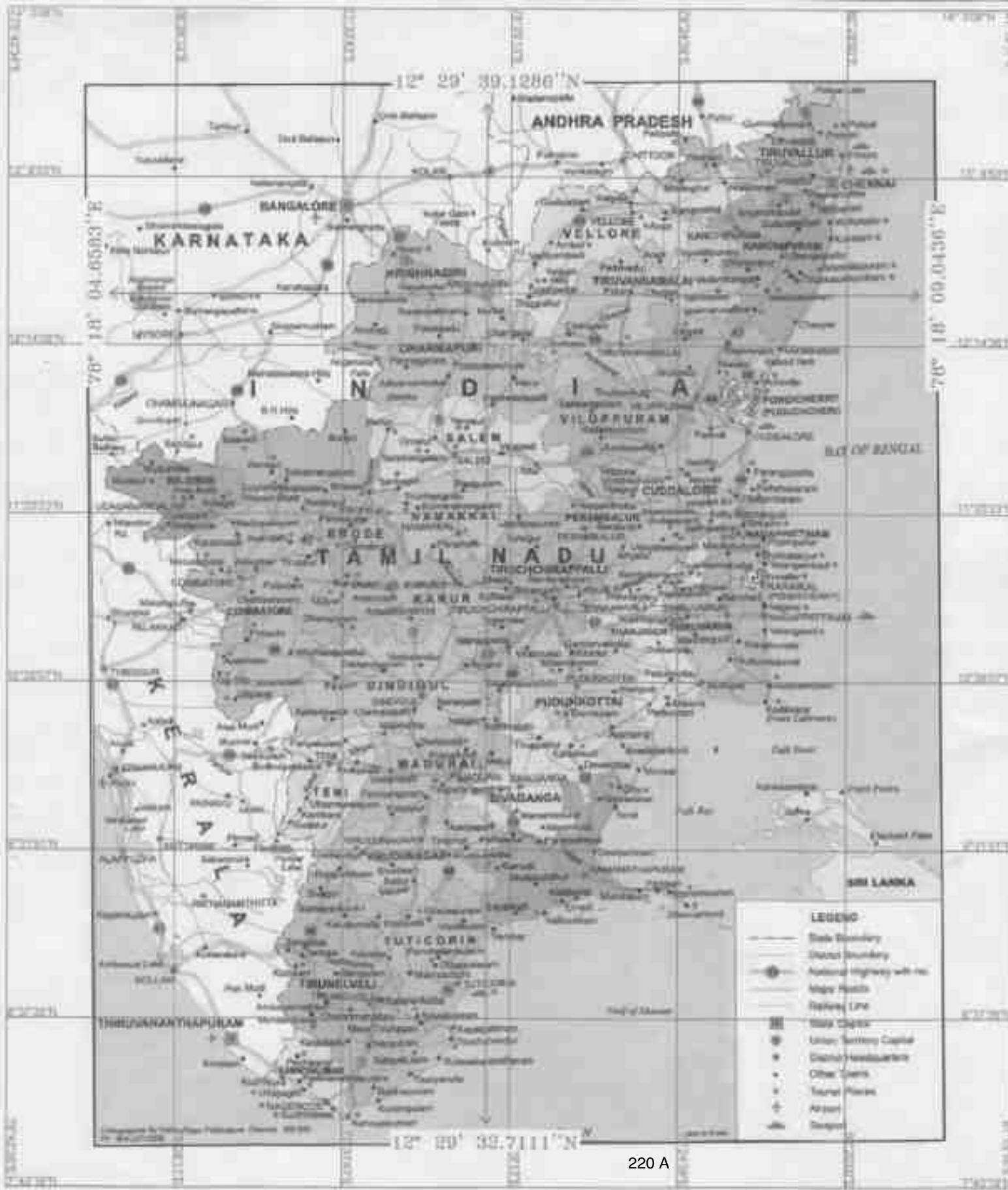


PLATE NO:1

DATE OF SURVEY : 18.04.2023

APPLICANT:
 THIRU.S.SALHAN SATHAR, S/O.SATHAR,
 DOOR NO:125,JAGADEVI,
 JAGADEVIPALAYAM VILLAGE,
 KRISHNAGIRI TALUK,
 KRISHNAGIRI DISTRICT-635201.

LOCATION OF QUARRY:
 S.F.NO :341/1(P),
 EXTENT :1.36.8 Ha,
 VILLAGE :SOOLAMALAI,
 TALUK :BARGUR,
 DISTRICT :KRISHNAGIRI,
 STATE :TAMILNADU.

INDEX

Q. L AREA : ●
TOPO SHEET NO. : 57 / L07
LATITUDE : 12°29' 32.7111"N to 12°29' 39.1286"N
LONGITUDE : 78°18' 04.6587"E to 78°18' 09.0436"E

LOCATION PLAN

SCALE 1:24,00,000

PREPARED BY :
 THE SURVEYOR GENERAL
 SURVEY OF INDIA
 GEODESY AND SURVEYING
 NEW DELHI
 18/04/2023

TOPO SHEET NO. - 57 - 107

LATITUDE : 12° 29' 32.711" N to 12° 29' 39.128" N

LONGITUDE : 76° 18' 04.887" E to 76° 18' 09.033" E

10KM RADIUS :



Q LEASE AREA :



PLATE NO-1A
DATE OF SURVEY : 18/04/2023

12° 35' 04.01" N



76° 18' 30.74" E

76° 23' 40.01" E

12° 24' 07.52" N

APPLICANT

THIRU S. SALMAN SATHAR,
S/O. SATHAR,
DOOR NO- 125, JAGADEVI,
JAGADEVIPALAYAM VILLAGE,
KRISHNAGIRI TALUK,
KRISHNAGIRI DISTRICT-635201.

LOCATION OF BLRARY

S.F. NO : 341/1(P),
EXTENT : 1.36.8 HA,
VILLAGE : SOOLAMALAI,
TALUK : BARGUR,
DISTRICT : KRISHNAGIRI,
STATE : TAMILNADU.

INDEX

CONVENTIONAL SYMBOLS

Contour lines showing elevation	—	—	—
Peak symbol showing elevation	▲	▲	▲
Spot height showing elevation	•	•	•
Contour interval	5m	5m	5m
Water bodies	—	—	—
Drainage lines	—	—	—
Highways	—	—	—
Roads	—	—	—
Railways	—	—	—
Electric lines	—	—	—
Telephone lines	—	—	—
Boundaries	—	—	—
Settlements	—	—	—
Buildings	—	—	—
Plantations	—	—	—
Barren land	—	—	—
Waterfalls	—	—	—
Wells	—	—	—
Other symbols	—	—	—

KEY PLAN

SCALE- 1:100000

PREPARED BY :

It is to certify that the information in this plate is true and correct to the best of my knowledge based upon the evidence furnished by the applicant.

[Signature]
S. JAYARAMAN
DISTRICT SURVEYOR, KRISHNAGIRI
18/04/2023



PLATE NO: I-B

APPLICANT:
 Thiru. S. SALMAN SATHAR,
 S/O. SATHAR,
 DOOR NO: 125, JAGADEVI,
 JAGADEVIPALAYAM VILLAGE,
 KRISHNAGIRI TALUK,
 KRISHNAGIRI DISTRICT-635201.

LOCATION OF QUARRY:
 S.F.NO : 341/1(P),
 EXTENT : 1.36.8 Ha,
 VILLAGE : SOOLAMALAI,
 TALUK : BARGUR,
 DISTRICT : KRISHNAGIRI,
 STATE : TAMILNADU.

INDEX

- Q.LEASE APPLIED BOUNDARY
- APPROACH ROAD
- MAJOR ROAD
- VILLAGE ROAD



ROUTE MAP

Not to Scale

PREPARED BY:
 THIS IS TO CERTIFY THAT THE INFORMATION IN THIS
 PLATE IS TRUE AND CORRECT TO THE
 BEST OF MY KNOWLEDGE BASED UPON THE LEADMAP
 AUTHENTICATED BY STATE GOVERNMENT

(Signature)
 DR. P. PRASAD, M.Sc., M.B.A., F.C.I., Ph.D.,
 RECOGNIZED QUALIFIED PERSON
 RSP/MSL/183/2004/A

LAND USE PATTERN

DESCRIPTION	AREA IN PERCENTAGE (%)
TREES/HILLOCK	25
ROAD/TANK	15
AGRICULTURAL LAND	20
QUARRY/DUMP	25
HABITATION	10

TOPO SHEET NO: - 37 - L07
 LATITUDE : 12° 29' 42.71" N LONGITUDE : 78° 17' 31.56" E
 LONGITUDE : 78° 17' 48.11" E
 1KM RADIUS
 500M RADIUS
 Q.LEASE AREA



PLATE NO: I-C
 DATE OF SURVEY : 18.04.2023

APPLICANT:
 Thiru.S.SALMAN SATHAR,S/O.SATHAR,
 DOOR NO:125,JAGADEVI,
 JAGADEVIPALAYAM VILLAGE ,
 KRISHNAGIRI TALUK,
 KRISHNAGIRI DISTRICT-635701.

INDEX

APPROACH ROAD	
WIND DIRECTION	
TREES	
QUARRY PIT	
AGRICULTURE LAND	
ROAD	
NH ROAD	
DUMP	
SITE SERVICES	
HILLOCK	
TANK	
GRANITE FACTORY	
HABITATION	

**ENVIRONMENTAL &
 LANDUSE PLAN (For 1Km Radius)**
 SCALE 1:10,000

PREPARED BY:
 I am pleased to certify that the information in this
 PLATE is TRUE AND CORRECT TO THE
 BEST OF MY KNOWLEDGE BASED UPON THE LEASHEE
 AUTHENTICATED BY STATE GOVERNMENT

 D.M.PITHANUR ANILAN, M.B.A, F.Z.S., Ph.D.
 REGISTERED QUALIFIED PERSON
 NCP/MAS/193/2004/16

LOCATION OF QUARRY:
 S.F.NO : 341/1(P),
 EXTENT : 1.36.8 Ha,
 VILLAGE : SOOLAMALAI,
 TALUK : BARGUR,
 DISTRICT : KRISHNAGIRI,
 STATE : TAMILNADU.

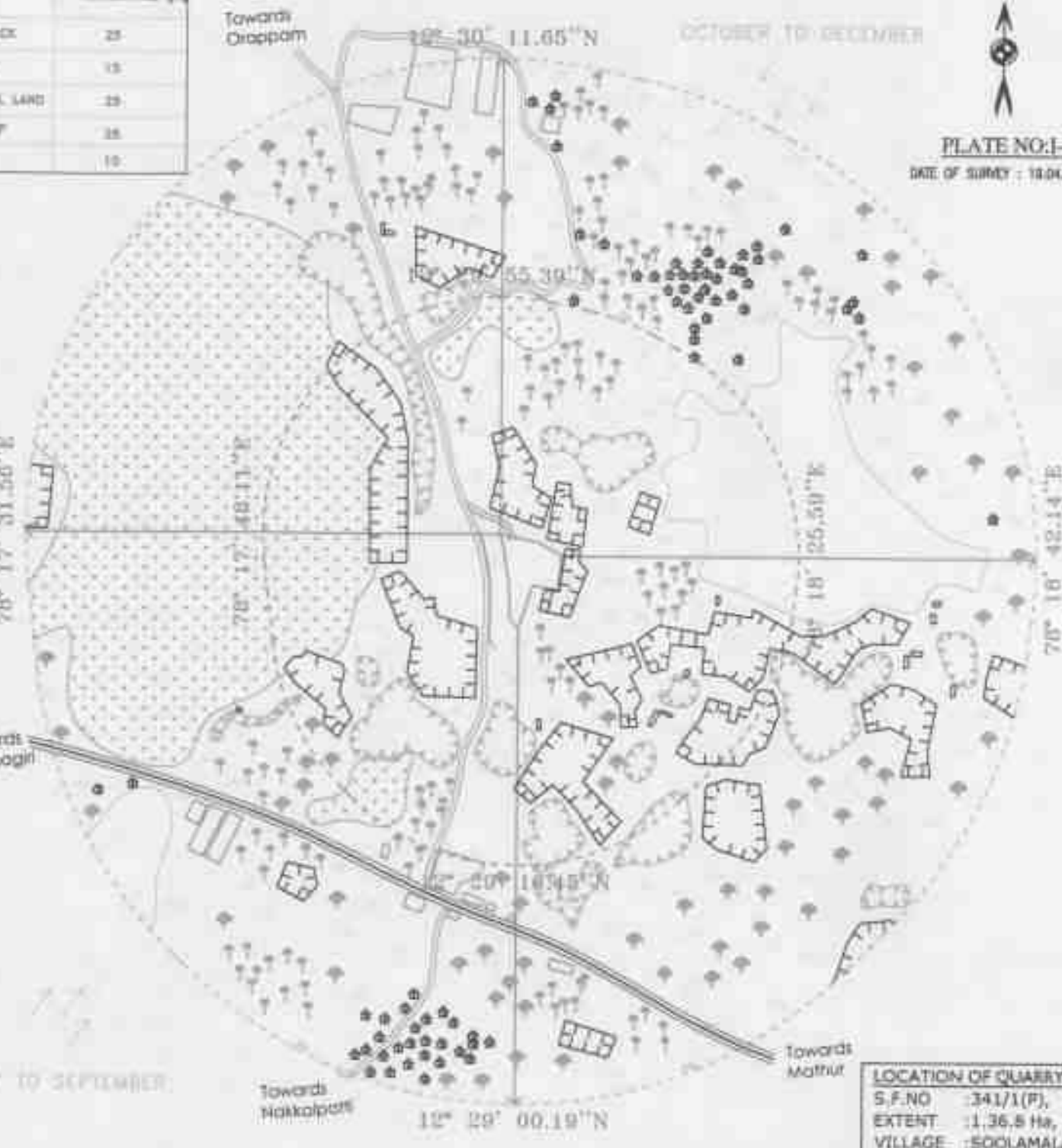




PLATE NO. III
DATE OF SURVEY : 19.04.2023

APPLICANT:
THIRU. S. SALMAN SATHAR, S/O. SATHAR,
DOOR NO: 125, JAGADEVI,
JAGADEVIPALAYAM VILLAGE,
KRISHNAGIRI TALUK,
KRISHNAGIRI DISTRICT-635201.

LOCATION OF QUARRY:
S.F.NO : 341/1(P).
EXTENT : 1.36.8 Ha,
VILLAGE : SOOLAMALAI,
TALUK : BARGUR,
DISTRICT : KRISHNAGIRI,
STATE : TAMILNADU.

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Q.L APPLIED AREA BOUNDARY	
7.5m & 50m SAFETY DISTANCE	
APPROACH ROAD	
TEMPORARY BENCH MARK	
STRIKE AND DIP	
SCRUB	
TOP SOIL	
GREY GRANITE	
WEATHERED ROCK	
POWER LINE	

SURFACE PLAN
SCALE 1:1000

PREPARED BY:
I AM SO TO CERTIFY THAT THE INFORMATION IN THIS
PLATE IS TRUE AND CORRECT TO THE
BEST OF MY KNOWLEDGE BASED UPON THE LEGAL
AUTHORITY BY STATE GOVERNMENT

D.N. PERIYAR, ANIMALS AREA, V.C.S. P.O.
REGISTERED SURVEYOR, PERIYAR
NO. 145/183/2004/J

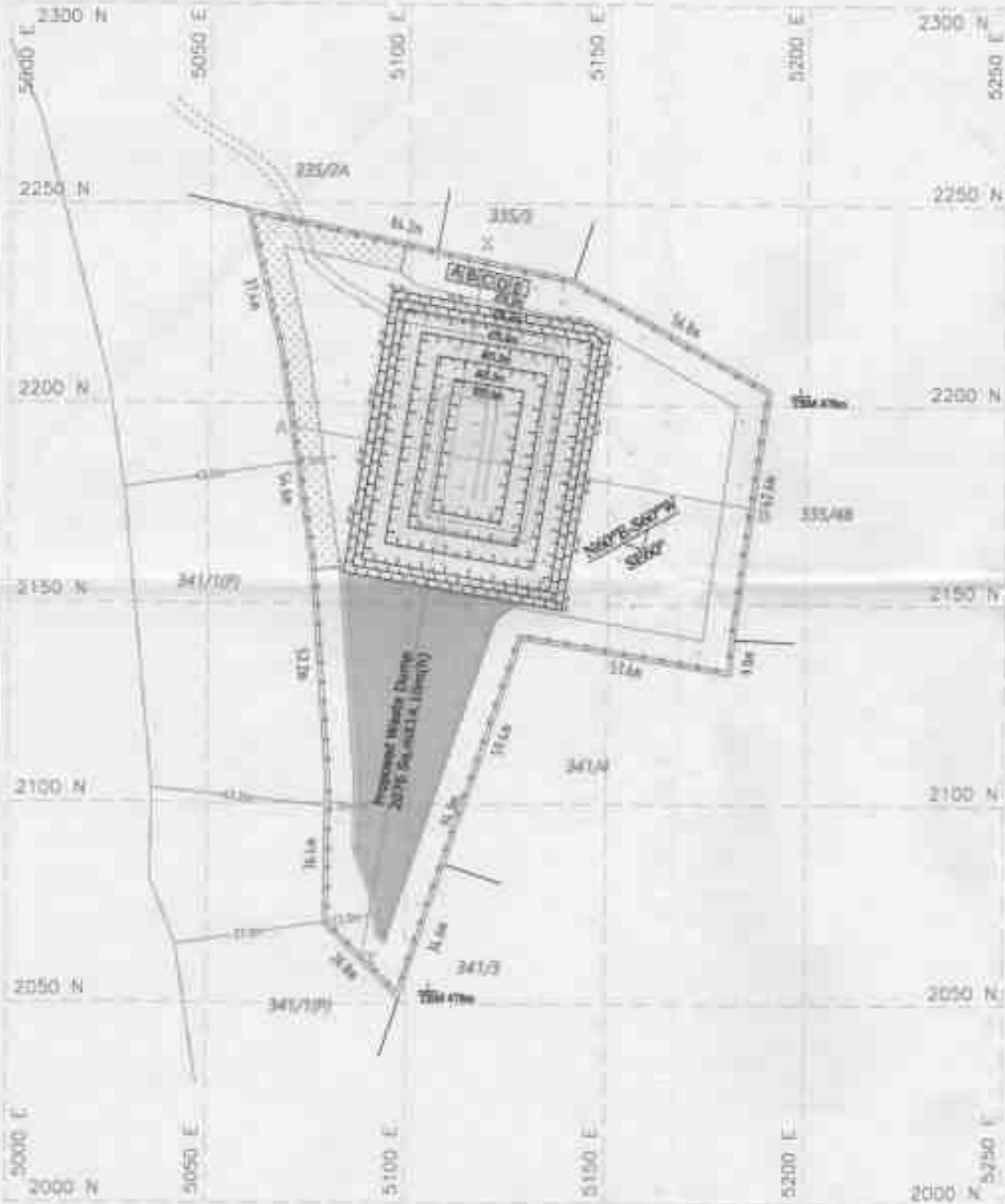


PLATE NO. VII
 SET OF QUARRY - 100/4/1994

APPLICANT:
 Mrs. S. SARMA SATHAR,
 S/O. SATHAR,
 JAGADEVIMALAYAH VILLAGE,
 KRISHNAGIRI TALUK,
 KRISHNAGIRI DISTRICT-535201.

LOCATION OF QUARRY:
 S.F. NO. - 341/1(P),
 EXTENT - 11.26.8 Ha,
 VILLAGE - SOCLAMALAI,
 TALUK - BARGUR,
 DISTRICT - KRISHNAGIRI,
 STATE - KARNATAKA

INDEX

GLASSIFIED AREA BOUNDARY	[Symbol]
50M & 100M SAFETY DISTANCE	[Symbol]
APPROACH ROAD	[Symbol]
TEMPORARY BOUNDARY MARK	[Symbol]
STRIKE AND DIP	[Symbol]
SCRUB	[Symbol]
TOP SOIL	[Symbol]
GREY GRANITE	[Symbol]
WEATHERED ROCK	[Symbol]
QUARRY	[Symbol]
POWER LINE	[Symbol]
QUARRY PIT	[Symbol]
QUARRY ROAD	[Symbol]
BUFFER ZONE	[Symbol]
PROPOSED CANAL/DRAIN	[Symbol]

SECTION ALONG X-Y



SECTION ALONG A-B



LANDUSE PATTERN

DESCRIPTION	AREA TO BE RETURNED AT THE PRESENT WORKING PLAN (PERCENTAGE)	END OF LIFE OF QUARRY (PERCENTAGE)	Color Code
WELL SHELTER QUARRY	0.28.77	0.20.77	[Color]
SCREE	0.20.78	0.20.78	[Color]
SITE SERVICES	0.03.00	0.03.00	[Color]
ROAD	0.03.30	0.03.00	[Color]
GREEN BELT	0.03.18	0.22.77	[Color]
STEEL BUNKERS	0.03.11	0.01.88	[Color]
TOTAL	1.28.80	1.28.80	

PROGRESSIVE QUARRY CLOSURE PLAN AND SECTIONS

SCALE: 1:1000

PREPARED BY:
 Mr. B. S. SATHAR, JAGADEVIMALAYAH VILLAGE, KRISHNAGIRI TALUK, KRISHNAGIRI DISTRICT-535201.

OCTOBER TO DECEMBER

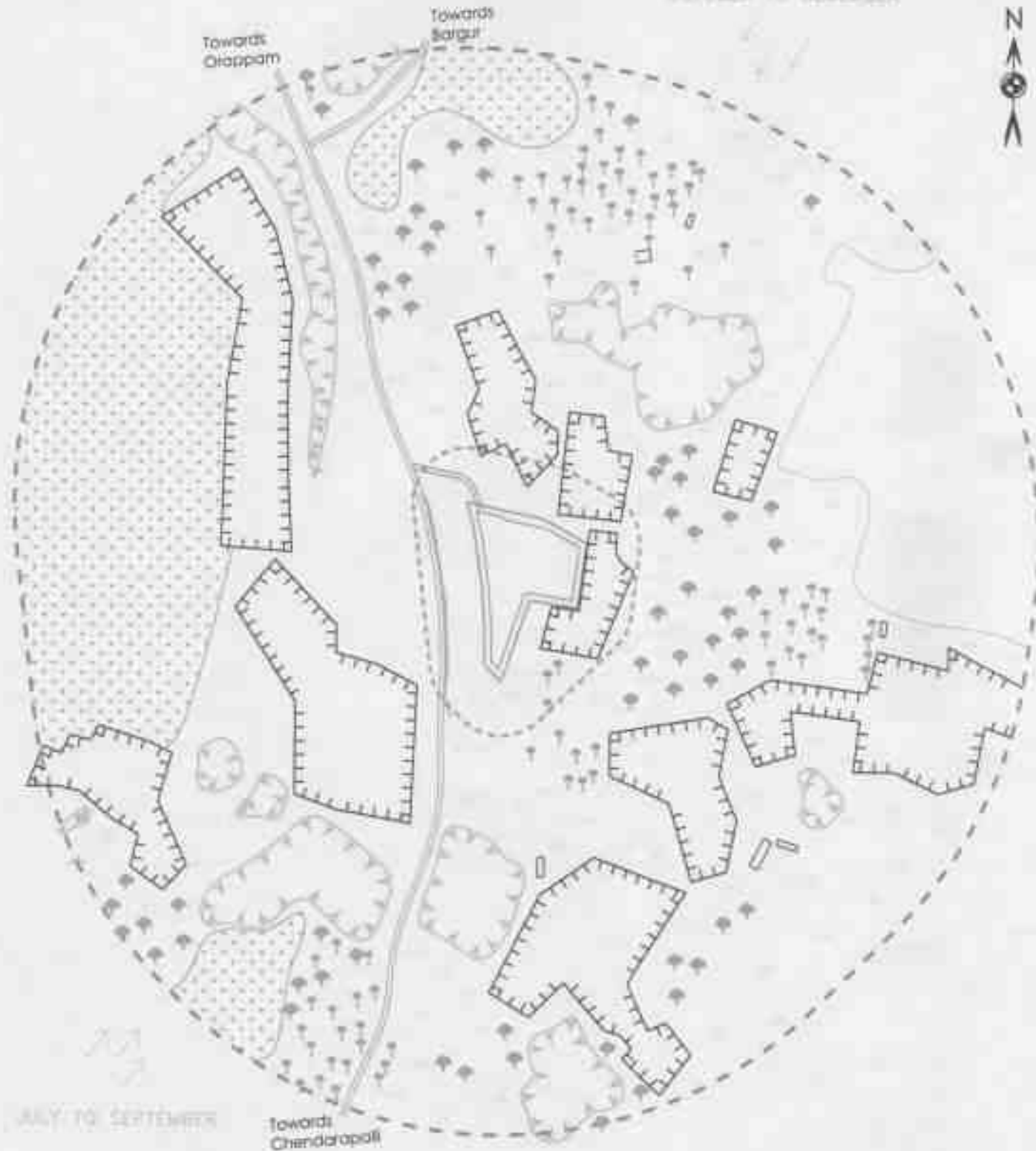


PLATE NO. VIII

DATE OF SURVEY: 28.04.2023

APPLICANT:

Thiru. S. SALMAN SATHAR, S/O SATHAR,
DOOR NO: 125, JAGADEVI,
JAGADEVIPALAYAM VILLAGE,
KRISHNAGIRI TALUK,
KRISHNAGIRI DISTRICT-635201.

LOCATION OF QUARRY:

S.F.NO : 341/1(P),
EXTENT : 1.36.8 Ha,
VILLAGE : SOOLAMALAI,
TALUK : BARGUR,
DISTRICT : KRISHNAGIRI,
STATE : TAMILNADU.

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Q.LEASE BOUNDARY	
SAFETY DISTANCE	
500m RADIUS	
60m RADIUS	
APPROACH ROAD	
WIND DIRECTION	
TREES	
QUARRY PIT	
AGRICULTURE LAND	
ROAD	
DUMP	
SITE SERVICES	
HILLOCK	
TANK	

ENVIRONMENTAL PLAN

SCALE 1:5,000

PREPARED BY:

I hereby certify that the information in the
plan is true and correct to the
best of my knowledge based upon the LANDSAT
AUTHENTICATED BY STATE GOVERNMENT

(Signature)

SRINIVASAN ENVIRONMENTAL CONSULTANTS,
REGISTERED QUALIFIED PERSON
SP/1985/183/2004/18

JULY TO SEPTEMBER



Ultimate Pit Dimension
151m X 102m X 28m(d)

- QUARRY PIT
- APPROACH ROAD
- SAFETY DISTANCE
- POWER LINE
- PROPOSED BACKFILLING
- QUARRY ROAD

- ▨ 1 V TO PLANTATION
- ▨ 2 V TO PLANTATION
- ▨ 3 V TO PLANTATION
- ▨ 4 V TO PLANTATION

PLATE NO. IX

DATE OF SURVEY - 15.04.2023

APPLICANT

THIRU.S.SALMAN SATHAR,
S/O.SATHAR,
DOOR NO:125,JAGADEVI,
JAGADEVPALAYAM VILLAGE,
KRISHNAGIRI TALUK,
KRISHNAGIRI DISTRICT-635201.

LOCALITY OF QUARRY:

S.F.NO - 343/1(P),
EXTENT - 1.38.8 Ha,
VILLAGE - SOOLAMALAI,
TALUK - BARGUR,
DISTRICT - KRISHNAGIRI,
STATE - TAMILNADU.

INDEX

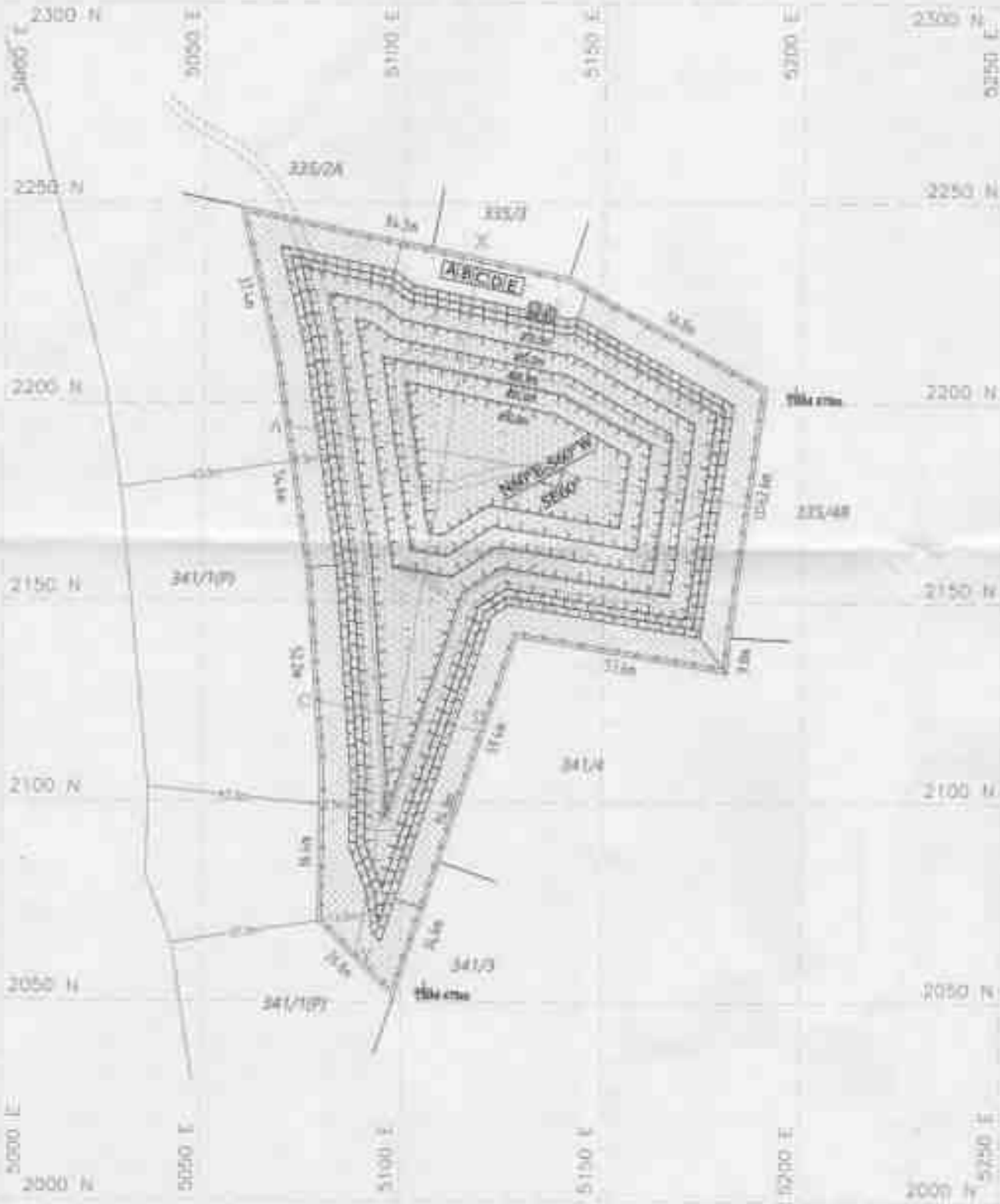
- Q.L APPLIED AREA BOUNDARY
- 7.5m & 30m SAFETY DISTANCE
- APPROACH ROAD
- TEMPORARY BENCH MARK
- STRIKE AND DIP
- SCRUB
- TOP SOIL
- GREY GRANITE
- WEATHERED ROCK
- BUNGLEFENCING
- POWER LINE
- PROPOSED BACKFILLING
- QUARRY PIT
- QUARRY ROAD

CONCEPTUAL PLAN AND SECTIONS

SCALE: 1:1000

PREPARED BY:

THIRU.S.SALMAN SATHAR
S/O.SATHAR,
DOOR NO:125,JAGADEVI,
JAGADEVPALAYAM VILLAGE,
KRISHNAGIRI TALUK,
KRISHNAGIRI DISTRICT-635201.



SECTION ALONG X-Y



SECTION ALONG A-B



SECTION ALONG C-D



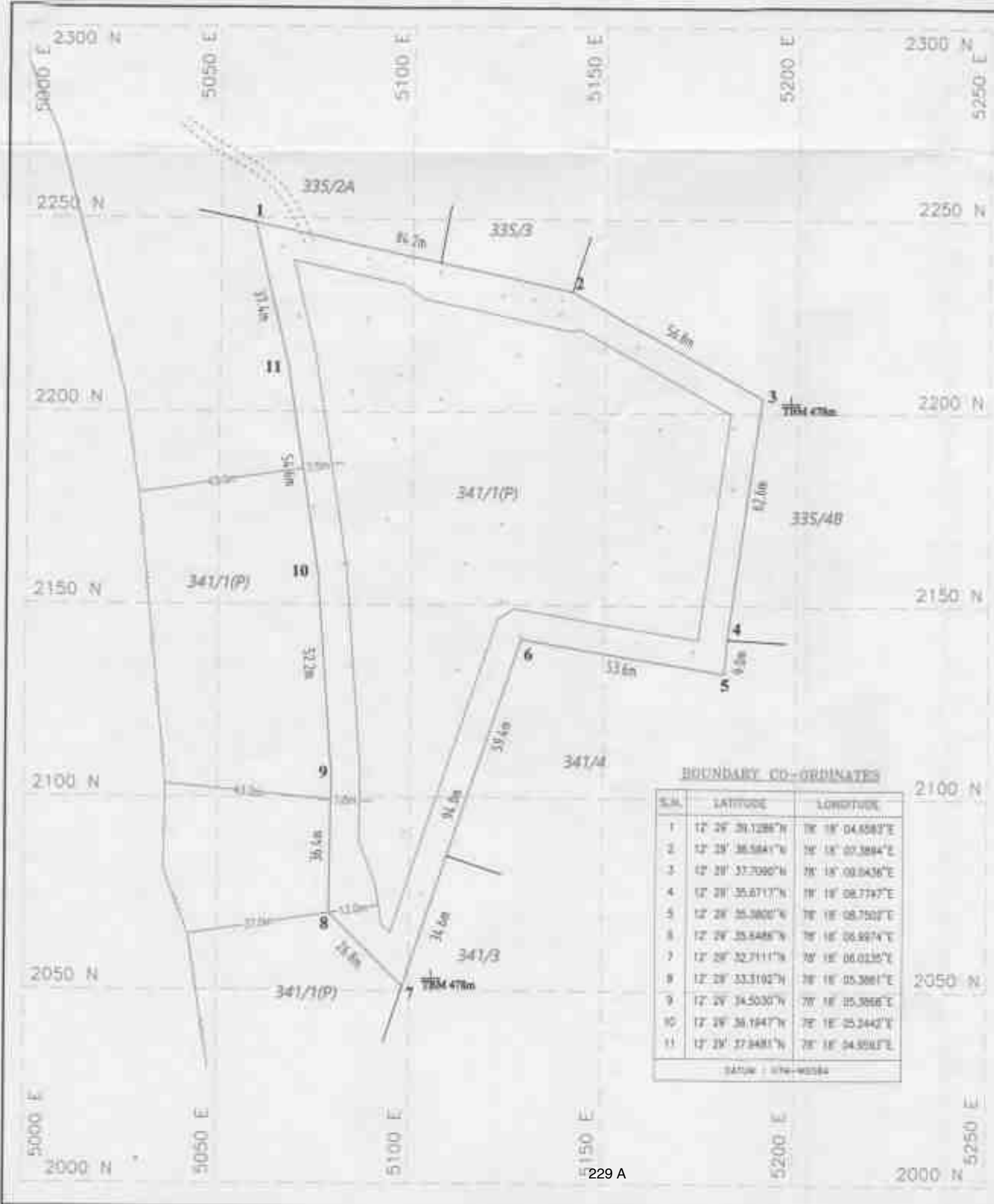


PLATE NO.II
DATE OF SURVEY : 19.04.2023

APPLICANT:
THIRU.S.SALMAN SATHAR,
S/O.SATHAR,
DOOR NO:125,JAGADEVI,
JAGADEVIPALAYAM VILLAGE,
KRISHNAGIRI TALUK,
KRISHNAGIRI DISTRICT-635201.

LOCATION OF QUARRY:
S.F.NO :341/1(P),
EXTENT :1.36.8 HA,
VILLAGE :SOOLAMALAI,
TALUK :BARGUR,
DISTRICT :KRISHNAGIRI,
STATE :TAMILNADU.

INDEX

Q.LAPPLIED AREA BOUNDARY	
7.5m & 5m SAFETY DISTANCE	
APPROACH ROAD	
TEMPORARY BENCH MARK	
SCRUB	
TOP SOIL	
POWER LINE	

BOUNDARY CO-ORDINATES

S.N.	LATITUDE	LONGITUDE
1	12° 29' 39.1286"N	78° 18' 04.6582"E
2	12° 29' 36.5841"N	78° 18' 07.3884"E
3	12° 28' 37.7090"N	78° 18' 03.0436"E
4	12° 28' 35.6717"N	78° 18' 08.7747"E
5	12° 28' 35.3800"N	78° 18' 08.7502"E
6	12° 29' 35.8486"N	78° 18' 05.8074"E
7	12° 29' 32.7117"N	78° 18' 06.0235"E
8	12° 29' 33.3102"N	78° 18' 05.3881"E
9	12° 29' 34.5030"N	78° 18' 05.3058"E
10	12° 29' 36.1947"N	78° 18' 05.3442"E
11	12° 29' 37.9481"N	78° 18' 04.9587"E

DATUM : WGS-84

QUARRY LEASE PLAN
SCALE 1:1000

PREPARED BY:
THIS IS TO CERTIFY THAT THE INFORMATION IN THIS
PLAN IS TRUE AND CORRECT TO THE
BEST OF MY KNOWLEDGE BASED UPON THE EVIDENCE
AUTHORITATED BY STATE GOVERNMENT
[Signature]
S.D.K.PURNIMA ANANDAN S.D.A.S.A.P.S.S.M.S.
REGISTERED QUALIFIED PERSON
NO/MC/183/2004/A

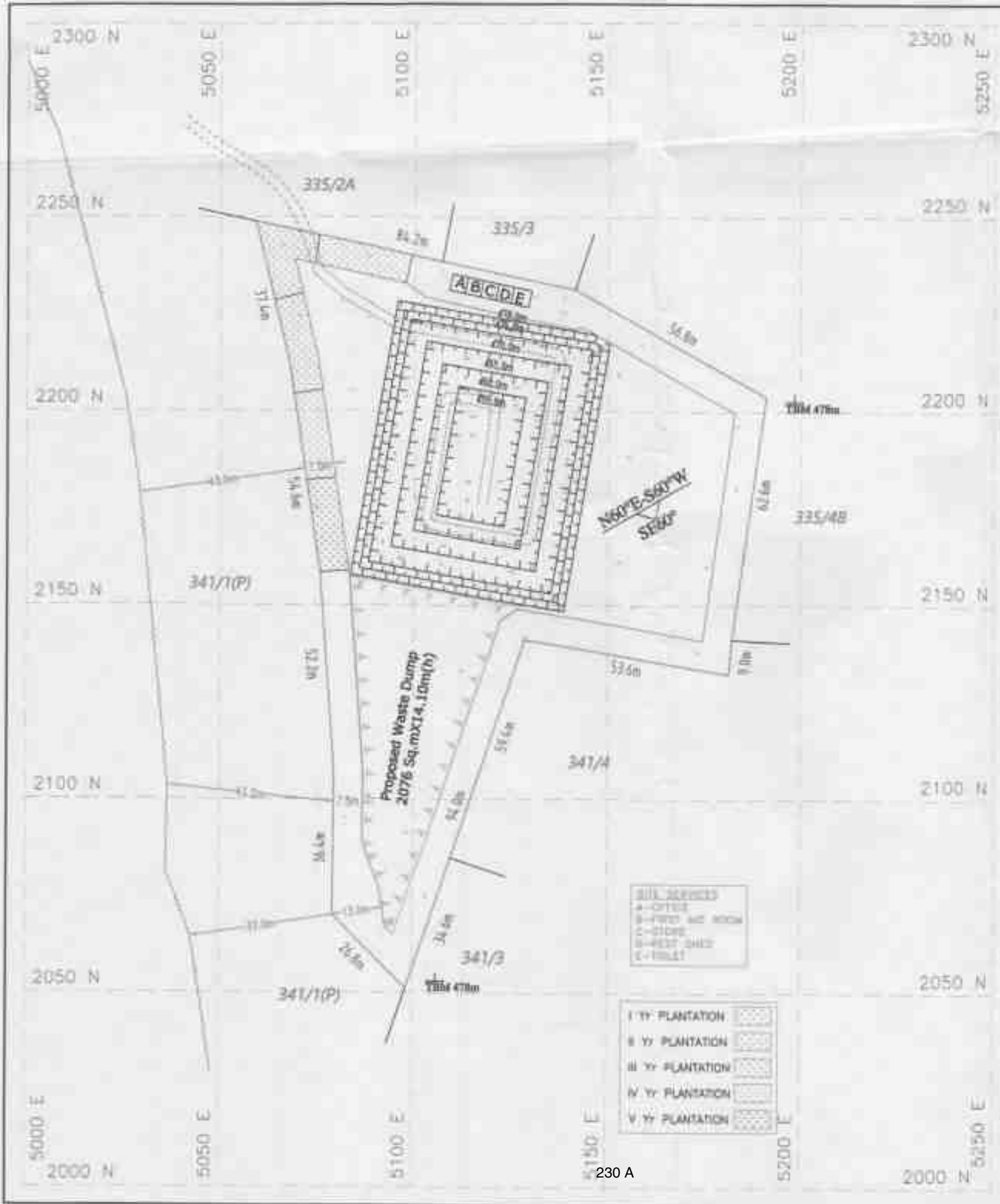


PLATE NO. VI
DATE OF SURVEY : 19.04.2024

APPLICANT
THIRU. S. SALMAN SATHAS
S/O. SATHAR,
DOOR NO: 125, JAGADEVI,
JAGADEVIPALAYAM VILLAGE,
KRISHNAGIRI TALUK,
KRISHNAGIRI DISTRICT-635201.

LOCATION OF QUARRY:
S.F. NO : 341/1(P),
EXTENT : 1.36-8 Ha,
VILLAGE : SOOLAMALAI,
TALUK : BARGUR,
DISTRICT : KRISHNAGIRI,
STATE : TAMILNADU.

INDEX

Q. LAPPED AREA BOUNDARY	
7.5m & 50m SAFETY DISTANCE	
APPROACH ROAD	
TEMPORARY BENCH MARK	
STRIKE AND DIP	
SCRUB	
TOP SOIL	
GREY GRANITE	
WEATHERED ROCK	
DUMP	
POWER LINE	
QUARRY PIT	
QUARRY ROAD	

QUARRY LAYOUT AND AFFORESTATION PLAN
SCALE 1:1000

PREPARED BY:
THIS IS TO CERTIFY THAT THE INFORMATION IN THIS PLATE IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE BASED UPON THE JOURNAL AUTHENTICATED BY STATE GOVERNMENT.
A. Duraimurugan
SUPERVISOR, MINERAL AREA, T.C.S. P.O.,
REGISTERED QUALIFIED PERSON
NO. 7462/183/2024/A

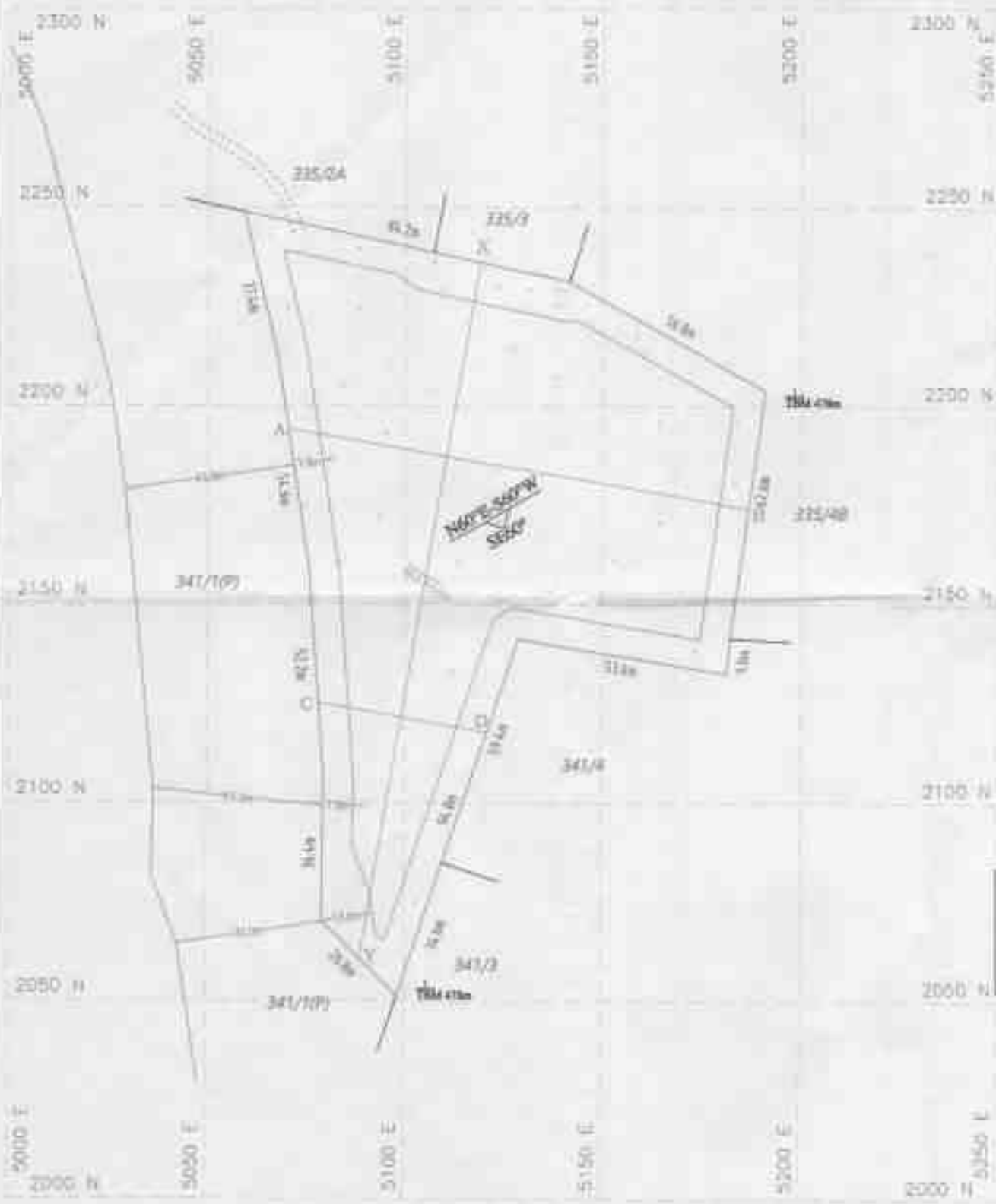


PLATE NO. IV
DATE OF SURVEY : 19.04.2023

APPLICANT:
M/s. S. SALMAN SATHAR, S/O. SATHAR,
DOOR NO: 125, JAGADEVIL,
JAGADEVPALAYAM VILLAGE,
ERISHNAGERI TALUK,
KRISHNAGERI DISTRICT-632001.

LOCATION OF QUARRY:
S.F. NO : 341/1(P)
EXTENT : 11.36.8 Hrs.
VILLAGE : SOOLANALAI,
TALUK : BAROUR,
DISTRICT : KRISHNAGIRI,
STATE : TAMILNADU

INDEX

- GLAPPED AREA BOUNDARY
- 2.0m & 30m SAFETY DISTANCE
- APPROACH ROAD
- TEMPORARY BENCH MARK
- STRIKE AND DIP
- SCRUB
- TOP SOIL
- GREY GRANITE
- WEATHERED ROCK
- POWER LINE

SECTION ALONG X-Y



SECTION ALONG A-B



SECTION ALONG C-D



GEOLOGICAL PLAN AND SECTIONS
SCALE: 1:1000

PREPARED BY:
M/s. S. SALMAN SATHAR, S/O. SATHAR,
DOOR NO: 125, JAGADEVIL,
JAGADEVPALAYAM VILLAGE,
ERISHNAGERI TALUK,
KRISHNAGERI DISTRICT-632001.

Hydrogeological Report for
Grey Granite Quarry Over an extent of 1.36.8Ha of
Patta lands in S.F.No. 341/1 (Part) of
Soolamalai Village, Bargur Taluk,
Krishnagiri District, Tamil Nadu State

HYDROGEOLOGICAL REPORT FOR SOOLAMALAI

GREY GRANITE QUARRY

INTRODUCTION

Name of the Applicant with Address-

Name of the applicant : **Salman Sathar**
Address with contact Number: No. 125, Jagadevi,
Jagadevipalayam,
District : Krishnagiri
State : Tamil Nadu
Pin code : 635 203
Phone : +91 95244 50667
E-mail ID : salman01@gmail.com.
Aadhaar No. : 5130 7972 6350 (Refer annexure No. VIII).

Details of the Area-

Land Classification : Patta Land
Survey No : 341/1 (Part)
Extent in Hectares : 1.36.8Ha
Village : Soolamalai
Taluk : Bargur Taluk
District : Krishnagiri District.

The proponent requires detailed Ground Water studies for the Occurrences of Ground water at Grey Granite quarry project site. The objective of the study is to assess the depth of Ground water occurrence and comment on aspects of depth to potential aquifers, aquifer availability and type, possible yields and water quality. For this purpose all available hydrogeological information of the areas has been analyzed, and a geophysical survey was carried out.

The investigations involved hydrogeological, geophysical field investigations and a detailed study in which the available relevant geological and hydrogeological data were collected, analyzed, collated and evaluated within the context of the Proponent requirements. The data sources consulted were mainly:

- a) Central Ground Water Board (CGWB) Data, TWAD Data
- b) State & District Geological and Hydrogeological Reports and Maps.
- c) Technical reports of the area by various organizations.

1. SCOPE OF THE WORKS –

The scope of works includes:

- Site visits to familiarize with the project areas. Identify any issues that might impact the Ground Water Scenario due to mining activities.
- To obtain, study and synthesize background information including the geology, hydrogeology and existing borehole data, for the purpose of improving the quality of assessment and preparing comprehensive hydrogeological reports,
- To carry out hydrogeological evaluation and geophysical investigations in the selected sites in order to determine potential for groundwater at project site.
- To prepare hydrogeological survey reports in conformity with the provisions of the rules and procedure outlined by the Central Ground Water Board (CGWB), by Assessment of water quality and potential infringement of National standards, Assessment of availability of groundwater and Impact of proposed activity on aquifer, water quality and other abstractors.

2. BACKGROUND INFORMATION

Location

The area is marked in the Survey of India, Topo Sheet No. 57 L/07. The area lies between the Latitudes of 12°29'32.7111"N to 12°29'39.1286"N and Longitudes of 78°18'04.6583"E to 78°18'09.0436"E on WGS datum-1984.

REGIONAL GEOLOGY OF KRISHNAGIRI DISTRICT-

The Grey Granite is medium to coarse grained in size. Orthoclase feldspar and quartz are major constituents and Pyroxene, Biotite, Garnets and other mafic minerals are accessories. The petrological settings of the area are simple and not a complicated phenomenon. There are no major minerals observed in the vicinity of the proposed quarry. A brief description of the regional Geology is discussed below.

This Grey granite is commercially called as “Paradiso” and petrologically called as “Migmatite” which is widely used for slabs, Tiles and Monuments after cutting and polishing. The Krishnagiri district is underlain by hard Crystalline rocks of Archaean age comprising of various rock types such as Gneiss, Charnockite, etc.,. The Gneissic type of crystalline formation is found in the North and Northeastern part of the District. Shoalagiri, Hosur, Mattur and Soolamalai areas covered by Granitic Gneiss (Migmatite).

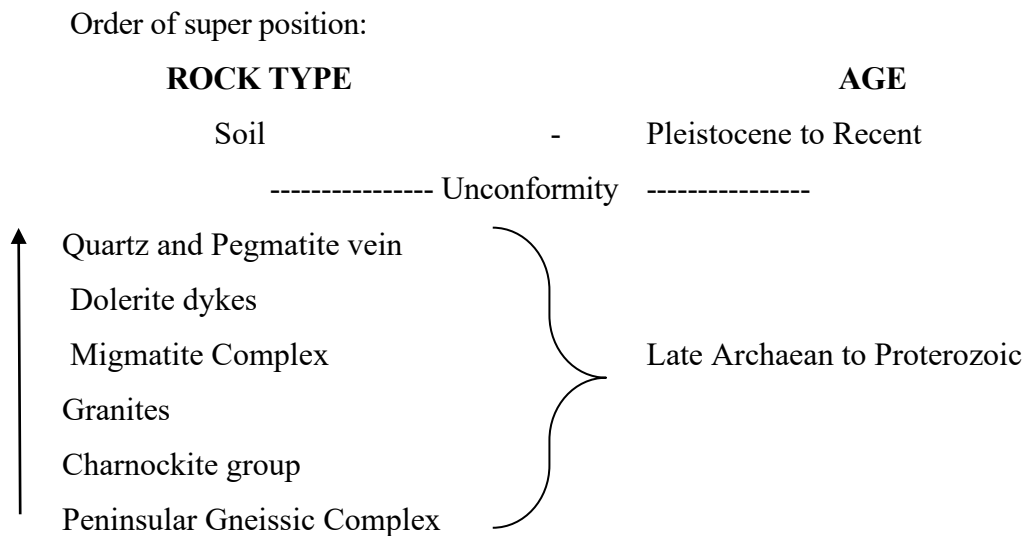
The Late Archean crust of Krishnagiri, Tamil Nadu, consists of tonalitic-trondhjemitic-granodioritic (TTG) gneisses with mafic and sedimentary enclaves, formed between 2.7 and 2.5 Ga and metamorphosed at amphibolite facies in the north to granulite facies in the south close to 2.5 Ga. Migmatization occurred at all grades, and numerous small granite bodies were emplaced near the amphibolite-to-granulite facies horizon. This nearly syn-accretion meta-morphism affected the entire crust and left a chemically differentiated section later exposed by uplift and erosion.

Such rocks that were formed at great depths during the Archaean age are now exposed at the surface of the earth as a result of the combined actions of wind, air, water, weathering and denudation over the past several million years.

The Grey granite has the characteristic pink rhythmic banding by which it can be identified even from a distance. These are seen to the central part and SE part of the district, more specifically in Rayakottai, Kaveripattinam, Jagadevi and Velampatti. These dimensional blocks are quarried to make a polished stone, slabs, monuments etc.,

STRUCTURAL SETTINGS OF KRISHNAGIRI:

The general geological sequence of the rock types in the area is:



Geomorphology

Krishnagiri district forms part of the upland plateau region with many hill ranges and undulating plains. The western part of the district has hill ranges of Mysore plateau with a chain of undulating hills and deep valleys extending in NNE-SSW direction. The plains of the district have an average elevation of 488 m amsl. The plateau region along the western boundary and the northwestern part of the district has an average elevation of 914 m amsl.

Soils

Soils have been classified into Black soil, mixed soil, red loamy soil, gravelly and sandy soils. Red loamy and sandy soils are predominant in Bargur taluk. Vast stretches of loam soils and black soils occur in Krishnagiri district.

3. GEOPHYSICAL INVESTIGATION METHODS:

A variety of methods are available to assist in the assessment of geological sub-surface conditions. The main emphasis of the fieldwork undertaken was to determine the thickness and composition of the sub-surface formations and to identify water-bearing zones. This information was principally obtained in the field using, and vertical electrical soundings (VES). The VES probes the resistivity layering below the site of measurement. This method is described below.

Resistivity Method

Vertical electrical soundings (VES) were carried out to probe the condition of the sub-surface and to confirm the existence of deep groundwater. The VES investigates the resistivity layering below the site of measurement.

Basic Principles

The electrical properties of rocks in the upper part of the earth's crust are dependent upon the lithology, porosity, and the degree of pore space saturation and the salinity of the pore water. Saturated rocks have lower resistivity than unsaturated and dry rocks. The higher the porosity of the saturated rock, or the higher the salinity of the saturating fluids, the lower is the resistivity. The presence of clays and conductive minerals also reduces the resistivity of the rock.

The resistivity of earth materials can be studied by measuring the electrical potential distribution produced at the earth's surface by an electric current that is passed through the earth. Current is moved through the subsurface from one current electrode to the other and the potential difference is recorded as the current passes. From this information, resistivity values of various layers are acquired and layer thickness can be identified.

The apparent resistivity values determined are plotted as a log function versus the log of the spacing between the electrodes. These plotted curves identify thickness of layers. If there are multiple layers (more than 2), the acquired data is compared to a master curve to determine layer thickness.

This method is least influenced by lateral in-homogeneities and capable of providing higher depth of investigation.

The resistance R of a certain material is directly proportional to its length L and cross-sectional area A, expressed as:

$$R = R_s * L/A \text{ (in Ohm)}$$

Where R_s is known as the specific resistivity (characteristic of the material and independent of its shape or size)

With Ohm's Law,

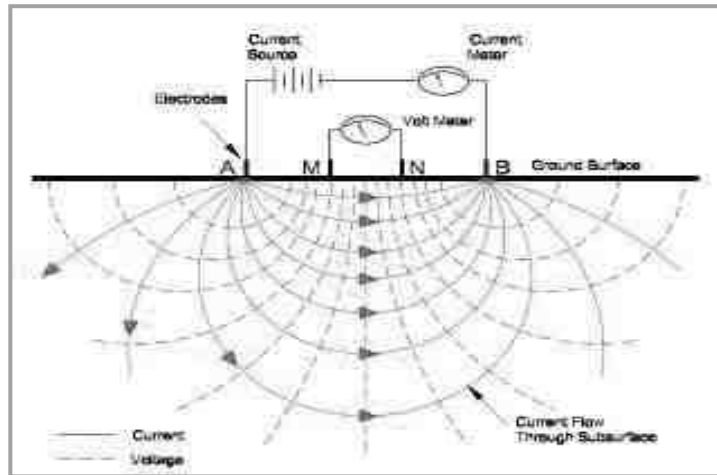
$$R = dV/I \text{ (Ohm)}$$

Where dV is the potential difference across the resistor and I is the electric current through the resistor. The specific resistivity may be determined by:

$$R_s = (A/L) * (dV/I) \text{ (in Ohm m)}$$

Vertical Electrical Sounding (VES)

When carrying out a resistivity sounding, current is led into the ground by means of two electrodes. With two other electrodes, situated near the center of the array, the potential field generated by the current is measured. From the observations of the current strength and the potential difference, and taking into account the electrode separations, the ground resistivity can be determined. During a resistivity sounding, the separation between the electrodes is step-wise increased (known as a Schlumberger Array), thus causing the flow of current to penetrate greater depths. When plotting the observed resistivity values against depth on double logarithmic paper, a resistivity graph is formed, which depicts the variation of resistivity with depth. This graph can be interpreted with the aid of a computer, and the actual resistivity layering of the subsoil is obtained. The depths and resistivity values provide the hydro geologist with information on the geological layering and thus the occurrence of groundwater.

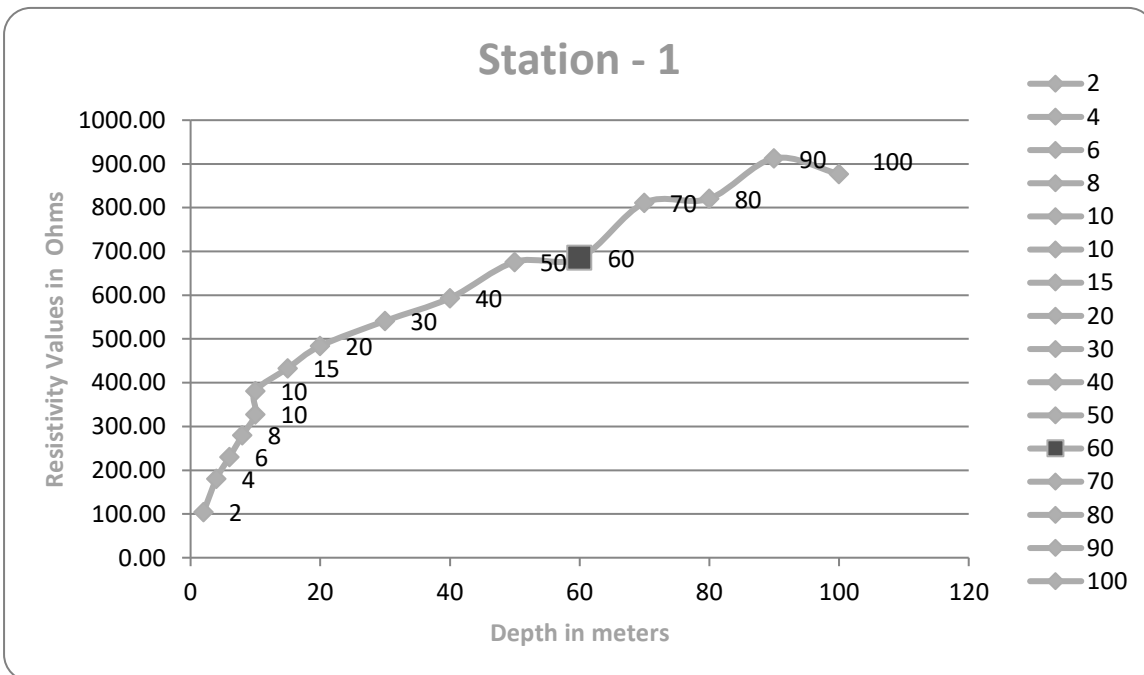


Vertical Electrical Sounding data's and Diagram

Topographical view of Soolamalai Grey Granite Quarry Lease Area

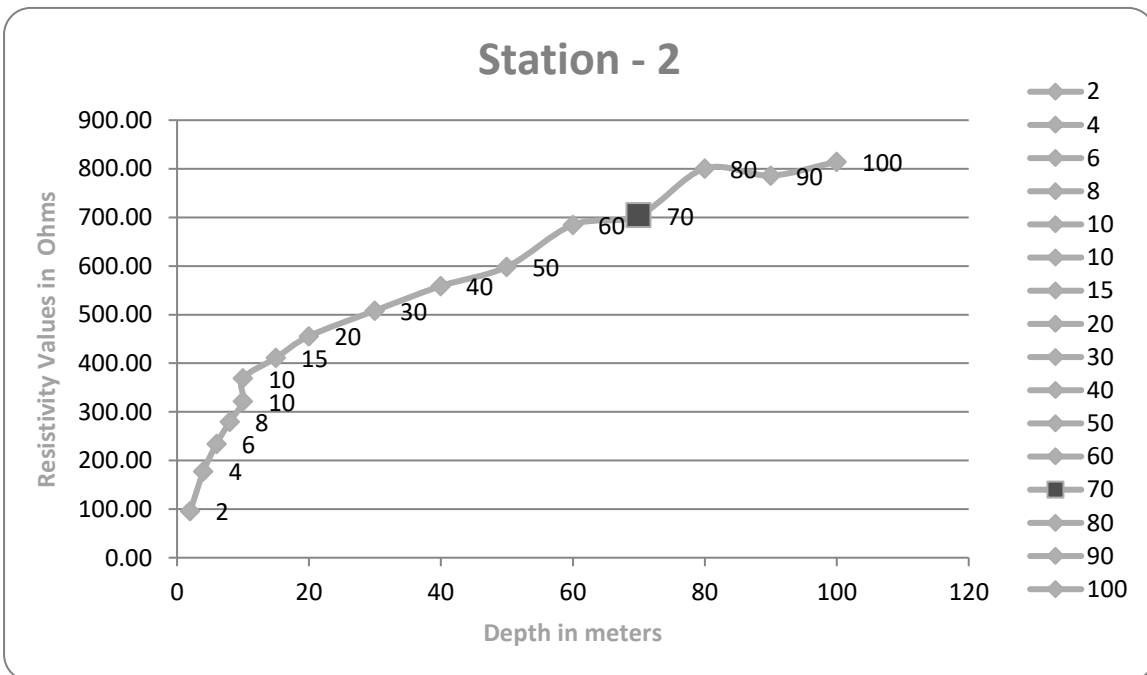


STATION-1					
GPS Coordinates - 12°29'33.6345"N 78°18'00.3456"E					
S.No	Ab/2(m)	Mn/2(m)	Geometrical factor (G)	Resistance Value in Ohms	Apparent Resistance in Ohms
1	2	1	4.71	22.04	104.80
2	4	1	23.55	7.55	182.3
3	6	1	54.95	4.2	238.5
4	8	1	98.91	2.84	279.92
5	10	1	155.45	2.12	328.00
6	10	5	23.55	16.20	381.27
7	15	5	62.80	6.92	433.32
8	20	5	117.75	4.12	483.95
9	30	5	274.75	1.99	541.26
10	40	5	494.55	1.12	589.6
11	50	5	777.15	0.77	680.1
12	60	5	1122.55	0.70	628
13	70	5	1530.75	0.55	812.6
14	80	5	2001.75	0.42	820.72
15	90	5	2535.55	0.38	912.80
16	100	5	3132.15	0.29	854.9



◆ A vertical electrical Sounding Graph diagram purple level is fracture zone.

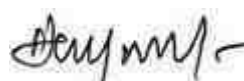
STATION-2					
GPS Coordinates - 12°29'40.2216"N 78°18'02.5405"E					
S.No	Ab/2(m)	Mn/2(m)	Geometrical factor (G)	Resistance Value in Ohms	Apparent Resistance in Ohms
1	2	1	4.71	21.48	95.85
2	4	1	23.55	7.42	177.80
3	6	1	54.95	4.40	234.64
4	8	1	98.91	2.99	279.92
5	10	1	155.45	2.06	321.78
6	10	5	23.55	14.57	369.03
7	15	5	62.80	7.48	411.34
8	20	5	117.75	3.97	455.69
9	30	5	274.75	1.82	510.3
10	40	5	494.55	1.21	541.8
11	50	5	777.15	0.70	580.3
12	60	5	1122.55	0.62	684.76
13	70	5	1530.75	0.45	704.15
14	80	5	2001.75	0.40	800.70
15	90	5	2535.55	0.38	786.02
16	100	5	3132.15	0.34	845.6



◆ A vertical electrical Sounding Graph diagram purple level is fracture zone.

4. Conclusions –

Based on the available information and the geophysical investigations it is concluded that the project area is considered to have medium ground water potential. Productive aquifers are expected at depth of 70m to 75m where minor fractures are observed and shallow aquifers are expected above 55-65m BGL. The ultimate pit limit as per the approved Mining plan is **28m** (1m Topsoil + 2m Weathered rock + 25m Grey granite) which will have no impact on the Ground Water.



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E-Mail: ifogeoexploration@gmail.com

அனுப்புதல்

திருமதி. அ.பன்னீர்செல்வி, பி.பி.ஏ.,
வட்டாட்சியர்,
பர்சூர்.

பெறுதல்

மாவட்ட ஆட்சியர்,
கிருஷ்ணகிரி.

வழி: வருவாய் கோட்டாட்சியர்
கிருஷ்ணகிரி.

ந.க.2330/2022/அ1

நாள் : 27.09.2022

அய்யா,

பொருள்: கனிமங்களும் சுவாரிகளும் - பல வண்ண கிராளைட் கற்கள் - கிருஷ்ணகிரி மாவட்டம் - பர்சூர் வட்டம் - சூலாமலை கிராம புல எண்.341/1 வில். 2.40.00 ஹெக்டர் நிலத்தில் 1.36.80 ஹெக்டர் பரப்பளவில் பல வண்ண கிராளைட் கற்கள் வெட்டியெடுக்க இருபது ஆண்டுகளுக்கு சுவாரி குத்தகை உரிமம் கோரி திரு.சல்மான் சத்தார் த/பெ. சத்தார் என்பவர் அளித்த மனு மீது அறிக்கை அனுப்ப கோரியது - அறிக்கை அனுப்புதல் - தொடர்பாக.

பார்வை: 1. கிருஷ்ணகிரி மாவட்ட ஆட்சியர் அவர்களின் ந.க.914/2022/கனிமம், நாள்: 07.06.2022.
2. இவ்வலுவலக ந.க.2330/2022/அ1, நாள்:18.06.2022.
3. பாலேப்பள்ளி வருவாய் ஆய்வாளரின் அறிக்கை, நாள்:05.07.2022

கிருஷ்ணகிரி மாவட்டம், பர்சூர் வட்டம், சூலாமலை கிராம புல எண்.341/1 வில். 2.40.00 ஹெக்டர் நிலத்தில் 1.36.80 ஹெக்டர் பரப்பளவில் பல வண்ண கிராளைட் கற்கள் வெட்டியெடுக்க இருபது ஆண்டுகளுக்கு சுவாரி குத்தகை உரிமம் கோரி திரு.சல்மான் சத்தார் த/பெ. சத்தார் என்பவர் அளித்த மனு தொடர்பாக புலத்தணிக்கை மற்றும் விசாரணை மேற்கொண்டு அறிக்கை அனுப்புமாறு பார்வை 1-இல் காணும் கடிதத்தில் கோரப்பட்டது. அதன்பேரில் பாலேப்பள்ளி வருவாய் ஆய்வாளரிடம் பார்வை 2-இல் காணும் இவ்வலுவலக கடிதத்தின்படி விசாரணை அறிக்கை கோரப்பட்டதின்பேரில், பார்வை 3-இல் பாலேப்பள்ளி வருவாய் ஆய்வாளர் அறிக்கை சமர்ப்பித்துள்ளார். பாலேப்பள்ளி வருவாய் ஆய்வாளரின் அறிக்கையின் அடிப்படையில், எனதறிக்கையினை கீழ்க்கண்டவாறு சமர்ப்பித்துக் கொள்கிறேன்.

கிருஷ்ணகிரி மாவட்டம், பர்சூர் வட்டம், சூலாமலை கிராம புல எண்.341/1 வில். 2.40.00 ஹெக்டர் ர.பு. நிலம் திரு.சல்மான் சத்தார் என்பவரது பெயரில் கிராம

கணக்குகளின்படி பட்டா தாக்கலாகி உள்ளது. மேற்கண்ட குலாமலை கிராம புல எண்.341/1-ன் பரப்பு 1.36.80 ஹெக்டரில் பல வண்ண கற்கள் வெட்டியெடுக்க குவாரி குத்தகை உரிமம் வழங்க உத்தேசிக்கப்பட்டுள்ளது. இப்புலம் தரிசாக உள்ளது. புல வரைப்படத்தில் வரையறுக்கப்பட்டுள்ள பகுதியில் இருந்து 1.00 கி.மீ சுற்றளவில் காப்புக் காடுகள் ஏதுமில்லை. 500 மீட்டர் சுற்றளவில் தொல்பொருள் துறையினரால் பாதுகாக்கப்பட்ட தொல்லியியல் சின்னங்கள், புராதன சின்னங்கள் மற்றும் 300 மீட்டர் சுற்றளவில் குடியிருப்புகள்/கிராம நத்தம்/அங்கீகரிக்கப்பட்ட வீட்டுமனை பிரிவுகள் ஏதுமில்லை. 50 மீட்டர் சுற்றளவில் கோயில், மசூதி, தேவாலயம் போன்ற வழிபாட்டிடங்கள், பொது மயானம், மின்/தொலைபேசி கம்பி பாதைகள் ஏதுமில்லை. கற்கள் அமைந்துள்ள இடத்திலிருந்து 50 மீட்டர் சுற்றளவில் ஏரி, குளம், குட்டை, ஓடை போன்ற நீராதார அமைப்புகள் ஏதுமில்லை. புலத்தணிக்கையின் போது பொது மக்களிடமிருந்து ஆட்சேபணை மனுக்கள் ஏதும் வரப்பெறவில்லை.

குலாமலை வருவாய் கிராம புல எண்.341/1(ப)-ன் செக்குபந்தி விவரம் கீழ்க்கண்டவாறு உள்ளது.

கிராம புல எண்	பரப்பளவு	வடக்கு	கிழக்கு	தெற்கு	மேற்கு
341/1 (பகுதி)	1.36.80 ஹெக்டர்	புல.எண். 335/1பி, 2சி, 3, 4பி	புல.எண். 341/3, 4, 335/4பி	புல.எண். 341/2	புல.எண். 340 ரோடு

மேற்கண்ட ரயத்து புஞ்சை நிலத்தில் பலவண்ண கற்கள் வெட்டியெடுக்க குவாரி குத்தகை உரிமம் வழங்க ஆட்சேபணை மனுக்கள் ஏதும் வரப்பெறவில்லை எனவும், குவாரி குத்தகை வழங்கலாம் என பாலேப்பள்ளி வருவாய் ஆய்வாளர் பரிந்துரை செய்துள்ளார். எனவே மேற்படி குலாமலை கிராம புல எண்.341/1 விஸ். 2.40.00 ஹெக்டர் நிலத்தில் பகுதி 1.36.80 ஹெக்டர் பரப்பளவில் பல வண்ண கிராணைட் கற்கள் வெட்டியெடுக்க தமிழ்நாடு கனிம விதிகளுக்குட்பட்டு குத்தகை உரிமம் வழங்கலாம் என பரிந்துரை செய்து, இத்துடன் வருவாய் ஆய்வாளரின் அறிக்கை, கிராம நிர்வாக அலுவலர் வாக்குமூலம், "அ1" நோட்டீஸ் மற்றும் கிராம கணக்குகளின் நகல்கள் ஆகியவற்றை இத்துடன் இணைத்து அனுப்பியுள்ளேன் என்பதை பணிபுடன் தெரிவித்துக் கொள்கிறேன்.

/உண்மை நகல்/

குணை வட்டாட்சியர்

ஓம்/- அ.பன்னீர்செல்வி,
வட்டாட்சியர்,
பர்கூர்.

27/9/20

அனுப்புநர்

மாவட்ட ஆட்சியர்,
கிருஷ்ணகிரி மாவட்டம்.

2330

பெறுநர்

வருவாய் கோட்டாட்சியர்,
கிருஷ்ணகிரி.



ந.க.எண். 914/2022/கனிமம் நாள். 06.06.2022.

ஆய்யா,

பொருள்: கனிமங்களும் குவாரிகளும் - பலவண்ண கிராளைட் - கிருஷ்ணகிரி மாவட்டம் - பர்கூர் வட்டம் - சூலமலை கிராமம் பட்டா புல எண். 341/1(ப) விஸ்தீரணம் 1.36.8 ஹெக்டேர் பரப்பளவில் பலவண்ண கிராளைட் வெட்டியெடுக்க இருபது ஆண்டுகளுக்கு குவாரி குத்தகை அனுமதி Thiru. Salman Sathar, S/o. Sathar, என்பவர் விண்ணப்பித்துள்ளது - புலத்தணிக்கை மற்றும் நில உடமை குறித்த பரிந்துரை அறிக்கை கோருதல் - தொடர்பாக.

பார்வை: Thiru. Salman Sathar, S/o. Sathar, எண். 125, ஜெகதேவி, ஜெகதேவிபாளையம், கிருஷ்ணகிரி — 635 203 என்பவர் விண்ணப்பம் நாள் : 06.06.2022.

Thiru. Salman Sathar, S/o. Sathar, என்பவர் சூலமலை கிராமம் பட்டா புல எண். 341/1(ப) விஸ்தீரணம் 1.36.8 ஹெக்டேர் பரப்பளவில் பலவண்ண கிராளைட் கற்கள் வெட்டியெடுக்க இருபது ஆண்டுகளுக்கு குவாரி குத்தகை அனுமதி கோரி பார்வையில் கண்ட விண்ணப்பத்தினை சமர்ப்பித்துள்ளனர்.

மேற்கண்ட விண்ணப்பம் இத்துடன் இணைத்தனுப்பப்படுகிறது. குவாரிப்பணி மேற்கொள்ள அனுமதி கோரும் புலங்கள் மீது புலத்தணிக்கை மேற்கொண்டு, நில உடமை மீதான விவரங்களுடன் குவாரி குத்தகை உரிமம் கோரியுள்ள புலங்களில் கீழ்க்கண்ட இனங்கள் சம்பந்தமான குறிப்புகள் அடங்கிய விவரங்களுடன் பரிந்துரை அறிக்கையினை அனுப்புமாறு கேட்டுக்கொள்கிறேன்.

1. குவாரி குத்தகை கோரியுள்ள புலங்களிலிருந்து குடியிருப்பு பகுதிகள் எனில் 50 மீட்டர் சுற்று வட்டத்திற்குள் இருக்க கூடாது. இது குறித்து விளக்கமான குறிப்புகள் இடம் பெற வேண்டும்.
2. மின் கம்பி பாதைகளுக்கும் / தொலைபேசி பாதைகளுக்கும் மற்றும் ஆறு, ஓடை போன்றவற்றுக்கும் குத்தகை கோரும் புலங்களுக்கும் இடையே 50 மீட்டர் இடைவெளி இருக்க வேண்டும் 50 மீட்டர் தொலைவிற்குள் இருந்தால் அதற்காக ஒதுக்க வேண்டிய பாதுகாப்பு இடைவெளி புல வரைபடத்தில் குறிப்பிடப்பட வேண்டும்.
3. குவாரி குத்தகை வழங்க ஆட்சேபனை ஏதும் உள்ளதா என்பது குறித்த விவரம், ஆட்சேபனைகள் ஏதும்இருப்பின் அதன் உண்மைத்தன்மை குறித்தும், ஆட்சேபனை ஏற்கத்தக்கதா? இல்லையா? என்று குறிப்பாக அறிக்கையில் தெரிவிக்க வேண்டும். மேலும் ஏ.1 விளம்பரம் இணைக்கப்பட வேண்டும்.

4. குவாரி குத்தகை கோரும் பகுதிக்கு அஜலகு பாதை வசதி குறித்த விவரங்கள் இடம் பெற வேண்டும்.
5. குவாரி குத்தகை கோரும் புலங்களுக்கு அருகில் நான்கு திசைகளிலும் உள்ள புல எண்களின் "அ" பதிவேடு மற்றும் புலவரைபடங்களை அறிக்கையுடன் இணைக்க வேண்டும். புலங்களின் வகைபாடு பற்றி விரிவான குறிப்பு தெரிவிக்க வேண்டும்.
6. வட்டாட்சியரால் கையொப்பமிடப்பட்ட தெளிவாக உள்ள புல வரைபடம் 3 நகல்கள், அ - பதிவேடு, சிட்டா, அடங்கல் மற்றும் கூட்டுப்புலவரைபடம் இணைக்க வேண்டும்.
7. குத்தகைதாரர் ஒரு புல எண்ணில் ஒரு பகுதியில் மட்டும் குத்தகை கோரினால் இப்பகுதியை புலவரைபடத்தில் அளவுகளுடன் வரையறுத்து காட்ட வேண்டும்.
8. விண்ணப்பித்துள்ள புலங்களுக்கு அருகில் 50 மீட்டருக்குள் இருக்கும் நிலையான கட்டிடங்கள் கோயில் போன்றவற்றை புலப்படத்தில் குறிப்பிட ஜ"வேண்டும்.
9. ஏற்கனவே குவாரி செய்த குழிகள் ஏதும் இருந்தால் அவற்றை புலப்படத்தில் அளவுகளுடன் குறிப்பிட வேண்டும்.

மா.வட்ட ஆட்சியருக்காக,
கிருஷ்ணகிரி.

17.06.22

நகல்:

1. வட்டாட்சியர்,
பர்கூர்.

இணைப்புகளுடன் அறிக்கையை கிருஷ்ணகிரி,
வருவாய் கோட்டாட்சியர் மூலமாக
அனுப்பிவைக்குமாறு தெரிவிக்கப்படுகிறது.

2. Thiru, Salman Sathar, S/o. Sathar,
எண். 125, ஜெகதேவி,
ஜெகதேவிபாளையம்,
கிருஷ்ணகிரி - 635 203.

பணிநிறுத்தப்படுகிறது:-

பெறுதல்:-

வட்டாட்சியர்,
பர்கூர்.

அய்யா,

பொருள்: கனிமங்களும் குவாரிகளும் - சிறுகனிமம் - பலவண்ண கிராளைட் கற்கள் - கிருஷ்ணகிரி மாவட்டம் பர்கூர் வட்டம் - சூலாமலை கிராம புல எண்.341/1 பரப்பு 2.40.00 ஹெக்டேர் ரயத்து புஞ்சை நிலத்தில் 1.36.8 ஹெக்டேர் பரப்பளவில் பலவண்ண கிராளைட் கற்கள் வெட்டியெடுக்க குவாரி குத்தகை வழங்க முன் மொழிவுகள் அனுப்புதல் - தொடர்பாக.

பார்வை: பர்கூர் வட்டாட்சியர் அவர்களின் குறிப்பாணை ந.க.2330/2022 அ1 நாள்:18.6.2022

கிருஷ்ணகிரி மாவட்டம் பர்கூர் வட்டம், சூலாமலை கிராம புல எண்.341/1 விஸ்தீர்ணம் 2.40.00 ஹெக்டேரில் ர.பு நிலத்தில் 1.36.80 ஹெக்டேர் பரப்பளவில் பலவண்ண கிராளைட் கற்கள் வெட்டியெடுக்க குவாரி குத்தகை உரிமம் வழங்குவது தொடர்பாக எனதறிக்கையினை கீழ்க்கண்டவாறு தெரிவித்துக் கொள்கிறேன்.

கிருஷ்ணகிரி வட்டம் பர்கூர் வட்டம், சூலாமலை கிராம புல எண்.341/1 விஸ்தீர்ணம் 2.40.00 ஹெக்டேர் ர.பு நிலம் திரு.சல்மான் சத்தார் என்பவரது பெயரில் பட்டா தாக்கலாகியுள்ளது. மேற்கண்ட புல எண்.341/1-ன் பரப்பு 1.36.80 ஹெக்டேரில் பலவண்ண கற்கள் வெட்டியெடுக்க குவாரி குத்தகை உரிமம் வழங்க உத்தேசிக்கப்பட்டுள்ளது. இப்புலம் தரிசாக உள்ளது. புல வரைபடத்தில் வரையறுக்கப்பட்டுள்ள பகுதியில் இருந்து 1.00 கி.மீ சுற்றளவில் காப்புக்காடுகள் ஏதுமில்லை. 500 மீட்டர் சுற்றளவில் தொல்பொருள் துறையினரால் பாதுகாக்கப்பட்ட தொல்லியியல் சின்னங்கள், புராதன சின்னங்கள் மற்றும் 300 மீட்டர் சுற்றளவில் குடியிருப்புகள்/ கிராம நத்தம்/அங்கீகரிக்கப்பட்ட வீட்டு மனை பிரிவுகள் ஏதுமில்லை. 50 மீட்டர் சுற்றளவில் கோயில்,மசூதி,தேவாலயம் போன்ற வழிபாட்டிடங்கள், பொது மயானம், மின்/தொலைபேசி கம்பி பாதைகள் ஏதுமில்லை. 50 மீட்டர் சுற்றளவில் ஏரி, குளம், சூட்டை, ஓடை போன்ற நீராதார அமைப்புகள் ஏதுமில்லை. புலத்தணிக்கையின் போது பொது மக்களிடமிருந்து ஆட்சேபனை மனுக்கள் ஏதும் வரப்பெறவில்லை.

சூலாமலை வருவாய் கிராம புல எண்.341/1(ப)-ன் செக்குபந்தி கீழ்க்கண்டவாறு உள்ளது.

கிராம புல எண்	பரப்பளவு	வடக்கு	கிழக்கு	தெற்கு	மேற்கு
341/1 (பகுதி)	1.36.80 ஹெக்டேர்	புல எண். 335/1பி, 2சி, 3, 4பி	புல எண். 341/3,4, 335/4பி	புல எண்.341/2	புல எண். 340 ரோடு

மேற்கண்ட ரயத்து புஞ்சை நிலத்தில் பலவண்ண கற்கள் வெட்டியெடுக்க குவாரி குத்தகை உரிமம் வழங்க ஆட்சேபணை மனுக்கள் ஏதும் வரப்பெறவில்லை எனவும், குவாரி குத்தகை வழங்கலாம் என கிராம நிர்வாக அலுவலர் வாக்குமூலத்தில் தெரிவித்துள்ளார். அரசுக்கு வருவாய் ஈட்டும் வகையில் மேற்கண்ட உத்தேசிக்கப்பட்டுள்ள கிராம எண்.341/1-ன் பரப்பு 2.40.00 ஹெக்டேர் ர.பு நிலத்தில் பகுதி 1.36.80 ஹெக்டேர் நிலத்தில் கனிம விதிகளில் வரையறுக்கப்பட்ட நிபந்தனைகளுடன் பலவண்ண கற்கள் எடுக்க குத்தகை உரிமம் வழங்கலாம் என பரிந்துரை செய்து இத்துடன் கிராம நிர்வாக அலுவலர் வாக்குமூலம், "அ1" நோட்டீஸ் மற்றும் கிராம கணக்குகளின் நகல் இணைத்து அனுப்பியுள்ளேன் என்பதை பணிவுடன் தெரிவித்துக் கொள்கிறேன்.

இணைப்பு: மேற்கண்டவாறு.


வருவாய் ஆய்வாளர்,
பாலேப்பள்ளி.

கிருஷ்ணகிரி பர்கூர் வட்டம் - சூலாமலை கிராம நிர்வாக அலுவலர் அளித்த வாக்குமூலம்.

ஆஜர்:-

கிருஷ்ணகிரி மாவட்டம் பர்கூர் வட்டம், சூலாமலை கிராம புல எண்.341/1 விஸ்தீரணம் 2.40.00 ஹெக்டேரில் ர.பு நிலத்தில் 1.36.80 ஹெக்டேர் பரப்பளவில் பலவண்ண கிராணைட் கற்கள் வெட்டியெடுக்க சுவாரி குத்தகை உரிமம் வழங்குவது தொடர்பாக விசாரணை என்பதைத் தெரிந்துக்கொண்டேன்.

கிருஷ்ணகிரி வட்டம் பர்கூர் வட்டம், சூலாமலை கிராம புல எண்.341/1 விஸ்தீரணம் 2.40.00 ஹெக்டேர் ர.பு நிலம் திரு.சல்மான் சத்தார் என்பவரது பெயரில் பட்டா தாக்கலாகியுள்ளது. மேற்கண்ட புல எண்.341/1-ன் பரப்பு 1.36.80 ஹெக்டேரில் பலவண்ண கற்கள் வெட்டியெடுக்க சுவாரி குத்தகை உரிமம் வழங்க உத்தேசிக்கப்பட்டுள்ளது. இப்புவம் தரிசாக உள்ளது. புல வரைபடத்தில் வரையறுக்கப்பட்டுள்ள பகுதியில் இருந்து 1.00 கி.மீ சுற்றளவில் காப்புக்காடுகள் ஏதுமில்லை. 500 மீட்டர் சுற்றளவில் தொல்பொருள் துறையினரால் பாதுகாக்கப்பட்ட தொல்லியியல் சின்னங்கள், புராதன சின்னங்கள் மற்றும் 300 மீட்டர் சுற்றளவில் குடியிருப்புகள்/ கிராம நத்தம்/அங்கீகரிக்கப்பட்ட வீட்டு மனை பிரிவுகள் ஏதுமில்லை. 50 மீட்டர் சுற்றளவில் கோயில்,மசூதி,தேவாலயம் போன்ற வழிபாட்டிடங்கள், பொது மயானம், மின்/தொலைபேசி கம்பி பாதைகள் ஏதுமில்லை. 50 மீட்டர் சுற்றளவில் ஏரி, குளம், குட்டை, ஓடை போன்ற நீராதார அமைப்புகள் ஏதுமில்லை. புலத்தனிக்கையின் போது பொது மக்களிடமிருந்து ஆட்சேபணை மனுக்கள் ஏதும் வரப்பெறவில்லை.

சூலாமலை வருவாய் கிராம புல எண்.341/1(பு)-ன் செக்குபந்தி கீழ்க்கண்டவாறு உள்ளது.

கிராம புல எண்	பரப்பளவு	வடக்கு	கிழக்கு	தெற்கு	மேற்கு
341/1 (பகுதி)	1.36.80 ஹெக்டேர்	புல எண். 335/1பி, 2சி, 3, 4பி	புல எண். 341/3,4, 335/4பி	புல எண்.341/2	புல எண். 340 ரோடு

மேற்கண்ட ரயத்து புஞ்சை நிலத்தில் பலவண்ண கற்கள் வெட்டியெடுக்க சுவாரி குத்தகை உரிமம் வழங்க ஆட்சேபணை மனுக்கள் ஏதும் வரப்பெறவில்லை. அரசுக்கு வருவாய் ஈட்டும் வகையில் மேற்கண்ட உத்தேசிக்கப்பட்டுள்ள கிராம எண்.341/1-ன் பரப்பு 2.40.00 ஹெக்டேர் ர.பு நிலத்தில் பகுதி 1.36.80 ஹெக்டேர் நிலத்தில் கனிம விதிகளில் வரையறுக்கப்பட்ட நிபந்தனைகளுடன் பலவண்ண கற்கள் கிராணைட் எடுக்க குத்தகை உரிமம் வழங்கலாம் என்பதைப் பணிவுடன் தெரிவித்துக்கொள்கிறேன்.

சு. சுவாமிநாதன்
கிராம நிர்வாக அலுவலர்
சூலாமலை

//என் முன்பாக//

13/1/2022
வருவாய் ஆய்வாளர்,
பாலேப்பள்ளி

"அ1" அறிவிக்கை

கிருஷ்ணகிரி வட்டம் பர்சூர் மாவட்டம், சூலாமலை கிராமத்தைச் சேர்ந்த திரு.சல்மான் சத்தார் த/பெ.சத்தார் என்பவருக்கு கீழ்க்கண்ட ஷெட்யூலில் காட்டப்பட்டிருக்கும் சிறு கனிமம் பலவண்ண கற்களை வெட்டியெடுக்க குவாரி குத்தகை உரிமம் வழங்குவது தொடர்பாக வெட்டி எடுக்க குத்தகை விட உத்தேசிக்கப்பட்டுள்ளது. மேற்படி நிலங்களை குத்தகை மூலம் ஒப்படை செய்யக்கூடாதென்று ஆட்சேபிப்பவர்கள் இந்த அறிக்கை பிரசுரித்தம் செய்யப்படும் தேதியிலிருந்து 15 தினங்கள் கொண்ட அளவுக்குள் மேற்படி கிராமத்தின் கிராம நிர்வாக அலுவலரிடம் தங்களுடைய ஆட்சேபனையை தெரிவிக்க வேண்டும்.
ஷெட்யூல்:-

கிராம புல எண்	மொத்த பரப்பு (ஹெக்டேர்)	தீர்வை		வகைபாடு	குத்தகை விட உத்தேசிக்கப்ப ட்ட பரப்பு (ஹெக்டேரில்)	செக்குபந்தி விவரம்
		ரூ.	பை			
341/1	2.40.00	-	-	ர.பு	1.36.80	வடக்கு : கிராம புல எண் : 335/1பி, 2சி, 3, 4பி தெற்கு : கிராம புல எண் : 341/2 கிழக்கு: கிராம புல எண் : 341/3,4 மேற்கு : கிராம புல எண் : 340

தேதி :

மேற்படி அறிக்கையானது மேலே கண்ட தேதியன்று தண்டோரா போட்டுப் பிரசுரித்தியப்படுத்தப்பட்டதென்றும் மேற்படி கிராமச் சாவடியிலும் சம்மந்தப்பட்ட நிலங்களில் காட்டி வைக்கப்பட்டதென்றும் உறுதிமொழி கூறப்படுகிறது.

1) M. Mithran

2) இடஞ்செல்வன்

3) முருகன்

4) சுவாமி

5) ச. சீனிவாசன்

15/6/2021
வருவாய் ஆய்வாளர்,

அ. வி. ராஜ்
கிராம நிர்வாக அலுவலர்
Village Administration Officer
118, SULAMALAI VILLAGE
Krishnagiri-Tk & Dt.

குறிப்பு:-

தென் கண்டம் ஜில்லாவின் விஷயத்திலும் இந்த அடியிற்கண்ட நமுனாவுக்கு அடியிற்கண்ட மூலமாய் பிரசுரித்தம் செய்யப்பட்டது என்றும் ரெஜிஸ்டரான கைப்பற்றுதாரர்களிடத்திலும் மேற்படி நிலம் விஷயமல் கும்கி சுதந்திரங்களுடைய வாலவர்க்கத்தாரர்களிடத்திலும் அந்த நிலத்தின் விசாஹிஜமா அனுபோகதாரர்களிடத்திலும் மரவரி ஏற்பாட்டின் பிரகாரம் அந்த நிலத்திலே மரங்களை கைப்பற்றி வைத்திருப்பவர்களிடத்திலும் அல்லது அந்த நிலத்திலுள்ள ஒரு கிணற்றின் தண்ணீரை சாகுபடிக்கு பாய்ச்சிக் கொண்டிருப்பவர்களிடத்திலும் மேற்படி அறிக்கை சேர்ப்பிக்கப்படுகிறதென்றும் உறுதிமொழி கூறப்படுகிறது.

தமிழ்நாடுவனத்துறை

அனுப்புதல்

செல்வி. க. கார்த்திகேயனரி, இலய,
வனஉயிரினகாப்பாளர்,
ஓசூர் வனக்கோட்டம்,
மத்திகிரி, ஓசூர் - 635 110
தொலைபேசி எண். 04344296500.

பெறுதல்

மாவட்ட ஆட்சித்தலைவர்,
கிருஷ்ணகிரிமாவட்டம்,
கிருஷ்ணகிரி.

ந.க.எண்.5574/2022/எஸ்நாள்.28.07.2022
(முன்பகிருதவருடம், ஆளாநாள் 12, திருவள்ளூர் ஆண்(டி 2053)

அய்யா,

பொருள் : கனிமங்களும் குவாரிகளும் - கிருஷ்ணகிரி மாவட்டம் - பர்கூர் வட்டம் - சூலாமலை கிராமம் - பட்டாபுல எண். 341/1 (பகுதி)ல் 136.8ஹெக்டர் பரப்பளவில் பலவண்ண கிராண்டை கற்கள் வெட்டியெடுக்க, திரு. சல்மான் சத்தார் த/பெ. சத்தார், கிருஷ்ணகிரிமாவட்டம் என்பவர் குவாரி குத்தகை அனுமதி கோரிய புலத்திற்கு அருகிலுள்ள காப்புக்காடு, வனஉயிரின சரணாலயம் மற்றும் யானைகளின் வலசை பாதை ஆகியவற்றின் தொலைவு குறித்து விவரம் கோரியது-தொடர்பாக.

- பார்வை :**
1. மாவட்ட ஆட்சியர், கிருஷ்ணகிரி மாவட்டம் ந.க.எண்.914/2022/ கனிமம் நாள் 07.06.2022
 2. திரு. சல்மான் சத்தார் த/பெ. சத்தார் எண். 125, ஜெகதேவி, ஜெகதேவிபாளையம், கிருஷ்ணகிரி- 635 203 என்பவர் விண்ணப்பம் நாள். 08.06.2022.
 3. வனச்சரக அலுவலர், கிருஷ்ணகிரி ந.க.எண். 236/2022 நாள்.16.06.2022.

பார்வை 2ல் கண்ட கடிதத்தில், திரு. சல்மான் சத்தார் த/பெ. சத்தார் எண். 125, ஜெகதேவி, ஜெகதேவிபாளையம், கிருஷ்ணகிரி மாவட்டம் என்பவர், கிருஷ்ணகிரி மாவட்டம், பர்கூர் வட்டம், சூலாமலை கிராமம் பட்டாபுல எண். 341/1 (பகுதி)ல் 136.8ஹெக்டர் பரப்பளவில் பல வண்ண கிராண்டை கற்கள் வெட்டியெடுக்க குவாரி குத்தகை உரிமம் கோரிய புலங்களுக்கு அருகிலுள்ள காப்புக்காடு, வன உயிரின சரணாலயம் மற்றும் யானைகளின் வலசைபாதை ஆகியவற்றின் தொலைவு குறித்து விவரத்தினை, பார்வை 3-ல் கண்ட கடிதத்தில் கிருஷ்ணகிரி மாவட்ட ஆட்சியர் அவர்கள் கேட்டுக்கொண்டுள்ளார்.

சூழற்படி குவாரி அமைய உள்ள புலத்தில் 25 கிமீ சுற்றளவில் அமைந்துள்ள காப்புக்காடுகள் விவரம் பின்வருமாறு தெரிவிக்கப்படுகிறது.

1. மேற்படி பல வண்ண கிராண்டை கற்கள் வெட்டி எடுக்க அனுமதி கோரியுள்ள இடத்தின் GPS அளவுகள் N12.492477° , E 78.301664° ஆகும்.

2. மேற்படி பல வண்ண கிராளைட் கற்கள் வெட்டி எடுக்க அனுமதி கோரியுள்ள இடமானது தொகரப்பள்ளி விரிவாக்கம் காப்புக்காடு எல்லையிலிருந்து 4.00 கி.மீ தொலைவிலும், காவேரி வடக்கு வளையிலான சரணாலயம் (ஊட்டூர்கம் விரிவாக்கம் காப்புக்காடு) எல்லையிலிருந்து 35.80 கி.மீ. சரணாலயத்திற்கான சூழல் உணர்திரன் மண்டலம் (Eco-Sensitive Zone) எல்லையிலிருந்து 34.80 கி.மீ தொலைவிலும் அமைந்துள்ளது.

மேற்படி அனுமதி கோரியுள்ள கிருஷ்ணகிரி மாவட்டம், பர்கார் வட்டம், சூலாமலை கிராமம் பட்டாபல எண். 341/1 (பகுதி)ல் 1.36.8 ஹெக்டர் பரப்பளவு புலத்திலிருந்து 25 கி.மீ சுற்றளவிற்குள் கீழ்க்கண்ட காப்புக்காடுகள் அமைந்துள்ளன.

வ.எண்.	கோட்டம்	சரகம்	காப்புக்காட்டின் பெயர்
1	ஓசூர்	கிருஷ்ணகிரி	தொகரப்பள்ளிவிரிவாக்கம்
2	"	"	தொகரப்பள்ளி
3	"	"	புலிகுண்டா 1
4	"	"	புலிகுண்டா 2
5	"	"	வரட்டனப்பள்ளி
6	"	"	வரட்டனப்பள்ளிவிரிவாக்கம்
7	"	"	பர்கார்
8	"	"	நேலகோட்டா
9	"	"	மேடுகம்பள்ளி
10	"	"	நந்திபண்டாவிரிவாக்கம்
11	"	"	நந்திபண்டா
12	"	"	கொத்தூர்
13	"	"	மகாராஜகடைவிரிவாக்கம்
14	"	"	மகாராஜகடை
15	"	"	நூரலப்பள்ளி
16	"	"	நூரலப்பள்ளிவிரிவாக்கம்
17	"	"	வேப்பனப்பள்ளி பிட் 1
18	"	"	செளட்டஹள்ளி
19	"	"	தள்ளிஹள்ளி
20	"	"	தட்டக்கல்
21	"	"	பாலேகுளி 2
22	"	"	பெத்தாளப்பள்ளி
23	"	"	குந்தாரப்பள்ளி 1
24	"	"	பெண்ணைஸ்வர மடம்
25	"	"	செளட்டஹள்ளி
26	"	"	தல்லிஹள்ளி
27	"	"	பாலேகுளி 2
28	"	"	தட்டக்கல்
29	"	"	சாலமரத்துப்பட்டி
30	"	"	சாலமரத்துப்பட்டிகுடதல்
31	"	ஓசூர்	கரியானப்பள்ளி 2
32	"	இராயக்கோட்டை	மேலுமலை
33	"	"	சூலகுண்டா
34	"	"	சிக்கபூவத்தி

வ.எண்.	கோட்டம்	சரகம்	காப்புக்காட்டின் பெயர்
35	"	"	வெலகலஹள்ளி
36	"	"	சோக்காடி
37	தருமபுரி	பாலக்கோடு	சொக்கம்பட்டி 2 (பகுதி)
38	"	"	எலுமிச்சனஹள்ளி
39	திருப்பத்தூர்	வாணியம்பாடி	கொத்தூர் (பகுதி)
40	"	"	நந்திபண்டா (பகுதி)
41	ஆந்திர மாநிலம்	குப்பம்	பைப்பாளையம் (தேரலகோட்டா காப்புக்காட்டை ஒட்டி உள்ளது)
42	"	"	நடமூர் (மகாராஜகடை காப்புக்காட்டை ஒட்டி உள்ளது)

மேற்படி பலவண்ண கிராண்ட் கற்கள் வெட்டி எடுக்க அனுமதி கோரியுள்ள கிருஷ்ணகிரி மாவட்டம், பச்சூர் வட்டம், சூலாமலை கிராமம் பட்டா புல எண். 341/1 (பகுதி)ல் 1.36.8 ஹெக்டர் பரப்பளவு இடமானது, கோவைப்பள்ளம் - ஆனைபெத்தஹள்ளி யானை வலகை பாதையிலிருந்து சுமார் 58 கி.மீ தொலைவில் அமைந்துள்ளது மேலும், உணவு தேடி காப்புக்காட்டை விட்டு வெளியில் வரும் யானைகளானது, மேற்படி குவாரி குத்தகை அனுமதி கோரியுள்ள பகுதிக்கு வருவதில்லை. மகாராஜகடை காப்புக்காட்டிலிருந்து அல்லப்போது வெளியில் வரும் யானைகளானது, சுமார் 12 கி.மீ தொலைவில் காப்புக்காட்டிற்கு அருகிலுள்ள கிராமங்களான பெரியசக்களவூர், மகாராஜகடை, கோத்திகுட்டப்பள்ளி, நல்லமான்சந்தை, கன்னிகான் ஏரி, காளிகோயில், குருவிநாயனப்பள்ளி, காட்டுர், தின்னூர், பெலவாத்தி, நந்திப்பள்ளம், சேகப்பள்ளி, வரட்டளப்பள்ளி, மேல்பூங்குருத்தி, கீழ் பூங்குருத்தி, கரியப்பன்கொட்டாய் போன்ற கிராம பகுதிகளில் உள்ள விலகாய நிலங்களில் நுழைந்து பயிர் சேதம் ஏற்படுத்தி மீண்டும் காப்புக்காட்டிற்கு செல்கின்றன என்ற விவரத்தினை அன்புடன் தெரிவித்துக்கொள்கிறேன்.

தங்கள் அன்புள்ள,
ஓம்-க. கார்த்திகேயனி,
வனஉயிரின காப்பாளர்,
ஓசூர் வனக்கோட்டம்.

//உ.ந.உய//


கண்காணிப்பாளர்

25
29/07/22



THIRU.DEEPAK S.BILGI, I.F.S.,
MEMBER SECRETARY

STATE LEVEL ENVIRONMENT IMPACT
ASSESSMENT AUTHORITY – TAMIL NADU
3rd Floor, Panagal Maaligai,
No.1, Jeenis Road, Saidapet,
Chennai-15.
Phone No. 044-24359973
Fax No. 044-24359975

TERMS OF REFERENCE (ToR)

Lr No. SEIAA-TN/F.No.10365/SEAC/ToR-1643/2023 dated:02.01.2024

To

M/s. Bismillah Export,
No. 125, Jagadevi,
Jagadevipalayam,
Krishnagiri District – 635 203



Sir/Madam,

Sub: SEIAA-TN – Terms of Reference with public hearing for the Proposed Grey Granite Quarry Project for Bismillah Export, Extent of 1.02.0Ha (Patta - Fresh) S.F.No.339/1 (Part) of Soolamalai Village, Bargur Taluk, Krishnagiri District by M/s. Bismillah Export – under project category – “B1” and Schedule S.No.1 (a) – ToR issued along with Public Hearing - preparation of EIA report – Regarding.

- Ref: 1. Online Application No SIA/TN/MIN/441454/2023, dt: 23/08/2023
2. Your application for Terms of Reference dated: 28.08.2023
3. Minutes of the 416th SEAC Meeting held on 13.10.2023
4. Minutes of the 670th authority meeting held on 06.11.2023.
5. The Project proponent has furnished reply Dt: 26.12.2023.
6. Minutes of the 685th authority meeting held on 02.01.2024

Kindly refer to your proposal submitted to the State Level Impact Assessment Authority for Terms of Reference.

The proponent, M/s. Bismillah Export has submitted application for Terms of Reference (ToR) with public Hearing, in Form-I, Pre- Feasibility report for the Proposed Grey Granite Quarry Project for Bismillah Export, Extent of 1.02.0Ha (Patta - Fresh) S.F.No.339/1 (Part) of Soolamalai Village, Bargur Taluk, Krishnagiri District, Tamil Nadu.


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Remarks by SEAC:

Proposed Grey Granite Quarry Project for Bismillah Export, Extent of 1.02.0Ha (Patta - Fresh) S.F.No.339/1 (Part) of Soolamalai Village, Bargur Taluk, Krishnagiri District by M/s. Bismillah Export - For Terms of Reference.

(SIA/TN/MIN/441454/2023, dt: 23/08/2023)

The proposal was placed in the 416th SEAC Meeting held on 13.10.2023. The details of the minutes are available in the website (parivesh.nic.in). **The SEAC noted the following:**

1. The project proponent, M/s. Bismillah Export has applied for Terms of Reference for the proposed **Grey Granite Quarry Project for Bismillah Export, Extent of 1.02.0Ha S.F.No.339/1 (Part) of Soolamalai Village, Bargur Taluk, Krishnagiri District, Tamil Nadu.**
2. The project/activity is covered under Category "BI" of Item 1(a) "Mining of Minerals Projects" of the Schedule to the EIA Notification, 2006.
3. As per the precise area communication the lease period is for 20 Years. The mining plan is for 5 Years. The Mineable reserve /production for 5 Years shall not to exceed 25840m³ of RoM & 9044.0m³ of Recovery (35 %) Grey granite & 16796.0m³ of Granite Waste (65%) and the ultimate depth up to 18m BGL.

Based on the presentation and details furnished by the project proponent, **SEAC decided to grant Terms of Reference (TOR) with Public Hearing** subject to the following TORs, in addition to the standard terms of reference for EIA study for non-coal mining projects and details issued by the MOEF & CC and **Annexure**, to be included in EIA/EMP Report:

- 1.The proponent shall furnish registered land deed/lease agreement for all the Survey nos. of the proposed mining lease area.
- 2.The structures within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m shall be enumerated with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places of worship, industries, factories, sheds, etc.
- 3.The Proponent shall provide a Controlled Blast design & Vibration Prediction for the structures located within 500 m from the lease boundary and any other sensitive structures.
- 4.The project proponent shall furnish details of photographs of adequate barbed fencing, greenbelt and garland drain around the boundary of the proposed quarry.


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5. The Proponent shall submit a conceptual 'Slope Stability Plan' for the proposed quarry during the appraisal while obtaining the EC, when the depth of the working is extended beyond 30 m below ground level.
6. The proponent shall furnish a revised EMP budget for entire life of proposed mining including progressive mine closure plan.

Annexure I

1. In the case of existing/operating mines, a letter obtained from the concerned AD (Mines) shall be submitted and it shall include the following:
 - (i) Original pit dimension
 - (ii) Quantity achieved Vs EC Approved Quantity
 - (iii) Balance Quantity as per Mineable Reserve calculated.
 - (iv) Mined out Depth as on date Vs EC Permitted depth
 - (v) Details of illegal/illicit mining
 - (vi) Violation in the quarry during the past working.
 - (vii) Quantity of material mined out outside the mine lease area
 - (viii) Condition of Safety zone/benches
 - (ix) Revised/Modified Mining Plan showing the benches of not exceeding 6 m height and ultimate depth of not exceeding 50m.
2. Details of habitations around the proposed mining area and latest VAO certificate regarding the location of habitations within 300m radius from the periphery of the site.
3. The proponent is requested to carry out a survey and enumerate on the structures located within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m (v) 500m shall be enumerated with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places of worship, industries, factories, sheds, etc with indicating the owner of the building, nature of construction, age of the building, number of residents, their profession and income, etc.
4. The PP shall submit a detailed hydrological report indicating the impact of proposed quarrying operations on the waterbodies like lake, water tanks, etc are located within 1 km of the proposed quarry.
5. The Proponent shall carry out Bio diversity study through reputed Institution and the same shall be included in EIA Report.


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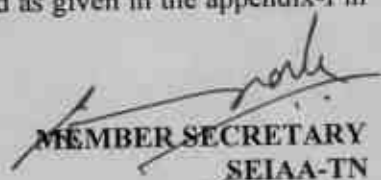
6. The DFO letter stating that the proximity distance of Reserve Forests, Protected Areas, Sanctuaries, Tiger reserve etc., up to a radius of 25 km from the proposed site.
7. In the case of proposed lease in an existing (or old) quarry where the benches are not formed (or) partially formed as per the approved Mining Plan, the Project Proponent (PP) shall the PP shall carry out the scientific studies to assess the slope stability of the working benches to be constructed and existing quarry wall, by involving any one of the reputed Research and Academic Institutions - CSIR-Central Institute of Mining & Fuel Research / Dhanbad, NIRM/Bangalore, Division of Geotechnical Engineering-IIT-Madras, NIT-Dept of Mining Engg, Surathkal, and Anna University Chennai-CEG Campus. The PP shall submit a copy of the aforesaid report indicating the stability status of the quarry wall and possible mitigation measures during the time of appraisal for obtaining the EC.
8. However, in case of the fresh/virgin quarries, the Proponent shall submit a conceptual 'Slope Stability Plan' for the proposed quarry during the appraisal while obtaining the EC, when the depth of the working is extended beyond 30 m below ground level.
9. The PP shall furnish the affidavit stating that the blasting operation in the proposed quarry is carried out by the statutory competent person as per the MMR 1961 such as blaster, mining mate, mine foreman, II/I Class mines manager appointed by the proponent.
10. The PP shall present a conceptual design for carrying out only controlled blasting operation involving line drilling and muffle blasting in the proposed quarry such that the blast-induced ground vibrations are controlled as well as no fly rock travel beyond 30 m from the blast site.
11. The EIA Coordinators shall obtain and furnish the details of quarry/quarries operated by the proponent in the past, either in the same location or elsewhere in the State with video and photographic evidences.
12. If the proponent has already carried out the mining activity in the proposed mining lease area after 15.01.2016, then the proponent shall furnish the following details from AD/DD, mines,
13. What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?
14. Quantity of minerals mined out.
 - Highest production achieved in any one year
 - Detail of approved depth of mining.


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- Actual depth of the mining achieved earlier.
 - Name of the person already mined in that leases area.
 - If EC and CTO already obtained, the copy of the same shall be submitted.
 - Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.
15. All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/Topo sheet, topographic sheet, geomorphology, lithology and geology of the mining lease area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).
 16. The PP shall carry out Drone video survey covering the cluster, green belt, fencing, etc.,
 17. The proponent shall furnish photographs of adequate fencing, green belt along the periphery including replantation of existing trees & safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan.
 18. The Project Proponent shall provide the details of mineral reserves and mineable reserves, planned production capacity, proposed working methodology with justifications, the anticipated impacts of the mining operations on the surrounding environment, and the remedial measures for the same.
 19. The Project Proponent shall provide the Organization chart indicating the appointment of various statutory officials and other competent persons to be appointed as per the provisions of the Mines Act'1952 and the MMR, 1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment.
 20. The Project Proponent shall conduct the hydro-geological study considering the contour map of the water table detailing the number of groundwater pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds, etc. within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD / TWAD so as to assess the impacts on the wells due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided.
 21. The proponent shall furnish the baseline data for the environmental and ecological parameters with regard to surface water/ground water quality, air quality, soil quality & flora/fauna including traffic/vehicular movement study.


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22. The Proponent shall carry out the Cumulative impact study due to mining operations carried out in the quarry specifically with reference to the specific environment in terms of soil health, biodiversity, air pollution, water pollution, climate change and flood control & health impacts. Accordingly, the Environment Management plan should be prepared keeping the concerned quarry and the surrounding habitations in the mind.
23. Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.
24. Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.
25. Details of the land for storage of Overburden/Waste Dumps (or) Rejects outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be provided.
26. Proximity to Areas declared as 'Critically Polluted' (or) the Project areas which attracts the court restrictions for mining operations, should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the TNPCB (or) Dept. of Geology and Mining should be secured and furnished to the effect that the proposed mining activities could be considered.
27. Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.
28. Impact on local transport infrastructure due to the Project should be indicated.
29. A tree survey study shall be carried out (nos., name of the species, age, diameter etc.,) both within the mining lease applied area & 300m buffer zone and its management during mining activity.
30. A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.
31. As a part of the study of flora and fauna around the vicinity of the proposed site, the EIA coordinator shall strive to educate the local students on the importance of preserving local flora and fauna by involving them in the study, wherever possible.
32. The purpose of Green belt around the project is to capture the fugitive emissions, carbon sequestration and to attenuate the noise generated, in addition to improving the aesthetics. A wide range of indigenous plant species should be planted as given in the appendix-I in


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- consultation with the DFO, State Agriculture University. The plant species with dense/moderate canopy of native origin should be chosen. Species of small/medium/tall trees alternating with shrubs should be planted in a mixed manner.
33. Taller/one year old Saplings raised in appropriate size of bags, preferably ecofriendly bags should be planted as per the advice of local forest authorities/botanist/Horticulturist with regard to site specific choices. The proponent shall earmark the greenbelt area with GPS coordinates all along the boundary of the project site with at least 3 meters wide and in between blocks in an organized manner
 34. A Disaster management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.
 35. A Risk Assessment and management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.
 36. Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.
 37. Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.
 38. The Socio-economic studies should be carried out within a 5 km buffer zone from the mining activity. Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.
 39. Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.
 40. Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.
 41. If any quarrying operations were carried out in the proposed quarrying site for which now the EC is sought, the Project Proponent shall furnish the detailed compliance to EC conditions given in the previous EC with the site photographs which shall duly be certified by MoEF&CC, Regional Office, Chennai (or) the concerned DEE/TNPCB.
 42. The PP shall prepare the EMP for the entire life of mine and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine.
 43. Concealing any factual information or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this Terms of Conditions besides attracting penal provisions in the Environment (Protection) Act, 1986.


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Appendix -I
List of Native Trees Suggested for Planting

No	Scientific Name	Tamil Name	Tamil Name
1	<i>Aegle marmelos</i>	Vilvam	வில்வம்
2	<i>Adenaanthera pavonina</i>	Manjadi	மஞ்சாடி, ஆனைக்குன்றிமணி
3	<i>Albizia lebbek</i>	Vaagai	வாகை
4	<i>Albizia amara</i>	Usil	உசில்
5	<i>Bauhinia purpurea</i>	Mantharai	மந்தாரை
6	<i>Bauhinia racemosa</i>	Aathi	ஆத்தி
7	<i>Bauhinia tomentos</i>	Iruvattu	இருவாத்தி
8	<i>Buchanania axillaris</i>	Kattuma	காட்டுமா
9	<i>Borassus flabellifer</i>	Panai	பனை
10	<i>Butea monosperma</i>	Murukkanaram	முருக்கமரம்
11	<i>Bobax ceiba</i>	Ilavu, Sevvilavu	இலவு
12	<i>Calophyllum inophyllum</i>	Punnai	புன்னை
13	<i>Cassia fistula</i>	Sarakondrai	சர்க்கொன்றை
14	<i>Cassia roxburghii</i>	Sengondrai	செங்கொன்றை
15	<i>Chloroxylon sweetenia</i>	Purasamaram	புரசு மரம்
16	<i>Cochlospermum religiosum</i>	Kongu, Manjallavu	கோங்கு, மஞ்சள் இலவு
17	<i>Cordia dichotoma</i>	Naruvuli	நருவுளி
18	<i>Creteva adansonii</i>	Mavalingum	மாவிலங்கம்
19	<i>Dillenia indica</i>	Uva, Uzha	உசா
20	<i>Dillenia pentagyna</i>	SiruUva, Sitruzha	சிறு உசா
21	<i>Diospyro sebenum</i>	Karungali	கருங்காலி
22	<i>Diospyro schloroxylon</i>	Vaganai	வாகனை
23	<i>Ficus amplissima</i>	Kalltchi	கல் இச்சி
24	<i>Hibiscus tiliaceou</i>	Aatrupoovarasu	ஆற்றுப்புலக
25	<i>Hardwickia binata</i>	Aacha	ஆச்சா
26	<i>Holoptelia integrifolia</i>	Aayili	ஆயா மரம், ஆயிலி
27	<i>Lannea coromandelica</i>	Odhiam	ஓதியம்
28	<i>Lagerstroemia speciosa</i>	Poo Marudhu	பூ மருது
29	<i>Lepisanthus tetraphylla</i>	Neikottainaram	நெய் கொட்டை மரம்
30	<i>Limonia acidissima</i>	Vila maram	வில்லா மரம்
31	<i>Litsea glutinos</i>	Pisinpattai	அரம்பா, பிசின்பட்டை
32	<i>Madhuca longifolia</i>	Illuppai	இலுப்பை
33	<i>Manilkara hexandra</i>	UlakkaiPaalai	உலக்கை பாலை
34	<i>Mimusops elengi</i>	Magizhamaram	மகிழ்மரம்
35	<i>Mitragyna parvifolia</i>	Kadambu	கடம்பு
36	<i>Morinda pubescens</i>	Nuna	நுணா
37	<i>Morinda citrifolia</i>	Vellai Nuna	வெள்ளை நுணா
38	<i>Phoenix sylvestre</i>	Eachai	நச்சுமரம்
39	<i>Pongamia pinnat</i>	Pungam	புங்கம்


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Remarks by SEIAA:

The SEAC in its 416th meeting held on 13.10.2023 furnished its recommendations for granting **Terms of Reference (ToR) along with Public Hearing** subject to the conditions stated therein.

In this connection, in the 670th authority meeting held on 06.11.2023 the Authority decided to defer and to call for additional particulars as follows

1. The proponent shall furnish registered land deed/lease agreement for all the Survey nos. of the proposed mining lease area.

In this connection, the PP has furnished reply Dt: 26.12.2023 and the proposal was placed in the 685th authority meeting held on 02.01.2024. SEAC after detailed discussion accepts the decision of SEAC and decided to grant **Terms of Reference (ToR) along with Public Hearing** under cluster for undertaking the combined Environment Impact Assessment Study and preparation of separate Environment Management Plan subject to the conditions as recommended by SEAC & normal conditions in addition to the conditions in '**Annexure B**' of this minute.

1. The project proponent shall prepare mine closure plan considering quantity of Topsoil & Weathered rock. If any.
2. The DFO letter stating that the proximity distance of Reserve Forests, Protected Areas, Sanctuaries, Tiger reserve etc., up to a radius of 25 km from the proposed site.

Annexure 'B'**Cluster Management Committee**

1. Cluster Management Committee shall be framed which must include all the proponents in the cluster as members including the existing as well as proposed quarry.
2. The members must coordinate among themselves for the effective implementation of EMP as committed including Green Belt Development, Water sprinkling, tree plantation, blasting etc.,
3. The List of members of the committee formed shall be submitted to AD/Mines before the execution of mining lease and the same shall be updated every year to the AD/Mines.
4. Detailed Operational Plan must be submitted which must include the blasting frequency with respect to the nearby quarry situated in the cluster, the usage of haul roads by the individual quarry in the form of route map and network.
5. The committee shall deliberate on risk management plan pertaining to the cluster in a holistic manner especially during natural calamities like intense rain and the mitigation measures considering the inundation of the cluster and evacuation plan.


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6. The Cluster Management Committee shall form Environmental Policy to practice sustainable mining in a scientific and systematic manner in accordance with the law. The role played by the committee in implementing the environmental policy devised shall be given in detail.
7. The committee shall furnish action plan regarding the restoration strategy with respect to the individual quarry falling under the cluster in a holistic manner.
8. The committee shall furnish the Emergency Management plan within the cluster.
9. The committee shall deliberate on the health of the workers/staff involved in the mining as well as the health of the public.
10. The committee shall furnish an action plan to achieve sustainable development goals with reference to water, sanitation & safety.
11. The committee shall furnish the fire safety and evacuation plan in the case of fire accidents.

Impact study of mining

12. Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area covering the entire mine lease period as per precise area communication order issued from reputed research institutions on the following
 - a) Soil health & soil biological, physical land chemical features.
 - b) Climate change leading to Droughts, Floods etc.
 - c) Pollution leading to release of Greenhouse gases (GHG), rise in Temperature, & Livelihood of the local people.
 - d) Possibilities of water contamination and impact on aquatic ecosystem health.
 - e) Agriculture, Forestry & Traditional practices.
 - f) Hydrothermal/Geothermal effect due to destruction in the Environment.
 - g) Bio-geochemical processes and its foot prints including environmental stress.
 - h) Sediment geochemistry in the surface streams.

Agriculture & Agro-Biodiversity

13. Impact on surrounding agricultural fields around the proposed mining Area.
14. Impact on soil flora & vegetation around the project site.
15. Details of type of vegetations including no. of trees & shrubs within the proposed mining area and. If so, transplantation of such vegetations all along the boundary of the proposed mining area shall committed mentioned in EMP.


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16. The Environmental Impact Assessment should study the biodiversity, the natural ecosystem, the soil micro flora, fauna and soil seed banks and suggest measures to maintain the natural Ecosystem.
17. Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.
18. The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands, Horticulture, Agriculture and livestock.

Forests

19. The project proponent shall detailed study on impact of mining on Reserve forests free ranging wildlife.
20. The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.
21. The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection.
22. The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site.

Water Environment

23. Hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) so as to assess the impacts on the nearby waterbodies due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided, covering the entire mine lease period.
24. Erosion Control measures.
25. Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area on the nearby Villages, Water-bodies/ Rivers, & any ecological fragile areas.
26. The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir.
27. The project proponent shall study and furnish the details on potential fragmentation impact on natural environment, by the activities.


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28. The project proponent shall study and furnish the impact on aquatic plants and animals in water bodies and possible scars on the landscape, damages to nearby caves, heritage site, and archaeological sites possible land form changes visual and aesthetic impacts.
29. The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components.
30. The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites.

Energy

31. The measures taken to control Noise, Air, Water, Dust Control and steps adopted to efficiently utilise the Energy shall be furnished.

Climate Change

32. The Environmental Impact Assessment shall study in detail the carbon emission and also suggest the measures to mitigate carbon emission including development of carbon sinks and temperature reduction including control of other emission and climate mitigation activities.
33. The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock.

Mine Closure Plan

34. Detailed Mine Closure Plan covering the entire mine lease period as per precise area communication order issued.

EMP

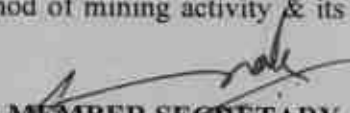
35. Detailed Environment Management Plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued.
36. The Environmental Impact Assessment should hold detailed study on EMP with budget for Green belt development and mine closure plan including disaster management plan.

Risk Assessment

37. To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining.

Disaster Management Plan

38. To furnish disaster management plan and disaster mitigation measures in regard to all aspects to avoid/reduce vulnerability to hazards & to cope with disaster/unfavorable accidents in & around the proposed mine lease area due to the proposed method of mining activity & its


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related activities covering the entire mine lease period as per precise area communication order issued.

Others

39. The project proponent shall furnish VAO certificate with reference to 300m radius regard to approved habitations, schools, Archaeological sites, Structures, railway lines, roads, water bodies such as streams, odai, vaari, canal, channel, river, lake pond, tank etc.
40. As per the MoEF& CC office memorandum F.No.22-65/2017-IA.III dated: 30.09.2020 and 20.10.2020 the proponent shall address the concerns raised during the public consultation and all the activities proposed shall be part of the Environment Management Plan.
41. The project proponent shall study and furnish the possible pollution due to plastic and microplastic on the environment. The ecological risks and impacts of plastic & microplastics on aquatic environment and fresh water systems due to activities, contemplated during mining may be investigated and reported.

A. STANDARD TERMS OF REFERENCE


- 1) Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification 1994 came into force, w.r.t. the highest production achieved prior to 1994.
- 2) A copy of the document in support of the fact that the Proponent is the rightful lessee of the mine should be given.
- 3) All documents including approved mine plan, EIA and Public Hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and should be in the name of the lessee.
- 4) All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/topo sheet, topographic sheet, geomorphology and geology of the area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).
- 5) Information should be provided in Survey of India Topo sheet in 1:50,000 scale indicating geological map of the area, geomorphology of land forms of the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics.
- 6) Details about the land proposed for mining activities should be given with information as to


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- whether mining conforms to the land use policy of the State; land diversion for mining should have approval from State land use board or the concerned authority.
- 7) It should be clearly stated whether the proponent Company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA Report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/ violation of the environmental or forest norms/ conditions? The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large, may also be detailed in the EIA Report.
 - 8) Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.
 - 9) The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc. should be for the life of the mine / lease period.
 - 10) Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.
 - 11) Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.
 - 12) Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area. In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees.
 - 13) Status of forestry clearance for the broken up area and virgin forestland involved in the Project


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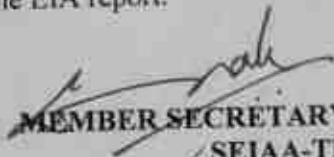

- including deposition of Net Present Value (NPV) and Compensatory Afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.
- 14) Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.
 - 15) The vegetation in the RF / PF areas in the study area, with necessary details, should be given.
 - 16) A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted.
 - 17) Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/ Elephant Reserves/(existing as well as proposed), if any, within 10 km of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished.
 - 18) A detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled-I fauna found in the study area, the necessary plan along with budgetary provisions for their conservation should be prepared in consultation with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost.
 - 19) Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravali Range', (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Department should be secured and furnished to the effect that the proposed mining activities could be considered.
 - 20) Similarly, for Coastal Projects, a CRZ map duly authenticated by one of the authorized agencies demarcating LTL, HTL, CRZ area, location of the mine lease with respect to CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management


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- Authority).
- 21) R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine lease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspects should be discussed in the Report.
 - 22) One season (non-monsoon) [i.e. March-May (Summer Season); October-December (post monsoon season) ; December-February (winter season)] primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.
 - 23) Air quality modeling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of Vehicles for transportation of mineral. The details of the model used and input parameters used for modeling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map.
 - 24) The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated.
 - 25) Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.
 - 26) Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.


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- 27) Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided.
- 28) Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter-alia, shall include details of the aquifers present and impact of mining activities on these aquifers. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.
- 29) Details of any stream, seasonal or otherwise, passing through the lease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be brought out.
- 30) Information on site elevation, working depth, groundwater table etc. Should be provided both in AMSL and bgl. A schematic diagram may also be provided for the same.
- 31) A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the Project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The details of plantation already done should be given. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution.
- 32) Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines.
- 33) Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.
- 34) Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report.


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- 35) Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.
- 36) Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.
- 37) Measures of socio economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.
- 38) Detailed Environmental Management Plan (EMP) to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project.
- 39) Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.
- 40) Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.
- 41) The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.
- 42) A Disaster management Plan shall be prepared and included in the EIA/EMP Report.
- 43) Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.
- 44) Besides the above, the below mentioned general points are also to be followed:-
 - a) Executive Summary of the EIA/EMP Report
 - b) All documents to be properly referenced with index and continuous page numbering.
 - c) Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated.
 - d) Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise etc. using the MoEF&CC/NABL accredited laboratories. All the original analysis/testing reports should be available during appraisal of the Project.



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- e) Where the documents provided are in a language other than English, an English translation should be provided.
- f) The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted.
- g) While preparing the EIA report, the instructions for the Proponents and instructions for the Consultants issued by MoEF&CC vide O.M. No. J-11013/41/2006-IA.II(I) dated 4th August, 2009, which are available on the website of this Ministry, should be followed.
- h) Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the PFR for securing the TOR) should be brought to the attention of MoEF&CC with reasons for such changes and permission should be sought, as the ToR may also have to be altered. Post Public Hearing changes in structure and content of the draft EIA/EMP (other than modifications arising out of the P.H. process) will entail conducting the PH again with the revised documentation.
- i) As per the circular no. J-11011/618/2010-IA.II(I) dated 30.5.2012, certified report of the status of compliance of the conditions stipulated in the Environment Clearance for the existing operations of the project, should be obtained from the Regional Office of Ministry of Environment, Forest and Climate Change, as may be applicable.
- j) The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and sections and (iii) sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area.

In addition to the above, the following shall be furnished:-

The Executive summary of the EIA/EMP report in about 8-10 pages should be prepared incorporating the information on following points:

1. Project name and location (Village, District, State, Industrial Estate (if applicable)).
2. Process description in brief, specifically indicating the gaseous emission, liquid effluent and solid and hazardous wastes.
3. Measures for mitigating the impact on the environment and mode of discharge or disposal.
4. Capital cost of the project, estimated time of completion.
5. The proponent shall furnish the contour map of the water table detailing the number of wells located around the site and impacts on the wells due to mining activity.
6. A detailed study of the lithology of the mining lease area shall be furnished.


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7. Details of village map, "A" register and FMB sketch shall be furnished.
8. Detailed mining closure plan for the proposed project approved by the Geology of Mining department shall be submitted along with EIA report.
9. Obtain a letter /certificate from the Assistant Director of Geology and Mining standing that there is no other Minerals/resources like sand in the quarrying area within the approved depth of mining and below depth of mining and the same shall be furnished in the EIA report.
10. EIA report should strictly follow the Environmental Impact Assessment Guidance Manual for Mining of Minerals published February 2010.
11. Detail plan on rehabilitation and reclamation carried out for the stabilization and restoration of the mined areas.
12. The EIA study report shall include the surrounding mining activity, if any.
13. Modeling study for Air, Water and noise shall be carried out in this field and incremental increase in the above study shall be substantiated with mitigation measures.
14. A study on the geological resources available shall be carried out and reported.
15. A specific study on agriculture & livelihood shall be carried out and reported.
16. Impact of soil erosion, soil physical chemical and biological property changes may be assumed.
17. Site selected for the project - Nature of land - Agricultural (single/double crop), barren, Govt./ private land, status of its acquisition, nearby (in 2-3 km.) water body, population, within 10km other industries, forest, eco-sensitive zones, accessibility, (note - in case of industrial estate this information may not be necessary)
18. Baseline environmental data - air quality, surface and ground water quality, soil characteristic, flora and fauna, socio-economic condition of the nearby population
19. Identification of hazards in handling, processing and storage of hazardous material and safety system provided to mitigate the risk.
20. Likely impact of the project on air, water, land, flora-fauna and nearby population
21. Emergency preparedness plan in case of natural or in plant emergencies
22. Issues raised during public hearing (if applicable) and response given
23. CER plan with proposed expenditure.
24. Occupational Health Measures
25. Post project monitoring plan
26. The project proponent shall carry out detailed hydro geological study through intuitions/NABET Accredited agencies.


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27. A detailed report on the green belt development already undertaken is to be furnished and also submit the proposal for green belt activities.
28. The proponent shall propose the suitable control measure to control the fugitive emissions during the operations of the mines.
29. A specific study should include impact on flora & fauna, disturbance to migratory pattern of animals.
30. Reserve funds should be earmarked for proper closure plan.
31. A detailed plan on plastic waste management shall be furnished. Further, the proponent should strictly comply with, Tamil Nadu Government Order (Ms) No.84 Environment and forests (EC.2) Department dated 25.06.2018 regarding ban on one time use and throw away plastics irrespective of thickness with effect from 01.01.2019 under Environment (Protection) Act, 1986. In this connection, the project proponent has to furnish the action plan.

Besides the above, the below mentioned general points should also be followed:-

- a. A note confirming compliance of the TOR, with cross referencing of the relevant sections / pages of the EIA report should be provided.
- b. All documents may be properly referenced with index, page numbers and continuous page numbering.
- c. Where data are presented in the report especially in tables, the period in which the data were collected and the sources should be indicated.
- d. While preparing the EIA report, the instructions for the proponents and instructions for the consultants issued by MoEF & CC vide O.M. No. J-11013/41/2006-IA.II (I) dated 4th August, 2009, which are available on the website of this Ministry should also be followed.
- e. The consultants involved in the preparation of EIA/EMP report after accreditation with Quality Council of India (QCI)/National Accreditation Board of Education and Training (NABET) would need to include a certificate in this regard in the EIA/EMP reports prepared by them and data provided by other organization/Laboratories including their status of approvals etc. In this regard circular no F. No.J -11013/77/2004-IA-II(I) dated 2nd December, 2009, 18th March 2010, 28th May 2010, 28th June 2010, 31st December 2010 & 30th September 2011 posted on the Ministry's website <http://www.moef.nic.in/> may be referred.
 - After preparing the EIA (as per the generic structure prescribed in Appendix-III of the EIA Notification, 2006) covering the above mentioned points, the proponent will


MEMBER SECRETARY
SEIAA-TN

take further necessary action for obtaining environmental clearance in accordance with the procedure prescribed under the EIA Notification, 2006.

- The final EIA report shall be submitted to the SEIAA, Tamil Nadu for obtaining Environmental Clearance.
- The TORs with public hearing prescribed shall be **valid for a period of three years** from the date of issue, for submission of the EIA/EMP report as per OMNo.J-11013/41/2006-IA-II(I)(part) dated 29th August, 2017.


MEMBER SECRETARY
SEIAA-TN

Copy to:

1. The Additional Chief Secretary to Government, Environment & Forests Department, Govt. of Tamil Nadu, Fort St. George, Chennai - 9
2. The Chairman, Central Pollution Control Board, Parivesh Bhavan, CBD Cum-Office Complex, East Arjun Nagar, New Delhi 110032.
3. The Member Secretary, Tamil Nadu Pollution Control Board, 76, Mount Salai, Guindy, Chennai-600 032.
4. The APCCF (C), Regional Office, MoEF & CC (SZ), 34, HEPC Building, 1st & 2nd Floor, Cathedral Garden Road, Nungambakkam, Chennai -34.
5. Monitoring Cell, IA Division, Ministry of Environment, Forests & CC, Paryavaran Bhavan, CGO Complex, New Delhi 110003
6. The District Collector, Krishnagiri District.
7. Stock File:

From
Dr. S.Vediappan, M.Sc.,Ph.D.,
Deputy Director,
Dept of Geology and Mining,
Krishnagiri.

To
M/s. Bismillah Export,
Prop: S. Salman,
125/1, Jagadevi,
Jagadevipalayam Post,
Bargur Taluk, Krishnagiri District.

Roc.No. 915/2022/Mines dated: .05.2023.

Sir,

Sub: Mines and Minerals – Krishnagiri District – Grey Granite – Bargur Taluk – Soolamalai Village S.F.No.339/1(P) over an extent of 1.02.0 Hect - Quarry lease application for Grey Granite preferred by M/s. Bismillah Export - Mining plan approved – Details of quarries situated within 500 mts radial distance – Requested by the lessee – Details furnished - reg.

- Ref:**
1. The District Collector, Krishnagiri Roc.No. 915/2022/Mines, dated: 21.10.2022.
 2. Mining plan approved by the Commissioner of Geology and Mining in letter No. 7258/MM4/2022 Dated: 26.05.2023.
 3. M/s. Bismillah Export, letter dated: 29.05.2023.

kind attention is invited to the reference cited.

2) M/s. Bismillah Export has preferred a quarry lease application for the grant of quarry lease for quarrying Grey Granite over an extent of 1.02.0 Hects in patta lands in S.F.No.339/1(P) of Soolamalai Village, Bargur Taluk, Krishnagiri District for a period of 20 years as per Rule 19A of Tamil Nadu Minor Mineral Concession Rules, 1959 vide in the reference 1st cited.

3) The Mining plan for the 1st five years which was approved by the Commissioner of Geology and Mining, vide letter dated: 26.05.2023.

4) In this connection, M/s. Bismillah Export has requested the details of quarries situated within 500mts for the subject quarry vide letter dated: 29.05.2023.

5) As requested by the lessee the details of quarries situated within 500m radius is furnished as follows:

i) **Details of Existing quarries**


Sl. No.	Name and Address of the Lessee	Village and Taluk	SF No (s).	Extent (in Hects.)	G.O No. and Date	Lease Period	Last Permit Obtained
1	H.S.Ravi	Soolamalai, Bargur Taluk	339/2	1.190	GO 3D No.30 Ind. (MMB3) Dept dt. 22.2.2006	27.03.2006 to 26.03.2026	19.10.2014
2	B.S.Ravi	Chendarapalli Bargur Taluk	369/2	2.46.5	GO 3D No.35 Ind. (MMB3) Dept dt. 16.09.2003	10.11.2003 to 09.11.2023	09.01.2017
3	D. Rukkammal	Soolamalai, Bargur Taluk	335/4A1	1.20.0	GO (3D) No. 34 Ind.(MME-2) Dept. Dt.03.10.2009	14.12.2009 to 13.12.2029	13.12.2013
4	Varalakshmi	Soolamalai, Bargur Taluk	335/4B, 341/4	1.08.5	G.O (3D) No 24 Industries (MME.2) Department Dated 16.04.2018	14.06.2018 to 13.06.2038	29.05.2023
5	M/s. TAMIN	Chendarapalli Bargur Taluk	176/1	15.23.5	G.O.Ms.No.32 Ind. Dept., dated: 15.06.2018	29.12.2018 to 28.12.2038	31.3.2020
6	B.K.Murali	Chendarapalli Bargur Taluk	382/5A etc.,	2.78.3	G.O.Ms.No.34 Ind. Dept., dated: 25.02.2011	28.02.2011 to 27.02.2031	25.10.2016
7	A.Sathar	Chendarapalli Bargur Taluk	375/2A etc.,	1.03.5	G.O.Ms.No.13 Ind. Dept., dated: 03.09.2013	07.10.2013 to 06.10.2033	09.03.2018
			Total	24.99.5			

ii) **Details of Expired/ Abandoned quarries**

Sl. No	Name of the Lessee and address	GO No & Date	Taluk & Village	S.F.No	Extent in Hectares	Period of lease
1.	M/s. TAMIN	G.O.Ms.No.237 Ind. Dept., dated: 17.03.1999	Chendarapalli Bargur Taluk	381	1.78.5	21.06.1999 to 20.06.2019

iii) **Details of other proposal / Applied quarries**

Sl.No	Name of the Lessee and address	GO No & Date	Taluk & Village	S.F.No.	Extent in Hectares	Period of lease
1	M/s.Bismillah Exports		Soolamalai, Bargur Taluk	339/1(P)	1.02.0	Instant Proposal Precies area given Mining Plan Approved
2	Thiru. Salman Sathar		Soolamalai, Bargur Taluk	341/1(P)	1.36.8	Precies area given Mining Plan Approved
3	M/s. TAMIN		Soolamalai, Bargur Taluk	283	34.35.5	Precies area given


 Deputy Director,
 Dept of Geology and Mining,
 Krishnagiri.

Copy to :-

The Chairman, Tamil Nadu State Environment
 Impact Assessment Authority,
 3rd Floor, Panakal Maligai,
 No. 1 Jeenes Road, Saidapet, Chennai -15.

சான்று

கிருஷ்ணகிரி மாவட்டம் பர்கூர் வட்டம் உள்ள வட்டம் சூலாமலை வருவாய் கிராமம் கிராம புல எண் 339/1(P) பரப்பு 1.02.0 இதில் M/S BISMILLAH EXPORTS என்பவர் குவாரி பணி குத்தகை செய்ய அரசிடம் விண்ணப்பித்துள்ளார். மேலும் இந்த குவாரியை சுற்றி 500 மீட்டர் சுற்றளவில் வீடுகள் வழிபாட்டுத்தலங்கள் மற்றும் புராதான சின்னங்கள் பள்ளிக்கூடம் ஆறுகள் மயாணம் எதுவும் இல்லை என சான்றளிக்கிறேன்.

ச.வி
கிராம நிர்வாக அலுவலர்
12, சூலாமலை
பர்கூர்-வட்டம்
கிருஷ்ணகிரி-மாவட்டம்.

COMMISSIONERATE OF GEOLOGY AND MINING

From

Thiru J.Jayakanthan, I.A.S.,
Commissioner of Geology and
Mining,
Industrial Estate,
Guindy,
Chennai - 600 032.

To

M/s. Bismillah Exports,
No.125, Jagadevi,
Jegadevipalayam,
Krishnagiri- 635 203.

Roc.No.7258/MM4/2022 Dated: .05.2023

Sir,

Sub: Mines and Minerals - Minor Mineral - Grey Granite-
Krishnagiri District - Bargur Taluk - Soolamalai Village
S.F.No.339/1(P) over an extent of 1.02.0 Hect - Quarry lease
application for Grey Granite preferred by M/s. Bismillah Export
- Precise area Communicated - Draft Mining Plan submitted for
approval- Recommended and forwarded by the Deputy Director
(G&M), Krishnagiri - Approval accorded.

- Ref:
1. Quarry lease application for Grey granite referred by M/s. Bismillah Export, No.125, Jagadevi, Jagadevipalayam, Krishnagiri, dated:06.06.2022.
 2. The District Collector, Krishnagiri letter Roc. No.915/2022/Mines dated :21.10.2022.
 3. The Commissioner of Geology Chennai, Lr No.7258/MM4/2022 dated:18.12.2022.
 4. The Additional Chief Secretary to Government, Industries Investment Promotion & Commerce (MME.2) Department Secretariat, Chennai-600 009 Letter No.3774007/MME-2/2022-1dated:17.04.2023.
 5. Draft Mining plan submitted by M/s. Bismillah Export, Dated :27.04.2023.
 6. Assistant Geologist (Mines), Krishnagiri report dated 13.05.2023.
 7. The Deputy Director (G&M), Krishnagiri Letter Rc.No.915/2022/Mines dated 15.05.2023.

-oOo-

Kind attention is invited to the references cited.

2) M/s. Bismillah Export has preferred a quarry lease application for the grant of quarry lease for quarrying grey granite over an extent of 1.02.0 Hect in patta land in S.F.No.339/1(P) in Soolamalai Village, Bargur Taluk, Krishnagiri District for a period of 20 years as per Rule 19A of Tamil Nadu Minor Mineral Concession Rules, 1959 vide in the reference 1st cited.

3) The above said quarry lease application has been recommended and forwarded to Government vide reference 3rd cited. The Government vide letter dated: 17.04.2023 has issued precise area communication over an extent of 1.02.0 hectares in patta land in S.F.No.339/1(P) in Soolamalai Village, Bargur Taluk, Krishnagiri District to furnish the approved Mining Plan and environmental clearance from the competent authority for the above said area. Accordingly, the applicant firm has submitted five copies of the draft mining plan for approval vide reference 5th cited.

4) The Deputy Director (G&M), Krishnagiri has forwarded the mining plan submitted by the applicant firm M/s. Bismillah Export and reported as follows.

- i. The draft Mining Plan submitted by M/s. Bismillah Export has been verified with reference to field conditions. The draft Mining Plan has been prepared by the Recognized Qualified person. The details such as Geological Reserves, Mineable Reserves, Year wise production and Development programme have been incorporated in the draft Mining Plan. The Special conditions imposed in the precise area communication are also incorporated in the draft mining plan.
- ii. The year wise production quantity mention in the mining plan is given as detailed below.

Year	Rom (m ³)	Recovery @ 35 % (m ³)	Granite Waste @ 65 % (m ³)
1 st Year	5100	1785.0	3315.0

2 nd year	5270	1844.5	3425.5
3 rd year	5220	1827.0	3393.0
4 th year	5160	1806.0	3354.0
5 th year	5090	1781.5	3308.5
Total	25840	9044.0	16796.0

- iii. The proposed rate of saleable production of Grey granite is around 1808 cbm per year and by considering the mineable reserves mentioned in the mining plan is 13797 cbm.
- iv. Further, other quarries situated within 500 mts radial distance are as follows.

a. Details of Existing quarries

Sl. No.	Name and Address of the Lessee	Village and Taluk	SF No (s).	Extent (in Hects.)	G.O No. and Date	Lease Period
1	B.S.Ravi	Soolamalai, Bargur Taluk	339/2	1.190	GO 3D No.30 Ind. (MMB3) Dept dt. 22.2.2006	27.03.2006 to 26.03.2026
2	B.S.Ravi	Chendarapalli Bargur Taluk	369/2	2.46.5	GO 3D No.35 Ind. (MMB3) Dept dt. 16.09.2003	10.11.2003 to 09.11.2023
3	D. Rukkammal	Soolamalai, Bargur Taluk	335/4A1	1.20.0	GO (3D) No. 34 Ind.(MME-2) Dept. Dt.03.10.2009	14.12.2009 to 13.12.2029
4	Varalakshmi	Soolamalai, Bargur Taluk	335/4B, 341/4	1.08.5	G.O (3D) No 24 Industries (MME.2) Department Dated 16.04.2018	14.06.2018 to 13.06.2038
5	M/s. TAMIN	Chendarapalli Bargur Taluk	176/1	15.23.5	G.O.Ms.No.32 Ind. Dept., dated: 15.06.2018	29.12.2018 to 28.12.2038
6	B.K.Murahi	Chendarapalli Bargur Taluk	382/5A etc.,	2.78.5	G.O.Ms.No.34 Ind. Dept., dated: 25.02.2011	28.02.2011 to 27.02.2031
7	A.Sathar	Chendarapalli Bargur Taluk	375/2A etc.,	1.03.5	G.O.Ms.No.13 Ind. Dept., dated: 03.09.2013	07.10.2013 to 06.10.2033
			Total	24.99.5		

b. Details of Expired/ Abandoned quarries

Sl. No	Name of the Lessee and address	GO No & Date	Taluk & Village	S.F. No	Extent in Hectares	Period of lease
1.	M/s. TAMIN	G.O.Ms.No.237 Ind. Dept., dated: 17.03.1999	Chendarapalli Bargur Taluk	381	1.78.5	21.06.1999 to 20.06.2019
Total					1.78.5	

c. Details of other proposal / Applied quarries

Sl. No	Name of the Lessee and address	GO No & Date	Taluk & Village	S.F.No.	Extent in Hectares	Period of lease
1	Thiru. Salman Sathar	-	Soolamalai, Bargur Taluk	341/1(P)	1.36.8	Instant Proposal (Precise area given)
2	M/s.Bismillah Exports	-	Soolamalai, Bargur Taluk	339/1(P)	1.02.0	(Precise area given)
3	M/s. TAMIN	-	Soolamalai, Bargur Taluk	283	34.35.5	(Precise area given)
Total					36.74.3	

- v. There are no archeological monuments situated within the radial distance of 300m from the subject area and no wild life sanctuary with in 1.0km radius satisfies Rule 36 (1-A) of amended Tamil Nadu Minor Mineral Concession Rules 1959.
- i. Finally, the Deputy Director, Geology and Mining, Krishnagiri has recommended and forwarded the draft Mining Plan submitted by the applicant firm M/s. Bismillah Export for approval, subject to the condition that the applicant firm should obtain prior environmental clearance from the competent authority.

5) The mining plan is in accordance with the precise area communicated for grant of lease to the subject area. Based on the recommendation of the Deputy Director (G&M), Krishnagiri district, the Mining plan submitted by M/s. Bismillah Export is hereby approved subject to the following conditions in addition to the conditions stipulated in the precise area communication issued by the Government:


- i. This mining plan is approved without prejudice to any other Law applicable to the quarry lease from time to time whether such Laws are made by the Central Government, State Government or any other authority.
- ii. The approval of the mining plan does not in any way imply the approval of the Government in terms of any other provisions of the Mines and Minerals (Development and Regulation) Act 1957, or any other connected laws including Forest (Conservation) Act, 1980, Forest Conservation Rules, 1981, Environment Protection Act, 1980, Indian Explosives Act, 1884 (Central Act IV of 1884) and the rules made there under and the Tamil Nadu Minor Mineral Concession Rules, 1959.
- iii. This mining plan including Progressive mine closure plan is approved without prejudice to any other order or direction from any court of competent jurisdiction.
- iv. Provisions of the Mines Act, 1952 and the Rules and Regulations made there under including submission of notice of opening, appointment of manager and other statutory officials as required under Mines Act, 1952 shall be complied with.
- v. Provisions made under Mines and Minerals (Development & Regulation) Act, 1957, MMDR Amendment Act, 2015 and Granite Conservation and Development Rules, 1999 made there under shall be complied with.

- vi. The applicant firm should provide 7.5 m safety distance to the adjacent patta lands in all the sides.
- vii. Granite waste materials should be dumped within the quarry lease area and should not be dumped outside the boundary of the lease area.
- viii. No hindrance should be caused to the adjacent pattadhars and public while quarrying and transportation of minerals from the subject area.
- ix. Environmental Clearance should be obtained from the authority in respect of the subject area as per rule 42 of the Tamil Nadu Minor Mineral Concession Rules, 1959 and as per the notification of the Ministry of Environment and Forest and any other clearances if any.
- x. The four boundaries of the applied area are fixed and the quarrying activity should be restricted within the area granted on lease.
- xi. The applicant firm should fence the lease granted area with barbed wire before the execution of lease deed as follows: -
 - The pillar post shall be firmly grounded with concrete foundation of height not less than 2mts with a distance between two pillars shall not be more than 3mts.
 - The applicant firm shall incorporate the DGPS readings for the entire boundary pillars of the area and the same should be clearly shown in the mining plan.
 - A soft copy of the digitized map with DGPS readings should be submitted in the CD to the Deputy Director (G&M), Krishnagiri.
- xii. Barbed wire fencing or Compound wall should be erected all along the boundary of the lease granted area.

- xiii. The applicant firm should ensure that while starting the quarry work, all the quarry workers working under their control are registered in the Labour Welfare Board and also enrolled in the ongoing insurance scheme.
- xiv. The conditions mentioned in G.O. (Ms) No.79, Industries (MMC.1) Department, dated 06.04.2015 should be complied with.
- xv. The applicant firm should comply with the conditions stipulated in the Government of India, Ministry of Mines order No.11/02/2020, dated 14.01.2020 issued as per the orders of the Hon'ble Supreme Court of India dated 08.01.2020 that, "the mining leaseholders shall after ceasing mining operations, undertake re-grassing the mining area and any other area which may have been disturbed due to this mining activities and restore the land to a condition which is fit for growth of fodders, flora and fauna etc."
- xvi. The applicant firm shall submit scheme of mining, mine closure plan and other statutory requirements within the time stipulated for submission of the above, as per rules.
- xvii. If any violation is found during quarrying operation, the penal provisions of the Tamil Nadu Minor Mineral Concession Rules, 1959 and other rules and act in force will attract.
- xviii. As per rule 12 (v) of the Mineral (other than Atomic and Hydro Carbons Energy Minerals) Concession Rules, 2016, the applicant firm shall at his own expense, erect, maintain and keep in repair all boundary pillars.
- xix. Quarrying activity should be carried out from 07.00 AM to 05.00 PM only.

- xx. A Green belt should be constructed to prevent sound and air pollution due to the proposed quarrying activity by planting at least 500 seedlings of Neem and Pungan all around the area.
- xxi. The applicant firm may use mild explosives during quarrying, and storing of explosives if required, by obtaining valid licence under Explosive Act and Rules.
- xxii. Child labour should not be engaged in the quarry works.
- xxiii. The applicant firm should carry out DGPS survey and erection of RCC boundary pillars as per the norms stipulated in the EOI notification in Rc.No.2921/MM4/2019 dated.01.02.2018 and subsequent corrigendum dated 13.08.2019 through the empanelled agencies.
- xxiv. The applicant firm should follow the mining method during the quarrying operation as mentioned in the mining plan.

Encl: Two copies of Approved Mining Plan


Commissioner of Geology and Mining
26/5/2023

Copy Submitted to:

The Additional Chief Secretary
to Government,
Industries, Investment Promotion
and Commerce Department,
Secretariat,
Chennai-600009.

Copy to:

1. The District Collector,
Krishnagiri District.

**MINING PLAN ALONG WITH
PROGRESSIVE QUARRY CLOSURE PLAN FOR
SOOLAMALAI GREY GRANITE**



(Under Rule 19A of TNMMCR 1959 & Rule 12, 13 & 16 of Granite
Conservation and Development Rules, 1999)

Patta Land / Lease Period: 20 Years

IN

LOCATION OF THE QUARRY LEASE APPLIED AREA

EXTENT : 1.02.0 HECTARES
S.F.No. : 339/1 (PART)
VILLAGE : SOOLAMALAI
TALUK : BARGUR
DISTRICT : KRISHNAGIRI
STATE : TAMIL NADU

FOR

APPLICANT

M/s. Bismillah Export,

No. 125, Jagadevi,

Jagadevipalayam,

Krishnagiri District,

Tamil Nadu State – 635 203.

PREPARED BY

Dr. M. Ifthikhar Ahmed, M.Sc., M.B.A., F.G.S., Ph.D.,

Recognised Qualified Person

RQP/MAS/183/2004/A

No.17, Advaita Ashram Road,

Alagapuram,

Salem District,

Tamil Nadu – 636 004.

+91 94422 78601 & 94433 56539.

E-mail: infogeoexploration@gmail.com



M/s. Bismillah Export,

No. 125, Jagadevi,
Jagadevipalayam,
Krishnagiri District,
Tamil Nadu State – 635 203.

CONSENT LETTER FROM APPLICANT

The Mining Plan along with Progressive Quarry Closure Plan in respect of Soolamalai Grey Granite over an extent of 1.02.0 Hectares of Patta lands in S.F.No. 339/1 (Part) of Soolamalai Village, Bargur Taluk, Krishnagiri District, Tamil Nadu State has been prepared by

Dr. M. IFTHIKHAR AHMED, M.Sc., M.B.A., F.G.S., Ph.D.,

Recognised Qualified Person

RQP/MAS/183/2004/A

I request the Commissioner, Department of Geology and Mining, Chennai to make further correspondence regarding the modification of the Mining Plan with the said Recognised Qualified Person at his following address:

Dr. M. IFTHIKHAR AHMED, M.Sc., M.B.A., F.G.S., Ph.D.,

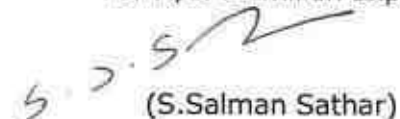
No.17, Advaita Ashram Road,
Alagapuram,
Salem – 636 004.

+91 94422 78601 & 94433 56539.

I hereby undertake that all the modifications, if any made in the mining plan by the Recognised Qualified Person may be deemed to have been made with my knowledge and consent and shall be acceptable to me and binding on me in all respects.

Signature of the applicant

For M/s. Bismillah Export


(S.Salman Sathar)
Managing Partner

Place: Krishnagiri

Date: 18.04.2023



M/s. Bismillah Export,

No. 125, Jagadevi,
Jagadevipalayam,
Krishnagiri District,
Tamil Nadu State - 635 203.

DECLARATION OF APPLICANT

The Mining Plan along with Progressive Quarry Closure Plan in respect of Soolamalai Grey Granite over an extent of 1.02.0 Hectares of Patta lands in S.F.No. 339/1 (Part) of Soolamalai Village, Bargur Taluk, Krishnagiri District, Tamil Nadu State has been prepared in full consultation with me by

Dr. M. IFTHIKHAR AHMED, M.Sc., M.B.A., F.G.S., Ph.D.,

Recognised Qualified Person
RQP/MAS/183/2004/A

I have understood its contents and agree to implement the same in accordance with Laws applicable to Mines.

Signature of the applicant

For M/s. Bismillah Export


(S.Salman Sathar)
Managing Partner

Place: Krishnagiri

Date: 18.04.2023



Dr. M. IFTHIKHAR AHMED, M.Sc., M.B.A., F.G.S., Ph.D.,

No.17, Advaita Ashram Road,

Alagapuram,

Salem - 636 004.

+91 94422 78601 & 94433 56539.

CERTIFICATE FROM THE RECOGNISED QUALIFIED PERSON

This is to certify that the Provisions of Granite Conservation and Development Rules, 1999 as amended in Tamil Nadu Minor Mineral Concession Rules, 1959 have been observed in the preparation of Mining Plan and Progressive Quarry Closure Plan for Soolamalai Grey Granite over an extent of 1.02.0 Hectares of Patta lands in S.F.No. 339/1 (Part) of Soolamalai Village, Bargur Taluk, Krishnagiri District, Tamil Nadu State has been prepared for

M/s. Bismillah Export,

No. 125, Jagadevi,

Jagadevipalayam,

Krishnagiri District,

Tamil Nadu State - 635 203.

Whenever specific permissions / exemptions / relaxations and approvals are required, the applicant will approach the concerned authorities of Commissioner of Geology and Mining, Government of Tamil Nadu, Guindy, Chennai- 600 032 for such permissions / exemptions / relaxations and approvals.

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

Signature of the Recognized Qualified Person

Dr. M. IFTHIKHAR AHMED, M.Sc., M.B.A., F.G.S., Ph.D.,

RQP/MAS/183/2004/A

Place: Salem

Date: 24.04.2023



Dr. M. IFTHIKHAR AHMED, M.Sc., M.B.A., F.G.S., Ph.D.,

No.17, Advaita Ashram Road,

Alagapuram,

Salem - 636 004.

+91 94422 78601 & 94433 56539.

CERTIFICATE FROM THE RECOGNISED QUALIFIED PERSON

Certified that the Provisions of Mines Act, Rules and Regulations made there under have been observed in the preparation of Mining Plan along with Progressive Quarry Closure Plan for Soolamalai Grey Granite over an extent of 1.02.0 Hectares of Patta lands in S.F.No. 339/1 (Part) of Soolamalai Village, Bargur Taluk, Krishnagiri District, Tamil Nadu State has been prepared for

M/s. Bismillah Export,

No. 125, Jagadevi,

Jagadevipalayam,

Krishnagiri District,

Tamil Nadu State - 635 203.

Whenever specific permissions/exemptions/ relaxations and approvals are required, the applicant will approach the concerned authorities of the Director of Mines Safety, No. 5, IInd Street, Block - AA, Anna Nagar, Chennai for such permissions / exemptions / relaxations and approvals.

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

Signature of the Recognized Qualified Person

Dr. M. IFTHIKHAR AHMED, M.Sc., M.B.A., F.G.S., Ph.D.,

RQP/MAS/183/2004/A

Place: Salem

Date: 24.04.2023



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MINING PLAN ALONG WITH PROGRESSIVE QUARRY CLOSURE PLAN FOR SOOLAMALAI GREY GRANITE

(Under Rule 19A of Tamil Nadu Minor Mineral Concession Rules, 1959 and 12, 13 and 16 of Granite Conservation and Development Rules, 1999)

1.0 INTRODUCTION

The present Mining Plan is prepared for quarry Grey Granite belonging to **M/s. Bismillah Export**, having an office at No. 125, Jagadevi, Jagadevipalayam, Krishnagiri District, Tamil Nadu State - 635 203, for which precise area communication has been granted as per Govt. letter No. **3774007/MME.2/2022-1, dated:17.04.2023** with the conditions to provide:-

1. A safety distance of 7.5m shall be maintained for the adjacent patta lands.
2. A safety distance of 10m shall be maintained for the Government land in S.F.No.283 situated on the western side of the applied area.
3. The quarrying operation should be restricted only in the area granted on lease.
4. Barbed wire fencing or compound wall should be erected all along the boundary of the lease granted area.
5. The waste materials generated during the course of quarrying should be dumped only within the lease hold area.
6. Environment clearance should be obtained from the competent authority in respect of the subject area as per rule 42 of Tamil Nadu Minor Mineral Concession Rules, 1959 and as per the notification of the Ministry of Environment and Forest and any other clearance if any.
7. A green belt should be constructed by planting trees along the boundary of the area to control air and noise pollution.
8. Quarrying activity should be carried out from 6.00 AM to 6.00 PM only.
9. If elephant crosses during the quarry operation, quarry should be stopped until the elephant migrates from the subject area.
10. Quarry operation should be carried out without hindrance to the adjacent lands.
11. Necessary contribution has to be given by the quarry owners to avoid migration of animals from the forest.
12. The applicant firm should fence the lease granted area with bared wire before the execution of lease deed as follows:
 - ❖ The pillar post shall be firmly grounded with concrete foundation of height not less than 2 meters and the distance between two pillars shall not be more than 3 meters.



- ❖ The applicant firm shall incorporate the DGPS readings for the entire boundary pillars of the area and the same should be clearly shown in the mining plan.
 - ❖ A soft copy of the digitalized map with DGPS readings should be submitted in the CD to the Deputy Director, Krishnagiri.
13. The conditions mentioned in G.O.(Ms).No.79, Industries (MMC.1) Department, Dated 06.04.2015 should be complied with.
 14. As per rule 12 (V) of Mineral (other than atomic and Hydro Carbons Energy Minerals) Concession Rules, 2016, the applicant firm shall at their own expenses erect, maintain and keep in repair all the boundary pillars.
 15. The applicant firm should comply with the additional conditions stipulated in the Government of India, Ministry of Mines order No.11/02/2020, dated 14.01.2020 issued as per the order of Hon'ble Supreme Court of India, dated 08.01.2020 that states "The mining lease holders shall after ceasing mining operations, undertake re-grassing the mining area and any other area which may have been disturbed due to this mining activities and restore the land to a condition which is fit for growth of fodder, flora and fauna, etc.,"
 16. The applicant firm should carry out DGPS survey and erection of RCC Boundary pillars as per the norms stipulated in the EOI notifications in Rc.No.2921/MM4/2019 dated.01.02.2018 and subsequent corrigendum dated 13.08.2019 before execution of quarry lease through the empaneled agencies.
 17. The applicant firm shall submit scheme of mining; mine closure plan and other statutory requirements within the time stipulated for submission of the above, as per rules.
 18. The applicant firm should use mild explosives during quarrying.
 19. Child labour should not be engaged in the quarry works.
 20. If any violation is found during quarrying operation, the penal provisions of the Tamil Nadu Minor Mineral Concession Rules, 1959 and other rules and act in force will attract.
 21. Quarrying shall be done as per the approved Mining plan and that the mining plan is approved without prejudice to any other law applicable to the quarry lease from time to time whether such laws are made by the Central Government, State Government or any other authority.
 22. All the quarry labour should be registered with the Labour Welfare Board of Government of Tamil Nadu and to be entrolled in Grant Insurance Scheme.

(Please refer Annexure -I)



The applicant ensures to comply all the condition stipulated by the Government before the execution of lease deed and during the course of quarrying operations.

This mining plan has been prepared by keeping and considering all the parameters stipulated by the Government of Tamil Nadu before and during the course of quarry operations.

The area applied for Grey granite quarry lease is over an extent of **1.02.0 Hectares** of Patta lands in **S.F.No. 339/1(Part)** of **Soolamalai Village, Bargur Taluk, Krishnagiri District**. It is patta lands, the land jointly registered in the name of Thiru.S.Salman and Tmt.S.Sheikseema vide patta No.2012 (Please refer Annexure No. IV to VI). Hence, the firm has got surface rights over the area applied for quarry lease.

The lease applied area is situated in flat terrain, the Grey granite is clearly visible right from the nearby existing quarry pit and other areas concealed under Reddish gravelly soil having an average thickness of 1m and 2m weathered rock totally overburden having an average thickness of 3m and followed by fresh Grey granite. Slender pegmatite veins, Joints, Cracks, segregation and color variation are common in this formation.

Diamond wire saw cutting method is being proposed to liberate granite dimensional stones from the parent granite body. Cutting into required size, removal of defective portions are done manually using feather and wedges. The dressing of blocks in to the required rectangular shaped dimensional stones are done manually by chiseling with experienced chisel men for the maximum recovery of defect free salable material. Marketing of these stones blocks to customers is being ensured by strict quality control measures adopted by the Company's marketing personnel.

2.0 GENERAL

2.1 NAME OF THE APPLICANT WITH ADDRESS

Name	:	M/s. Bismillah Export,
Address	:	No. 125, Jagadevi, Jagadevipalayam,
District	:	Krishnagiri
State	:	Tamil Nadu
Pin code	:	635 203
Phone	:	+91 95244 50667
E-mail ID	:	salman01@gmail.com.
Aadhaar No.	:	5130 7972 6350 (Refer annexure No. VIII).



2.2 STATUS OF THE APPLICANT

The applicant is a Partnership firm. The partnership deed has executed on 09.05.2022 under the Indian Partnership Act, 1932 with two partners. The details of partners are given table below (Refer annexure No. VII).

Table - 1

S.No.	Name	Designation
1	Thiru. S.Salman, S/o. Sathar.	Managing Partner
2	Tmt. S.Sheikseema, W/o. Abdul Aseeb.	Partner

Thiru. S.Salman (Managing Partner) is an authorized person for signing to this quarry lease related documents on behalf of the firm (Refer annexure Nos. VII).

2.3 MINERAL WHICH THE APPLICANT INTENDS TO MINE

The applicant intends to quarry **Grey Granite** dimensional stone.

2.4 NAME, REGISTRATION NUMBER AND ADDRESS OF THE RECOGNISED QUALIFIED PERSON WHO PREPARED THE MINING PLAN

Name : Dr. M. IFTHIKHAR AHMED, M.Sc., M.B.A., F.G.S., Ph.D.,
Recognised Qualified Person
RQP/MAS/183/2004/A

Valid Date : 10.01.2024

Address : No.17, Advaita Ashram Road
Alagapuram, Salem District
Tamil Nadu - 636 004

Mobile : +91 94433 56539 & 94422 78601

Telephone : 0427- 2431989 (Office)

E-mail ID : infogeoexploration@gmail.com

(Refer Annexure No. IX)

2.5 NAME AND ADDRESS OF THE PROSPECTING AGENCY

State Geology and Mining Dept, Govt. of Tamil Nadu, has carried out the Regional prospecting and exploration in these areas during 1992 to 1993.

Geological Survey of India has carried out detailed mapping of the commercial granite deposits of Tamil Nadu. Besides, the RQP and his team members made a detailed geological study of the area and demarcated clearly the Grey granite deposit with a mine surveyor. The granite formation is clearly visible right from the nearby existing quarry pits. No detailed prospecting carried out by any agencies.

Address of the prospecting Agency:

- (i) STATE GEOLOGICAL DEPARTMENT
O/o The Director of Geology and Mining
Thiru Ve Ka industrial Estate,
Guindy, Chennai - 32.

**2.6 DETAILS OF THE AREA**

- a. The area is marked in the Survey of India, Topo Sheet No. 57-L/07.
- b. The details of the land covered by the area is given below.

Table - 2

District and State	Taluk	Village	S.F.No.	Area in Ha.	Patta No.	Classification
Krishnagiri and Tamilnadu	Bargur	Soolamalai	339/1 (P)	1.02.0	2012	It is Patta Lands, classified as Punjai (Refer Annexure Nos. IV - VI).

The area lies between the Latitudes of 12°29'33.6345"N to 12°29'40.2216"N and Longitudes of 78°18'00.3456"E to 78°18'02.5405"E on WGS datum-1984. (Plate No. I & II).

2.7 WHETHER THE AREA RECORDED TO BE IN FOREST DEPARTMENT:

The area does not falls under forest land of any category. It is a patta land.

2.8 PERIOD FOR WHICH THE MINING AREA IS REQUIRED

Twenty years only.

2.9 INFRASTRUCTURE

The lease applied area is situated about 2km Northeast side of Soolamalai hamlet and 8km Southwest of Bargur town. (Please refer plate No- I and IA).

The nearest town is Bargur which is located about 8km Northeast side of the area, where all basic facilities like Hospital, Communication centre, Schools, Police Station and Bus terminus are available. The District head quarters and District Administrative Office are available in Krishnagiri located at 10km on the Northwest side of the area.

There is good approach road is already existence on the eastern side of the area, which is leads to Krishnagiri - Puduchery (NH-66) road located at 650m on the Southern side. There is no other patta lands are encountered for the haulage of Grey Granite (Please refer Plate No.I to ID).

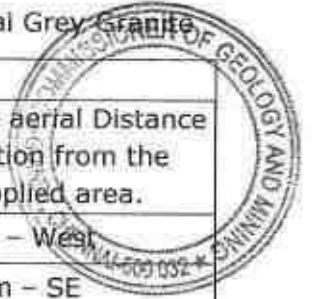


Table - 3

Particulars	Location	Approximate aerial Distance and Direction from the lease applied area.
Nearest Post Office	Anjur	1km - West
Nearest Dispensary	Jagadevipalayam	2km - SE
Nearest School	Jagadevipalayam	2km - SE
Nearest Police Station	Bargur	8km - NE
Nearest Hospital	Bargur	8km - NE
Nearest Town	Bargur	8km - NE
Nearest D.S.P. Office	Bargur	8km - NE
Nearest State Highway	Bargur - Krishnagiri (SH-131)	9km - NE
Nearest National Highway	Krishnagiri - Puduchery (NH-66)	1km - South
Nearest Railway Line	Tirupattur - Morappur	24km - SE
Nearest Railway Station	Tirupattur	28km - East
Nearest Airport	Bengaluru	94km - NW
Nearest Seaport	Chennai	226km - NE
District Head Quarters	Krishnagiri	10km - NW

There is no National Monuments, Places of Worship, Places of Public Interest and Permanent structures situated around 300m radius from the lease applied area.

WATER:

Packaged drinking water is available from the nearby water vendors in Bargur located at 8km on the Northeast side of the area, the ground water also potable without adverse any health effects. The water level is found to occur at a depth of 64m below from the ground level.

RIVER HEAD:

There is no major water body like River, Reservoir, Lake and Canal located within 50m radius of the area.

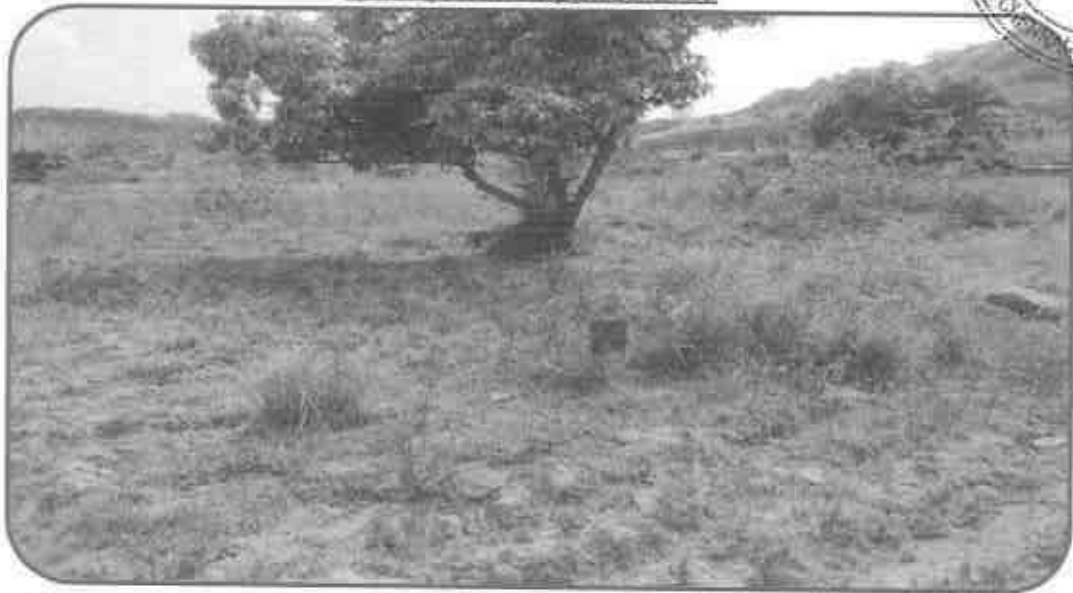
3.0 GEOLOGY AND RESERVES

3.1 PHYSIOGRAPHY

The area is situated in flat terrain. The gradient is gentle towards West and altitude of the area is 478m above from MSL. The Grey granite is clearly visible right from the nearby existing quarry pits and places are concealed under Reddish gravelly soil. The Grey Granite is medium to coarse grained with quartz and feldspar as major constituents, Pyroxene, Mica, Garnet and other mafic minerals are accessories. This gneissic formation is having wavy pattern of alternate layer of light and dark colour minerals which adds the aesthetic beauty for this rock. The water level is found to occur at a depth of 64m below from the ground level.



Topographical view of the Soolamalai Grey Granite quarry lease applied area



3.2 REGIONAL GEOLOGY & GEOLOGICAL SUCCESSION

The Grey Granite is medium to coarse grained in size. Orthoclase feldspar and quartz are major constituents and Pyroxene, Biotite, Garnets and other mafic minerals are accessories. The petrological settings of the area are simple and not a complicated phenomena. There are no major minerals observed in the vicinity of the proposed quarry. A brief description of the regional Geology is discussed below.

This Grey granite is commercially called as "**Paradiso**" and Petrologically called as "**Migmatite**" which is widely used for slabs, Tiles and Mounments after cutting and polishing. The Krishnagiri district is underlain by hard Crystalline rocks of Archaean age comprising of various rock types such as Gneiss, Charnockite, etc.,. The Gneissic type of Crystalline formation is found in the North and Northeastern part of the District. Shoolagiri, Hosur, mattur and soolamalal areas covered by Granitic Gneiss (Migmatite).

The Late Archean crust of Krishnagiri, Tamil Nadu, consists of tonalitic-trondhjemitic-granodioritic (TTG) gneisses with mafic and sedimentary enclaves, formed between 2.7 and 2.5 Ga and metamorphosed at amphibolite facies in the north to granulite facies in the south close to 2.5 Ga. Migmatization occurred at all grades, and numerous small granite bodies were emplaced near the amphibolite-to-granulite facies horizon. This nearly syn-accretion meta-morphism affected the entire crust and left a chemically differentiated section later exposed by uplift and erosion.

Such rocks that were formed at great depths during the Archaean age are now exposed at the surface of the earth as a result of the combined actions of wind, air, water, weathering and denudation over the past several million years.

The Grey granite has the characteristic pink rythmatic banding by which it can be identified even from a distance. These are seen to the central part and SE part of the district, more specifically in Rayakottai, Kaveripattinam, Jagadevi and Velampatti. These dimensional blocks are quarried to make a polished stone, slabs, monuments etc.,

3.2.1. Geology of the lease applied area

The Grey granite deposit is clearly visible right from the nearby existing pits and area are concealed under Reddish gravelly soil having an average thickness of 1m and 2m weathered rock and followed by fresh Grey granite. The rock formation is popularly known as Granitic gneiss essentially made up of a supra crustal assemblages of Quartz and Orthoclase feldspar as major constituents, Pyroxene, Mica, Garnet and other mafic minerals are accessories. The lease applied area comprises Granitic gneiss and popularly termed as "**Paradiso**".

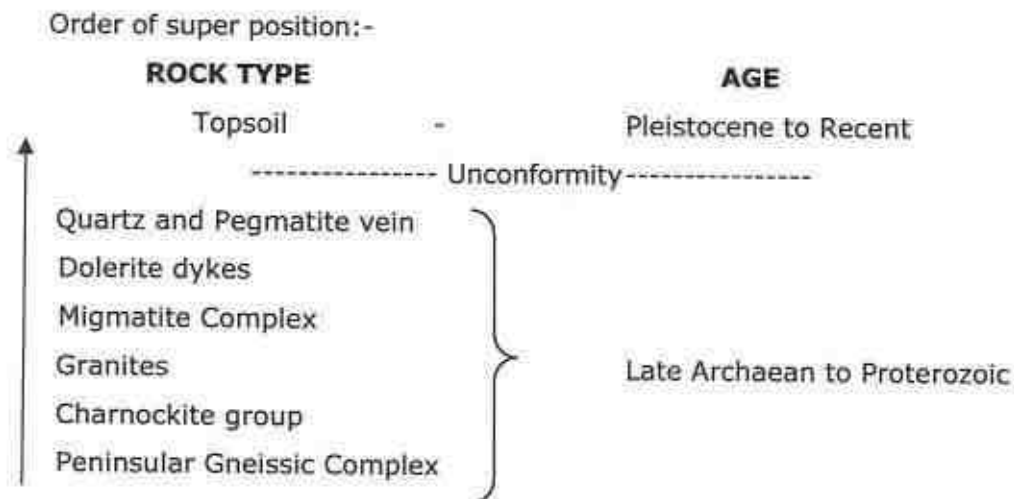
The Granite gneiss is leucocratic, euhedral, medium to coarse grained, inequigranular and well developed gneissic banding of alternate layers of light and dark colour minerals are the specialty of this area which denotes the indicative of flow pattern of the rock mass in North - South (i.e., the cutting direction of the Grey granite). The colour of the rock is pale pink - pale grey as observed on the surface level, the pink colour may

decreased in deep seated condition. This pale pink and grey colour which may find a good market for granite dimensional stones.

Some slender pegmatite veins are intruded in a crisscross fashion and well developed strike and dip joints and xenoliths observed at the surface level which is likely to decrease in deep seated condition. Taking in to consideration of the above geological factors, over burden, inter burden wastage during quarrying, other flaw and flower patches etc, an average recovery of 35% upto 18m (1m Topsoil + 2m Weathered rock + 15m Grey granite) depth has been computed as economically safe and systematic quarrying. This mining plan is discussed based on 35% recovery factor. If there is any considerable increase or decrease in the recovery factor a modified mining plan will be prepared and will be submitted to relevant authorities for subsequent clearance and approval.

STRUCTURAL SETTINGS OF KRISHNAGIRI:

The general geological sequence of the rock types in the area is:-



The Physical attitude of the Grey Granite deposit of this area is given below:-

Strike Direction	-	N60°E – S60°W
Dip amount and direction	-	SE60°.

3.3 DETAILS OF EXPLORATION

3.3.1. ALREADY CARRIED OUT

As far as Grey Granite deposits are concerned, the only practical method is the systematic geological mapping and delineation of commercial Grey Granite bodies within the field and careful evaluation of body luster, physical properties, engineering properties, commercial aspects etc.

Such an exploration study has already been conducted regionally in this area by the Geological Survey of India (GSI) in the year 1966 and Department of Geology and Mining of Tamil Nadu in year 1992 to 1993.

Based on the valuable geological information and by the field experience. The estimation of geological resources, mineable reserve is arrived at considering to waste and market potential.



3.3.2 PROPOSED STUDY TO BE CARRIED OUT

Even though the depth persistence of the Grey Granite stone may be beyond 18m from the Petrogenetic character of the rock, only 18m (1m Topsoil + 2m Weathered rock + 15m Grey Granite) depth persistent has been taken as economically viable (at present scenario considering for the entire lease Period) to calculate categories of proved, probable, and possible reserves.

The recovery of saleable Grey Granite stones has been taken as 35% and if the recovery percentage is good or bad, it may enhance or decrease respectively.

No definite programs for future exploration have been drawn. The quarrying activities for the next five years with deep cut as envisaged in the mining plan may render additional data as may be required for future planning. The total depth persistence and recovery percentage of commercial viable granite deposit will be discussed in the ensuing scheme period.

3.4 METHOD OF ESTIMATION OF RESERVES

The Geological plan demarcating the commercially marketable granite body has been prepared in 1:1000 Scale, totally Three sections have been drawn, one along the vertically as (X-Y) length wise and other two cross sections are drawn horizontally as (A-B and C-D) width wise, Which are suitably chosen to cover the maximum area, in the scale of 1:1000 (Refer Plate No. IV).

The cross sectional area for the proved depth persistence of 18m has been worked out for each section. The cross sectional area multiplied by its length x breadth x Depth gives the volume (insitu) in the area wise. The sum total of the insitu reserves available within the block gives the geological resources of the quarry lease applied area.

From the total geological insitu resources, the quantity of saleable granite stones, quantity of rejects and waste generation are computed by applying recovery factor as 35% by its volume. High efficient technology machineries, quarry masters, Market demand significantly determine the recovery percentage of granite quarries. The estimated recovery is based on today market scenario and the same recovery has been considered as normative recovery. When the market demands, the applicant may take necessary steps to deploy a quarry masters with latest innovative machineries technology. So the recovery enhancement may raise to the peak production resulting in 80%. During the operation the method of quarry, deployment of men and machineries will not have any negative impact on the Environment. It is worthening the recovery anticipate the normative production has been scientifically converted into commercial production resulting in the decrease dump of waste inside the quarry. Due to the micro fractures, flaws, patches, xenoliths, required dimension, dressing, etc., the recovery in the granite could not be 100% of the R.O.M

As the sale of Grey Granite stone are in terms of cubic metres (Volume) only and not in terms of tonnage as in the case of major industrial mineral, the geological resources, Mineable reserves and quantum of waste generated etc are given only in terms of cubic meters (Volume).



The details of estimation of geological resources and mineable reserves with reference to the geological plan & cross sections and conceptual plan and sections as shown in Plate No. IV and IX respectively has been furnished.

3.5 GEOLOGICAL RESOURCES AND GRADE:

Maximum Length : 200m
 Maximum Width : 59m
 Maximum Depth : 18m (3m over burden + 15m Grey Granite)

Table - 4

GEOLOGICAL RESOURCES - Granite							
Section	Bench	Length in (m)	Width in (m)	Depth in (m)	ROM (m ³)	Recovery @ 35% (m ³)	Granite Waste @ 65% (m ³)
XY-AB	iii	116	45	5	26100	9135	16965
	iv	116	45	5	26100	9135	16965
	v	116	45	5	26100	9135	16965
	Total				78300	27405	50895
XY-CD	iii	84	59	5	24780	8673	16107
	iv	84	59	5	24780	8673	16107
	v	84	59	5	24780	8673	16107
	Total				74340	26019	48321
Grand Total					152640	53424	99216

Table - 4A

GEOLOGICAL RESOURCES - Over burden						
Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Weathered Rock (m ³)	Topsoil (m ³)
XY-AB	i	116	45	1		5220
	ii	116	45	2	10440	
	Total				10440	5220
XY-CD	i	84	59	1		4956
	ii	84	59	2	9912	
	Total				9912	4956
Grand Total					20352	10176

Total Geological Resources in ROM	=	1,52,640m ³
Total Recoverable Resources @ 35%	=	53,424m ³
Granite waste @ 65%	=	99,216m ³
Weathered Rock	=	20,352m ³
Total Waste (Granite waste + Weathered)	=	1,19,568m ³
Topsoil	=	10,176m ³
Granite : waste ratio	=	1:2.4

The Geological resources computed based on the geological cross sections up to the economically workable depth of 18m below from the existing ground profile of the area at the rate of 35% recovery yields 53,424m³ and 1,52,640m³ of ROM. The total geological resources are computed as 18m (1m Topsoil + 2m Weathered Rock + 15m Granite) depth for economically viable at present market scenario.

**3.6 MINEABLE RESERVES AND GRADE:**

Maximum Length : 184m
 Maximum Width : 41m
 Maximum Depth : 18m

Table - 5

MINEABLE RESERVES - Granite							
Section	Bench	Length in (m)	Width in (m)	Depth in (m)	ROM (m ³)	Recovery @ 35% (m ³)	Granite Waste @ 65% (m ³)
XY-AB	iii	104	20	5	10400	3640	6760
	iv	88	10	5	4400	1540	2860
	Total				14800	5180	9620
XY-CD	iii	72	34	5	12240	4284	7956
	iv	67	24	5	8040	2814	5226
	v	62	14	5	4340	1519	2821
	Total				24620	8617	16003
Grand Total					39420	13797	25623

Table - 5A

MINEABLE RESERVES - Over burden						
Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Weathered Rock (m ³)	Topsoil (m ³)
XY-AB	i	108	27	1		2916
	ii	106	24	2	5088	
	Total				5088	2916
XY-CD	i	76	41	1		3116
	ii	74	38	2	5624	
	Total				5624	3116
Grand Total					10712	6032

Total Mineable Reserves ROM	=	39,420m ³
Total Mineable Recoverable Reserves @ 35%	=	13,797m ³
Granite waste @ 65%	=	25,623m ³
Weathered Rock	=	10,712m ³
Total Waste (Granite waste + Weathered)	=	36,335m ³
Topsoil	=	6,032m ³
Granite : waste ratio	=	1:2.6

Mineable reserves have been computed as 13,797m³ at the rate of 35% recovery and 39,420m³ of ROM upto a depth of 18m from the ground level. The mineable reserves are calculated by deducting the mineral locked up area under safety distance and bench loss. Hence the remaining area is taken for calculation of mineable reserves upto 18m depth.

The Grey Granite body occurring in this area exhibits more or less uniform colour and texture. If any variation occurs during quarrying, such as cracks, joints, patches, colour variations etc, the defective area will be removed. The formation is uniform and no gradational change is noticed except some shears and cracks.

**4.0 MINING**

Open cast semi mechanized mining with 5.0 meter vertical bench with a bench width of 5.0 meter is being proposed.

Under the regulation 106 (2) (b) of the Metallurgical Mines Regulation 1961, in all open cast mining, the bench height should not exceed, 5.0 meter and bench width should not be less than bench height of the vertically cut face.

But as far as the mining of granite dimension stones are concerned, observance of the provisions of Regulation 106(2) (b) is available with Director General of Mines Safety. If the applicant intends to modify the dimensions of benches, relaxation and permission are available with Director General of Mines Safety under 106 (2) (b) of Metalliferous Mines Regulations, 1961. In such a scenario if there is any drastic change in the Resources and Reserves a modified plan will be submitted to the concerned authority for necessary relaxation, clearance and permission. This relaxation will be applied and obtained after the execution of lease/Commencement of quarry operation.

The production of Grey Granite dimension stone in this quarry involves the following method which is typical for granite stone quarrying in contrast to other major mineral mining. Splitting of rock body of considerable volume from the parent rock formation by carefully avoiding visibly seen defects such as patches veins, etc., is done by adopting the method of "diamond wire cutting" along the horizontal as well as two vertical sides on the front face of the formation.

This liberation of huge volume of granite body from the parent sheet rock is called "primary cutting". This huge portion is further split in to several blocks of desirable dimensions. The blocks thus splitted are removed from the pit to the dressing yard, by using Crawler crane, for further dressing. Removing the defective portions and dressing them in to the dimension blocks are done manually using feather and wedges and chiseling respectively by the experienced skilled labours or by innovative machineries.

The defect free, dimensional stone of different sizes as approved in the market are thus produced by the method as described above, and the process is continuously monitored by applicant's experienced quality control personnel.

The waste material generated during quarrying activity includes rock fragments of different sizes, and also during dressing of the blocks. As and when there is accumulation of waste, the same is loaded into the tipper by loading machines and dumped in the respective places ear-marked for the purpose (Plate. No. VI). The quarried out topsoil will be preserved all along the safety zone and utilized for construction of bund and afforestation purpose.

**4.1 YEAR WISE DEVELOPMENT AND PRODUCTION FOR THE FIRST FIVE YEARS:**

Total Length = 86m

Maximum Width = 41m

Maximum Depth = 18m

Table - 6

YEARWISE PROPOSED PRODUCTION									
Section	Year	Bench	Length in (m)	Width in (m)	Depth in (m)	ROM (m ³)	Recovery @ 35% (m ³)	Granite Waste @ 65% (m ³)	
XY-CD	I	iii	30	34	5	5100	1785.0	3315.0	
	Total						5100	1785.0	3315.0
	II	iii	31	34	5	5270	1844.5	3425.5	
	Total						5270	1844.5	3425.5
	III	III		18	34	5	3060	1071.0	1989.0
		IV		18	24	5	2160	756.0	1404.0
	Total						5220	1827.0	3393.0
	IV	iv		43	24	5	5160	1806.0	3354.0
	Total						5160	1806.0	3354.0
	V	v		8	24	5	960	336.0	624.0
vi			59	14	5	4130	1445.5	2684.5	
Total						5090	1781.5	3308.5	
Grand Total						25840	9044.0	16796.0	

Table - 6A

YEARWISE DEVELOPMENT WORK							
Section	Year	Bench	Length in (m)	Width in (m)	Depth in (m)	Weathered Rock (m ³)	Topsoil (m ³)
XY-CD	I	i	37	41	1	-	1517
		ii	34	38	2	2584	-
	II	i	31	41	1	-	1271
		ii	31	38	2	2356	-
	III	i	18	41	1	-	738
		ii	18	38	2	1368	-
Grand Total						6308	3526

Total Proposed Reserves ROM = 25,840m³Total Year wise Recoverable Reserves @ 35% = 9,044m³Granite waste @ 65% = 16,796m³Weathered Rock = 6,308m³Total Waste (Granite waste + Weathered) = 23,104m³Topsoil = 3,526m³

Granite : waste ratio = 1:2.5

Estimated Life of QuarryTotal Mineable Recoverable Reserves @ 35% = 13,797m³Average Production per Year @ 35% = 9,044m³/5 = 1,808m³

Estimated Life of the Quarry = 20 years

The proposed year wise quantum of excavation and the details of estimation of production quantity and generation of waste are furnished with reference to the year wise development and production plan (Plate No.V).



The quarrying block is shown in such a way to meet out the average annual production. The average annual production per year would be $1,808\text{m}^3$ and $9,044\text{m}^3$ for the first five year plan period considering at the rate of 35% recovery. The balance mineable reserves of $4,753\text{m}^3$ ($13,797\text{m}^3 - 9,044\text{m}^3$) will be taken up during remaining lease period of 15 years, it will be discuss an ensuing scheme period. More details of the year wise production parameters are explained with bench length, width and height in Plate No. V.

4.2 PROPOSED RATE OF PRODUCTION WHEN THE MINE IS FULLY DEVELOPED.

The proposed rate of production where the quarry is fully developed is $1,808\text{m}^3$ per annum @ 35% recovery. The production schedule in the subsequent five years are drawn mainly in consideration of reserves position, market demand and the cost of production.

4.3 MINEABLE RESERVES AND ANTICIPATED LIFE OF QUARRY

The depth persistence of the formation will be beyond the economically workable depth. The method of extraction from the sheet rock is highly expensive affair at greater depths.

An optimum depth of 18m depth has been proposed as economically viable depth. Eventually this depth is the optimum for safe and scientific quarrying.

The mineable reserves are calculated by excluding the quarry loss due to formation of benches with suitable height & width upto ultimate depth of quarry and the mineral reserve held up within the safety distance all along the area boundary.

The Mineable Reserves for this Grey Granite quarry is thus arrived as **$13,797\text{m}^3$ @ 35% recovery** and **$39,420\text{m}^3$ of ROM** for an assumed **depth of 18m** below from the existing ground profile. The details of estimation of five years development Production plan (Plate no.V) is furnished.

The average rate of production of Grey Granite from this quarry is **$1,808\text{m}^3$ per year** and Mineable Reserves **$13,797\text{m}^3$** considering 35% recovery for the entire life of the quarry. The balance mineable reserves of $4,753\text{m}^3$ ($13,797\text{m}^3 - 9,044\text{m}^3$) will be taken up during remaining lease period of 15 years, it will be discuss an ensuing scheme period.

Based on the above, and taking into consideration of the available Mineable reserves, **the life of quarry will be about 20 years** (considering all the safety factors) at 35% recovery, if the quarry is being worked continuously with an average annual production of $1,808\text{m}^3$. This calculation is based on the plan approved by Director of Mines Safety leaving Benches and Safety barriers. If the annual production increases considerably and consistently a modified mining plan will be prepared under Granite Conservation and Development Rules 1999 the same will be submitted to the relevant authorities for subsequent clearance and approval.



4.3.1 CONCEPTUAL MINING PLAN

Conceptual mining plan is prepared with an object of long term systematic development of benches; lay outs, selection of permanent ultimate pit limit, depth of quarrying and ultimate pit, selection of sites for construction of infrastructure, etc.,

The ultimate pit size is designed based on certain practical parameters such as economical depth of quarrying, safety zones, permissible area, etc.,

The ultimate pit dimension of the quarry is given below.

ULTIMATE PIT DIMENSIONS

Table - 7

Maximum Dimensions in meters		
Length	Width	Depth
184	41	18

However, during extraction of blocks each bench will be of 5m height with vertical slope for proper dimension cutting. The quantum of excavation is estimated to be $56,164\text{m}^3$ (Rom $39,420\text{m}^3$ + Topsoil $6,032\text{m}^3$ + Weathered $10,712\text{m}^3$) to a depth of 18m. The generation of total waste is estimated about $36,335\text{m}^3$ (Granite Waste $25,623\text{m}^3$ + Weathered rock $10,712\text{m}^3$) and marketable Grey Granite as $13,797\text{m}^3$.

The excavated waste ($23,104\text{m}^3$) will be proposed to dump on the Northern side with dimension of (Area) 2430m^2 x (H)9.5m, which will act as temporary waste dump. After expiry of the lease period if the mineral reserves available and Market persist, the applicant may apply a renewal of quarry lease as to develop and conserve mineral reserves. If permission is granted for removal of waste from concerned authorities, the waste material (Granite Waste) will be supplied to the needy crusher for convert to the M-Sand, building and road construction material after paying the seniorage fee and obtained necessary clearance and approval from concerned department for handling the waste. After obtained permission for disposal of waste, the remaining unsold overburden (Topsoil and weathered rock) will be utilized for backfilling. When the entire mineral reserves will be completely exhausted if permission obtained for disposal of waste the quarried out pit will be allowed to collect seepage and rain water which will act as a temporary reservoir, if permission not obtained for handling of waste from the concerned authority, backfilling will be carried out nearly existing ground profile with entire waste material and spread out the preserved topsoil over the backfilled area to facilitate green belt development purpose.

The quarry area will be fenced with barbed wire fencing also safety bund constructed around the quarry to prevent inadvertent entry of public and cattle. (Please refer plate No. VI and IX).



4.4.0 METHOD OF MINING

4.4.1 OPEN CAST WORKING

In accordance with the Regulation 106 (2) (b) of the Metalliferous Mines Regulations 1961, in all open cast working where the ore body forms hard rock, the working faces and sides should be adequately benched and sloped; a bench height not exceeding 5m and a bench width not less than the bench height has to be maintained. The slope angle of such benches and sides should not exceed 60° from horizontal. However, observance of these statutory provisions in granite dimensional stone quarrying is seldom possible due to the field difficulties and technical reasons as below:

1. Recovery of the granite mineral is to be as undamaged rectangular dimensional blocks. In the attempt to form the benches and sides with the above statutory parameters haphazard blasting may be involved. In which case the commercial granite body may get spoiled inevitably due to generation of blasting cracks.
2. In the exercise of forming the benches with 60° slope within the granite deposit, the portion confined within the 60° as well as its complimentary part in the extricated block will become as mineral waste while shaping them into rectangular blocks.
3. The granite industry need blocks as huge as a few cubic meter volumes with measurements up to 3m x 2m x 2m. Production of such huge blocks with a moving bench of 5.0m height is not possible. Production of such huge blocks in turn increases the recovery and reduces the mineral waste during dressing. Blocks of smaller size of certain varieties of granite are now marketable and have a good commercial value.
4. Formation of too many benches with more height and the width equal to the height may lead to mineral lock up.

Hence, in order to avoid granite waste and to facilitate economical mining operations, it is proposed to obtain relaxation to the provisions of Regulation 106 (2) (b) upto a bench parameter of 5m height & 5m width with vertical faces. Such a provision of relaxation of the Regulation has been provided within the regulation 106 (2) (b). Further, it is to be note worthy that open cast granite quarrying operations with the above proposed bench parameters may not be detrimental to mines safety, since the entire terrain is made up of hard rock, compact sheet and possess high stability on slope even at higher vertical angles.

4.4.2 EXTENT OF MECHANIZATION

The following machineries are utilized for the development and production work at this quarry.

Table - 8

I. DRILLING AND CUTTING MACHINE

S.No.	Type	Nos	Dia Hole mm	Size Capacity	Make	Motive power
1	Jack hammer	4	32	1.2m to 6m	Atlas Copco	Compressed air
2	compressor	2	-	400psi	Atlas Copco	Diesel drive
3	Diamond Wire saw	1	-	20m ³ /day	Optima	Diesel Generator
4	Diesel Generator	1	-	125kva	Kirloskar	Diesel



Table - 9

II. LOADING EQUIPMENT

S.No.	Type	Nos	Capacity	Make	Motive Power
1	Crawler Crane	1	855	Tata P&H	Diesel Drive
2	Excavator	1	300	Tata Hitachi	Diesel Drive

III. HAULAGE WITHIN THE QUARRY & TRANSPORT EQUIPMENT

Table - 10

S.No.	Type	Nos	Capacity	Make	Motive Power
1	Tipper	2	10 tons	Tata	Diesel Drive

IV. TRANSPORT FROM THE QUARRY HEAD TO DESTINATION

Transportation from quarry head to customer destination is done by truck or by trailors.

V. MISCELLANEOUS:

Apart from the above the following tools and tackles are required for quarry operation.

For operation

The operation of granite quarry requires the following loose tools material and have to be kept sufficiently in stock for non - interruption of the quarry work.

1. Drill rods - 0.3m, 0.5m, 0.75m, 1.65m, 2.25m, 3m, 3.6m, 5m upto 9m.
2. Steel Alloy chains of sufficient length of 10m, 12m, 16m, 18m etc., sizes.
3. 'D' shackles to link the chain lengths.
4. Rubber hose of required length.
5. Hose clamps to link the compressor delivery hoses.
6. Feather and wedges of 6" and 12" dia sizes utilize for splitting the block from the mother rock. This is an important tool in the operation of a quarry.
7. Crow bars.
8. Spades.
9. Sludge Hammer
10. Iron Pans
11. Pitcher Hammer
12. Chisels.
13. Consumables, such as diesel, Hydraulic oil, grease, abrasive wheels, welding machines etc.
14. Stock of essential spare parts of machinery.
15. Explosive as per the licensed quantity
16. Besides diamond wire saw equipment and new innovative machine specifically for granite with accessories are required to liberate the rock from to parent body to minimize damage and to obtain good recovery.

Splitting the sheet rock by Diamond wire sawing which increases substantial recovery potential. Hence it is proposed to adopt "Diamond wire saw cutting" for best recovery.

The above machineries are adequate to meet out the development and production schedule drawn out in this mining plan.



5.0 BLASTING

During future development of quarrying, removal of rock mass will be done by mild blasting with explosives in holes drilled by Jack hammer of 32mm dia especially. No deep hole blasting is proposed.

Portable magazine 'M' type has been proposed to install in the ear marked places, and the Company is advised to get necessary license for storing explosives in the above area after the grant of quarry lease.

The explosive that will be used are D-Cord and Gelatin sticks which are indicated below.

D Cord - 5mg

Gelatin Sticks.

6.0 MINE DRAINAGE

The water table in this area is about 64m as observed in nearby bore wells. Quarry operations are confined to well above the water table. If water is encountered at due to rain water and seepage, the same will be drained out by 10HP motor pumps and the drained out water will be utilized for afforestation.

7.0 STACKING OF MINERAL WASTE AND DISPOSAL OF WASTE

a) Topsoil:

There is generation of topsoil is about 3,526m³ during the mining plan period. The excavated topsoil will be spread out all along the boundary barrier and utilized for green belt development purpose.

b) Granite waste and Land chosen for disposal of waste:

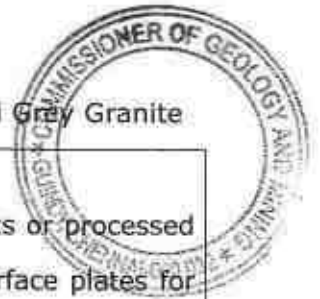
The total waste to be produced during the first five years is around 23,104m³ (Granite Waste 16,796m³ + Weathered rock 6,308m³) the same will be proposed to dump on the Northern side with dimension of (Area) 2430m² x (H)9.5m.

c) Manner of disposal of waste:

As and when there is accumulation of waste, the same is loaded into the tipper by loading machines and dumped in the respective places ear-marked for the purpose.

The waste management plan with reference to the quantum of waste generated is shown in quarry layout and Afforestation plan (Plate No.VI).

There is no slurry anticipated in the quarry operation. Besides the granite waste does not produce any toxic effluent in the form of solid, liquid or gas.



8.0 USE OF THE GRANITE

The quarried Grey Granite blocks are either exported as rough blocks or processed as value added products such as slabs, tiles, fancy items and, precision surface plates for construction and engineering application.

The export markets for the rock under discussion are for European Countries, North America, Middle East & Far East besides catering domestic demand.

9.0 QUALITY CONTROL

The Grey Granite deposit occurring in this quarry shows uniform quality throughout and hence quarried and marketed as a single variety.

The exploited blocks are carefully examined for any natural defects such as joints, cracks, xenoliths, secondary Pegmatitic growth etc and such defects is removed manually using feather and wedges and the blocks are then shaped into perfect rectangular dimensional stone blocks by chiseling. Different price for each quality material have been fixed and the entire production quantity is marketed accordingly.

10. SURFACE TRANSPORT

The mode of transport of the granite blocks produced and marketed is by road to various customer destinations and granite processing units located at different parts of the country. The Grey Granite blocks approved for export market are shipped from Chennai Port to various countries and if required the blocks may be shifted from Thoothukudi Port which depend upon the exporter's destination from time to time.

11. SITE SERVICES

The simple methods adopted and the limited scale of activities involved in granite dimensional stone quarrying does not require High Tension Electric Power supply or huge workshop facilities. The quarrying work is restricted to one general shift during day time only. Major Machinery repair works are attended at Krishnagiri town (10km-NW) and minor repairs are carried out by the Company's personnel at the quarry site itself.

Packaged drinking water is available from the water vender in Krishnagiri also from nearby company's borewell can be transported to the work site in tippers if neccassary, it will be supply after treatment through the water purifier. Quarry office, store room, toilet, first-aid room and, magazine will be provided on semi - permanent structures within the lease applied area (Plate No VI).



12. EMPLOYMENT POTENTIAL

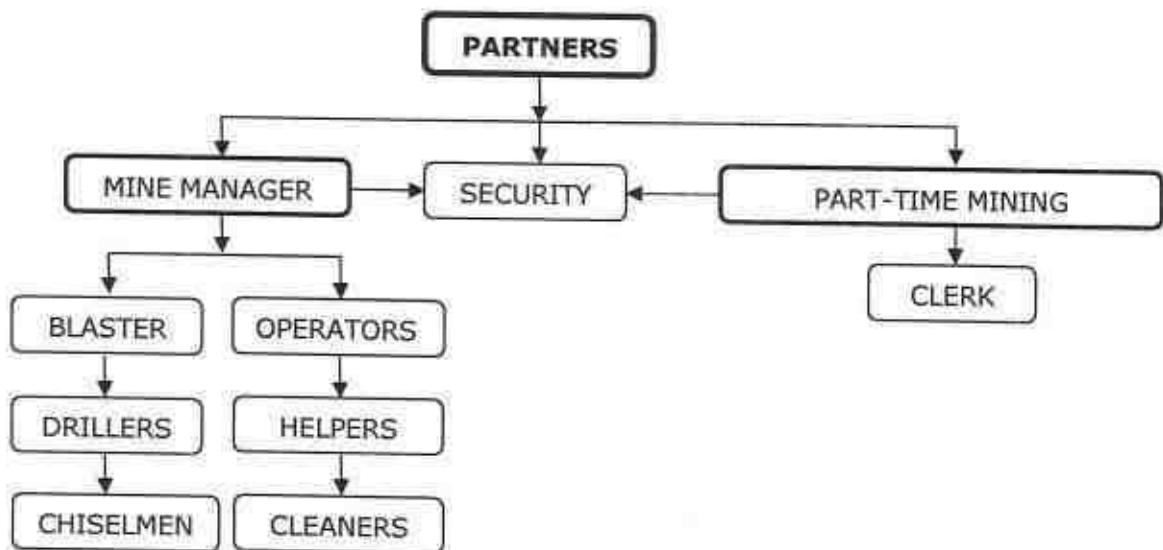
The following manpower for machineries as well as for operational activities are proposed to carry out the day-to-day quarrying activities aimed at the proposed production target and also to comply with the statutory provisions of the metalliferous mines regulations, 1961.

1. Mines manager (with valid statutory qualification) : 1
2. Mines foreman (with valid statutory qualification) : 1
3. Machinery operators (Certified) : 3

WORKERS:

- | | | |
|--------------|----------------|-------------|
| a. | Skilled labour | : 6 |
| b. | Semi-skilled | : 14 |
| c. | Unskilled | : 5 |
| Total | | : 30 |

ORGANIZATION CHART



The above manpower is adequate to meet out the production schedule and the machinery strength envisaged in the mining plan and to comply with the statutory provisions of the Mines Safety Regulations.



13.0 ENVIRONMENTAL MANAGEMENT PLAN:

13.1 BASELINE INFORMATION

The following observations are made for environmental management plan.

I. EXISTING LAND USE PATTERNS:

The area is situated in flat terrain. The gradient is gentle towards West side and altitude of the area is 478m above from MSL. The area is a dry barren land hence, the area didn't used for agricultural activity. The region experiences semi - humid climate and there is scanty growth of vegetation around the area (seasonal cultivation is mostly practiced).

Existing Land use pattern

Table - 11

Description	Area at present (ha)
Area under quarry	Nil
Waste dump	Nil
Infrastructure	Nil
Roads	Nil
Green Belt	Nil
Stocking blocks	1.02.0
Grand Total	1.02.0

II. WATER REGIME:

Ground water occurrence in this area is 64m depth below ground level. The quarry operation will be restricted to 18m below from the existing ground level, which is well above the water table; hence the quarry operation will not be affected by the ground water in any manner.

III. FLORA AND FAUNA:

The main crops are Garlic, Groundnut and there are Main floras of Neem, Cocos nucifera, Mango trees, Tamarind, Cactus, Calatropis, Shrub and thorny bushes are found around the area and Rat, rabbit, Squirrel, Cow, Goat and Crow faunas are found around the area. No plants of botanical interest or animals of zoological interest are recorded within 500m radius.

IV. CLIMATIC CONDITIONS:

The area receives an Normal rainfall of about 985mm/per annum and the rainy season is mainly from Oct - Jan during North East, monsoon. The summer is hot with maximum temperature of 42°C and winter encounters a minimum temperature of 18°C.



V. HUMAN SETTLEMENT:

There is no approved habitation / Village situated within 300m radius of the area.

There are few villages located within the 5km radius, approximate distance with direction & population are furnished below.

Table - 12

S.No.	Name of the Village	Direction	Approximate Distance	Approximate population
1.	Achamangalam	NE	4km	4200
2.	Jagadevipalayam	SE	2km	6800
3.	Chendrapalli	SW	1km	6500
4.	Soolamalal	NW	4km	2000

Basic human welfare amenities such as Health Center, Schools, Communication Facilities, and Commercial Centers etc are available at Krishnagiri which is located at a distance of 10km Northwest side of the area.

VI. PUBLIC BUILDINGS, MONUMENTS AND PLACES OF WORSHIPS:

There is no Public Building, Historical or National Monument or Place of Worship situated within 300m radius of the area.

VII. WHEATHER THE AREA FALLS UNDER NOTIFIED AREA UNDER WATER ACT, 1974.:

The area falls under notified area under water Act, 1974.

13.2 ENVIRONMENT IMPACT ASSESSMENT STATEMENT

The mining plan is proposed for very small production of granite dimensional stone without involving deep hole drilling and heavy blasting. Such limited quarrying activity is not likely to cause any impact adversely on environment as far as pollution of air, water and noise is concerned.



Table - 13

S. No.	Salient Features at Presently bounded the quarry site	Prescribed safety distance	If any present within prescribed distance its actual distance and direction from the site			
1.	Railways, Highways, Tank, Lake, Odai, Canal, Stream, River and Reservoir	50m	None of the above features located within 50m radius of the area (Please refer Plate No. IC).			
2.	Village Road	10m	There is No village road located within 10m radius (Please refer Plate No. IC).			
3.	Habitation / Village	300m	There is no approved habitation located within 300m radius of the area (Please refer Plate No. IC).			
4.	Adjacent Land Patta / Govt.	7.5m / 10m	Direction	S.F.No.	Classification	Safety Distance
			North	338	Patta land	7.5m
			East	339/1(P)	Patta land	7.5m
			South	339/2	Patta land	7.5m
			West	283	Govt. land	10m
(Please refer Plate No. II).						
5.	Housing area, EB line (HT & LT Line)	50m	There is no LT/HT line or Housing area located within 50m radius. (Please refer Plate No. IC and VIII).			
6.	Boundaries of the permitted area	7.5m	North - S.F.No. 338. East - S.F.No. 339/1 (P). South - S.F.No. 339/2. West - S.F.No. 283. (Please refer Plate No. II).			
7.	Public Building, Historical or National Monument	500m	There is no Public Building, Historical or National Monument situated within 500m radius of the area (Refer Plate No. IC).			
8.	Reserve forest	60m	There is no Reserved Forest situated within 60m radius of the area (Please refer Plate No. IA).			
9.	Protected area / ECO sensitive area/State or National border	10km	There is no Wildlife sanctuary/ Eco sensitive zone/ State border/ HACA/ CRZ/ Critically polluted area situated within 10km radius of the applied area (Refer Plate No. IA).			



Proposed Financial Estimate for Quarry and Environment Management (EMP).

Table - 14

A. Project Cost		
S.No.	Description	Approximate Cost (Rs.)
1.	Land Cost (As per Govt. Guideline value) 10,200m ² x Rs. 2,695/m ² = Rs. 2,74,89,500/- (source : https://tnreginet.gov.in/portal/)	2,74,89,000
2.	Labour Shed	2,50,000
3.	Sanitary Facility	80,000
4.	First aid Room and Accessories	50,000
5.	Excavator (1 Nos.)	56,00,000
6.	Crawler Crane (1 No.)	75,00,000
7.	Diesel Generator (1 No.)	7,50,000
8.	Tipper (2 Nos.)	50,00,000
9.	Wire Saw (1 No.)	4,00,000
10.	Compressor with loose tools (2 Nos.)	18,00,000
11.	Jack Hammer (4 Nos.)	2,00,000
12.	Drinking Water Facility	1,00,000
13.	Safety Kits	50,000
14.	Fencing Cost (490m length x Rs. 300/- per meter)	1,47,000
15.	Garland drain (260m length x Rs. 300/- per meter)	78,000
16.	Green belt development under safety zone during this scheme period (150 sapling x Rs. 200/- per sapling)	30,000
17.	Water sprinkling	1,00,000
Total Cost		4,96,24,000

B. Proposed financial estimate / budget for (EMP) Environmental Management Plan:

Budget Provision for the 5 year mining plan period

S. No.	Monitory and Analysis Description	Rate per location	No. of location	Total Charges/ six months	Total Charges/ year	Total Charges For Mining plan period
1	Ambient air quality monitoring	6500	4	26000	52000	2,60,000
2	Noise level monitoring	250	4	1000	2000	10,000
3	Ground vibration monitoring	1000	2	2000	4000	20,000
4	Water sampling and analysis	9000	1	9000	18000	90,000
Total EMP Cost/ year					76,000	3,80,000

The EMP cost for the 5 year mining plan period would be around **Rs. 3,80,000/-**



Total Cost of the Project including EMP Cost	
Description	Amount (Rs)
A. Project Cost	4,96,24,000
B. EMP Cost	3,80,000
Total Project Cost (A+B)	5,00,04,000
The applicant Indents to involve corporate Environment responsibilities (CER) activity like Water purifier, Fan, Cot and Bed facilities to the Jagadevipalayam Dispensary and Water purifier and Computer facilities to the Govt. School at 2.0% from the total project cost. The cost would be around Rs. 10,00,000/ .	10,00,000
Total Cost	5,10,04,000

(Total project cost including EMP cost is about rupees five crore ten lakh and four thousand only).

13.3.0 ENVIRONMENT MANAGEMENT PLAN

13.3.1 PROPOSAL FOR WASTE MANAGEMENT

The mine waste in the mine includes, rock fragments, rock chips, rubbles generated as mineral waste during production work.

The total waste to be produced during the mining plan (first five year) period will be around 23,104m³. The excavated waste will be proposed to dump on the Northern side with dimensions of (Area) 2430m² x (H) 9.5m.

The quarried out topsoil 3,526m³ will be preserved all along the safety zone and utilized for construction of bund and afforestation purpose.

The waste management plan with reference to the quantum of waste generated is shown in quarry layout plan (Please refer Plate No.VI).

13.3.2 PROPOSAL FOR RECLAMATION OF LAND AFFECTED BY MINING ACTIVITIES DURING & AT THE END OF MINING

Due to nature of occurrence of sheet rocks, the depth persistence of the Multi Colour Granite in this quarry is beyond the workable limits. In the proposed mining plan only 18m depth has been envisaged as workable depth for safe & economic quarrying for the entire lease period. After expiry of the lease period, if the mineral reserves available and Market persist, the applicant may apply a renewal of quarry lease as to develop and conserve mineral reserves. If permission is granted for removal of waste, the waste material will be supplied to needy crusher for building and road construction from concerned authorities after paying the seniorage fee and obtained necessary clearance and approval from concerned department for handling the waste. When the entire mineral reserves will be completely exhausted if permission obtained for disposal of waste the quarried out pit will be allowed to collect seepage and rain water which will act as a temporary reservoir, if permission not obtained for handling of waste from the concerned authority, backfilling will be carried out nearly existing ground profile with entire waste material and spread out the preserved topsoil over the backfilled area to facilitate green belt development purpose. The quarry area will be fenced with barbed wire fencing also safety bund constructed around the quarry to prevent inadvertent entry of public and cattle (Refer plate No. VII and IX).



13.3.3 PHASED PROGRAMME OF PLANTING TREES

It is proposed to plan 30 sapplings during every year an expecting survival at the rate of 80% which will work out 24 plants. The applicant ensure to maintaining the plantations not less than 500 plants at the end of life of quarry. The safety zone along the Western side lease boundary has been utilized for green belt development. Appropriate species of Neem, Pongamia pinnata, etc., trees will be planted in a phased manner as described below.

Table - 15

Year	No. of tress proposed to be planted	Area to be covered in m ²	Name of the species	Survival rate expected in %	No. of trees expected to be grown
I	30	241	Neem, Pongamia pinnata, etc.,	80	24
II	30	241		80	24
III	30	241		80	24
IV	30	241		80	24
V	30	245		80	24

Nearly 1,209m² area is proposed for afforestation by planting 30 Nos. of tree sapling during every year and expected growth is around 24 Nos. of trees at a survival rate of 80%. The afforestation plan is shown in Plate No.VI.

13.3.4 MEASURES FOR DUST SUPPRESSION:

As the granite stones are quarried as undamaged dimensional stones without involving deep hole drilling and heavy blasting, fragmentation and generation of lumps, fines or dust is negligible. This quantum of quarrying activity will not cause the dust detrimental to the health of the persons employed. Nevertheless, Mist water spray will be sprinkled for the suppression air borne dust from quarry approach roads waste dumps on regular intervals using water tankers. Drilling of blast holes of 32mm dia will be always under wet conditions to prevent flying of dusts. In the unloading points, water will be sprinkled through tippers to suppress dust. The drillers are provided with respirators in accordance with the Mines Safety Regulations.

13.3.5 MEASURES TO MINIMIZE GROUND VIBRATION DUE TO BLASTING AND CHECK NOISE POLLUTION

Shallow holes of 32 mm diameter will be drilled and conventional low explosives such as D-Cord and Gelatin sticks will be used for removal of over burden. Hence ground vibration and noise pollution will be minimal and restricted with the quarry workings. The blasting will be taken up at appointed timing and with sufficient caution to the public under the advice of qualified and competent personals. The noise produced by diamond wire saw cutting will be negligible.

13.3.6 STABILIZATION AND VEGETATION OF DUMPS

As the waste generation in the mine includes hard rock fragments of considerable size of irregular shape with varying angularity, the waste dump will be stable on its own even at higher slopes of the sides, besides excavated topsoil will be spread out and plantation will be carried out over and sides of the in-active waste dump for increasing the stability and to prevent erosion during rainy season.



14.0 PROGRESSIVE QUARRY CLOSURE PLAN:

14.1 Introduction

The Progressive Quarry Closure Plan for Grey Granite quarry lease applied area over an extent of 1.02.0 Hectares of Patta lands In S.F.No. 339/1(Part) of Soolamalal Village, Bargur Taluk, Krishnagiri District, Tamil Nadu State has been prepared for **M/s. Bismillah Export**, having an office at No. 125, Jagadevi, Jagadevipalayam, Krishnagiri District, Tamil Nadu State - 635 203.

14.2 Present Land use pattern:

Land Use Table - 16

Description	Present area in (Ha)
Area under Quarry	Nil
Dump	Nil
Infrastructure	Nil
Roads	Nil
Green Belt	Nil
Stocking Blocks	1.02.0
Grand Total	1.02.0

14.3 Mineral Processing Operations:

The quarried out Rough granite blocks are marketed by road to various customer destinations and granite processing units located at different parts of the country. The Grey Granite blocks approved for export market are shipped from Chennai Port to various countries and if required the blocks may be shifted from Thoothukudi Port which depend upon the exporter's destination from time to time. No Mineral processing is involved within the applied area.

14.4 Reasons for closure:

The mineral is not going to be exhausted during the proposed Mining Plan period hence, immediate closure is not planned due to sufficient reserves are available for the entire life of quarry. Hence, the reason for closure will be discussed an ensuing scheme period or in Final Mine Closure Plan.

14.5 Statutory obligations:

All the conditions stipulated in the Precise area communication letter was fulfilled and maintained during the course of quarry operations.

**14.6 Progressive quarry closure plan preparation:**

Name and address of the Recognised Qualified Person who prepared the progressive closure plan and name and address of the executing agency who is involved in the Preparation of progressive quarry closure plan.

Dr. M. IFTHIKHAR AHMED, M.Sc., M.B.A., F.G.S., Ph.D.,

Recognised Qualified Person

RQP/MAS/183/2004/A

No.17, Advaita Ashram Road,

Alagapuram, Salem-636 004.

Cell: +91 94433 56539, 94422 78601

The applicant will himself implement the closure plan; no outside agency will be involved.

14.7 Review of Implementation of Mining Plan including Progressive Closure Plan upto the Final Closure Plan:

The Mining Plan and Progressive quarry closure plan are being submitted for the first time. In the mining plan is discussed for Reclamation and Rehabilitation will be carried out only at the end of life of quarry. The Grey granite mineral reserves are available for the entire life of quarry. Hence, review of implementation of progressive quarry closure does not arise at present. However, if any work done for progressive quarry closure during this Mining Plan period, it will be discuss an ensuing Scheme period.

14.8 Closure Plan:**(i) Mined Out Land:**

At the end of mining plan period only 0.46.0Ha area will be utilized for quarry operation out of 0.66.5 Ha of total mineable area. When the remaining reserves will be completely exhausted, the mine closure plan will be prepared and submitted to the competent authority to obtain approval and the same will be implemented. Land use at various stages is given in the table below.

Land use pattern

Table - 17

Description	Present area (Ha)	Area to be required during the present Mining Plan period(ha)	Area at the end of life of quarry (Ha)
Area under quarry	Nil	0.35.83	0.62.14
Waste dump	Nil	0.24.30	#Backfilling
Infrastructure	Nil	0.02.00	0.02.00
Roads	Nil	0.02.00	0.02.00
Green Belt	Nil	0.12.09	0.35.80
Stocking blocks	1.02.0	0.25.78	0.00.06
Grand Total	1.02.0	1.02.0	1.02.00



Note: #If permission is granted for disposal of waste from the State Government, the quarried out topsoil materials will be utilized for backfilling. If permission not obtained for disposal of waste, backfilling will be carried out with waste and spread out the preserved topsoil to facilitate afforestation in the backfilled area.

(ii) Water quality management:

Following control measures will be adopted for controlling water pollution:-

- Garland drain will be Constructed around the quarry to prevent surface run-off rain water entering in to the quarry pit.
- Construction of check dams / gully plugs at strategic places to arrest silt wash off from broken up area.
- Collection of surface run-off from broken up area in mine pits for settling and only properly settled excess water from mine pit will be discharged to nearby users. The storm water/ mine water will be used for dust suppression, greenbelt development, etc.
- Periodic analysis of mine pit water and ground water quality in nearby villages.
- Domestic sewage from site office & urinals/latrines provided in QL is discharged in septic tank followed by soak pits.

(iii) Air Quality Management:

The proposed mining method is not likely to produce much of dust and fugitive emissions to cause damage to ambient air quality of the area. All personnel protective equipment like Nose-mask, earplug/ muffs will be provided to the Workers. For air pollution management at the progressive quarry closure plan, greenbelt will be developed to prevent and control air pollution.

(iv) Top Soil and Waste Management:

There is generation of topsoil is about 3,526m³ during the Mining Plan period. It will be preserved all along the safety barrier and utilized for construction of bund and green belt development purpose.

Total waste produced during the Mining Plan period will be around 23,104m³. The total waste material will be proposed to dump on the Northern side with maximum dimension of (Area) 2430m² x (Height) 9.5m. When the dump becomes inactive separately preserved topsoil will be spread out over and sides of the inactive waste dump and plantation will be carried out for increasing the stability also to prevent erosion during rainy season. If permission is granted for removal of waste from concerned authorities, the waste material (Granite Waste) will be supplied to the needy crusher for convert to the M-Sand, building and road construction material after paying the seniorage fee and obtained necessary clearance and approval from concerned department for handling the waste. After obtained permission for disposal of waste, the remaining unsold overburden (Topsoil and weathered rock) will be utilized for backfilling. When the entire mineral reserves will be completely exhausted if permission obtained for disposal of waste the quarried out pit will be allowed to collect seepage and rain water which will act as a temporary reservoir, if permission not obtained for handling of waste from the concerned authority, backfilling will be carried out nearly existing ground profile with entire waste material and spread out the preserved topsoil over the backfilled area to facilitate green belt development purpose.

**(v) Disposal of mining machinery:**

All the Machineries will be purchased by fresh condition and the same has been maintained in good condition during entire life of quarry. After completion of quarry operation all machineries will be utilized at another quarry area or sold out to the second hand. Hence, disposal or decommissioning of mining machinery does not arise.

(vi) Safety & Security:

Safety measures will be implemented to prevent access in the excavation area an un-authorized persons as per Mine Act 1952, MMR 1961.

- Safety measures will be implemented as per Mine Act 1952, MMR 1961, and Mines Rules 1955.
- Provisions of MMR 1961 shall be strictly followed and all roads shall be wider than the height of the bench or equal to the height of the bench and have a gradient of not more than 1 in 16.
- The bench height will be 5.0m.
- Width of working bench will be kept about 5.0m for ease of operations and provide sufficient room for the movement of equipments.
- Protective equipment like dust masks, ear-plugs/ muffs and other equipments shall be provided for use by the working personnel.
- Notices giving warning to prevent inadvertent entry of persons shall be displayed at all conspicuous places and in particular near mine entries. Sufficient caution and sign boards will be kept in and around the quarry to induct public for awareness.
- Blasting will be carried out in a specific time after giving sufficient caution to the public such as danger signs shall be displayed near the excavations and siren alarm signal will be provide before small amount of blasting time for precautionary action of accident (blasting is carried out only for secondary fragments and not to liberate the Granite body from the parent rock mass).
- Security guards will be posted to prevent inadvertent entry of public.
- In the event of temporary closer, approaches will be fenced off and notice displayed.

(vii) Disaster Management and Risk Assessment:

This should deal with action plan for high risk accidents like landslides, subsidence, flood, fire, seismic activities, tailing dam failures etc. and emergency plan proposed for quick evacuation, ameliorative measures to be taken etc. The capability of applicant to meet such eventualities and the assistance to be required from the local authorities should be described.

- The mechanized mining activities in the area may involve any high risk accident due to side falls/collapse.
- The complete mining operation will be carried out under the Management and control of experienced and qualified Mines Manager having Certificate of Competency to manage the mines granted by DGMS.
- All the provisions of Mines Act 1952, MMR 1961 and Mines Rules 1955, TNMMCR 1959 and other laws applicable to mine will be strictly complied with.
- During heavy rainfall the mining activities will be suspended.
- All persons in supervisory capacity will be provided with proper communication facilities.
- Competent persons will be provided FIRST AID kits which they will always carry.



(viii) Care and Maintenance during Temporary Discontinuance:

In case of any temporary discontinuance due to court order or due to statutory requirement or any other unforeseen circumstance following measures shall be taken for care, maintenance and monitoring of conditions.

- Notice of temporary discontinuance of work in mine shall be given to the DGMS as per the MMR 1961.
- All the mining machinery shall be shifted to a safe place.
- Entrance to the mine or part of the mine, to be discontinued shall be fenced off. Fencing shall be as per the circular 11/1959 from DGMS.
- Security Guards shall be posted for the safety and to prevent any unauthorized entry to the area.
- Carry out regular maintenance of the facilities/area detailed below in such a way as would have been done as if the mines were operation:

Mine roads and approach roads,

Fencing on approach roads,

Checking and maintenance of machines and equipment,

Drinking water arrangements,

Mine office, first aid stations etc.

- Competent persons shall inspect the area regularly.
- Air, water and other environmental monitoring shall be carried out as per CPCB Guideline.
- Care and upkeep of plantation shall be carried out on regular basis.
- Status of the working and status monitoring for re-opening of the mines shall be discussed daily.

In case of discontinuance due to any natural calamities/abnormal conditions, mining operation will be restarted as early as possible after completing rescue work, restoring safety and security, repairs of roads etc.

(ix) Economic Repercussion of Closure of Quarry and manpower Retrenchments:

The quarry Lease is granted for a period of twenty years only. As per the production Programme envisaged, there will be no effect on the man power as the majority of persons belong to nearby villages and will have an option either to be available for employment for the next contract/ lease or do the agriculture in their fields.

**(x) Time Scheduling For Abandonment:**

The lease applied area has enormous potential for continuance of operations even after expiry of the lease period. The details of time schedule of all abandonment will be given at the time of final closure plan.

(xi) Abandonment Cost:

As at present mining is not going to be closed so abandonment cost could not be assessed. However based on the progressive quarry closure activities during the plan period, cost is assessed as given below:

Table - 18

ACTIVITY	YEAR					RATE	AMOUNT (Rs.)
	I	II	III	IV	V		
Plantation (In Nos.)	30	30	30	30	30	@200 Rs Per sapling	30,000
Plantation (Safety zone) Cost	6,000	6,000	6,000	6,000	6,000	@300 Rs Per Meter	1,47,000
Barbed wire fencing (In Mtrs) 490 Mtrs	1,47,000	-	-	-	-	@300 Rs Per Meter	78,000
Garland drain (In Mtrs) 260 Mtrs	78,000	-	-	-	-	@300 Rs Per Meter	
TOTAL							2,55,000

15.0 MINERAL CONSERVATION AND DEVELOPMENT:

The mining plan proposed has fully covered all the aspects of Granite Conservation and development rules 1999, with a future plan to extend the proposed working of the quarry to the maximum possible workable depth of the deposit. Extreme care is taken to ensure proper supervision of quality control of the Granite dimensional stone aimed at the recovery of the maximum saleable quality and quantity of granite dimensional stones suitable for full utilization of the consumers.

Care is been taken for each process just to safeguard the material quarried in an economical and efficient manner by adopting systematic and scientific quarrying with the consultation and supervision of well experienced quarry persons.



16.0 STATUTORY PROVISIONS:

The provisions of the Mines Act, Rules and Regulations and orders made there under shall be complied with, so that the safety of the mine, machinery and person will be well protected. Permission, relaxation or exemption wherever required for the safe and scientific quarrying of the deposit will be obtained from the Department of Mines Safety, Chennai. Any violation pointed out by the inspecting authorities shall be rectified as per the guidelines of the department.

Certified that this Mining Plan has been Prepared in Accordance with the Mines Act, Rules and Regulations and orders made there under and also in Conformity with the Provisions Sub Rule (13) of Rule 19A of Tamil Nadu Minor Mineral Concession Rules, 1959, Rule 12,13,16 of Granite Conservation and Development rules 1999 and 13, 14 & 15 of Minerals (Other than Atomic and Hydro Carbons Energy Minerals) Concession Rules, 2016.

Prepared by

Dr. M. IFTHIKHAR AHMED, M.Sc., M.B.A., F.G.S., Ph.D.,
Recognised Qualified Person
RQP/MAS/183/2004/A

Place: Salem

Date: 24.03.2023

DONATE RED

SPREAD GREEN

SAVE BLUE

COMMISSIONER OF
GEOLOGY AND MINING,
GUINDY, CHENNAI-600 032.

This Mining Plan is Approved
Subject to the Conditions/ Stipulations
Indicated in the Mining Plan Approval.

Letter No. 17258/MM4/2022 Date 24/03/2023



ANNEXURE I



Industries, Investment Promotion and
Commerce (MME.2) Department,
Secretariat, Chennai-600 009.

Letter No.3774007/MME.2/2022-1, dated 17.04.2023

From
Thiru S. Krishnan, I.A.S.,
Additional Chief Secretary to Government.

To
M/s. Bismillah Export,
No.125, Jagadevi,
Jagadevipalayam,
Krishnagiri - 635 203.

Sir,

Sub: Industries, Investment Promotion and Commerce - Mines and Minerals - Grey Granite - Krishnagiri District - Bargur Taluk - Soolamalai Village - Over an extent of 1.02.0 hectares of Patta land in S.F.No.339/1(P) - Quarry Lease Application preferred by M/s. Bismillah Export - Precise Area Communicated - Approved mining Plan and Environmental Clearance - Called for.

- Ref:**
- 1 Your Quarry Lease Application dated 06.06.2022.
 - 2 From the District Collector, Krishnagiri File Roc. No.915/2022/Mines, dated 21.10.2022.
 - 3 From the Commissioner of Geology and Mining, File Rc. No.7258/MM4/2022, dated 18.12.2022.

I am directed to invite attention to the references second and third cited wherein the District Collector, Krishnagiri and the Commissioner of Geology and Mining, Chennai have recommended and forwarded your quarry lease application for grant of quarry lease for quarrying of Grey Granite over an extent of 1.02.0 hectares of Patta land in S.F.No.339/1(P) of Soolamalai Village, Bargur Taluk, Krishnagiri District for a period of 20 years under rule 19-A of the Tamil Nadu Minor Mineral Concession Rules, 1959.

2. The Government carefully examined the recommendations of the District Collector, Krishnagiri and the Commissioner of Geology and Mining to communicate precise area for the extent of 1.02.0 hectares of Patta land in S.F.No.339/1(P) of Soolamalai Village, Bargur Taluk, Krishnagiri District



and accordingly, the Government hereby communicate the above area as precise area under sub-rule (13) of Rule 19-A of the Tamil Nadu Minor Mineral Concession Rules, 1959 for grant of lease.

3. I, therefore, request you to furnish the Approved Mining Plan for the above mentioned Precise Area through the Commissioner of Geology and Mining within a period of 3 months as per sub-rule (13) of Rule 19-A of the Tamil Nadu Minor Mineral Concession Rules, 1959 and to produce Environmental Clearance obtained from the competent authority for the above said area for grant of quarry lease for a period of 20 years subject to the following conditions:-

- (1) A safety distance of 7.5 m shall be maintained for the adjacent patta lands.
- (2) A safety distance of 10 m shall be maintained for the Government land in S.F.No.283 situated on the western side of the applied area.
- (3) The quarrying operation should be restricted only in the area granted on lease.
- (4) Barbed wire fencing or compound wall should be erected all along the boundary of the lease granted area.
- (5) The waste materials generated during the course of quarrying should be dumped only within the lease hold area.
- (6) Environment Clearance should be obtained from the competent authority in respect of the subject area as per rule 42 of Tamil Nadu Minor Mineral Concession Rules, 1959 and as per the notification of the Ministry of Environment and Forest and any other clearances if any.
- (7) A green belt should be constructed by planting trees along the boundary of the area to control air and noise pollution.
- (8) Quarrying activity should be carried out from 6.00 AM to 6.00 PM only.
- (9) If elephant crosses during the quarry operation, Quarry should be stopped until the elephant migrates from the subject area.
- (10) Quarry operation should be carried out without hindrance to the adjacent lands.
- (11) Necessary contribution has to be given by the quarry owners to avoid migration of animals from the forest.



- (12) The applicant firm should fence the lease granted area with barbed wire before the execution of lease deed as follows:
- ❖ The pillar post shall be firmly grounded with concrete foundation of height not less than 2 meters with a distance between two pillars shall not be more than 3 meters.
 - ❖ The applicant firm shall incorporate the DGPS readings for the entire boundary Pillars of the area and the same should be clearly shown in the mining plan.
 - ❖ A soft copy of the digitized map with DGPS readings should be submitted in the CD to the Deputy Director, Krishnagiri.
- (13) The conditions mentioned in G.O. (Ms).No.79, Industries (MMC.1) Department, dated 06.04.2015 should be complied with.
- (14) As per rule 12 (V) of Mineral (other than Atomic and Hydro Carbons Energy Minerals) Concession Rules, 2016, the applicant firm shall at their own expenses erect, maintain and keep in repair all the boundary pillars.
- (15) The applicant firm should comply with the additional conditions stipulated in the Government of India, Ministry of Mines order No.11/02/2020, dated 14.01.2020 issued as per the order of Hon'ble Supreme Court of India, dated 08.01.2020 that states "The mining lease holders shall after ceasing mining operations, under take re-grassing the mining area and any other area which may have been disturbed due to this mining activities and restore the land to a condition which is fit for growth of fodder, flora and fauna etc.,"
- (16) The applicant firm should carry out DGPS survey and erection of RCC boundary pillars as per the norms stipulated in the EOI notifications in Rc.No.2921/ MM4/ 2019 dated. 01.02.2018 and subsequent corrigendum dated 13.08.2019 before execution of quarry lease through the empanelled agencies.
- (17) The applicant firm shall submit scheme of mining; mine closure plan and other statutory requirements within the time stipulated for submission of the above, as per rules.
- (18) The applicant firm should use mild explosives during quarrying.
- (19) Child labour should not be engaged in the quarry works.
- (20) If any violation is found during quarrying operation, the penal provisions of the Tamil Nadu Minor Mineral Concession Rules, 1959 and other rules and act in force will attract.



- (21) Quarrying shall be done as per the approved Mining Plan and that the mining plan is approved without prejudice to any other law applicable to the quarry lease from time to time whether such laws are made by the Central Government, State Government or any other authority.
- (22) All the quarry Labour should be registered with the Labour Welfare Board of Government of Tamil Nadu and to be enrolled in the Grant Insurance Scheme.

4. The District Collector, Krishnagiri is instructed to obtain a sworn-in-affidavit from the applicant firm containing the above conditions before execution of lease deed and also ensure that the instructions issued in Government Letter No.12789/MMB.2/2002-7, Industries Department, dated 09.01.2003 are complied with.

Yours faithfully,

சு. ச. சுவாமிநாதன்
17/04/2023

for Additional Chief Secretary to Government

சு. ச.
17/4/2023

Copy to:

The Commissioner of Geology and Mining,
Guindy, Chennai - 600 032.

The District Collector,
Krishnagiri.



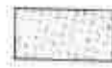
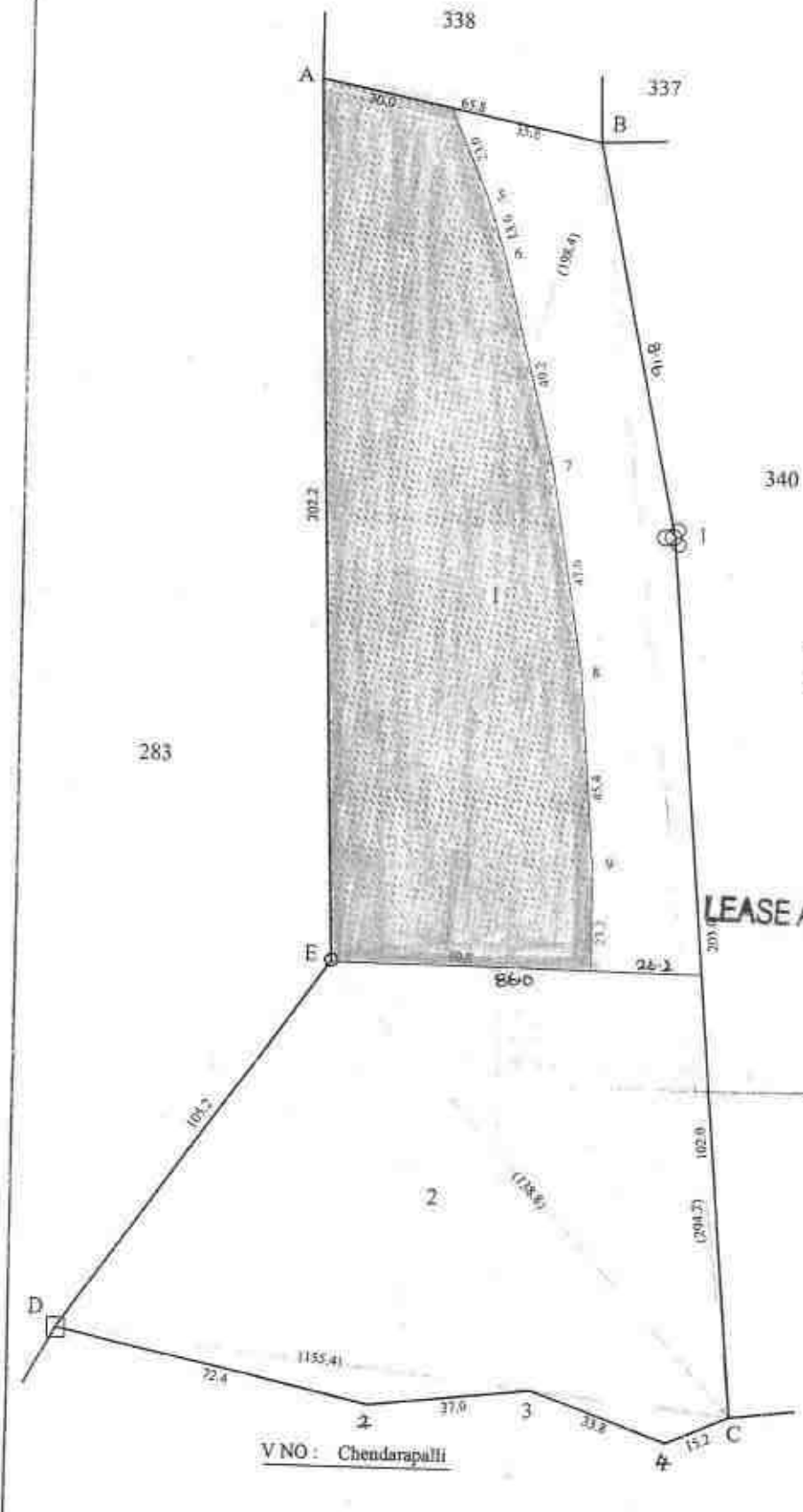
District - Krishnagiri

Taluk - Barugur

Survey No - 339

Village No

Name - Soolam
Extent : Hect : 2 Acre : 74.50



Lease Area

Survey No : 339 / 1 (Part)
Area : 1.02.00 Hectare
2.52 Acre / Cents

LEASE APPLIED AREA

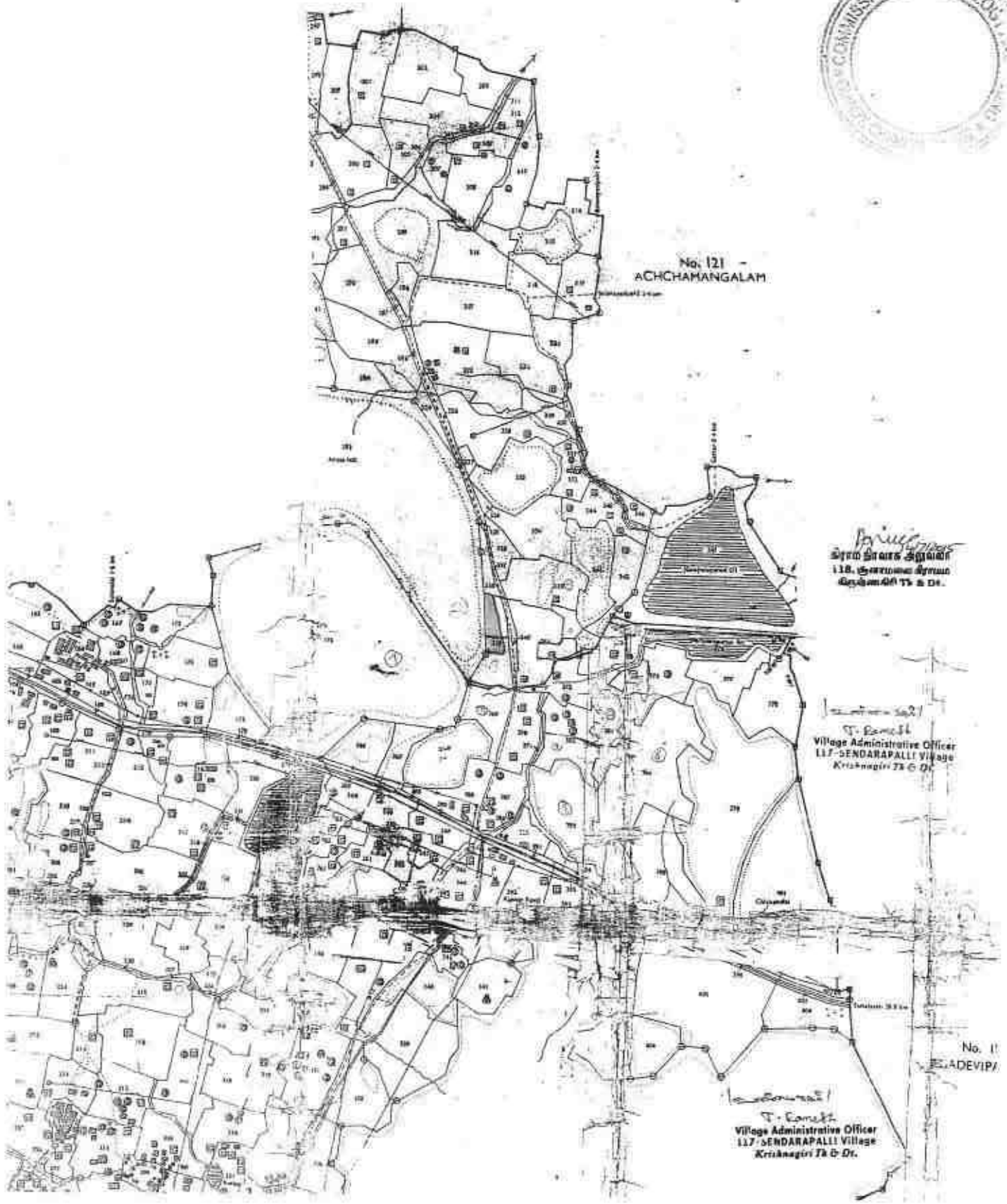
	E		
	198.4		
9	50.6	159.6	
8	33.6	116.8	
7	12.8	74.4	
	32.4	12.8	4
	21.0	20.8	5
	B		
	A		
	202.2		
	188.2	64.2	B
	E		
	C		
	155.4		
	141.6	7.8	4
	109.2	Line	3
	72.4	8.2	2
	D		
	B		
	294.2		
	202.8	8.0	1
	C		

VNO : Chendarapalli

Scale 333 A 1000 mm

Chinnam
Surveyor

S. G.
Commissioner



No. 121 -
ACHCHAMANGALAM

Handwritten signature
118. *Handwritten text*
Krishnagiri T & Dt.

Handwritten signature
Village Administrative Officer
117 SENDARAPALLI Village
Krishnagiri T & Dt.

Handwritten signature
Village Administrative Officer
117 SENDARAPALLI Village
Krishnagiri T & Dt.

No. 11
RAJADEVI

LEASE APPLIED AREA



தமிழக அரசு

வருவாய்த் துறை

நில உரிமை விபரங்கள் : இ. எண் 10(1) பிரிவு

மாவட்டம் : கிருஷ்ணகிரி

வட்டம் : பர்கூர்

வருவாய் கிராமம் : சூலாமலை

பட்டா எண் : 2012

உரிமையாளர்கள் பெயர்

1. சத்தார்

மகன்

சல்மான்

2. அப்துல் அசிப்

மனைவி

ஷைக்சீமா

புல எண்	உட்பிரிவு	புன்செய்		நன்செய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	
339	1	1 - 55.50	4.30	--	--	--	--	2022/0103/31/214504- -- -- 23-03-2022
		1 - 55.50	4.30					

குறிப்பு2 :



- மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 01-07-2022/ 03:09:19 PM என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
- இத் தகவல்கள் 01-07-2022 அன்று 03:09:19 PM நேரத்தில் அச்சடிக்கப்பட்டது.
- கைப்பேசி கேமராவின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

District: Krishnagiri Taluk: BARGUR Village: SULAMALAI

புல எண்	புல எண் உட்பிரிவு எண்	பகுதி	அரசு - ரயத்துவாரி	நிலத்தின் வகை	பாசன ஆதாரம்: போகமா	மண் வயனமும் ரகமும்	மண் தரம்	தீர்வை - ஹெக்டேர்	பரப்பு		மொத்த தீர்வை	யட்டா எண்	குறிப்பு	
									ஹெக்டேர்	சதுர பை				
336	2	336-பி	பி	படிநீர்		7-3	4	2	77	0.40.50	1	1409-அ		
336	3	336-பி	பி	படிநீர்		7-3	4	2	77	0.38.50	1	178-ஆ	வெள்ளை (எ) மு. வெள்ளை (எ) மு. வெள்ளை (எ) மு. வெள்ளை (எ) மு. வெள்ளை (எ) மு.	
TOTAL FOR SURVEY NUMBER- 336										1	9.50	3	05	
337				முடிகாடு		0-0	0	0	00	0.20.00	0		பாசன	
338				படிநீர்		7-3	4	2	77	0.42.30	1	53-ஆ	பாசன	
338				படிநீர்		7-3	4	2	77	0.22.50	0	87-ஆ	பாசன	
TOTAL FOR SURVEY NUMBER- 338										0	65.00	1	85	
339				படிநீர்		7-3	4	2	77	1.55.50	4	533-பி	பாசன	
339				படிநீர்		7-3	4	2	77	1.19.00	3	1342-பி	பாசன	
TOTAL FOR SURVEY NUMBER- 339										2	74.50	7	60	
340				முடிகாடு		0-0	0	0	00	0.30.00	0		533-பி	

11/20/20
 சென்னை
 Village Administrative Officer
 T.S. SULAMALAI VILLAGG
 Krishnagiri Taluk, Dt.





பின் பக்கம் - 150 பக்கங்கள்

1	2	3	4	5	6	7	8	9	10	11	12
							மு. 40	சென்னை			
							0 20.5	0 30.0			
							0 20.0	0 30.0			
							0 42.5	0 30.0			
							0 22.5	0 30.0			
							0 03.0	0 30.0			
							0 30.0	0 30.0			
							0 30.0	0 30.0			
							0 22.5	0 30.0			
							0 44.0	0 30.0			
							0 60.5	0 30.0			
							0 43.5	0 30.0			
							4 10.5	10 30			
							0 68.5	1 00			
							0 27.0	0 75			
							0 37.0	1 00			
							0 22.5	0 60			

192
 புத்தகம் 2022-ம் வருடத்திற்கான ஆவணம்
 நாட்களை கொண்ட 2-ம் பக்கம்
 338 A
 சார் பதிவாளர்

புத்தகம் 2022-ம் வருடத்திற்கான
 ஆவணம் 192
 நாட்களை கொண்ட 2-ம் பக்கம்
 338 A
 சார் பதிவாளர்





தமிழ்நாடு தமில்நாடு TAMILNADU Rs 100-

09.05.2022

BISMILLAH EXPORT
JAGADEVI.

PARTNERSHIP DEED

BISMILLAH EXPORT

CP 933631
G. Balasubramanian
உரிமம் எண்: 7/2021/KC
பர்கூர் Po & Tk, Pin-635 10
கிருஷ்ணகிரி Dt, தமிழ்நாடு

This deed of partnership is made on 9th day of May 2022 by and between.

1. S.SALMAN Son of SATHAR aged 27 years, (Aadhar Card No- 5130 7972 6350) residing at No-125, Jagadevi, Krishnagiri-635 203-Cell No- 9524450667 First Part

(And)

2. S.SHEIKSEEMA, Wife of, ABDUL ASEEB aged 29 years, (Aadhar Card No- 7254 0158 6514) residing at No: 1/638, Salem Main Road, Kaveripattinam, Krishnagiri -635 112 -cell 9786478786 Second Part

S.S.S.
SIGNATURE OF THE APPLICANT

S. Sheik See



தமிழ்நாடு தமில்நாடு TAMILNADU Rs 100

09.05.2022

BISMILLAH EXPORT
JAGADEVI

CP 933632
G. பாலமுருகன்
உரிமம் எண்: 7/2021/KG
பர்கார் Po & Tk, Pin-635 10
கிருஷ்ணகிரி Dt, தமிழ்நாடு.

Whereas the above said Partners have decided to commence a partnership firm for **MANUFACTURING OF GREY GRANITES** this deed has been entered into. Capital & Running of the business is the responsibility of the both Partners. The firm shall be subject to following terms and conditions.

NAME:

The name of the firm shall be "BISMILLAH EXPORT"

ADDRESS:

The registered office of the firm shall be at S.No.339/1, Soolamalai, Krishnagiri-635 204.

553
SIGNATURE OF THE APPLICANT

S. Sheik See



தமிழ்நாடு தமில்நாடு TAMILNADU Rs100-

09.05.2022

BISMILLAH EXPORT
JAGADEVI.

CP 933633

G. Babu

G. பாலமுருகன்

உரிமம் எண்: 7/2021/KG

பார்கர் Po & Tk, Pin-635 10

கிருஷ்ணகிரி Dt, தமிழ்நாடு.

BUSINESS:

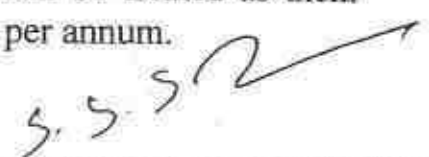
Manufacturing of Grey Granites business is the main business. The firm can do any other business or businesses on unanimous decision arrived at by all the partners in the same firm name in the same place or in difference places


CAPITAL:

The amount standing to the credit of Partners Shall be treated as them capital. The capital contribution shall carry 12% interest per annum.

DURATION:

The firm's duration shall be at will.


SIGNATURE OF THE APPLICANT





BANK ACCOUNT:

The Partner No.1(S.SALMAN) are authorized signatory in the firm's bank account.

CLOSING ACCOUNT:

The account of the firm shall be closed at March 31st of every year.

PROFIT & LOSS ACCOUNT:

The profit & Loss of the firm shall be shared between the Partners are given below

I.S.SALMAN	-	60%
2.S.SHEIKSEEMA	-	40%
		—
Total		100%
		—

POSTS AND RECORDS:

Both the partners are authorized to receive firm's Letter, Vpps, parcels, faxes, registered post, money order, cheques, demand drafts etc., the partner who receives the items shall keep the other partners informed of the receipts.

MANAGING PARTNER:

Though this a firm the Partner No.1 (S.SALMAN) shall be called the managing partner for the sake of administration purpose and is hereby authorized and is entitled to correspond, enter into contracts, agreements and to do all types of works on behalf of this partnership deed business. The managing partner shall be entitled to appoint necessary personnel at such remuneration as is deemed fit and necessary and dispose off their services and take action, if necessary. The managing partner is hereby authorized to file any suit or suits on behalf of this partnership deed business. All the partners will manage and administer the entire business activities.

1) S.S. Salman

S.S. Salman
SIGNATURE OF THE APPLICANT

2) S. Sheik Seema



GENERAL MANAGEMENT:

The firm shall operate and administer its activities as per the decision of the majority of the partners. The majority decisions shall bind all the partners.

SALARY:

The Working partner of the firm shall receive salary according to sec 40 (b) (v) of the Income – Tax Act 1961 (or) any amendment in the Act (or) decided by the partners as follows.

S.NO.	Profit amount	Amount given as Salary to Working Partners.
1.	First Rs.3,00,000 or loss Profit whichever is Higher.	Rs.1,50,000 or 90% of book
2.	Balance of book profit	60% of book profit

ARBITRATION:

In case any difference of opinion arises among the partners a body or arbitrators shall be constituted and their decision shall be binding on the firm and the partners.

NOMINATION:

Partners can nominate / appoint any of their family members to succeed him as a partner in the firm.

1) S.S.S. [Signature]

S.S.S. [Signature]
SIGNATURE OF THE APPLICANT

2) S. Sheik [Signature]



PARTERSHIP ACT 1932:

The partnership Act 1932 shall be applicable wherever no specific provision has been made in contrary to that.

In witness we the partners have signed this deed the day, the year mentioned earlier.

Witnesses: -

1. S. Abdulbasit
S/o S. Shajahan
1/638, Salem main road
Kaveripattinam - 635112

1) S.S.S

2. B. Babubabu
S/o. Babu
498, Jagadevi (village - et)
Krishnagiri (DT)
635203

2) S. Sheik See

S.S.S

SIGNATURE OF THE APPLICANT



உங்கள் ஆதார் எண் / Your Aadhaar No. :

5130 7972 6350

UID : 9146 9363 8708 5982

எனது ஆதார், எனது அடையாளம்



பெயர் / Name
Salman Sathar
பிறந்த நாள்/DOB: 01/04/1995
பாலினம் / GENDER: MALE

5130 7972 6350

UID : 9146 9363 8708 5982

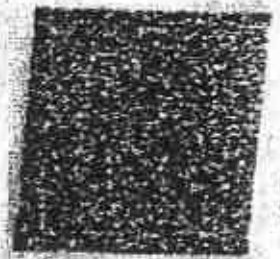
எனது ஆதார், எனது அடையாளம்



சமூக நலத்துறை
Department of Social Welfare

முகவரி / Address:
S/O: சத்தர், வீடு 125, ஜகாடேவி,
ஜகாடேவிபாளையம், கிருஷ்ணாபுரம்,
தமிழ்நாடு - 635203

Address:
S/O: Sathar, NO 125, JAGADEVI,
Jagadevipalayam, Krishnagiri,
Tamil Nadu - 635203



5130 7972 6350

UID : 9146 9363 8708 5982

SIGNATURE OF THE APPLICANT

भारत सरकार / GOVERNMENT OF INDIA
खान मंत्रालय / MINISTRY OF MINES
भारतीय खान ब्यूरो / INDIAN BUREAU OF MINES



M. Dharmalingam

अर्हताप्राप्त व्यक्ति के रूप में मान्यता प्रमाण पत्र
(खनिज रियायत नियमावली, 1960 के नियम 22सी के तहत)
CERTIFICATE OF RECOGNITION AS QUALIFIED PERSON
(Under Rule 22C of Mineral Concession Rules, 1960)

श्री एम. इप्तिकार अहमथ, 129/8, 11वीं क्रॉस, सिवया नगर, अलगापुरम-पी.आ., सेलम - 636 004, तमिल नाडू, जिनका फोटो और हस्ताक्षर ऊपर दिया हुआ है, तथा जिनहोंने अपनी अर्हता और अनुभव का संतोषजनक साक्ष्य दिया है, को खनन योजना तैयार करने हेतु खनिज रियायत नियमावली 1960 के नियम 22सी के तहत अर्हताप्राप्त व्यक्ति के रूप में मान्यता प्रदान की जाती है।

Shri M. Ithikhar Ahmed, 129/8, 11th Cross, Sivaya Nagar, Alagapuram (PO), Salem - 636 004, Tamilnadu whose **Photograph and signature** is affixed herein above, having given satisfactory evidence of his qualifications & experience hereby **RECOGNISED** under Rule 22C of the Mineral Concession Rule, 1960 as a Qualified Person to prepare Mining Plans.

उनकी पंजीयन संख्या है
His registration number is

RQP /MAS/183/2004/A

यह मान्यता 10 वर्षों की अवधि के लिए मान्यता है जो दिनांक 10.01.2024 को समाप्त होगी।
This recognition is valid for a period of 10 years ending on 10.01.2024

उनके द्वारा प्रस्तुत खनन योजना में गलत जानकारी / दस्तावेज पाए जाने की स्थिति में यह प्रमाण पत्र वापस लिया जाएगा / निरस्त किया जाएगा।

This certificate will be liable to be withdrawn / cancelled in the event of furnishing the wrong information / documents in the Mining Plan submitted by him.

स्थान / Place : Chennai
दिनांक / Date : 02.01.2014

क्षेत्रीय खान नियंत्रक / Regional Controller of Mines
भारतीय खान ब्यूरो / Indian Bureau of Mines
चेन्नई क्षेत्र / Chennai Region

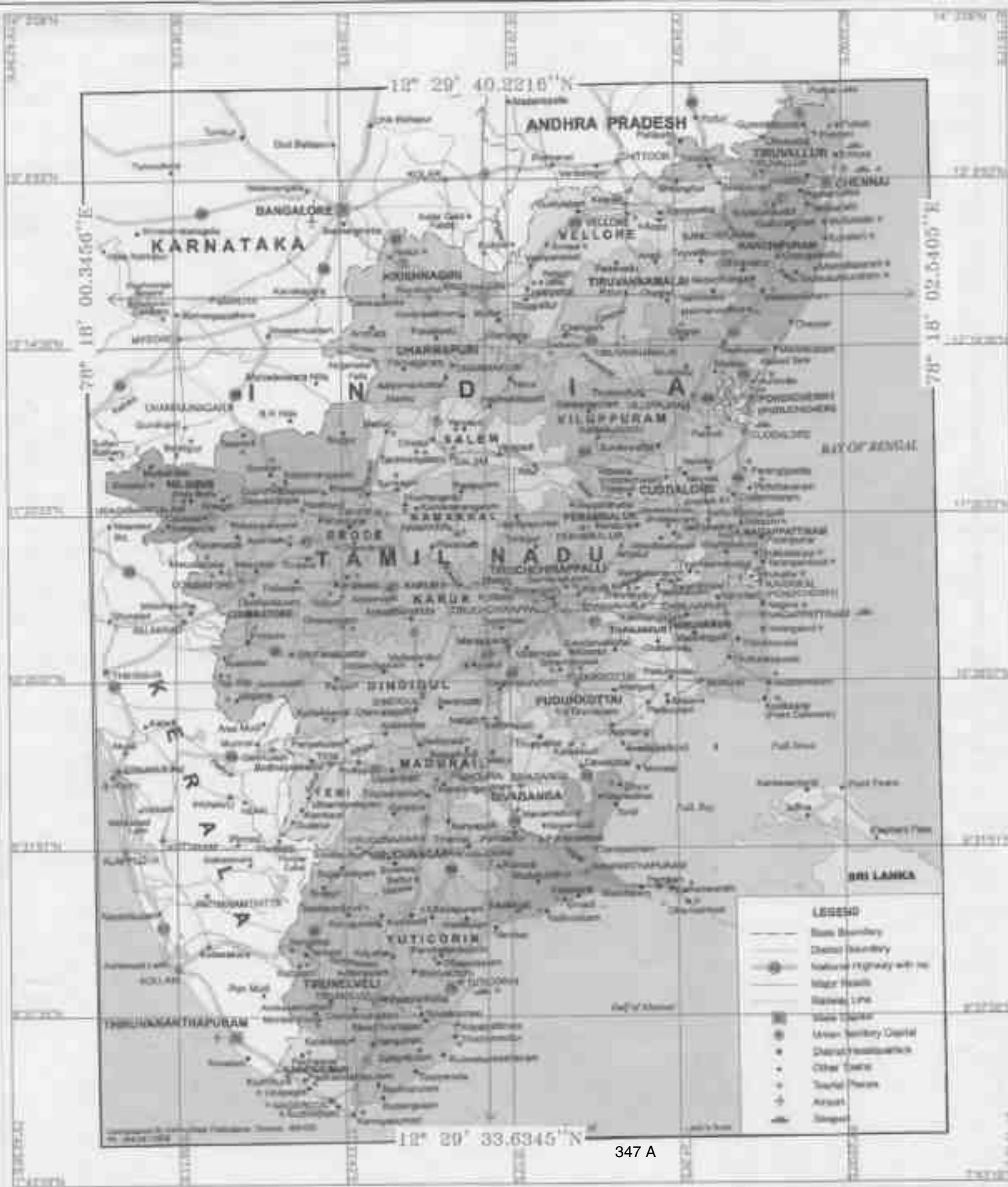


PLATE NO:1

DATE OF SURVEY : 10.04.2023

APPLICANT:

M/s.BISMILLAH EXPOERTS,
NO.125,JAGADEVI,
JAGADEVIPALAYAM,
KRISHNAGIRI DISTRICT-635 203.

LOCATION OF QUARRY:

S.F.NO :339/1(P),
EXTENT :1.02.0 Ha,
VILLAGE :SOOLAMALAI,
TALUK :BARGUR,
DISTRICT :KRISHNAGIRI,
STATE :TAMILNADU.

INDEX

Q. L AREA : ●
TOPO SHEET NO : ST - U17
LATITUDE : 12° 29' 33.6345"N to 12° 29' 40.3216"N
LONGITUDE : 78° 18' 00.3456"E to 78° 18' 02.5405"E

LOCATION PLAN

SCALE 1:24,00,000

PREPARED BY:

WE DO TO CERTIFY THAT THE INFORMATION IN THIS
PLAN IS TRUE AND CORRECT TO THE
BEST OF MY KNOWLEDGE BASED UPON THE RECORDS
MAINTAINED BY STATE GOVERNMENT

(Signature)
D:\MTH\INDIA\ANDHRA\SR\A\F\23\PL-1
RECORDED QUALIFIED PERSON
100/1962/1163/2024/A

TOPO SHEET NO.: 57-L07

LATITUDE : 12° 29' 32.845"N to 12° 29' 48.214"N

LONGITUDE : 78° 18' 30.345"E to 78° 18' 02.345"E

10KM RADIIJS :



Q LEASE AREA :



12° 35' 05.41"N



78° 13' 30.47"E

78° 21' 33.00"E

12° 24' 08.45"N

LOCATION OF QUARRY:

S.F. NO : 339/1(P),
EXTENT : 1.02.0 Ha,
VILLAGE : SOOLAMALAI,
TALUK : BARGUR,
DISTRICT : KRISHNAGURU,
STATE : TAMILNADU.

APPLICANT:

M/s. BISMILLAH EXPERTS,
NO.125, JAGADEVI,
JAGADEVIPALAYAM,
KRISHNAGURI DISTRICT-635 203.

INDEX

CONVENTIONAL SYMBOLS

Contour lines	---	---	---
Major roads	==	==	==
Minor roads	- - -	- - -	- - -
Water bodies	~~~~~	~~~~~	~~~~~
Buildings	■	■	■
...

KEY PLAN

SCALE- 1/100000

PREPARED BY:

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS PLAN IS TRUE AND CORRECT TO THE BEST OF AN ENGINEER'S BELIEF UPON THE CURRENT KNOWLEDGE OF THIS ENGINEER.

M. S. Srinivasan
S. Srinivasan, AMERICAN SOCIETY OF CIVIL ENGINEERS, REGISTERED ENGINEER (SURVEYING)
NO. 125, JAGADEVI, JAGADEVIPALAYAM, KRISHNAGURU DISTRICT, TAMILNADU.



PLATE NO:I-B

DATE OF SURVEY : 19.04.2023

APPLICANT:

M/s.BISMILLAH EXPOERTS,
NO.125,JAGADEV1,
JAGADEVIPALAYAM,
KRISHNAGIRI DISTRICT-635 203.

LOCATION OF QUARRY:

S.F.NO :339/1(P),
EXTENT :1.02.0 Ha,
VILLAGE :SOOLAMALAI,
TALUK :BARGUR,
DISTRICT :KRISHNAGIRI,
STATE :TAMILNADU.

INDEX

- Q.LEASE APPLIED BOUNDARY
- APPROACH ROAD
- MAJOR ROAD
- VILLAGE ROAD

ROUTE MAP

Not to Scale

PREPARED BY:

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS
PLATE IS TRUE AND CORRECT TO THE
BEST OF MY KNOWLEDGE BASED UPON THE LEASEMAP
AUTHENTICATED BY STATE GOVERNMENT.

(Signature)

D.M.MITHIKARAN, ARJUN M.Sc., M.B.A., P.S.S., P.V.V.
RECOGNIZED QUALIFIED PERSON
RSP/MAG/183/2004/A

LAND USE PATTERN

DESCRIPTION	AREA IN PERCENTAGE (%)
TREES/HILLOCK	20
ROAD/TANK	15
AGRICULTURAL LAND	25
QUARRY/DUMP	25
HABITATION	15

OCTOBER TO DECEMBER



PLATE NO-I-C

DATE OF SURVEY : 19/04/2003

TOPO SHEET NO. 137 - L07

LATITUDE : 12° 29' 33.6245"N to 12° 29' 40.2216"N

LONGITUDE : 78° 18' 00.3452"E to 78° 02.5405"E

1KM RADIUS

500M RADIUS

Q.LEASE AREA



APPLICANT:

M/s.BISMILLAH EXPDERTS,
NO.125,JAGADEVI,
JAGADEVIPALAYAM,
KRISHNAGIRI DISTRICT-635-203.

INDEX

APPROACH ROAD	
WIND DIRECTION	
TREES	
QUARRY PIT	
AGRICULTURE LAND	
ROAD	
NH ROAD	
DUMP	
SITE SERVICES	
HILLOCK	
TANK	
GRANITE FACTORY	
HABITATION	

ENVIRONMENTAL & LANDUSE PLAN(For 1Km Radius)

SCALE 1:10,000

PREPARED BY:

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS PLATE IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE BASED UPON THE LEGISLATION AUTHORIZED BY STATE GOVERNMENT

M. Srinivasan
M. Srinivasan
D-WITHDRAWN 4/20/2014 7:23:47 AM
REGISTERED QUALIFIED PERSON
TOP/NAI/181/2004/3

Towards Kishinaghi

78° 17' 27.25"E

78° 17' 33.80"E

78° 18' 00.00"E

78° 18' 06.04"E

12° 30' 12.74"N

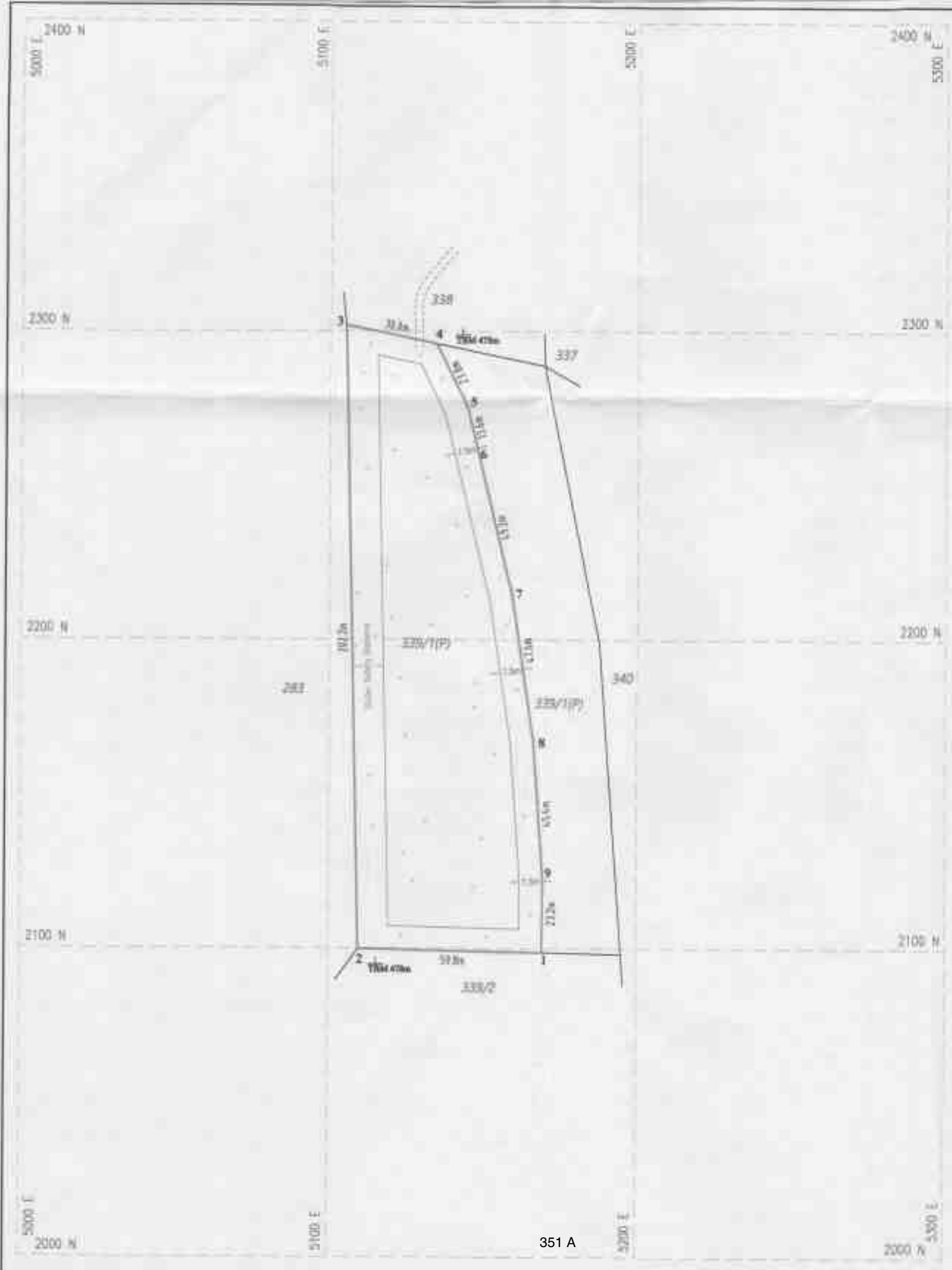
Towards Droppam

Towards Nakkalobath 12° 29' 01.12"N

Towards Muthur

JULY TO SEPTEMBER

LOCATION OF QUARRY:
S.F.NO : 339/1(P),
EXTENT : 1.02.0 Ha,
VILLAGE : SOOLAMALAI,
TALUK : BARGUR,
DISTRICT : KRISHNAGIRI,
STATE : TAMILNADU.



BOUNDARY CO-ORDINATES

S.N.	LATITUDE	LONGITUDE
1	12° 28' 33.5341"N	76° 18' 02.3485"E
2	12° 28' 33.8485"N	76° 18' 02.3485"E
3	12° 28' 40.2216"N	76° 18' 02.3485"E
4	12° 28' 40.0264"N	76° 18' 01.5085"E
5	12° 28' 34.3887"N	76° 18' 01.8554"E
6	12° 28' 28.5324"N	76° 18' 01.7647"E
7	12° 28' 31.3889"N	76° 18' 02.1472"E
8	12° 28' 31.8884"N	76° 18' 02.4182"E
9	12° 28' 34.3887"N	76° 18' 02.5485"E

DATE: 17-04-2022

PLATE NO. II

DATE OF SURVEY : 19.04.2022

APPLICANT:

M/s. BISHMILLAH EXPORTS,
NO. 125, JAGADEVS,
JAGADEVIPALAYAM,
KRISHNAGIRI DISTRICT-635 203.

LOCATION OF QUARRY:

S.F. NO : 335/1(P),
EXTENT : 1.02.0 Ha,
VILLAGE : SOOLAMALAI,
TALUK : BARGUR,
DISTRICT : KRISHNAGIRI,
STATE : TAMILNADU.

INDEX

QL APPLIED AREA BOUNDARY	
2.3m & 10m SAFETY DISTANCE	
APPROACH ROAD	
TEMPORARY BENCH MARK	
SCRUB	
TOP SOIL	

QUARRY LEASE PLAN

SCALE: 1:1000

PREPARED BY:
M/s. BISHMILLAH EXPORTS
NO. 125, JAGADEVS,
JAGADEVIPALAYAM,
KRISHNAGIRI DISTRICT-635 203.
DATE: 17/04/2022



PLATE NO. V
SITE OF QUARTY / 100A/2002

APPLICANT,
M/s. BISMILLAH EXPORTS,
NO. 125, JAGADEVI,
INGADEVALAYAM,
KRISHNAGIRI DISTRICT - 635 201

LOCATION OF QUARTY
S.F. NO. 133R/1/P,
EXTENT 1.02.0 HA,
VILLAGE SODAKKAL,
TALUK BARUR,
DISTRICT KRISHNAGIRI,
STATE TAMILNADU

INDEX

□	APPLICANT'S BOUNDARY
□	15M & 30M SAFETY DISTANCE
□	APPROACH ROAD
□	TEMPORARY BENCH MARK
□	SPRING AND WELLS
□	SOIL
□	TOP SOIL
□	DRY CHANNEL
□	WEATHERED ROCK

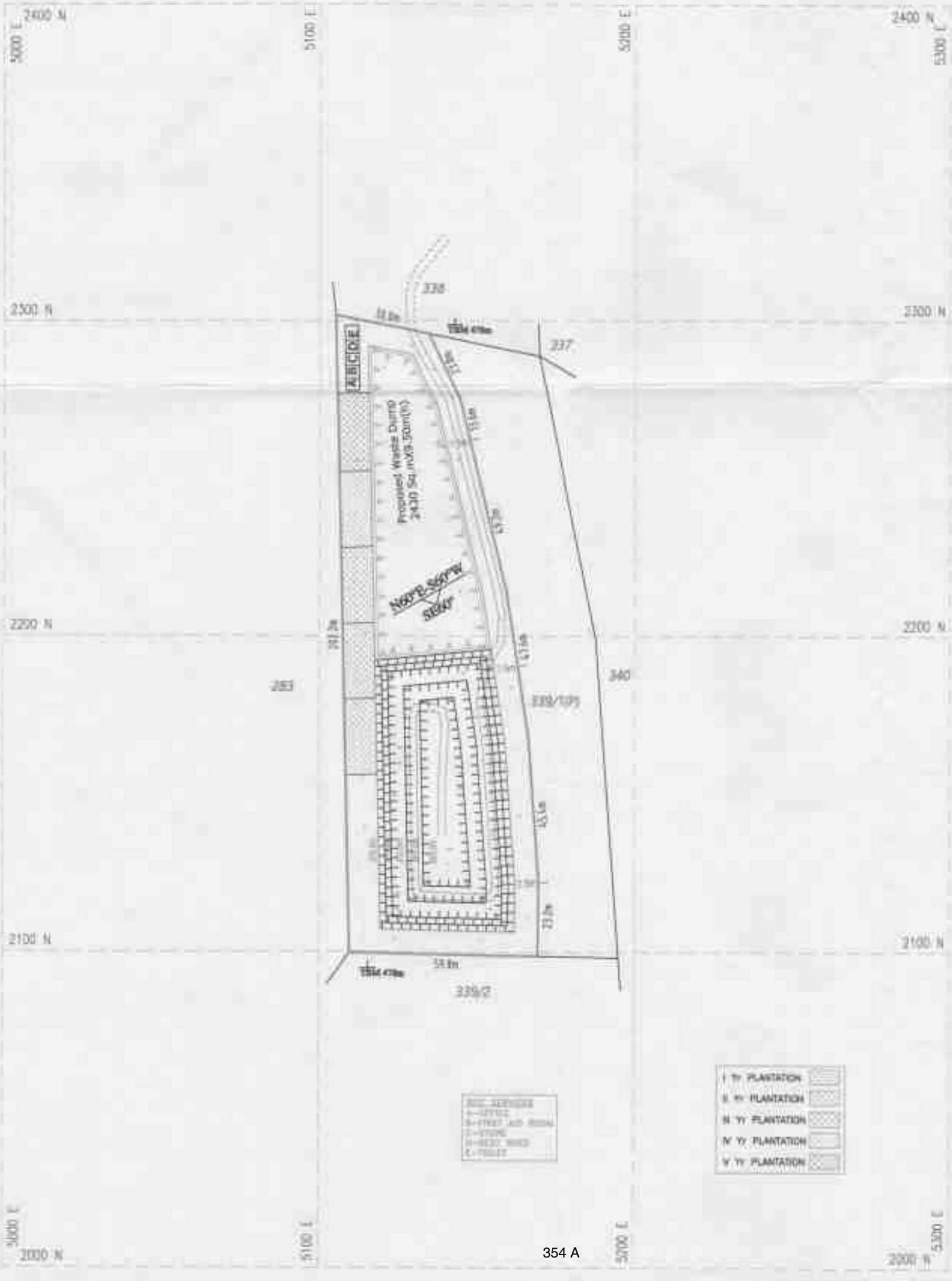


□	FLATBANK	□	EXCAVATION
□	FLATBANK	□	EXCAVATION
□	FLATBANK	□	EXCAVATION
□	FLATBANK	□	EXCAVATION
□	FLATBANK	□	EXCAVATION
□	FLATBANK	□	EXCAVATION

[Signature]
COMMISSIONER OF
GEOLOGY AND MINES,
TAMILNADU

**YEARWISE DEVELOPMENT
AND PRODUCTION PLAN
AND SECTIONS**
SCALE 1:1000

PREPARED BY:
M/s. BISMILLAH EXPORTS,
NO. 125, JAGADEVI,
INGADEVALAYAM,
KRISHNAGIRI DISTRICT - 635 201



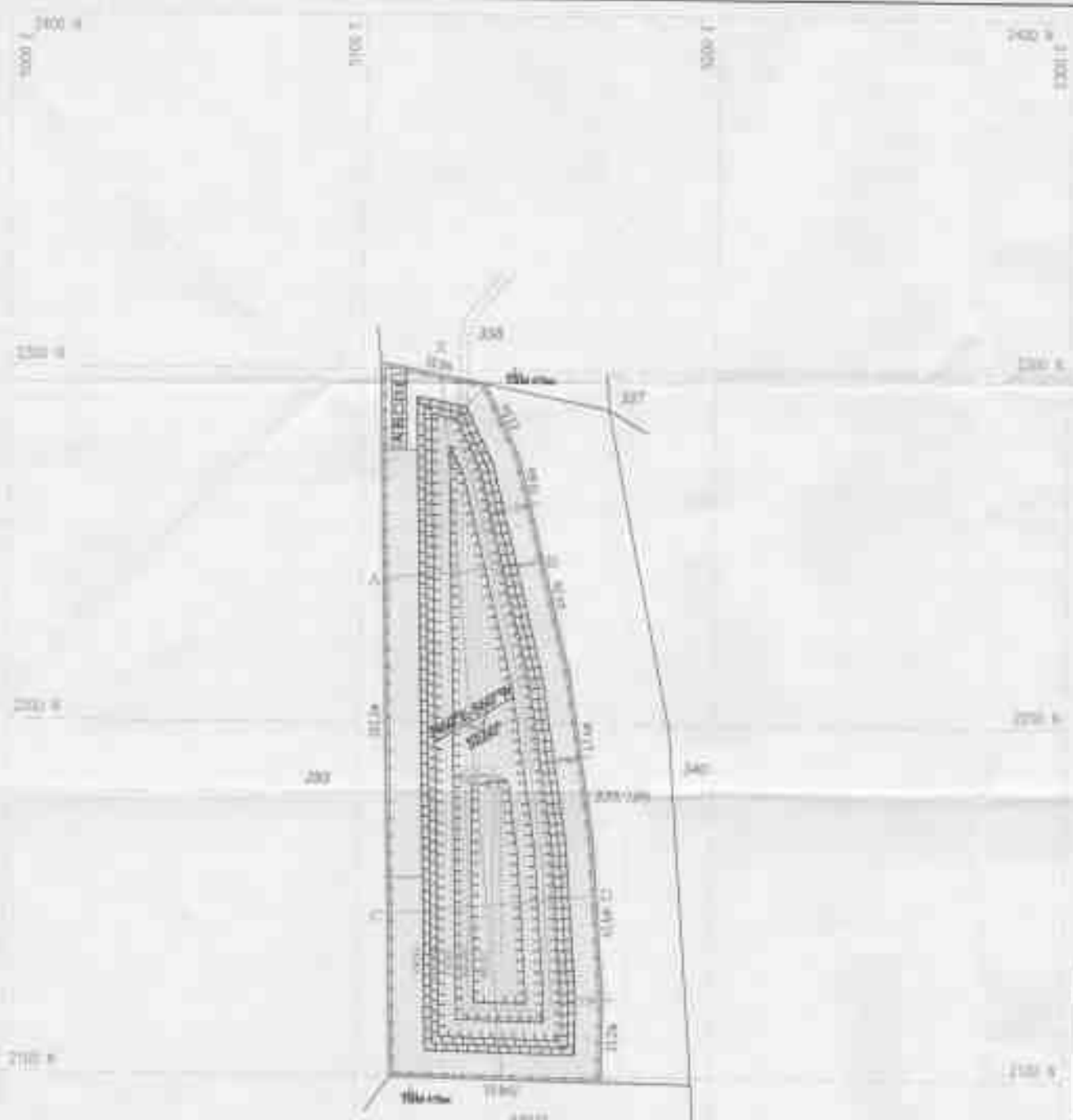
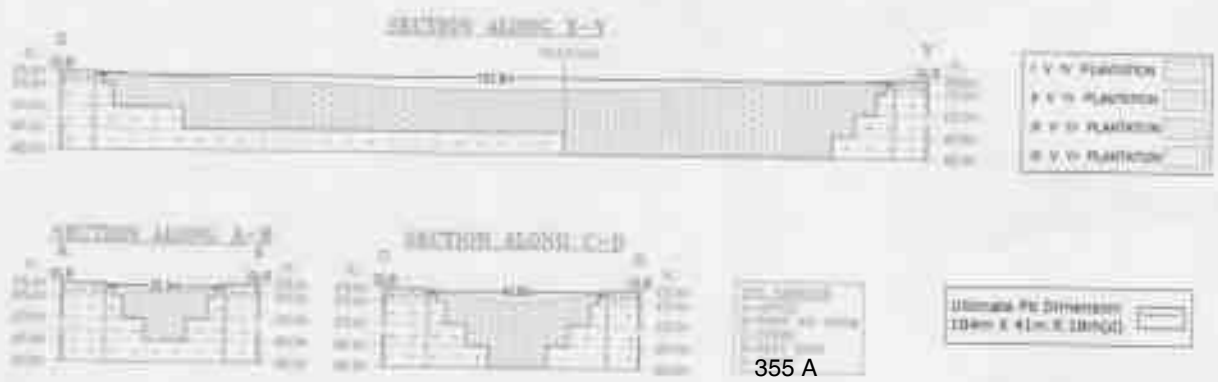


PLATE NO. IX	
DATE OF SURVEY : 18/04/2020	
APPLICANT	
M/s. BISHILLAI EXPORTS, NO. 125, JAGADRV, MADHAVIPALAYAM, KRISHNAGIRI DISTRICT-635 011.	
LOCATION OF QUARRY	
EP. NO : 3381/07, EXTENT : 1.02.37 HA, VILLAGE : SOOPALAI, TALUK : SARGUR, DISTRICT : KRISHNAGIRI, STATE : TAMILNADU.	
INDEX	
GLASSIFIED AREA BOUNDARY	[Symbol]
50M & 100M SAFETY DISTANCE	[Symbol]
APPROACH ROAD	[Symbol]
TEMPORARY BENCH MARK	[Symbol]
STONE AND COP	[Symbol]
STRIP	[Symbol]
TOPSOIL	[Symbol]
DRY CANALS	[Symbol]
WEATHERED ROCK	[Symbol]
QUARRY PIT	[Symbol]
QUARRY ROAD	[Symbol]
BUNDING WALL	[Symbol]
PROPOSED BACK FILLING	[Symbol]
CONCEPTUAL PLAN AND SECTIONS	
SCALE : 1:1000	
DRAWN BY : M/s. BISHILLAI EXPORTS NO. 125, JAGADRV, MADHAVIPALAYAM, KRISHNAGIRI DISTRICT-635 011.	



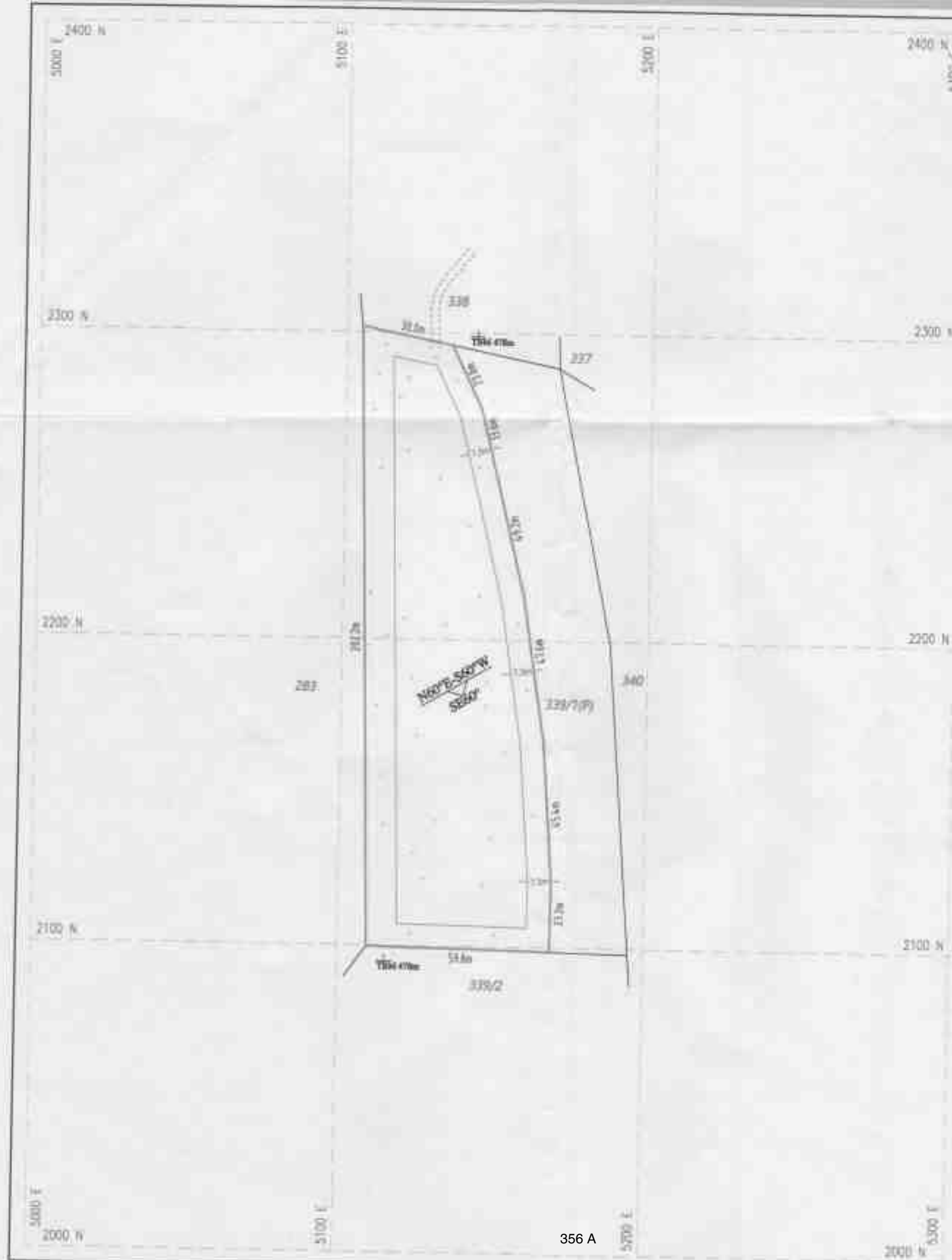


PLATE NO. III

DATE OF SURVEY - 19.04.2023

APPLICANT:

M/S. BISMILLAH EXPORTS,
NO. 125, JAGADEVI,
JAGADEVIPALAYAM,
KRISHNAGIRI DISTRICT-635 203.

LOCATION OF QUARRY:

S.F. NO. 339/1(P),
EXTENT 1.02.0 Ha,
VILLAGE SOOLAMALAI,
TALUK BARGUR,
DISTRICT KRISHNAGIRI,
STATE TAMILNADU.

INDEX

Q.L. APPLIED AREA BOUNDARY	
7.5m & 30m SAFETY DISTANCE	
APPROACH ROAD	
TEMPORARY BENCH MARK	
STRIKE AND DIP	
SCRUB	
TOP SOIL	
GREY GRANITE	
WEATHERED ROCK	

SURFACE PLAN

SCALE 1:1000

PREPARED BY:

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS
PLAN IS TRUE AND CORRECT TO THE
BEST OF MY KNOWLEDGE AND BELIEF UPON THE
AUTHORITY OF STATE GOVERNMENT

M. Jaganathan
Sr. Planning Engineer, M.S.C.P.E. & M.S.
REGULATED SURVEYOR
NO. 125/19/2018

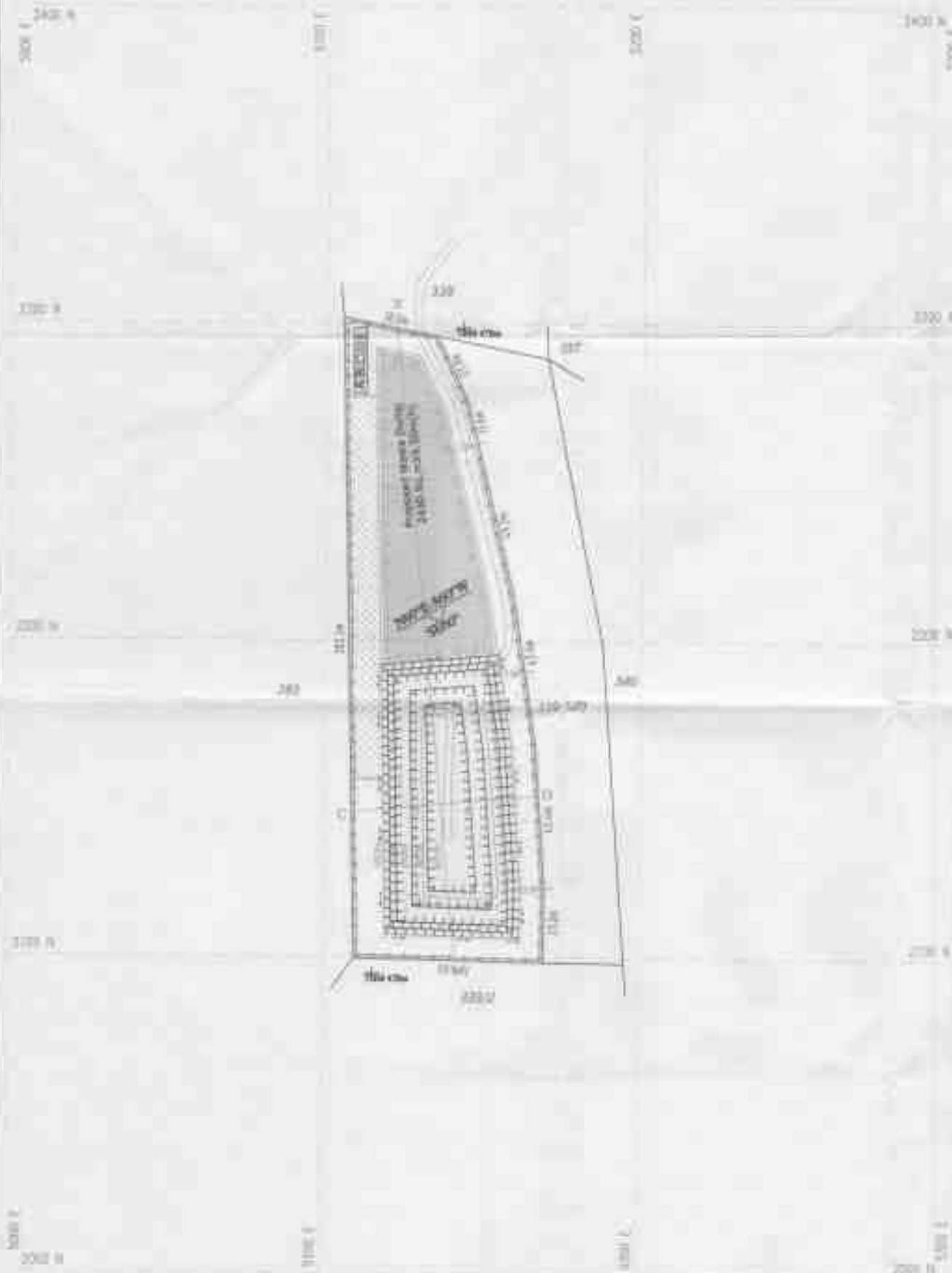


PLATE NO. VII
 DATE OF SURVEY - 18/02/2011

APPLICANT
 M/S. SURESH LAKSHMI EXPORTS,
 NO. 125, 136/20/10,
 3RD CROSS, PALAYAM,
 KRISHNAGIRI DISTRICT-635 201

LOCATION OF QUARRY
 S.F. NO - 338/10/1,
 EXTENT - 2.22.0 Hrs.,
 VILLAGE - SOOLAHAL,
 TALUK - SARGOL,
 DISTRICT - KRISHNAGIRI,
 STATE - TAMILNADU

INDEX

CLARIFIED BOUNDARY	[Symbol]
1/4 MILE SAFETY DISTANCE	[Symbol]
APPROACH ROAD	[Symbol]
TEMPORARY BOUNDARY	[Symbol]
STRAIGHTENED	[Symbol]
SOIL	[Symbol]
TOP SOIL	[Symbol]
SAND GRANITE	[Symbol]
WEATHERED ROCK	[Symbol]
LEWY	[Symbol]
QUARRY PIT	[Symbol]
QUARRY ROAD	[Symbol]
ENCLOSURE	[Symbol]
PROPOSED CHALKED STRIP	[Symbol]



LANDSIDE - EXTRACT

DESCRIPTION	AREA TO BE SECURED BY THE ENCLOSURE BOUNDARY	NO. OF LAC. OF QUARRY PIT	AREA
OPEN GREEN GRASS	0.00 21	0.00 24	
ROAD	0.24 00	0.00 24	
TOP BOUNDARY	0.00 00	0.00 00	
TOP SOIL	0.00 00	0.00 00	
WEATHERED ROCK	0.00 00	0.00 00	
TOTAL	0.24 21	0.00 24	

PROGRESSIVE QUARRY CLOSURE PLAN AND SECTIONS
 SCALE 1:1000

PREPARED BY:
 M/S. SURESH LAKSHMI EXPORTS
 NO. 125, 136/20/10, 3RD CROSS, PALAYAM,
 KRISHNAGIRI DISTRICT-635 201

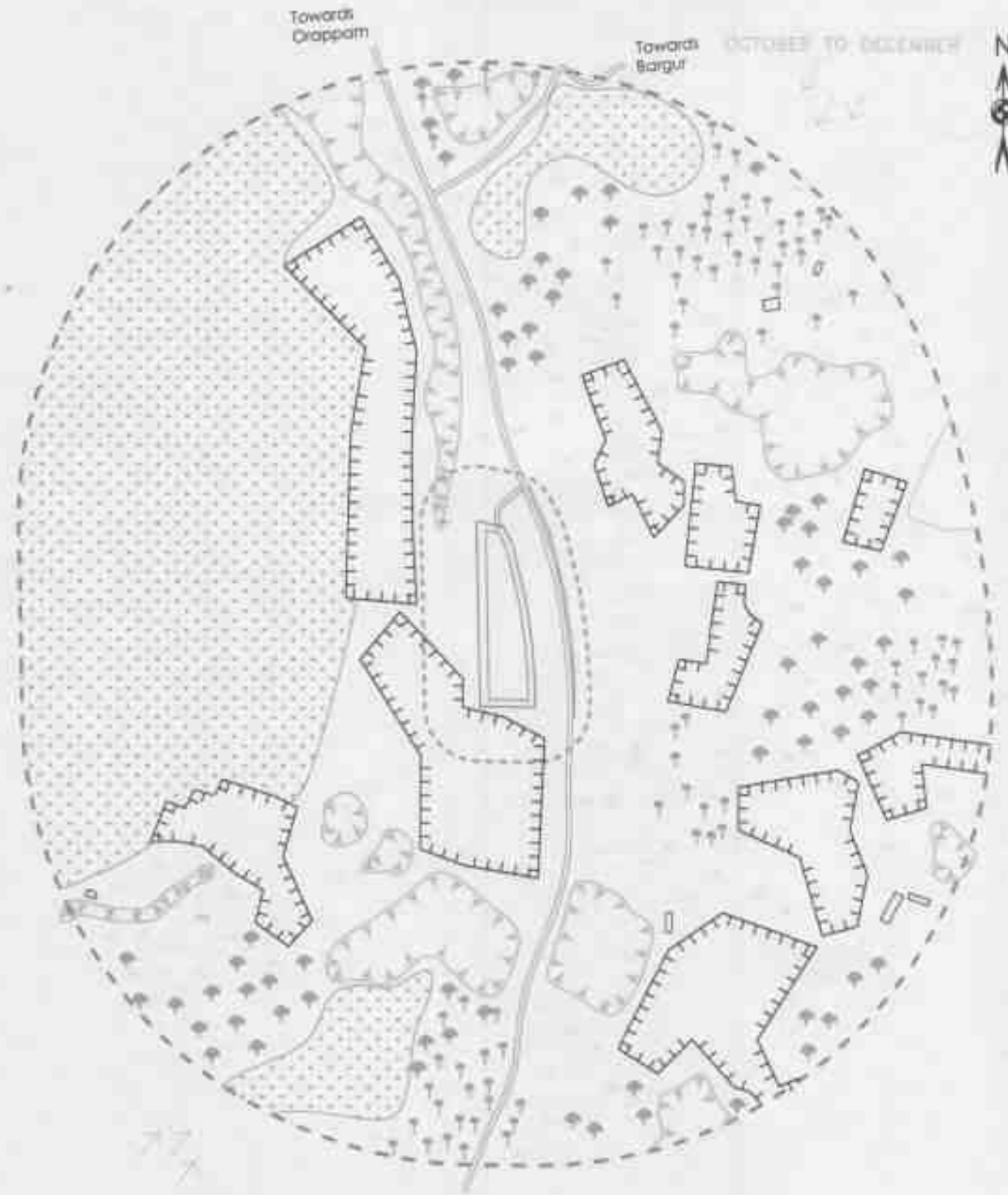


PLATE NO. VIII
 DATE OF JERNEY : 18.04.2023

APPLICANT:
 M/s. BISMILLAH EXPOERTS,
 NO. 125, JAGADEVI,
 JAGADEVIPALAYAM,
 KRISHNAGIRE DISTRICT-635 203.

LOCATION OF QUARRY:
 S.F. NO : 339/1(P),
 EXTENT : 1.02.0 Ha,
 VILLAGE : SOOLAMALAI,
 TALUK : BARGUR,
 DISTRICT : KRISHNAGIRI,
 STATE : TAMILNADU.

INDEX	
Q.LEASE BOUNDARY	
SAFETY DISTANCE	
500m RADIUS	
60m RADIUS	
APPROACH ROAD	
WIND DIRECTION	
TREES	
QUARRY PIT	
AGRICULTURE LAND	
ROAD	
DUMP	
SITE SERVICES	
HILLOCK	
TANK	

ENVIRONMENTAL PLAN
 SCALE 1:5,000

PREPARED BY:
 THIS IS TO CERTIFY THAT THE INFORMATION IN THIS
 PLAN IS TRUE AND CORRECT TO THE
 BEST OF MY KNOWLEDGE BASED UPON THE LATEST
 SURVEYED BY STATE GOVERNMENT

[Signature]
 CHARTERED SURVEYOR, J.S.S./E.S./P.S.
 REGIONAL QUALIFIED PERSON
 REG. NO. 183/2004/3

JULY TO SEPTEMBER

Hydrogeological Report for
Grey Granite Quarry Over an extent of 1.02.0Ha of
Patta lands in S.F.No. 339/1 (Part) of
Soolamalai Village, Bargur Taluk,
Krishnagiri District,
Tamil Nadu State

HYDROGEOLOGICAL REPORT FOR SOOLAMALAI

GREY GRANITE QUARRY

INTRODUCTION

Name of the Applicant with Address-

Name of the applicant : **M/s. Bismillah Export**
Address with contact Number: No. 125, Jagadevi,
Jagadevipalayam,
District : Krishnagiri
State : Tamil Nadu
Pin code : 635 203
Phone : +91 95244 50667
E-mail ID : salman01@gmail.com.
Aadhaar No. : 5130 7972 6350 (Refer annexure No. VIII).

Details of the Area-

Land Classification : Patta Land
Survey No : 339/1 (Part)
Extent in Hectares : 1.02.0Ha
Village : Soolamalai
Taluk : Bargur Taluk
District : Krishnagiri District.

The proponent requires detailed Ground Water studies for the Occurrences of Ground water at Grey Granite quarry project site. The objective of the study is to assess the depth of Ground water occurrence and comment on aspects of depth to potential aquifers, aquifer availability and type, possible yields and water quality. For this purpose all available hydrogeological information of the areas has been analyzed, and a geophysical survey was carried out.

The investigations involved hydrogeological, geophysical field investigations and a detailed study in which the available relevant geological and hydrogeological data were collected, analyzed, collated and evaluated within the context of the Proponent requirements. The data sources consulted were mainly:

- a) Central Ground Water Board (CGWB) Data, TWAD Data
- b) State & District Geological and Hydrogeological Reports and Maps.

c) Technical reports of the area by various organizations.

1. SCOPE OF THE WORKS –

The scope of works includes:

- Site visits to familiarize with the project areas. Identify any issues that might impact the Ground Water Scenario due to mining activities.
- To obtain, study and synthesize background information including the geology, hydrogeology and existing borehole data, for the purpose of improving the quality of assessment and preparing comprehensive hydrogeological reports,
- To carry out hydrogeological evaluation and geophysical investigations in the selected sites in order to determine potential for groundwater at project site.
- To prepare hydrogeological survey reports in conformity with the provisions of the rules and procedure outlined by the Central Ground Water Board (CGWB), by Assessment of water quality and potential infringement of National standards, Assessment of availability of groundwater and Impact of proposed activity on aquifer, water quality and other abstractors.

2. BACKGROUND INFORMATION

Location

The area is marked in the Survey of India, Topo Sheet No. 57 L/07. The area lies between the Latitudes of 12°29'33.6345"N to 12°29'40.2216"N and Longitudes of 7 °1 '00.3456"E to 7 °1 '02.5405"E on WGS datum-1984.

REGIONAL GEOLOGY OF KRISHNAGIRI DISTRICT-

The geological formations of the Krishnagiri district belong mainly to Archaean age along with rock of Proterozoic age. The former is represented by Khondalite Group of rocks, Charnockite Group of rocks, Migmatites Complex, Sathyamangalam Group of rocks, while the latter is represented by Alkaline rocks.

The Khondalite Group includes garnet sillimanite gneiss and quartzite which occur as small patches. The migmatite complex includes garnetiferous quartzofeldspathic gneiss and hornblende-biotite gneiss, the former exposed on the western part of the district. The Sathyamangalam Group includes fuchsite quartzite, sillimanite mica schist and amphibolites.

The Bhavani Group in this area includes fissile hornblende-biotite gneiss, granitoid

gneiss and pink migmatite. Amphibolites with barbed ferruginous quartzite and associated quartzo-feldspathic rocks (Champion Gneiss) represent the Kolar group and are found west and southwest of Veppanapalli. Following this there are basic intrusions occurring as dykes.

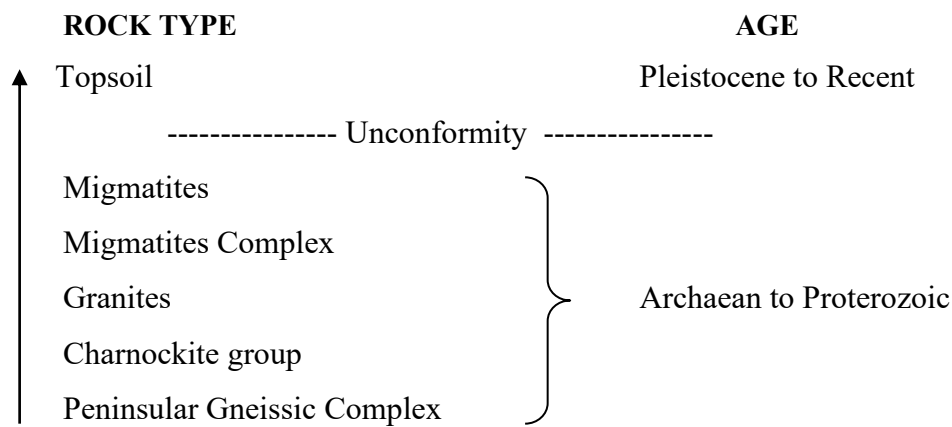
The Charnockite Group occupies a major part of the south-west portion of this district with small bands of Garnetiferous quartzo-feldspathic gneiss, Granite gneiss and dolerite dykes. The North-East and Northern part of the District mainly consist of granite gneiss with small patches of Pink Migmatite, hornblende-biotite gneiss and dolerite dykes. The Eastern part of the district consists of Epidote-Hornblende Gneiss, Ultra Mafics, Syenite and Carbonatite.

The Alkaline Complex is represented by epidote-hornblende gneiss, ultramafics, syenite and carbonatite and these are distributed in the eastern part of the district. Innumerable basic dykes and felsites, quartz, barites and pegmatite veins form part of the Alkali Complex.

STRUCTURAL SETTINGS OF KRISHNAGIRI DISTRICT:

The general geological sequence of the rock types in the area is:-

Order of super position:-



Geomorphology

Krishnagiri district forms part of the upland plateau region with many hill ranges and undulating plains. The western part of the district has hill ranges of Mysore plateau with a chain of undulating hills and deep valleys extending in NNE-SSW direction. The plains of the district have an average elevation of 488 m amsl. The plateau region along the western boundary and the northwestern part of the district has an average elevation of 914 m amsl.

Soils

Soils have been classified into Black soil, mixed soil, red loamy soil, gravelly and sandysoils. Red loamy and sandy soils are predominant in Pochampallitaluk. Vast stretches of loam soils and black soils occur in Krishnagiri district.

3. GEOPHYSICAL INVESTIGATION METHODS

A variety of methods are available to assist in the assessment of geological sub-surface conditions. The main emphasis of the fieldwork undertaken was to determine the thickness and composition of the sub-surface formations and to identify water-bearing zones. This information was principally obtained in the field using, and vertical electrical soundings (VES). The VES probes the resistivity layering below the site of measurement. This method is described below.

Resistivity Method

Vertical electrical soundings (VES) were carried out to probe the condition of the sub-surface and to confirm the existence of deep groundwater. The VES investigates the resistivity layering below the site of measurement.

Basic Principles

The electrical properties of rocks in the upper part of the earth's crust are dependent upon the lithology, porosity, and the degree of pore space saturation and the salinity of the pore water. Saturated rocks have lower resistivity than unsaturated and dry rocks. The higher the porosity of the saturated rock, or the higher the salinity of the saturating fluids, the lower is the resistivity. The presence of clays and conductive minerals also reduces the resistivity of the rock.

The resistivity of earth materials can be studied by measuring the electrical potential distribution produced at the earth's surface by an electric current that is passed through the earth. Current is moved through the subsurface from one current electrode to the other and the potential difference is recorded as the current passes. From this information, resistivity values of various layers are acquired and layer thickness can be identified.

The apparent resistivity values determined are plotted as a log function versus the log of the spacing between the electrodes. These plotted curves identify thickness of layers. If there are multiple layers (more than 2), the acquired data is compared to a master curve to determine layer thickness.

This method is least influenced by lateral in-homogeneities and capable of providing higher depth of investigation.

The resistance R of a certain material is directly proportional to its length L and cross-sectional area A, expressed as:

$$R = R_s * L/A \text{ (in Ohm)}$$

Where R_s is known as the specific resistivity (characteristic of the material and independent of its shape or size)

With Ohm's Law,

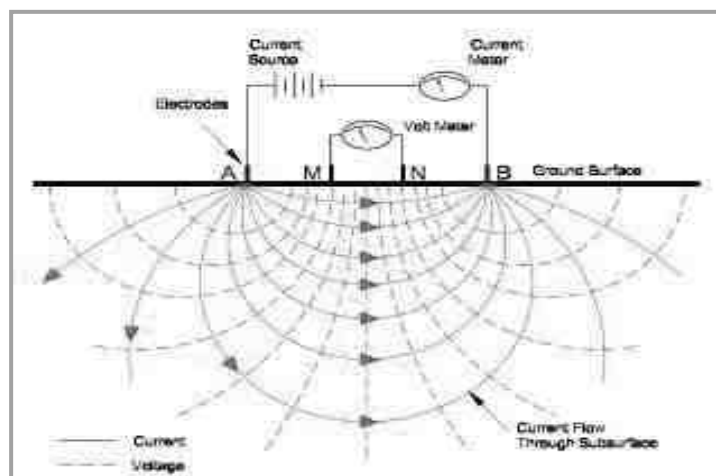
$$R = dV/I \text{ (Ohm)}$$

Where dV is the potential difference across the resistor and I is the electric current through the resistor. The specific resistivity may be determined by:

$$R_s = (A/L) * (dV/I) \text{ (in Ohm m)}$$

Vertical Electrical Sounding (VES)

When carrying out a resistivity sounding, current is led into the ground by means of two electrodes. With two other electrodes, situated near the center of the array, the potential field generated by the current is measured. From the observations of the current strength and the potential difference, and taking into account the electrode separations, the ground resistivity can be determined. During resistivity sounding, the separation between the electrodes is step-wise increased (known as a Schlumberger Array), thus causing the flow of current to penetrate greater depths. When plotting the observed resistivity values against depth on double logarithmic paper, a resistivity graph is formed, which depicts the variation of resistivity with depth. This graph can be interpreted with the aid of a computer, and the actual resistivity layering of the subsoil is obtained. The depths and resistivity values provide the hydro geologist with information on the geological layering and thus the occurrence of groundwater.

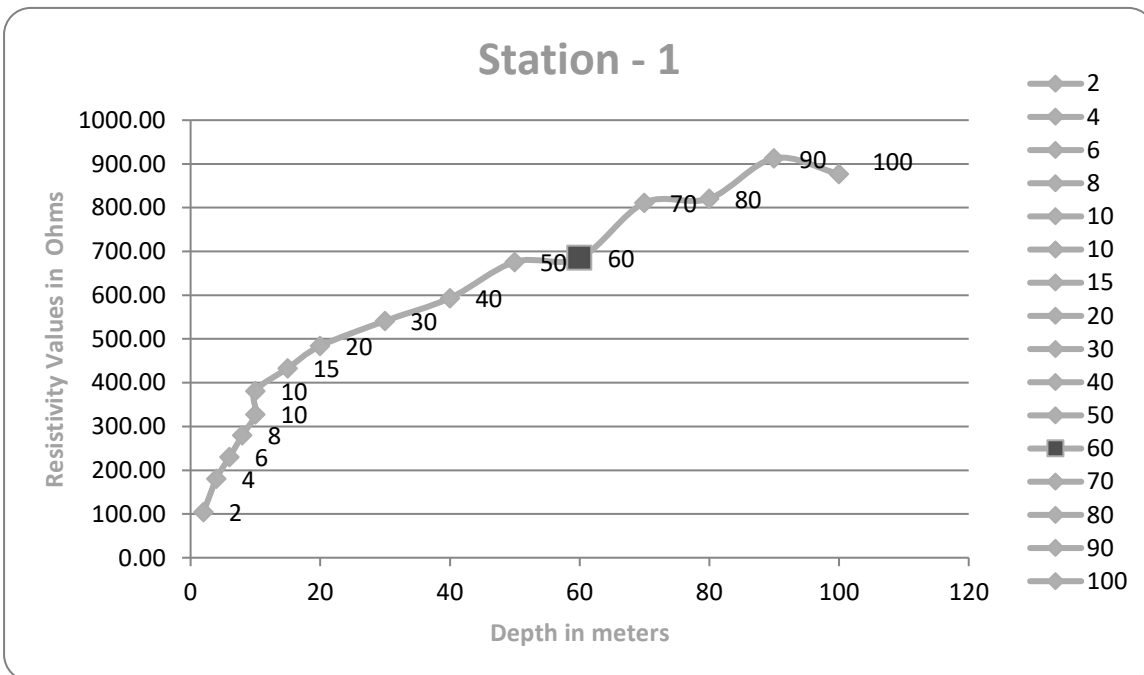


Vertical Electrical Sounding data's and Diagram

Topographical view of Soolamalai Grey Granite Quarry Lease Area

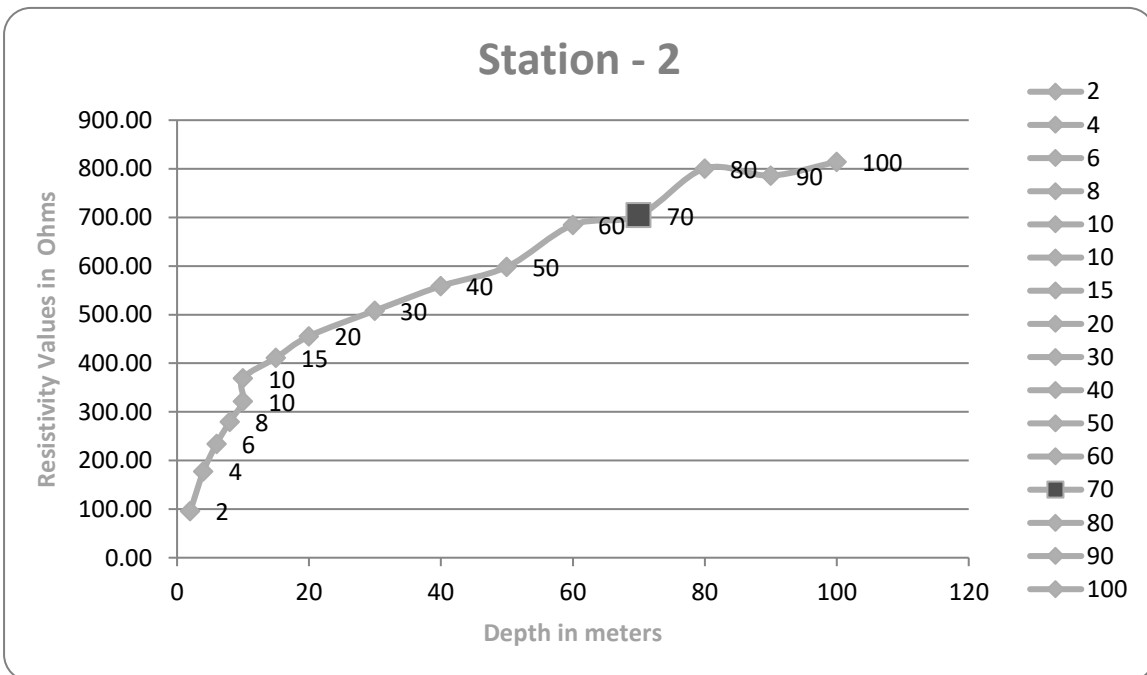


STATION-1					
GPS Coordinates - 12°29'33.6345"N 78°18'00.3456"E					
S.No	Ab/2(m)	Mn/2(m)	Geometrical factor (G)	Resistance Value in Ohms	Apparent Resistance in Ohms
1	2	1	4.71	22.04	104.80
2	4	1	23.55	7.55	182.3
3	6	1	54.95	4.2	238.5
4	8	1	98.91	2.84	279.92
5	10	1	155.45	2.12	328.00
6	10	5	23.55	16.20	381.27
7	15	5	62.80	6.92	433.32
8	20	5	117.75	4.12	483.95
9	30	5	274.75	1.99	541.26
10	40	5	494.55	1.12	589.6
11	50	5	777.15	0.77	680.1
12	60	5	1122.55	0.70	628
13	70	5	1530.75	0.55	812.6
14	80	5	2001.75	0.42	820.72
15	90	5	2535.55	0.38	912.80
16	100	5	3132.15	0.29	854.9



◆ A vertical electrical Sounding Graph diagram purple level is fracture zone.

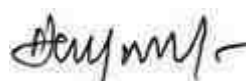
STATION-2					
GPS Coordinates - 12°29'40.2216"N 78°18'02.5405"E					
S.No	Ab/2(m)	Mn/2(m)	Geometrical factor (G)	Resistance Value in Ohms	Apparent Resistance in Ohms
1	2	1	4.71	21.48	95.85
2	4	1	23.55	7.42	177.80
3	6	1	54.95	4.40	234.64
4	8	1	98.91	2.99	279.92
5	10	1	155.45	2.06	321.78
6	10	5	23.55	14.57	369.03
7	15	5	62.80	7.48	411.34
8	20	5	117.75	3.97	455.69
9	30	5	274.75	1.82	510.3
10	40	5	494.55	1.21	541.8
11	50	5	777.15	0.70	580.3
12	60	5	1122.55	0.62	684.76
13	70	5	1530.75	0.45	704.15
14	80	5	2001.75	0.40	800.70
15	90	5	2535.55	0.38	786.02
16	100	5	3132.15	0.34	845.6



◆ A vertical electrical Sounding Graph diagram purple level is fracture zone.

4. Conclusions –

Based on the available information and the geophysical investigations it is concluded that the project area is considered to have medium groundwater potential. Productive aquifers are expected at depth of 70m to 75m where minor fractures are observed and shallow aquifers are expected above 55-65m BGL. The ultimate pit limit as per the approved Scheme of Mining plan is **18m** (1m Topsoil + 2m Weathered rock + 15m Grey granite) which will have no impact on the Ground Water.



Dr. P. Thangaraju, M.Sc., Ph.D.,

Govt. Approved Hydro Geologist

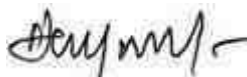
M/s. Geo Exploration and Mining Solutions,

Regd. Office: No. 17, Advaita Ashram Road,

Alagapuram, Salem – 636 004, Tamil Nadu

Mobile: +91 - 94433 56539

E-Mail: ifogeoexploration@gmail.com



தமிழ்நாடு வனத்துறை

அனுப்புதல்

செல்வி. க. கார்த்திகேயனி, இலய.,
வனஉயிரின காப்பாளர்,
ஓசூர் வனக்கோட்டம்,
மத்திகிரி, ஓசூர் - 635 110
தொலைபேசி எண். 04344 296600.

பெறுதல்

மாவட்ட ஆட்சித்தலைவர்,
கிருஷ்ணகிரி மாவட்டம்,
கிருஷ்ணகிரி.

ந.க. எண். 5575/2022/எல் நாள். 28.07.2022

மீட்புகிருஷ்ணகிரி மாவட்டம், ஆடி மாதம் 12, திருவள்ளூர் ஆண்டு 2053

அய்யா,

பொருள் : கனிமங்களும் குவாரிகளும் - கிருஷ்ணகிரி மாவட்டம் - பர்கூர் வட்டம் - சூலாமலை கிராமம் - மட்டா புல எண். 339/1 (புகுதில் 1.02.0 ஹெக்டர் பரப்பளவில் பலவண்ண கிராணைட் கற்கள் வெட்டியெடுக்க, தி/ள். பிஸ்பில்லா எக்ஸ்போர்ட்ஸ், கிருஷ்ணகிரி மாவட்டம் என்ற நிறுவனத்தினர் குவாரி குத்தகை அனுமதி கோரிய புலத்திற்கு அருகிலுள்ள காப்புக்காடு, வனஉயிரின சரணாலயம் மற்றும் யானைகளின் வலசை பாதை ஆகியவற்றின் தொலைவு குறித்து விவரம் கோரியது - தொடர்பாக.

- பார்வை : 1. தி/ள். பிஸ்பில்லா எக்ஸ்போர்ட்ஸ், எண். 125, ஜெகதேவி, ஜெகதேவிபாளையம், கிருஷ்ணகிரி - 635 203 என்பவர் விண்ணப்பம் நாள். 06.06.2022.
2. மாவட்ட ஆட்சியர், கிருஷ்ணகிரி மாவட்டம் ந.க.எண்.915/2022/கனிமம் நாள். 07.06.2022.
3. வனச்சரக அலுவலர், கிருஷ்ணகிரி ந.க.எண். 237/2022 நாள்.16.06.2022.

பார்வை 2ல் கண்ட கடிதத்தில், தி/ள். பிஸ்பில்லா எக்ஸ்போர்ட்ஸ், எண். 125, ஜெகதேவி, ஜெகதேவிபாளையம், கிருஷ்ணகிரி என்ற நிறுவனத்தினர், கிருஷ்ணகிரி மாவட்டம், பர்கூர் வட்டம், சூலாமலை கிராமம் மட்டா புல எண். 339/1 (புகுதில் 1.02.0 ஹெக்டர் பரப்பளவில் பலவண்ண கிராணைட் கற்கள் வெட்டியெடுக்க குவாரி குத்தகை உரிமம் கோரிய புலங்களுக்கு, அருகிலுள்ள காப்புக்காடு, வனஉயிரின சரணாலயம் மற்றும் யானைகளின் வலசை பாதை ஆகியவற்றின் தொலைவு குறித்து விவரத்தினை, பார்வை 2-ல் கண்ட கடிதத்தில் கிருஷ்ணகிரி மாவட்ட ஆட்சியர் அவர்கள் கேட்டுக்கொண்டுள்ளார்.

மேற்படி குவாரி அமைய உள்ள புலத்தில் 25 கி.மீ சுற்றளவில் அமைந்துள்ள காப்புக்காடுகள் விவரம் பின்வருமாறு தெரிவிக்கப்படுகிறது.

1. மேற்படி பலவண்ண கிராணைட் கற்கள் வெட்டி எடுக்க அனுமதி கோரியுள்ள இடத்தின் GPS அளவுகள் N 12.492686°, E 78.300677° ஆகும்.

2. மேற்படி பலவண்ண கிராண்ட் கற்கள் வெட்டி எடுக்க அனுமதி கோரியுள்ள இடமானது தொகரப்பள்ளி விரிவாக்கம் காப்புக்காடு எல்லையிலிருந்து 4.10 கி.மீ தொலைவிலும், காவேரி வடக்கு வனஉயிரின சரணாலயம் (ஊடேதூச்சம் விரிவாக்கம் காப்புக்காடு) எல்லையிலிருந்து 35.70 கி.மீ. சரணாலயத்திற்கான சூழல் உணர்திரன் மண்டலம் (Eco-Sensitive Zone) எல்லையிலிருந்து 34.70 கி.மீ தொலைவிலும் அமைந்துள்ளது.

மேற்படி அனுமதி கோரியுள்ள கிருஷ்ணகிரி மாவட்டம், பச்சூர் வட்டம், சூலாமலை கிராமம் பட்டா புல எண். 339/1 (பகுதி)ல் 1.02.0 புலத்திலிருந்து 25 கி.மீ சுற்றளவிற்குள் கீழ்க்கண்ட காப்புக்காடுகள் அமைந்துள்ளன.

வ.எண்.	கோட்டம்	சரகம்	காப்புக்காட்டின் பெயர்
1	ஓசூர்	கிருஷ்ணகிரி	தொகரப்பள்ளி விரிவாக்கம்
2	"	"	தொகரப்பள்ளி
3	"	"	புலிகுண்டா 1
4	"	"	புலிகுண்டா 2
5	"	"	வரட்டனப்பள்ளி
6	"	"	வரட்டனப்பள்ளி விரிவாக்கம்
7	"	"	பச்சூர்
8	"	"	நேரலகோட்டா
9	"	"	மேடுகம்பள்ளி
10	"	"	நந்திபண்டா விரிவாக்கம்
11	"	"	நந்திபண்டா
12	"	"	கொத்தூர்
13	"	"	மகாராஜகடை விரிவாக்கம்
14	"	"	மகாராஜகடை
15	"	"	நாரலப்பள்ளி
16	"	"	நாரலப்பள்ளி விரிவாக்கம்
17	"	"	வேப்பனப்பள்ளி பிட் 1
18	"	"	செளட்டஹள்ளி
19	"	"	தள்ளிஹள்ளி
20	"	"	தட்டக்கல்
21	"	"	பாலேகுளி 2
22	"	"	பெத்தாளப்பள்ளி
23	"	"	குந்தாரப்பள்ளி 1
24	"	"	பெண்ணேஸ்வர மடம்
25	"	"	செளட்டஹள்ளி
26	"	"	தல்லிஹள்ளி
27	"	"	பாலேகுளி 2
28	"	"	தட்டக்கல்
29	"	"	சாலமரத்துப்பட்டி
30	"	"	சாலமரத்துப்பட்டி கூடதல்
31	"	ஓசூர்	கரியானப்பள்ளி 2
32	"	இராயக்கோட்டை	மேலுமலை
33	"	"	சூலகுண்டா
34	"	"	சிக்கபூவத்தி

வ.எண்.	கோட்டம்	சரகம்	காப்புக்காட்டின் பெயர்
35	"	"	வெலகலஹள்ளி
36	"	"	சோக்காடி
37	தருமபுரி	பாலக்கோடு	சொக்கம்பட்டி 2 (பகுதி)
38	"	"	எலுமிச்சனஹள்ளி
39	திருப்பத்தூர்	வாணியம்பாடி	கொத்தூர் (பகுதி)
40	"	"	நந்திபண்டா (பகுதி)
41	ஆந்திர மாநிலம்	குப்பம்	பைப்பானையம் (நேரலகோட்டா காப்புக்காட்டை ஒட்டி உள்ளது)
42	"	"	நடமூர் (மகாராஜகடை காப்புக்காட்டை ஒட்டி உள்ளது)

மேற்படி பலவண்ண கிராண்ட் கற்கள் வெட்டி எடுக்க அனுமதி கோரியுள்ள கிருஷ்ணகிரி மாவட்டம், பர்சூர் வட்டம், சூலாமலை கிராமம் பட்டா புல எண். 339/1 (பகுதி)ல் 102.0 ஹெக்டர் பரப்பளவு இடமானது, கோவைப்பள்ளம் - ஆனைபெத்தஹள்ளி யானை வலசை பாதையிலிருந்து சுமார் 58 கிமீ தொலைவில் அமைந்துள்ளது. மேலும், உணவு தேடி காப்புக்காட்டை விட்டு வெளியில் வரும் யானைகளானது, மேற்படி குவாரி குத்தகை அனுமதி கோரியுள்ள பகுதிக்கு வருவதில்லை. மகாராஜகடை காப்புக்காட்டிலிருந்து அல்வப்போது வெளியில் வரும் யானைகளானது, சுமார் 12 கிமீ தொலைவில் காப்புக்காட்டிற்கு அருகிலுள்ள கிராமங்களான பெரியசக்னாவூர், மகாராஜகடை, கோத்திசூல்பள்ளி, நல்லமான்சந்தை, கன்னிகான் ஏரி, காளிகோயில், குருவிநாயனப்பள்ளி, காட்டுர், தின்னூர், பெலவாத்தி, நந்திப்பள்ளம், சேசப்பள்ளி, வரட்டனப்பள்ளி, மேல்பூங்குருத்தி, கீழ் பூங்குருத்தி, கரியப்பன்கொட்டாய் போன்ற கிராம பகுதிகளில் உள்ள விவசாய நிலங்களில் நுழைந்து பயிர் சேதம் ஏற்படுத்தி மீண்டும் காப்புக்காட்டிற்கு செல்கின்றன என்ற விவரத்தினை அன்புடன் தெரிவித்துக்கொள்கிறேன்.

தங்கள் அன்புள்ள,
ஓம்- க. கார்த்திகேயனி,
வனஉயிரின காப்பாளர்,
ஓசூர் வனக்கோட்டம்.

//உ.ந.உ.ப//

கண்காணிப்பாளர்

29/12/22

அனுப்புநர்

மாவட்ட ஆட்சியர்,
கிருஷ்ணகிரி மாவட்டம்.

பெறுநர்

வருவாய் கோட்டாட்சியர்,
கிருஷ்ணகிரி.

ந.க.எண். 915/2022/கனிமம் நாள். 02.06.2022

அய்யா,



பொருள்: கனிமங்களும் குவாரிகளும் - பலவண்ண கிராமைட் கிருஷ்ணகிரி மாவட்டம் - பர்கூர் வட்டம் - சூலமலை கிராமம் பட்டா புல எண். 339/1(ப) விஸ்தீரணம் 1.02.0 ஹெக்டேர் பரப்பளவில் பலவண்ண கிராமைட் வெட்டியெடுக்க இருபது ஆண்டுகளுக்கு குவாரி குத்தகை அனுமதி M/s. Bismillah Export என்ற நிறுவனத்தினர் விண்ணப்பித்துள்ளது - புலத்தணிக்கை மற்றும் நில உடமை குறித்த பரிந்துரை அறிக்கை கோருதல் - தொடர்பாக.


பார்வை: M/s. Bismillah Export, எண். 125, ஜெகதேவி, ஜெகதேவிபாளையம், கிருஷ்ணகிரி - 635 203 என்பவர் விண்ணப்பம் நாள் : 06.06.2022.

M/s. Bismillah Export, என்பவர் சூலமலை கிராமம் பட்டா புல எண். 339/1(ப) விஸ்தீரணம் 1.02.0 ஹெக்டேர் பரப்பளவில் பலவண்ண கிராமைட் கற்கள் வெட்டியெடுக்க இருபது ஆண்டுகளுக்கு குவாரி குத்தகை அனுமதி கோரி பார்வையில் கண்ட விண்ணப்பத்தினை சமர்ப்பித்துள்ளனர்.

மேற்கண்ட விண்ணப்பம் இத்துடன் இணைத்தனுப்பப்படுகிறது. குவாரிப்பணி மேற்கொள்ள அனுமதி கோரும் புலங்கள் மீது புலத்தணிக்கை மேற்கொண்டு, நில உடமை மீதான விவரங்களுடன் குவாரி குத்தகை உரிமம் கோரியுள்ள புலங்களில் கீழ்க்கண்ட இனங்கள் சம்பந்தமான குறிப்புகள் அடங்கிய விவரங்களுடன் பரிந்துரை அறிக்கையினை அனுப்புமாறு கேட்டுக்கொள்கிறேன்.


1. குவாரி குத்தகை கோரியுள்ள புலங்களிலிருந்து குடியிருப்பு பகுதிகள் எனில் 50 மீட்டர் சுற்று வட்டத்திற்குள் இருக்க கூடாது. இது குறித்து விளக்கமான குறிப்புகள் இடம் பெற வேண்டும்.
2. மின் கம்பி பாதைகளுக்கும் / தொலைபேசி பாதைகளுக்கும் மற்றும் ஆறு, ஓடை போன்றவற்றுக்கும் குத்தகை கோரும் புலங்களுக்கும் இடையே 50 மீட்டர் இடைவெளி இருக்க வேண்டும் 50 மீட்டர் தொலைவிற்குள் இருந்தால் அதற்காக ஒதுக்க வேண்டிய பாதுகாப்பு இடைவெளி புல வரைபடத்தில் குறிப்பிடப்பட வேண்டும்.
3. குவாரி குத்தகை வழங்க ஆட்சேபனை ஏதும் உள்ளதா என்பது குறித்த விவரம், ஆட்சேபனைகள் ஏதும் இருப்பின் அதன் உண்மைத்தன்மை குறித்தும், ஆட்சேபனை ஏற்கத்தக்கதா? இல்லையா? என்று குறிப்பாக அறிக்கையில் தெரிவிக்க வேண்டும். மேலும் ஏ.1 விளம்பரம் இணைக்கப்பட வேண்டும்.

4. குவாரி குத்தகை கோரும் பகுதிக்கு அணுகு பாதை வசதி குறித்த விவரங்கள் இடம் பெற வேண்டும்.
5. குவாரி குத்தகை கோரும் புலங்களுக்கு அருகில் நான்கு திசைகளிலும் உள்ள புல எண்களின் "அ" பதிவேடு மற்றும் புலவரைபடங்களை அறிக்கையுடன் இணைக்க வேண்டும். புலங்களின் வகைபாடு பற்றி விரிவான குறிப்பு தெரிவிக்க வேண்டும்.
6. வட்டாட்சியரால் கையொப்பமிடப்பட்ட தெளிவாக உள்ள புல வரைபடம் 3 நகல்கள், அ - பதிவேடு, சிட்டா, அடங்கல் மற்றும் கூட்டுப்புலவரைபடம் இணைக்க வேண்டும்.
7. குத்தகைதாரர் ஒரு புல எண்ணில் ஒரு பகுதியில் மட்டும் குத்தகை கோரினால் இப்பகுதியை புலவரைபடத்தில் அளவுகளுடன் வரையறுத்து காட்ட வேண்டும்.
8. விண்ணப்பித்துள்ள புலங்களுக்கு அருகில் 50 மீட்டருக்குள் இருக்கும் நிலையான கட்டிடங்கள் கோயில் போன்றவற்றை புலப்படத்தில் குறிப்பிட வேண்டும்.
9. ஏற்கனவே குவாரி செய்த குழிகள் ஏதும் இருந்தால் அவற்றை புலப்படத்தில் அளவுகளுடன் குறிப்பிட வேண்டும்.


 மாவட்ட ஆட்சியருக்காக,
 கிருஷ்ணகிரி.

நகல்:

1. வட்டாட்சியர்,
பர்கூர்.


 இணைப்புகளுடன் அறிக்கையை கிருஷ்ணகிரி,
 வருவாய் கோட்டாட்சியர் மூலமாக
 அனுப்பிவைக்குமாறு தெரிவிக்கப்படுகிறது.

2. M/s. Bismillah Export,
எண். 125, ஜெகதேவி,
ஜெகதேவிபாளையம்,
கிருஷ்ணகிரி - 635 203.

அனுப்புதல்

திருமதி. அ.பன்னீர்செல்வி, பி.பி.ஏ.,
வட்டாட்சியர்,
பர்கூர்.

பெறுதல்

மாவட்ட ஆட்சியர், SEP 2022
கிருஷ்ணகிரி.

வழி: வருவாய் கோட்டாட்சியர்
கிருஷ்ணகிரி.

ந.க.2331/2022/அ1

நாள் : 26.09.2022

அய்யா,

பொருள்: கனிமங்களும் குவாரிகளும் - பல வண்ண கிரானைட் கற்கள் - கிருஷ்ணகிரி மாவட்டம் - பர்கூர் வட்டம் - சூலாமலை கிராம புல எண்.339/1 விஸ். 1.55.50 ஹெக்டர் நிலத்தில் 1.02.00 ஹெக்டர் பரப்பளவில் பல வண்ண கிரானைட் கற்கள் வெட்டியெடுக்க இருபது ஆண்டுகளுக்கு குவாரி குத்தகை உரிமம் கோரி பிஸ்மில்லா எக்ஸ்போர்ட் நிறுவனத்தினர் அளித்த மனு மீது அறிக்கை அனுப்ப கோரியது - அறிக்கை அனுப்புதல் - தொடர்பாக.

பார்வை:

1. கிருஷ்ணகிரி மாவட்ட ஆட்சியர் அவர்களின் ந.க.915/2022/கனிமம், நாள்: 07.06.2022.
2. இவ்வலுவலக ந.க.2331/2022/அ1, நாள்:18.06.2022.
3. பாலேப்பள்ளி வருவாய் ஆய்வாளரின் அறிக்கை, நாள்:05.07.2022

கிருஷ்ணகிரி மாவட்டம், பர்கூர் வட்டம், சூலாமலை கிராம புல எண்.339/1 விஸ். 1.55.50 ஹெக்டர் நிலத்தில் 1.02.00 ஹெக்டர் பரப்பளவில் பல வண்ண கிரானைட் கற்கள் வெட்டியெடுக்க இருபது ஆண்டுகளுக்கு குவாரி குத்தகை உரிமம் கோரி பிஸ்மில்லா எக்ஸ்போர்ட் நிறுவனத்தினர் அளித்த மனு தொடர்பாக புலத்தணிக்கை மற்றும் விசாரணை மேற்கொண்டு அறிக்கை அனுப்புமாறு பார்வை 1-இல் காணும் கடிதத்தில் கோரப்பட்டது. அதன்பேரில் பாலேப்பள்ளி வருவாய் ஆய்வாளரிடம் பார்வை 2-இல் காணும் இவ்வலுவலக கடிதத்தின்படி விசாரணை அறிக்கை கோரப்பட்டதின்பேரில், பார்வை 3-இல் பாலேப்பள்ளி வருவாய் ஆய்வாளர் அறிக்கை சமர்ப்பித்துள்ளார். பாலேப்பள்ளி வருவாய் ஆய்வாளரின் அறிக்கையின் அடிப்படையில், எனதறிக்கையினை கீழ்க்கண்டவாறு சமர்ப்பித்துக் கொள்கிறேன்.

கிருஷ்ணகிரி மாவட்டம், பர்கூர் வட்டம், சூலாமலை கிராம புல எண்.339/1 விஸ். 1.55.50 ஹெக்டர் ர.பு. நிலம் சத்தார் மகன் சல்மான்-1, அப்துல் அசிப் மனைவி ஷேக்சீமா

ஆகியோரது பெயரில் கிராம கணக்குகளின்படி பட்டா தாக்கலாகி உள்ளது. மேற்கண்ட சூலாமலை கிராம புல எண்.339/1-ன் பரப்பு 1.02.00 ஹெக்டரில் பல வண்ண கற்கள் வெட்டியெடுக்க சுவாரி குத்தகை உரிமம் வழங்க உத்தேசிக்கப்பட்டுள்ளது. இப்புலம் தரிசாக உள்ளது. புல வரைப்படத்தில் வரையறுக்கப்பட்டுள்ள பகுதியில் இருந்து 1.00 கி.மீ சுற்றளவில் காப்புக் காடுகள் ஏதுமில்லை. 500 மீட்டர் சுற்றளவில் தொல்பொருள் துறையினரால் பாதுகாக்கப்பட்ட தொல்லியியல் சின்னங்கள், புராதன சின்னங்கள் மற்றும் 300 மீட்டர் சுற்றளவில் குடியிருப்புகள்/கிராம நத்தம்/அங்கீகரிக்கப்பட்ட வீட்டுமனை பிரிவுகள் ஏதுமில்லை. 50 மீட்டர் சுற்றளவில் கோயில், மசூதி, தேவாலயம் போன்ற வழிபாட்டிடங்கள், பொது மயானம், மின்/தொலைபேசி கம்பி பாதைகள் ஏதுமில்லை. கற்கள் அமைந்துள்ள இடத்திலிருந்து 50 மீட்டர் சுற்றளவில் ஏரி, குளம், குட்டை, ஓடை போன்ற நீராதார அமைப்புகள் ஏதுமில்லை. புலத்தணிக்கையின் போது பொது மக்களிடமிருந்து ஆட்சேபணை மனுக்கள் ஏதும் வரப்பெறவில்லை.

சூலாமலை வருவாய் கிராம புல எண்.339/1(ப)-ன் செக்குபந்தி விவரம் கீழ்க்கண்டவாறு உள்ளது.

கிராம புல எண்	பரப்பளவு	வடக்கு	கிழக்கு	தெற்கு	மேற்கு
339/1 (பகுதி)	1.55.50 ஹெக்டர்	புல.எண். 338/2	புல.எண்.340 ரோடு	புல.எண். 339/2	புல.எண்.283 தீ.ஏ.த

மேற்கண்ட ரயத்து புஞ்சை நிலத்தில் பலவண்ண கற்கள் வெட்டியெடுக்க சுவாரி குத்தகை உரிமம் வழங்க ஆட்சேபணை மனுக்கள் ஏதும் வரப்பெறவில்லை எனவும், சுவாரி குத்தகை வழங்கலாம் என பாலேப்பள்ளி வருவாய் ஆய்வாளர் பரிந்துரை செய்துள்ளார். எனவே மேற்படி சூலாமலை கிராம புல எண்.339/1 வில். 1.55.50 ஹெக்டர் நிலத்தில் 1.02.00 ஹெக்டர் பரப்பளவில் பல வண்ண கிராணைட் கற்கள் வெட்டியெடுக்க தமிழ்நாடு கனிம விதிகளுக்குட்பட்டு குத்தகை உரிமம் வழங்கலாம் என பரிந்துரை செய்து, இத்துடன் வருவாய் ஆய்வாளரின் அறிக்கை, கிராம நிர்வாக அலுவலர் வாக்குமூலம், "அ1" நோட்டீஸ் மற்றும் கிராம கணக்குகளின் நகல்கள் ஆகியவற்றை இத்துடன் இணைத்து அனுப்பியுள்ளேன் என்பதை பணிவுடன் தெரிவித்துக் கொள்கிறேன்.

/உண்மை நகல்/

ஓம்/- அ.பன்னீர்செல்வி,
வட்டாட்சியர்,
பார்கூர்.

துணை வட்டாட்சியர்

26/9/12

அனுப்புநர்

மாவட்ட ஆட்சியர்,
கிருஷ்ணகிரி மாவட்டம்.

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பெறுநர்

வருவாய் கோட்டாட்சியர்
கிருஷ்ணகிரி.



ந.க.எண். 915/2022/கனிமம்

நாள். 06.06.2022

பர்கூர்

அய்யா,

பொருள்: கனிமங்களும் குவாரிகளும் - பலவண்ண கிராண்ட் - கிருஷ்ணகிரி மாவட்டம் - பர்கூர் வட்டம் - குலமலை கிராமம் பட்டா புல எண். 339/1(ப) விஸ்தீரணம் 1.02.0 ஹெக்டேர் பரப்பளவில் பலவண்ண கிராண்ட் வெட்டியெடுக்க இருபது ஆண்டுகளுக்கு குவாரி குத்தகை அனுமதி M/s. Bismillah Export என்ற நிறுவனத்தினர் விண்ணப்பித்துள்ளது - புலத்தணிக்கை மற்றும் நில உடமை குறித்த பரிந்துரை அறிக்கை கோருதல் - தொடர்பாக.

பார்வை: M/s. Bismillah Export, எண். 125, ஜெகதேவி, ஜெகதேவிபாளையம், கிருஷ்ணகிரி - 635 203 என்பவர் விண்ணப்பம் நாள் : 06.06.2022.

M/s. Bismillah Export, என்பவர் குலமலை கிராமம் பட்டா புல எண். 339/1(ப) விஸ்தீரணம் 1.02.0 ஹெக்டேர் பரப்பளவில் பலவண்ண கிராண்ட் கற்கள் வெட்டியெடுக்க இருபது ஆண்டுகளுக்கு குவாரி குத்தகை அனுமதி கோரி பார்வையில் கண்ட விண்ணப்பத்தினை சமர்ப்பித்துள்ளனர்.

மேற்கண்ட விண்ணப்பம் இத்துடன் இணைத்தனுப்பப்படுகிறது. குவாரிப்பணி மேற்கொள்ள அனுமதி கோரும் புலங்கள் மீது புலத்தணிக்கை மேற்கொண்டு, நில உடமை மீதான விவரங்களுடன் குவாரி குத்தகை உரிமம் கோரியுள்ள புலங்களில் கீழ்க்கண்ட இனங்கள் சம்பந்தமான குறிப்புகள் அடங்கிய விவரங்களுடன் பரிந்துரை அறிக்கையினை அனுப்புமாறு கேட்டுக்கொள்கிறேன்.

1. குவாரி குத்தகை கோரியுள்ள புலங்களிலிருந்து குடியிருப்பு பகுதிகள் எனில் 50 மீட்டர் சுற்று வட்டத்திற்குள் இருக்க கூடாது. இது குறித்து விளக்கமான குறிப்புகள் இடம் பெற வேண்டும்.
2. மின் கம்பி பாதைகளுக்கும் / தொலைபேசி பாதைகளுக்கும் மற்றும் ஆறு, ஓடை போன்றவற்றுக்கும் குத்தகை கோரும் புலங்களுக்கும் இடையே 50 மீட்டர் இடைவெளி இருக்க வேண்டும் 50 மீட்டர் தொலைவிற்குள் இருந்தால் அதற்காக ஒதுக்க வேண்டிய பாதுகாப்பு இடைவெளி புல வரைபடத்தில் குறிப்பிடப்பட வேண்டும்.
3. குவாரி குத்தகை வழங்க ஆட்சேபனை ஏதும் உள்ளதா என்பது குறித்த விவரம், ஆட்சேபனைகள் ஏதும் இருப்பின் அதன் உண்மைத்தன்மை குறித்தும், ஆட்சேபனை ஏற்கத்தக்கதா? இல்லையா? என்று குறிப்பாக அறிக்கையில் தெரிவிக்க வேண்டும். மேலும் ஏ.1 விளம்பரம் இணைக்கப்பட வேண்டும்.

பணிநீதனுப்பப்படுகிறது:-

பெறுதல்:-

வட்டாட்சியர்,
பர்கூர்.

அய்யா,

பொருள்: கனிமங்களும் குவாரிகளும் - சிறுகனிமம் - பலவண்ண கிராணைட் கற்கள் - கிருஷ்ணகிரி மாவட்டம் பர்கூர் வட்டம் - சூலாமலை கிராம புல எண்.339/1 பரப்பு 1.55.50 ஹெக்டேர் ரயத்து புஞ்சை நிலத்தில் 1.02.0 ஹெக்டேர் பரப்பளவில் பலவண்ண கிராணைட் கற்கள் வெட்டியெடுக்க குவாரி குத்தகை வழங்க முன் மொழிவுகள் அனுப்புதல் - தொடர்பாக.

பார்வை: பர்கூர் வட்டாட்சியர் அவர்களின் குறிப்பாணை ந.க.2331/2022 அ1 நாள்:18.6.2022.

கிருஷ்ணகிரி மாவட்டம் பர்கூர் வட்டம், சூலாமலை கிராம புல எண்.339/1 விஸ்தீர்ணம் 1.55.50 ஹெக்டேரில் ர.பு நிலத்தில் 1.02.00 ஹெக்டேர் பரப்பளவில் பலவண்ண கிராணைட் கற்கள் வெட்டியெடுக்க குவாரி குத்தகை உரிமம் வழங்குவது தொடர்பாக எனதறிக்கையினை கீழ்க்கண்டவாறு தெரிவித்துக் கொள்கிறேன்.

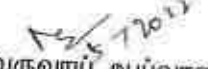
கிருஷ்ணகிரி வட்டம் பர்கூர் வட்டம், சூலாமலை கிராம புல எண்.339/1 விஸ்தீர்ணம் 1.55.50 ஹெக்டேர் ர.பு நிலம் திரு.சல்மான் சத்தார் என்பவரது பெயரில் பட்டா தாக்கலாகியுள்ளது. மேற்கண்ட புல எண்.339/1-ன் பரப்பு 1.02.00 ஹெக்டேரில் பலவண்ண கற்கள் வெட்டியெடுக்க குவாரி குத்தகை உரிமம் வழங்க உத்தேசிக்கப்பட்டுள்ளது. இப்புலம் தரிசாக உள்ளது. புல வரைபடத்தில் வரையறுக்கப்பட்டுள்ள பகுதியில் இருந்து 1.00 கி.மீ சுற்றளவில் காப்புக்காடுகள் ஏதுமில்லை. 500 மீட்டர் சுற்றளவில் தொல்பொருள் துறையினரால் பாதுகாக்கப்பட்ட தொல்லியியல் சின்னங்கள், புராதன சின்னங்கள் மற்றும் 300 மீட்டர் சுற்றளவில் குடியிருப்புகள்/ கிராம நத்தம்/அங்கீகரிக்கப்பட்ட வீட்டு மனை பிரிவுகள் ஏதுமில்லை. 50 மீட்டர் சுற்றளவில் கோயில்,மசூதி,தேவாலயம் போன்ற வழிபாட்டிடங்கள், பொது மயானம், மின்/தொலைபேசி கம்பி பாதைகள் ஏதுமில்லை. 50 மீட்டர் சுற்றளவில் ஏரி, குளம், குட்டை, ஓடை போன்ற நீராதார அமைப்புகள் ஏதுமில்லை. புலத்தணிக்கையின் போது பொது மக்களிடமிருந்து ஆட்சேபணை மனுக்கள் ஏதும் வரப்பெறவில்லை.

சூலாமலை வருவாய் கிராம புல எண்.341/1(ப)-ன் செக்குபந்தி கீழ்க்கண்டவாறு உள்ளது.

கிராம புல எண்	பரப்பளவு	வடக்கு	கிழக்கு	தெற்கு	மேற்கு
339/1 (பகுதி)	1.55.50 ஹெக்டேர்	புல எண். 338/2	புல எண். 340 ரோடு	புல எண்.339/2	புல எண்.283 தீ.ஏ.த

மேற்கண்ட ரயத்து புஞ்சை நிலத்தில் பலவண்ண கற்கள் வெட்டியெடுக்க குவாரி குத்தகை உரிமம் வழங்க ஆட்சேபணை மனுக்கள் ஏதும் வரப்பெறவில்லை எனவும், குவாரி குத்தகை வழங்கலாம் என கிராம நிர்வாக அலுவலர் வாக்குமூலத்தில் தெரிவித்துள்ளார். அரசுக்கு வருவாய் ஈட்டும் வகையில் மேற்கண்ட உத்தேசிக்கப்பட்டுள்ள கிராம எண்.339/1-ன் பரப்பு 1.55.50 ஹெக்டேர் ர.பு நிலத்தில் பகுதி 1.02.00 ஹெக்டேர் நிலத்தில் கனிம விதிகளில் வரையறுக்கப்பட்ட நிபந்தனைகளுடன் பலவண்ண கற்கள் எடுக்க குத்தகை உரிமம் வழங்கலாம் என பரிந்துரை செய்து இத்துடன் கிராம நிர்வாக அலுவலர் வாக்குமூலம், "அ1" நோட்டீஸ் மற்றும் கிராம கணக்குகளின் நகல் இணைத்து அனுப்பியுள்ளேன் என்பதை பணிபுடன் தெரிவித்துக் கொள்கிறேன்.

இணைப்பு: மேற்கண்டவாறு.


வருவாய் ஆய்வாளர்,
பாலேப்பள்ளி.

கிருஷ்ணகிரி பர்கூர் வட்டம் - சூலாமலை கிராம நிர்வாக அலுவலர் அளித்த வாக்குமூலம்.

ஆஜர்:-

கிருஷ்ணகிரி மாவட்டம் பர்கூர் வட்டம், சூலாமலை கிராம புல எண்.339/1 விஸ்தீர்ணம் 1.55.50 ஹெக்டேரில் ர.பு நிலத்தில் 1.02.00 ஹெக்டேர் பரப்பளவில் பலவண்ண கிராணைட் கற்கள் வெட்டியெடுக்க குவாரி குத்தகை உரிமம் வழங்குவது தொடர்பாக விசாரணை என்பதைத் தெரிந்துக்கொண்டேன்.

கிருஷ்ணகிரி வட்டம் பர்கூர் வட்டம், சூலாமலை கிராம புல எண்.339/1 விஸ்தீர்ணம் 1.55.50 ஹெக்டேர் ர.பு நிலம் திரு.சல்மான் சத்தார் என்பவரது பெயரில் பட்டா தாக்கலாகியுள்ளது. மேற்கண்ட புல எண்.339/1-ன் பரப்பு 1.02.00 ஹெக்டேரில் பலவண்ண கற்கள் வெட்டியெடுக்க குவாரி குத்தகை உரிமம் வழங்க உத்தேசிக்கப்பட்டுள்ளது. இப்புலம் தரிசாக உள்ளது. புல வரைபடத்தில் வரையறுக்கப்பட்டுள்ள பகுதியில் இருந்து 1.00 கி.மீ சுற்றளவில் காப்புக்காடுகள் ஏதுமில்லை. 500 மீட்டர் சுற்றளவில் தொல்பொருள் துறையினரால் பாதுகாக்கப்பட்ட தொல்லியியல் சின்னங்கள், புராதன சின்னங்கள் மற்றும் 300 மீட்டர் சுற்றளவில் குடியிருப்புகள்/ கிராம நத்தம்/அங்கீகரிக்கப்பட்ட வீட்டு மனை பிரிவுகள் ஏதுமில்லை. 50 மீட்டர் சுற்றளவில் கோயில்,மசூதி,தேவாலயம் போன்ற வழிபாட்டிடங்கள், பொது மயானம், மின்/தொலைபேசி கம்பி பாதைகள் ஏதுமில்லை. 50 மீட்டர் சுற்றளவில் ஏரி, குளம், குட்டை, ஓடை போன்ற நீராதார அமைப்புகள் ஏதுமில்லை. புலத்தணிக்கையின் போது பொது மக்களிடமிருந்து ஆட்சேபணை மனுக்கள் ஏதும் வரப்பெறவில்லை.

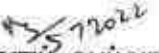
சூலாமலை வருவாய் கிராம புல எண்.341/1(பு)-ன் செக்குபந்தி கீழ்க்கண்டவாறு உள்ளது.

கிராம புல எண்	பரப்பளவு	வடக்கு	கிழக்கு	தெற்கு	மேற்கு
339/1 (பகுதி)	1.55.50 ஹெக்டேர்	புல எண். 338/2	புல எண். 340 ரோடு	புல எண்.339/2	புல எண்.283 தீ.ஏ.த

மேற்கண்ட ரயத்து புஞ்சை நிலத்தில் பலவண்ண கற்கள் வெட்டியெடுக்க குவாரி குத்தகை உரிமம் வழங்க ஆட்சேபணை மனுக்கள் ஏதும் வரப்பெறவில்லை எனவும், குவாரி குத்தகை வழங்கலாம் என கிராம நிர்வாக அலுவலர் வாக்குமூலத்தில் தெரிவித்துள்ளார். அரசுக்கு வருவாய் ஈட்டும் வகையில் மேற்கண்ட உத்தேசிக்கப்பட்டுள்ள கிராம எண்.339/1-ன் பரப்பு 1.55.50 ஹெக்டேர் ர.பு நிலத்தில் பகுதி 1.02.00 ஹெக்டேர் நிலத்தில் கனிம விதிகளில் வரையறுக்கப்பட்ட நிபந்தனைகளுடன் பலவண்ண கற்கள் எடுக்க குத்தகை உரிமம் வழங்கலாம் என்பதைப் பணிவுடன் தெரிவித்துக் கொள்கிறேன்.


கிராம நிர்வாக அலுவலர்
சூலாமலை

//என் முன்பாக//


வருவாய் ஆய்வாளர்,
பாலேப்பள்ளி

"அ1" அறிவிக்கை

கிருஷ்ணகிரி வட்டம் பர்கூர் மாவட்டம், சூலாமலை கிராமத்தைச் சேர்ந்த திரு.சல்யான் சத்தார் த/பெ.சத்தார் என்பவருக்கு கீழ்க்கண்ட ஷெட்யூலில் காட்டப்பட்டிருக்கும் சிறு கனிமம் பலவண்ண கற்களை வெட்டியெடுக்க சுவாரி குத்தகை உரிமம் வழங்குவது தொடர்பாக வெட்டி எடுக்க குத்தகை விட உத்தேசிக்கப்பட்டுள்ளது. மேற்படி நிலங்களை குத்தகை மூலம் ஒப்படை செய்யக்கூடாதென்று ஆட்சேபிப்பவர்கள் இந்த அறிக்கை பிரசித்தம் செய்யப்படும் தேதியிலிருந்து 15 தினங்கள் கொண்ட அளவுக்குள் மேற்படி கிராமத்தின் கிராம நிர்வாக அலுவலரிடம் தங்களுடைய ஆட்சேபணையை தெரிவிக்க வேண்டும்.

ஷெட்யூல்:-

கிராம புல எண்	மொத்த பரப்பு (ஹெக்டேர்)	தீர்வை		வகைபாடு	குத்தகை விட உத்தேசிக்கப்பட்ட பரப்பு (ஹெக்டேரில்)	செக்குபந்தி விவரம்
		ரூ.	பை			
339/1	1.55.50	-	-	ர.பு	1.02.0	வடக்கு : கிராம புல எண் : 338/2 தெற்கு : கிராம புல எண் : 339/2 கிழக்கு : கிராம புல எண் : 340 ரோடு மேற்கு : கிராம புல எண் : 283 தீ.ஏ.த

தேதி :

மேற்படி அறிக்கையானது மேலே கண்ட தேதியன்று தண்டோரா போட்டுப் பிரசித்திப்படுத்தப்பட்டதென்றும் மேற்படி கிராமச் சாவடியிலும் சம்மந்தப்பட்ட நிலங்களில் காட்டி வைக்கப்பட்டதென்றும் உறுதிமொழி கூறப்படுகிறது.

- 1) M. M. M. M.
- 2) இடமெல்லாம்
- 3) மரபு
- 4) சாபு
- 5) 5 சீ.ஏ.த

12/12/2022
வருவாய் ஆய்வாளர்,

சி. உய்ய
Village Administrative Officer
118, SULAMALAI VILLAGE
Krishnagiri Taluk

குறிப்பு:-

தென் கன்னடம் ஜில்லாவின் விஷயத்திலும் இந்த அடியிற்கண்ட நடுநிலவுக்கு அடியிற்கண்ட மூலமாய் பிரசித்தம் செய்யப்பட்டது என்றும் ரெஜிஸ்டரான கைப்பற்றுதாரர்களிடத்திலும் மேற்படி நிலம் விஷயமல் கும்கி சுதந்திரங்களுடைய வாலவர்க்கத்தாரர்களிடத்திலும் அந்த நிலத்தின் விசாஹிஜமா அனுபோகதாரர்களிடத்திலும் மரவரி ஏற்பாட்டின் பிரகாரம் அந்த நிலத்திலே மரங்களை கைப்பற்றி வைத்திருப்பவர்களிடத்திலும் அல்லது அந்த நிலத்திலுள்ள ஒரு கிணற்றின் தண்ணீரை சாகுபடிக்கு பயச்சிக் கொண்டிருப்பவர்களிடத்திலும் மேற்படி அறிக்கை சேர்ப்பிக்கப்படுகிறதென்றும் உறுதிமொழி கூறப்படுகிறது.

சுலாமலை ஊராட்சி அலுவலர்

A. சுவாமி

Village Administrative Officer
118, SULAMALAI VILLAGE
Krishnagiri Tk & Dt.



தமிழ்நாடு தமில்நாடு TAMILNADU Rs100-

09.05.2022

BISMILLAH EXPORT
JAGADEVI.

PARTNERSHIP DEED

BISMILLAH EXPORT

CP 933631

G. Balasubramanian
G. பாலசுப்ரமணியன்
உரிமம் எண்: 7/2021/KC
பர்கூர் Po & Tk, Pin-635 10
கிருஷ்ணகிரி Dt, தமிழ்நாடு

This deed of partnership is made on 9th day of May 2022 by and between.

1. S.SALMAN Son of SATHAR aged 27 years, (Aadhar Card No- 5130 7972 6350) residing at No-125, Jagadevi, Krishnagiri-635 203-Cell No-9524450667 First Part

(And)

2. S.SHEIKSEEMA, Wife of, ABDUL ASEEB aged 29 years, (Aadhar Card No- 7254 0158 6514) residing at No: 1/638, Salem Main Road, Kaveripattinam, Krishnagiri -635 112 -cell 9786478786 Second Part

S.S.S.
SIGNATURE OF THE APPLICANT

S. Sheik See



தமிழ்நாடு தமில்நாடு TAMILNADU Rs 100

09.05.2022

BISMILLAH EXPORT

JAGADEVI

CP 933632

G. Balasubramanian

G. பாலசுப்ரமணியன்

உரிமம் எண்: 7/2021/KG

பர்கார் Po & Tk, Pin-635 10

கிருஷ்ணகிரி Dt, தமிழ்நாடு.

Whereas the above said Partners have decided to commence a partnership firm for **MANUFACTURING OF GREY GRANITES** this deed has been entered into. Capital & Running of the business is the responsibility of the both Partners. The firm shall be subject to following terms and conditions.

NAME:

The name of the firm shall be "BISMILLAH EXPORT"

ADDRESS:

The registered office of the firm shall be at S.No.339/1, Soolamalai, Krishnagiri-635 204.

S S S
SIGNATURE OF THE APPLICANT

S. Sheik See

BANK ACCOUNT:

The Partner No.1(S.SALMAN) are authorized signatory in the firm's bank account.

CLOSING ACCOUNT:

The account of the firm shall be closed at March 31st of every year.

PROFIT & LOSS ACCOUNT:

The profit & Loss of the firm shall be shared between the Partners are given below

1.S.SALMAN	-	60%
2.S.SHEIKSEEMA	-	40%
		———
Total		100%
		———

POSTS AND RECORDS:

Both the partners are authorized to receive firm's Letter, Vpps, parcels, faxes, registered post, money order, cheques, demand drafts etc., the partner who receives the items shall keep the other partners informed of the receipts.

MANAGING PARTNER:

Though this a firm the Partner No.1 (S.SALMAN) shall be called the managing partner for the sake of administration purpose and is hereby authorized and is entitled to correspond, enter into contracts, agreements and to do all types of works on behalf of this partnership deed business. The managing partner shall be entitled to appoint necessary personnel at such remuneration as is deemed fit and necessary and dispose off their services and take action, if necessary. The managing partner is hereby authorized to file any suit or suits on behalf of this partnership deed business. All the partners will manage and administer the entire business activities.

1) S.S. Salman

S.S. Salman
SIGNATURE OF THE APPLICANT

2) S. Sheik Seema

GENERAL MANAGEMENT:

The firm shall operate and administer its activities as per the decision of the majority of the partners. The majority decisions shall bind all the partners.

SALARY:

The Working partner of the firm shall receive salary according to sec 40 (b) (v) of the Income – Tax Act 1961 (or) any amendment in the Act (or) decided by the partners as follows.

S.NO.	Profit amount	Amount given as Salary to Working Partners.
1.	First Rs.3,00,000 or loss Profit whichever is Higher.	Rs.1,50,000 or 90% of book
2.	Balance of book profit	60% of book profit

ARBITRATION:

In case any difference of opinion arises among the partners a body or arbitrators shall be constituted and their decision shall be binding on the firm and the partners.

NOMINATION:

Partners can nominate / appoint any of their family members to succeed him as a partner in the firm.

1) S.S.S. [Signature]

S.S.S. [Signature]
SIGNATURE OF THE APPLICANT

2) S. Sheik See [Signature]

PARTERSHIP ACT 1932:

The partnership Act 1932 shall be applicable wherever no specific provision has been made in contrary to that.

In witness we the partners have signed this deed the day, the year mentioned earlier.

Witnesses: -

1. S. Abdulbasir
S/o R. Shajahan
1/638, Salem main road
Kaveti patti ram - 635112

1/ S.S.S

2. B. Babubabu
S/o. Babu
498. Jagadevi (village - #)
Krishnagiri (DT)
635203

2/ S. Sheik See

S.S.S

SIGNATURE OF THE APPLICANT

உங்கள் ஆதார் எண் / Your Aadhaar No. :

5130 7972 6350

VID : 9146 9363 8708 5982

எனது ஆதார், எனது அடையாளம்



பெயர்: சல்மான் சத்தார்
Salman Sathar
பிறந்த நாள்/DOB: 01/04/1995
ஆண்/MALE

5130 7972 6350

VID : 9146 9363 8708 5982

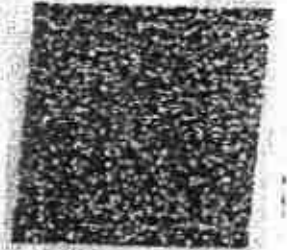
எனது ஆதார், எனது அடையாளம்



உலகளாவிய அடையாளம் ஆணையகம்
Unique Identification Authority of India

முகவரி:
S/O: சத்தார், மாநில 125, ஜகடேவி,
ஜகடேவிபாளையம், கிருஷ்ணகிரி,
தமிழ் நாடு - 635203

Address:
S/O: Sathar, NO 125, JAGADEVI,
Jagodevipalayam, Krishnagiri,
Tamil Nadu - 635203



5130 7972 6350

VID : 9146 9363 8708 5982

SIGNATURE OF THE APPLICANT



Letter No. SL/EA/TN/01 - BRIDGE AT LAVINOTOR (1) (DIN) (08/11/2012)

To
Mr. Tamil Nadu Minerals Limited
No. 11, Kanchana Ghat,
TWAD House, Cherpak,
Chennai - 600 032

Sr / Madam,

Re: SL/EA, Tamil Nadu, Taramandalu Circle - Mr. Tamil Nadu Minerals Limited - proposed Bridge across mine lease on subject of M.31.30 having production capacity of 1211 mt per annum for a period of 20 years at S.104, S.2104, S.1044/Village, Kothangoi Taluk, Kothangoi District, Tamil Nadu under Category "B" and Schedule S.No. M1 - TOL, 1980 - preparation of EIA report - Reg.

Ref: 1 Year application for EIA dt. 08/10/2012,
2 Minutes of the SL/EA/TN meeting held on 26.10.2012.

Kindly refer to your proposal submitted to the State Level Impact Assessment Authority by Environmental Clearance. The above proposal was considered in the SL/EA/TN meeting held on 26.10.2012.

The Committee observed that the above project comes under Category "B" and Schedule S.No. 1(a) based on the presentation made by the proponent and the documents furnished. The committee decided to issue the following TOL for the preparation of EIA report.

- 1) Year-wise production details since 1994 should be given, clearly stating the higher production achieved in any one year prior to 1994. It may also be empirically inferred whether there had been any increase in production after the EIA Notification 1994 came into force, with the highest production achieved prior to 1994.
- 2) A copy of the statement in support of the fact that the Proponent is the rightful tenant of the mine should be given.
- 3) All documents including appraised mine plan, file and Public Hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and should be in the name of the lease.
- 4) All mine conditions of the mine lease and, signed up to a High Regulatory Ministry/Department, comprising their geomorphology and geology of the area should be provided. Such as category of the proposed area should clearly show whether or not there are critical features of the mine.

- 12) Status of existing activities like the brown tree and viper sanctuaries located in the Project including availability of red panther snake (RPS) and composition information (CA) should be indicated. A copy of the survey document should also be provided.
- 14) Implementation status of acquisition of sweep rights under the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.
- 15) The vegetation in the RD + DT areas is known to vary with necessary details should be given.
- 16) A study shall be set apart to ascertain the impact of the Mining Project on wildlife of the study area and clearly delineated. Impact of the project on the wildlife in the surrounding and any other projects were and accordingly decided suitable measures required should be worked out with due implications and advisories.
- 17) Location of National Park, Sanctuaries, Wildlife Reserves, Wildlife Corridors, Reserves and Tiger, Elephant, Rhinoceros sanctuaries as well as proposed (if any) wildlife refuge of the area must clearly be clearly delineated, supported by a location map duly authenticated by Chief Wildlife Warden, necessary clearance, as far as applicable to each project due to proximity of the ecologically sensitive areas as indicated above, should be obtained from the Forest Department of District, State of Wildlife and copy provided.
- 18) A detailed biological study - (i) study area perimeter and buffer zone (10 km radius of the periphery of the mine lease) shall be carried out. Details of flora and fauna, indigenous products and IFT benefits duly substantiated, suitable for use and buffer zone should be finalized based on such primary field survey, clearly indicating the Schedule of the flora project. In case of any scheduled-I fauna found in the study area, the necessary plan alongwith necessary provisions for their conservation should be prepared in consultation with State Game and Wildlife Department and Grants furnished. Necessary detailed mode for implementing the same should be made as part of the project cost.
- 19) Proximity to Areas declared as Critical Habitat of the Project area likely to come under the Special Range (removing most restrictions for mining operations), should also be indicated and advice as required, clearance and approvals from the proposed Authority, such as the RPSM or from Mining Department should be sought and finalized to the effect that the proposed mining activities could be conducted.
- 20) Similarly, in case of Project A CRZ area duly delineated by one of the authorized agencies (Environment, JI, JTI, CRZ) also, location of the mine lease with CRZ, coastal Buffer, such as mangrove, if any, should be indicated (Note: The Mining Project being under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).
- 21) RAE (Reclamation) should be the Project Authority. A copy (RAMP) should

be involved. While preparing the ESD Plan, the relevant stakeholders (Subdivisions of Environmental Policy) should be kept in close contact with the other relevant parties of the country in the study area. A good hand shake among the agencies should be established to ensure their cooperation and active participation (personal and institutional) in carrying out the several programmes of the departments of the State Government. It may be clearly brought out whether the villages found in the study area were well served or not. The issues relating to drinking of village water including safe drinking water standards should be discussed in the Paper.

25. One section (micro-section) on availability of water supply (Seasonal) during peak summer season. District/Divisional Office/Community facilities (like gas supply, air quality, etc. per CPCR Notifications of 2002) water quality, etc. should not be missed from the final EIA and EMP Report. Also, the socio-economic data should not be missing. The location of the monitoring stations should be such as to represent whole of the study area and avoid helping to show the predominant directional direction and location of sensitive receptors. There should be station one monitoring station within 500m or maximum least in the predominant windward direction. The monitoring compliance of PM2.5 particulate in the sites, should be given.
26. Air quality monitoring should be started and the availability of impact of the project on the air quality of the area. It should also take into account the impact of the emission of vehicle for the existence of roadwork. The details of the model used and terms parameters used for modeling should be provided. Daily quality criterion may be stated as a criterion also clearly indicating the location of the site, location of sensitive receptors, if any, and the facilities. The wind speed during predominant wind direction may also be indicated in the report.
27. The water requirement for the Project is available and source should be identified. A suitable water balance should also be provided. Fresh water requirement for the Project could be indicated.
28. Necessary clearance from the Competent Authority for draw of equitable quantity of water for the Project should be provided.
29. Description of water conservation measures proposed to be adopted in the Project should be given. Details of alternative facilities proposed in the Project, if any, should be provided.
30. Impact of the project on the other nearby land uses and provisions should be provided and necessary mitigation measures, if any required, should be provided.
31. Based on initial assessment data, it may clearly be shown whether working will further deteriorate because of other factors because of the project to be provided. In case the existing and current groundwater table is lowered

- Hydro Geological Study should be undertaken and Report furnished. The Report here-into shall include details of the aquifer present and impact of mining activities on these aquifers. Necessary information from Central Ground Water Authority for working below ground water and the quantity of ground water should also be obtained and reported.
- 29) Details of any streams, channels or waterways passing through the lease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be investigated.
 - 30) Information on the climate, working depth, groundwater table etc. should be provided both to MOE and NEA. A schematic diagram may also be provided for reference.
 - 31) A detailed Progressive Landfill Development Plan shall be prepared in a suitable form indicating the linear and quantitative coverage, plant species used, noise control and water table keeping in mind, the same will have to be submitted up front to the concerned authority of the Project. Plant species given of protection and complementary alternatives should be identified clearly including the trees to be retained under protection and the species to be planted. The details of plantation already done should be given. The plant species selected by green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are common in pollution.
 - 32) Impact on local transport infrastructure due to the Project should be indicated. Proposed increase in truck traffic as a result of the Project - the present road network (existing) from outside the Project area should be studied and, indicating whether it is capable of handling the incremental load. Arrangements for handling the increment, if any, should be indicated. (Indicating action to be taken by other agencies, such as other Government) should be covered. Impact Prediction shall consider impact of transportation study as per Indian Road Congress Guidelines.
 - 33) Details of the noise studies and findings to be provided by the contractor should be included in the EIA Report.
 - 34) Conceptual plan showing layout, use, distribution and delineation of mixed use zones (with provisions and suitable number of amenities) should be given in the EIA report.
 - 35) Occupational Health impacts of the Project should be anticipated and the proposed preventive measures specified in detail. Details of pre-placement medical examination and periodic medical examination schedule should be incorporated in the EIA. The project specific occupational health related measures with layout facilities proposed in the mining area may be detailed.
 - 36) Public health implications of the Project and related activities by the population in the project area should be appropriately explained and the proposed remedial measures should be detailed along with vulnerability situations.

- 17) Measures of social, economic, environmental and cultural to be taken, necessarily, associated to be provided by the Project Proponent should be indicated, as far as possible, quantitative dimensions and be given such due weight to be comprehensive.
- 18) Detailed environmental assessment (EIA) (EMP) to mitigate the environmental impacts which should include the details of design of land use, type of operation and growing level of any occupational health impact besides other impacts specific to the proposed Project.
- 19) Public Hearing policy should not be a part of the Project Document in the same way with these usual states that will undergo procedure to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.
- 20) Details of litigation pending against the project, if any, with directions to be issued by any Court of Law against the Project should be given.
- 21) The cost of the Project (capital cost and working cost) as well as the cost towards implementation of EIA should be clearly specified.
- 22) A summary report of the EIA to be prepared and included in the EIA/EMP Report.
- 23) Details of the Project if the Project is an investment should be specified. The details of the investment (clearly indicate investments, salary, economic, employment potential, etc.
- 24) Besides the above, the below are listed critical points to be taken to follow:-
- a) Executive Summary of the EIA/EMP report
 - b) All documents to be properly referenced with serial and sequential page numbering.
 - c) Where data are generated in the report accessible to public, the period in which the data were collected and the sources should be indicated.
 - d) Project Proponent shall ensure all the environmental impacts of water, air, soil, noise etc. using the MULTICRITERIA assessment techniques. All the impact assessment testing records should be available during appraisal of the Project.
 - e) Where the documents provided are in language other than English, an English translation should be provided.
 - f) The Questionnaire for environmental appraisal of mining projects to be deemed valid only if the Matrix provided is filled and certified.
 - g) While preparing the EIA report, the instructions for the Proponent and Industry for the Constitution issued by EIA/EMP, 2000 (MoE No. J. (EIA) 2000-2001, No. 24/011, dated 26.03.2001, 2000, which are available on

The contents of this Meeting should be followed.

- B) Changes, if any, made in the basic scope and project parameters (as submitted in Form-Land Use-202 for receiving the FDR) should be brought to the attention of MAFCCC. All necessary permits, changes and permissions should be sought at the FDC may also have to be obtained. Post-Project tracking clauses in Article and terms of the draft EIA/EMP (with its modifications) making use of the FDC process will limit understanding the FDC issues with the revised documentation.
- C) As per the clause no. 3.11(14)MSDHR-2012(1) dated 30.5.2012, verified report of the status of compliance of the conditions stipulated in the environmental clearance for the existing operations of the project should be obtained from the Regional Office of Ministry of Environment, Forest and Rivers Change in case be applicable.
- D) The EIA report should also include (i) satellite plan of the area showing location of main geographic features, drainage and mining area, (ii) geological maps and sections and (iii) sections of the water jet and external dump, if any, along showing the best features of the region/area.

From the following additional detailed information that also be furnished in the EIA report.

Documents/Additional Technical details to be furnished:

1. Afore number of lines should be planned along the periphery of the proposed site.
2. 10 KM radius Sample survey the project site shall be conducted.
3. Extensive CEM activity with specific attention of levels should include the following:
 - a. Soiler lighting for the nearby villages and the details shall be furnished as affidavit.
4. Mass balance plan shall be worked by an expert and report to be furnished.
5. Cost of all survey plan shall be furnished.
6. Letter from the AGHD inform about the details (Name of the Quarry, I.E No, Exact \pm distance from the boundary of the quarry) of each quarry (proposed/Existing/Abandoned) quarry within a radius of 500 m from the boundary of the proposed quarry site.
7. Certificate from the Mining department stating that no other quarry will be proposed within 500 m radius from the periphery of the quarry exceeding 25 ha within the limit period of this application (including existing and abandoned quarries).
8. Certificate from the PGO stating the details of both new and old within 500 m radius from the boundary of the proposed site along with EMB sketch.
9. If the proposed site is nearby Rawara Forest area, details certificate from the State Government based on letter's no. 2202/2013 stating that:
 - i. The proposed quarry site is outside the Rawara Forest Area (2500

3. The proposed quarry site is 1 Km away from the Protected Areas notified under the Wild Life (Protection) Act, 1972.
4. Map showing the above details are to be furnished

10. Certificate from the District Engineer, Forest Department stating that the proposed quarry does not affect any reserved forest area under Govt. Wild Land (Protection) Act, 1972 and also that the quarry is not in any reserved forest area.
11. Land use map showing the quarry situated near the common boundary of PWD, District Forest Department.
12. Copy of any other proposal for setting of employees and copy of some existing proposals, if any, for protection of quarry site.

In this regard, I request to furnish the above details to expedite the issue of Environment Clearance under EIA Notification 2006 in the SEIAA, ITD.
The details of this Ministry are acknowledged.


CHAIRMAN,
SEIAA, ITD

4618 1215



MINING PLAN FOR SULAMALAI GREY GRANITE

(Under Rule 19 A of TNMMCR 1959 & Rule 12, 13 & 16 of
Granite Conservation and Development Rules, 1999)

(Patta Land / Lease Period: 20 Years)

IN

LOCATION OF THE QUARRY LEASE APPLIED AREA

EXTENT : 1.08.5 Ha,
S.F.NOs. : 341/4 AND 335/4B
VILLAGE : SULAMALAI,
TALUK : KRISHNAGIRI,
DISTRICT : KRISHNAGIRI,
STATE : TAMILNADU.

FOR

APPLICANT / LESSEE

TMT.M.VARALAKSHMI,

W/o.Munirathinam,
Chendarapalli Village,
Anchoor (Post),
Krishnagiri Taluk and District - 635 203.

PREPARED BY

M.IFTHIKHAR AHMED, M.Sc., F.G.S., M.B.A., M.M.E.A,

Recognized Qualified Person

RQP/MAS/183/2004/A

Valid upto: 10.01.2024

95/1, Kailash Nagar, Brindavan Road,
4th Cross East, Fairlands, Salem - 16.

Cell: 94422 78601, 94433 56539

E-mail: ifthiahmed@gmail.com

geothangam@gmail.com

M.Varalakshmi
W/o.Munirathinam,
Chendarapalli Village,
Anchoor (Post),
Krishnagiri Taluk and District – 635 203.



CONSENT LETTER FROM APPLICANT

The Mining Plan in respect of Grey Granite over an extent of 1.08.5Ha Patta Land falling in S.F.Nos. 341/4 and 335/4B in Sulamalai Village, Krishnagiri Taluk and District, Tamilnadu State has been prepared by

M.Ifthikhar Ahmed, M.Sc., F.G.S., M.B.A., M.M.E.A.,
Recognized qualified person
RQP/MAS/183/2004/A

I request the Commissioner, Department of Geology and Mining, Chennai to make further correspondence regarding the modification of the Mining Plan with the said recognized qualified person at his following address.

M.Ifthikhar Ahmed, M.Sc., F.G.S., M.B.A., M.M.E.A.,
95/1, Kailash Nagar,
Brindavan Road,4th Cross East,
Fairlands, Salem – 16.
Cell: 94422 78601, 94433 56539.

I hereby undertake that all the modifications, if any made in the mining plan by the Recognized qualified person may be deemed to have been made with my knowledge and consent and shall be acceptable to me and binding on me in all respects.

Signature of the applicant

M. Varalakshmi

(M.Varalakshmi)

Place: Krishnagiri

Date: 13.05.2015

M.Ifthikhar Ahmed, M.Sc., F.G.S., M.B.A., M.M.E.A.,
95/1, Kailash Nagar,
Brindavan Road, 4th Cross East,
Fairlands, Salem - 16.
Cell: 94422 78601, 94433 56539.



CERTIFICATE FROM THE RECOGNISED QUALIFIED PERSON

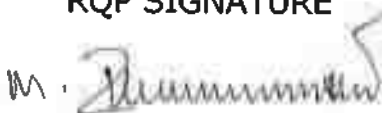
This is to certify that the Provisions of Granite Conservation and Development Rules, 1999 as amended in Tamil Nadu Minor Mineral Concession Rules, 1959 have been observed in the preparation of Mining Plan for Grey Granite over an extent of 1.08.5Ha Patta Land falling in S.F.Nos. 341/4 and 335/4B in Sulamalai Village, Krishnagiri Taluk and District, Tamilnadu State has been prepared for

Tmt.M.Varalakshmi
W/o.Munirathinam,
Chendarapalli Village,
Anchoor (Post),
Krishnagiri Taluk and District - 635 203.

Whenever specific permissions/exemptions/ relaxations and approvals are required, the applicant will approach the concerned authorities of Commissioner of Geology and Mining, Government of Tamilnadu, Guindy, Chennai- 600 032 for such permissions/exemptions /relaxations and approvals.

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

RQP SIGNATURE

M. 
M.Ifthikhar Ahmed, M.Sc., F.G.S., M.B.A., M.M.E.A.,
RQP/MAS/183/2004/A

Place: Salem

Date: 16.05.2015

M.Ifthikhar Ahmed, M.Sc., F.G.S., M.B.A., M.M.E.A.,
95/1, Kailash Nagar,
Brindavan Road,4th Cross East,
Fairlands, Salem - 16.
Cell: 94422 78601, 94433 56539.



CERTIFICATE FROM THE RECOGNISED QUALIFIED PERSON

Certified that the Provisions of Mines Act, Rules and Regulations made there under have been observed in the preparation of Mining Plan for Grey Granite over an extent of 1.08.5 Ha Patta Land falling in S.F.Nos. 341/4 and 335/4B in Sulamalai Village, Krishnagiri Taluk and District, Tamilnadu State has been prepared for

Tmt.M.Varalakshmi
W/o.Munirathinam,
Chendarapalli Village,
Anchoor (Post),
Krishnagiri Taluk and District - 635 203.

Whenever specific permissions/exemptions/ relaxations and approvals are required, the applicant will approach the concerned authorities of the Director General of Mines Safety (DGMS), No. 5, IInd Street, Block - AA, Anna Nagar, Chennai, Tamil Nadu for such permissions/ exemptions /relaxations and approvals.

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

RQP SIGNATURE

M.Ifthikhar Ahmed, M.Sc., F.G.S., M.B.A., M.M.E.A.,
RQP/MAS/183/2004/A

Place: Salem

Date: 16.05.2015

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MINING PLAN FOR SULAMALAI GREY GRANITE

(Under Rule 19A of TNMMCR, 1959 & 12, 13 and 16 of Granite Conservation and Development Rules, 1999)

1.0 INTRODUCTION

The present Mining Plan is prepared to quarry Grey Granite belonging to Tmt.M.Varalakshmi, W/o.Munirathinam, Chendarapalli Village, Anchoor (Post), Krishnagiri Taluk and District - 635 203 for which precise area communication has been granted as per Govt. letter No. 6243/MME.2/2012-3, dated:11.05.2015 with the condition to provide:-

- 1) The safety distance of 7.5meters and 10 meters should be allowed and maintained to the adjacent patta and Government lands respectively.
- 2) The lease grantee shall fence the lease granted area before the execution of the lease deed as follows:
 - i) The pillar post shall be firmly grounded with concrete foundation of height not less than 2 meters and the distance between two pillars shall not be more than 3 meters.
- 3) The applicant should submit latest Mining due Clearance Certificate, Income Tax Clearance and Solvency Certificate before the execution of lease deed.
- 4) The lessee shall strictly adhere to the statutory and safety requirements.
- 5) The waste materials generated during quarrying operatio shall be dumped only in the area granted under lease.
- 6) Quarrying shall be done as per the approved Mining Plan and that the mining plan is approved without prejudice to any other law applicable to the quarry lease from time to time whether such laws are made by the Central Government, State Government or any other authority.
- 7) The lease grantee shall submit scheme of mining: mine closure plan and other statutory requirements within the time stipulated for submission of the above, as per rules.
- 8) The District Collector, Krishnagiri shall obtain a sworn- in -affidavit from the applicant containing the above conditions before execution of lease deed and also ensure that the instructions issued in Government Letter No.12789/MMB2/2002-7, Industries Department, dated : 9.1.2003 are complied with.

The applicant ensures to comply all the condition stipulated by the Government before the execution of lease deed and during the course of quarrying operations.

This mining plan has been prepared by keeping and considering all the parameters stipulated by the Government of Tamilnadu before and during the course of quarry operations.



The area applied for Grey granite quarry lease in S.F.Nos. 341/430.60.5Ha) and 335/4B (0.48.0Ha) over an extent of **1.08.5 hectares** of Patta land in Sulamalai Village, Krishnagiri Taluk and District. It is a patta Land registered in the name of the applicant vide Patta No.360 and 756. The applicant has got surface rights over the area applied for quarry lease.

The quarry lease applied area contain an existing quarry pit with average dimensions of 70m x 20m x 10m (depth) during the earlier quarry lease period vide G.O.3D No. 157 Industries (E.2) Department dated. 28.12.1998 for the period of 10 years from 05.04.1999 to 04.05.2009.

The area exhibits flat terrain, Grey granite is clearly visible in the existing quarry pit. The area is covered by topsoil at a depth of 1m thickness and 2m weathered formation and followed by fresh massive grey granite. Slender pegmatite veins Joints, Cracks segregation and color variation and common in this formation.

Diamond wire saw cutting method is being proposed to liberate granite dimensional stones from the parent granite body. Cutting into required size, removal of defective portions are done manually using feather and wedges. The dressing of blocks in to the required rectangular shaped dimensional stones are done manually by chiseling with experienced chisel men for the maximum recovery of defect free salable material. Marketing of these stones blocks to customers is being ensured by strict quality control measures adopted by the applicant's marketing personnel.

2.0 GENERAL

2.1 NAME OF THE APPLICANT WITH ADDRESS

Name : Tmt.M.Varalakshmi
 Address : W/o.Munirathinam,
 Chendarapalli Village,
 Anchoor (Post),
 Krishnagiri Taluk and District.
 State : Tamilnadu
 Pin code : 635 203
 Phone : 9443632129.

2.2 STATUS OF THE APPLICANT

The applicant is a Private individual.

2.3 MINERAL WHICH THE APPLICANT INTENDS TO MINE

The applicant intends to quarry Grey Granite dimensional stones.

2.4 NAME, ADDRESS, AND REGISTRATION NUMBER OF THE RECOGNIZED QUALIFIED PERSON WHO PREPARED THE MINING PLAN

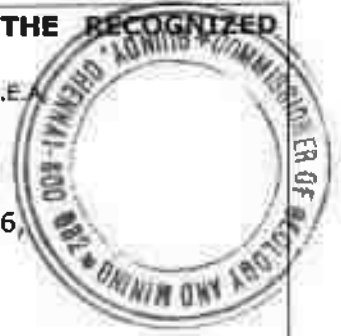
Name : M.Ifthikhar Ahmed, M.Sc., F.G.S., M.B.A., M.M.E.A.
RQP/MAS/183/2004/A

Address : 95/1, Kailash Nagar, Brindavan Road,
4th Cross East, Fairlands, Salem – 636 016,
Tamil Nadu.

Mobile : 94422 78601, 94433 56539.

Valid up to : 10.01.2024

Tele Fax : +91 427 2431989.

**2.5 NAME AND ADDRESS OF THE PROSPECTING AGENCY**

State Geology and Mining Dept, Govt. of Tamil Nadu, has carried out the Regional prospecting and exploration in these areas during 1992 to 1993.

Geological Survey of India has carried out detailed mapping of the commercial granite deposits of Tamilnadu. Besides, the RQP and his team members made a detailed geological study of the area and demarcated the deposit clearly with a mine surveyor. The granite formation is clearly visible in the existing quarry pit.

Address of the prospecting Agency:**(i) STATE GEOLOGICAL DEPARTMENT**

O/O The Commissioner of Geology and Mining
Tiru Ve Ka industrial Estate,
Guindy, Chennai – 32.

(ii) TVI.TAMILNADU MINERALS LIMITED

Kamarajar Salai, Chepauk,
Chennai- 600 005.

2.6 DETAILS OF THE AREA

a. The area is marked in the Survey of India, Topo Sheet No. 57-L/07. The details of the land covered by the area is given below.

TABLE - 1

District & State	Taluk	Village	S.F.No.	Area in Ha.	Patta No.	Classification
Krishnagiri and Tamilnadu	Krishnagiri	Sulamalai	341/4	0.48.0	360	Applicant's own Patta land
			335/4B	0.60.5	756	
Total				1.08.5		

The area lies Latitude between 12°29'33"N to 12°29'39"N and Longitude between of 78°18'07"E to 78°18'12"E on WGS datum-1984. (Plate No. I & II).

2.7 WHETHER THE AREA RECORDED TO BE IN FOREST DEPARTMENT:

The area does not falls under forest land of any category. It is a patta land.

**2.8 PERIOD FOR WHICH THE MINING AREA IS REQUIRED**

The applicant has applied for permission to quarry Grey Granite for a period of twenty years.

2.9 INFRASTRUCTURE

The area applied for Grey Granite in Sulamalai Village, Krishnagiri Taluk and District.

The lease applied area is located on Chendarapalli – Marudepalli village road at a distance of about 1km on the northern side of Chendarapalli. From the Chendarapalli the Sulamalai village is located about 3km on the western side. Sulamalai village is located in the Krishnagiri – Tiruvannamalai road NH-66 (Please refer plate No- IA & IB).

The nearest town Krishnagiri where all basic facilities like Hospital, Communication centre, Schools, Police Station, and Bus terminus, the District head quarters and District Administrative Office are available which is about 11km on the northwest.

There is good approachable of metal road from the quarry site to main road is already existence there is no other patta lands are encountered for the haulage of Grey Granite.

Please refer. (Plate No.I & I-A).

TABLE - 2

Particulars	Location	Approximate aerial Distance from lease applied area.
Nearest Post Office	Anchoor	2km
Nearest Town	Krishnagiri	11km
Nearest Police Station	Gandhikuppam	7km
Nearest govt. Hospital	Krishnagiri	11km
Nearest School	Chendarapalli	1km
Nearest D.S.P.Office	Krishnagiri	11km
Nearest Railway Station	Pachur	20km
Nearest Airport	Bangalore	100km
Nearest Seaport	Chennai	225km

There is no National Monuments, Places of Worship, Places of Public Interest and Permanent structures in and around 500m radius from the lease applied area.

WATER:

Packaged drinking water is available from the nearby approved water vendors in Jagadevi village, the ground water is potable without any adverse health effects. The water table is 50m in summer and 45m in rainy season this is observed from the nearby boreholes and open wells.

RIVER HEAD:

There is one small lake situated on the northeastern side at a distance of 230m away from the area.

There is no other major water body like river, dam, lake, pond etc., within the radius of 500m.

3.0 GEOLOGY AND RESERVES**3.1 PHYSIOGRAPHY**

Topographical View of the Sulamalai Grey Granite Quarry Lease Applied Area



The area exhibits flat terrain covered with black cotton soil. The Granitic Gneiss is medium to fine grained with feldspar and quartz is major constituents, Garnet and other mafic minerals are secondary minerals. This gneissic formation having wavy pattern of alternate layer which adds the austenitic beauty for this rock. This rock is commercially called paradise which is widely used for slabs, Tiles and Mounments after cutting and polishing. The area having gentle slope towards Eastern side and the altitude of the area is 481m (Maximum) above from MSL.

There is no village, habitations within the radius of 500m, few villages are located within the 5km radius, approximate distance with direction & population are furnished below.

TABLE - 3

S.No	Name of the Village	Direction	Approximate Distance	Approximate population
1.	Balinayanapalli	NE	600m	150
2.	Achamangalam	NE	4km	350
3.	Marudepalli	NW	4km	850
4.	Jagadevi	SE	2km	1000
5.	Chendarapalli	S	1km	200
6.	Sulmalai	W	3km	800

The area receives rainfall about 800-900 mm/per annum and the rainy season is mainly from Oct - Jan during North East monsoon. The summer is hot with maximum temperature of 42°C and winter records a minimum temperature of 27°C. The water level is found to occur at a depth of 50m below ground level in summer and 45m below ground level during rainy season.

There are no National parks, Historical monuments, Place of public interest, Place of worship within the radius of 500m.



3.2 REGIONAL GEOLOGY & GEOLOGICAL SUCCESSION

The Grey Granite proposed to quarry is medium to fine grained with feldspar and quartz is major constituents and garnet and other mafic minerals are secondary minerals. The petrological settings of the area are simple and not a complicated phenomena. There are no major minerals observed in the vicinity of the proposed quarry. A brief description of the regional Geology is discussed below.

3.2.1 Geology of the area

The Krishnagiri district is underlain by hard Crystalline rocks of Archaean age comprising of various rock types such as Gneiss, Charnockite, etc.,. The Gneissic type of Crystalline formation is found in the North and North Eastern part of the District. Shoolagiri, Hosur, mattur and sulamalai areas covered by Granitic Gneiss (Migmatite).

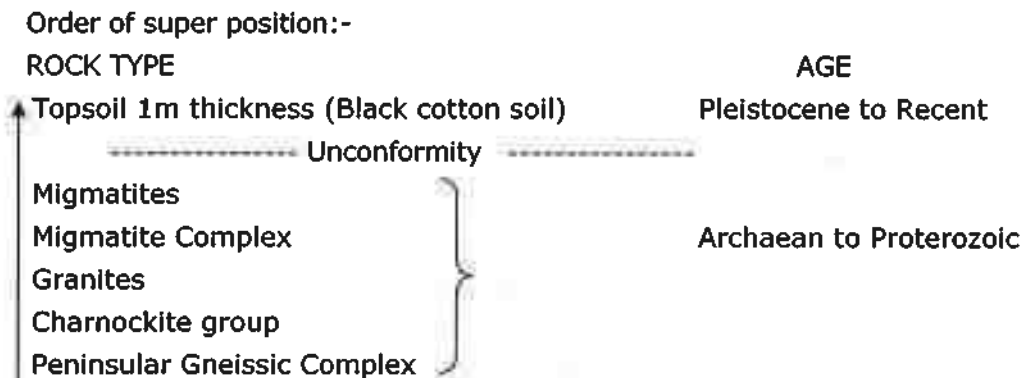
The Late Archean crust of Krishnagiri, Tamil Nadu, consists of tonalitic-trondhjemitic-granodioritic (TTG) gneisses with mafic and sedimentary enclaves, formed between 2.7 and 2.5 Ga and met The Late Archean crust south of Krishnagiri, Tamil Nadu, consists of tonalitic-trondhjemitic-granodioritic (TTG) gneisses with mafic and sedimentary enclaves, formed between 2.7 and 2.5 Ga and metamorphosed at amphibolite facies in the north to granulite facies in the south close to 2.5 Ga. Migmatization occurred at all grades, and numerous small granite bodies were emplaced near the amphibolite-to-granulite facies horizon. This nearly syn-accretion meta-morphism affected the entire crust and left a chemically differentiated section later exposed by uplift and erosion.

Such rocks that were formed at great depths during the Archaean age are now exposed at the surface of the earth as a result of the combined actions of wind, air, sun, water, weathering and denudation over the past several million years.

The Grey granite has the characteristic pink rythamatic banding by which it can be identified even from a distance. These are seen to the central part and the SE part of the district, more specifically in Rayakottai, Kaveripattinam, Jagadevi and Velampatti. These dimensional blocks are quarried to make a polished stone, slabs, monuments etc.,

STRUCTURAL SETTINGS OF KRISHNAGIRI:

The general geological sequence of the rock types in the lease area is:-





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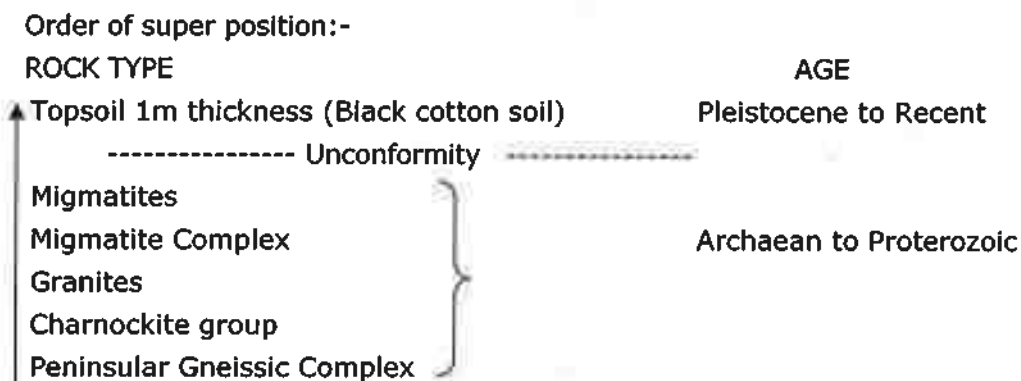
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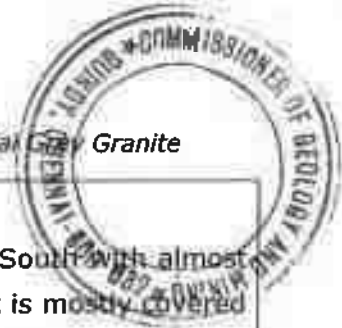
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STRUCTURAL SETTINGS OF KRISHNAGIRI:

The general geological sequence of the rock types in the lease area is:-





3.2.2. Geology of the lease applied area

The strike of the Multi Coloured Granite (Leptynite) is North - South with almost vertical dipping. The area is almost flat terrain, The grey granite deposit is mostly covered by top soil with an average of 1m thickness and 2m thickness of weathered formation. The rock formation is popularly known as Granitic gneiss essentially made up of a supra crustal assemblages of quartz and Feldspar as major constituents, Garnet and other mafic minerals are secondary minerals. The lease applied area comprises Granitic gneiss popularly termed as "Paradise".

The Physical attitude of the Grey Granite deposit of this area is given below:-

Area in Ha	-	1.08.5 Ha
Strike Direction	-	North - South
Dip direction and amount	-	Almost Vertical.

3.3 DETAILS OF EXPLORATION

3.3.1. ALREADY CARRIED OUT

As far as Grey Granite deposits are concerned, the only practical method is the systematic geological mapping and delineation of commercial Grey Granite bodies within the field and careful evaluation of body luster, physical properties, engineering properties, commercial aspects etc.

Such an exploration study has already been conducted regionally in this area by the Geological Survey of India (GSI) in the year 1966 and Department of Geology and Mining of Tamilnadu in year 1992 to 1993.

Also, the area consist an existing quarry pit with average dimensions of 70m x 20m x 10m (depth) during the earlier quarry lease period.

Based on the valuable geological information and by the field experience. The estimation of geological resources, mineable reserve is arrived at considering to waste and market potential.

3.3.2 PROPOSED STUDY TO BE CARRIED OUT

Even though the depth persistence of the Grey Granite stone may be beyond 23m (Mineable Depth) from the Petrogenetic character of the rock, only 23m (1m Top soil +2m Weathered rock+ 20m Grey Granite) depth persistent has been taken as economically viable depth (at present scenario considering for the entire lease Period) to calculate categories of proved, probable, and possible reserves.

The recovery of saleable Grey Granite stones has been taken as 20% and if the recovery percentage is good or bad, it may enhance or decrease respectively.

No definite programs for future exploration have been drawn. The quarrying activities for the next 5 years with deep cut as envisaged in the mining plan may render additional data as may be required for future planning. The total depth persistence and recovery percentage of commercial viable granite deposit will be discussed in the ensuing scheme period.



3.4 METHOD OF ESTIMATION OF RESERVES

The Geological plan demarcating the commercially marketable granite body has been prepared in 1:1000 Scale, totally four sections have been drawn, two along the length wise vertically as (X-Y) and (X1-Y1) and other two sections are drawn horizontally width wise as (A-B) and (C-D), Which are suitably chosen to cover the maximum area, in the scale of Plan - 1:1000 & sections - horizontal -1:1000, vertical - 1:500 (Plate No. IV).

The cross sectional area for the proved depth persistence of 23m has been worked out for each section. The cross sectional area multiplied by its length x breadth x height gives the volume (insitu) in the area wise. The sum total of the insitu reserves available within the block gives the geological resources of the quarry lease applied area.

From the total geological insitu resources, the quantity of saleable granite stones, quantity of rejects and waste generation are computed by applying recovery factor as 20% by its volume.

As the sale of Grey Granite stone are in terms of cubic meters (Volume) only and not in terms of tonnage as in the case of major industrial mineral, the geological resources, Mineable reserves and quantum of waste generated etc are given only in terms of cubic meters (Volume).

The details of estimation of geological resources and mineable reserves with reference to the geological plan & cross sections and conceptual plan and sections as shown in Plate No. IV and IX respectively has been furnished.

**3.5 GEOLOGICAL RESOURCES**

Maximum Length : 153m
 Maximum Width : 90m
 Maximum Depth : 23m

TABLE - 4

Section	Bench	L (m)	W (m)	D (m)	ROM (m ³)	Recoverable Reserve @20% (m ³)	Granite Waste@ 80% (m ³)	Top Soil (m ³)	Weathered Rock (m ³)	Total Waste (m ³)
X1Y1-AB	I	75	58	1				4350		-
	II	75	58	2					8700	8700
	III	75	58	5	21750	4350	17400			17400
	IV	75	58	5	21750	4350	17400			17400
	V	75	58	5	21750	4350	17400			17400
	VI	75	58	5	21750	4350	17400			17400
	TOTAL					87000	17400	69600	4350	8700	78300
X1Y1-CD	I	7.5	10	1				75		-
	II	7.5	10	2					150	150
	III	7.5	10	5	375	75	300			300
	IV	7.5	10	3	225	45	180			180
	V	78	30	5	11700	2340	9360			9360
	VI	78	30	5	11700	2340	9360			9360
	TOTAL					35700	7140	28560	75	150	28710
X1-AB	I	65	60	1				3900		-
	II	65	60	2					7800	7800
	III	65	60	5	19500	3900	15600			15600
	IV	65	60	5	19500	3900	15600			15600
	V	65	60	5	19500	3900	15600			15600
	VI	65	60	5	19500	3900	15600			15600
	TOTAL					78000	15600	62400	3900	7800	70200
GRAND TOTAL					200700	40140	160560	8325	16650	177210

Total Geological Resources ROM : 2,00,700m³
 Total Geological Resources @20% : 40,140m³
 Granite waste @ 80% : 1,60,560m³
 Weathered rock : 16,650m³
 Total Waste(Granite waste+ Weathered rock) : 1,77,210m³
 Topsoil : 8,325m³
 Granite : waste ratio : 1:4.4



3.6 MINEABLE RESERVES

The Mineable Reserves are calculated by deducting the mineral stockpiled up area under safety barrier and bench loss.

Maximum Length : 137m

Maximum Width : 73m

Maximum Depth : 23m

TABLE - 5

Section	Bench	L (m)	W (m)	D (m)	ROM (m ³)	Recoverable Reserve @20% (m ³)	Granite Waste@ 80% (m ³)	Top Soil (m ³)	Weathered Rock (m ³)	Total Waste (m ³)
X1Y1-AB	I	67	38	1				2546		0
	II	66	37	2					4884	4884
	III	64	33	5	10560	2112	8448			8448
	IV	59	23	5	6785	1357	5428			5428
	V	54	13	5	3510	702	2808			2808
	VI	49	3	5	735	147	588			588
	TOTAL					21590	4318	17272	2546	4884	22156
X1Y1-CD	IV	65	15	3	2925	585	2340			2340
	V	60	10	5	3000	600	2400			2400
	VI	55	5	5	1375	275	1100			1100
	TOTAL					7300	1460	5840			5840
XY-CD	I	50	52	1				2600		0
	II	49	51	2					4998	4998
	III	45	50	5	11250	2250	9000			9000
	IV	35	45	5	7875	1575	6300			6300
	V	25	40	5	5000	1000	4000			4000
	VI	15	35	5	2625	525	2100			2100
	TOTAL					26750	5350	21400	2600	4998	26398
GRAND TOTAL					55640	11128	44512	5146	9882	54394

Total Mineable Reserves ROM : 55,640m³

Total Mineable Recoverable Reserves@20% : 11,128m³

Granite waste @ 80% : 44,512m³

Weathered rock : 9,882m³

Total Waste(Granite waste+ Weathered rock) : 54,394m³

Topsoil : 5,146m³

Granite: waste ratio : 1:4.88

The Geological resources computed based on the geological cross sections up to the economically workable depth of 23m depth below the general ground profile of the area at the rate of 20% recovery yields 40,140m³ and 2,00,700m³ of ROM. Mineable reserves have been computed as 11,128m³ at the rate of 20% recovery and 55,640m³ of ROM.(More details refer Plate No. IV)

The mineable reserves are calculated by deducting the mineral locked up area under safety distance and bench loss. Hence the remaining area is taken for calculation of mineable reserves up to 23m depth.

The Grey Granite body occurring in this area exhibits more or less uniform colour and texture. If any variation occurs during quarrying, such as cracks, joints, patches, colour variations etc, the defective area will be removed. The formation is uniform and no gradational change is noticed except some shears and cracks.

4.0 MINING

Open cast semi mechanized mining with 5.0 meter vertical bench with a bench width of 5.0 meter is being proposed.

Under the regulation 106 (2) (b) of the Metallurgical Mines Regulation 1961, in all open cast mining, the bench height should not exceed, 5.0 meter and bench width should not be less than bench height of the vertically cut face.

But as far as the mining of granite dimension stones are concerned, observance of the provisions of Regulation 106 (2) (b) as above is seldom possible due to various inherent Petrogenetic factors coupled with mining difficulties. Hence it is proposed to obtain relaxation to the provisions of the above regulation from the Director of Mines safety for which necessary provision is available with the Regulation 106 (2) (b).

The production of Grey Granite dimension stone in this quarry involves the following method which is typical for granite stone quarrying in contrast to other major mineral mining. Splitting of rock body of considerable volume from the parent rock formation by carefully avoiding visibly seen defects such as patches veins, etc., is done by adopting the method of "diamond wire cutting" along the horizontal as well as two vertical sides on the front face of the formation.

This liberation of huge volume of granite body from the parent sheet rock is called "primary cutting". This huge portion is further split in to several blocks of desirable dimensions. The blocks thus splitted are removed from the pit to the dressing yard, by using hydraulic cranes, for further dressing. Removing the defective portions and dressing them in to the dimension blocks are done manually using feather and wedges and chiseling respectively by the experienced skilled labours or by innovative machineries.

The defect free, dimensional stone of different sizes as approved in the market are thus produced by the method as described above, and the process is continuously monitored by applicant's experienced quality control personnel.

The waste material generated during quarrying activity includes rock fragments of different sizes, and also during dressing of the blocks.

These waste materials are proposed to temporary dump on the Northeastern side with dimensions of 43m X 38m X 9m (height) for the first five years. The excavated top soil is spread all along the boundary zone and will be preserved and utilized for afforestation, construction of bunds and haul roads. The waste is proposed to backfill in the quarried out pits when the quarry reaches the ultimate pit limit or at the end of the life of quarry. (Plate. No.V, VI & IX).



4.1 YEAR WISE DEVELOPMENT AND PRODUCTION FOR THE FIRST FIVE YEARS

Maximum Length = 50m,
Maximum Width = 67m,
Maximum Depth = 13m

TABLE - 6

Section	Year	Bench	L (m)	W (m)	D (m)	ROM (m ³)	Recoverable Reserve @20% (m ³)	Granite Waste@ 80% (m ³)	Top Soil (m ³)	Weathered Rock (m ³)	Total Waste (m ³)	
XY-CD	I	I	50	13	1				650			
		II	49	12	2					1176	1176	
		III	45	11	5	2475	495	1980			1980	
		TOTAL				2475	495	1980	650	1176	3156	
	II	I	50	11	1				550			
		II	49	11	2					1078	1078	
		III	45	11	5	2475	495	1980			1980	
		TOTAL				2475	495	1980	550	1078	3058	
	III	I	50	11	1				550			
		II	49	11	2					1078	1078	
		III	45	11	5	2475	495	1980			1980	
		TOTAL				2475	495	1980	550	1078	3058	
	IV	I	50	11	1				550			
		II	49	11	2					1078	1078	
		III	45	11	5	2475	495	1980			1980	
		TOTAL				2475	495	1980	550	1078	3058	
	V	I	50	6	1				300			
		II	49	6	2					588	588	
		III	45	6	5	1350	270	1080			1080	
		IV	28	15	3	1260	252	1008			1008	
TOTAL				2610	522	2088	300	588	2676			
GRAND TOTAL						12510	2502	10008	2600	4998	15006	

Total Year wise Reserves ROM : 12,510m³
 Total Year wise Recoverable Reserves@20% : 2,502m³
 Granite waste @ 80% : 10,008m³
 Weathered rock : 4,998m³
 Total Waste(Granite waste+ Weathered rock) : 15,006m³
 Topsoil : 2,600m³
 Granite : waste ratio : 1:5.99

Estimated Life of Quarry

Total Mineable Recoverable Reserves@20% = 11,128m³
 Average Production per Year = 500m³
 Estimated Life of the Quarry = 11,128m³ / 500m³
 = 22 Years.

The proposed year wise quantum of excavation and the details of estimation of production quantity and generation of waste are furnished with reference to the year wise development and production plan (Plate No.V and Table-6).



The Quarrying block is shown in such a way to meet the average annual production. The average annual production per year would be 500m³ and 2,502m³ for the first five year plan period considering at the rate of 20% recovery.

More details of the year wise production parameters are explained with bench length, width and height in Plate No. V and Table-6.

4.2 PROPOSED RATE OF PRODUCTION WHEN THE MINE IS FULLY DEVELOPED.

The proposed rate of production where the quarry is fully developed is 500m³ per annum. The production schedule in the subsequent five year is drawn mainly in consideration of reserves position, market demand and the cost of production.

4.3 MINEABLE RESERVES AND ANTICIPATED LIFE OF MINE

The foliation of the rock formation is North - South with Vertical dipping. The depth persistence of the formation will be beyond the economically workable depth. The method of extraction from the sheet rock is highly expensive affair at greater depths.

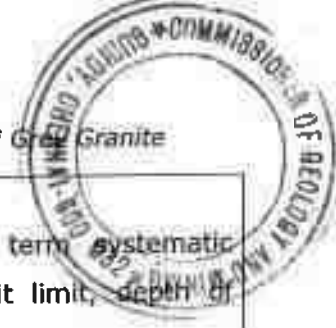
An optimum depth of 23m depth has been proposed as economically viable depth. Eventually this depth is the optimum for safe and scientific quarrying.

The mineable reserves are calculated by excluding the quarry loss due to formation of benches, ultimate depth of quarry, the mineral reserve held up within the safety distances all along the area boundary.

The Mineable Reserves for this Grey Granite quarry is thus arrived as 11,128m³ @ 20% recovery and ROM 55,640m³ for an assumed depth of 23m below the general ground profile. The details of estimation of five years development and Production plan (Plate no.V) is furnished.

The average rate of production of Grey Granite from this quarry is 500m³ per year and Mineable Reserves 11,128m³ considering 20% recovery for the entire life of the quarry.

Based on the above, and taking into consideration of the available Mineable reserves, **the life of quarry will be about 22 years** (considering all the safety factors) at 20% recovery, if the quarry is being worked continuously with an average annual production of 500m³. This calculation is based on the plan approved by Director of Mines Safety leaving Benches and Safety barriers. If the annual production increases considerably and consistently a modified mining plan will be prepared under Granite Conservation and Development Rules 1999 the same will be submitted to the relevant authorities for subsequent clearance and approval.



4.3.1 CONCEPTUAL MINING PLAN

Conceptual mining plan is prepared with an object of long term systematic development of benches; lay outs, selection of permanent ultimate pit limit, depth of quarrying and ultimate pit, selection of sites for construction of infrastructure, etc.,

The ultimate pit size is designed based on certain practical parameters such as economical depth of quarrying, safety zones, permissible area, etc.,

The ultimate pit dimension of the quarry is given below.

ULTIMATE PIT DIMENSIONS

Table - 7

Dimension in m		
Length(m)	Width(m)	Depth(m)
137(Max)	73(Max)	23

However, during extraction of blocks each bench will be of 5m height with vertical slope for proper dimension cutting. The quantum of excavation is estimated to be 70,668m³ (Rom 55,640m³ + Topsoil 5,146m³ + Weathered rock 9882m³) for a depth of 23m. The generation of waste is estimated about 54,394m³ (Granite waste 80%+ Weathered rock) and marketable Grey Granite as 11,128m³. An earth bund of 1 m height will be formed around the area to prevent inherent entry of public.

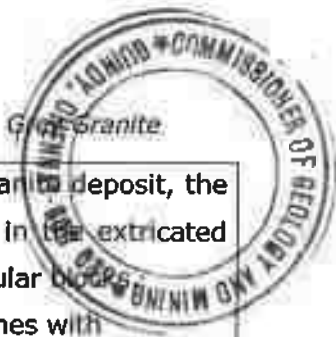
The excavated waste will be temporarily dumped on the Northeastern side with dimensions of 43m X 38m X 9m(h) for the first five years. It is proposed to backfill in the quarried out pits when the working area reaches the ultimate pit limit or at the end of the life of quarry. (Please refer plate No. VI and IX).

4.4.0 METHOD OF MINING

4.4.1 OPEN CAST WORKING

In accordance with the Regulation 106 (2) (b) of the Metalliferous Mines Regulations 1961, in all open cast working where the ore body forms hard rock, the working faces and sides should be adequately benched and sloped; a bench height not exceeding 5m and a bench width not less than the bench height has to be maintained. The slope angle of such benches and sides should not exceed 60° from horizontal. However, observance of these statutory provisions in granite dimensional stone quarrying is seldom possible due to the field difficulties and technical reasons as below:

1. Recovery of the granite mineral is to be as undamaged rectangular dimensional blocks. In the attempt to form the benches and sides with the above statutory parameters haphazard blasting may be involved. In which case the commercial granite body may get spoiled inevitably due to generation of blasting cracks.



2. In the exercise of forming the benches with 60° slope within the granite deposit, the portion confined within the 60° as well as its complimentary part in the extricated block will become as mineral waste while shaping them into rectangular blocks.
3. The granite industry need blocks as huge as a few cubic meter volumes with measurements up to 3m x 2m x 2m. Production of such huge blocks with a moving bench of 5.0m height is not possible. Production of such huge blocks in turn increases the recovery and reduces the mineral waste during dressing. Blocks of smaller size of certain varieties of granite are now marketable and have a good commercial value.
4. Formation of too many benches with more height and the width equal to the height may lead to mineral lock up.

Hence, in order to avoid granite waste and to facilitate economical mining operations, it is proposed to obtain relaxation to the provisions of Regulation 106 (2) (b) up to a bench parameter of 5 m height & 5 m width with vertical faces. Such a provision of relaxation of the Regulation has been provided within the regulation 106 (2) (b). Further, it is to be note worthy that open cast granite quarrying operations with the above proposed bench parameters may not be detrimental to mines safety, since the entire terrain is made up of hard rock, compact sheet and possess high stability on slope even at higher vertical angles.

4.4.2 EXTENT OF MECHANIZATION

The following machineries are utilized on rental basis for the development and production work at this quarry.

Table - 8

I. DRILLING MACHINE

S.No	Type	Nos	Dia Hole mm	Size Capacity	Make	Motive power
1	Jack hammer	6	32	1.2m to 6m	Atlas Copco	Compressed air
2	compressor	2		400psi	Atlas Copco	Diesel drive

Table - 9

II. LOADING EQUIPMENT

S.No	Type	Nos	Capacity	Make	Motive Power
1	Hydraulic Crane	1	855	Tata P&H	Diesel Drive
2	Excavator	1	300	Tata Hitachi	Diesel Drive

III. HAULAGE WITHIN THE MINE & TRANSPORT EQUIPMENT

Table - 10

S.No	Type	Nos	Capacity	Make	Motive Power
1	Tipper	2	20 tons	Tata	Diesel Drive

IV. TRANSPORT FROM THE QUARRY HEAD TO DESTINATION

Transportation from quarry head to customer destination is done by truck or by trailors.

V. MISCELLANEOUS:

Apart from the above the following tools and tackles are required for quarry operation.

**For operation**

The operation of granite quarry requires the following loose tools material and have to be kept sufficiently in stock for non - interruption of the quarry work.

1. Drill rods - 0.3m ,0.4m , 0.5 m ,0.6m , 0.75m ,1.65m,2.25m,3m & 3.6m and 5m.
2. Steel Alloy chains of sufficient length of 10m, 12m, 16m, 18m etc., sizes.
- 3.'D' shackles to link the chain lengths.
4. Rubber hose of required length.
5. Hose clamps to link the compressor delivery hoses.
6. Feather and wedges of 6" and 12" dia sizes utilize for splitting the block from the mother rock. This is an important tool in the operation of a quarry.
7. Crow bars.
8. Spades.
9. Sludge Hammer
10. Iron Pans
11. Pitcher Hammer
12. Chisels.
13. Consumables, such as diesel, Hydraulic oil, grease, abrasive wheels, welding machines etc.
14. Stock of essential spare parts of machinery.
15. Explosive as per the licensed quantity
16. Besides diamond wire saw equipment and new innovative machine specifically for granite with accessories are required to liberate the rock from to parent body to minimize damage and to obtain good recovery.

Splitting the sheet rock by Diamond wire sawing which increases substantial recovery potential. Hence it is proposed to adopt "Diamond wire saw cutting" for best recovery.

The above machineries are adequate to meet out the development and production schedule drawn out in this mining plan.

5.0 BLASTING

During future development of quarrying, removal of rock mass will be done by mild blasting with explosives in holes drilled by Jack hammer of 32mm dia especially. No deep hole blasting is proposed.

Portable magazine has been proposed to install in the ear marked places, and the applicant is advised to get necessary license for storing explosives in the above area after the grant of quarry lease.

The explosive that will be used are gun powder and safety fuse detonator which are indicated below.

Gun powder	class 3 - 20 kg
Safety fuses	class 6 - 30



6.0 MINE DRAINAGE

The water table in this area is about 45m as observed in nearby open wells and Bore wells. Quarry operations are confined well above the water table. If water is encountered due to rain water and seepage, the same will be drained out by 5HP motor pumps and the drained out water will be utilized for afforestation.

7.0 STACKING OF MINERAL WASTE AND DISPOSAL OF WASTE

The waste in the quarry includes rock fragments of different sizes, rubbles generated during primary splitting and granite aggregates during dressing.

The expected waste to be produced is around 15,006m³ for the first five years and the same will be temporarily dumped on the Northeastern side it will be proposed to backfill in the worked out pits at the end of the life of quarry.

The waste management plan with reference to the quantum of waste generated is shown in quarry layout plan (Plate No.VI). There is no slurry anticipated in the quarry operation. Besides the granite waste does not produce any toxic effluent in the form of solid liquid or gas.

8.0 USE OF THE GRANITE

The quarried Grey Granite blocks are either exported as rough blocks or processed as value added products such as slabs, tiles, fancy items and, precision surface plates for construction and engineering application.

The export markets for the rock under discussion are for European Countries, North America, Middle East & Far East besides catering domestic demand.

9.0 QUALITY CONTROL

The Grey Granite deposit occurring in this quarry shows uniform quality throughout and hence quarried and marketed as a single variety.

The exploited blocks are carefully examined for any natural defects such as joints, cracks, xenoliths, secondary Pegmatitic growth etc and such defects is removed manually using feather and wedges and the blocks are then shaped into perfect rectangular dimensional stone blocks by chiseling. Different price for each quality material have been fixed and the entire production quantity is marketed accordingly.

10. SURFACE TRANSPORT

The mode of transport of the granite blocks produced and marketed is by road to various customer destinations and granite processing units located at different parts of the country. The Grey Granite blocks approved for export market are shipped from Chennai Harbour to various countries and if required the blocks may be shifted to Tuticorin Harbour which depend upon the exporters' destination.



11. SITE SERVICES

The simple methods adopted and the limited scale of activities involved in granite dimensional stone quarrying does not require High Tension Electric Power supply or huge workshop facilities. The quarrying work is restricted to one general shift during day time only. Major Machinery repair works are attended at Krishnagiri town (11Km) and minor repairs are carried out by the applicant's personnel at the quarry site itself. Packaged drinking water is available from the nearby community wells and also from approved water vender in Jagadevi village (3km) can be transported to the work site in tippers. Quarry office, store room, toilet, first-aid room and, magazine will be provided on semi - permanent structures within the lease applied area (Plate No V ,VI & IX).

12. EMPLOYMENT POTENTIAL

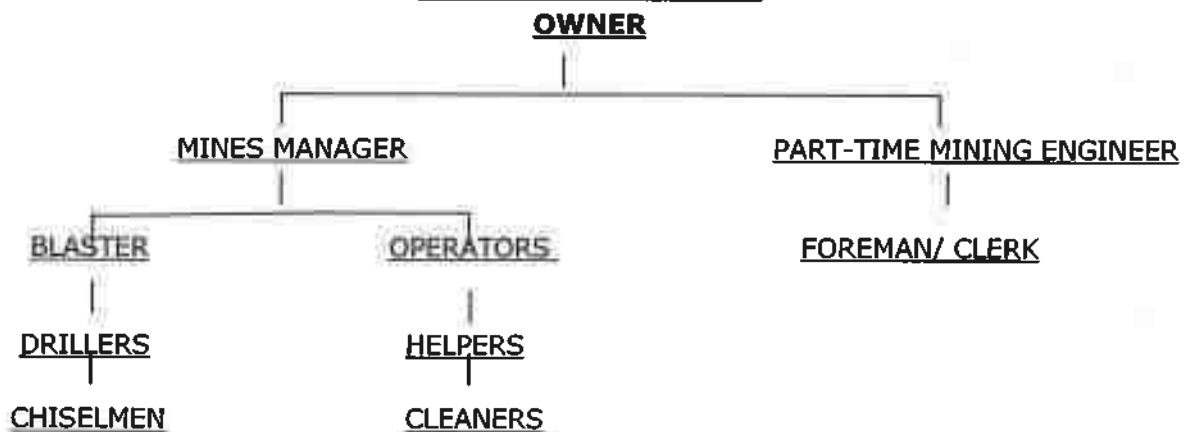
The following manpower for rental machineries as well as for operational activities are proposed to carry out the day-to-day quarrying activities aimed at the proposed production target and also to comply with the statutory provisions of the metalliferous mines regulations, 1961.

1. Mines manager (with valid statutory qualification) : 1
2. Mines foreman (with valid statutory qualification) : 1
3. Machinery operators (Certified) : 2

WORKERS:

- | | | |
|----|----------------|-------------|
| a. | Skilled labour | : 6 |
| b. | Semi-skilled | : 22 |
| c. | Unskilled | : 3 |
| | Total | : 35 |

ORGANISATION CHART



The above manpower is adequate to meet out the production schedule and the machinery strength envisaged in the mining plan and also to comply with the statutory provisions of the Mines Safety Regulations.



13.0 ENVIRONMENTAL MANAGEMENT PLAN

13.1 BASELINE INFORMATION

The following observations are made for environmental management plan.

I. EXISTING LAND USE PATTERNS:

The area exhibits flat terrain with a gentle slope on the Eastern side. Grey Granite is clearly visible right from the surface with irregular cracks and joints this may be reduced in deep seated conditions. In most places the formation concealed under the soil cover with weathering. The region receives about 800-900 mm rainfall/annum and the ground water occurs at a depth of 45m below the ground level. Cereals, mango plantation are carried out by utilizing well water. The region experiences semi - humid climate and there is scanty growth of vegetation in and around the area (seasonal vegetation is mostly practiced).

II. WATER REGIME:

Ground water occurrence in this area is 45m depth below ground level. The quarry operation will be restricted to 23m below ground level; hence the quarry operation will not be affected by the ground water in any manner.

III. FLORA AND FAUNA:

Leucus, aspera, neem, palm, Julia flora, Cocos nucifera trees and thorny bushes are found in and around the area, and faunas like Rat, squirrel, ant faunas are around the area. No plants of botanical interest or animals of zoological interest are recorded.

IV. CLIMATIC CONDITIONS:

The area receives rainfall of about 800-900 mm/per annum and the rainy season is mainly from Oct - Jan during North East, monsoon. The summer is hot with maximum temperature of 42°C and winter encounters a minimum temperature of 27°C.

V. HUMAN SETTLEMENT:

The following villages are located within the 5km radius of lease applied area and approximate distance with direction & population are furnished below.

TABLE - 11

S.No	Name of the Village	Direction	Approximate Distance	Approximate population
1.	Balinayanapalli	NE	600m	150
2.	Achamangalam	NE	4km	350
3.	Marudepalli	NW	4km	850
4.	Jagadevi	SE	2km	1000
5.	Chendarapalli	S	1km	200
6.	Sulmalai	W	3km	800

Basic human welfare Amenities such as Health Center, Schools, Communication Facilities, and Commercial Centers etc are available at Krishnagiri which is located at a distance of 11km on the Northwestern side of the area.

VI. PUBLIC BUILDINGS, MONUMENTS AND PLACES OF WORSHIPS:

There are No Public Buildings, Monuments or Places of Worship and Wild Life Sanctuary situated in and around 500m radius of the quarry lease applied area.

VII. WHEATHER THE AREA FALLS UNDER NOTIFIED AREA UNDER WATER ACT, 1974.

The area falls under notified area under water Act, 1974.

13.2 ENVIRONMENT IMPACT ASSESSMENT STATEMENT

The mining plan proposed is for a very small production of granite dimensional stone without involving deep hole drilling and heavy blasting. Such limited quarrying activity is not likely to cause any impact adversely on environment as far as pollution of air, water and noise is concerned.

Approximate Financial Estimate for Quarry and Environment Management (EMP).

Table-12

A. Fixed Assert Cost		
S.L.No	Description	Amount (Rs)
1	Land Cost	1,00,000
2	Labour Shed	50,000
3	Sanitary Facility	50,000
4	Fencing Cost	50,000
Total Cost		2,50,000

B. Operational Cost		
Sl.No.	Description	Approximate Cost (Rs)
1.	Excavator on rental (per annum)	4,00,000
2.	Tippers on rental (per annum)	3,50,000
3.	Wire Saw	3,00,000
4.	Compressor with loose tools	12,00,000
5.	Drinking Water Facility	1,00,000
6.	Safety Kits	1,00,000
Total Operational Cost		24,50,000

C. EMP Cost		
Sl.No.	Description	Amount (Rs)
1.	Afforestation	30,000
2.	Water Sprinkling	50,000
3.	Water Quality test	25,000
4.	Air Quality test	25,000
5.	Noise/Vibration test	25,000
6.	Cost towards Charity	1,00,000
Total EMP Cost		2,55,000
TOTAL PROJECT COST (A+B +C)		29,55,000

(Total project cost including EMP cost is about rupees twenty nine lakhs and fifty five thousand only)



13.3.0 ENVIRONMENT MANAGEMENT PLAN

13.3.1 PROPOSAL FOR WASTE MANAGEMENT

The mine waste in the mine includes, rock fragments, rock chips, rubbles generated as mineral waste during production work.

The total waste to be produced during the (first five year) plan period of quarry will be 15,006m³. The same will be temporarily dumped on the Northeastern side it will proposed to backfill the quarry reaches its ultimate pit limit or at the end of life of quarry.

The waste management plan with reference to the quantum of waste generated is shown in quarry layout plan. (Please refer Plate No.VI)

Selection of specific trees to be grown on the safety barrier will be carried out with the consultation of experts to evolve proper afforestation plan.

13.3.2 PROPOSAL FOR RECLAMATION OF LAND AFFECTED BY MINING ACTIVITIES DURING & AT THE END OF MINING

Due to nature of occurrence of sheet rocks, the depth persistence of the Grey Granite in this quarry is beyond the workable limits. In the proposed mining plan only 23m depth has been envisaged as workable depth for safe & economic quarrying for the entire period, after quarry reaches its ultimate pit limit the waste will be refilled in the worked out quarry pit.

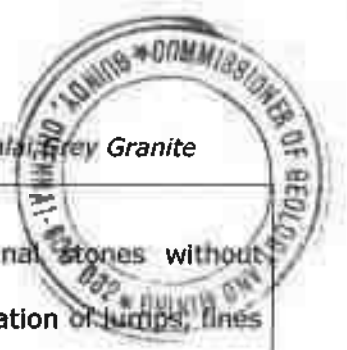
13.3.3 PHASED PROGRAMME OF PLANTING TREES

The safety distance along the boundary barrier on the southwestern side has been identified to be utilized for subsequent Afforestation. Appropriate species of Neem trees will be planted in a phased manner as described below.

Table -13

Year	No. of trees proposed to be planted	Name of the species	Area in m ²	Survival rate expected in %	No. of trees expected to be grown
I	20	Neem	150	80	16
II	20	Neem	150	80	16
III	20	Neem	150	80	16
IV	20	Neem	150	80	16
V	20	Neem	150	80	16

Nearly 750sq.m area is proposed for afforestation by planting. 20 Nos. of Neem trees during every year and expected growth is around 16 no. of Neem trees at a survival rate of 80%. The afforestation plan is shown in Plate No.VI.



13.3.4 MEASURES FOR DUST SUPPRESSION:

As the granite stones are quarried as undamaged dimensional stones without involving deep hole drilling and heavy blasting, fragmentation and generation of lumps, fines or dust is negligible. This quantum of quarrying activity will not cause the dust detrimental to the health of the persons employed. Nevertheless, Mist water spray will be sprinkled for the suppression air borne dust from quarry approach roads waste dumps on regular intervals using water tankers. Drilling of blast holes of 32mm dia will be always under wet conditions to prevent flying of dusts. In the unloading points, water will be sprinkled through tippers to suppress dust. The drillers are provided with respirators in accordance with the Mines Safety Regulations.

13.3.5 MEASURES TO MINIMIZE GROUND VIBRATION DUE TO BLASTING AND CHECK NOISE POLLUTION

Shallow holes of 32 mm diameter will be drilled and conventional low explosives such as gun powder, ordinary safety fuse will be used for removal of over burden. Hence ground vibration and noise pollution will be minimal and restricted with the quarry workings. The blasting will be taken up at appointed timing and with sufficient caution to the public under the advice of qualified and competent personals. The noise produced by diamond wire saw cutting will be negligible.

13.3.6 STABILIZATION AND VEGETATION OF DUMPS

As the waste generation in the mine includes hard rock fragments of considerable size of irregular shape with varying angularity, the temporary waste dump will be stable on its own even at higher slopes of the sides. However suitable soil type will be identified and brought from outside and will be used for increasing the stability of the sides of the waste dumps and also for planting trees in the safety zone in a phased manner as discussed in chapter 13.3.3.



14.0 PROGRESSIVE QUARRY CLOSURE PLAN:

It is proposed to carry out the quarrying operation only upto a depth of 3m during the first five year plan period and 23m during the entire life of the quarrying operations hence the ground water will not be disturbed in any manner. During the course of quarrying operation the granite waste will be dump on the Northeastern boundary which will act as temporary waste dump. The waste is proposed to back fill in the quarried out pits when the quarry reaches the ultimate pit level or at the end of the life of the quarry. Afforestation will be carried out and maintained in the boundary barriers till the plants reach the stabilize level. Office room toilet store room will be well maintained. The sludge from the toilet will be periodically removed and the same will be used as a manure for afforestation. Scentries and guards will be posted in the night to prevent the inherent entry of public.

Sufficient caution and sign boards will be kept in and around the quarry to induct public for awareness. Blasting will be carried out in a specific time after giving sufficient caution to the public, scentries will be posted on a 1km radius with whistle and flags during small amount of blasting (blasting is carried out only for secondary fragments and not to liberate the Granite body from the parent rock mass).

After completion of quarry operation the quarried out land will be fenced and maintained with barbed wire to prevent inherent entry of the public and cattle. Garland drains will be constructed around the quarry to prevent the surface run off rain water.

Afforestation and Green belt development will be maintained in all the boundaries, till the trees attain the stabilize level.

Land use pattern

Table-14

Description	Present Area (Ha.)	Area to be Required at the present Mining Plan period (Ha)	Area at the end of life of quarry (Ha)
Area under quarrying	0.14.0	0.26.0	0.63.8
Waste dump	Nil	0.16.4	Backfilling
Infrastructure	Nil	0.01.0	0.01.0
Roads	0.01.0	0.01.0	0.02.0
Green Belt	Nil	0.07.5	0.25.8
Stocking Blocks	0.93.5	0.41.6	0.15.9
Grand Total	1.08.5	-	1.08.5

15.0 MINERAL CONSERVATION AND DEVELOPMENT

The mining plan proposed has fully covered all the aspects of Granite Conservation and development rules 1999, with a future plan to extend the proposed working of the quarry to the maximum possible workable depth of the deposit. Extreme care is taken to ensure proper supervision of quality control of the Granite dimensional stone aimed at the recovery of the maximum saleable quality and quantity of granite dimensional stones suitable for full utilization of the consumers. Care is been taken for each process just to safeguard the material quarried in an economical and efficient manner by adopting systematic and scientific quarrying with the consultation and supervision of well experienced quarry persons.



16.0 STATUTORY PROVISIONS

The provisions of the Mines Act, Rules and Regulations and orders made there under shall be complied with, so that the safety of the mine, machinery and person protected. Permission, relaxation or exemption wherever required for the safe and scientific quarrying of the deposit will be obtained from the Department of Mines Safety, Chennai. Any violation pointed out by the inspecting authorities shall be rectified as per the guidelines of the department.

Certified that this Mining Plan has been Prepared in Accordance with the Mines Act, Rules and Regulations and orders made there under and also in Conformity with the Provisions Sub Rule (13) of Rule 19A of Tamilnadu Minor Mineral Concession Rules, 1959 and 12,13 and 16 of Granite Conservation and Development Rules 1999.

RQP SIGNATURE

M. Ifthikhar Ahmed, M.Sc., F.G.S., M.B.A., M.M.E.A.,
Recognized Qualified Person
RQP/MAS/183/2004/A.

Place: Salem

Date: 16.05.2015

This Mining Plan is approved in accordance with the provisions of sub rules (i) (ii) (iii) (iv) (v) and (vi) of rule 15 of Granite Conservation and Development Rules, 1999 and subject to further fulfillment of the conditions laid down under rule 16 of Granite Conservation and Development Rules, 1999.

[Signature]
3/6/15
Commissioner of Geology and Mines

This Mining Plan is Approved Subject to the Conditions stipulation indicated in the Mining Plan Approval

Letter No. 10767/mms/11 Date: 23.6.15

17/6/15

18/6/15

19.6.2015

22/6/15

By Speed Post



ANNEXURE - 1
Industries (MME2) Department
Secretariat, Chennai - 600 009.

Letter No: 6243/MME 2/2012-3, dated: 11.05.2015

From
Thiru C.V.Sankar, I.A.S.,
Additional Chief Secretary to Government.

To
✓ Tmt.M.Varalakshmi
W/o, C.Munirathinam,
Chendarapalli,
Anchoor (Post),
Krishnagiri District - 635 203.

Sir,

Sub: Mines and Quarries - Minor Mineral - Grey Granite - Krishnagiri Taluk and District- Sulamalal Village - S.F.Nos. 335/4B and 341/4- Over an extent of 1.08.5 Hectares of Patta lands - Quarry Lease Application prepared by Tmt.M.Varalakshmi - Approved mining plan and Environment Clearance Certificate - Called for - Regarding.

- Ref: 1. Your Quarry Lease Application dated: 31.03.2008.
2. From the District Collector, Krishnagiri, Letter Roc.280/2008(Mines-1), dated: 04.11.2011.
3. From the Commissioner of Geology and Mining, File No.10767/MM5/2011, dated: 10.04.2012 and Letter dated 30.09.2014.

I am directed to invite attention to the references second and third cited wherein the District Collector, Krishnagiri and the Commissioner of Geology and Mining have recommended your quarry lease application for grant of quarry lease for quarrying Grey granite over an extent of 1.08.5 Hectares of patta lands of in S.F.Nos. 335/4B and 341/4 of Sulamalal Village, Krishnagiri Taluk and District for a period of 20 years under rule 19A of Tamil Nadu Minor Mineral Concession Rules, 1959.

2. In this connection, I am directed to request you to furnish the approved mining plan for the above said area by incorporating the following conditions to the Government through the Commissioner of Geology and Mining within a period of 3 months as per sub-rule (13) of Rule 19A of Tamil Nadu Minor Mineral Concession Rules, 1959. I am also to request you to obtain and produce Environment Clearance Certificate from State Level Environment Impact Assessment Authority (SEIAA) as per the orders of Hon'ble Supreme Court dated

அண்மைப்படி. எண் 23

பி.பி.பி. காமராசர்

கிராமம்

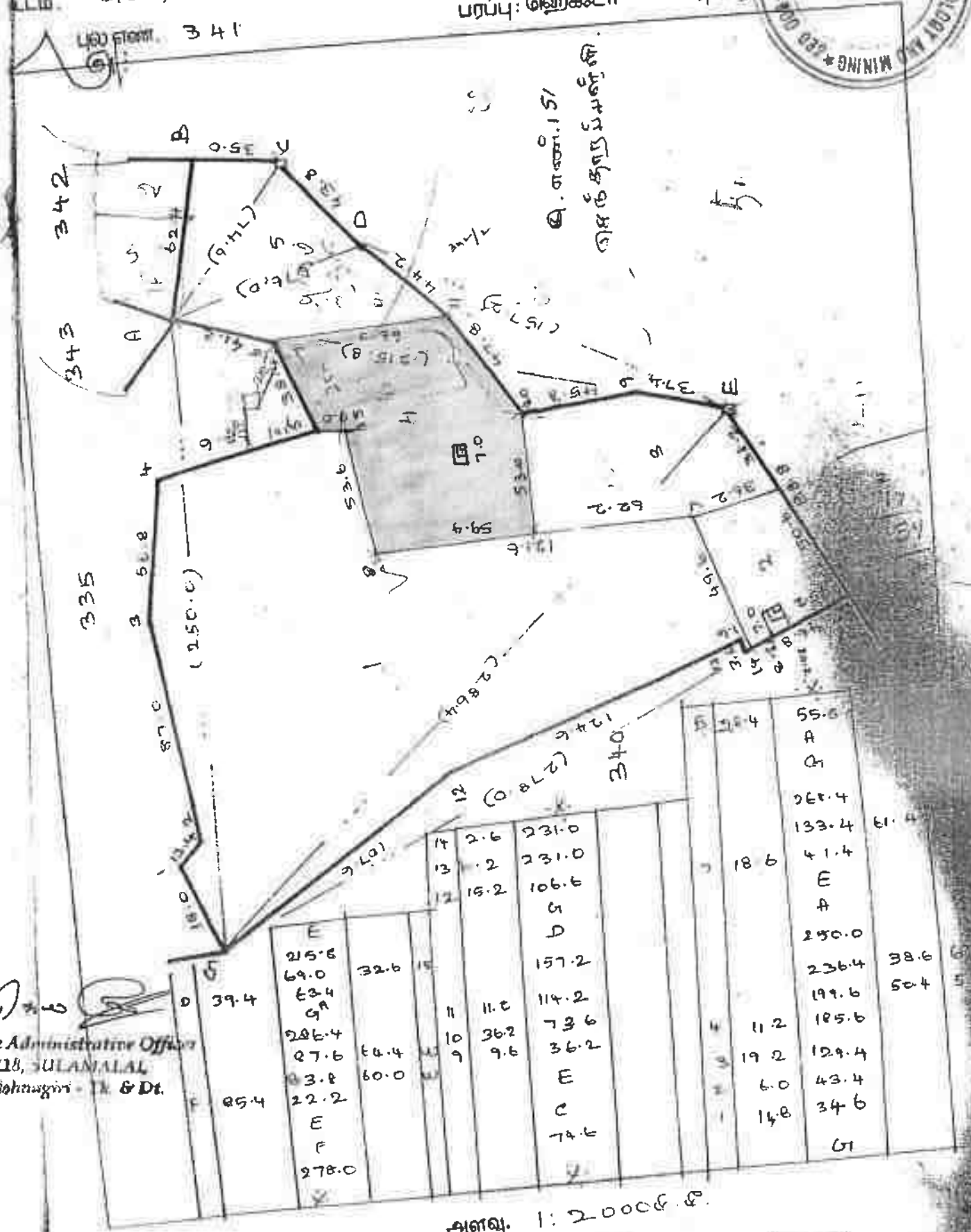
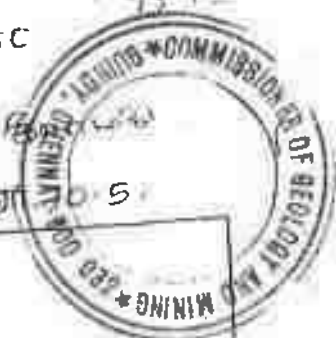
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கிருஷ்ணகிரி

பரப்பு: ஹெக்டேர்

4.9

பி.பி.பி. 341



[Signature]
 Village Administrative Officer
 118, SULAMALAL
 Krishnagiri - T.N. & Dt.

அண்மைப்படி. 1: 2000 & 50

431 A

LEASE APPLIED AREA



சென்னை - 150

எண். 150

சுமார்

சுமார் 20.6

பகுதி: 1000000

ஏ. 20.6

56-0

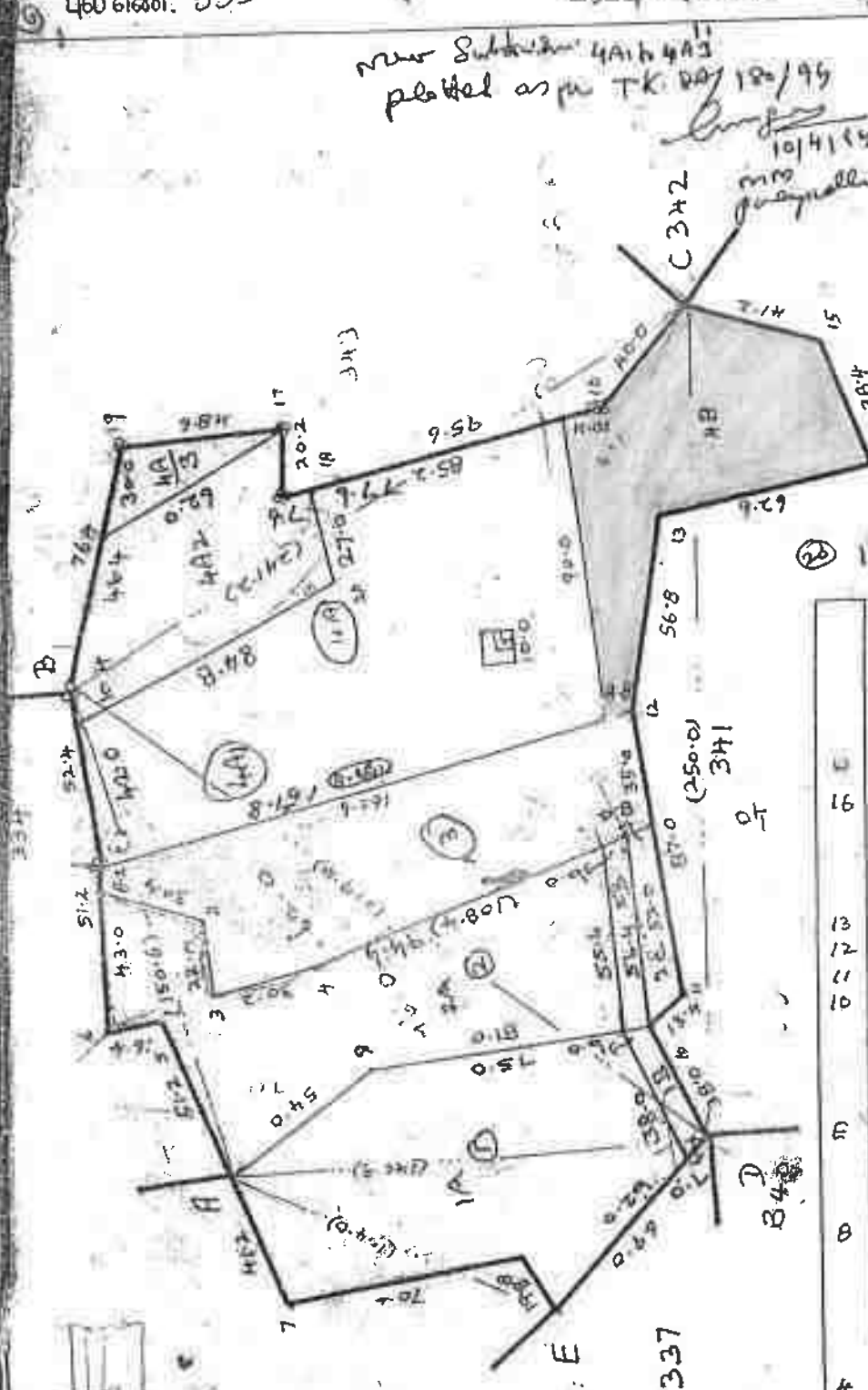
400 எண். 335

new Subdivision 4A1b 4A3
plotted as per TK. No. 120/95

New subdivision
1A, 1B, 1C, 1D, 1E
Changes Corrected by
me as per TK
No. 77/1416

10/4/19
Mrs. Jayalaxmi

சுமார் 20.6

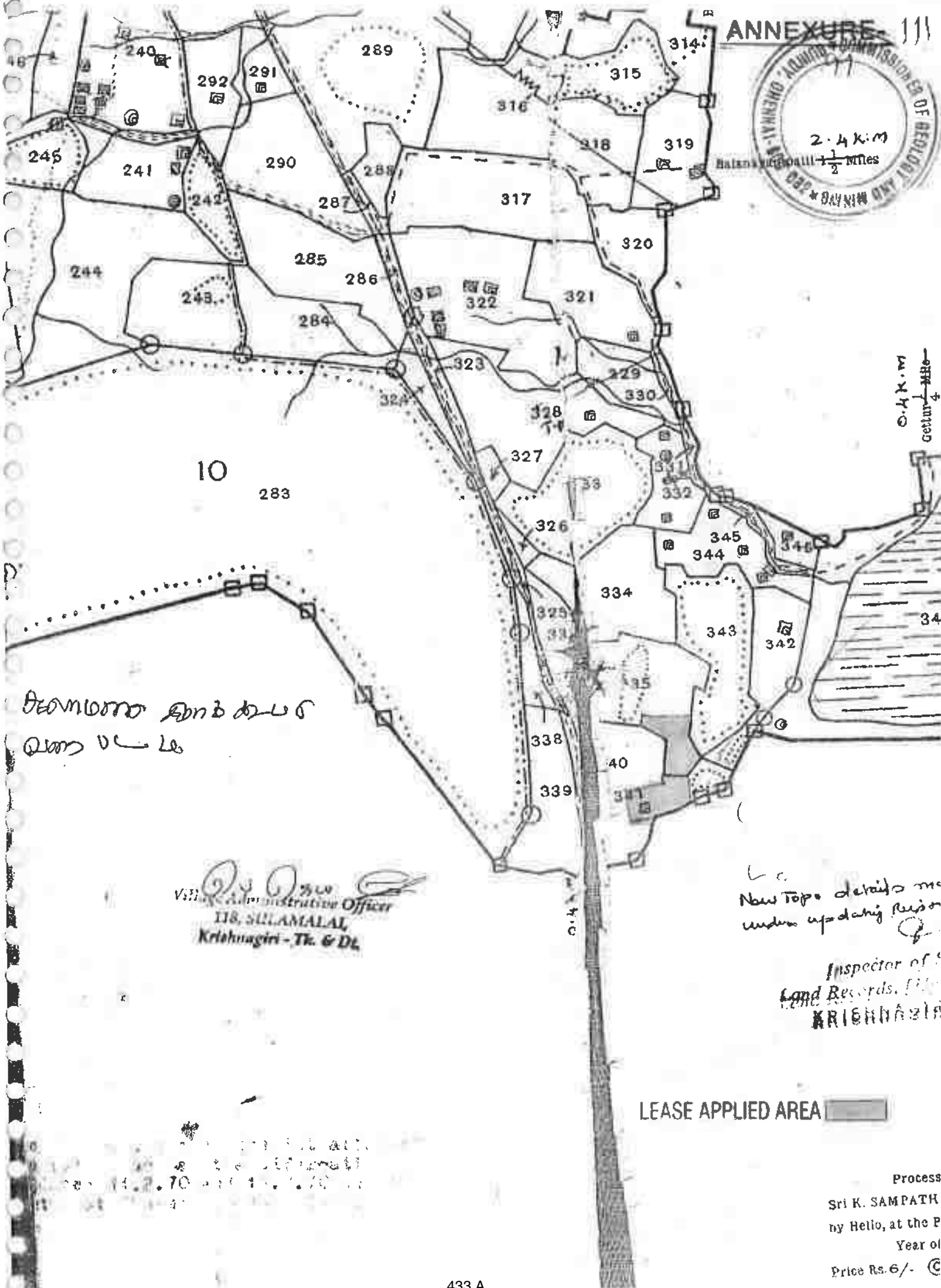


		B	
		214.2	
		160.2	54.0
		129.8	16.8
		112.4	32.2
		104.8	
		98.0	
		38.4	
		C	
		250.0	
		232.4	38.6
		172.6	50.4
		175.6	
	13	11.2	
	12	19.2	129.4
	11	6.0	43.4
	10	15.8	34.6
		D	
		A	
		140.8	
		95.8	27.4
		48.6	
		D	
		E	
		604.0	
		371.2	
		29.4	39.4
		H	
		150.0	
		100.4	21.0
		100.0	4.6
		41.6	
		48.8	
		48.8	
		72.2	
		51.6	7.4
		B	

LEASE APPLIED AREA

113, SULLAMALAL
Kilubingal, TK. 6 & 7

432A



ಶ್ರೀಮನ್ಮೂಲಕ ಅಧಿಕಾರಿಗಳು
ಕೆ.ಎ.ಎ.ಎ.

[Signature]
Village Administrative Officer
T.B. SULLAMALAI
Krienuagiri - Tk. & DL

New Topo details are
under updating process

Inspector of
Land Records,
KRIENHASTI

LEASE APPLIED AREA

Process
Sri K. SAMPATH
by Helio, at the P
Year of
Price Rs. 6/- ©

466/10

தமிழ்நாடு அரசு

ANNEXURE- IV

22/1/2010



பக்கம் தெ.



நில அளவை ஆவணம் - பட்டா

வருவாய்த்துறை, கிருஷ்ணகிரி மாவட்டம்

கிராமம் : 118 சூலாமலை

பெண் 10(1) பிரிவு

பெண் : கிருஷ்ணகிரி

உடா எண் 756

உரிமையாளிகள் பெயர்

I முனித்தினம்

/ மனைவி

வரலட்சுமி

புல எண்ணம்	முன்பு		பின்னர்		மற்றவை	
	பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை
உட்கிரிவு	ஹெக்டேர் - ஏர்	ரூ - பை	ஹெக்டேர் - ஏர்	ரூ - பை	ஹெக்டேர் - ஏர்	ரூ - பை
115	4B		- 48.00	1.35		
			- 18.00	1.35		

வட்டாட்சியருக்காக
கிருஷ்ணகிரி

22/1/10

15/118/756.00/1.00 1/22/2010 12:55:00PT

466/10

தமிழ்நாடு அரசு



பக்கம் நெ.



நில அளவை ஆவணம் - பட்டா

வருவாய்த்துறை, கிருஷ்ணகிரி மாவட்டம்

கிராமம் : 118 சூலாமலை

எண் 360

உரிமையாளர்கள் பெயர்

முனிரத்தினம்

மனைவி

வரலட்சுமி

பலி எண்ணம் உரிமையாளர்	நன்செய்		புன்செய்		மற்றவை	
	பரப்பு ஹெக்டேர் - ஏர்	தீர்வை ரூ - பை	பரப்பு ஹெக்டேர் - ஏர்	தீர்வை ரூ - பை	பரப்பு ஹெக்டேர் - ஏர்	தீர்வை ரூ - பை
4	-	-	60.50	1.65	-	-
			50.50	1.65		

22-1-2010
வட்டாட்சியருக்காக
கிருஷ்ணகிரி

22-1-10

S:\118\360.00\1.00 1/22/2010 12:55:00PT



103

1417 - 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000

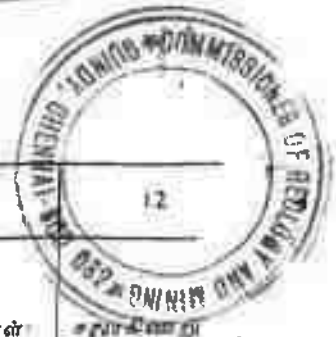
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172-

கி எண். 150. சூலமளை

1	2	3	4	5	6	7	8	9	10	11	12
							கு.பை.	ஹ.ஏர்ஸ்.	கு.பை.		
335	4A 335-4பா	ர	4		7-3	4	2 77	1 55.5	4 30	736 து. ரூக்கம்மாள்	சரணேடு
	4B -4பா	ர	4		7-3	4	2 77	0 43.0	1 35	756 மு. லட்சுமியம் மாள்.	
								4 20 5	9 90		
336	336	ர	4		7-3	4	2 77	1 09.5	3 00	178 த. சுவ்வாடு (என்கிற) முனி சாமி நாயுடு.	
337	337	அ	4					0 20.0			சரணேடு
338	338-1	ர	4		7-3	4	2 77	0 42.5	1 20	6) மு. ஜெயரா மன்	
	2 -2	ர	4		7-3	4	2 77	0 22.5	0 65	62 சி. ஜெயசந்தி ரன்.	
								0 65.0	1 85		
339	339	ர	4		7-3	4	2 77	2 74.5	7 60	533 மீ. மீர்முகமது அலி.	
340	340	அ	4					0 50.0			சரணேடு
341	341-1	ர	4		7-3	4	2 77	2 40.0	6 65	533 மீ. மீர்முகமது அலி.	
	2 -2	ர	4		7-3	4	2 77	0 22.5	0 60	571 சி. முனிரத்தினம்	சதுரகிணறு
	3 -3	ர	4		7-3	4	2 77	0 44 0	1 20	171 சி. முனிரத்தினம்.	
	4 -4	ர	4		7-3	4	2 77	0 60.5	1 65	360 கு. சின்னராஜ் (என்கிற) நாயுடு.	சதுரகிணறு
	5 -5	அ	நீ.ஏ.த					0 43.5			பாறை
								4 10.5	10 10		
342	IA 342-1பா	ர	4		7-3	4	2 77	0 68.5	1 90	95 க. கணபதி நாயுடு.	சதுரகிணறு.
	1B -1பா	ர	4		7-3	4	2 77	0 27.0	0 75	282 எ. சாமுநாயுடு.	
	1C -1பா	ர	4		7-3	4	2 77	0 37.0	1 00	501 சி. மாணிக்கம்.	
	1D -1பா	ர	4		7-3	4	2 77	0 22.5	0 60	527 A. K. பாபுசாலை சாயபு.	
	1E -1பா	ர	4		7-3	4	2 77	0 26.5	0 75	970 சி. துரைசாமி(1). து. ரூக்மணியம் மாள்(2).	
	2 -2	அ	நீ.ஏ.த					0 14.0			பாறை

2 - 11/10/2016

Krishnagiri - T & D




இந்திய தேர்தல் ஆணையம்
வாக்காளர் அடையாள அட்டை
ELECTION COMMISSION OF INDIA
IDENTITY CARD
YQY0777789



வாக்காளர் பெயர் : வரலட்சுமி
Elector's Name : Varalakshmi
கணவர் பெயர் : முனிரத்தினம்
Husband's Name : Munirathinam
பாலினம் / Sex : பெண் / Female
பிறந்த தேதி / Date of Birth: 01/01/1955

YQY0777789
முகவரி: 7-17 / 60
செந்தரப்பள்ளி
கிருஷ்ணாகிரி வட்டம் மற்றும்
மாவட்டம் - 635203

Address : 7-17 / 60
Sentharapalli
Anjur
Krishnagiri Taluk & District -
635203
பேரம் / Date: 02/09/2011



भारत सरकार / GOVERNMENT OF INDIA
खान मंत्रालय / MINISTRY OF MINES
भारतीय खान ब्यूरो / INDIAN BUREAU OF MINES

ANNEXURE - VIII



M. Ifthikhar Ahmed

अर्हताप्राप्त व्यक्ति के रूप में मान्यता प्रमाण पत्र
(खनिज रियायत नियमावली, 1960 के नियम 22सी के तहत)
CERTIFICATE OF RECOGNITION AS QUALIFIED PERSON
(Under Rule 22C of Mineral Concession Rules, 1960)

श्री एम. इफ्तिकार अहमद, 129/8, 11वीं क्रॉस, सिवया नगर, अलघापुरम-पी.आ., सेलम - 636 004, तमिल नाडू, जिनका फोटो और हस्ताक्षर ऊपर दिया हुआ है, तथा जिनहोंने अपनी अर्हता और अनुभव का संतोषजनक साक्ष्य दिया है, को खनन योजना तैयार करने हेतु खनिज रियायत नियमावली 1960 के नियम 22सी के तहत अर्हताप्राप्त व्यक्ति के रूप में मान्यता प्रदान की जाती है।

Shri M. Ifthikhar Ahmed, 129/8, 11th Cross, Sivaya Nagar, Alagapuram (PO), Salem - 636 004, Tamilnadu whose **Photograph and signature** is affixed herein above, having given satisfactory evidence of his qualifications & experience hereby **RECOGNISED** under Rule 22C of the Mineral Concession Rule, 1960 as a Qualified Person to prepare Mining Plans.

उनकी पंजीयन संख्या है
His registration number is

RQP /MAS/183/2004/A

यह मान्यता 10 वर्षों की अवधि के लिए मान्यता है जो दिनांक 10.01.2024 को समाप्त होगी।
This recognition is valid for a period of 10 years ending on 10.01.2024

उनके द्वारा प्रस्तुत खनन योजना में गलत जानकारी / दस्तावेज पाए जाने की स्थिति में यह प्रमाण पत्र वापस लिया जाएगा / निरस्त किया जाएगा।

This certificate will be liable to be withdrawn / cancelled in the event of furnishing the wrong information / documents in the Mining Plan submitted by him.

स्थान / Place : Chennai
दिनांक / Date : 02.01.2014

क्षेत्रीय खान नियंत्रक / Regional Controller of Mines
भारतीय खान ब्यूरो / Indian Bureau of Mines
चेन्नई क्षेत्र / Chennai Region

20303000

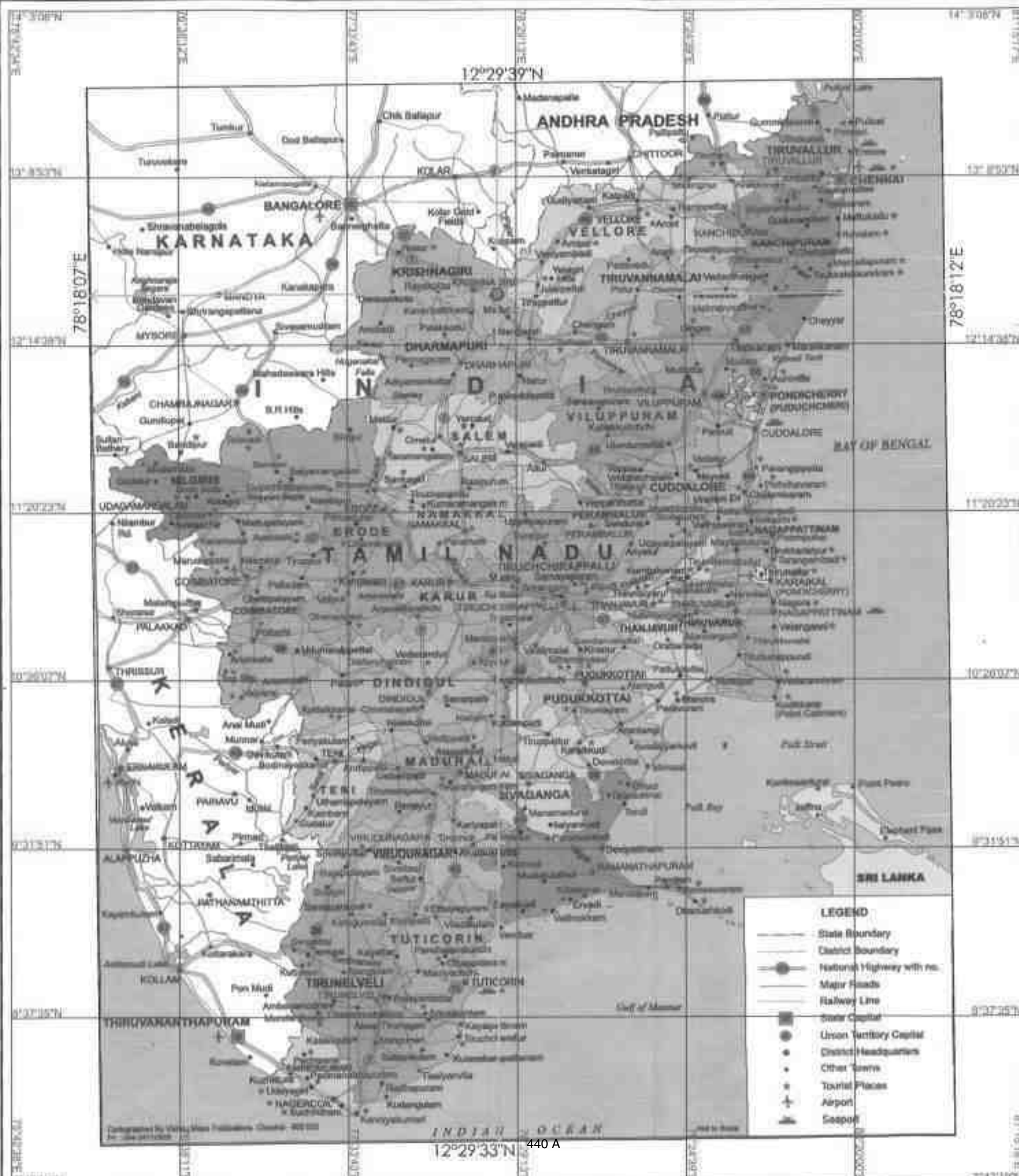


PLATE NO. I
DATE OF SURVEY: 14.05.2015

APPLICANT:
THE M. VARALAKSHMI,
W/O. C. MUNIRATHINAM,
CHENDRAPALLI,
ANCHOR POST,
KRISHNAGIRI TALUK AND DISTRICT,
TAMILNADU- 635203.

LOCATION OF QUARRY:

S.F. NOS. : 341/4 and 335/4B,
EXTENT : 1.08.5 Ha,
VILLAGE : SULAMALAI,
TALUK : KRISHNAGIRI,
DISTRICT : KRISHNAGIRI.

INDEX

Q. L. A. AREA : ●
TOPO SHEET NO : 57 L / 07
LATITUDE : 12°29'33"N to 12°29'39"N
LONGITUDE : 78°18'07"E to 78°18'12"E

LOCATION PLAN

NOT TO SCALE

PREPARED BY:
THIS IS TO CERTIFY THAT THE INFORMATION IN THIS
PLATE IS TRUE AND CORRECT TO THE
BEST OF MY KNOWLEDGE BASED UPON THE LEASEMAP
AUTHENTICATED



BY STATE GOVERNMENT
M. Praveen Kumar

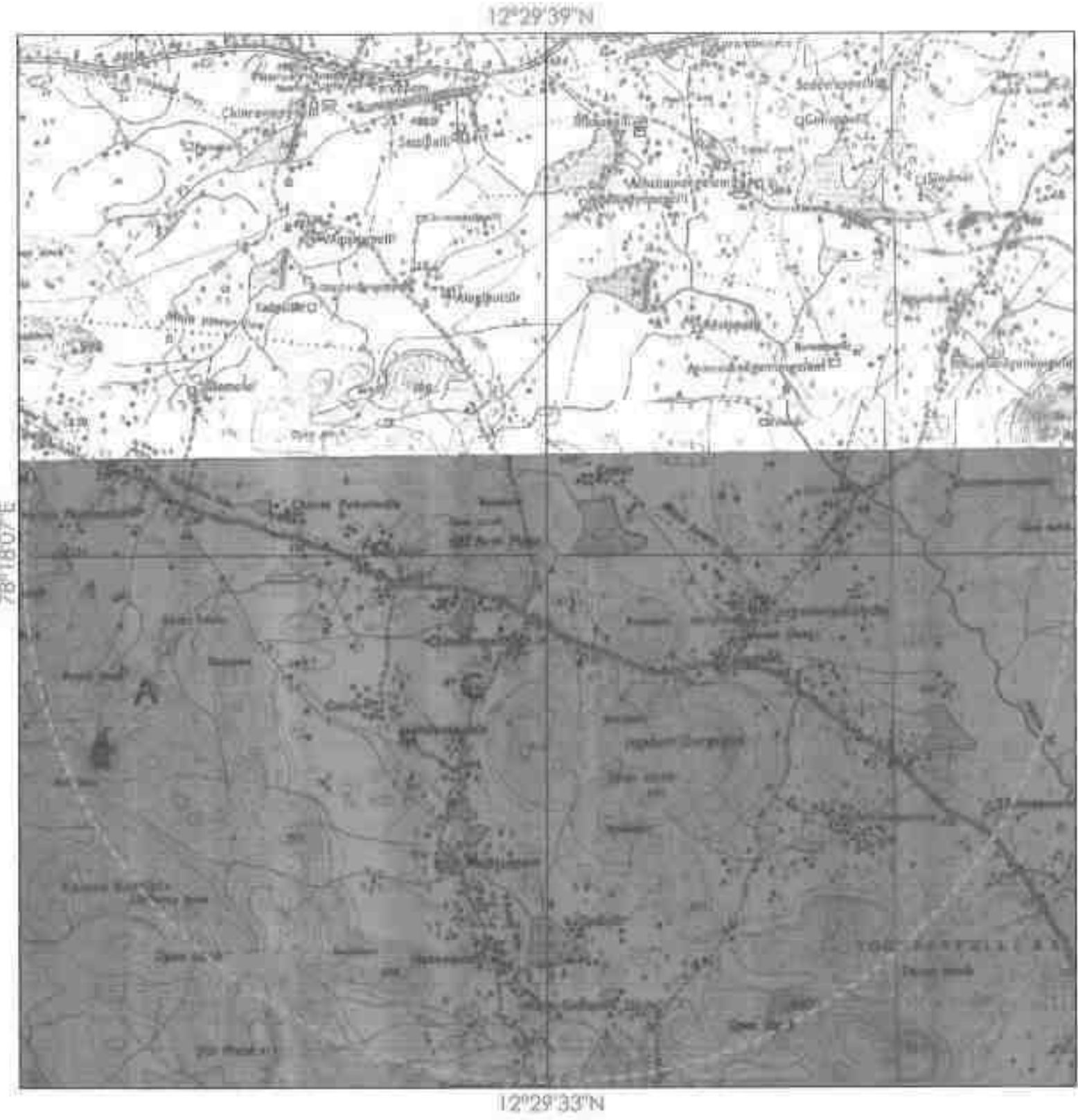
M. IFTIKHAR AHMED, M.Sc., F.G.S., M.B.A., M.M.E.A.,
RECOGNISED QUALIFIED PERSON
ROP/MAS/183/2004/A

TOPO SHEET NO : 57 L / 07
 LATITUDE : 12°29'33"N to 12°29'39"N
 LONGITUDE : 78°18'07"E to 78°18'12"E



DATE OF SURVEY : 14.05.2015

5KM RADIOUS : 
 Q.L APPLIED BOUNDARY: 



APPLICANT:
 Tmt.M.VARALAKSHMI,
 W/O.C.MUNIRATHINAM,
 CHENDARAPALLI,
 ANCHOR POST,
 KRISHNAGIRI TALUK AND DISTRICT,
 TAMILNADU- 635203.

LOCATION OF QUARRY:
 S.F.NOS. : 341/4 and 335/4B,
 EXTENT : 1.08.5 Ho,
 VILLAGE : SULAMALAI,
 TALUK : KRISHNAGIRI,
 DISTRICT : KRISHNAGIRI.

INDEX

Roads,metalled:according to importance:distance stone.....	
Roads unmetalled: do do :bridge.....	
Cart-Track,with piers:without,Causeway,Ford with bridge.....	
Streams with track in bed:Undefined,canal.....	
Dams: masonry or rock-filled:earth,weir.....	
River banks:Shelving:steep,3 to 6 metres:over 6 metres.....	
River dry with water channel:with island & rocks.Tidal river.....	
Submerged rocks,Shoal,Swamp,Reeds.....	
Wells:lined:unlined,Tube-well,Spring,tanks:perennial:dry.....	
Embankments:road or rail:tank.Broken Ground.....	
Railways,broad gauges:double:single with station:under constrn.....	
Railways,other gauges: do : do with distance stone:do.....	
Minerals line or tramway.Telegraph line cutting with tunnel.....	
Contours with sub-features.Rocky slopes,cliffs.....	
Sand features:(1)flat,(2)sand-hills and surveyed,(3)shifting dunes.....	
Towns or villages:inhabited:deserted.Fort.....	
Hunts:permanent temporary.Town.Antiquities.....	
Temple.Chhatri,Church,Mosque,Idgah,Tomb,Graves.....	
Lighthouse.Lightchip,Bueys:lighted:unlighted.Anchorage.....	
Mine.Vine on trellis, Grass,Scrub.....	
Palms:Palmyra:other.Plantation,Conifer,Bamboo,Other trees.....	
Boundary,international.....	
Boundary,state:demarcated:undemarcated.....	
Boundary,district:subdivin,tahsil or taluk:forest.....	
boundary pillars:surveyed:unlocated:village trijunction.....	
Heights:triangulated:station,point:approximate.....	
Bench-mark:geodetic:tertiary:canal.....	
Post office.Telegraph office,combined officw,Police station.....	
Bungalows:dak or travellers;inspections,Rest house.....	
Circuit house,Camping ground,Forest:reserved:protected.....	
Spaced names:administrative:locality or tribal.....	

KEY PLAN

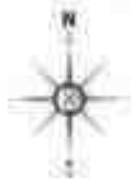
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PREPARED BY:

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS
 PLAN IS TRUE AND CORRECT TO THE
 BEST OF MY KNOWLEDGE BASED UPON THE LEASEMAP
 AUTHENTICATED
 BY STATE GOVERNMENT

M. Dharmalingam
 M. DHARMALINGAM, M.Sc., F.O.S., M.B.A., M.M.E.A.,
 RECOGNISED QUALIFIED PERSON
 RDP/MAS/183/2004/A

ROUTE MAP



DATE OF SURVEY: 14.05.2015

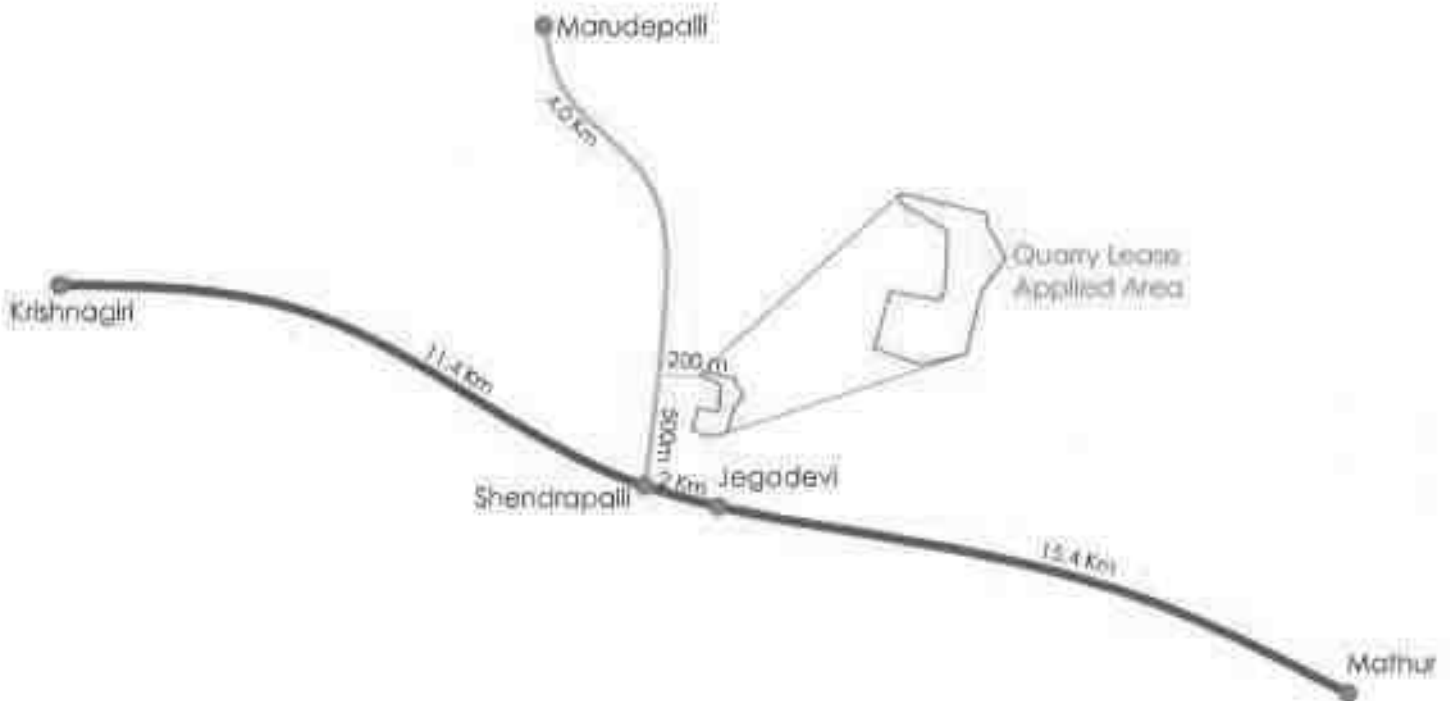


PLATE NO: I-B NOT TO SCALE

APPLICANT:

M. VARALAKSHMI,
W/O. C. MUNIRATHINAM,
CHENDRAPALLI,
ANCHOR POST,
KRISHNAGIRI TALUK
AND DISTRICT,
TAMILNADU - 635203.

LOCATION OF QUARRY

S.F. NOS. : 341/4 and 335/4B,
EXTENT : 1.08.5 Ha,
VILLAGE : SULAMALAI,
TALUK : KRISHNAGIRI,
DISTRICT: KRISHNAGIRI.

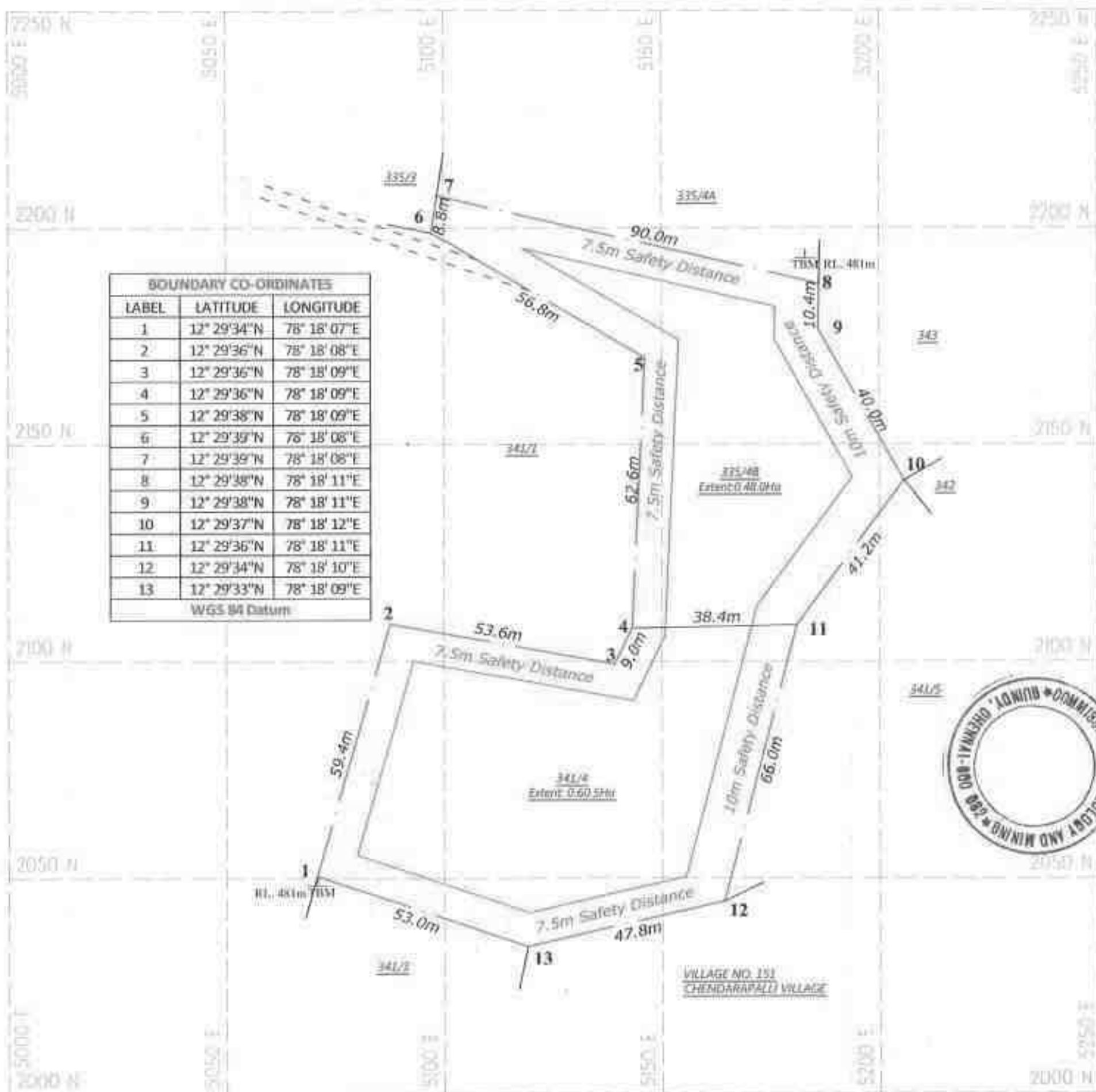
INDEX

- APPLIED LEASE AREA
- APPROACH ROAD
- NATIONAL HIGHWAY-66
- MAJOR ROAD

PREPARED BY:

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS
PLATE IS TRUE AND CORRECT TO THE
BEST OF MY KNOWLEDGE BASED UPON THE LEASERAP
AUTHENTICATED

BY STATE GOVERNMENT
M. Srinivasan
M. SRINIVASAN, J.E., S.D., S.A., S.C.A.,
RECORDED QUALIFIED PERSON
RWP/MS/1183/2004/A



BOUNDARY CO-ORDINATES		
LABEL	LATITUDE	LONGITUDE
1	12° 29'34"N	78° 18' 07"E
2	12° 29'36"N	78° 18' 08"E
3	12° 29'36"N	78° 18' 09"E
4	12° 29'36"N	78° 18' 09"E
5	12° 29'38"N	78° 18' 09"E
6	12° 29'39"N	76° 18' 08"E
7	12° 29'39"N	78° 18' 08"E
8	12° 29'38"N	78° 18' 11"E
9	12° 29'38"N	78° 18' 11"E
10	12° 29'37"N	78° 18' 12"E
11	12° 29'36"N	78° 18' 11"E
12	12° 29'34"N	78° 18' 10"E
13	12° 29'33"N	78° 18' 09"E

WGS 84 Datum

PLATE NO.II

DATE OF SURVEY: 14.05.2015

APPLICANT:

Tmt.M.VARALAKSHMI,
W/o.C.MUNIRATHINAM,
CHENDARAPALLI,
ANCHDOOR POST,
KRISHNAGIRI TALUK AND DISTRICT,
TAMILNADU - 635203.

LOCATION OF QUARRY:

S.F.NO'S : 341/4 and 335/4B ,
EXTENT : 1.08.5 Ha,
VILLAGE : SULAMALAI,
TALUK : KRISHNAGIRI,
DISTRICT : KRISHNAGIRI.

INDEX

- QUARRY LEASE APPLIED BOUNDARY
- 7.5m & 10m SAFETY DISTANCE
- APPROACH ROAD
- TEMPORARY BENCH MARK

QUARRY LEASE PLAN

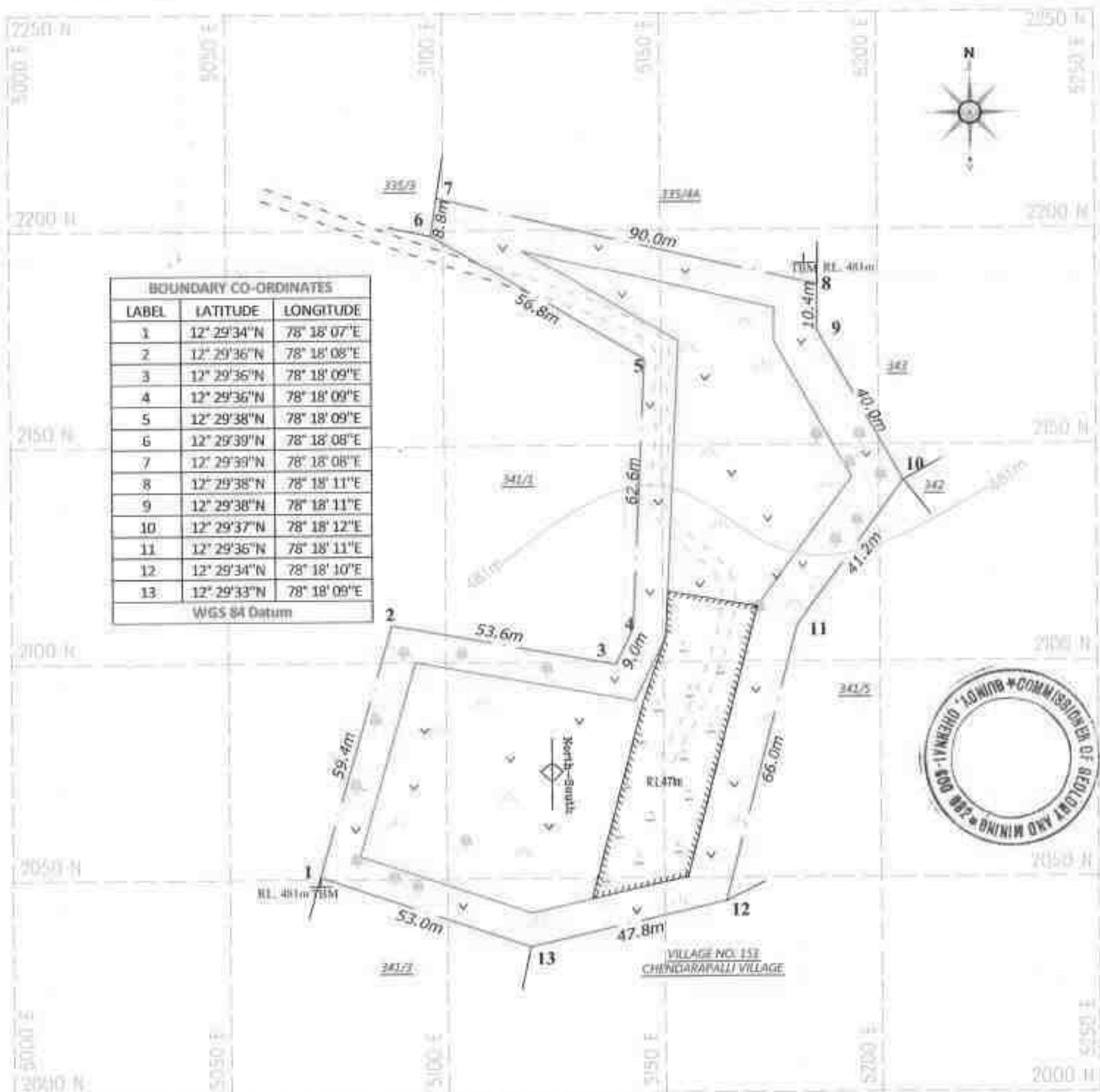
SCALE 1:1000

PREPARED BY:

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS PLATE IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE BASED UPON THE LEASEMAP AUTHENTICATED BY STATE GOVERNMENT

M. Jithin

M.JITHIKHAR AHMED, M.Sc., F.C.S., M.B.A., M.M.E.A.
RECOGNISED / QUALIFIED PERSON
RGP/MAS/183/2004/A



BOUNDARY CO-ORDINATES		
LABEL	LATITUDE	LONGITUDE
1	12° 29' 34" N	78° 18' 07" E
2	12° 29' 36" N	78° 18' 08" E
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5	12° 29' 38" N	78° 18' 09" E
6	12° 29' 39" N	78° 18' 08" E
7	12° 29' 39" N	78° 18' 08" E
8	12° 29' 38" N	78° 18' 11" E
9	12° 29' 38" N	78° 18' 11" E
10	12° 29' 37" N	78° 18' 12" E
11	12° 29' 36" N	78° 18' 11" E
12	12° 29' 34" N	78° 18' 10" E
13	12° 29' 33" N	78° 18' 09" E

WGS 84 Datum

PLATE NO.III

DATE OF SURVEY - 14.05.2015

APPLICANT:

Emt. M.VARALAXSHMI,
W/o.C.MUNIRATHNAM,
CHENDARAPALLI,
ANCHOOOR POST,
KRISHNAGIRI TALUK AND DISTRICT,
TAMILNADU - 635203.

LOCATION OF QUARRY:

S.F.NO'S : 341/4 and 335/4B ,
EXTENT : 1.08.5 Ha,
VILLAGE : SULAMALAI,
TALUK : KRISHNAGIRI,
DISTRICT : KRISHNAGIRI.

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- QUARRY LEASE APPLIED BOUNDARY
- 7.5m & 10m SAFETY DISTANCE
- APPROACH ROAD
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- TEMPORARY BENCH MARK
- OLD QUARRY PIT
- TREES
- TOPSOIL
- CONTOUR
- STRIKE & DIP
- GREY GRANITE

SURFACE PLAN

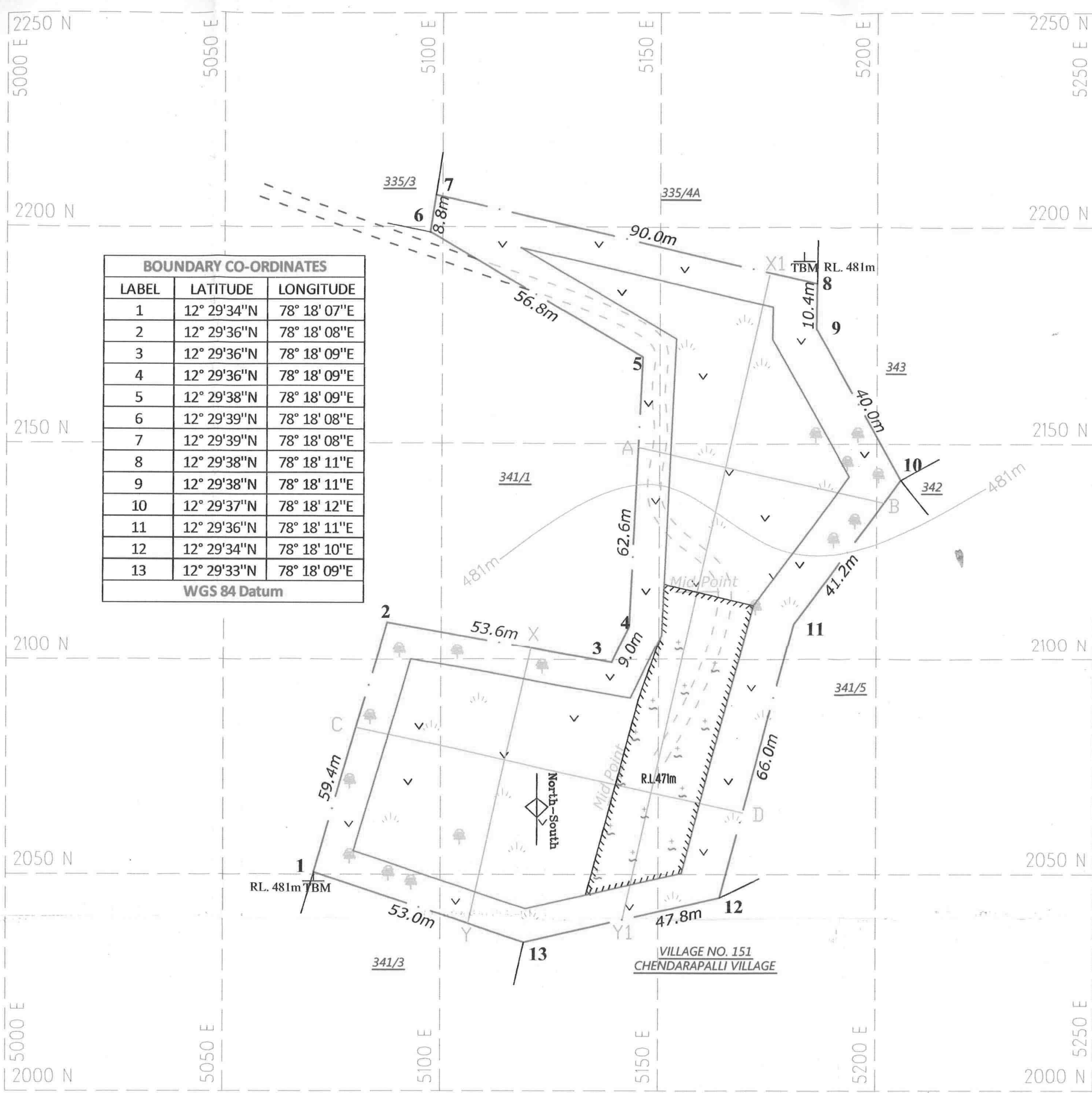
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PREPARED BY:

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M. Jithishar Ahmed

M.JITHISHAR AHMED, M.Sc., F.O.S., M.B.A., M.M.E.A.,
RECOGNISED QUALIFIED PERSON
ROP/WAS/183/2004/A



BOUNDARY CO-ORDINATES		
LABEL	LATITUDE	LONGITUDE
1	12° 29'34"N	78° 18' 07"E
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11	12° 29'36"N	78° 18' 11"E
12	12° 29'34"N	78° 18' 10"E
13	12° 29'33"N	78° 18' 09"E

WGS 84 Datum

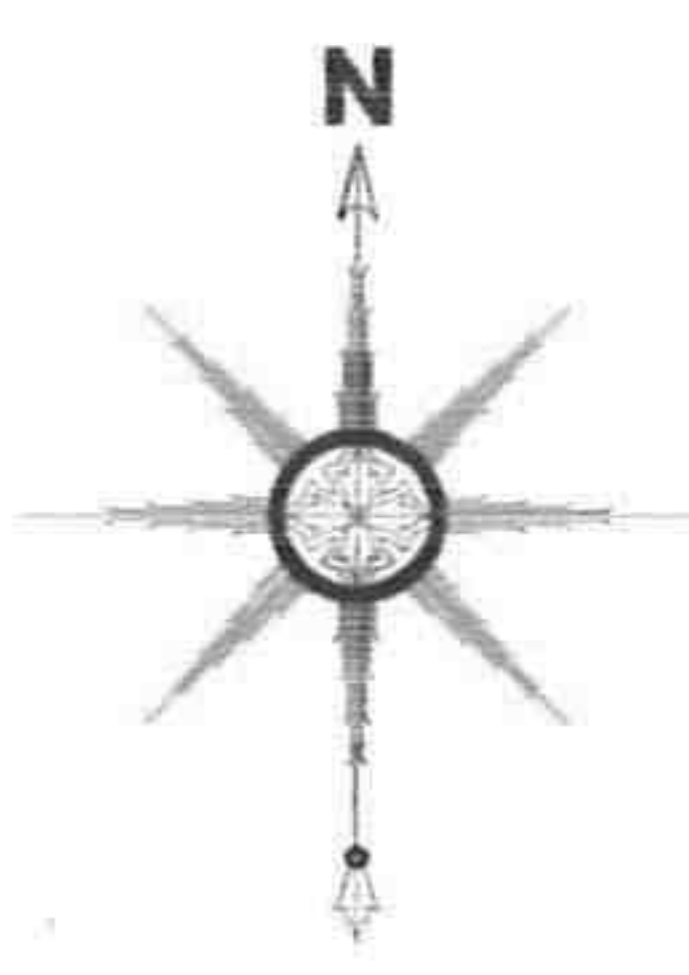


PLATE NO.IV

DATE OF SURVEY: 14.05.2015

APPLICANT:

Tmt.M.VARALAKSHMI,
W/o.C.MUNIRATHINAM,
CHENDARAPALLI,
ANCHOOR POST,
KRISHNAGIRI TALUK AND DISTRICT,
TAMILNADU - 635203.

LOCATION OF QUARRY:

S.F.NO'S : 341/4 and 335/4B ,
EXTENT : 1.08.5 Ha,
VILLAGE : SULAMALAI,
TALUK : KRISHNAGIRI,
DISTRICT : KRISHNAGIRI.

INDEX

- QUARRY LEASE APPLIED BOUNDARY
- 7.5m & 10m SAFETY DISTANCE
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- QUARRY ROAD
- TEMPORARY BENCH MARK
- OLD QUARRY PIT
- TREES
- TOPSOIL
- CONTOUR
- STRIKE & DIP
- GREY GRANITE
- WEATHERED ROCK

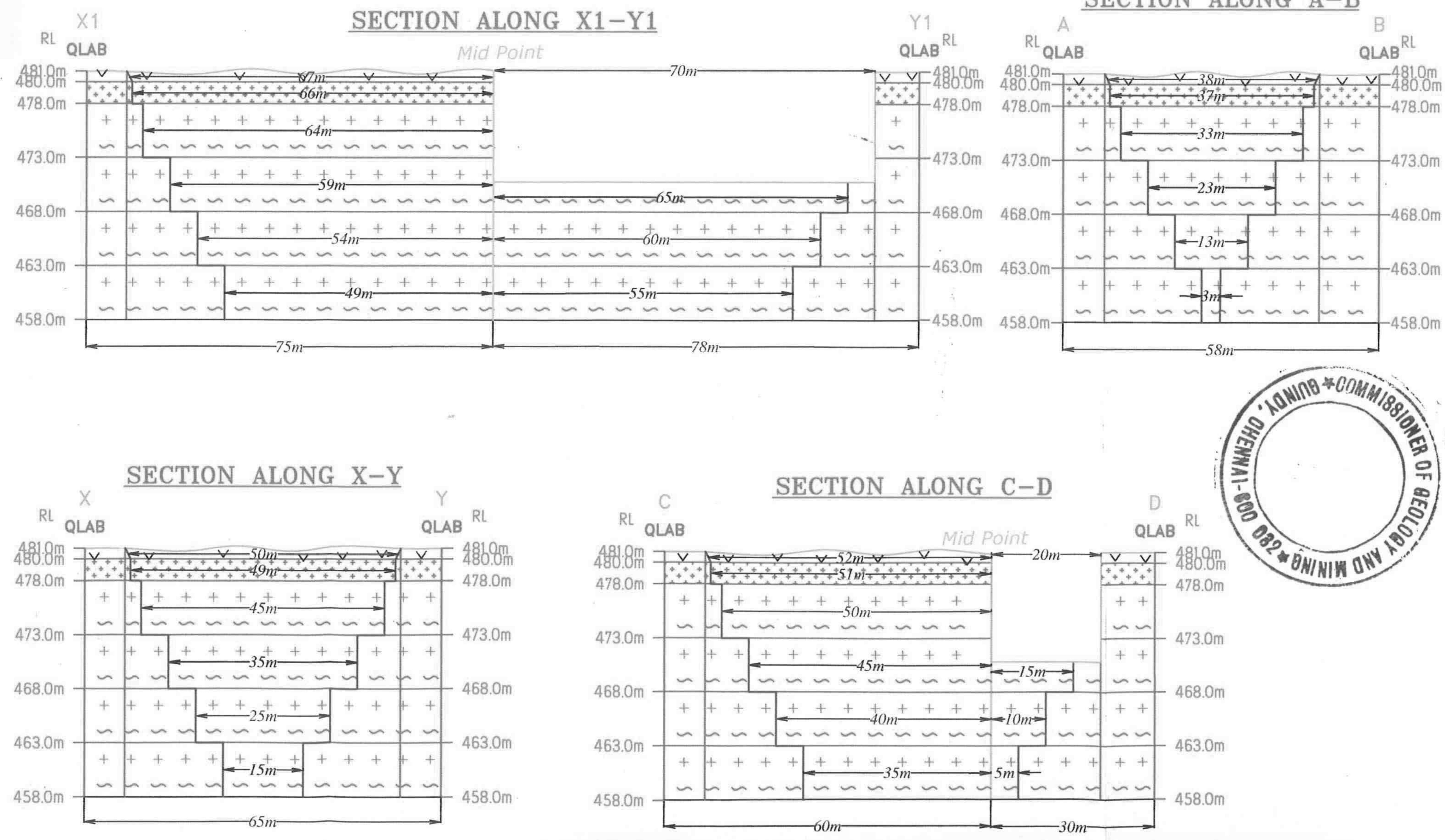
GEOLOGICAL PLAN & SECTIONS

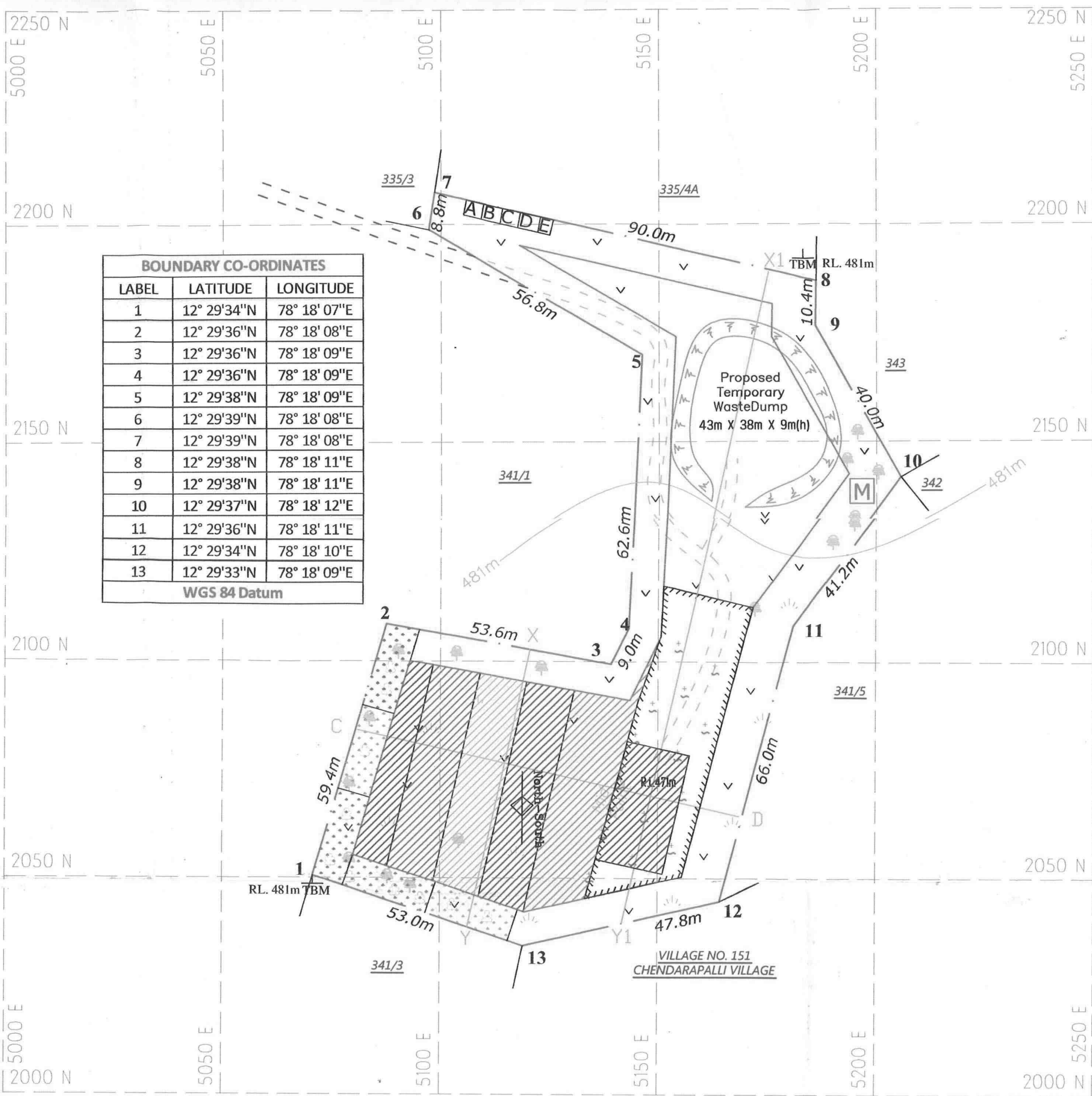
SCALE-PLAN-1:1000
SEC-HOR 1:1000
VER 1:500

PREPARED BY:

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS PLATE IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE BASED UPON THE LEASMAP AUTHENTICATED BY STATE GOVERNMENT

M.IFTHIKHAR AHMED, M.Sc., F.G.S., M.B.A., M.M.E.A.,
RECOGNISED QUALIFIED PERSON
RQP/MAS/183/2004/A





BOUNDARY CO-ORDINATES		
LABEL	LATITUDE	LONGITUDE
1	12° 29'34"N	78° 18' 07"E
2	12° 29'36"N	78° 18' 08"E
3	12° 29'36"N	78° 18' 09"E
4	12° 29'36"N	78° 18' 09"E
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12	12° 29'34"N	78° 18' 10"E
13	12° 29'33"N	78° 18' 09"E

WGS 84 Datum

Ist- Yr PLANTATION	
IInd- Yr PLANTATION	
IIIRD- Yr PLANTATION	
IVth- Yr PLANTATION	
Vth- Yr PLANTATION	

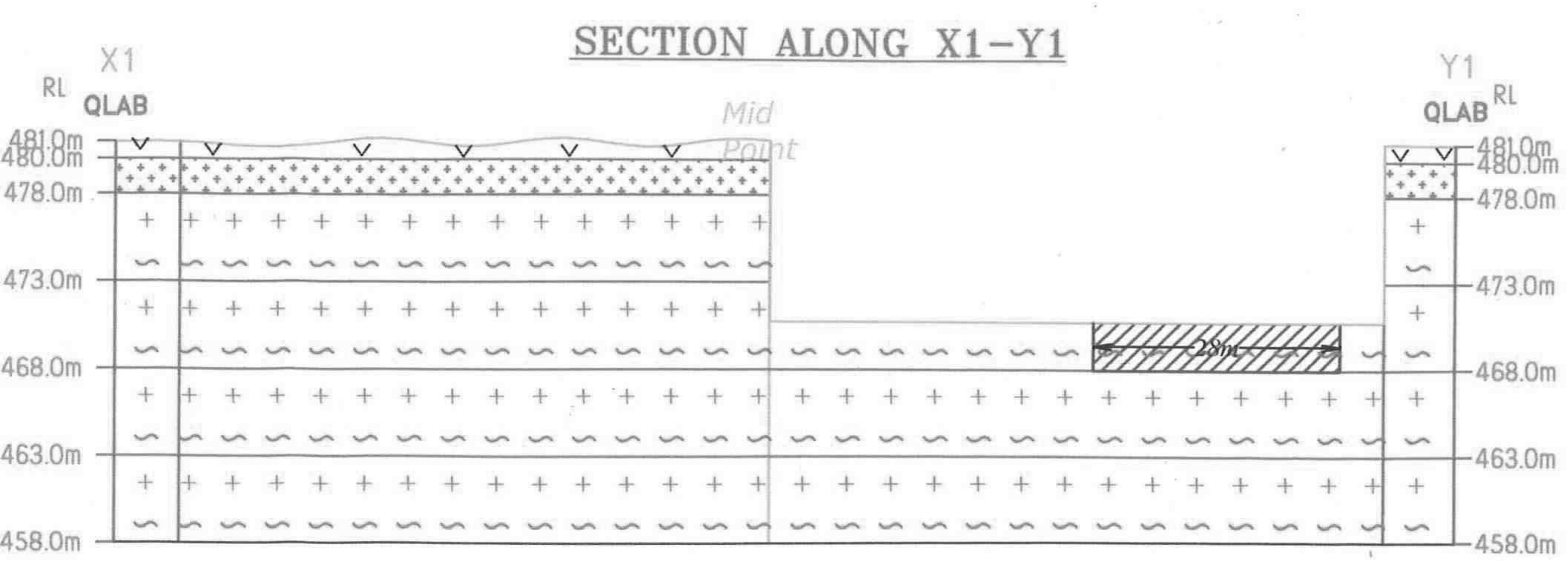
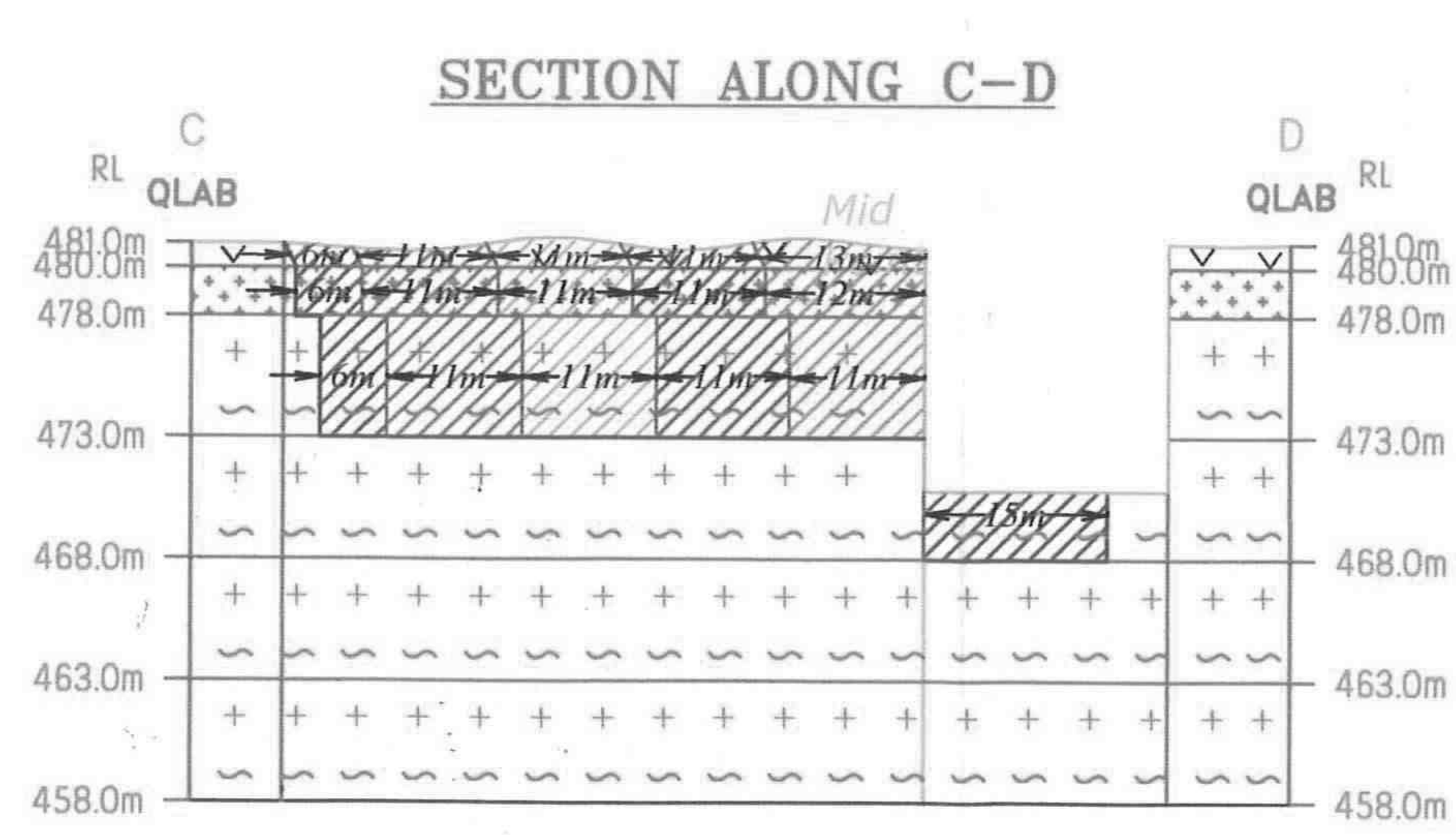
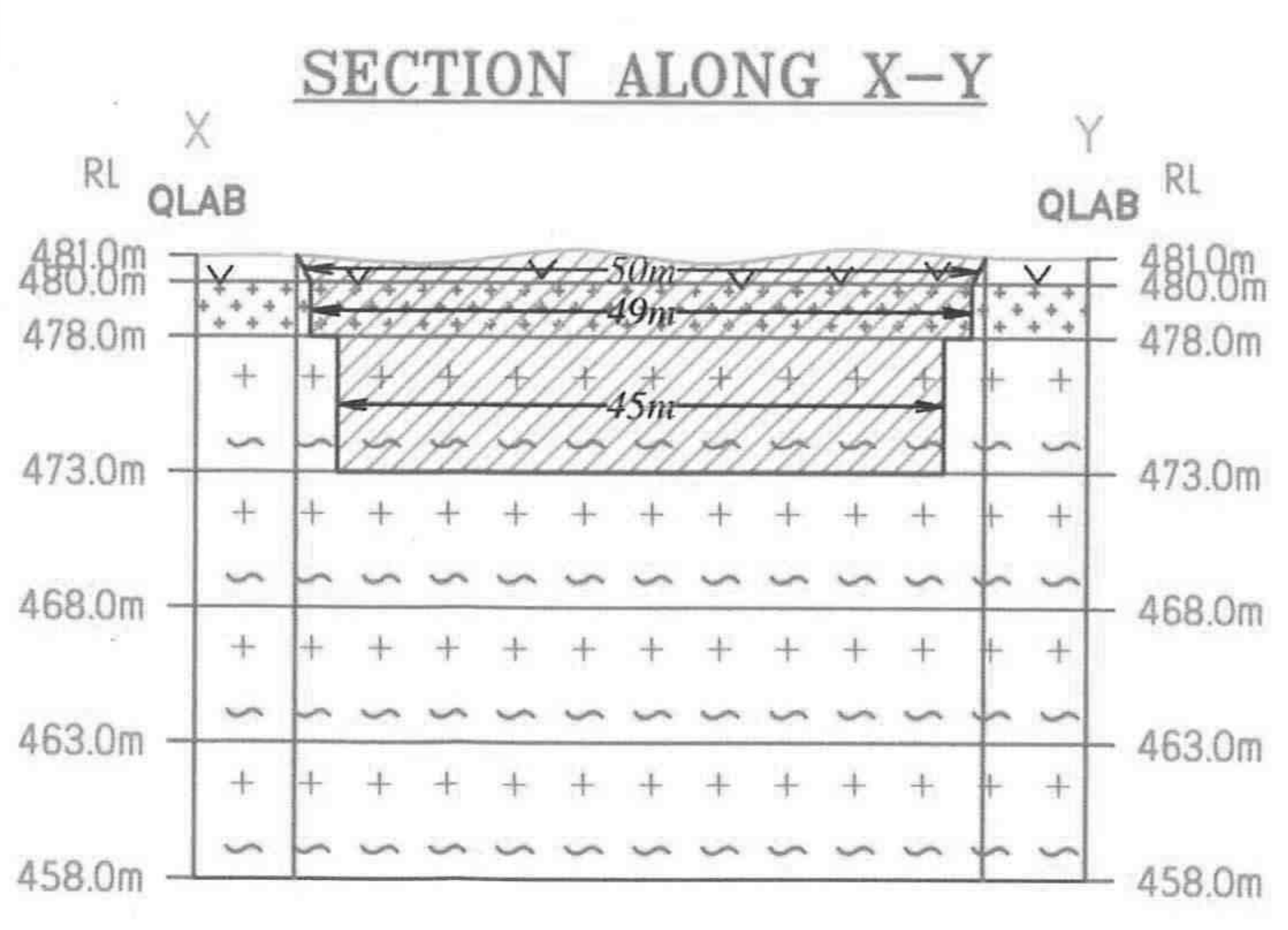
PLATE NO.V
 DATE OF SURVEY: 14.05.2015

APPLICANT:
 Tmt.M.VARALAKSHMI,
 W/o.C.MUNIRATHINAM,
 CHENDARAPALLI,
 ANCHOR POST,
 KRISHNAGIRI TALUK AND DISTRICT,
 TAMILNADU - 635203.

LOCATION OF QUARRY:
 S.F.NO'S : 341/4 and 335/4B ,
 EXTENT : 1.08.5 Ha,
 VILLAGE : SULAMALAI,
 TALUK : KRISHNAGIRI,
 DISTRICT : KRISHNAGIRI.

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TEMPORARY BENCH MARK	
OLD QUARRY PIT	
TREES	
TOPSOIL	
CONTOUR	
STRIKE & DIPS	
GREY GRANITE	
WASTE DUMP	
WEATHERED ROCK	



Ist- Yr EXCAVATION	
IInd- Yr EXCAVATION	
IIIRD- Yr EXCAVATION	
IVth- Yr EXCAVATION	
Vth- Yr EXCAVATION	

- SITE SERVICES**
- A-OFFICE
 - B-FIRST AID ROOM
 - C-STORE
 - D-REST SHED
 - E-TOILET
 - M-MAGAZINE(Proposed)

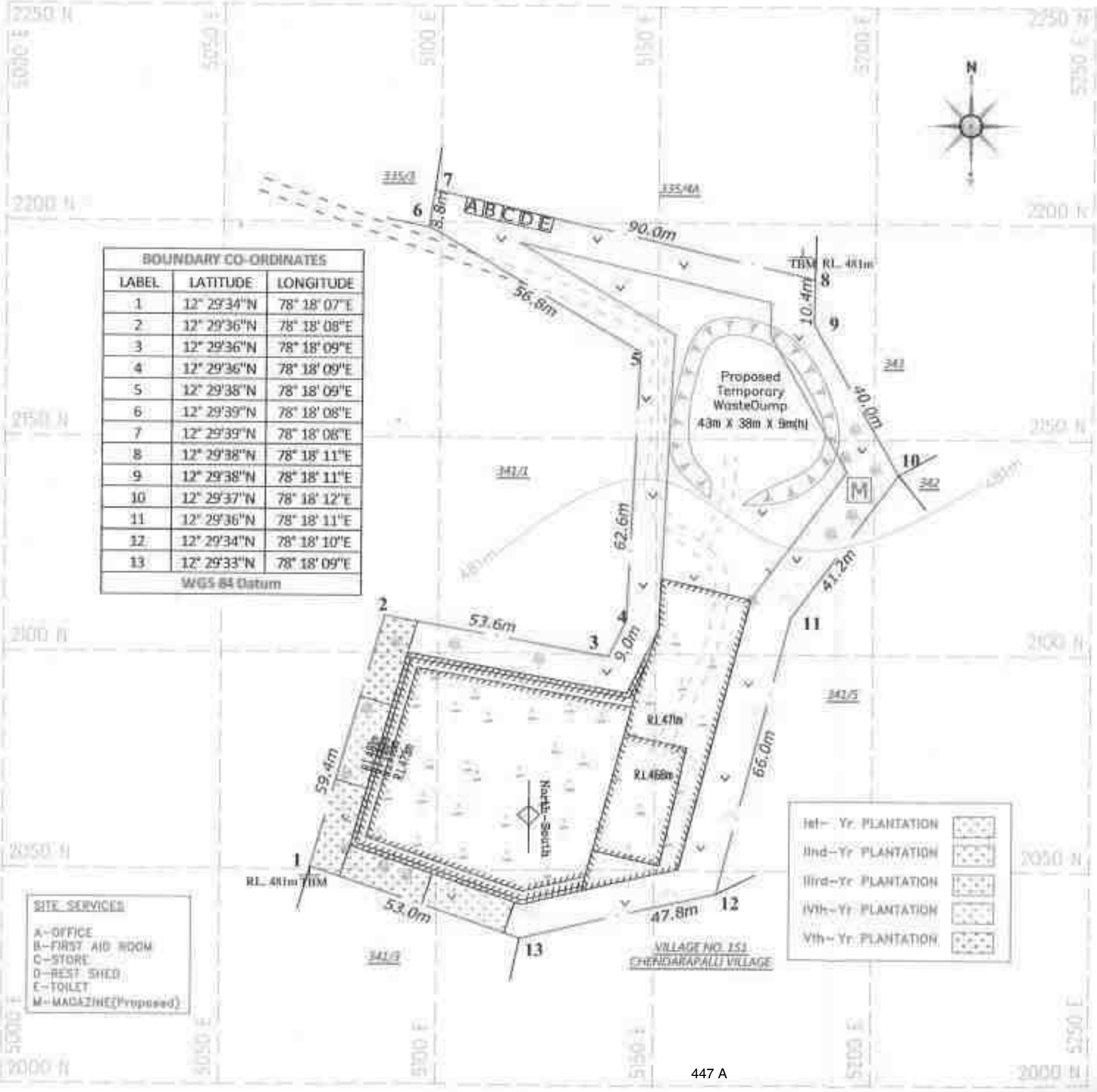
YEARWISE DEVELOPMENT & PRODUCTION PLAN & SECTIONS

SCALE-PLAN-1:1000
 SEC-HOR 1:1000
 VER 1:500

PREPARED BY:

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS PLATE IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE BASED UPON THE LEASEMAP AUTHENTICATED BY STATE GOVERNMENT

M. Ifthikhar Ahmed
 M.IFTHIKHAR AHMED, M.Sc., F.G.S., M.B.A., M.M.E.A.,
 RECOGNISED QUALIFIED PERSON
 RQP/MAS/183/2004/A



BOUNDARY CO-ORDINATES		
LABEL	LATITUDE	LONGITUDE
1	12° 29'34"N	78° 18' 07"E
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12	12° 29'34"N	78° 18' 10"E
13	12° 29'33"N	78° 18' 09"E

WGS 84 Datum

PLATE NO.VI
 DATE OF SURVEY: 14.05.2015

APPLICANT:
 TRIE.M.VARALAKSHMI,
 W/o.C.MUNIRATHNAM,
 CHENDARAPALLI,
 ANCHOR POST,
 KRISHNAGIRI TALUK AND DISTRICT,
 TAMILNADU - 635203.

LOCATION OF QUARRY:
 S.F.NO'S : 341/4 and 335/4B ,
 EXTENT : 1.08.5 Ha,
 VILLAGE : SULAMALAI,
 TALUK : KRISHNAGIRI,
 DISTRICT : KRISHNAGIRI.

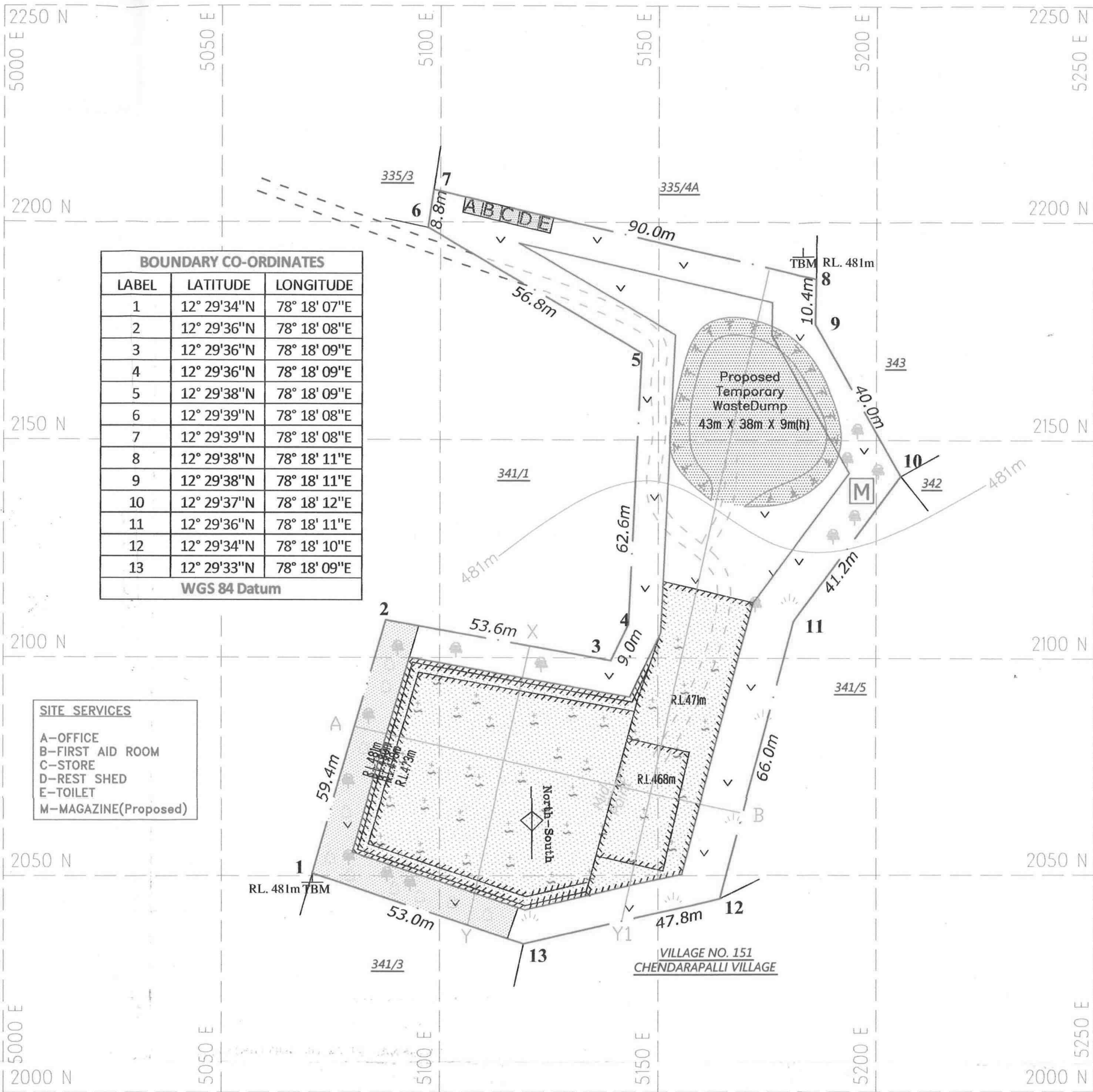
INDEX

- QUARRY LEASE APPLIED BOUNDARY
- 7.5m & 10m SAFETY DISTANCE
- APPROACH ROAD
- QUARRY ROAD
- TEMPORARY BENCH MARK
- OLD QUARRY PIT
- TREES
- TOPSOIL
- CONTOUR
- STRIKE & DIP
- GREY GRANITE
- WASTE DUMP
- WEATHERED ROCK

QUARRY LAYOUT & LANDUSE AFFORESTATION PLAN
 SCALE: 1:1000

PREPARED BY:
 THIS IS TO CERTIFY THAT THE INFORMATION IN THIS PLATE IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE BASED UPON THE LEASEMAP AUTHENTICATED BY STATE GOVERNMENT

M. Duraimanickan
 M.IFTIKHAR AHMED, M.Sc., P.O.S., M.B.A., M.M.E.A.,
 RECOGNISED QUALIFIED PERSON
 ROP/MAS/183/2004/A



BOUNDARY CO-ORDINATES		
LABEL	LATITUDE	LONGITUDE
1	12° 29'34"N	78° 18' 07"E
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12	12° 29'34"N	78° 18' 10"E
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WGS 84 Datum

SITE SERVICES
 A-OFFICE
 B-FIRST AID ROOM
 C-STORE
 D-REST SHED
 E-TOILET
 M-MAGAZINE(Proposed)

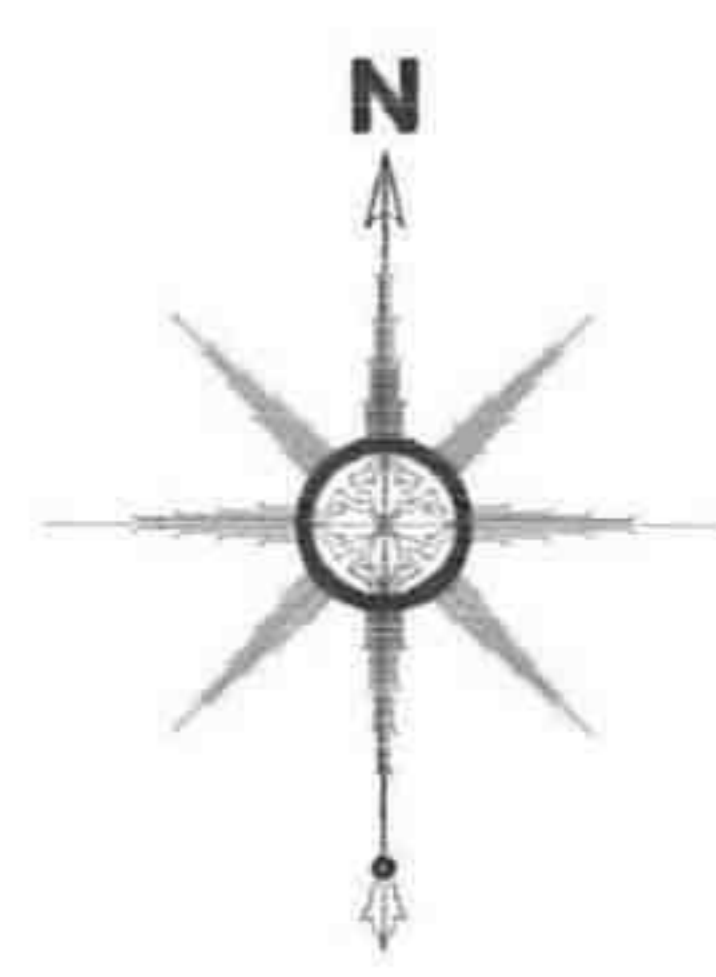


PLATE NO.VII

DATE OF SURVEY: 14.05.2015

APPLICANT:

Tmt.M.VARALAKSHMI,
 W/o.C.MUNIRATHINAM,
 CHENDARAPALLI,
 ANCHOR POST,
 KRISHNAGIRI TALUK AND DISTRICT,
 TAMILNADU - 635203.

LOCATION OF QUARRY:

S.F.NO'S : 341/4 and 335/4B ,
 EXTENT : 1.08.5 Ha,
 VILLAGE : SULAMALAI,
 TALUK : KRISHNAGIRI,
 DISTRICT : KRISHNAGIRI.

INDEX

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- CONTOUR
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- GREY GRANITE
- WASTE DUMP
- WEATHERED ROCK



PROGRESSIVE QUARRY CLOSURE PLAN & SECTIONS

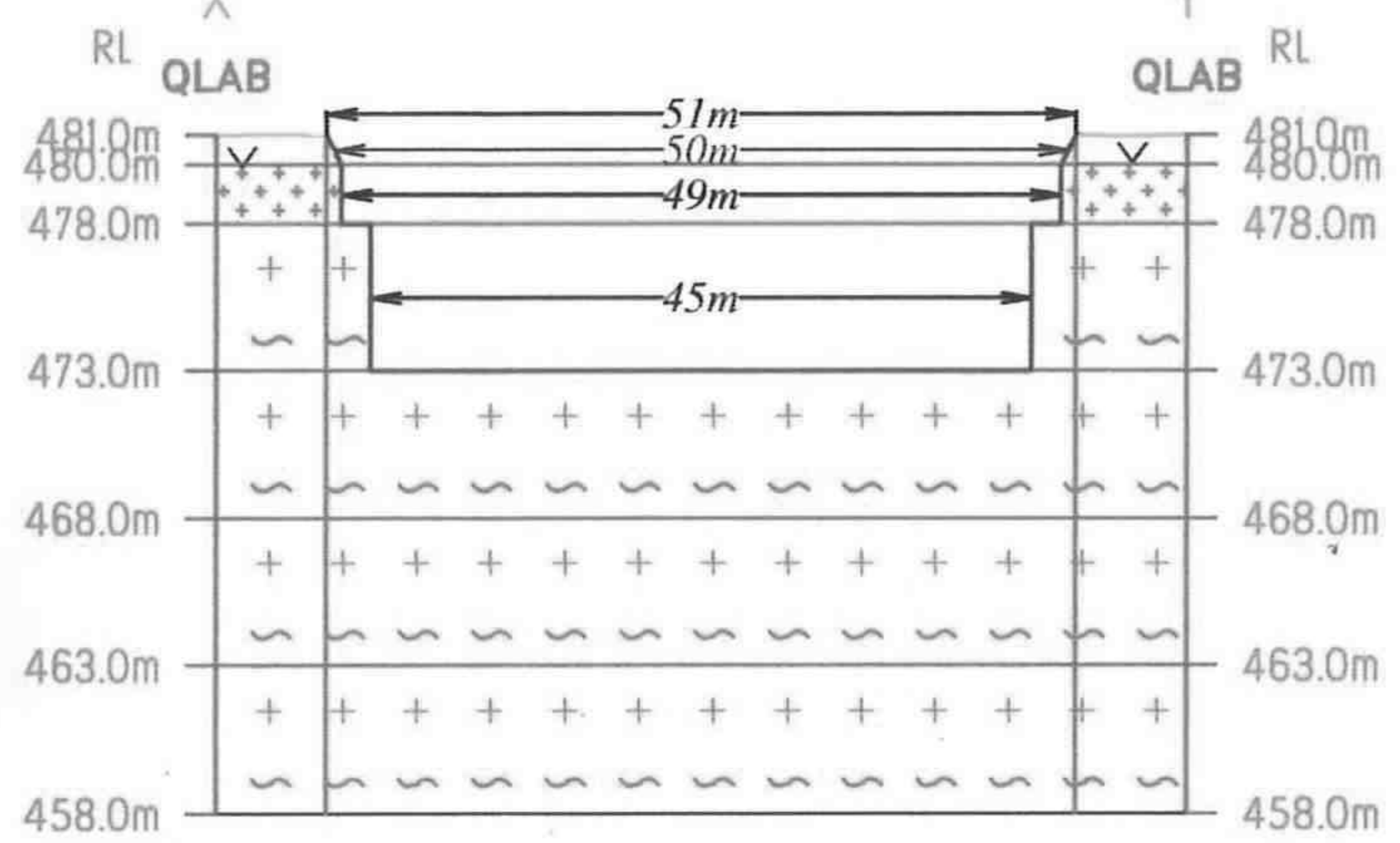
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 VER 1:500

PREPARED BY:

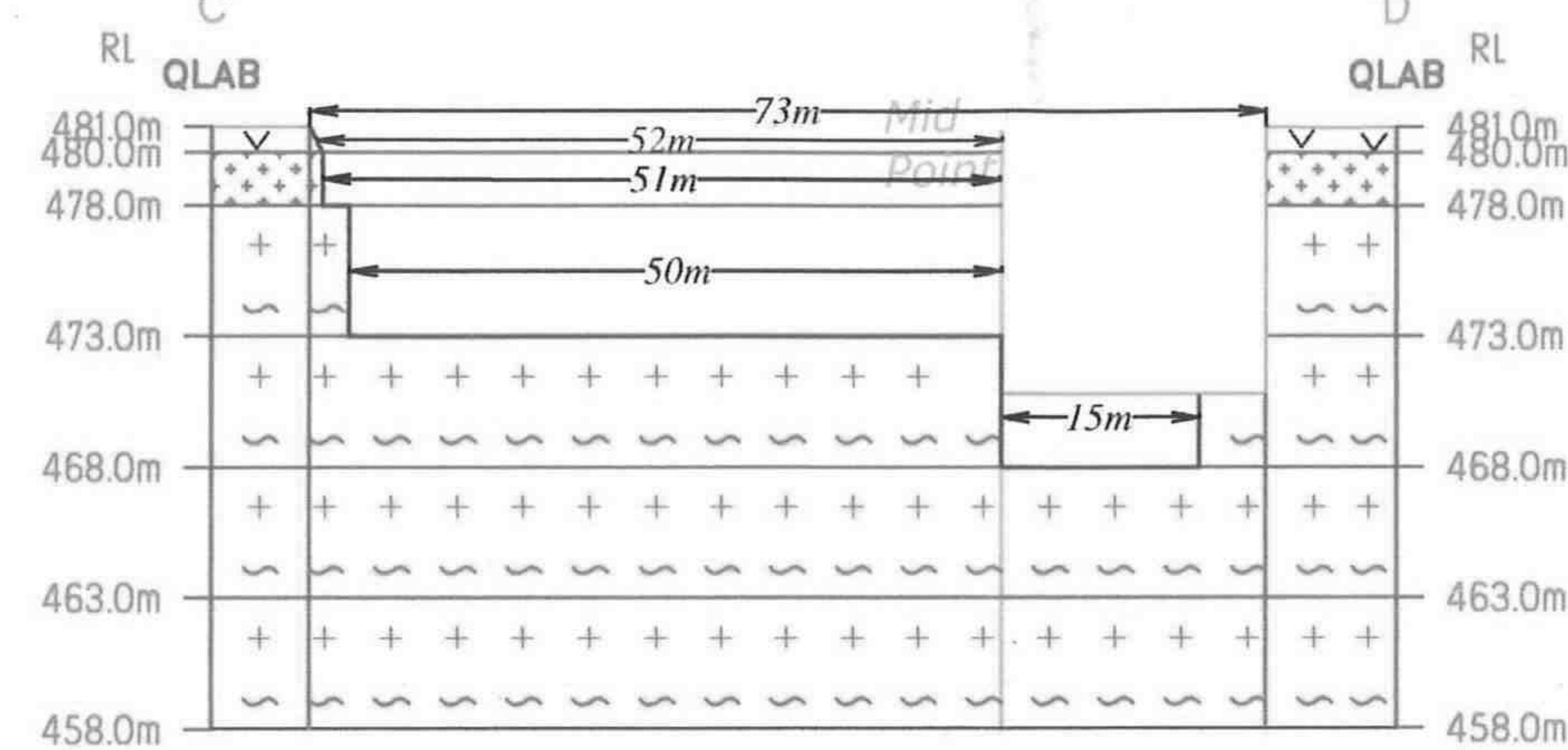
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M. Ifthikhar Ahmed
 M.IFTHIKHAR AHMED, M.Sc., F.G.S., M.B.A., M.M.E.A.,
 RECOGNISED QUALIFIED PERSON
 RQP/MAS/183/2004/A

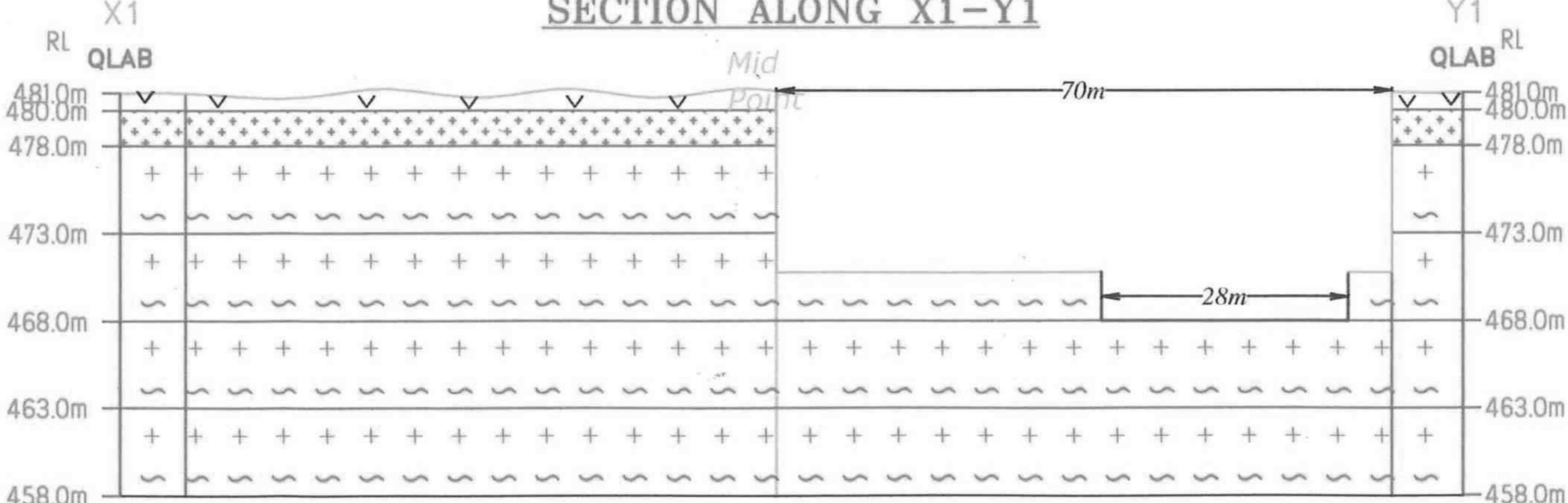
SECTION ALONG X-Y



SECTION ALONG C-D



SECTION ALONG X1-Y1



PRESENT LANDUSE PATTERN

DESCRIPTION	PRESENT AREA (Ha)	AREA TO BE REQUIRED AT THE PRESENT MINING PLAN PERIOD(Ha)	END OF QUARRYING PERIOD(Ha)	Color code
AREA UNDER QUARRY	0.14.0	0.26.0	0.63.8	
DUMPS	NIL	0.16.4	Back Filling	
INFRASTRUCTURE	NIL	0.01.0	0.01.0	
ROADS	0.01.0	0.01.0	0.02.0	
GREEN BELT	NIL	0.07.5	0.25.8	
STOCKING BLOCKS	0.93.5	0.41.6	0.15.9	
TOTAL	1.08.5		1.08.5	

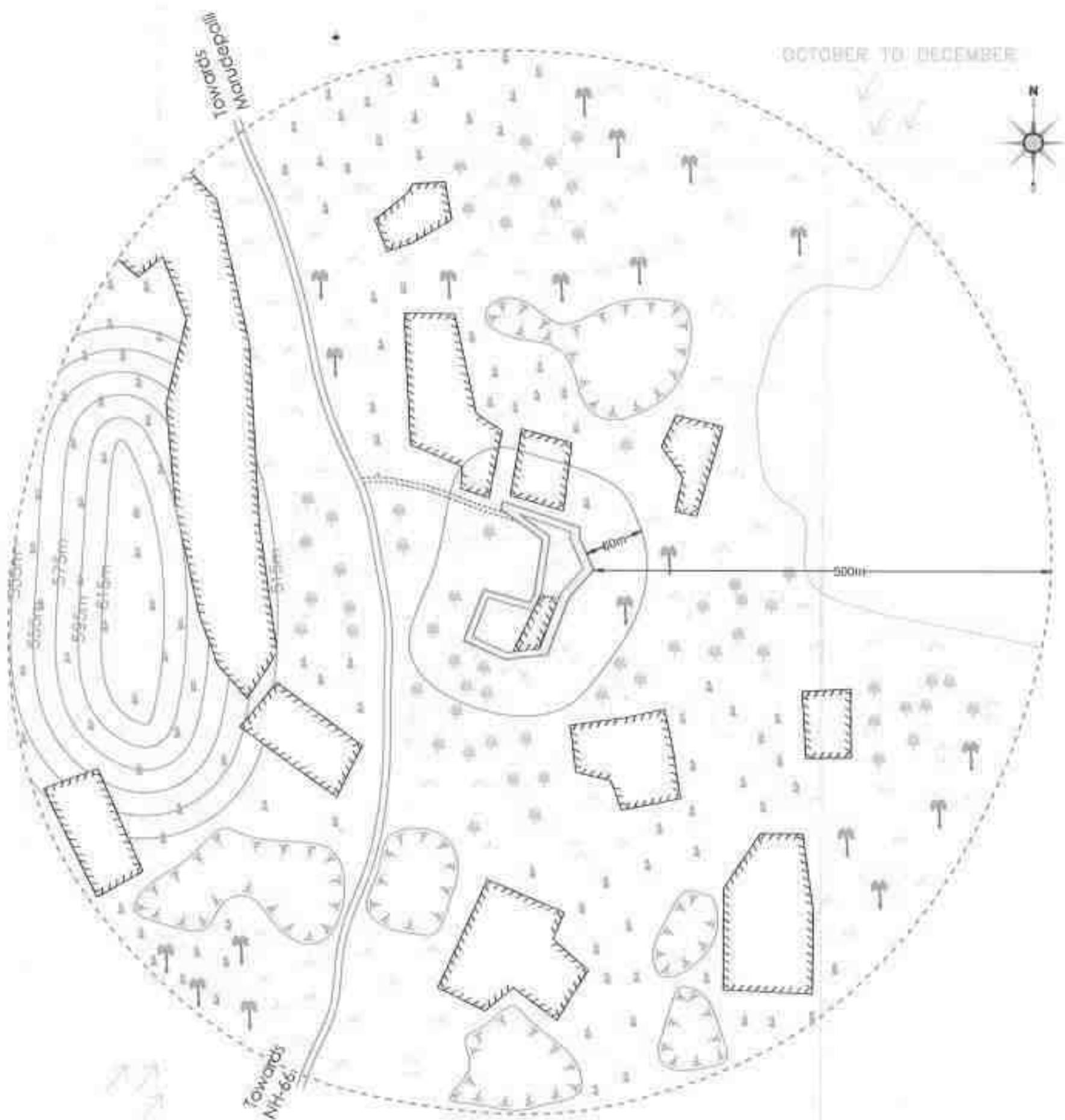


PLATE NO.VIII

DATE OF SURVEY: 14.05.2015

APPLICANT:

Tithe M. VARALAKSHMI,
W/O. C. MUNIRATHINAM,
CHENDARAPALLI,
ANCHOOOR POST,
KRISHNAGIRI TALUK AND DISTRICT,
TAMILNADU- 635203.

LOCATION OF QUARRY:

S.F.NOS : 341/4 and 335/4B,
EXTENT : 1.08.5 Ha,
VILLAGE : SUIAMALAI,
TALUK : KRISHNAGIRI,
DISTRICT : KRISHNAGIRI.

INDEX

Q.L APPLIED BOUNDARY	
7.5m & 10m SAFETY DISTANCE	
500m RADIUS	
60m RADIUS	
APPROACH ROAD	
WIND DIRECTION	
TREES	
PIT	
AGRICULTURE LAND	
BARREN LAND	
TANK	
VILLAGE ROAD	
WASTE DUMP	
HILLOCK	



ENVIRONMENTAL PLAN

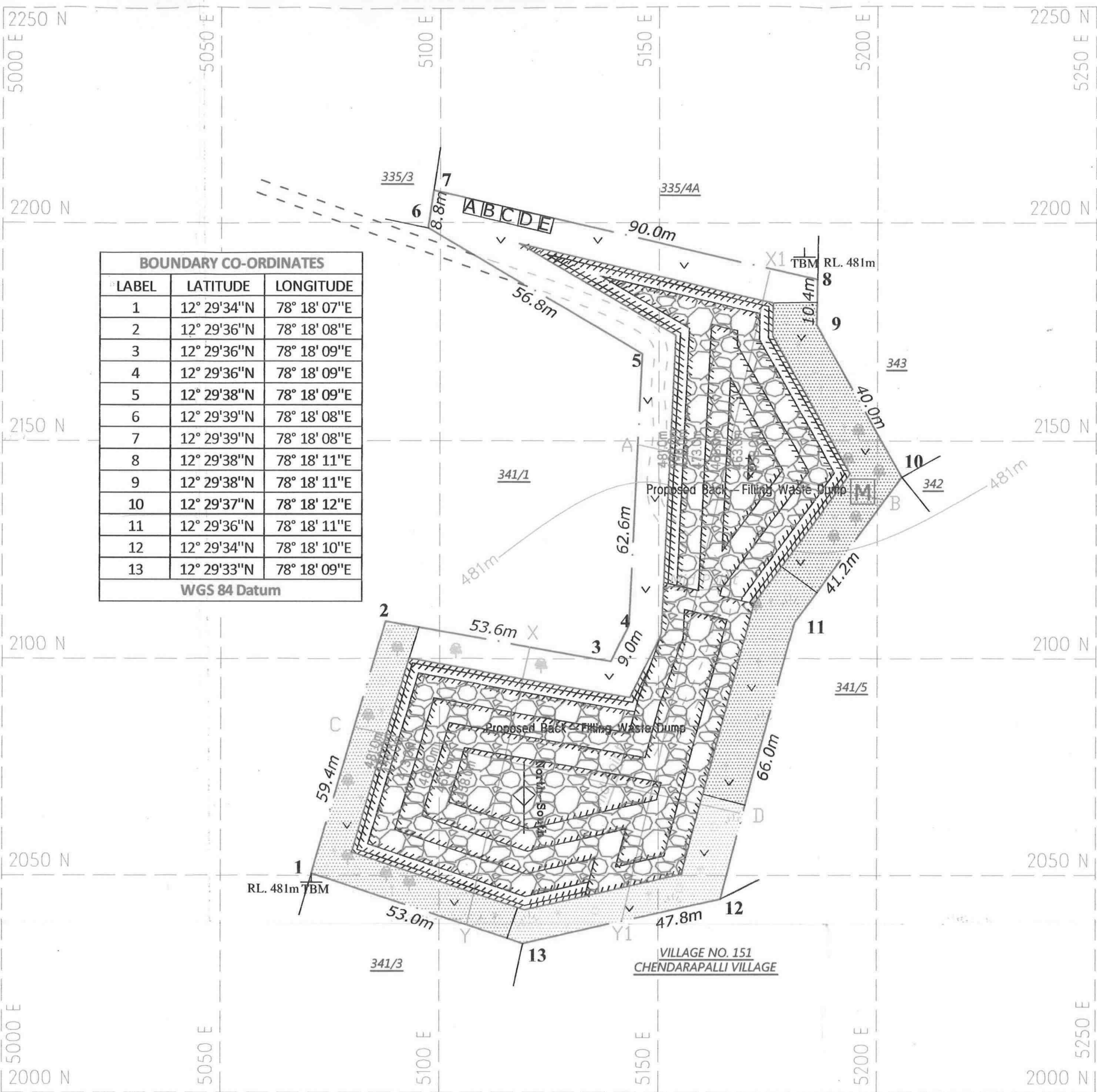
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PREPARED BY:

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THIS PLATE IS TRUE AND CORRECT TO THE
BEST OF MY KNOWLEDGE BASED UPON THE
LEASEMAP AUTHENTICATED
BY STATE GOVERNMENT

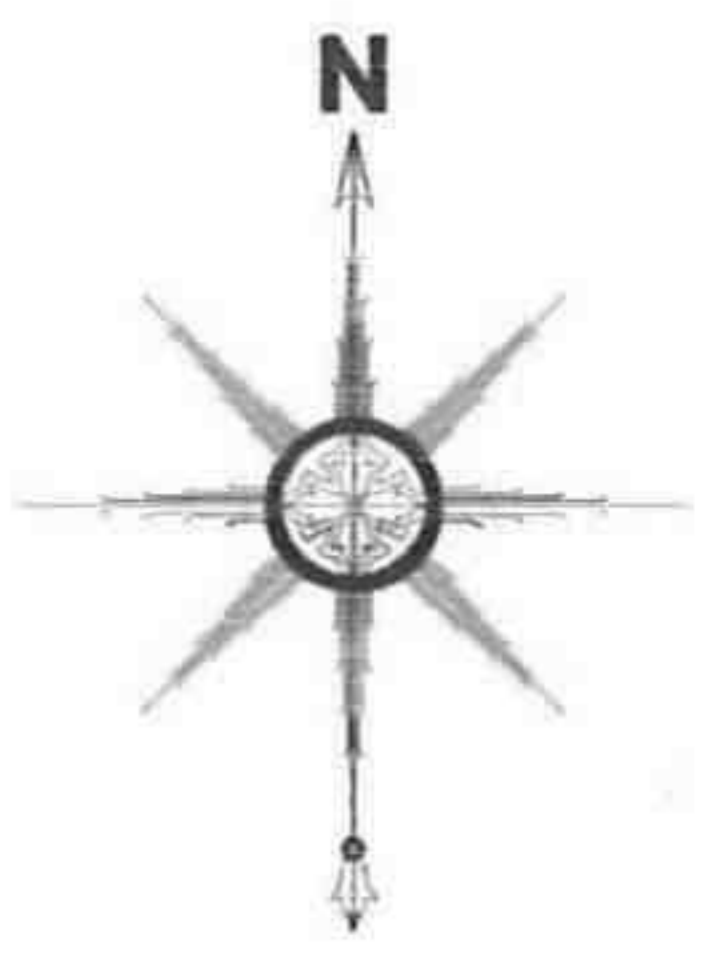
M. Jithirhar Ahmed
M. JITHIRHAR AHMED, M.Sc., F.C.S., M.B.A., M.M.E.A.,
RECOGNISED QUALIFIED PERSON
ROP/MAS/183/2004/A

JULY TO SEPTEMBER



BOUNDARY CO-ORDINATES		
LABEL	LATITUDE	LONGITUDE
1	12° 29'34"N	78° 18' 07"E
2	12° 29'36"N	78° 18' 08"E
3	12° 29'36"N	78° 18' 09"E
4	12° 29'36"N	78° 18' 09"E
5	12° 29'38"N	78° 18' 09"E
6	12° 29'39"N	78° 18' 08"E
7	12° 29'39"N	78° 18' 08"E
8	12° 29'38"N	78° 18' 11"E
9	12° 29'38"N	78° 18' 11"E
10	12° 29'37"N	78° 18' 12"E
11	12° 29'36"N	78° 18' 11"E
12	12° 29'34"N	78° 18' 10"E
13	12° 29'33"N	78° 18' 09"E

WGS 84 Datum



ULTIMATE PIT DIMENSION
137m(Max)X 73m(Max)X 23m(d)

- Ist- VYr AFFORESTATION
- IInd- VYr AFFORESTATION
- IIIRD- VYr AFFORESTATION
- IVth- VYr AFFORESTATION

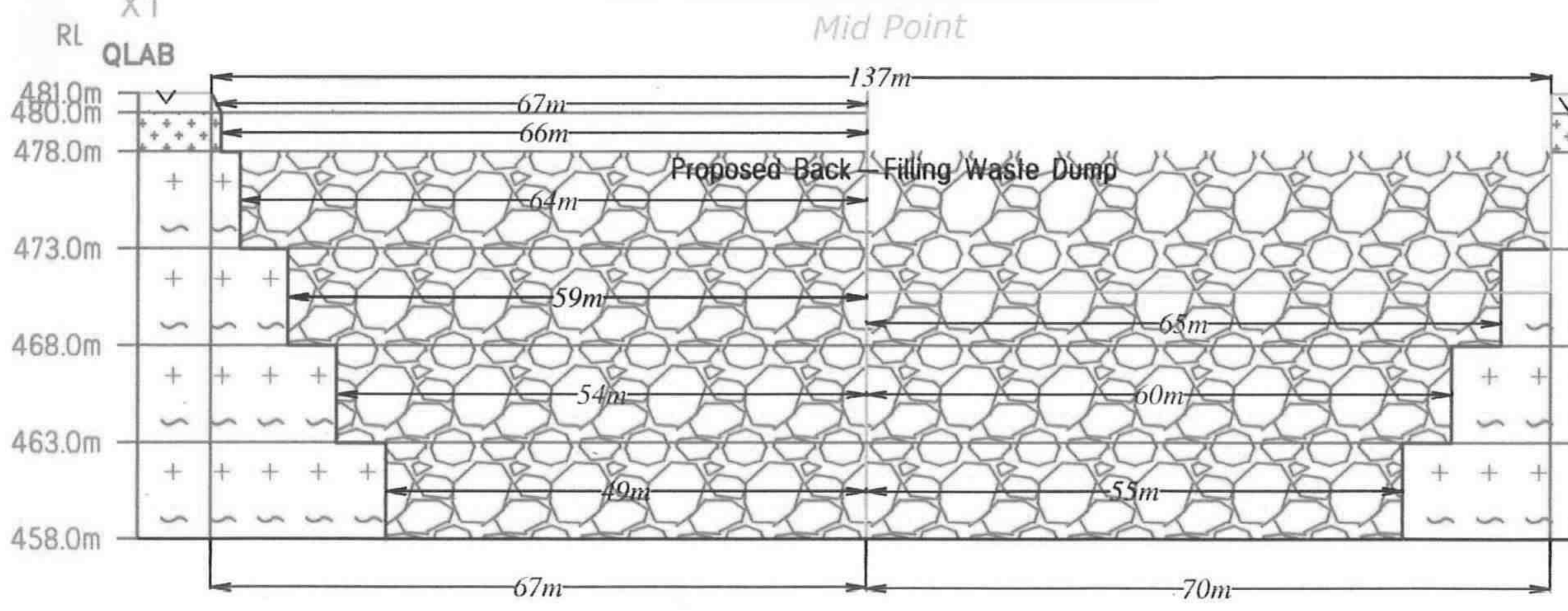
PLATE NO. IX
DATE OF SURVEY: 14.05.2015

APPLICANT:
Tmt. M. VARALAKSHMI,
W/o. C. MUNIRATHINAM,
CHENDARAPALLI,
ANCHOR POST,
KRISHNAGIRI TALUK AND DISTRICT,
TAMILNADU - 635203.

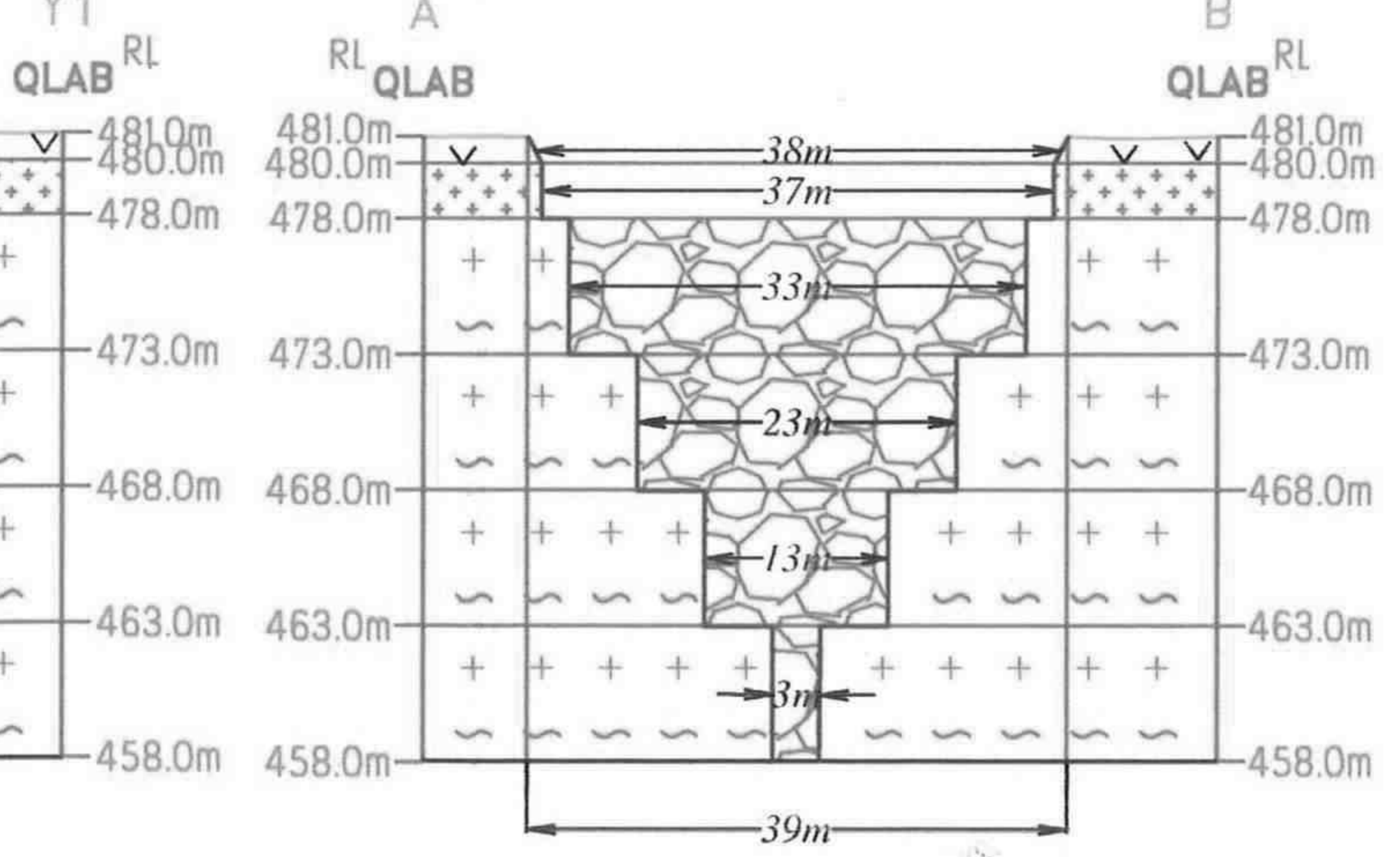
LOCATION OF QUARRY:
S.F.NO'S : 341/4 and 335/4B,
EXTENT : 1.08.5 Ha,
VILLAGE : SULAMALAI,
TALUK : KRISHNAGIRI,
DISTRICT : KRISHNAGIRI.

- INDEX
- QUARRY LEASE APPLIED BOUNDARY
 - 7.5m & 10m SAFETY DISTANCE
 - APPROACH ROAD
 - QUARRY ROAD
 - TEMPORARY BENCH MARK
 - OLD QUARRY PIT
 - TREES
 - TOPSOIL
 - CONTOUR
 - STRIKE & DIP
 - GREY GRANITE
 - WEATHERED ROCK
 - PROPOSED BACK FILLING

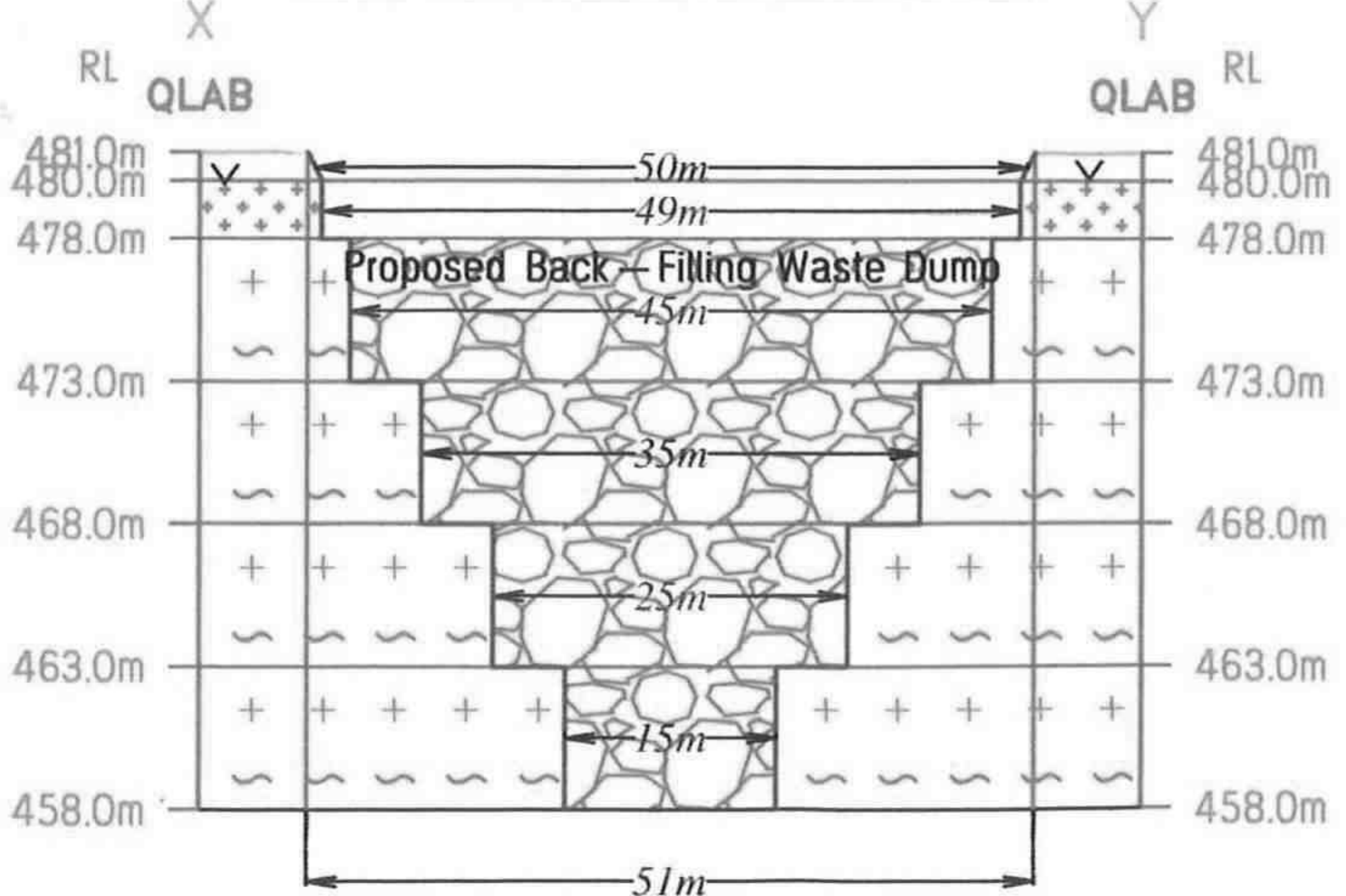
SECTION ALONG X1-Y1



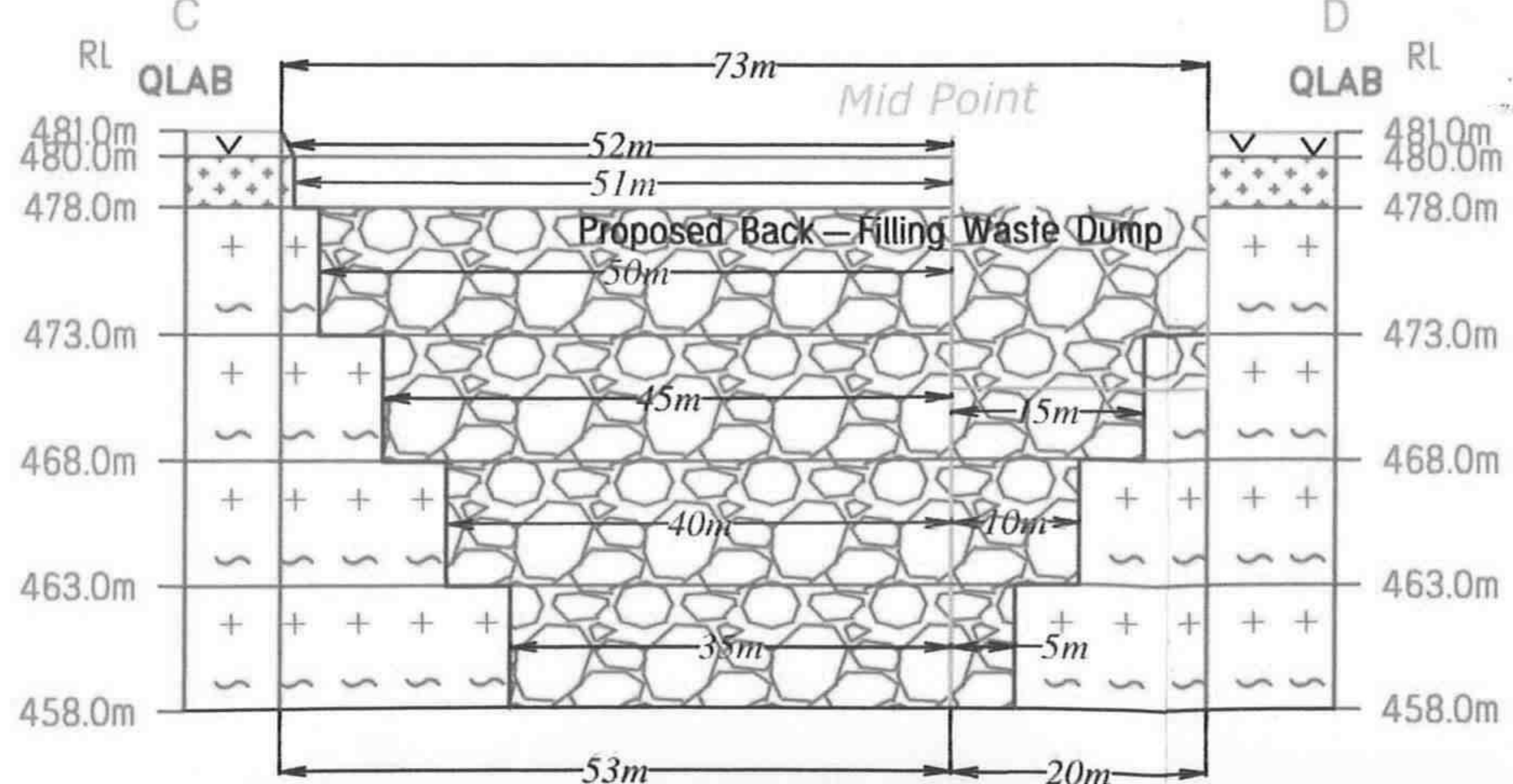
SECTION ALONG A-B



SECTION ALONG X-Y



SECTION ALONG C-D



CONCEPTUAL PLAN & SECTIONS
SCALE-PLAN-1:1000
SEC-HOR 1:1000
VER 1:500

PREPARED BY:
THIS IS TO CERTIFY THAT THE INFORMATION IN THIS PLATE IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE BASED UPON THE LEASEMAP AUTHENTICATED BY STATE GOVERNMENT
M. Ifthikhar Ahmed
M. IFTHIKHAR AHMED, M.Sc., F.G.S., M.B.A., M.M.E.A.,
RECOGNISED QUALIFIED PERSON
RQP/MAS/183/2004/A

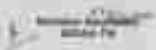
The amount of work of a job is directly proportional to the number of hours worked.

Example: The amount of work of a job is directly proportional to the number of hours worked.

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Example:

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7. The amount of work of a job is directly proportional to the number of hours worked.
8. The amount of work of a job is directly proportional to the number of hours worked.
9. The amount of work of a job is directly proportional to the number of hours worked.
10. The amount of work of a job is directly proportional to the number of hours worked.

From

Dr. S.Vediappan, M.Sc.,Phd.,
Deputy Director,
Dept of Geology and Mining,
Krishnagiri.

To

Thiru. B.k. Murali,
S/o. B.C.Krishnan,
No. 70/53, Kara Kuppam Road,
Bargur, Krishnagiri.

Roc.No.23/2023 /Mines dated: 03.03.2023.

Sir,

Sub: Mines and Minerals - Krishnagiri District - Grey Granite - Bargur Taluk - Chendarapalli Village - S.F.Nos. 382/5A, 382/5B, 382/6A, 382/6B, 382/6C, 382/7A, 382/7B, 382/8, 382/9A, 382/9B, 382/9C, 382/10 and 382/11 over an extent of 2.78.50 hecets of Patta lands of Grey Granite quarry lease granted to Thiru. B.k. Murali - Details of quarries situated within 500 mts radial distance - Requested by the lessee - Details furnished - reg.

- Ref:**
1. G.O.(3D) No. 34, Industries (MME-2) Department dated: 25.02.2011.
 2. Mining plan approved the Commissioner of Geology and Mining in letter No. 11714/MM5/2010 dated: 23.02.2011.
 3. Thiru. B.k. Murali, letter dated: 03.01.2023.

kind attention is invited to the reference cited.

2) Quarry lease had been granted to Thiru. B.k. Murali for quarrying Grey Granite over an extent of 2.78.50 hecets of patta lands in S.F.Nos. 382/5A, 382/5B, 382/6A, 382/6B, 382/6C, 382/7A, 382/7B, 382/8, 382/9A, 382/9B, 382/9C, 382/10 and 382/11 of Chendarapalli Village, Bargur Taluk, Krishnagiri district for a period of 20 years under the provisions of Rule 19 (A) of Tamil Nadu Minor Mineral Concession Rule 1959 vide G.O. dated 25.02.2011. The lease deed was executed on 28.02.2011 and the lease period is from 28.02.2011 to 27.02.2031.

3. The lessee has submitted mining plan for the 1st five years which was approved by the Commissioner of Geology and Mining, vide letter dated: 23.02.2011.

4. In this connection, the details of quarries situated within 500mts for the subject quarry requested by the lessee vide letter dated: 03.01.2023 to furnish the same before SEIAA in orders to get Environmental Clearance.

5. As requested by the lessee the details of quarries situated within 500m radius is furnished as follows:

I. Details of Existing quarries.

Sl. No	Name of the Lessee and address	GO No & Date	Taluk & Village	S.P.No.	Extent in Hectare	Lessee period
1.	Thiru. H.k. Murali, S/o. C. Krishnan, No. 70/53, Kara Kuppam Road, Bargur, Krishnagiri.	G.O. 3D.No.34 Ind (MME.2) Dept dt:25.02.2011	Bargur Chendarapalli	382/5A, 382/5D, 382/6A, 382/6B, 382/6C, 382/7A, 382/7B, 382/8, 382/9A, 382/9B, 382/9C, 382/10 382/11	02.78.5	28.02.2011 to 27.02.2031 [Instant Proposal]
2	M/s. Zak Exports	G.O. 3D.No.25 Ind MME.2]Dept dt:21.11.2017	Bargur Chendarapalli	380/1 P	3.50.0	06.12.2017 to 05.12.2037
3	Thiru.B.S.Ravi	G.O. 3D.No.35 Ind MMB.2]Dept dt:16.09.2003	Bargur Chendarapalli	369/2	2.46.5	10.11.2003 to 09.11.2023.
4	Thiru.B.S.Ravi	G.O. 3D.No.30 Ind MMB.3]Dept dt:22.02.2006.	Bargur Chendarapalli	339/2	1.19.0	27.03.2006 to 26.03.2026
5.	Thiru.Mir.Thahir Ali	G.O. 3D.No.79 Ind MME.2]Dept dt:25.10.2007.	Bargur Chendarapalli	380/1 (Part)	2.48.0	10.12.2007 to 09.12.2027
6.	Thiru.A.Sethar	G.O. 3D.No.48 Ind MME.2]Dept dt:25.07.2016.	Bargur Chendarapalli	375/2D etc	1.78.0	01.09.2016 to 31.08.2036
7.	Thiru.A.Sethar	G.O. 3D.No.13 Ind MME.2]Dept dt:01.09.2013.	Bargur Chendarapalli	375/2A etc	1.03.5	07.10.2013 to 06.10.2033
8	Ymt.M.Vara lakshmi	G.O. 3D.No.24 Ind MME.2]Dept dt:16.04.2018.	Bargur Chendarapalli	335/4B & 341/4	1.08.5	14.06.2018 to 13.06.2038
9.	M/s. Tamin Ltd	G.O. 3D.No.32 Ind (MME.1]Dept dt:15.06.2018	Bargur Chendarapalli	176/1	15.23.5	29.12.2018 to 28.12.2038

Handwritten signature


10.	Tmt. D. Rukkammal	G.O.3D.No.34 Ind (MME.2)Dept dt:03.10.2009	Bargur Chendarapalli	335/4A1	1.20.0	14.12.2009 to 13.12.2029
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II. Details of abandoned/Old quarries.

Sl. No.	Name of the lessee	GO.No. & Dated	Village & Taluk	S.F No.	Extent in Het	Lease period.
1.			Nil			

III. Details of other Proposed/applied quarries

Sl. No.	Name of the lessee	GO.No. & Dated	Village & Taluk	S.F No.	Extent in Het	Lease period.
1.	M/s. Tamin Ltd	G.O.3D.No.268 Ind(MME.1) Dept dt:15.06.2018.	Bargur Soolamalai	283	34.35.5	Applied area
2.	M/s.Bismillah Exports	----	Soolamalai, Bargur Taluk	339/1(P)	1.02.00	Precise area given as per
3.	Salman Sathar	----	Soolamalai, Bargur Taluk	341/1(P)	1.36.80	Precise area given as per


 Deputy Director,
 Dept of Geology and Mining,
 Krishnagiri.

Copy to :-

The Chairman, Tamil Nadu State Environment
 Impact Assessment Authority,
 3rd Floor, Panakal Maligai,
 No. 1 Jeenes Road, Saidapet,
 Chennai -15.



ABSTRACT

Mines and quarries - Minor Minerals - Dharmapuri District, Krishnagiri taluk, Chendarapalli Village - Grant of lease to quarry grey granite - Over an extent of 2.46.5 hectares in S.No.369/2 - Quarry lease application of Thiru B.S.Ravi, Burgur, Dharmapuri District - Sanctioned - Orders - Issued.

INDUSTRIES (MMB 2) DEPARTMENT

C.O.(3D) No. 35

Dated: 16.9.2003.

Read:

- 1) From Thiru B.S.Ravi, Burgur quarry lease application dated 5.10.2001.
- 2) From the Collector of Dharmapuri District Letter No. Roc 1376/2001/A Mines, dated 9.12.2001.
- 3) From the Director of Geology and Mining, Letter Roc No.17590/MM2/2001, dated 24.12.2001.
- 4) Government Letter No.334/E2/2002-2, Industries Department dated 26.5.2003.
- 5) From the Commissioner of Geology and Mining, Letter Roc No.17590/MM2/2001, dated 1.5.2003.
- 6) Government Letter No.12789/MMB2/2002-7, Industries Department, dated 9.1.2003.

ORDER:

Thiru B.S.Ravi, Burgur, Dharmapuri District has applied for grant of lease to quarry grey granite over an extent of 2.46.5 hectares in S.No.369/2 of Chendarapalli Village, Krishnagiri taluk, Dharmapuri District, for a period of 20 years under rule 19-A of the Tamil Nadu Minor Mineral Concession Rules, 1959.

2. The Collector of Dharmapuri District and the Commissioner of Geology and Mining have forwarded the application of Thiru B.S. Ravi, Burgur to the Government for passing orders.

3. Based on the reports of the District Collector and the Commissioner of Geology and Mining, the Government have examined the quarry lease

application of the applicant firm and communicated the entire area applied for lease as precise area and requested the applicant ~~to~~ in the reference fourth read above to furnish the approved mining plan as per sub-rule 13 of rule 19-A of the Tamil Nadu Minor Mineral Concession Rules, 1959 with a copy to Commissioner of Geology and Mining / District Collector, Dharmapuri. Accordingly, the mining plan as approved by the Commissioner of Geology and Mining has been sent to Government as per sub rule 13 of rule 19-A of the Tamil Nadu Minor Mineral Concession Rules, 1959.

4. The Government after careful examination have decided to grant lease to quarry grey granite to Thiru B.S.Ravi, Burgur in patta lands.

5. In exercise of powers conferred under Rule 19-A of the Tamil Nadu Minor Mineral Concession Rules, 1959 the Governor of Tamil Nadu hereby grants quarry lease to Thiru B.S.Ravi, Burgur for quarrying grey granite over an extent of 2.46.5 hectares in S.Nos.369/2 in Chendarapalli Village, Krishnagiri Taluk, Dharmapuri District for a period of twenty years subject to the conditions specified in the annexure to this order and also subject to the following conditions

- i) The applicant should make his own arrangement for approach road before commencing the quarrying operation in the area
- ii) The applicant should maintain 7.5 mts safety distance from the boundary in west and south side of the area applied for lease.
- iii) A safety distance of 50 mts has to be provided for the telephone line
- iv) Safety distance of 10 mts has to be provided for the Chendarapalli Orappam road passing in North-South directions on the eastern side of the area applied for lease.
- v) The safety distances as marked by the District Collector in the FM sketch shall be maintained.
- vi) The applicant should not encroach into the adjoining one in SF No. 369/1 lying in the western side of the area applied for lease. He should furnish a sworn in affidavit to the effect before the execution of lease deed agreement.
- vii) ~~disposed of~~ ^{dumped} The waste materials generated during quarry operation shall be ~~disposed of~~ ^{dumped} within the areas granted under quarry lease.

6. The Collector of Dharmapuri District is requested to take necessary further action for the execution of agreement in the prescribed form and communicate the date of execution of agreement to the Government and the

3
Commissioner of Geology and Mining. The District Collector is requested to ensure the compliance of the orders issued in the reference sixth read above by the applicant. (copy enclosed for ready reference)

(By order of the Governor)

ARUN RAMANATHAN
SECRETARY TO GOVERNMENT

To
The Collector of Dharmapuri District. *Dharmapuri.*
Thiru B.S. Ravi, S/o. B.S. Subba N
100 E Gandhi Bazaar, B T M Road, Bargur 635 104. Dharmapuri District.
The Commissioner of Geology and Mining, Chennai-32.
Copy to:
The Senior Personal Assistant to Hon'ble Minister for Industries, Chennai-9.
✓ Industries (OPII) Department, Chennai-9.
sf/sc.

/ Forwarded by order /

S. V. S. S. S.
Section Officer.



SCHEME OF MINING

FOR GREY COLOUR GRANITE (PARADISO) QUARRY

in Soolamalai Village, Krishngiri Taluk and District, Tamil Nadu

(Prepared under the Rule 18(2) of GCDR, 1999 and Rule 19A of TNMMCR 1959)

G.O 3(D) No.30 Industries (MMB-3) Dept. dated 22.02.2006

Extent : 1.19.0 Hectares
S.F. No. : 339/2
Village : Soolamalai
Taluk : Krishnagiri
District : Krishnagiri
State : Tamil Nadu

Applicant

Thiru B.S.Ravi

S/o B.C.Subban,

100E,Gandhi Bazaar, B.T.M.Road, Bargur,

Krishnagiri District, TamilNadu.

Pincode-635 104,

PH: 9443265125, 9787100778,

Prepared by

S.SURIYAKUMAR,

M.Phil.(Geology),F.C.C.(Mining), PGDBA,

PGDIPC (Industrial Pollution Control)

RQP & NABET/QCI Accredited EIA Consultant

Reg. No. RQP\MAS\013\87\A

3/216, K.S.V.Nagar, Narasothipatti, SALEM-4.

Phone (0427) 2444297, Cell : 09842729655

ceo@suriyaminig.com, suriyakumarsemban@gmail.com

JUNE-2015

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(a)

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(b)

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(i)

CONSENT LETTER FROM THE APPLICANT

The Scheme of Mining in respect of Grey colour Granite (Paradiso) quarry over an extent of 1.19.0Hectares in S.F.No:339/2, Soolamalai Village of Krishnagiri Taluk and District, Tamil Nadu State has been prepared by **Shri.S.Suriyakumar** Recognised Qualified Person, Reg.No. **RQP\MAS\013\87\A.**


I request the Dept. of Geology and Mining, Chennai to make further correspondence regarding modifications of the Scheme of Mining with the said recognized Person on this following Address,

S.SURIYAKUMAR,
M.Phil.(Geology),F.C.C.(Mining), PGDBA,
PGDIPC (Industrial Pollution Control)
RQP & NABET/QCI Accredited EIA Consultant
No.3/216,K.S.V.Nagar,Narasothipatti,
Alagapuram Post, Salem - 636 004.
Phone (0427) 2444297, Cell : 98427 29655

I hereby under take that all modifications so made in the Scheme of Mining by the Recognised Qualified Person may be deemed to have been made with my knowledge and consent and shall be acceptable to me and binding on me in all respects.

Place : Krishnagiri

Date : 10.06.2015


Signature of the Applicant

Thiru B.S.Ravi

S/o B.C.Subban,

100E,Gandhi Bazaar, B.T.M.Road, Bargur,

Krishnagiri District, TamilNadu.

Pincode-635 104,

PH:9443265125, 9787100778,

DECLARATION OF MINE OWNER

The Scheme of Mining in respect of Grey colour Granite (Paradiso) quarry over an extent of 1.19.0Hectares in S.F.No:339/2, Soolamalai Village of Krishnagiri Taluk and District, Tamil Nadu has been prepared with my consultation and I have understood the contents and agree to implement the same in accordance with the Mining Laws.

Place : Krishnagiri

Date : 10.06.2015



Signature of the Applicant

S.SURIYAKUMAR,

M.Sc.,M.Phil. (Geo),F.C.C.(Min),PGDBA,DIPC.

RQP & NABET/QCI Accredited EIA Consultant,

No.3/216, K.S.V.Nagar, Narasothipatti, Salem - 636 004.

Email : ceo@suriyaminig.com, suriyakumarsemban@gmail.com .

Phone (0427) 2440 446, 2444 297,Cell : 98427 - 29655.

CERTIFICATE

This is to certify that the provisions of Granite Conservation and Development Rules, 1999 (GCDR) have been observed in the Scheme of Mining for Grey colour Granite quarry (Paradiso) prospects in S.F.No. 339/2, Soolamalai Village, Krishnagiri Taluk and District over an extent of 1.19.0Hectares, Tamil Nadu State applied by Thiru.B.S.Ravi S/o B.C.Subban, 100E, Gandhi Bazzar, B.T.M.Road, Bargur, Krishnagiri District, Tamil Nadu for the fresh mining lease.

Wherever specific permissions/exemptions/relaxations or approvals are required, the applicant will approach the concerned authorities of State and Central Governments for granting such permissions etc.

Certified


Signature of Recognized Qualified Person
S. SURIYAKUMAR
Recognized Qualified Person
Reg. No RQP/MAS/013/87A

Recognized Qualified Person

Place : Salem, Tamil Nadu

Date : 10.06.2015

S.SURIYAKUMAR,

M.Sc.,M.Phil. (Geo),F.C.C.(Min),PGDBA,DIPC.

RQP & NABET/QCI Accredited EIA Consultant,

No.3/216, K.S.V.Nagar, Narasothipatti, Salem - 636 004.

Email : ceo@suriyaminig.com, suriyakumarsemban@gmail.com.

Phone (0427) 2440 446, 2444 297,Cell : 98427 - 29655.

CERTIFICATE

Certified that in preparation of Scheme of Mining for Grey colour Granite (Paradiso) quarry over an extent of 1.19.0Hectares in S.F.No: 339/2, Soolamalai Village, Krishnagiri Taluk and District, Tamil Nadu for Thiru.B.S.Ravi S/o B.C.Subban, 100E, Gandhi Bazzar, B.T.M.Road, Bargur, Krishnagiri District, Tamil Nadu covers all the provisions of Mines Act, Rules, and Regulations etc. made there under and whenever specific permissions are required the applicant will approach the Director of Mines safety, Chennai. The standards prescribed by DGMS in respect of Miners Health will be strictly implemented.

Certified


Signature of Recognized Qualified Person
S. SURIYAKUMAR
Recognized Qualified Person
Reg. No RQP/MAS/013/87-A

Recognized Qualified Person

Place : Salem, Tamil Nadu

Date : 10.06.2015

SCHEME OF MINING

FOR GREY GRANITE (PARADISO) QUARRY

IN S.F.NO. 339/2, SOOLAMALAI VILLAGE, KRISHNAGIRI TALUK AND
DISTRICT, TAMIL NADU

(Period of Scheme of Mining: 2016 - 17 to 2020-21)

G.O 3(D) No.30 Industries (MMB-3) Dept. dated 22.02.2006

(Prepared under Rule 1 (2) (1) of GCDR, 1999 for Existing Mining Lease)

INTRODUCTION :

The mining Scheme is prepared under the Rule 18 (2) (1) of GCDR, 1999 for the existing mining lease after completion of 5 years period of Mining Plan. Thiru.B.S.Ravi S/o B.C.Subban, 100E, Gandhi Bazaar, B.T.M.Road, Bargur, Krishnagiri District, Tamil Nadu is a individual having vast experience and skill on quarrying of granite blocks in Soolamalai area for the last 10 years. The area was granted to the applicant from the State Government over an extent of 1.19.0 Hectares in S.F.No. 339/2, Soolamalai Village to quarry granite blocks under G.O 3(D) No.30 Industries (MMB-3) Dept. dated 22.02.2006 and lease was executed on 27.03.2006 for a period of 20 years till 26.03.2026.

The area of mining lease area comprised of Migmatite, a type of Grey Granite with rich Pink colour and wave patterns on northern side(Paradiso). Grey granites on the southern portion have less Pink colour and mostly dark back ground with more block black patches (Xenoliths). The mineral constituents are biotite, quartz, orthoclase feldspar and plagioclase feldspar. The biotite is fine grained and other minerals are medium grained.

The mining Scheme is prepared for optimum exploitation of granite deposit by systematic and scientific mining as per the conditions stipulated under the G.O. and enable the applicant to mine the granite blocks on a long run with consistent ore to

waste ratio with a view to maintain uniform cost of mining and profit margin with safety and proper environment management. Lease particulars and production details are given as under.

G.O. NO	Extent (Hec)	Date of Grant	Date of Execution	Period of Lease	Date of expiry
G.O 3(D) No.30 Industries (MMB-3)	1.19.0	22.02.2006	27.03.2006	20 Years	26.03.2026

Production particulars for the 2006-2015 years are given as under,

<u>Years</u>	<u>Production (cu.m)</u>
2006-2009-----	Nil
2009-2010-----	223.679
2010-2011-----	213.033
2011-2012-----	16.116
2012-2013-----	Nil
2013-2014-----	104.430
2014-2015-----	721.699

Total	127 .957M³

There is no production during the year 2006-2009 and 2012-2013 in view of temporary discontinuance of operation due to poor market demand. The mining plan was approved by the Dept. of Geology and Mining Guindy, Chennai during the year 2006 vide letter No. 3910/MM5/2005, dated 15.02.2006 and the dept. of Geology and Mining called for Scheme of Mining as the period of first Mining scheme is expires in 31.03.2016. The scheme of mining is prepared for the next five years period from 2016-2021. Geological and working plans and sections are prepared in a suitable scale in 1:2000 and 1:500 respectively Plate no.III & IV, to illustrate the final pit configuration of the mine and method of working the deposit systematically.

1.0 REVIEW OF SCHEME OF MINING:

1.1. Name : Thiru.B.S.Ravi,
Address : S/o. B.C.Subban,
100E,Gandhi Bazaar, B.T.M.Road,
Bargur,Krishnagiri District. TamilNadu.
Pin code : 635 104,
PH: 9443265125, 9787100778.

(b) STATUS : Individual,

1.2. Particulars of Approval of : Letter No. 3910/MM5/2005, dated 15.02.2006
1.3 Date of Commencement of Mining operation : 27.03.2006



Fig.1 Showing Location and route map of Quarry lease Area

Route:

The area is accessible at a distance of 2 kms towards south of Soolamalai village. The NH-66 road is situated about 0.5km on south side, connecting Krishnagiri-Mattur. There is no railway line found within 5kms radius.

Krishnagiri 7Kms Chendarapalli 500m



2 kms Soolamalai

The Location of the area is shown in Plate I. It is represented by Survey of India Topo sheet No. 57 L/7 with center of reading 12°29'31.6"N and 78°18'01.0"E with elevation 487m above MSL. All Pillar DGPS co-ordinates are given below,

PILLAR NAME	LATITUDE	LONGITUDE	Elevation(m)
A	12°29'30.62319"N	78°17'58.41212"E	490.621
	12°29'33.40792"N	78°18'0.43529"E	486.346
C	12°29'33.46940"N	78°18'03.31419"E	487.905
D	12°29'30.99190"N	78°18'3.54886"E	484.548

Details of Infrastructure is given as under,

S.No.	Description	Place	Distance (Kms)
1	Railway	Thiruppattur	29
2	Road	NH-66 Krishnagiri-Mattur	0.5
3	Post office	Anjoor	1.5
4	Airport	Bangalore	114
5	Police station	Kandhi Kuppam	7
6	Fire service	Bargur	10
7	Primary Health centre	Jagadevipalayam	3
	Union	Krishnagiri	7
9	School	Chandarapalli	1.5
10	DSP Office	Krishnagiri	7
11	Villages		
	i) North	Gettur	1.5
	ii) South	Chandarapalli	1
	iii) East	Jagadevipalayam	3
	iv) West	Anjur	2



Fig.2 : Google image shows location of combined quarry with surface features around 500m

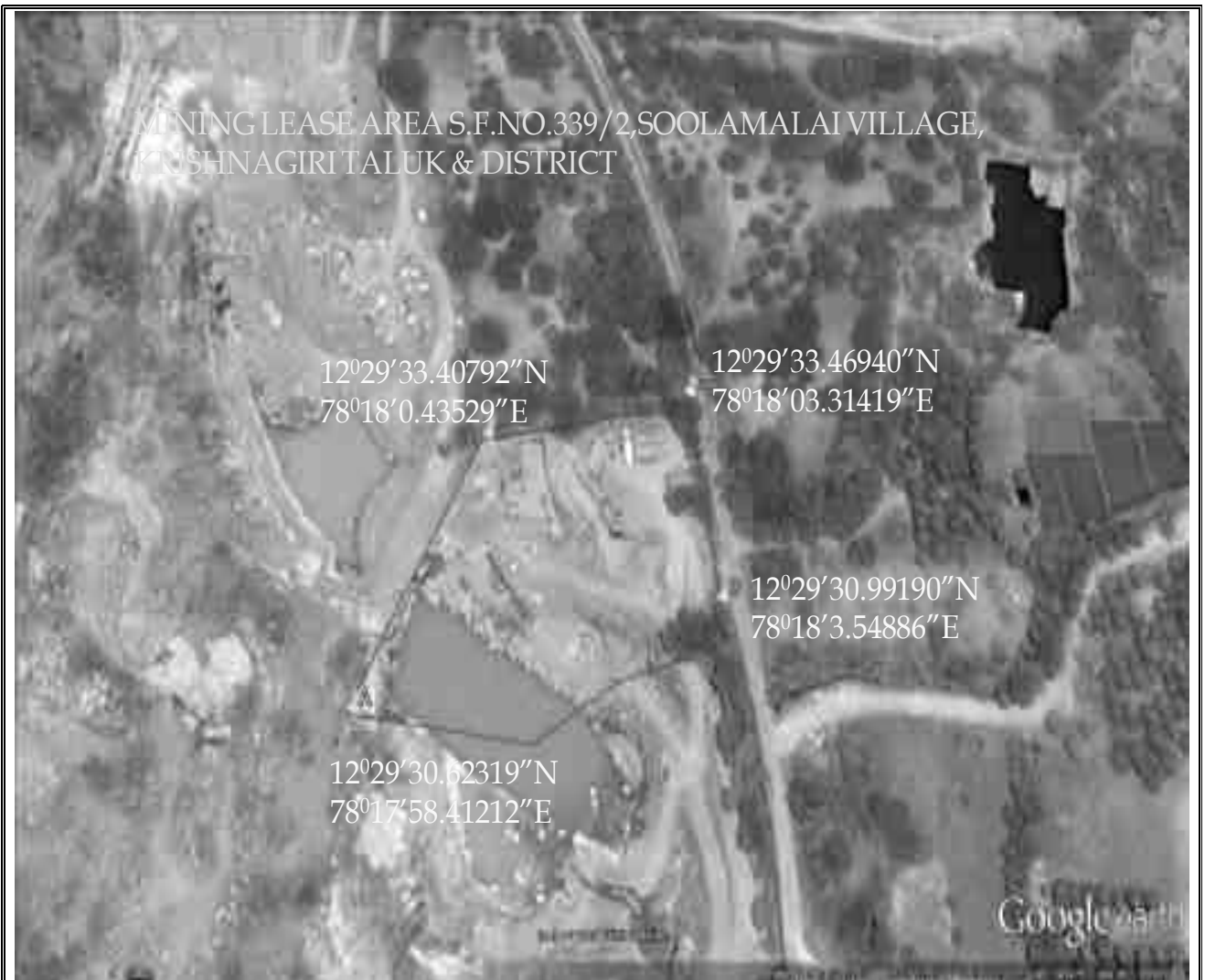


Fig.3 : Google image shows Lease boundary of the quarry

1.4 REVIEW OF COMPLIANCE POSITION OF SALIENT FEATURES OF MINING PLAN

Special conditions imposed by State Government while approving the mining plan are,

- i) The applicant should provide safety distances of 7.5m on all the other three sides of the applied area.
- ii) The Applicant should provide 50meters safety distance for the road, electric line, Telephone line and the open well.
- iii) General conditions are given Annexure-I(As per G.O.Copy)

No other special conditions were imposed during the last five years by the Dept. of Geology and Mining by the district office at Krishnagiri and commissioner ate in Chennai. Now the mining scheme is prepared for the lease area over an extent of 1.19.0Hec. as per the above G.O. 3(D) NO. 30\Industries (MMB-3)Dept dated 22.02.2006 as the five years period of mining plan is expired on 26.03.2011 and first scheme of mining is expired 31.03.2016. Now the scheme of mining is prepared for the period from 2016-2021.

1.5.0. REVIEW OF IMPORTANT CHAPTERS OF MINING PLAN

1.5.1. EXPLORATION

No exploration was mentioned in the earlier mining plan. The entire area over Grey granite is exposed up to 24m depth to expose the deposit.

1.5.2. MINE DEVELOPMENT

The mine development proposed in the approved mining plan and the actual development done by the applicant are summarized as under.

PROPOSAL GIVEN IN THE MINING PLAN :

Year	Development(M ³)		Production (M ³)@ 10	Ore:Waste
	Top soil	Rejects@90		
2006-07	27000	900	100	1: 279
2007-0	---	1350	150	1: 9.0
200 -09	---	1350	150	1: 9.0
2009-10	---	1350	150	1: 9.0
2010-11	---	1350	150	1: 9.0
Total	27000	6300	700	1: 47.57

ACTUAL WORK DONE:

Year	Development		Production (M ³)	Ore: Waste
	Top Soil	Rejects(M ³)		
2006-09	4000	---	Nil	---
2009-10	2500	2000	223.679	1 : 38
2010-11	2500	1900	213.033	1 : 20.65
2011-12	---	200	16.116	1 : 12.41
2012-13	---	---	Nil	---
2013-14	---	950	104.430	1 : 10
2014-15	1500	6500	721.699	1 : 11.08
Total =	10500	11550	127 .957	1: 17.24

Planned Actual
Over all Granite: Reject ratio= 1:47.57 1: 17.24

REVIEW OF MINE DEVELOPMENT:

The applicant had developed the mine as per the Mining Plan.

1.5.3 AFFORESTATION PROGRAMME :

It was mentioned to plant 20 Neem, Tamarind, coconut, Mango trees etc per annum over the dumps and lease boundary but few trees were planted along the approach road and near office and planting trees around ML area (Green belt) will be carried out by the applicant during the next five years (2016-2021) systematically.

1.5.4 LAND RECLAMATION AND REHA ILITATION :

Due to limited area of quarrying, the waste was dumped over the existing dump located in the adjacent lease belonging to the applicant. The quarry operation was concentrated both on Granite bearing area and waste for systematic development. Two quarry leases under different G.O. are combined to work together for proper development of mine benches and necessary permission under Reg 111 of MMR, 1961 from DMS, Chennai has been applied for. Systematic development alone will bring proper shape of quarry for deep mining and high recovery of saleable blocks using sophisticated machineries like wire saw cutting etc.

No reclamation was made over the mined out area since the deposit persist at still at deeper levels.

No much disturbance was observed in area in respect of fauna, flora and human settlement of the villages. The applicant has to rehabilitate the old dumps and stabilize it with local inhabitants. Similarly the workings should be safe guarded from the inadvertent entry by proper fencing (S1 type) on the northern and western sides. After completion of mining the land will be used as percolation Tank to store rain water, so that the ground water will be charged to increase ground water level. And fishy culture will be developed with aesthetic planting around mines like park. Top Soil, a precious product of mother earth will be made used for this rehabilitation and land reforming.

1.5.5 CONTROL OF DUST, NOISE AND VIBRATION :

Conditions caused to disturb the eco-system and environment of the mining area is negligible except the necessity of controlled blasting to prevent fly of rocks, noise and vibration. The Granite is lifted from the pit bottom to the surface by crane \ Hydraulic excavators very slowly and therefore raising of dust is negligible in quarry and tipper movement also very slow due to carrying huge blocks of granite from quarry to dressing yard and therefore raising of dust from haul road also extremely low or nil. No deep hole blasting was practiced and thereby no much vibration nuisance.

Sometimes noise will be more than 90 dB due to blasting of shot holes with low explosives used for shattering. In such case, the persons working near such areas will be given Mask with ear plugs\muffles in addition to Helmet and goggles.

1.5.6 SIGNIFICANT FEATURES : No significant feature observed in this area.

PART -I

2.0 PROPOSAL UNDER SCHEME OF MINING FOR THE NEXT FIVE YEARS :

- 2.1 Name and Address of the Applicant : Thiru.B.S.Ravi
S/o. B.C.Subban,
100E,Gandhi Bazzar,
B.T.M.Road, Bargur,
Krishnagiri District., Tamil Nadu.
Pincode- 635 104.
Ph: 9787100778, 9787100661
- 2.2 Name, Address, Registration No., and Validity Date of RQP / person employed under Rule 42(1) (d) who prepared the mining scheme : S.Suriya Kumar
M.Sc.,M.Phil.,P.G.D.B.A.FCC (Metal)
No.3/216, K.S.V.Nagar,
Narasothipatti, Salem -4.
Phone : (0427)2444297, 2440446
Cell : +91 98427-29655
ceo@suriyaminig.com
Reg. No. RQP/MAS/013/87/A
Valid up to - 08.11.2021.
- 2.3 Granites to be mined : Grey colour Granite(Paradiso)
- 2.4 Area and date of expiry of Mining Lease : 1.19.0Hec, 26.03.2026

Details of lease particulars are given as under,

G.o No	Extent (Hec.)	Date of Grant	Date of Execution	Period of Lease	Date of expiry
G.O.3(D)No. 30 Industries/Dept	1.19.0	22.02.2006	27.03.2006	20 Years	26.03.2026

Details of Land particulars are given below,

State	Taluk	Village	S.F.No.	Extent (Hec)	Ownership Occupancy
Tamil Nadu, Krishnagiri	Krishnagiri	Soolamalai	339/2	1.19.0	Patta Land
Total = 1.19.0 Hectares					

Topo sheet No.: **57 L/7**

The all corner pillar coordinates of the Mining lease area are given as under,

Location	PILLAR NAME	LATITUDE	LONGITUDE	Elevation (m)	Topography
Zone 44 P	A	12 ⁰ 29'30.62319"N	78 ⁰ 17'58.41212"E	490.621	Flat
		12 ⁰ 29'33.40792"N	78 ⁰ 18'0.43529"E	486.346	
	C	12 ⁰ 29'33.46940"N	78 ⁰ 18'3.31419"E	487.905	
	D	12 ⁰ 29'30.99190"N	78 ⁰ 18'3.54886"E	484.548	

2.5 Date of expiry of approval of mining Plan: 15.02.2006.
(Five years from 27.03.2006 to 31.03.2011)

Now the scheme of mining is prepared for the period 2016-17 to 2020-21.

3.0 GEOLOGY AND EXPLORATION

a) *Physiography:*

The adjacent quarry has reached a depth of 24m from the ground level. No major river or Pond or H.T. electric line is found nearby. The lease area is almost flat ground to a height of 1-2m from the adjacent ground level, sloping gently towards north. A safety distance of 7.5m is provided from adjacent patta lands and 50m safety distance for the village tar road, Telephone line, L.T line and the open well. There is a granite quarry already working in the name of Thiru.B.S.Ravi over an extent of 0.91.05Ha adjacent to this quarry. A composite plan is prepared for working with common lease boundary under Reg 111 of MMR, 1961.

Water table is located at a depth of 55m from the surface in the open wells in the neighbor areas. Area around quarry lease is dry agricultural lands with acacia bushes, neem and Mango trees etc. Temperature of the region is reported to be 30°C to a max. of 41° C during summer and drop to 22°C during winter. Rain fall of this area is about 500 mm during monsoons in a year. Regional crops are ragi, ground nuts, Bengal gram, paddy and maize. There is no monument or area of public interest is found in the vicinity.

b) *Regional Geology:*

Krishnagiri District is comprised of Archaean peninsular gneisses such as Charnockites, Hornblende gneisses, Biotite gneisses, migmatites and dolerites and are intruded by younger formations like pegmatite and quartz veins. The peninsular gneiss/migmatite consists of biotite mica, plagioclase, orthoclase feldspars, quartz and found as sheet rocks running to several kms from NE-SW as a massive rock formation. The migmatite with alternative bands of Pink and black minerals with wave pattern without many cracks provides good polishing with attractive colour.

The order of superposition of geological sequence are given as under,

<u>Description</u>	<u>Geological Age</u>
↑ Topsoil-Red(1-2mThick)	- Recent Age
Loamy soil (Fault Basin)	- (Not Known)
Pegmatite and Quartz veins	- Achaeen Age
Grey granites and Migmatites	- Achaeen "(Kolar Group)"
Biotite gneisses	- Achaeen complex

There are narrow faults at the foot hills of Soolamalai on the eastern side where a quarry of Shri.B.S.Ravi is located and they are running North-South in direction. The fault contacts were later filled with sediments of recent origin up to a depth of 6m with sheared boulders at the center of basin. Such a thick formation is composed of Loamy soil with little lithomorphic clay. Due to high fractures along contact by faulting, percolation of ground water is also more in this area.

c) GEOLOGY OF THE PRECISE AREA

i) Mineralogy :

The area of mining lease area comprised of migmatite (Paradiso) with thick loamy soil underlying the thin top soil. It is a typical "Fault basin" as illustrated below with diagram, below the sedimentary layer the Paradiso sheet rock persist as a continuity of soolamalai formation as observed in the adjacent quarry of the applicant. The nature of formation will be as same the adjacent quarry but the thickness of sedimentary loamy layer shall be less (4m) on the western side and more on the eastern side(6m-Centre of Fault basin)

The order of geological sequence are,

<u>Description</u>	<u>Geological Age</u>
↑ Topsoil-Red soil(2mThick)	- Recent Age
Loamy soil (Sand+Clay)(2-6m)	- Recent "
Migmatite Boulders/Fractured(Paradiso)- (Grey Granite,6-9m depth)	Archaean age
Migmatite Massive(<9mdepth)	- Achaeen Age

The strike of the granite body is trending in NE to SW direction and dips vertical. The regional trend is shown in the geological plan.

The mineral constituents are biotite, quartz, orthoclase feldspar and plagioclase feldspar. The biotite is fine grained and other minerals are medium grained. Alternative bands of Pink and black minerals with wave pattern with alkaline feldspar fetch high polishing and colour which engulfed in the rock along the contacts of migmatite indicates that younger intrusive melt with more alkaline feldspar were

found invaded into the pre-existing country rock, which preferably would have been a biotite gneisses.

The mineral constituents of the rock mass shall be about orthoclase feldspar 40 , quartz roughly 20 , Plagioclase feldspar 10 , Mica 25 and others 5 .

It is a geologically disturbed area and hence the rate of recovery will be low due to fractures/cracks and high ground water recuperation along fault zones. The strike of the granite body is trending in NE-SW direction and dips vertically. The regional trend is shown in the geological plan.

d) EXPLORATION AND RESERVES :

3.1 Category wise reserves estimated in the earlier Mining Plan with type of granite.

3.1.1 Geological reserves (As per the previous Mining Plan)

<u>Category of reserves</u>	<u>Quantity (M³)</u>	<u>Type of Granite</u>
i) Proved	= 16,281	Grey Granite
ii) Probable	= ---	"
iii) Possible	= Not estimated	
Total	= 16,281	"

3.1.2 Mineable reserves (As per the previous mining plan)

Quantity of Mineable reserves	= 9,374 M ³
Type of Granite	= Grey Granite (Paradiso)
Life of the Mine	= 47 years

3.2. Depletion of reserves:

Reported production (five years)	= 1278.957 M ³
The mineable reserves is re-estimated	= 9,374 M ³
as Balance mineable reserves	= 8095.043 M ³
(The mineable reserves is re-estimated as Up to 46m depth)	= 17606 M ³

3.3 ADDITIONAL RESERVES ESTABLISHED:

The multi colour formation is remapped and re-estimated the additional reserves based on field observation, exposure of grey granite dyke in the working pit up to 5-24m depth.



Fig. 4 General view of the Shri .S.Ravi quarry

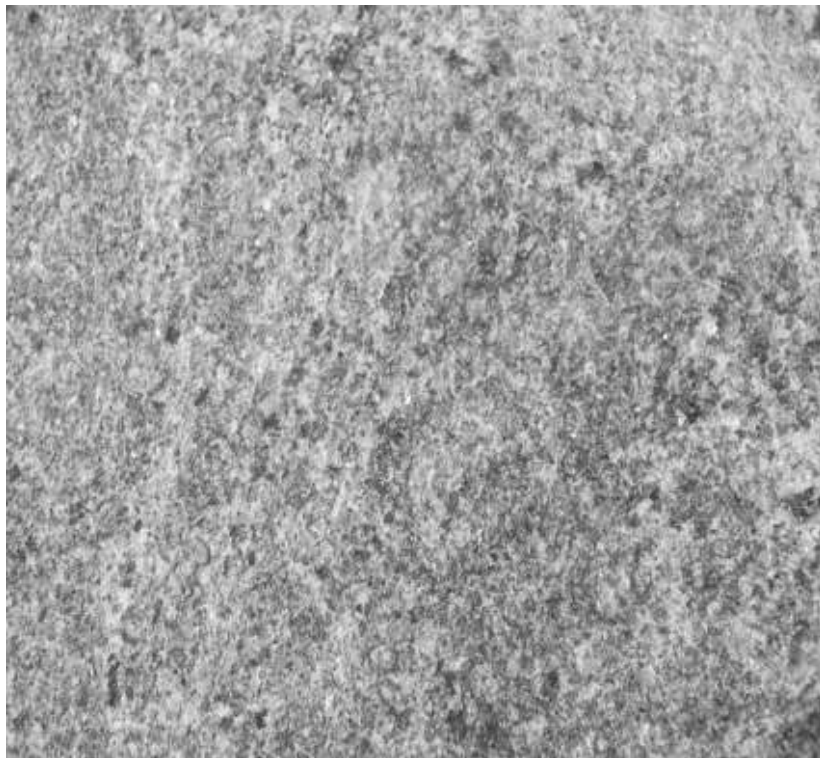


Fig.6 Texture and colour of Grey granite (Paradiso)

3.4 CATEGORY WISE UPDATED RESERVES :

i) Geological reserves :

Proved (46m)	=	28970 M ³
Probable	=	(Not estimated in absence of drilling) (Refer Table-I and Plate IV)
Possible	=	Not Estimated

TA LE-I

SECTION	L (m)	W (m)	Thickness/ Depth (m)	Volume (m ³)	Recovery @20 (m ³)	Reject @ 0 (m ³)
A -X1Y1	50	79	23	90850	18170	72680
A -X2Y2	45	50	24	54000	10800	43200
TOTAL				144 50	2 970	115 0

ii) Mineable reserves :

Estimated revised mineable reserves = 17606M³ (Refer Table II). Details of length, width of granite body and depth of estimation are given in Table I and Plate IV for estimation of geological reserves and Table II and Plate X for estimation of Mineable reserves. The granite band is running almost in NE-SW direction with maximum width of 97m. Mining has to be concentrated more at the centre than its periphery for better recovery.

TA LE-II

SECTION	L (m)	W(m)	D(m)	Volume	Recovery @20	Reject @ 0
A -X1Y1	50	79	5	19750	3950	15800
	50	67	6	20100	4020	16080
	50	55	6	16500	3300	13200
	50	43	6	12900	2580	10320
A -X2Y2	35	41	6	8610	1722	6888
	29	32	6	5568	1114	4454
	23	23	6	3174	635	2539
	17	14	6	1428	286	1142
TOTAL				030	17606	70424

Dimensions of the working pits are given as under, Existing pit dimension

Pit	Bench	L(m)	W(m)	D(m)
I	I	101	115	5-24m

Based on the field condition and lease boundary, the economic depth of mining is taken as 46m and the mine has reached a depth of 24m. However the Granite band may continue at depth with better recovery and quality for mining.

OTHER EXPLORATORY DETAILS :

Almost the entire black granite band length is opened for winning the deposit and therefore no further trenching and pitting are required for this area. The length and width of the deposit is well established in the working pit. One core drilling is necessary to a depth of 30m with Nx and Bx core size. Borehole drilling has to be carried out with in a period of one year.

The drilling program was not done during the last five years period and it will be drilled during this five year period (2016-21)

Sampling:

The core samples should be sent to Civil Engg. Lab in Chennai to test the Engineering properties of rocks such as compressive and cohesive strengths, porosity, permeability, density, hardness, RQD, rock type, cracks, joint patterns and its frequencies. Petrography optical study also to be tested for its texture, colour, minor cracks\ fissures, mineral percentages etc., which are essential for exports specifications.

4.0 CONCEPTUAL MINING PLAN: (Final Mine closure plan)

An updated conceptual mining plan and sections are prepared in 1:2000 scale to illustrate the final pit configuration. The ultimate pit configuration and dump dimensions are shown as under,

Ultimate Pit dimensions (m)

Bench	L(m)	W(m)	D(m)
I	79m	42m	5m
II	79m	42m	6m
III	79m	41m	11m
IV	50m	42m	6m
V	43m	34m	6m
VI	36m	27m	6m
VII	33m	20m	6m
Total =			46m

Ultimate dump dimension (m)

Topsoil	=	Nil
Back Filling	=	70424 M ³

TOTAL	=	70424m³

Details of pit and dump dimensions are given in plate VIII. Ultimate pit slope shall be 60° and each bench height shall be 6M with 60°. After completion of mining the pit will be used for fishy culture.

5.0. MINING

5.1 Salient Description of present Mining methods:

Open cast method of mining by semi mechanized method is adopted to raise the production in this area using Line drilling, smooth blasting, block lifting using cranes and waste and rejects removal using Hydraulic excavators and tippers combination will be adopted to recover the dimensional blocks of granite of salable size. The Granite occurs as outcrops and exposed mostly in working pit as well as at the surface and hence there is no separate development work involved except side burden to win the granite.

The economical depth of mining is taken as 46m leaving safely distances and several field phenomenon. There is no top soil left out for removal. Seven granite benches each of 6m height are formed to win the blocks. As semi -permanent road is designed such that it will not be affected for a long period. High wall faces with width of benches 50 of bench height was designed at "Crane lifting points" for better operation of crane. Necessary permission under Reg. 106 (2) (b) of MMR,1961 has to be obtained from DMS, Chennai.

5.2 a) Year Wise Production and Development for the first five Years :

The development involves only removal of small amount of top soil and Rejects amounts to 80 . The annual production is proposed as 800m³ for the next five years and generation of rejects are shown as under (Table-III)

TA LE-III

Year	ench (m ³)	Over burden(m ³)	ROM Granite (m ³)	Saleable Granite (m ³)	Reject of Granite	to O/ Ratio
2016-17	I	-----	4000	800	3200	1 : 4.0
2017-1	I	-----	4000	800	3200	1 : 4.0
201 -19	I	-----	4000	800	3200	1 : 4.0
2019-20	I	-----	4000	800	3200	1 : 4.0
2020-21	I	-----	4000	800	3200	1 : 4.0
TOTAL			20000	4000	16000	1 : 4.0

Top soil Development:

Total production for the Five Years	=	4000M ³
Total Reject	=	16000M ³
Granite to Waste ratio	=	16000/4000 = 1:4.0

Production schedule is given in the Annexure III and production planning is given in Plates VI & VIA .

The saleable block to waste ratio : 1 : 4.0

Being a semi mechanized mining the applicant had developed a long pit over the granite band. Safe benches with proper height were formed and pit will be widened properly to reach depth to win better quality granites with high recovery. Details of bench dimensions and dump dimensions are given in Plate VI-VIA & VII.

Details of Pit design parameters for production and development work for the next five years are given in Plate VII. Height of benches shall be maintained as 6m with vertical face for dimensional cutting.

b) Drilling

Drilling of shot-holes will be carried out using compressor and Jack Hammers combination. Large dia drilling equipments will be arranged for extraction of huge blocks. Depth of each holes is 2.5m for 3m bench height. The spacing shall be 30 - 40 cms and burden from the preface depends upon the size of block. However it is preferred to have < 1m burden from the preface for effective pulling of blocks. In case of burden in excess of 1.5m the spacing should be adjusted smaller, less than 30 cms. To achieve a correct blasting geometry certain amount of trial blast is prerequisite to effect a perfect pre-determined to release the block from the parent rock.

Details of Drilling equipments are tabulated below,

Type	Nos.	Dia. Of Hole	Size/Capacity Make	Motive Power	H.P.
Jack Hammer	6	32mm	Hand held Atlas Copco	Diesel	60
Compressor	2	--	ELGI 7.5 Kgs/cm2	"	120

a) Loading Equipment:

Loading of waste and granite rejects shall be done by Hydraulic Excavators into 10 tonners tippers for clearing of waste and rejects from the working place periodically. The applicant is engaging two Hydraulic excavators with 1.7m³ capacity and two tippers of 10tonnes capacity for internal transport of rejects from the working face to the dumps.

Details of Loading equipments are tabulated below,

Type	Nos.	ucket Capacity (m ³)	Make	Motive Power	H.P.
Hydraulic	2 No	1.7 m3	Ex 300	Diesel	180
Crane	1No	70 Tonne	Tata	Diesel	320

Details of machineries are given the Annexure IV.

d) Haulage and Transport Equipment:

Transport of Rejects and waste are removed by Tippers of 10 tonne capacity



Fig.7 a) Hydraulic Excavator – LC 370



b) Tata P H 955A Crane



c): Tipping Truck

Type	Nos.	Bucket Capacity (m ³)	Make	Motive Power	H.P.
Tipper	2 No	10 M.T	Ashock Leyland	Diesel	110

e) Miscellaneous Operations :

i) Extent of Manual Mining

Manpower will be engaged for drilling shot-holes, line drilling, smooth blasting, Jet burner operation, dressing of granite blocks, cutting and removal of small amount waste or rejects and support service labours for operation of machineries .

The materials required for manual workings are listed as under,

1. Drill rods - 450mm , 800mm,1650mm,3900mm and upto 7200mm.
2. Steel alloy chains of sufficient lengths with dia. of 12 - 18mm with "D' shackles.
3. Rubber hose and clamps
4. Feather and wedges of 15 cm and 30 cm sizes utilized for splitting of blocks.
5. Crow bars of 1500 - 1800mm lengths.
6. Spades, Sludge hammers, Iron Pans and chisels.

ii) Pumping:

Dewatering arrangements shall be made to pump out the rain and percolation of ground water during rainy seasons. A stand by pump with 10 H.P. capacity is essential to meet the emergency.

5.3. BLASTING:

A controlled Blasting technique is adopted to open a pre-determined crack of the block from the parent body. Shot-hole with 32-40mm dia. which are drilled by line drilling and Jack hammers at a close spaced interval of 30 cms will be initiated suitably with any one or more of the following methods,

- i) Pre-splitting
- ii) Cushing blasting with low strength and very low dia. Cartridges axial priming or standard dia. cartridge with intermittent stemming materials.

iii) Water impulsion with Detonating cords of sufficient power, Preferably 10gms per metre to develop cracks along the line of drilling,

a) BROAD BLASTING PARAMETER

Dia. of the hole	=	32-36 mm
Spacing	=	30 cms
Depth	=	2.5 m
Burden	=	Min =1m Max = 2m
Charge per Hole	=	D.cord with water or 70 gms of gun powder or slurry.

In watery holes, the detonating fuse is directly used and water act as a cushion to move the blocks and form a line of crack. In other cases, small vibration created by low explosives open the artificial shear plane \tensional crack formed by a line of drilling. Sometimes wedges are used to cut the major blocks into smaller sizes after drilling of holes to a depth of 30-40 cms. Then the blocks are dressed to desire sizes.

b) TYPE OF EXPLOSIVES:

Common explosives used to develop a line of crack along the line of drilling are,

- i) Detonating Fuse or Cord with 5-10gms of Expl. per metre,
- ii) Low explosives like Gun powder or 70 gms of slurry cartridges,
- iii) Ordinary Detonator, class- 6
- iv) Safety fuse, class -6.

c) Powder factor: The Powder factor for waste rock development shall be 2m³ or 7 tonnes per Kg. of explosives.

d) STORAGE OF EXPLOSIVES

The applicant is directly purchasing explosives from the authorized dealer and they are blasting with help of blaster certificate holders as there is no space for storing explosives in nearby area. It is advised to store the explosives as per the Indian Explosives Act, 1958. The explosives to be used in mines being a small quantity the District collector may be approached to keep the stocks not exceeding 5 kgs at time or any other quantity permitted by the concerned authorities in a portable magazine of S & B types.

6.0 MINE DRAINAGE

a) Surface Water control : No major river, pond and water bodies is found around 5kms radius.

b) Water Table : The ground water table is observed at a depth of 55m in the open wells at lower levels. As the mining is proposed for a depth of 46m at higher levels it may not disturb the ground water.

c) Quantity and Quality of Ground water: The recuperation of ground water may not raise immediately due to shallow mining. The rain water percolation and collection shall be less than 300 lpm and it shall be pumped about periodically by a stand by diesel powered centrifugal pump motivated with 7.5 H.P. Motor. The quality of water is potable without any contamination and it shall be pumped into the adjacent agricultural fields and plantation area.

7.0 STACKING OF GRANITE REJECTS AND DISPOSAL OF WASTE

Granite rejects which amounts to 80 of the total excavation, about 16000 M³. will be generated for mining up to 46m depth. It is revealed in the Conceptual mining plan showing the ultimate depth of mining and ultimate pit configuration. Maximum height and spread of dumps for the first five years are given as under,

Year	Topsoil (M ³)	Overburden/Waste (M ³)	Granite Rejects (M ³)	Total
2016-17	---	---	3200	3200
2017-18	---	---	3200	3200
2018-19	---	---	3200	3200
2019-20	---	---	3200	3200
2020-21	---	---	3200	3200
Total	---	----	16000	16000

Location of dumps are shown in the conceptual mining plan in Plate IX.

DUMP DIMENSION (M)

Year wise Dump Dimensions (m)

Topsoil = Nil
 Reject = 16000 m³
TOTAL = 16000m³

All the rejects/waste shall be dumped over the existing dump located in the adjacent lease belonging to the applicant. The quarry operation was concentrated both on Granite bearing area and waste for systematic development of the area as per Plate VIII. The undressed blocks will be stacked at the entry of mine within the lease area for dressing and lifting into the carriers. Land chosen for dumping is barren and virgin it does not contain any massive deposit.

Being a working mine the approach road is already available and the exiting road within the mines could be used for proper transport of materials by tippers. For convenience of operation and increase of production together with safety and environment, it is designed parallel to the strike length over the good quality portion for the next five years. Granite rejects and side burden are major waste work which has to be transported to the respective places as per the plan. The overall Granite to waste ratio for the next five years as 1: 4.0. As the present quarry reached 24m depth the rate of recovery is taken as 20 as against 10 planned earlier.

7.1 ANY CHANGE IN PROPOSED METHOD OF MINING AND DEVELOPMENT:

MACHINERIES:

No change is envisaged for future development of Mines.

7.2. HANDLING OF WASTE / SUB GRADE MATERIALS :

The waste rocks to be generated from the mine will be fragmented gneisses and rejects of Granite with patches, cracks and small size blocks. The site selected for dumping waste and Granite rejects on the eastern side are barren and stable, therefore no chance for instability of dumps and washouts. Total generation of Granite rejects and waste for the next five years will be 16000M³ and for the whole life of mine will be 70424M³. Area selected for dumping will accommodate the top soil\waste to be generated for the next 5 years on the existing dump of the lease area.

.0. USES OF GRANITE :

Polished Grey colour granite are widely used for decorative purposes in building, monument, Institutional, commercial and residential buildings in the form of slabs, tiles, cut to size, markers etc.,

The Grey colour granite found in the applicant's area has Light Pink to pinkish background with wave pattern. Its demand is high both in domestic and International market even for the rough blocks preferably in Europe.

The Granite raised out of the mine is proposed to be transported to the polishing units located in Chennai, Bangalore and other parts of Tamil Nadu and Karnataka as well as exports through agencies.

9.0 EMPLOYMENT POTENTIAL WELFARE MEASURES

9.1 Employment Potential

Management and supervisory personal.

For the purpose of Mines safety under the provisions of MMR, 1961 under the Mines Act, 1952. The Mining Engineer so appointed should have First\ Second class Mine Manager certificate to act as a Manager of the Mine as per the Mining laws. To

supervise daily, of all workings and the persons employed therein the First\second class Manager so appointed must be assisted by a Foreman certificate holder. Wherever the workers are employed more than 10, it is preferred to have a qualified Mining Mate to keep all the production workers directly under his control and supervision.

A mines clerk shall also be appointed to keep the registers and record of the mine and make necessary entries for the persons employed in the mines.

- a) Manager Cum Mining Engineer : 1 Person
(exempted under rule 42(6)(d) of GCDR,1999) Second Class
- b) Mining Mate : 1 person
- c) Blaster : 1 "
- d) Supervisor : 3 Persons
- e) Clerk cum record keeper : 2 person

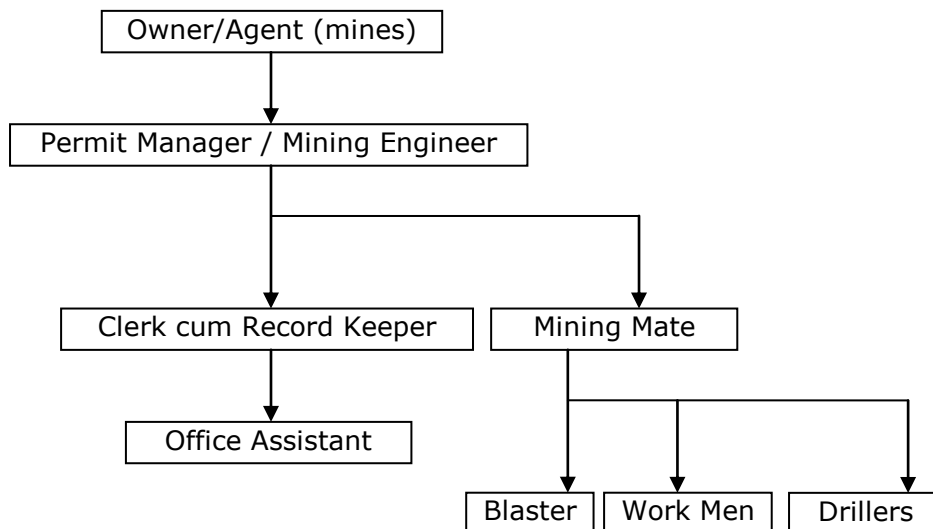
LABOUR SKILLED - SEMI SKILLED AND UNSKILLED

i) Skilled	
Operator	: 5 Persons
Wire saw operator	: 4 Persons
ii) Semi-skilled	
Driver	: 8 Persons
Welder	1 Person
Driller	20 Persons
iii) Unskilled	
Dressing Labours	: 10 Persons.
Cleaners	: 3 "
Office boy	: 1 "

Total Labours	= 52
Management and supervisory staffs	8

Total employees	= 60

ORGANISATION CHART



9.2.GRANITE PROCESSING UNITS:

The applicant does not have the facilities to cut and polish the rough blocks of granite. He proposes to export the rough blocks directly to the potential buyers of the Domestic and world market.

9.3 ENVIRONMENTAL MANAGEMENT PLAN :

Salient Items	Proposal as per Approved Mining	Position at the end of five years	Proposal for the next five years
1. Topsoil belt storage and preservation	Top soil was proposed to use for dump afforestation	Spread over the external dump maintained by the applicant	A little amount top soil and spread over the same dump for plantation
2. Reclamation and Rehabilitation	No land reclamation and rehabilitation proposed	Does not arise	No proposal
3. Waste dump Management :	Separate dumps proposed for top soil, rejects and waste.	Waste shall be dumped over the existing external dump maintained by the applicant	Waste shall be dumped over the existing external dump maintained by the applicant
4. Afforestation Programme	20 trees per annum proposed for plantation	Totally 40 trees were planted along the mine road	20 trees will be planted per year as per Plate X
5. Quality of Air :	Small mine	No proposal is given	--
6. Quality and Make up of water	Drinking water is provided through public source only No major seasonal drainages.	No effect for surface or ground water sources.	As per the previous Mining Plan
7. Noise Level	No machineries	No Impact	No proposal
. Vibration	Does not arise	No impact	No proposal
9. Treatment of Mine Water	Does not arise	No impact	No proposal

10. ANY OTHER INFORMATION :

The length of band in the quarry area is measured as 170m x 97m running NW-SE direction. The geological reserves and mineable reserves are estimated as 28970 M³ and 17606 M³ respectively for the workable area up to a depth of 24m.

PART - II

11.0 ENVIRONMENT MANAGEMENT PLAN

A) ASE LINE INFORMATION

i) Existing Land use Pattern:

The area is comprised of black cotton soil and exposure of Grey granite. Water table of the area is said to be at a depth of 55m in the bore hole located near the lease boundary. The existing land use pattern of the lease area is given as under,

S.No	Description	Present area (Ha)	of Use
1	Mining Pit	0.91.05	77
2	o/B or waste Dump	----	----
3	Mine Roads	0.02.10	1.
4	Safety and Area under plantation	----	---
5	Labour shed and office	0.00.80	0.2
6	Unutilized	0.25.05	21
Total		1.19.0Ha	100

The land use pattern at the end of fifth year is given below,

S.No	Description	Extent (Ha)	of Use
1	Mining Area	0.91.05	77
2	Waste Dump	---	---
3	Mine Roads	0.02.10	1.
4	Safety and Area under plantation	0.25.05	21
5	Labour shed and office	0.00.80	0.2
6	Unutilized	---	---
Total		1.19.0Ha	100

ii) Air quality: Air sampling was done as there is no activity in this mine and no dust rise is observed. Dust fall data may be taken from the district observation for threshold values.

iii) Water quality: A water sample from the open well adjacent to the mine was sent to lab to assess hardness, salinity, colour, specific gravity, P^H, turbidity, COD, BOD, fluorine etc

iv) Noise levels: Threshold sound level is reported as 58dB.

v) Vibration levels: No activity to test vibration of longitudinal waves and its peak particle velocity.

vi) Water Regime: There is no major river is found around 5kms radius except ponds, Urani and Odai tracks etc.

vii) Public building, Places and Historical monuments:

No infrastructures like residential building, places of special interest like temples, architects, Sanctuaries etc., are found in the radius of 500m.

viii) Flora and Fauna:

Flora as observed and identified in the field are covered by photograph and shown below. Mostly Palm tree, acacia, neem are found more on regional scale. The applicant has developed trees like Mango, Tamarind etc with proper nursery garden and plantation on vacant land.



Fig. : a) Tamarind



b) Mango Tree

Flora is represented by herbs and shrubs of local species and free regional trees and their botanical terms are given as under with numbers.

TREES :

S.No.	Name of trees	Botanical Name	Number	Remarks
1	Vembu	Azadirachta indica	13	Growing well
2	Mango	Mangifera indica	20	"
3	Tamarid	Tamarindus indicus	10	"
4	Teak	Tectona grandis	5	"
5	Bushes	Acacia Nilotica	25	"

SHRUBS :

S.No.	Local Name	Botanical Name
1	Korai	Elacocarpus aerratas
2	Erukku	Calotrophis gigantea
3	indumul	Pterolobium indicum
4	Aavarai	Cassia auriculata

HERBS :

S.No.	Local Name	Botanical Name
1	Poolai poondu	Aerva lanata
3	Thumbai	Leucas aspera
4	Peru Nerunji	Pedaliium murex
5	Kantangathri	Solanum xanthocarpum
6	Nerunji	Tribulus terrestris

LIST OF CULTIVATED CROPS IN THE CORE ZONE (500m)

S.No.	INDIAN NAME	ENGLISH NAME	TAMIL NAME
1	Cocos nucifera	Coconut	Thennai
2	Teak	Tectona grandis	Tekku
3	Casurina	casuarina equisetifolia	Savukku

Fauna is represented by rabbits, rat, scorpion, millipedes etc

ix) Climatic Conditions:

a) The average actual rain fall of Krishnagiri is reported as 1000.8mm per annum. Pictorial representation and annual statistics for the last 10 years of rain fall data of Krishnagiri district is given as under,

b) Temperature

Throughout the month of May daytime temperatures will generally reach highs of around 33°C that's about 91°F. At night the average minimum temperature drops down to around 22°C, that's 71°F.

In recent times the highest recorded temperature in May has been 38°C that's 101°F, with the lowest recorded temperature 15°C, about 60°F.

c) Relative Humidity

The average daily relative humidity for May is around 64 .

2.2. MONTHLY RAINFALL DATA-SEASON WISE

YEAR: 2010-2011
(In Millie Meters)

Period (1)	Normal Rainfall (2)	Actual Rainfall (3)
<u>1. South West Monsoon Period</u>		
Total	403.6	367.9
June2009	48.4	61.2
July2009	81.3	129.8
August 2009	108.9	97.5
September2009	165.0	79.4
<u>2. North Eastmonsoon</u>		
Total	290.9	405.2
October2009	169.4	119.9
November2009	83.8	274.7
December2009	37.7	10.6
<u>3. Winter-Period</u>		
Total	10.7	37.1
January2010	4.9	0.0
February2010	5.8	37.1
<u>4. Hot-Weather Period</u>		
Total	151.6	190.6
March2010	12.3	3.8
April2010	39.9	89.3
May2010	99.4	97.5
Whole year	856.8	1000.8

d) **Heat Index**

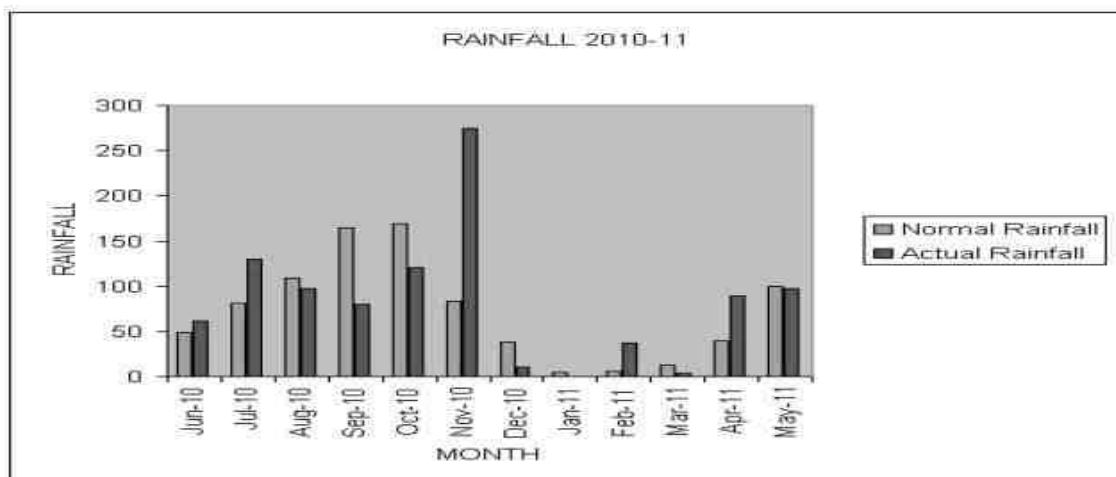
The Heat Index is a measure of how hot it feels when relative humidity is added to actual air temperature. From this a comfort level is calculated providing categories on how heat conditions might adversely affect someone.

Comfort Levels: Given average maximum temperatures and humidity levels you can expect dangerous heat conditions. Sunstroke, muscle cramps and heat exhaustion are likely. Heatstroke is possible with prolonged exposure and/or physical activity (see heat index for more information).

e) **Precipitation**

The average monthly amount of precipitation has been recorded at around 122 mm, that's 5 inches. Throughout the month you can expect to see rain or drizzle falling on 10 days of the month.

Rainfall 2010-2011



f) **Wind**

The average daily wind speed in May has been around 6 km/h, that's the equivalent to about 4 mph, or 3 knots. In recent years the maximum sustained wind speed has reached 63 km/h, that's the equivalent of around 39 mph, or 34 knots.

g) **YEARLY TRENDS: WEATHER AVERAGES & EXTREMES**

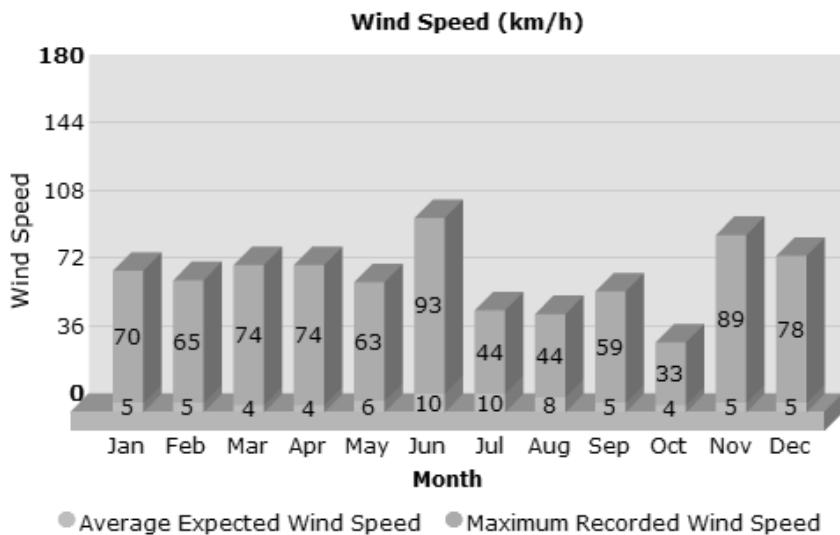
The following charts show yearly weather trends with information on monthly weather averages and extremes.

Temperature

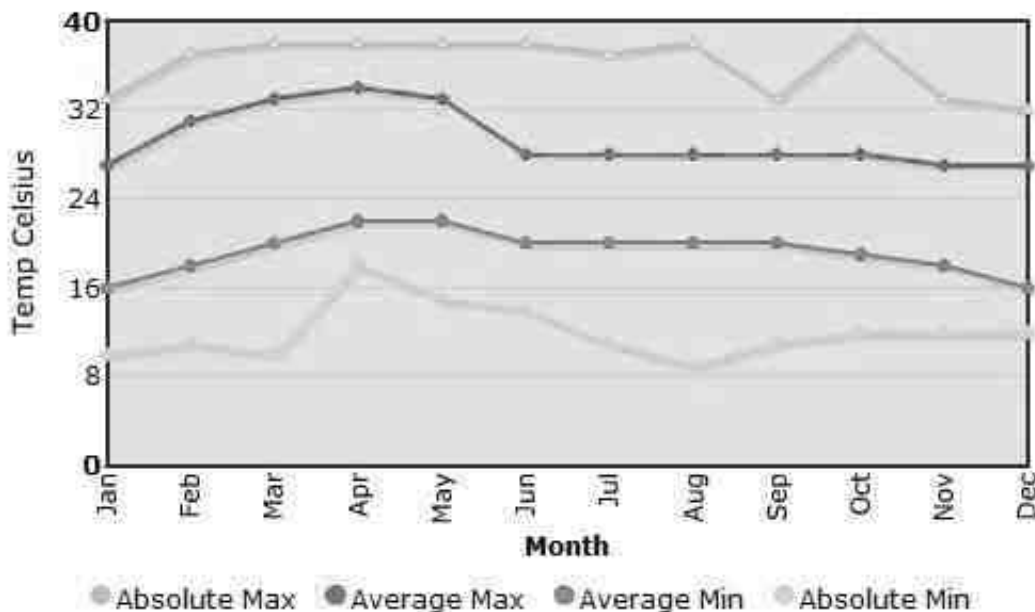
The chart below plots the average high and low temperature for each month of the year. It also shows the maximum and minimum recorded temperatures.

Wind Speed

The chart below plots the average daily wind speed you can expect for any month. It also shows the maximum recorded sustained wind speed for each month.

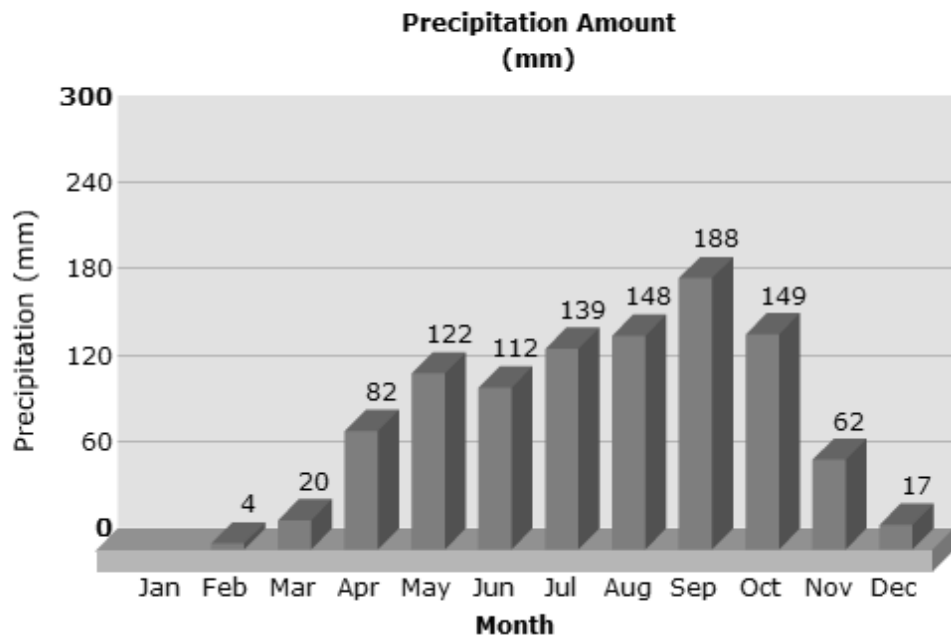


Temperatures: Averages and Extremes



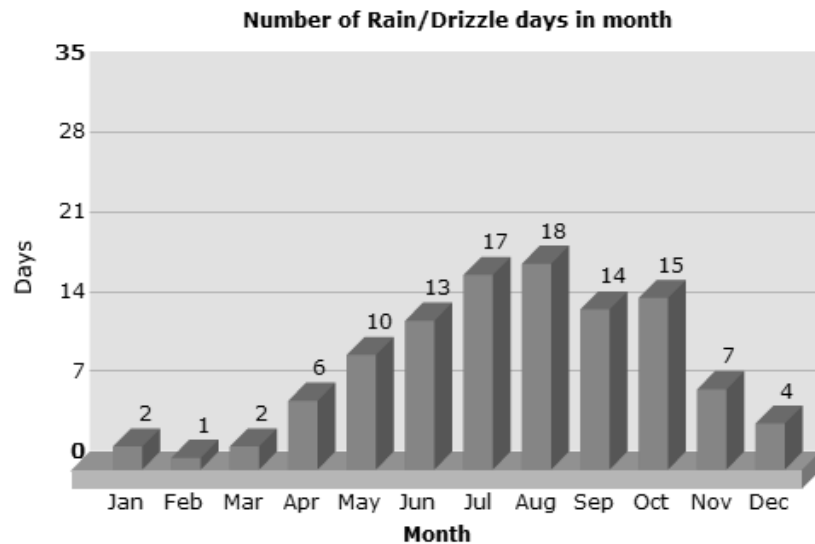
Precipitation Amount

The chart below plots the average monthly precipitation amount.



Rain days

The chart below plots the average number of days in any month that you can expect to see rain falling.



x) Human Settlement:

The following villages are found in the buffer zone with population as per 2011 census. The Soolamalai village population is 1966 peoples of both male and female. The nearby villages with their population and distance are given as under,

Name of village	Direction	Distance from Quarry (Km)	Population
Gettur	North	1.5	868
South	Chandarapalli	1	1189
East	Jagadevipalayam	3	1354
West	Anjur	2	759

xi) Public Building Places of worship and Monuments:

No infrastructures like residential building, places of special interest like temples, architects, Sanctuaries etc., are found in the radius of 500m. Soolamalai Village is situated about 2kms on the northern side and Chandarapalli village is situated about 1kms away on the southern side.

) ENVIRONMENT MANAGEMENT PLAN

i) Dust: Dust expected to be generated from drilling, hauling roads, place of excavation etc will be suppressed by periodical wetting of land by spraying using MgCl₂ solutions. Wet drilling and dust extractor arrangements will be provided to drilling units so as to control raise of dust from the site of drilling. Operators, those exposed directly to such conditions will be provide such protective equipments like mask, ear plug, helmet, gloze etc as per the Mines Act.

ii) Temporary storage and Utilization of Top Soil:

Small quantity of top soil shall be dumped separately for dump afforestation in future.

iii) Proposal for reclamation land affected by mining activities during and at the end mining lease period :

The depth of granite deposit is not known. However for economical planning, the depth is taken as 46m from the surface. Immediate reclamation of land does not raise for this deposit. However it pit will be used for miscellaneous purposes like fish bond

etc., after completion of mining. All waste and reject materials will be dumped as per the mining plan.

iv) Programme of Afforestation:

Regional trees like Casuarinas, Eucalyptus, Teak, acacia etc will be planted along the Lease boundary and avenues as well as over Non-active dumps at a rate of 20 trees per annum with interval 5m in between. The rate of survival expected to be 80 in this area. Land use and Afforestation Plan is given Plate X.

v) Stabilisation and Vegetation of Dumps :

The materials to be dumped shall be very hard in nature and it does not require any grading separately. The materials like granite rejects shall be graded automatically during dumping by Excavator and tipper combinations. Part of top soil will be spread over the Non-active dumps along the slope and edges to plant tree sapling to form vegetal cover over the dumps. Such vegetal cover will prevent erosion of dumps during rainy seasons. The program of tree planting is given as under,

Year	Place	Type of Trees	Number	Rate of survival
I	Lease Boundary	Neem, Eucalyptus, Tamarind and other Regional Trees	20	80%
II	Lease Boundary	Neem, Eucalyptus, Tamarind and other Regional Trees	20	80%
III	Lease Boundary	Neem, Eucalyptus, Tamarind and other Regional Trees	20	80%
IV	Lease Boundary	Neem, Eucalyptus, Tamarind and other Regional Trees	20	80%
V	Lease Boundary	Neem, Eucalyptus, Tamarind and other Regional Trees	20	80%

vi) Treatment and Disposal of water from mines:

Measures to Control Erosion / Sedimentation of Water Course:

The water to be pumped from the mine will be pure and potable. It will not be harmful and it does not require any treatment before discharging into the natural course or tanks. Granite sheet extraction will not produce any wastes which pollute the ground water. Drinking water to mine labour will be supplied from public source or bore well to be drilled by the applicant.

The rain should be collected by garland drainage around the Lease boundary or pit and to allow settling in a small pit for settling suspended particles before passing to natural drainage system.

vii) Measures for minimizing adverse affect on water regime:

The water to be pumped out will be very pure and potable and therefore it will not affect any water regimes of the area. Depth of mining is also moderate and it does not affect even the ground water table.

viii) Protective measure for ground vibration:

Only shot hole blasting shall be adopted for breaking the boulders and hard rocks. No deep hole blasting or machineries will be engaged in this mine. Vibration from blasting or heavy machineries will be absent.

ix) Measures for protection of historical monuments and rehabilitation of human settlements likely to be distributed due to mining activity:

No historical monuments or area of special interest or any other sanctuaries are found around 500m radius from this area. Village also located about 1km away and no dwellings around 500m. Therefore rehabilitation of human settlement or protection of historical places or monuments does not arise.

x) Others like legal factors like tribal issues, national park etc

There is no heavy industry found around 1km in this area except some granite cutting and polishing units. About 60 persons is expected to get benefit due creation of employment in this mine. The villager will get some income due to growth of mining industry. There is no legal issue or tribal problems associated with this mine. It is patta land in a village and no tribal issues here. National park, monuments etc totally absent around 5kms.

(xi) Monitoring schedule:

Top soil conservation and dust control, surface water contamination during rainy season, ground water protection, trees plantation are the main area of EMP attention is required for this "B" category mine.

xii) Socio-economic benefits arising out of Mining:

The mining operation will create an employment of about 60 persons, of which 80 will be from local people (Son of Soil). After development of mine from this area, not only provide employment opportunities but also the industrial culture and civilization to the village people. Beneficiary villages are Chandarapalli, Jagadevipalayam and its hamlets.

xiii) Waste management :

The waste to be generated shall be debris of portable size hard rock without any clay soil and connate water and therefore collapse of dumps is not possible for this

mine. The waste\Rejects shall be dumped over the safety Zone and barren area as Plate –VI-VIII.

Dimensions of Dump at the end of 5th year and at the end of Life of Mine are given as under,

Description	End of 5 th Year	End of Life of Mine
Topsoil	Nil	Nil
Reject	16000M ³	70424M ³
Waste	Nil	Nil

All the rejects/waste shall be dumped over the existing dump located in the adjacent lease belonging to the applicant. Small pieces of granite shall be used for tile and monument industries. Huge gang saw size blocks shall be used for making slabs etc as well as for exports.

xiv) Tailing dam management :

No ground water discharge or slurry from the mine and thereby no tailing or settling tank required for this mine except a small pit for decanting the slurry water.

12.0 ANY OTHER RELEVANT INFORMATION

Grey colour granite is the commercial named for basic rock known geologically as "Paradiso". These rocks occur mostly as dykes cutting across the country rocks. The area of mining lease area comprised of Migmatite (Paradiso) with thick loamy soil underlying the thin topsoil. It is a typical "**Fault zone**" where the sedimentary layer found over the Paradiso sheet rock. It is a continuity of soolamalai formation as observed in the adjacent quarry of the applicant. The geological reserves and mineable reserves are estimated as **2 970M³** and **17606 M³** respectively for the lease area up to a depth of 46m. Systematic mining with proper orientation of working faces and blasting techniques will improve the recovery, by which the mining cost will be so low from the present status of mining, also the valuable rock will be conserved. Engaging Diamond wire saw cutting machine will improve the rate of recovery to more than 25 .

Geotechnical studies :

It is a hard rock mining area and no problem of slope stability. The angle of repose of 60° for working pit is sufficient for bench slope. The mine is absolutely free from geotechnical problems and therefore no geotechnical studies on engineering properties of rocks and rock dynamic studies had been done for this area.

Hydrological studies (Surface and ground water) by geophysical methods:

There is no major river is situated around 5kms radius. The ground water fluctuates between 54-55m in a year. During rainy season they work on top of the benches and during summer they work on bottom of the benches so as to avoid unnecessary pumping of ground water. No major ground water or slurry pumping involved which affect the mining and environment. Base line data study with aid of NABET Accredited consultant and Hydrogeological study and Geophysical investigation on ground water potential study under progress for Environment clearance.

ECONOMIC EVALUATION

Investment on Machineries	(Rs in Lakhs)
a) Tata P & H Crane (one) 60 Tonners	= 90
b) Hydraulic Excavator (1.7M3) one Nos	= 65
c) Tippers 10 Tonners (two Nos.)	= 20
d) Screw Compressors (two) XA140	= 15
e) Line drilling and Jack Hammers	= 6
f) Jet Burners (Four)	= 2
g) Workshop facilities	= 5
h) Diamond wire saw cutting Machine=	10

Total = 213Lakhs or 2.13Crores

Some machineries shall be hired initially for production purposes. Tata P & H shall be engaged from the adjacent quarry. Therefore tentative investment for this quarry shall be 2.13Crores only

Tentative cost of Production per cu.m of Slable granite locks :

Production cost for rough granite

The average production cost is given as Rs 16260 per M³. Details are given as under,

S.No.	Description	Cost per MT (Rs)
1	Exploration and Development	200
2	Salary and wages	1600
3	Depreciation	1650
4	Interest on Investment @18	1800
5	Fuels and Lubricants	1500
6	Spares @ 30 of (5)	450
7	Depreciation of Infrastructures@ 5 of capital	500
9	Royalty	2500
10	Over heads, pumping etc	500
11	Transport from Mine to Port	3500
		14200
12	Sale Tax (14.5) (item1-9)	2060
	Total	16260

- i) **Sale value** = **Rs 25000 per M³**
ii) **Production cost** = **Rs 16260 "**
iii) **Profit** = **Rs 740 per M³ or 35**

PART-III

13.0 PROGRESSIVE AND FINAL MINE CLOSED PLAN

13.0 Introduction:

i) Name and Address:

Name and Address of the Applicant : Thiru.B.S.Ravi
S/o. B.C.Subban,
100E,Gandhi Bazzar,
B.T.M.Road, Bargur,
Krishnagiri District., Tamil Nadu.
Pincode- 635 104.

Contact No. : Ph: 9787100778, 9787100661

Details of lease particulars are given as under,

G.o No	Extent (Hec.)	Date of Grant	Date of Execution	Period of Lease	Date of expiry
G.O.3(D)No. 30 Industries/.Dept.	1.19.0	22.02.2006	27.03.2006	20 Years	26.03.2026

ii) Location Extent of lease area:

Extent : 1.19.0Hectares

S.F.Nos. :

State	Taluk	Village	S.F.No.	Extent (Hec)	Ownership Occupancy
Tamil Nadu, Krishnagiri	Krishnagiri	Soolamalai	339/2	1.19.0	Patta Land
Total = 1.19.0 Hectares					

Type of lease area : Non – Forest land / Patta land.

Present land use pattern : Working quarry.

Method of Mining : Opencast Mining – Semi mechanised.

13.1 Mined – out land:

Depth of mining is estimated as 46m based on the adjacent working pits on the northern side of the quarry. The existing land use pattern is given as under,

S.No	Description	Present area (Ha)	of Use
1	Mining Pit	0.91.05	77
2	o/B or waste Dump	----	----
3	Mine Roads	0.02.10	1.
4	Safety and Area under plantation	----	---
5	Labour shed and office	0.00.80	0.2
6	Unutilized	0.25.05	21
Total		1.19.0Ha	100

The land use pattern at the end of next five years is given below,

S.No	Description	Extent (Ha)	of Use
1	Mining Area	0.91.05	77
2	Waste Dump	---	---
3	Mine Roads	0.02.10	1.
4	Safety and Area under plantation	0.25.05	21
5	Labour shed and office	0.00.80	0.2
6	Unutilized	---	---
Total		1.19.0Ha	100

Part of the virgin area will be afforested and the Mined out Land during the mining plan period is very shallow and it will be used as percolation Pond for storage of water for Agricultural use after reaching sufficient depth.

13.2 Water Quality Management:

There is surface body of water available within the ML area. Ground water table is located at a depth of 55m in a year where as mining is planned up to a maximum depth of 46m only. Therefore pumping of ground water or surface water does not arise in this mine.

The turbid rain water during rainy season is proposed to settle in a pit before discharging in to the natural stream for settling the suspended particles. No other EMP required for water quality management.

13.3 Air Quality Management

There is no gaseous matter to be generated in this mine. Dust generation during drilling of shot holes, haul road, smoke from vehicles shall be controlled as given below,

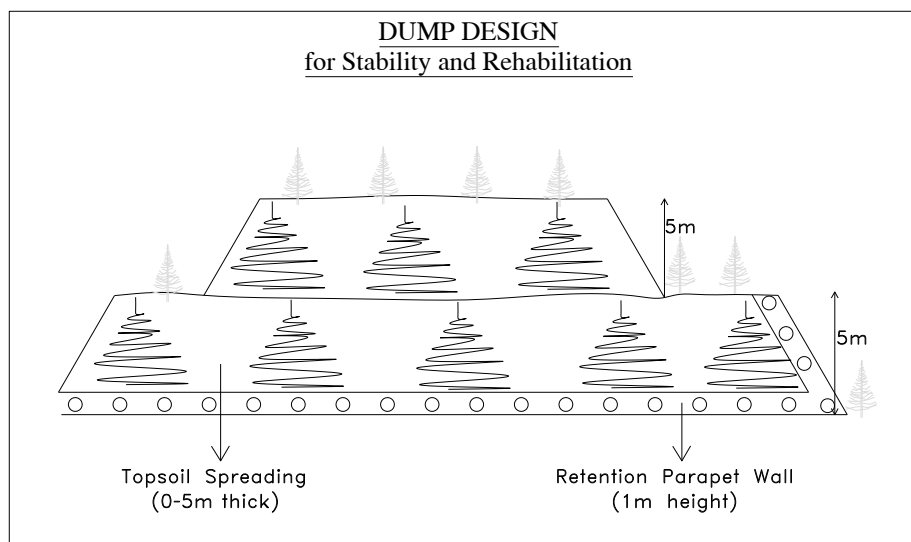
- i) Dust extractor or wet drilling to be followed to control dust at source of emission during drilling,
- ii) Emission level in all machineries and transport vehicles to be tested once in a year to keep them in control with proper maintenance and service,
- iii) Water sprinklers along the sides of haul road shall be fixed to control fly of dust while transporting minerals and waste,
- iv) Avenue trees along roads and green belt around ML boundary shall be planted with density of 1500 trees per Hectare as per the norms of MoEF to control fly of dust, noise etc,
- v) In above all, labours engaged in such dust prone areas should be provided with safety devices like ear muff, mask, goggles etc as per the MMR,1961 amendments and circulars of DGMS under the provisions of occupational diseases.
- vi) Labours may be permitted officially to undergo medical checkup to test silicosis and other respiratory check up once in 5 years

And other guidance required under these laws should be strictly adopted.

13.4 Waste Management

The waste to be generated shall be debris of portable size hard rock with some fines. No clayee matter shall present in the waste. The solid waste shall be dumped systematically with proper repose angle and stabilization as given below,

- i) Gradation of dump shall be done automatically as coarser materials go to the bottom and finer at the top and therefore drain of rain water flow freely to the bottom without endangering the stability of dump,



- ii) Stabilization of dump with top soil and tree plantation shall make the dump more stable on long,
- iii) 1m height parapet shall be constructed for dumps more than 6m height along the toe to prevent and control wash out from dumps entering into natural system through rain water,
- iv) Garland drainage around dump shall prevent under wash of dump by hydrostatic pressure to be developed by surface water and control wash outs and collapse,
- v) Dump should be terraced for every 5m height and stabilized as above,
- vi) As practically as possible the dump should be made as per the plate VIII on barren grounds so as to avoid re-handling so that the dump shall be seasoned and stabilized.

Dimensions of Dump at the end of 5th year and at the end of Life of Mine are given as under,

Description	End of 5 th Year	End of Life of Mine
Topsoil	Nil	Nil
Reject	16000M ³	70424M ³
Waste	Nil	Nil

All the rejects/waste shall be dumped over the existing dump located in the adjacent lease belonging to the applicant.

13.5 Top Soil Management :

Top soil is a precious product of the earth which normally forms from the rocks by weathering by millions of years of exposures to the atmosphere with aid of oxygen and water. These top soil causes for development of amino acids and genesis of plant kingdom. Therefore, the top soil should be removed separately before developing the face for granite and waste benches. The top soil should be dumped along the Lease boundary for dump afforestation and use of agricultural purposes. Top soil should not be mixed with other waste or reject materials. It should be conserved by judicious utilization in the mine premises.

13.6 Tailing Dam Management :

No water shall be used for quarrying or any other processing except drinking water to be drawn from public sources. Some stagnation of rain water in the pit shall be used for wire saw cutting and recycled using slurry pumps. Therefore need for tailing dam does not arise. But tailing control of rain water flow during rainy season

has to be done by decanting the SPM in a pit before passing the water into natural system.

13.7 Infrastructure :

Approach road is available from the village road up to the mining Lease Area. Basic amenities for workers and field office shed such as First Aid Station, canteen, Rest Shed, Toilet etc as per Mines Rules, 1955 shall be made available at the entrance of mine.

13. Disposal of Mining Machinery:

No proposal for disposal of machineries during the first five years of mining plan period.

13.9 Safety and Security:

No immediate abandoned plan, being a shallow operation. S1-type of stone fencing will be constructed around the open pit mines and watch and ward shall be to safeguard the mine from access to surface openings.

13.10 Disaster Management and Risk Assessment:

Name and Address of Contact Person coordinating in case of Eventuality is,

Name and : Thiru.B.S.Ravi
Address : S/o. B.C.Subban,
100E,Gandhi Bazaar,
B.T.M. Road, Bargur,
Krishnagiri District, Tamilnadu.
Pin Code: 635 104.

Contact No. : +919787100778, 9787100661

Manager will be appointed and he will be provided suitable communication facilities. Primary Health centre is available in Krishnagiri for medical emergencies, about 7kms away from the mine.

13.11.0 Care and Maintenance during temporary discontinuance:

Watch and ward are provided permanently in the Mine premises to monitor the Mine openings to prevent inadvertent entry. Top soil bund is made partly and Stone fencing is proposed all around lease boundary to safe guard the mine and the adjacent livings. Temporary discontinuance will be minimum as there is enough demand for this material in tiles industries.

14.0 Economic repercussions of closure of mine and manpower

retrenchments

14.1.0 Number of local residents employed in the mine, status of continuation of family occupation and scope of joining occupation back.

60 Persons get employment. Most of labours are Agriculturist. In case of closure of mine, they may continue their own work or join in the neighbor mines as there are four granite quarries around this area within 5kms. Being a proposed quarry immediate retrenchment may not arise.

14.2.0 Compensation given or to be given to the employees connecting with sustenance of himself and their family members.

In case of any closure of mine the compensation under Industrial Dispute Act will be paid as per law. All workers shall get retrenchment benefits as per labour laws under enforcement.

14.3.0 Satellite occupations connected to the mining industry – number of persons engaged therein – continuance of such business after mine closes.

The quarrying activity shall lead to development of several ancillary units and business, which are explained below:

- i) Other than mine employment, workshops, spare parts, tyres and tubes and related several self-employment opportunities.
- ii) Several shops and service providers shall grow in the public adjacent to mines,
- iii) Schools and city development shall also be possible owing to the fact of economic growth in the village.

14.4.0 Continued engagement of employees in the rehabilitate status of mining lease area and any other remnant activities.

In the event of closure of mine, the mine worker shall get alternate work or business like agriculture etc. No serious repercussions envisaged in the event of cessation of mining activity, as they will be provided employment in other mines belong to the company.

14.5.0 Envisaged repercussions on the expectation of the society around due to closure of mine.

Persons on Roll at the time of closure will get benefit as per State Govt. guidelines as applicable at the time of retrenchment

15.0 Time Scheduling for abandonment:

The following works are scheduled before abandoning the mine,

- i) Parapet wall of 2m height will be constructed around the pit,
- ii) Planting and monitoring of Afforestation programme.

As there is no proposal for closure of mine for the next 5-10 years. The abandonment of quarry does not arise. The parapet and plantations will be done during the year 2016-21. In case of any abandonment the following time is required,

Activities	Days for schedule
Time schedule for fencing	6 months
Time schedule for reclamation of mined out area	1 year

16.0 Proposed financial Estimate / Budget for (EMP) Environment Management

Project cost / investment

i)	Land Cost	:	Rs	40,00,000
ii)	Machinery to be used	:	Rs	45,00,000*
iii)	Refilling / Fencing	:	Rs	75,000
iv)	Labourers Shed	:	Rs	75,000
v)	Sanitary facility	:	Rs	50,000
vi)	Other items	:	Rs	75,000

Total Rs 7.75lakhs

(* Part of machineries shall be hired)

b)EMP Cost

i)	Drinking water facility for the labourers	= Rs	75,000
ii)	Sanitary arrangement	= Rs	70,000
iii)	Safety Kits,	= Rs	75,000
iv)	Water sprinkling for dust control	= Rs	75,000
v)	Afforestation etc.	= Rs	3,80,000
	Total	Rs	6.75lakhs

16.1 Abandonment Cost:

Being a deep dipping deposit and depth persistence is yet to be established by proposed exploration and therefore program of back filling or reclamation of Land will be considered after completion of exploration to ascertain the cut-off limit of Mining. However budgetary provisions for Afforestation program and rehabilitation of the Area shall be carried out with cost as given below,

i) Budgetary Provisions under abandonment

	At the end of 5th year	At the End of Life of Mine
i) Afforestation (Planting and Securing)	Rs.20,000	Rs.1,00,000
ii) backfilling	---	Rs.3,00,000
iii) Rehabilitation of Area (Dump Grading)	---	Rs1,50,000
iv) Construction of Parapet	---	Rs.50,000
	Rs.20,000	Rs.6,00,000

ii) Year wise break up details are given as under,

S.No.	Budget for EMP		
	Description	Area covered (Hec)	Expenditure (Rs)
1	Reclamation & Rehabilitation of mined out area	Nil	Nil
2	Stabilisation & Rehabilitation of dumps	Nil	Nil
3	Afforestation		Rs.30000\year

Total budget for afforestation for 5 years = Rs 150,000

iii) Budget provision for Environmental monitoring (under EIA EMP)

Air sampling SPM & gaseous matter (Rs)	Water Analysis (for 23 elements) (Rs)	Noise (Rs)	Ground vibration (Rs)
4000 per station x4= Rs 16000 x 2 season = Rs 32000\year (Core zone only)	7000 x 2 = Rs 14000\year (Core zone only)	3000 x 2 = Rs 6000\year (Core zone)	Not required

Totally **Rs.46,000** per year shall be allotted for monitoring of EMP. No abandonment during first five years and therefore no budget are allotted for the first five years. Total budget for Afforestation and EMP shall be,

Expenditure = Rs 30000+ 46000 = Rs76,000 per year
 Period = 5 years
 Budget Amount = **Rs 3 0,000** for five years

Certified


 Signature of Recognized Qualified Person
 S. SURYAKUMAR
 Recognized Qualified Person
 Reg. No RQP/MAS/011/873

Recognized Qualified Person

கிராமத்தில் வருடவாரி புலவாரி கைப்பற்று சாகுபடி அடங்கல் கணக்கு

1424 ஆம் பசலியில் திருச்செந்தூர் மாவட்டம் கிராமத்தில் கிராமக் கணக்கு வட்டம் 118, 5000 மைட்டர்

இரண்டாம் போகம்.		முதல் போகம்.	
(13) திருவாரூர் மாவட்டம் கிராமக் கணக்கு வட்டம் 118, 5000 மைட்டர்	(14) கிராமக் கணக்கு வட்டம் 118, 5000 மைட்டர்	(15) கிராமக் கணக்கு வட்டம் 118, 5000 மைட்டர்	(16) கிராமக் கணக்கு வட்டம் 118, 5000 மைட்டர்
(17) கிராமக் கணக்கு வட்டம் 118, 5000 மைட்டர்	(18) கிராமக் கணக்கு வட்டம் 118, 5000 மைட்டர்	(19) கிராமக் கணக்கு வட்டம் 118, 5000 மைட்டர்	(20) கிராமக் கணக்கு வட்டம் 118, 5000 மைட்டர்

கிராமக் கணக்கு வட்டம் 118, 5000 மைட்டர்		முதல் போகம்.	
(1) கிராமக் கணக்கு வட்டம் 118, 5000 மைட்டர்	(2) கிராமக் கணக்கு வட்டம் 118, 5000 மைட்டர்	(3) கிராமக் கணக்கு வட்டம் 118, 5000 மைட்டர்	(4) கிராமக் கணக்கு வட்டம் 118, 5000 மைட்டர்
(5) கிராமக் கணக்கு வட்டம் 118, 5000 மைட்டர்	(6) கிராமக் கணக்கு வட்டம் 118, 5000 மைட்டர்	(7) கிராமக் கணக்கு வட்டம் 118, 5000 மைட்டர்	(8) கிராமக் கணக்கு வட்டம் 118, 5000 மைட்டர்
(9) கிராமக் கணக்கு வட்டம் 118, 5000 மைட்டர்	(10) கிராமக் கணக்கு வட்டம் 118, 5000 மைட்டர்	(11) கிராமக் கணக்கு வட்டம் 118, 5000 மைட்டர்	(12) கிராமக் கணக்கு வட்டம் 118, 5000 மைட்டர்



**CERTIFICATE OF RECOGNITION AS
QUALIFIED PERSON TO PREPARE MINING PLANS**
(Under Rule 22 (c) of Mineral Concession Rules 1960)

Shri S. SURIYAKUMAR resident
of 5/626 H, SELVAM MANSION, KAMARAJ NAGAR, SALEM - 5 , son
of SHRI A. SEMBAN , having given satisfactory
evidence of his qualifications and experience is hereby granted recognition
under Rule 22 (c) of the Mineral Concession Rules, 1960 as a Qualified
Person to prepare Mining Plans.

His registration number is

RQP / MAS / 013 / 87 / A

This recognition is valid for a period of two years
ending 11.11.1989

Place: MADRAS
Date: 12.11.1987

P. Ramimurthy
Regional Controller of Mines
Indian Bureau of Mines
MADRAS.

Phanumunda
29/11/97
REGIONAL CONTROLLER OF MINES
INDIAN BUREAU OF MINES
CHENNAI

Suprabhraman
REGIONAL CONTROLLER OF MINES,
INDIAN BUREAU OF MINES
CHENNAI

Renewed up to **9 NOV 1997**

Renewed up to **09-11-2021**

bees
REGIONAL CONTROLLER OF MINES
INDIAN BUREAU OF MINES
CHENNAI

Suprabhraman
REGIONAL CONTROLLER OF MINES
INDIAN BUREAU OF MINES
CHENNAI REGION

Renewed up to **9.11.99**

H. K. A. Kumar
Regional Controller of Mines,
INDIAN BUREAU OF MINES

Renewed up to **9.11.2001**

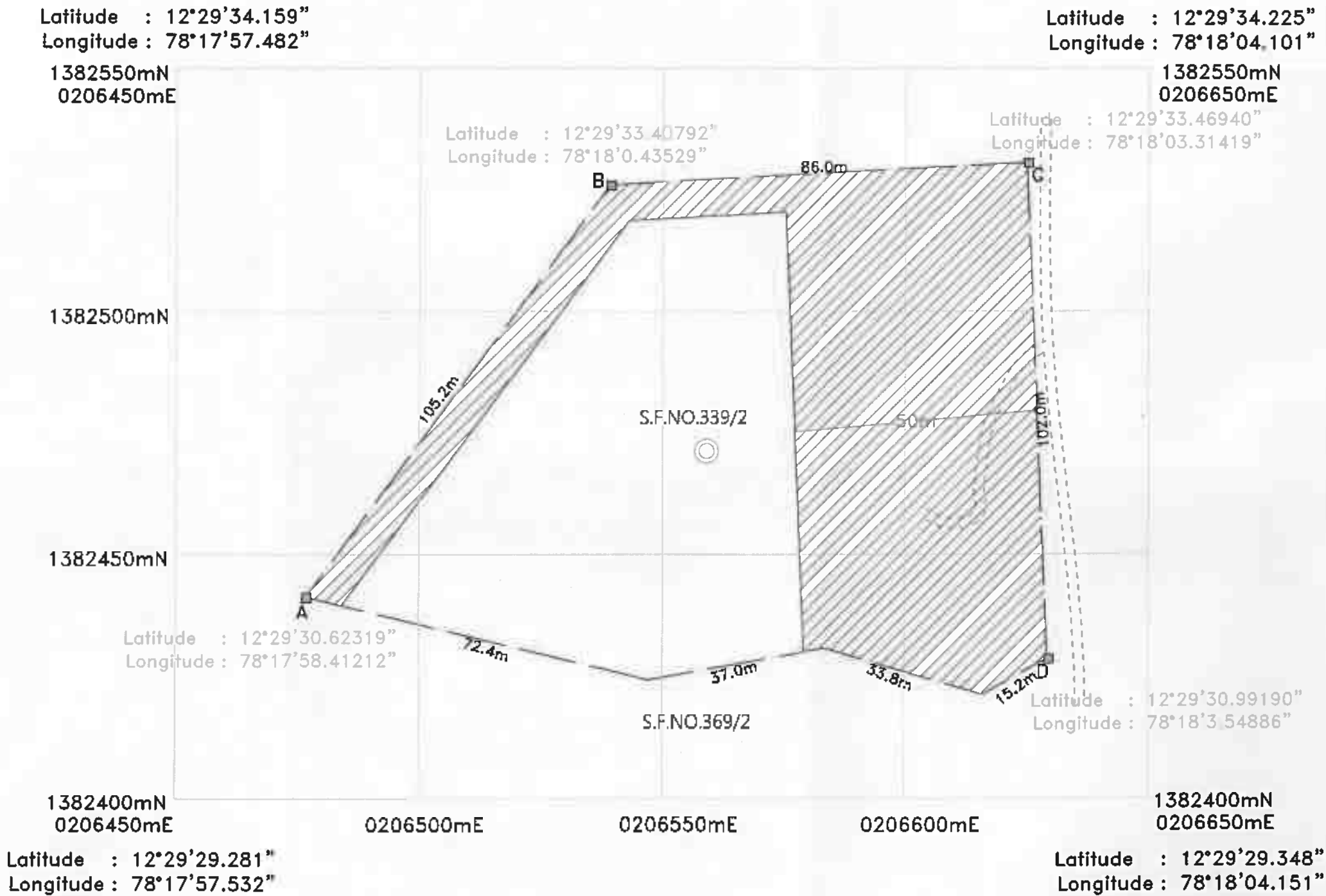
Suprabhraman

Regional Controller of Mines,
INDIAN BUREAU OF MINES






LEASE PLAN

Scale - 1:1000

PLATE - II



INDEX

-  LEASE BOUNDARY
-  APPROACH ROAD
-  PERMISSIBLE AREA
-  SAFETY BARRIER
-  SURVEY PILLER

LOCATION OF QUARRY

EXTENT : 1.19.0 Hec.
S.F.NO : 339/2
VILLAGE : SOOLA MALAI
TALUK : KRISHNAGIRI
DISTRICT : KRISHNAGIRI

APPLICANT

Thiru.B.S.RAVI,
S/o B.C.SUBBAN,
100E,GANDHI BAZZAR,
B.T.M.ROAD,
BURGUR-635 104
DHARMAPURI DISTRICT.

DATE OF SURVEY: 3.02.2015

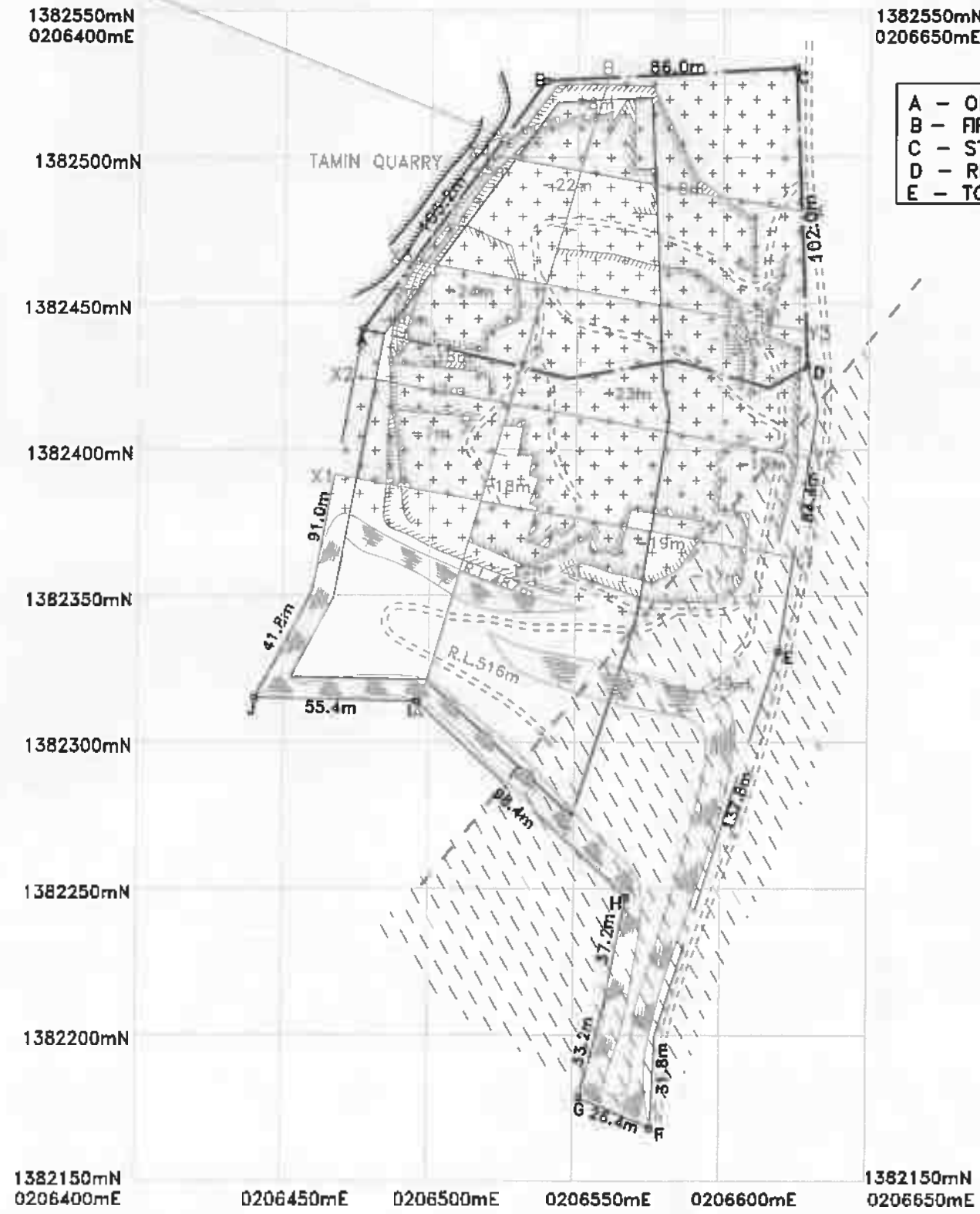
COMPOSITE GEOLOGICAL PLAN

Scale - 1:2000

PLATE -III



ENLARGED



- A - OFFICE
- B - FIRST AID STATION
- C - STORE
- D - REST SHED
- E - TOILET

INDEX

- LEASE BOUNDARY
- TOPSOIL
- GRANITE CONTACT
- MULTI COLOUR GRANITE
- BOULDERS & WEATHERED ROCK
- BIOTITE GNEISSES
- APPROACH ROAD
- OLD WORKING
- STRIKE AND DIP

LOCATION OF QUARRY

EXTENT : 1.19.0 Hec.
 S.F.NO : 339/2
 VILLAGE : SOOLA MALAI
 TALUK : KRISHNAGIRI
 DISTRICT : KRISHNAGIRI

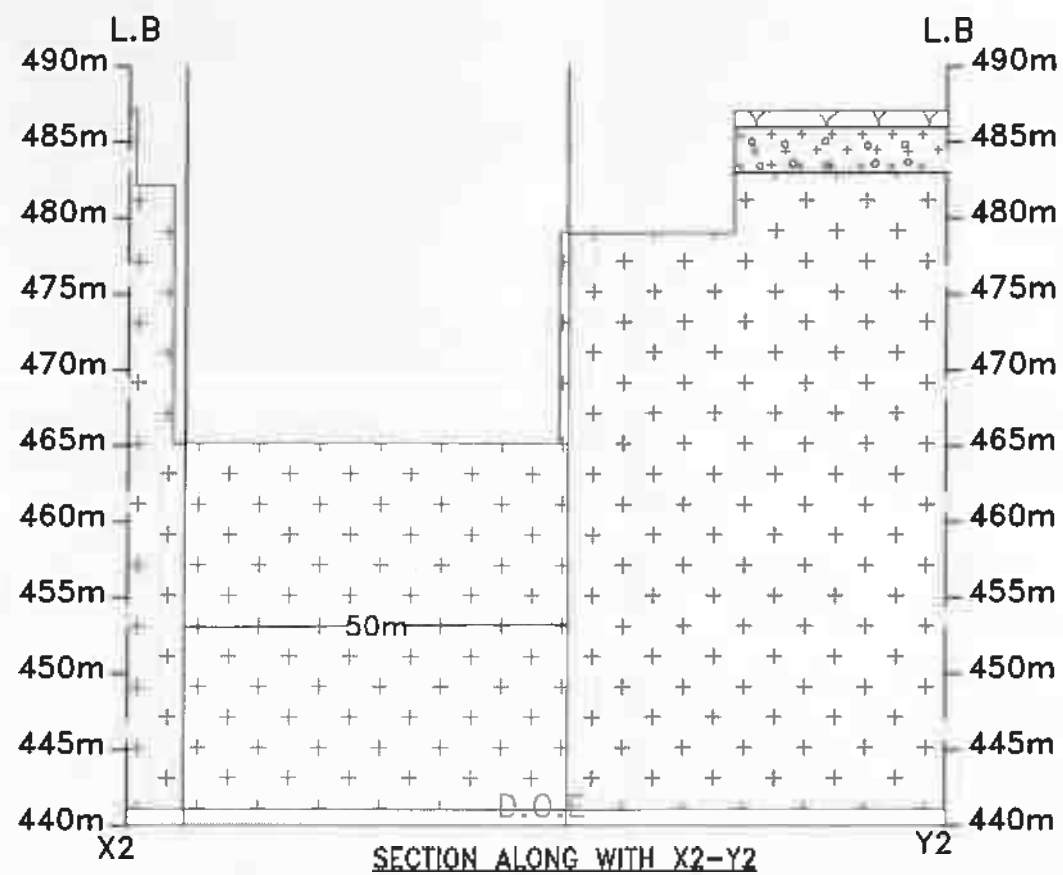
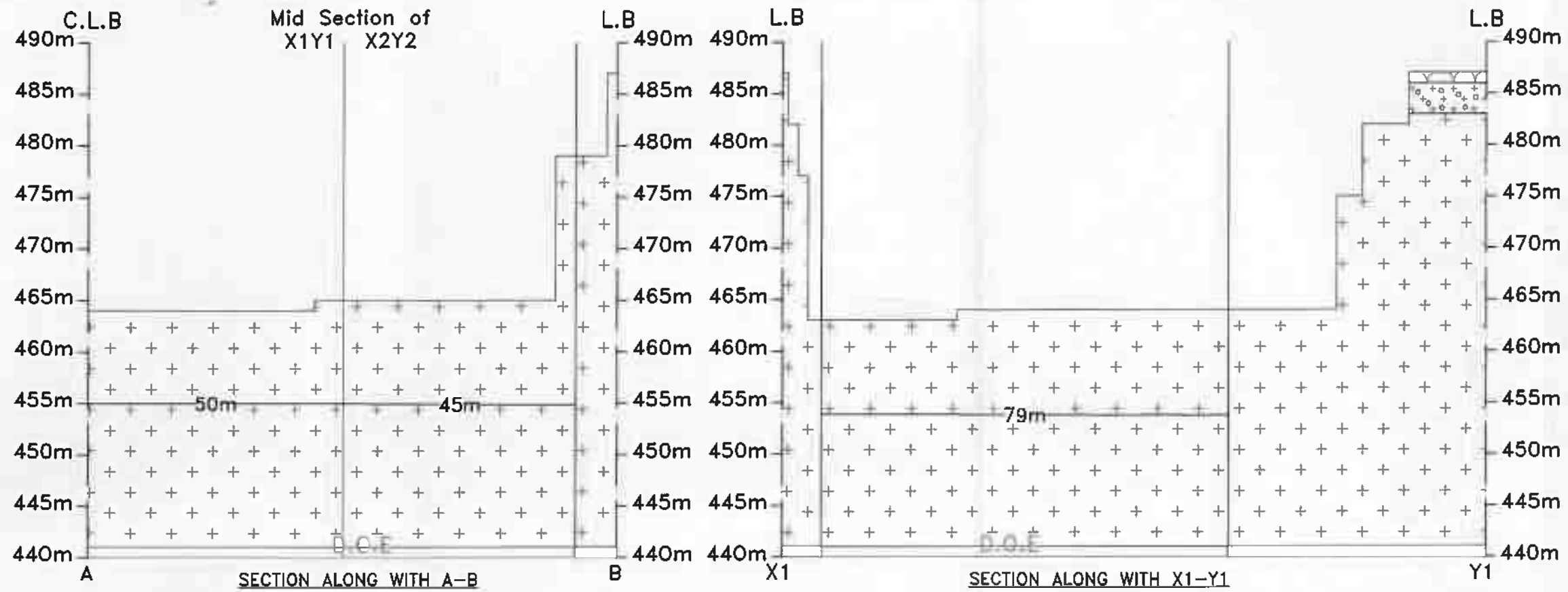
APPLICANT

Thiru. B.S. RAVI,
 S/o B.C. SUBBAN,
 100E, GANDHI BAZZAR,
 B.T.M. ROAD,
 BURGUR - 635 104
 DHARMAPURI DISTRICT.

DATE OF SURVEY: 3.02.2015

GEOLOGICAL SECTIONS

Scale : Horizontal = 1:1000
Vertical = 1:500



INDEX

	LEASE BOUNDARY
	TOPSOIL
	BOULDERS & WEATHERED ROCK
	MULTI COLOUR GRANITE
	DEPTH OF ESTIMATION

LOCATION OF QUARRY

EXTENT : 1.19.0 Hec.
S.F.NO : 339/2
VILLAGE : SOOLA MALAI
TALUK : KRISHNAGIRI
DISTRICT : KRISHNAGIRI

APPLICANT

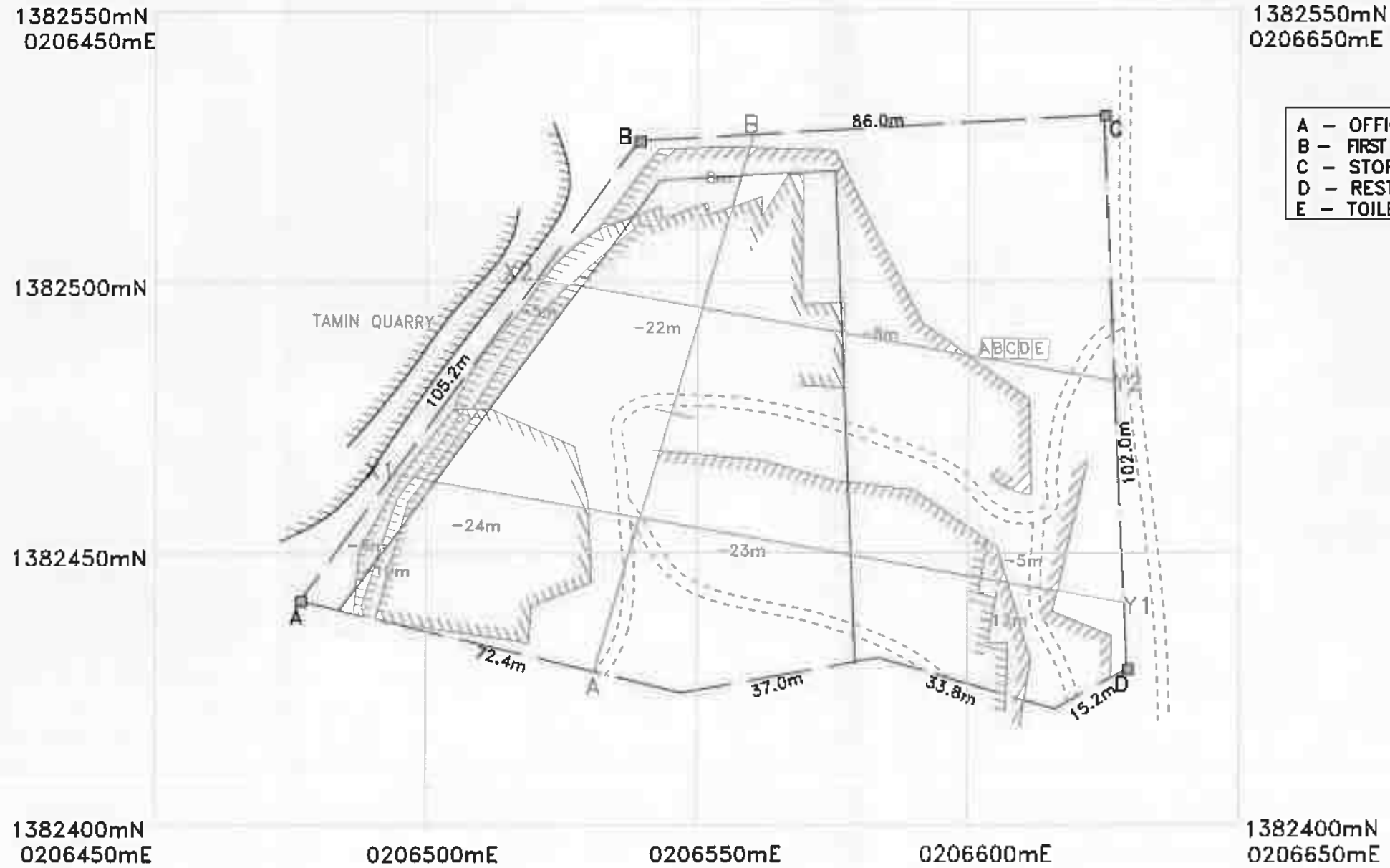
Thiru.B.S.RAVI,
S/o B.C.SUBBAN,
100E,GANDHI BAZZAR,
B.T.M.ROAD,
BURGUR-635 104
DHARMAPURI DISTRICT.

DATE OF SURVEY: 3.02.2015

SURFACE PLAN

Scale - 1:1000

PLATE -V



- A - OFFICE
- B - FIRST AID STATION
- C - STORE
- D - REST SHED
- E - TOILET

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- LEASE BOUNDARY
- APPROACH ROAD
- OLD WORKING
- STRIKE AND DIP

LOCATION OF QUARRY

EXTENT :1.19.0 Hec.
 S.F.NO :339/2
 VILLAGE :SOOLA MALAI
 TALUK :KRISHNAGIRI
 DISTRICT :KRISHNAGIRI

APPLICANT

Thiru.B.S.RAVI,
 S/o B.C.SUBBAN,
 100E,GANDHI BAZZAR,
 B.T.M.ROAD,
 BURGUR-635 104
 DHARMAPURI DISTRICT.

DATE OF SURVEY: 3.02.2015

EXISTING LAND USE PATTERN

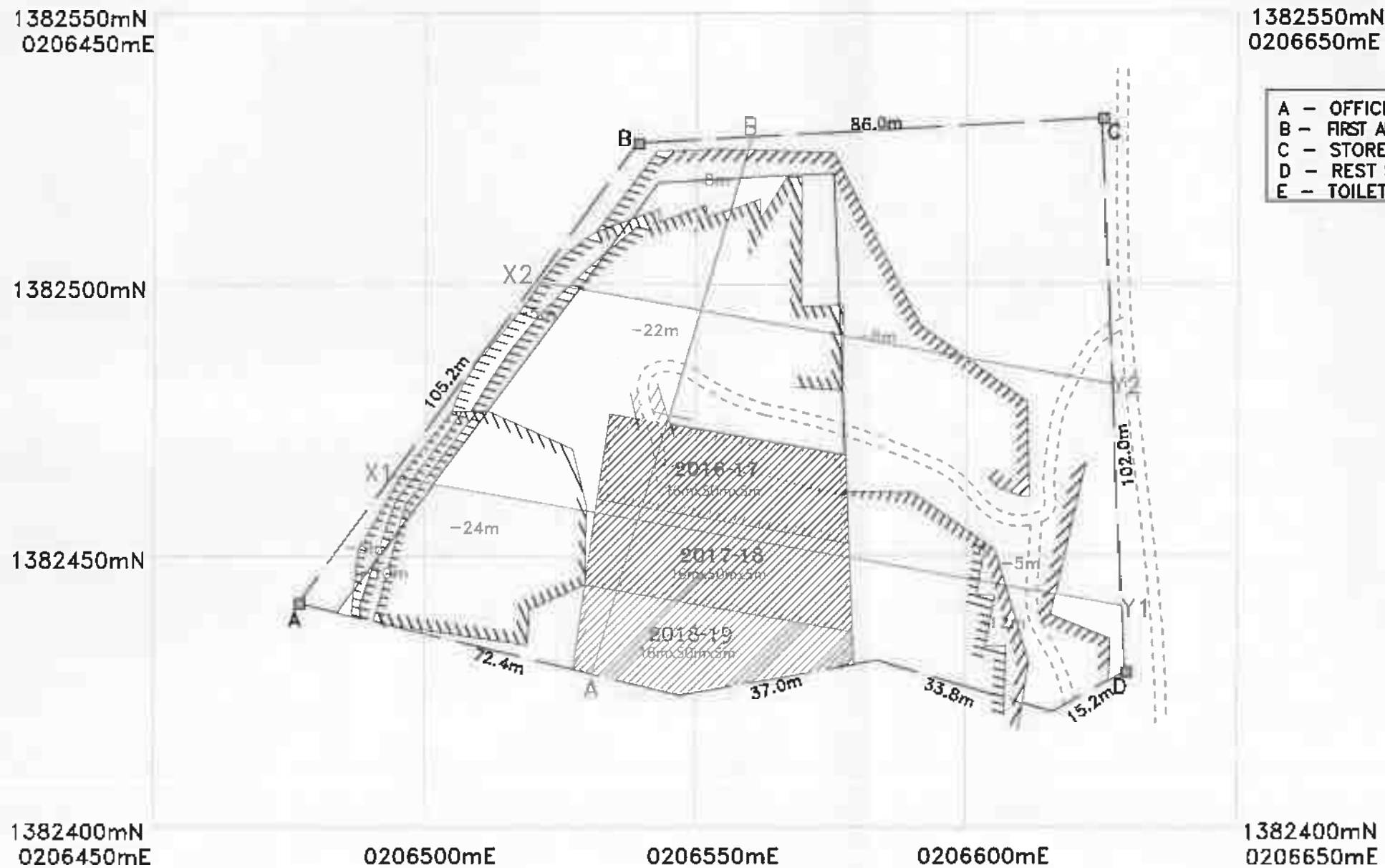
COLOUR	LAND USAGES	EXTENT(Ha)	%ofUse
	OLD WORKING PIT	0.91.05Ha	77%
	ROAD	0.02.10Ha	1.8%
	LABOUR SHED AND OFFICE	0.00.80Ha	0.2%
	VIRGIN	0.25.05Ha	21%
TOTAL		1.19.0Ha	100%

EXISTING PIT DIMENSION			
PIT	L(m)	W(m)	D(m)
I	101	115	5m-24m

PRODUCTION AND DEVELOPMENT PLAN FOR THE 2016-2019

PLATE - VI

Scale -- 1:1000



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- LEASE BOUNDARY
- APPROACH ROAD
- OLD WORKING
- WASTE DUMP
- 2016-17 EXCAVATION
- 2017-18 EXCAVATION
- 2018-19 EXCAVATION

LOCATION OF QUARRY

EXTENT : 1.19.0 Hec.
S.F.NO : 339/2
VILLAGE : SOOLA MALAI
TALUK : KRISHNAGIRI
DISTRICT : KRISHNAGIRI

APPLICANT

Thiru.B.S.RAVI,
S/o B.C.SUBBAN,
100E,GANDHI BAZZAR,
B.T.M.ROAD,
BURGUR-635 104
DHARMAPURI DISTRICT.

DATE OF SURVEY: 3.02.2015

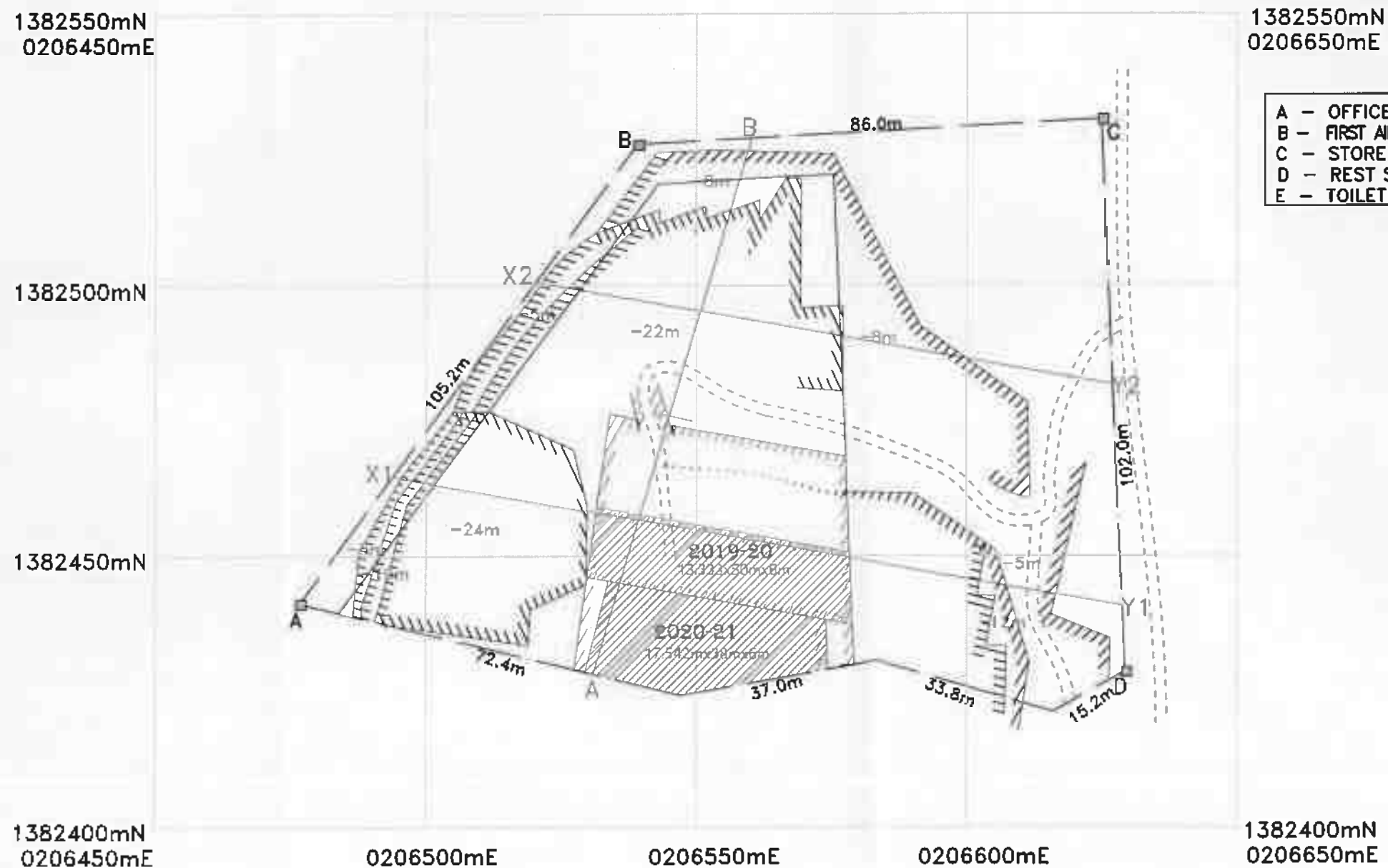
DUMP DIMENSION (m)	
	Vol.(m ³)
REJECT EXTERNAL DUMP	= 9600
TOTAL	= 9600

PRODUCTION						
YEAR	L(m)	W(m)	D(m)	Volume	RESERVES @20%	REJECT @80%
2016-17	16	50	5	4000	800	3200
2017-18	16	50	5	4000	800	3200
2018-19	18	52	7	4000	800	3200
TOTAL				12000	2400	9600

PRODUCTION AND DEVELOPMENT PLAN FOR THE 2019-2021

Scale - 1:1000

PLATE - VIA



- A - OFFICE
- B - FIRST AID STATION
- C - STORE
- D - REST SHED
- E - TOILET

INDEX

- LEASE BOUNDARY
- APPROACH ROAD
- OLD WORKING
- WASTE DUMP
- 2019-20 EXCAVATION
- 2020-21 EXCAVATION
- STRIKE AND DIP

LOCATION OF QUARRY

EXTENT : 1.19.0 Hec.
 S.F.NO : 339/2
 VILLAGE : SOOLA MALAI
 TALUK : KRISHNAGIRI
 DISTRICT : KRISHNAGIRI

APPLICANT

Thiru.B.S.RAVI,
 S/o B.C.SUBBAN,
 100E,GANDHI BAZZAR,
 B.T.M.ROAD,
 BURGUR-635 104
 DHARMAPURI DISTRICT.

DATE OF SURVEY: 3.02.2015

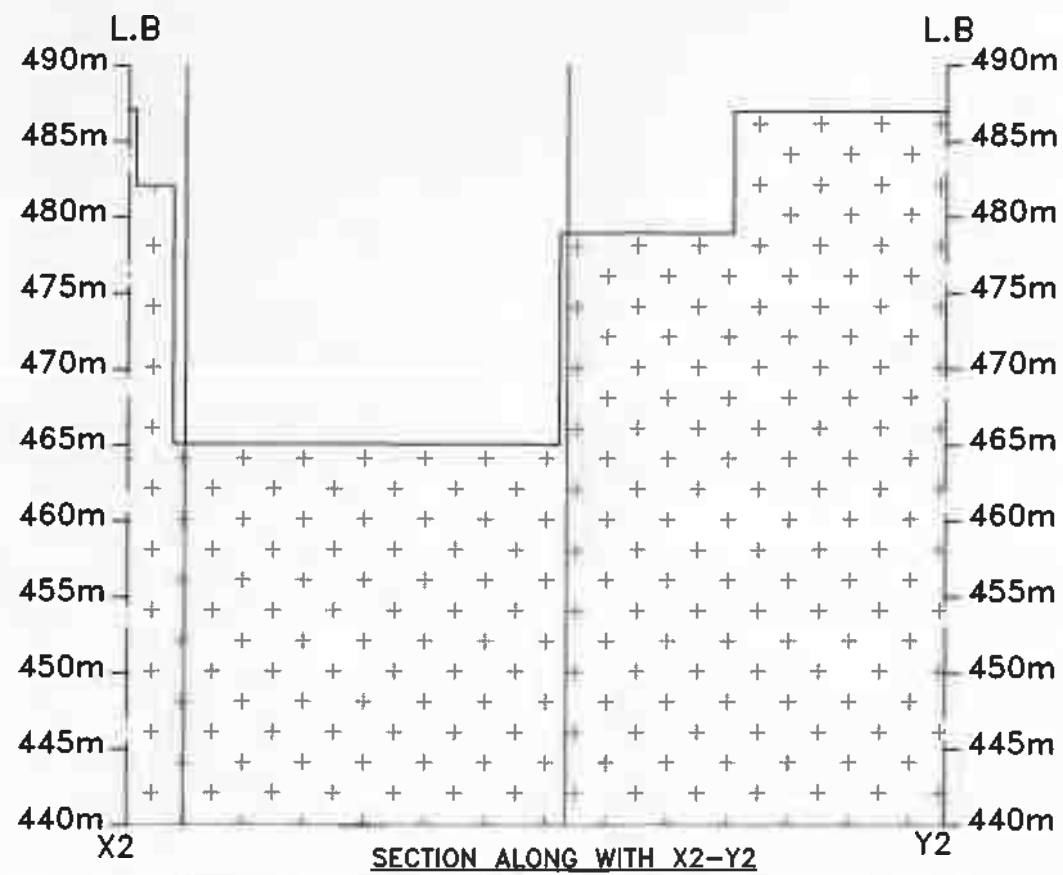
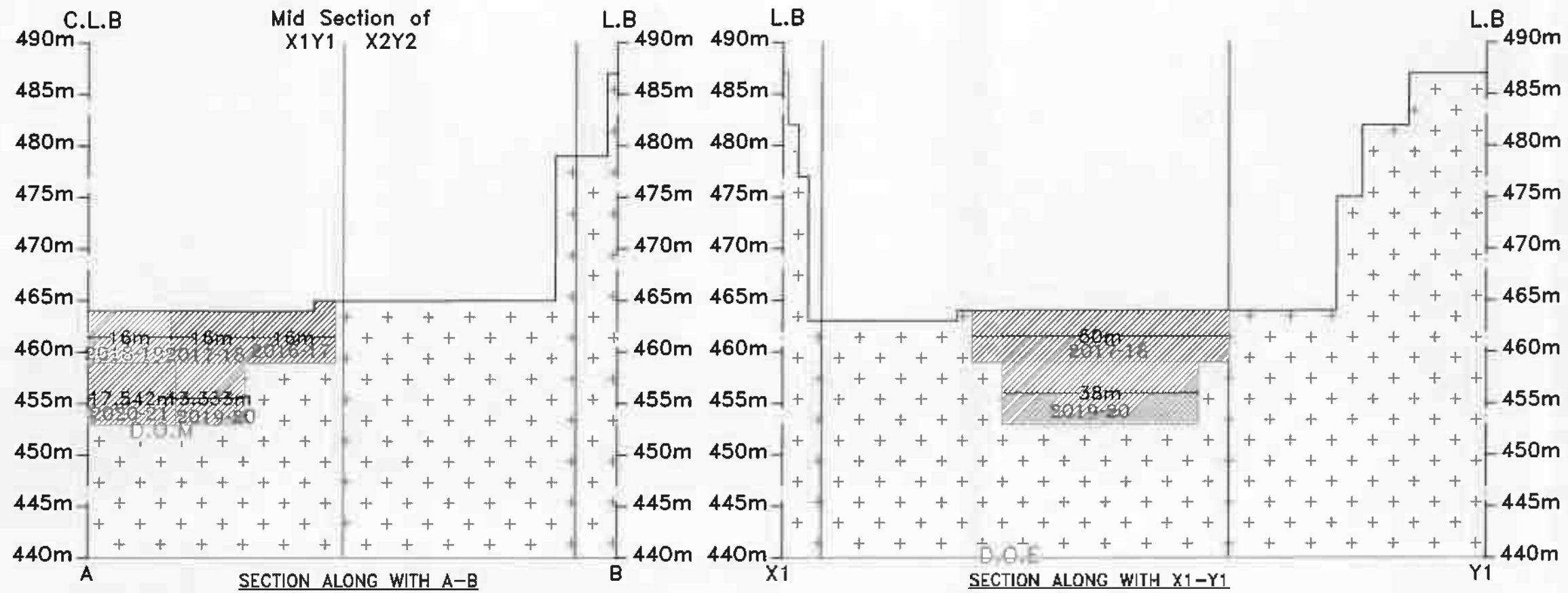
DUMP DIMENSION (m)	
	Vol.(m ³)
REJECT EXTERNAL DUMP	= 16000
TOTAL	= 16000

PRODUCTION						
YEAR	L(m)	W(m)	D(m)	Volume	RESERVES @20%	REJECT @80%
2019-20	13.333	50	6	4000	800	3200
2020-21	17.542	38	6	4000	800	3200
TOTAL				8000	1600	6400

SECTION OF PRODUCTION AND DEVELOPMENT PLAN

PLATE -VII

Scale : Horizontal = 1:1000
Vertical = 1:500



- (I) 2016-17 EXCAVATION
- (II) 2017-18 EXCAVATION
- (III) 2018-19 EXCAVATION
- (IV) 2019-20 EXCAVATION
- (V) 2020-21 EXCAVATION

INDEX

	LEASE BOUNDARY
	TOPSOIL
	MULTI COLOUR GRANITE
	DEPTH OF MINING

LOCATION OF QUARRY

EXTENT :1.19.0 Hec.
S.F.NO :339/2
VILLAGE :SOOLA MALAI
TALUK :KRISHNAGIRI
DISTRICT :KRISHNAGIRI

APPLICANT

Thiru.B.S.RAVI,
S/o B.C.SUBBAN,
100E,GANDHI BAZZAR,
B.T.M.ROAD,
BURGUR-635 104
DHARMAPURI DISTRICT.

DATE OF SURVEY: 3.02.2015

COMPOSITE FINAL MINE CLOSURE PLAN

Scale - 1:2000

PLATE -VIII



ENLARGED

1382550mN
0206400mE

1382550mN
0206650mE

1382500mN

1382450mN

1382400mN

1382350mN

1382300mN

1382250mN

1382200mN

1382150mN
0206400mE

0206450mE 0206500mE 0206550mE 0206600mE

1382150mN
0206650mE



NO MAN ZONE AND CRANE POINT

DUMP DIMENSION (m)

	Vol.(m ³)
Topsoil =	NIL
REJECT BACKFILLING =	70424
TOTAL =	70424

ULTIMATE PIT DIMENSION

Bench	Length	Width	Depth
I	79	42m	5m
II	79	42m	6m
III	79	41m	11m
IV	50m	42m	6m
V	43m	34m	6m
VI	36m	27m	6m
VII	33m	20m	6m
TOTAL			46m



INDEX

- LEASE BOUNDARY & FENCING
- APPROACH ROAD
- OLD WORKING
- WASTE DUMP
- PIT LIMIT AT THE END OF THE MINE LIFE
- PIT LIMIT AT THE END OF THE FIFTH YEAR
- AREA OF AFFORESTATION
- STRIKE AND DIP

LOCATION OF QUARRY

EXTENT : 1.19.0 Hec.
S.F.NO : 339/2
VILLAGE : SOOLA MALAI
TALUK : KRISHNAGIRI
DISTRICT : KRISHNAGIRI

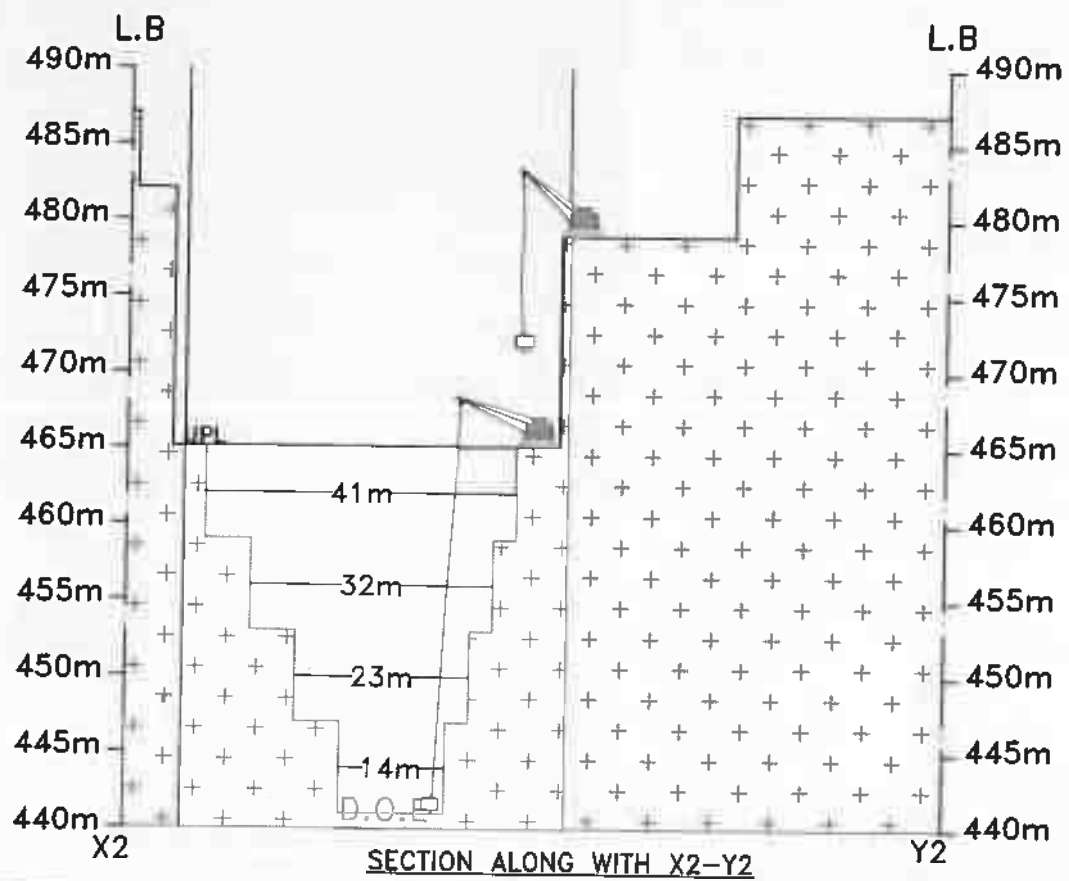
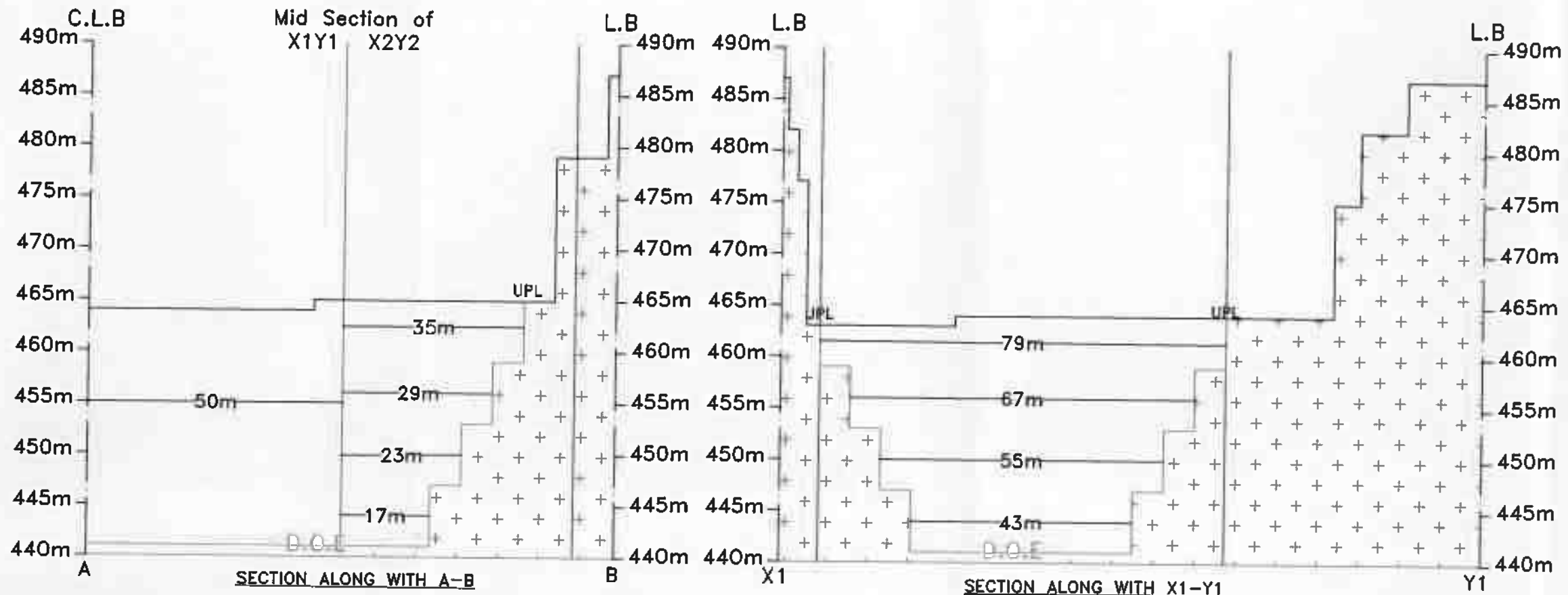
APPLICANT

Thiru.B.S.RAVI,
S/o B.C.SUBBAN,
100E,GANDHI BAZZAR,
B.T.M.ROAD,
BURGUR-635 104
DHARMAPURI DISTRICT.

DATE OF SURVEY: 3.02.2015

SECTION OF ULTIMATE PIT LIMIT

Scale : Horizontal = 1:1000
Vertical = 1:500



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L.B.	LEASE BOUNDARY
+	TOPSOIL
+	MULTI COLOUR GRANITE
UPL	ULTIMATE PIT LIMIT
D.O.E.	DEPTH OF ESTIMATION

LOCATION OF QUARRY

EXTENT : 1.19.0 Hec.
S.F.NO : 339/2
VILLAGE : SOOLA MALAI
TALUK : KRISHNAGIRI
DISTRICT : KRISHNAGIRI

APPLICANT

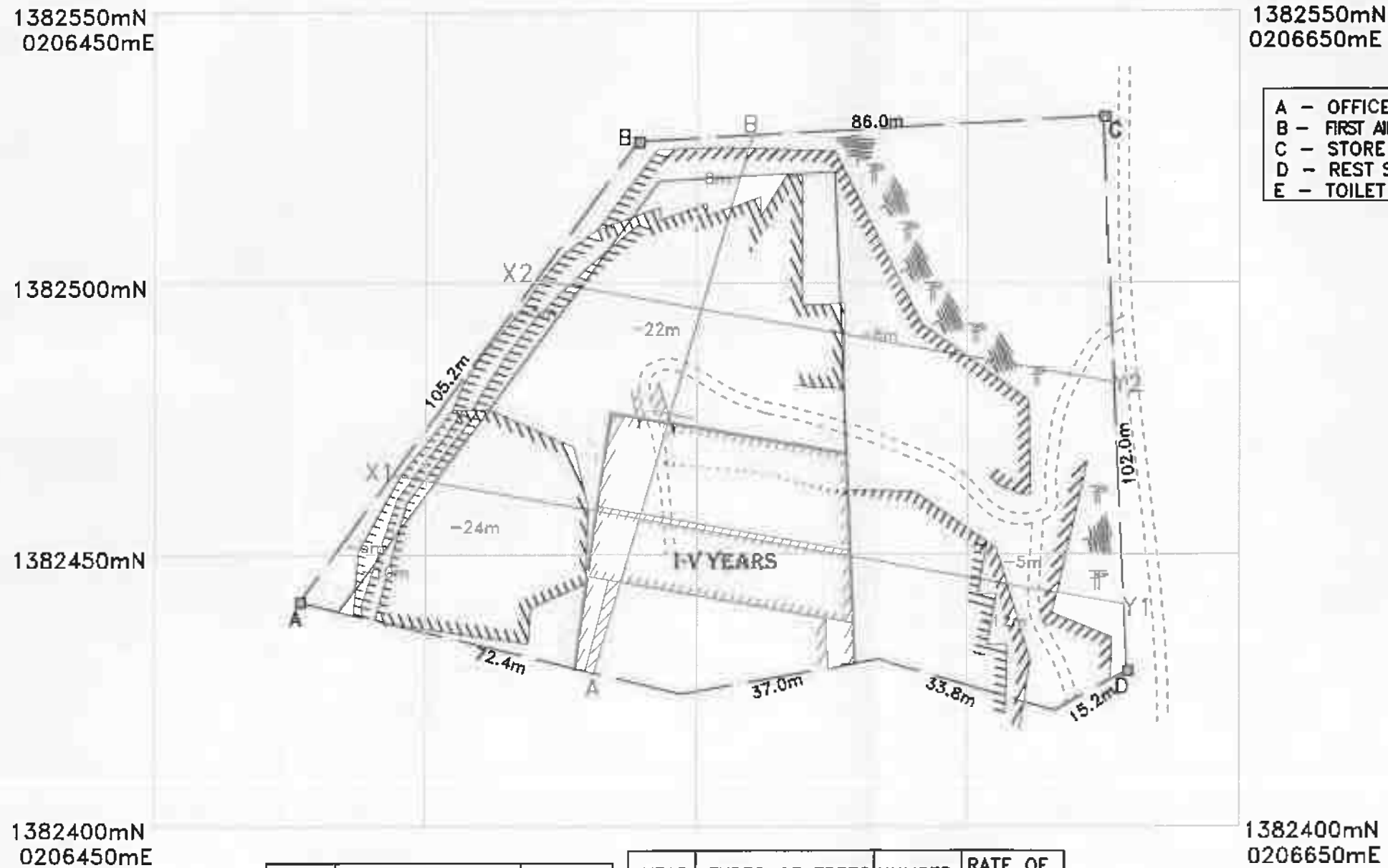
Thiru.B.S.RAVI,
S/o B.C.SUBBAN,
100E,GANDHI BAZZAR,
B.T.M.ROAD,
BURGUR-635 104
DHARMAPURI DISTRICT.

DATE OF SURVEY: 3.02.2015

PROGRESSIVE MINE CLOSURE PLAN SHOWING LAND USE AND AFFORESTATION

PLATE -X

Scale - 1:1000



- A - OFFICE
- B - FIRST AID STATION
- C - STORE
- D - REST SHED
- E - TOILET

INDEX

- LEASE BOUNDARY
- APPROACH ROAD
- OLD WORKING
- WASTE DUMP
- PIT LIMIT AT THE END OF THE FIFTH YEAR
- AREA OF AFFORESTATION
- STRIKE AND DIP

LOCATION OF QUARRY

EXTENT :1.19.0 Hec.
 S.F.NO :339/2
 VILLAGE :SOOLA MALAI
 TALUK :KRISHNAGIRI
 DISTRICT :KRISHNAGIRI

APPLICANT

Thiru.B.S.RAVI,
 S/o B.C.SUBBAN,
 100E,GANDHI BAZZAR,
 B.T.M.ROAD,
 BURGUR-635 104
 DHARMAPURI DISTRICT.

DATE OF SURVEY: 3.02.2015

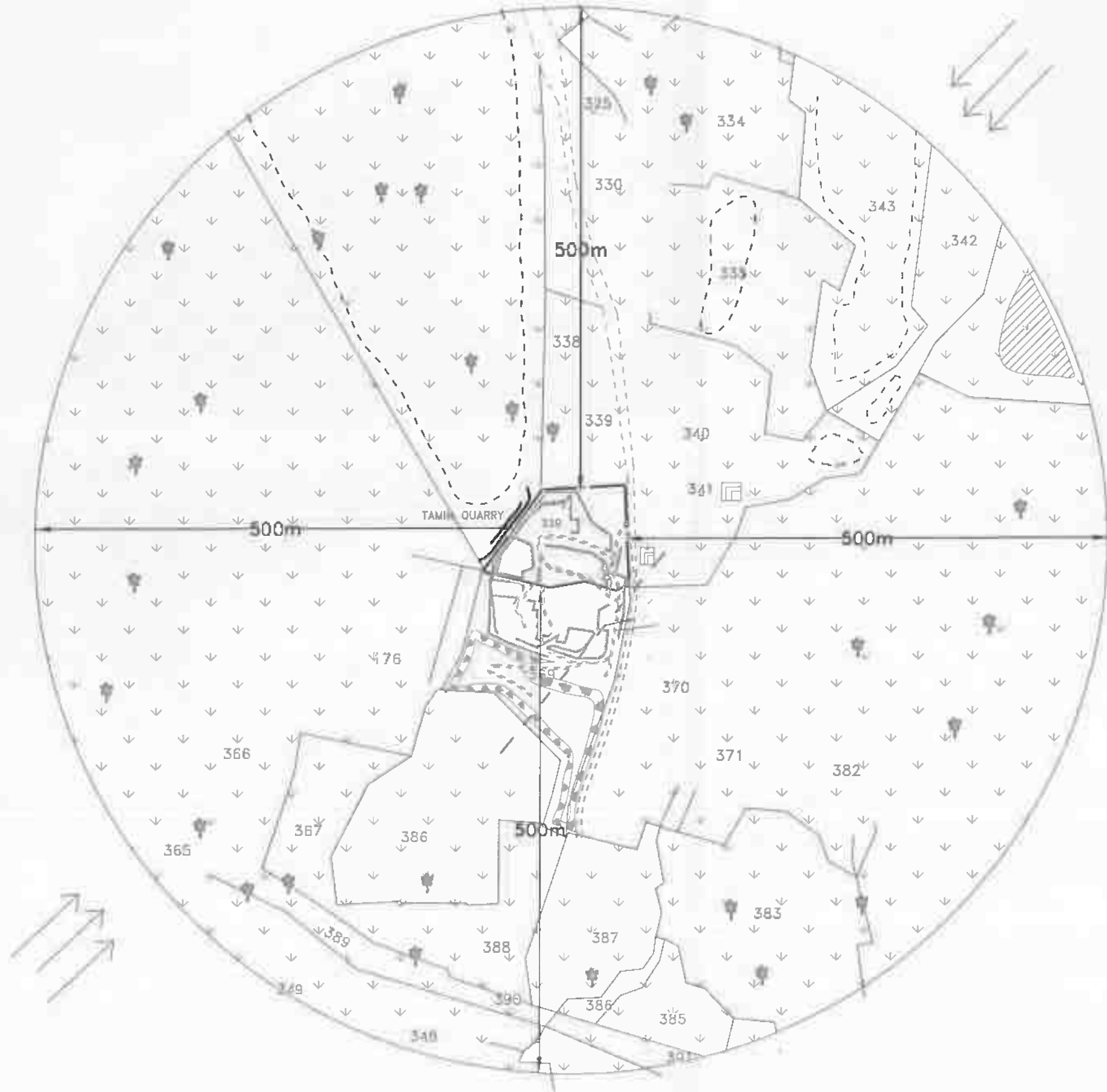
COLOUR	LAND USAGES	EXTENT(Ha)
	MINING AREA	0.91.05Ha
	ROAD	0.02.10Ha
	SAFETY AND PLANTATION AREA	0.25.05Ha
	LABOUR SHED AND OFFICE	0.00.80Ha
	VIRGIN	---
	TOTAL	1.19.0Ha

YEAR	TYPES OF TREES	NUMBER	RATE OF SURVIVAL
I	Neem,Tamarind & Eucalyptus etc.,	20	80%
II	Neem,Tamarind & Eucalyptus etc.,	20	80%
III	Neem,Tamarind & Eucalyptus etc.,	20	80%
IV	Neem,Tamarind & Eucalyptus etc.,	20	80%
V	Neem,Tamarind & Eucalyptus etc.,	20	80%

KEY MAP

(SHOWING LOCATIONS OF HABITATION, WATER BODIES, RESERVE FOREST, AROUND 500M)

Scale - 1:5000



INDEX

- LEASE BOUNDARY
- ROAD
- 500m BUFFER ZONE
- ADJACENT QUARRY
- WIND DIRECTION
- OLD WORKING
- WELL
- DRY LAND
- TREES

LOCATION OF QUARRY

EXTENT : 1.19.0 Hec.
 S.F.NO : 339/2
 VILLAGE : SOOLA MALAI
 TALUK : KRISHNAGIRI
 DISTRICT : KRISHNAGIRI

APPLICANT

Thiru.B.S.RAVI,
 S/o B.C.SUBBAN,
 100E,GANDHI BAZZAR,
 B.T.M.ROAD,
 BURGUR-635 104
 DHARMAPURI DISTRICT.

DATE OF SURVEY: 3.02.2015

TEST REPORT

Report No	EHS360/TR/2022-23/001	Report Date	05.01.2024
Site Location	M/s. SOOLAMALAI COLOUR GRANITE CLUSTER QUARRIES S.F.Nos. 333 (P), 341/1(P), 339/1(P) Soolamalai Village, Bargur Taluk, Krishnagiri District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/001
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ 1 – CORE ZONE – Project Area °12°29'50.59"N 78°18'2.38"E		

Date	Period. hrs	PM10(µg/m3)	PM2.5(µg/m3)	SO2 (µg/m3)	NO2 (µg/m3)	O3 (µg/m3)	NH3 (µg/m3)	CO (mg/ m3)
03.10.2023	7:00-7:00	44.5	19.7	6.8	19.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
04.10.2023	7:15-7:15	44.8	20.6	6.3	20.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
10.10.2023	7:00-7:00	44.1	18.1	6.9	21.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
11.10.2023	7:15-7:15	43.7	18.8	6.2	19.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
17.10.2023	7:00-7:00	43.6	19.0	6.5	19.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
18.10.2023	7:15-7:15	43.8	20.4	6.4	19.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
24.10.2023	7:00-7:00	42.1	19.9	6.3	20.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
25.10.2023	7:15-7:15	42.9	18.6	6.9	20.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
31.11.2023	7:00-7:00	44.6	19.8	6.0	21.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
01.11.2023	7:15-7:15	43.0	18.0	6.2	19.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
07.11.2023	7:00-7:00	44.5	20.6	6.9	19.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
08.11.2023	7:15-7:15	45.0	19.5	6.7	19.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
14.11.2023	7:00-7:00	44.7	20.3	7.0	20.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
15.11.2023	7:15-7:15	43.2	22.5	6.2	20.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
21.11.2023	7:00-7:00	45.0	21.0	6.3	20.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
22.11.2023	7:15-7:15	43.9	21.6	6.1	21.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
28.11.2023	7:00-7:00	43.6	20.3	6.8	19.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
29.11.2023	7:15-7:15	43.4	21.1	6.4	19.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
05.12.2023	7:00-7:00	43.9	20.0	6.8	19.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.12.2023	7:15-7:15	42.0	19.9	6.2	20.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
12.12.2023	7:00-7:00	44.5	18.3	6.1	21.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.12.2023	7:15-7:15	44.4	19.5	6.0	20.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
19.12.2023	7:00-7:00	45.0	18.6	7.0	20.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.12.2023	7:15-7:15	44.7	18.7	6.5	20.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
26.12.2023	7:00-7:00	44.2	19.6	6.3	19.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.12.2023	7:15-7:15	43.2	20.0	6.1	19.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
NAAQ* Standard		<100	<60	<80	<80	<100	<400	<4

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

*****End of Report*****

Page 1 of 1

Verified by



Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/001	Report Date	05.01.2024
Site Location	M/s. SOOLAMALAI COLOUR GRANITE CLUSTER QUARRIES S.F.Nos. 333 (P), 341/1(P), 339/1(P) Soolamalai Village, Bargur Taluk, Krishnagiri District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/001
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ 1 – CORE ZONE – Project Area 12°29'50.59"N 78°18'2.38"E		

Date	Period. hrs	SPM ($\mu\text{g}/\text{m}^3$)	As (ng/m^3)	C6H6 ($\mu\text{g}/\text{m}^3$)	BaP (ng/m^3)	Pb ($\mu\text{g}/\text{m}^3$)	Ni (ng/m^3)
03.10.2023	7:00-7:00	63.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
04.10.2023	7:15-7:15	62.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
10.10.2023	7:00-7:00	63.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
11.10.2023	7:15-7:15	64.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
17.10.2023	7:00-7:00	63.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
18.10.2023	7:15-7:15	64.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
24.10.2023	7:00-7:00	62.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
25.10.2023	7:15-7:15	62.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
31.11.2023	7:00-7:00	63.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
01.11.2023	7:15-7:15	64.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
07.11.2023	7:00-7:00	65.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
08.11.2023	7:15-7:15	63.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
14.11.2023	7:00-7:00	62.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
15.11.2023	7:15-7:15	63.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
21.11.2023	7:00-7:00	63.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
22.11.2023	7:15-7:15	65.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
28.11.2023	7:00-7:00	64.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
29.11.2023	7:15-7:15	63.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
05.12.2023	7:00-7:00	62.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.12.2023	7:15-7:15	64.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
12.12.2023	7:00-7:00	64.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.12.2023	7:15-7:15	61.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
19.12.2023	7:00-7:00	65.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
20.12.2023	7:15-7:15	63.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
26.12.2023	7:00-7:00	64.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
27.12.2023	7:15-7:15	65.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
NAAQ* Standard		<200	6	5	1	1	20

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

*****End of Report*****



Verified by

[Signature]

Authorised Signatory

[Signature]

Name: Santhosh Kumar A
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/002	Report Date	05.01.2024
Site Location	M/s. SOOLAMALAI COLOUR GRANITE CLUSTER QUARRIES S.F.Nos. 333 (P), 341/1(P), 339/1(P) Soolamalai Village, Bargur Taluk, Krishnagiri District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/002
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ 2 – Core zone – Project Area 12°29'35.57"N 78°18'5.50"E		

Date	Period. hrs	PM10(µg/m3)	PM2.5(µg/m3)	SO2 (µg/m3)	NO2 (µg/m3)	O3 (µg/m3)	NH3 (µg/m3)	CO (mg/ m3)
03.10.2023	7:00-7:00	41.4	20.9	5.0	22.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
04.10.2023	7:15-7:15	42.3	20.4	5.3	21.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
10.10.2023	7:00-7:00	43.8	21.0	7.7	23.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
11.10.2023	7:15-7:15	44.0	21.8	6.9	22.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
17.10.2023	7:00-7:00	40.6	20.6	5.2	23.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
18.10.2023	7:15-7:15	42.7	20.2	5.3	21.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
24.10.2023	7:00-7:00	43.2	20.0	7.5	22.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
25.10.2023	7:15-7:15	42.1	22.8	6.0	21.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
31.11.2023	7:00-7:00	42.8	22.0	7.8	21.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
01.11.2023	7:15-7:15	43.0	21.6	5.6	22.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
07.11.2023	7:00-7:00	43.8	20.9	5.9	21.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
08.11.2023	7:15-7:15	43.1	20.4	6.2	21.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
14.11.2023	7:00-7:00	42.7	21.5	6.0	22.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
15.11.2023	7:15-7:15	42.9	23.8	5.3	21.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
21.11.2023	7:00-7:00	43.9	21.4	5.7	21.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
22.11.2023	7:15-7:15	44.0	20.6	7.0	22.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
28.11.2023	7:00-7:00	42.5	20.8	5.8	22.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
29.11.2023	7:15-7:15	41.6	21.4	5.4	21.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
05.12.2023	7:00-7:00	42.7	21.9	6.3	20.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.12.2023	7:15-7:15	43.5	20.0	7.3	22.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
12.12.2023	7:00-7:00	43.2	20.3	5.8	22.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.12.2023	7:15-7:15	43.7	21.6	5.0	19.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
19.12.2023	7:00-7:00	42.6	21.0	5.9	22.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.12.2023	7:15-7:15	41.8	20.8	5.1	22.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
26.12.2023	7:00-7:00	40.3	21.9	6.2	21.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.12.2023	7:15-7:15	42.6	21.6	7.7	22.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
NAAQ* Standard		<100	<60	<80	<80	<100	<400	<4

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

*****End of Report*****

Page 1 of 1

Verified by




Authorised Signatory

A-17

Name: Santhosh Kumar A
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/002	Report Date	05.01.2024
Site Location	M/s. SOOLAMALAI COLOUR GRANITE CLUSTER QUARRIES S.F.Nos. 333 (P), 341/1(P), 339/1(P) Soolamalai Village, Bargur Taluk, Krishnagiri District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/002
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ 2 – Core Zone – Project Area 12°29'35.57"N 78°18'5.50"E		

Date	Period. hrs	SPM ($\mu\text{g}/\text{m}^3$)	As (ng/m^3)	C6H6 ($\mu\text{g}/\text{m}^3$)	BaP (ng/m^3)	Pb ($\mu\text{g}/\text{m}^3$)	Ni (ng/m^3)
03.10.2023	7:00-7:00	65.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
04.10.2023	7:15-7:15	63.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
10.10.2023	7:00-7:00	64.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
11.10.2023	7:15-7:15	62.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
17.10.2023	7:00-7:00	63.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
18.10.2023	7:15-7:15	64.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
24.10.2023	7:00-7:00	65.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
25.10.2023	7:15-7:15	64.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
31.11.2023	7:00-7:00	61.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
01.11.2023	7:15-7:15	62.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
07.11.2023	7:00-7:00	66.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
08.11.2023	7:15-7:15	64.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
14.11.2023	7:00-7:00	63.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
15.11.2023	7:15-7:15	62.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
21.11.2023	7:00-7:00	61.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
22.11.2023	7:15-7:15	64.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
28.11.2023	7:00-7:00	65.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
29.11.2023	7:15-7:15	64.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
05.12.2023	7:00-7:00	63.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.12.2023	7:15-7:15	64.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
12.12.2023	7:00-7:00	63.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.12.2023	7:15-7:15	62.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
19.12.2023	7:00-7:00	62.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
20.12.2023	7:15-7:15	63.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
26.12.2023	7:00-7:00	64.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
27.12.2023	7:15-7:15	63.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
NAAQ* Standard		<200	6	5	1	1	20

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

*****End of Report*****



Verified by

[Signature]

Authorised Signatory

[Signature]

Name: Santhosh Kumar A
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/003	Report Date	05.01.2024
Site Location	M/s. SOOLAMALAI COLOUR GRANITE CLUSTER QUARRIES S.F.Nos. 333 (P), 341/1(P), 339/1(P) Soolamalai Village, Bargur Taluk, Krishnagiri District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/003
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ3 – Achamangalam – 12°29'18.77"N 78°19'17.61"E		

Date	Period. hrs	PM10(µg/m3)	PM2.5(µg/m3)	SO2 (µg/m3)	NO2 (µg/m3)	O3 (µg/m3)	NH3 (µg/m3)	CO (mg/ m3)
03.10.2023	7:00-7:00	46.6	21.8	6.4	23.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
04.10.2023	7:15-7:15	45.2	22.5	7.2	19.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
10.10.2023	7:00-7:00	46.2	23.0	6.9	20.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
11.10.2023	7:15-7:15	46.6	21.7	7.3	19.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
17.10.2023	7:00-7:00	44.8	21.0	7.9	19.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
18.10.2023	7:15-7:15	45.0	20.6	6.3	22.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
24.10.2023	7:00-7:00	45.3	21.0	6.0	19.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
25.10.2023	7:15-7:15	45.2	22.9	7.2	22.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
31.11.2023	7:00-7:00	46.7	22.4	6.0	19.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
01.11.2023	7:15-7:15	46.0	22.0	6.3	20.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
07.11.2023	7:00-7:00	45.5	21.6	7.6	19.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
08.11.2023	7:15-7:15	46.9	21.5	6.0	19.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
14.11.2023	7:00-7:00	46.0	21.3	5.9	23.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
15.11.2023	7:15-7:15	46.2	21.0	5.4	24.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
21.11.2023	7:00-7:00	45.0	22.5	6.3	19.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
22.11.2023	7:15-7:15	45.6	22.3	7.1	22.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
28.11.2023	7:00-7:00	46.6	22.0	7.6	20.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
29.11.2023	7:15-7:15	46.5	21.7	7.4	24.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
05.12.2023	7:00-7:00	46.2	21.9	5.9	19.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.12.2023	7:15-7:15	45.7	22.8	5.0	23.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
12.12.2023	7:00-7:00	46.7	21.3	7.2	19.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.12.2023	7:15-7:15	45.2	21.0	6.3	20.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
19.12.2023	7:00-7:00	46.0	23.0	5.5	22.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.12.2023	7:15-7:15	45.9	22.9	5.7	24.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
26.12.2023	7:00-7:00	46.3	22.6	6.0	22.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.12.2023	7:15-7:15	45.6	21.7	6.2	25.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
NAAQ* Standard		<100	<60	<80	<80	<100	<400	<4

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

*****End of Report*****

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Authorised Signatory

A-17

Name: Santhosh Kumar A
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/003	Report Date	05.01.2024
Site Location	M/s. SOOLAMALAI COLOUR GRANITE CLUSTER QUARRIES S.F.Nos. 333 (P), 341/1(P), 339/1(P) Soolamalai Village, Bargur Taluk, Krishnagiri District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/003
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ3 – Achamangalam – 12°29'18.77"N 78°19'17.61"E		

Date	Period. hrs	SPM (µg/m ³)	As (ng/m ³)	C6H6 (µg/m ³)	BaP (ng/m ³)	Pb (µg/m ³)	Ni (ng/m ³)
03.10.2023	7:00-7:00	62.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
04.10.2023	7:15-7:15	64.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
10.10.2023	7:00-7:00	65.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
11.10.2023	7:15-7:15	64.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
17.10.2023	7:00-7:00	63.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
18.10.2023	7:15-7:15	62.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
24.10.2023	7:00-7:00	64.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
25.10.2023	7:15-7:15	63.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
31.11.2023	7:00-7:00	62.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
01.11.2023	7:15-7:15	62.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
07.11.2023	7:00-7:00	63.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
08.11.2023	7:15-7:15	64.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
14.11.2023	7:00-7:00	65.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
15.11.2023	7:15-7:15	63.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
21.11.2023	7:00-7:00	64.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
22.11.2023	7:15-7:15	62.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
28.11.2023	7:00-7:00	64.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
29.11.2023	7:15-7:15	64.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
05.12.2023	7:00-7:00	64.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.12.2023	7:15-7:15	64.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
12.12.2023	7:00-7:00	62.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.12.2023	7:15-7:15	63.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
19.12.2023	7:00-7:00	64.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
20.12.2023	7:15-7:15	65.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
26.12.2023	7:00-7:00	64.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
27.12.2023	7:15-7:15	63.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
NAAQ* Standard		<200	6	5	1	1	20

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

*****End of Report*****



Verified by

[Signature]

Authorised Signatory

[Signature]

Name: Santhosh Kumar A
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/004	Report Date	05.01.2024
Site Location	M/s. SOOLAMALAI COLOUR GRANITE CLUSTER QUARRIES S.F.Nos. 333 (P), 341/1(P), 339/1(P) Soolamalai Village, Bargur Taluk, Krishnagiri District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/004
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ4 – Elathagiri – 12°32'54.24"N 78°17'43.06"E		

Date	Period. hrs	PM10(µg/m3)	PM2.5(µg/m3)	SO2 (µg/m3)	NO2 (µg/m3)	O3 (µg/m3)	NH3 (µg/m3)	CO (mg/ m3)
03.10.2023	7:00-7:00	43.0	18.6	6.5	21.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
04.10.2023	7:15-7:15	42.7	19.2	7.2	21.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
10.10.2023	7:00-7:00	42.9	18.6	8.0	20.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
11.10.2023	7:15-7:15	42.0	18.4	7.1	20.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
17.10.2023	7:00-7:00	42.7	19.3	7.9	21.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
18.10.2023	7:15-7:15	42.3	19.7	7.6	21.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
24.10.2023	7:00-7:00	41.7	18.4	8.0	22.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
25.10.2023	7:15-7:15	41.6	18.6	6.0	21.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
31.11.2023	7:00-7:00	41.9	18.2	6.9	20.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
01.11.2023	7:15-7:15	41.2	18.0	6.2	21.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
07.11.2023	7:00-7:00	42.0	17.6	6.0	22.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
08.11.2023	7:15-7:15	42.8	17.9	6.4	22.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
14.11.2023	7:00-7:00	42.6	19.2	6.8	21.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
15.11.2023	7:15-7:15	42.3	19.4	7.1	23.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
21.11.2023	7:00-7:00	41.7	18.3	7.6	22.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
22.11.2023	7:15-7:15	42.9	19.7	7.5	21.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
28.11.2023	7:00-7:00	42.3	18.3	7.9	22.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
29.11.2023	7:15-7:15	41.6	19.5	7.0	23.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
05.12.2023	7:00-7:00	41.0	18.3	8.0	24.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.12.2023	7:15-7:15	42.5	18.4	7.2	21.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
12.12.2023	7:00-7:00	41.6	18.6	7.6	22.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.12.2023	7:15-7:15	42.3	19.1	6.1	21.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
19.12.2023	7:00-7:00	42.0	19.5	6.8	22.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.12.2023	7:15-7:15	42.8	19.6	6.9	21.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
26.12.2023	7:00-7:00	43.0	19.7	6.4	23.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.12.2023	7:15-7:15	42.5	19.9	6.7	22.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
NAAQ* Standard		<100	<60	<80	<80	<100	<400	<4

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

*****End of Report*****

Page 1 of 1

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Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/004	Report Date	05.01.2024
Site Location	M/s. SOOLAMALAI COLOUR GRANITE CLUSTER QUARRIES S.F.Nos. 333 (P), 341/1(P), 339/1(P) Soolamalai Village, Bargur Taluk, Krishnagiri District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/004
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ4 – Elathagiri – 12°32'54.24"N 78°17'43.06"E		

Date	Period. hrs	SPM ($\mu\text{g}/\text{m}^3$)	As (ng/m^3)	C6H6 ($\mu\text{g}/\text{m}^3$)	BaP (ng/m^3)	Pb ($\mu\text{g}/\text{m}^3$)	Ni (ng/m^3)
03.10.2023	7:00-7:00	62.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
04.10.2023	7:15-7:15	63.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
10.10.2023	7:00-7:00	66.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
11.10.2023	7:15-7:15	65.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
17.10.2023	7:00-7:00	63.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
18.10.2023	7:15-7:15	61.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
24.10.2023	7:00-7:00	61.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
25.10.2023	7:15-7:15	61.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
31.11.2023	7:00-7:00	62.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
01.11.2023	7:15-7:15	63.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
07.11.2023	7:00-7:00	64.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
08.11.2023	7:15-7:15	64.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
14.11.2023	7:00-7:00	64.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
15.11.2023	7:15-7:15	65.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
21.11.2023	7:00-7:00	65.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
22.11.2023	7:15-7:15	66.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
28.11.2023	7:00-7:00	63.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
29.11.2023	7:15-7:15	61.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
05.12.2023	7:00-7:00	62.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.12.2023	7:15-7:15	63.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
12.12.2023	7:00-7:00	63.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.12.2023	7:15-7:15	64.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
19.12.2023	7:00-7:00	65.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
20.12.2023	7:15-7:15	65.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
26.12.2023	7:00-7:00	62.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
27.12.2023	7:15-7:15	63.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
NAAQ* Standard		<200	6	5	1	1	20

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

*****End of Report*****



Verified by

[Signature]

Authorised Signatory

[Signature]

Name: Santhosh Kumar A
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/005	Report Date	05.01.2024
Site Location	M/s. SOOLAMALAI COLOUR GRANITE CLUSTER QUARRIES S.F.Nos. 333 (P), 341/1(P), 339/1(P) Soolamalai Village, Bargur Taluk, Krishnagiri District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/005
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ5 – Periyapanmudlu - 12°29'49.10"N 78°15'59.42"E		

Date	Period. hrs	PM10(µg/m3)	PM2.5(µg/m3)	SO2 (µg/m3)	NO2 (µg/m3)	O3 (µg/m3)	NH3 (µg/m3)	CO (mg/ m3)
03.10.2023	7:00-7:00	44.6	21.9	5.7	20.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
04.10.2023	7:15-7:15	45.0	21.8	6.2	21.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
10.10.2023	7:00-7:00	44.7	20.6	6.9	21.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
11.10.2023	7:15-7:15	45.8	21.7	5.6	21.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
17.10.2023	7:00-7:00	43.0	22.3	5.3	20.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
18.10.2023	7:15-7:15	44.9	21.1	7.0	20.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
24.10.2023	7:00-7:00	43.7	22.7	5.0	19.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
25.10.2023	7:15-7:15	43.6	22.0	6.6	19.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
31.11.2023	7:00-7:00	44.4	20.0	6.1	21.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
01.11.2023	7:15-7:15	45.0	20.6	6.2	20.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
07.11.2023	7:00-7:00	44.9	22.9	6.9	20.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
08.11.2023	7:15-7:15	44.3	22.3	7.1	20.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
14.11.2023	7:00-7:00	43.1	21.1	6.9	20.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
15.11.2023	7:15-7:15	42.0	20.0	6.0	21.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
21.11.2023	7:00-7:00	43.0	21.0	7.0	20.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
22.11.2023	7:15-7:15	42.8	21.5	5.9	19.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
28.11.2023	7:00-7:00	43.2	20.7	5.2	20.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
29.11.2023	7:15-7:15	43.6	20.3	7.5	21.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
05.12.2023	7:00-7:00	43.7	19.1	5.3	19.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.12.2023	7:15-7:15	43.9	20.2	6.1	21.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
12.12.2023	7:00-7:00	42.8	18.6	6.8	22.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.12.2023	7:15-7:15	43.0	21.0	5.5	20.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
19.12.2023	7:00-7:00	42.8	22.4	5.3	19.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.12.2023	7:15-7:15	44.6	21.6	5.6	20.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
26.12.2023	7:00-7:00	43.8	20.0	6.0	21.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.12.2023	7:15-7:15	44.1	20.6	6.2	22.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
NAAQ* Standard		<100	<60	<80	<80	<100	<400	<4

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

*****End of Report*****



Verified by

Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/005	Report Date	05.01.2024
Site Location	M/s. SOOLAMALAI COLOUR GRANITE CLUSTER QUARRIES S.F.Nos. 333 (P), 341/1(P), 339/1(P) Soolamalai Village, Bargur Taluk, Krishnagiri District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/005
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ5 – Periyapanmudlu - 12°29'49.10"N 78°15'59.42"E		

Date	Period. hrs	SPM ($\mu\text{g}/\text{m}^3$)	As (ng/m^3)	C6H6 ($\mu\text{g}/\text{m}^3$)	BaP (ng/m^3)	Pb ($\mu\text{g}/\text{m}^3$)	Ni (ng/m^3)
03.10.2023	7:00-7:00	65.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
04.10.2023	7:15-7:15	67.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
10.10.2023	7:00-7:00	64.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
11.10.2023	7:15-7:15	63.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
17.10.2023	7:00-7:00	62.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
18.10.2023	7:15-7:15	62.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
24.10.2023	7:00-7:00	67.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
25.10.2023	7:15-7:15	66.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
31.11.2023	7:00-7:00	66.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
01.11.2023	7:15-7:15	64.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
07.11.2023	7:00-7:00	65.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
08.11.2023	7:15-7:15	63.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
14.11.2023	7:00-7:00	62.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
15.11.2023	7:15-7:15	62.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
21.11.2023	7:00-7:00	62.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
22.11.2023	7:15-7:15	62.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
28.11.2023	7:00-7:00	63.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
29.11.2023	7:15-7:15	63.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
05.12.2023	7:00-7:00	65.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.12.2023	7:15-7:15	66.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
12.12.2023	7:00-7:00	67.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.12.2023	7:15-7:15	66.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
19.12.2023	7:00-7:00	65.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
20.12.2023	7:15-7:15	65.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
26.12.2023	7:00-7:00	63.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
27.12.2023	7:15-7:15	62.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
NAAQ* Standard		<200	6	5	1	1	20

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

*****End of Report*****

Page 1 of 1

Verified by

[Signature]



Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/006	Report Date	05.01.2024
Site Location	M/s. SOOLAMALAI COLOUR GRANITE CLUSTER QUARRIES S.F.Nos. 333 (P), 341/1(P), 339/1(P) Soolamalai Village, Bargur Taluk, Krishnagiri District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/006
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ 6 – Nakkalpatti - 12°27'37.96"N 78°17'44.81"E		

Date	Period. hrs	PM10(µg/m3)	PM2.5(µg/m3)	SO2 (µg/m3)	NO2 (µg/m3)	O3 (µg/m3)	NH3 (µg/m3)	CO (mg/ m3)
03.10.2023	7:00-7:00	46.2	21.7	5.7	19.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
04.10.2023	7:15-7:15	45.4	20.5	6.5	20.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
10.10.2023	7:00-7:00	46.8	19.0	6.1	21.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
11.10.2023	7:15-7:15	46.5	21.8	6.9	19.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
17.10.2023	7:00-7:00	45.1	20.6	6.8	21.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
18.10.2023	7:15-7:15	46.6	18.5	5.1	20.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
24.10.2023	7:00-7:00	45.8	20.3	5.6	19.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
25.10.2023	7:15-7:15	44.9	21.8	7.2	21.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
31.11.2023	7:00-7:00	45.7	19.8	6.8	22.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
01.11.2023	7:15-7:15	45.2	22.6	5.4	21.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
07.11.2023	7:00-7:00	46.6	21.5	6.6	21.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
08.11.2023	7:15-7:15	46.8	20.8	5.2	20.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
14.11.2023	7:00-7:00	45.7	21.2	6.5	21.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
15.11.2023	7:15-7:15	44.8	19.5	7.8	22.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
21.11.2023	7:00-7:00	43.7	19.6	6.9	21.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
22.11.2023	7:15-7:15	44.9	20.4	5.1	21.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
28.11.2023	7:00-7:00	45.1	21.8	5.6	20.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
29.11.2023	7:15-7:15	43.1	18.5	5.2	22.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
05.12.2023	7:00-7:00	42.8	19.6	5.8	21.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.12.2023	7:15-7:15	44.3	20.4	5.5	20.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
12.12.2023	7:00-7:00	45.1	20.6	5.8	19.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.12.2023	7:15-7:15	46.8	19.5	6.1	21.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
19.12.2023	7:00-7:00	46.7	22.8	7.5	20.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.12.2023	7:15-7:15	44.6	18.7	7.8	22.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
26.12.2023	7:00-7:00	45.5	20.6	6.9	19.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.12.2023	7:15-7:15	46.6	19.4	6.1	20.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
NAAQ* Standard		<100	<60	<80	<80	<100	<400	<4

Note: BDL: Below Detection Limit ; DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

*****End of Report*****

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Verified by



Authorised Signatory

A-17

Name: Santhosh Kumar A
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/006	Report Date	05.01.2024
Site Location	M/s. SOOLAMALAI COLOUR GRANITE CLUSTER QUARRIES S.F.Nos. 333 (P), 341/1(P), 339/1(P) Soolamalai Village, Bargur Taluk, Krishnagiri District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/006
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ 6 – Nakkalpatti - 12°27'37.96"N 78°17'44.81"E		

Date	Period. hrs	SPM ($\mu\text{g}/\text{m}^3$)	As (ng/m^3)	C6H6 ($\mu\text{g}/\text{m}^3$)	BaP (ng/m^3)	Pb ($\mu\text{g}/\text{m}^3$)	Ni (ng/m^3)
03.10.2023	7:00-7:00	63.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
04.10.2023	7:15-7:15	62.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
10.10.2023	7:00-7:00	63.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
11.10.2023	7:15-7:15	62.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
17.10.2023	7:00-7:00	63.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
18.10.2023	7:15-7:15	64.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
24.10.2023	7:00-7:00	64.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
25.10.2023	7:15-7:15	62.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
31.11.2023	7:00-7:00	64.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
01.11.2023	7:15-7:15	65.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
07.11.2023	7:00-7:00	62.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
08.11.2023	7:15-7:15	61.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
14.11.2023	7:00-7:00	62.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
15.11.2023	7:15-7:15	63.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
21.11.2023	7:00-7:00	64.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
22.11.2023	7:15-7:15	65.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
28.11.2023	7:00-7:00	62.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
29.11.2023	7:15-7:15	65.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
05.12.2023	7:00-7:00	64.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.12.2023	7:15-7:15	64.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
12.12.2023	7:00-7:00	63.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.12.2023	7:15-7:15	65.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
19.12.2023	7:00-7:00	63.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
20.12.2023	7:15-7:15	65.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
26.12.2023	7:00-7:00	64.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
27.12.2023	7:15-7:15	65.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
NAAQ* Standard		<200	6	5	1	1	20

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

*****End of Report*****

Page 1 of 1

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Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/007	Report Date	05.01.2024
Site Location	M/s. SOOLAMALAI COLOUR GRANITE CLUSTER QUARRIES S.F.Nos. 333 (P), 341/1(P), 339/1(P) Soolamalai Village, Bargur Taluk, Krishnagiri District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/007
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ 7 - MGR Nagar (Bargur) – 12°31'56.71"N 78°20'52.38"E		

Date	Period. hrs	PM10(µg/m3)	PM2.5(µg/m3)	SO2 (µg/m3)	NO2 (µg/m3)	O3 (µg/m3)	NH3 (µg/m3)	CO (mg/ m3)
03.10.2023	7:00-7:00	44.8	21.4	5.2	20.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
04.10.2023	7:15-7:15	45.2	20.6	6.4	20.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
10.10.2023	7:00-7:00	45.8	23.6	7.5	22.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
11.10.2023	7:15-7:15	42.7	21.4	5.8	20.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
17.10.2023	7:00-7:00	46.6	20.5	5.1	20.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
18.10.2023	7:15-7:15	44.5	23.6	7.4	22.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
24.10.2023	7:00-7:00	46.7	21.8	7.5	21.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
25.10.2023	7:15-7:15	44.6	20.4	5.8	20.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
31.11.2023	7:00-7:00	46.9	23.1	5.4	21.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
01.11.2023	7:15-7:15	45.5	20.5	6.9	21.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
07.11.2023	7:00-7:00	44.1	21.6	7.8	20.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
08.11.2023	7:15-7:15	43.8	20.8	7.1	20.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
14.11.2023	7:00-7:00	43.7	21.4	7.9	21.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
15.11.2023	7:15-7:15	45.5	20.9	6.8	22.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
21.11.2023	7:00-7:00	46.8	22.6	5.3	21.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
22.11.2023	7:15-7:15	45.9	21.5	5.4	21.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
28.11.2023	7:00-7:00	46.7	22.8	7.8	22.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
29.11.2023	7:15-7:15	44.1	21.7	6.2	21.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
05.12.2023	7:00-7:00	45.5	20.6	6.7	22.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.12.2023	7:15-7:15	44.6	22.8	5.6	22.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
12.12.2023	7:00-7:00	43.8	21.4	5.8	21.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.12.2023	7:15-7:15	44.6	20.6	7.2	22.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
19.12.2023	7:00-7:00	45.5	22.5	6.5	21.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.12.2023	7:15-7:15	45.1	22.8	5.1	20.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
26.12.2023	7:00-7:00	46.5	21.6	6.6	22.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.12.2023	7:15-7:15	46.6	21.1	7.6	21.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
NAAQ* Standard		<100	<60	<80	<80	<100	<400	<4

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

*****End of Report*****

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Verified by



Authorised Signatory

A-17

Name: Santhosh Kumar A
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/007	Report Date	05.01.2024
Site Location	M/s. SOOLAMALAI COLOUR GRANITE CLUSTER QUARRIES S.F.Nos. 333 (P), 341/1(P), 339/1(P) Soolamalai Village, Bargur Taluk, Krishnagiri District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/007
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ 7 - MGR Nagar (Bargur) – 12°31'56.71"N 78°20'52.38"E		

Date	Period. hrs	SPM (µg/m ³)	As (ng/m ³)	C6H6 (µg/m ³)	BaP (ng/m ³)	Pb (µg/m ³)	Ni (ng/m ³)
03.10.2023	7:00-7:00	65.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
04.10.2023	7:15-7:15	61.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
10.10.2023	7:00-7:00	63.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
11.10.2023	7:15-7:15	64.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
17.10.2023	7:00-7:00	65.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
18.10.2023	7:15-7:15	62.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
24.10.2023	7:00-7:00	63.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
25.10.2023	7:15-7:15	64.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
31.11.2023	7:00-7:00	61.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
01.11.2023	7:15-7:15	63.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
07.11.2023	7:00-7:00	65.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
08.11.2023	7:15-7:15	67.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
14.11.2023	7:00-7:00	66.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
15.11.2023	7:15-7:15	61.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
21.11.2023	7:00-7:00	66.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
22.11.2023	7:15-7:15	67.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
28.11.2023	7:00-7:00	63.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
29.11.2023	7:15-7:15	64.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
05.12.2023	7:00-7:00	65.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.12.2023	7:15-7:15	62.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
12.12.2023	7:00-7:00	61.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.12.2023	7:15-7:15	66.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
19.12.2023	7:00-7:00	65.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
20.12.2023	7:15-7:15	64.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
26.12.2023	7:00-7:00	67.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
27.12.2023	7:15-7:15	62.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
NAAQ* Standard		<200	6	5	1	1	20

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

*****End of Report*****



Verified by

[Signature]

Authorised Signatory

[Signature]
Name: Santhosh Kumar A
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/008	Report Date	05.01.2024
Site Location	M/s. SOOLAMALAI COLOUR GRANITE CLUSTER QUARRIES S.F.Nos. 333 (P), 341/1(P), 339/1(P) Soolamalai Village, Bargur Taluk, Krishnagiri District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/008
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ 8 - Kammampalli – 12°32'17.92"N 78°16'4.94"E		

Date	Period. hrs	PM10(µg/m3)	PM2.5(µg/m3)	SO2 (µg/m3)	NO2 (µg/m3)	O3 (µg/m3)	NH3 (µg/m3)	CO (mg/ m3)
03.10.2023	7:00-7:00	41.5	18.3	8.1	18.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
04.10.2023	7:15-7:15	42.8	17.9	6.4	21.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
10.10.2023	7:00-7:00	41.6	18.8	7.8	19.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
11.10.2023	7:15-7:15	42.5	19.4	6.9	18.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
17.10.2023	7:00-7:00	41.6	19.3	7.5	19.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
18.10.2023	7:15-7:15	42.7	19.7	8.2	22.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
24.10.2023	7:00-7:00	41.6	19.5	7.4	21.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
25.10.2023	7:15-7:15	41.9	17.3	6.5	23.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
31.11.2023	7:00-7:00	42.7	18.1	6.9	22.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
01.11.2023	7:15-7:15	42.1	18.6	7.9	21.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
07.11.2023	7:00-7:00	41.6	19.7	7.1	23.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
08.11.2023	7:15-7:15	42.5	19.2	8.2	20.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
14.11.2023	7:00-7:00	41.8	18.5	6.5	21.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
15.11.2023	7:15-7:15	42.7	19.1	7.6	19.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
21.11.2023	7:00-7:00	41.3	18.6	8.9	21.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
22.11.2023	7:15-7:15	42.7	17.9	8.1	23.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
28.11.2023	7:00-7:00	41.5	17.6	7.5	22.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
29.11.2023	7:15-7:15	42.9	17.9	6.3	18.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
05.12.2023	7:00-7:00	42.1	18.6	8.4	22.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.12.2023	7:15-7:15	41.5	17.2	7.9	21.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
12.12.2023	7:00-7:00	41.1	17.6	7.6	23.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.12.2023	7:15-7:15	42.0	18.2	8.2	20.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
19.12.2023	7:00-7:00	41.8	18.6	6.5	21.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.12.2023	7:15-7:15	42.6	18.2	7.4	19.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
26.12.2023	7:00-7:00	41.7	18.9	6.8	23.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.12.2023	7:15-7:15	42.3	17.5	7.4	20.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
NAAQ* Standard		<100	<60	<80	<80	<100	<400	<4

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

*****End of Report*****

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Verified by



Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/008	Report Date	05.01.2024
Site Location	M/s. SOOLAMALAI COLOUR GRANITE CLUSTER QUARRIES S.F.Nos. 333 (P), 341/1(P), 339/1(P) Soolamalai Village, Bargur Taluk, Krishnagiri District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/008
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ 8 - Kammampalli – 12°32'17.92"N 78°16'4.94"E		

Date	Period. hrs	SPM ($\mu\text{g}/\text{m}^3$)	As (ng/m^3)	C6H6 ($\mu\text{g}/\text{m}^3$)	BaP (ng/m^3)	Pb ($\mu\text{g}/\text{m}^3$)	Ni (ng/m^3)
03.10.2023	7:00-7:00	66.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
04.10.2023	7:15-7:15	64.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
10.10.2023	7:00-7:00	65.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
11.10.2023	7:15-7:15	64.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
17.10.2023	7:00-7:00	65.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
18.10.2023	7:15-7:15	64.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
24.10.2023	7:00-7:00	66.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
25.10.2023	7:15-7:15	67.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
31.11.2023	7:00-7:00	62.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
01.11.2023	7:15-7:15	64.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
07.11.2023	7:00-7:00	65.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
08.11.2023	7:15-7:15	64.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
14.11.2023	7:00-7:00	65.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
15.11.2023	7:15-7:15	64.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
21.11.2023	7:00-7:00	62.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
22.11.2023	7:15-7:15	65.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
28.11.2023	7:00-7:00	63.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
29.11.2023	7:15-7:15	64.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
05.12.2023	7:00-7:00	65.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.12.2023	7:15-7:15	64.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
12.12.2023	7:00-7:00	66.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.12.2023	7:15-7:15	65.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
19.12.2023	7:00-7:00	63.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
20.12.2023	7:15-7:15	64.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
26.12.2023	7:00-7:00	64.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
27.12.2023	7:15-7:15	63.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
NAAQ* Standard		<200	6	5	1	1	20

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

*****End of Report*****


Page 1 of 1

Verified by





Authorised Signatory


Name: Santhosh Kumar A
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/ 009	Report Date	05.01.2024
Site Location	M/s. SOOLAMALAI COLOUR GRANITE CLUSTER QUARRIES S.F.Nos. 333 (P), 341/1(P), 339/1(P) Soolamalai Village, Bargur Taluk, Krishnagiri District.		
Sampling Method	IS 9989	Sample Drawn by	Laboratory
Sample Name	Noise Level Monitoring	Sample Code	EHS360/ 009
Sample Description	Ambient Noise	Sample Collected Date	26.12.2023

Location	N1 – Core Zone - 12°29'49.71"N 78°18'4.35"E			N2 – Core zone - 12°29'36.17"N 78°18'5.41"E		
Parameter	Min	Max	Result	Min	Max	Result
Time	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
06:00-07:00	38.2	43.5	41.6	38.2	43.5	41.6
07:00-08:00	37.4	42.6	40.7	37.4	42.6	40.7
08:00-09:00	39.4	44.2	42.4	39.4	44.2	42.4
09:00-10:00	40.1	45.8	43.8	36.5	41.1	39.4
10:00-11:00	39.2	44.8	42.8	37.5	42.3	40.5
11:00-12:00	38.4	44.2	42.0	38.4	43.5	41.7
12:00-13:00	39.5	45.2	43.2	39.5	45.2	43.2
13:00-14:00	37.8	42.5	40.8	37.8	42.5	40.8
14:00-15:00	40.7	45.8	44.0	38.2	43.1	41.3
15:00-16:00	39.7	45.2	43.3	36.5	40.1	38.7
16:00-17:00	38.2	43.1	41.3	38.2	43.1	41.3
17:00-18:00	37.4	43.5	41.4	37.4	43.5	41.4
18:00-19:00	38.5	44.3	42.1	38.5	44.1	42.1
19:00-20:00	40.8	45.8	44.0	37.1	42.2	40.4
20:00-21:00	38.2	43.5	41.6	38.2	43.5	41.6
21:00-22:00	37.4	43.2	41.2	37.4	43.2	41.2
22:00-23:00	38.2	44.6	42.5	38.2	44.6	42.5
23:00-00:00	34.8	39.2	37.5	33.5	38.2	36.5
00:00-01:00	35.2	41.4	39.3	32.4	37.6	35.7
01:00-02:00	34.7	40.1	38.2	34.7	40.1	38.2
02:00-03:00	35.4	38.9	37.5	33.4	38.9	37.0
03:00-04:00	34.7	39.1	37.4	32.2	38.1	36.1
04:00-05:00	31.7	36.8	35.0	31.7	36.8	35.0
05:00-06:00	32.8	37.4	35.7	32.8	37.4	35.7
Result	Day Means		42.3	Day Means		41.2
	Night Means		37.2	Night Means		36.3

Note: CPCB Norms Industrial Area Day Time:75 dB(A); Night Time:70 dB(A)
The Noise level in the above location exists within the permissible limits of CPCB.

*****End of Report*****



Verified by

Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/ 010	Report Date	05.01.2024
Site Location	M/s. SOOLAMALAI COLOUR GRANITE CLUSTER QUARRIES S.F.Nos. 333 (P), 341/1(P), 339/1(P) Soolamalai Village, Bargur Taluk, Krishnagiri District.		
Sampling Method	IS 9989	Sample Drawn by	Laboratory
Sample Name	Noise Level Monitoring	Sample Code	EHS360/ 010
Sample Description	Ambient Noise	Sample Collected Date	26.12.2023

Location	N3 – Achamangalam - 12°29'18.46"N 78°19'17.38"E			N4 – Elathagiri i -12°32'54.43"N 78°17'42.65"E		
Parameter	Min	Max	Result	Min	Max	Result
Time	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
06:00-07:00	34.2	40.1	38.1	36.4	41.8	39.9
07:00-08:00	37.4	42.6	40.7	34.7	40.2	38.3
08:00-09:00	38.5	43.8	41.9	35.4	40.9	39.0
09:00-10:00	36.5	41.1	39.4	36.5	41.1	39.4
10:00-11:00	37.5	42.3	40.5	34.8	39.5	37.8
11:00-12:00	38.4	43.5	41.7	36.3	41.2	39.4
12:00-13:00	35.2	40.1	38.3	35.2	40.1	38.3
13:00-14:00	37.8	42.5	40.8	37.8	42.5	40.8
14:00-15:00	38.2	43.1	41.3	35.8	41.2	39.3
15:00-16:00	36.5	40.1	38.7	36.5	40.1	38.7
16:00-17:00	34.6	41.8	39.5	34.6	41.8	39.5
17:00-18:00	37.4	43.5	41.4	37.4	43.5	41.4
18:00-19:00	36.8	41.1	39.5	34.7	39.7	37.9
19:00-20:00	37.1	42.2	40.4	37.1	42.2	40.4
20:00-21:00	38.2	43.5	41.6	35.8	40.5	38.8
21:00-22:00	37.4	43.2	41.2	37.4	43.2	41.2
22:00-23:00	38.2	44.6	42.5	38.2	44.6	42.5
23:00-00:00	33.5	38.2	36.5	33.5	38.2	36.5
00:00-01:00	35.4	40.5	38.7	35.4	40.5	38.7
01:00-02:00	34.7	40.1	38.2	35.2	40.1	38.3
02:00-03:00	33.4	38.9	37.0	33.4	38.9	37.0
03:00-04:00	32.2	38.1	36.1	34.1	38.1	36.5
04:00-05:00	33.8	39.8	37.8	33.8	39.8	37.8
05:00-06:00	32.8	37.4	35.7	32.8	37.4	35.7
Result	Day Means		40.4	Day Means		39.6
	Night Means		37.1	Night Means		37.2

Note: CPCB Norms Industrial Area Day Time:75 dB(A); Night Time:70 dB(A)
The Noise level in the above location exists within the permissible limits of CPCB.

Verified by



Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/ 011	Report Date	05.01.2024
Site Location	M/s. SOOLAMALAI COLOUR GRANITE CLUSTER QUARRIES S.F.Nos. 333 (P), 341/1(P), 339/1(P) Soolamalai Village, Bargur Taluk, Krishnagiri District.		
Sampling Method	IS 9989	Sample Drawn by	Laboratory
Sample Name	Noise Level Monitoring	Sample Code	EHS360/ 011
Sample Description	Ambient Noise	Sample Collected Date	26.12.2023

Location	N5 – Periyapanmudlu - 12°29'48.95"N 78°15'59.13"E			N6 – Nakkalpatti i - 12°27'37.93"N 78°17'44.45"E		
Parameter	Min	Max	Result	Min	Max	Result
Time	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
06:00-07:00	33.4	39.2	37.2	36.4	41.2	39.4
07:00-08:00	34.7	40.2	38.3	34.7	40.2	38.3
08:00-09:00	35.4	40.9	39.0	35.4	40.9	39.0
09:00-10:00	36.5	41.1	39.4	37.5	43.1	41.1
10:00-11:00	34.8	39.5	37.8	34.8	39.5	37.8
11:00-12:00	33.8	38.9	37.1	36.3	41.5	39.6
12:00-13:00	35.2	40.1	38.3	35.2	40.1	38.3
13:00-14:00	32.4	37.5	35.7	34.7	39.2	37.5
14:00-15:00	35.8	41.2	39.3	35.8	41.2	39.3
15:00-16:00	33.5	39.1	37.1	36.2	40.5	38.9
16:00-17:00	34.6	41.8	39.5	34.6	41.8	39.5
17:00-18:00	32.5	37.4	35.6	39.5	45.1	43.1
18:00-19:00	34.7	39.7	37.9	34.7	39.7	37.9
19:00-20:00	36.2	41.1	39.3	36.2	41.1	39.3
20:00-21:00	35.8	40.5	38.8	35.8	40.5	38.8
21:00-22:00	37.4	43.2	41.2	37.4	43.2	41.2
22:00-23:00	34.6	40.2	38.2	38.2	43.8	41.8
23:00-00:00	33.5	38.2	36.5	34.2	39.6	37.7
00:00-01:00	32.7	38.1	36.2	33.7	39.5	37.5
01:00-02:00	34.5	40.1	38.1	34.5	40.1	38.1
02:00-03:00	33.4	38.9	37.0	33.4	38.9	37.0
03:00-04:00	32.3	38.1	36.1	32.3	38.1	36.1
04:00-05:00	31.5	36.8	34.9	35.8	41.1	39.2
05:00-06:00	32.8	37.4	35.7	32.8	37.4	35.7
Result	Day Means		38.2	Day Means		39.5
	Night Means		36.4	Night Means		37.3

Note: CPCB Norms Industrial Area Day Time:75 dB(A); Night Time:70 dB(A)
The Noise level in the above location exists within the permissible limits of CPCB.

Verified by




Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/ 012	Report Date	05.01.2024
Site Location	M/s. SOOLAMALAI COLOUR GRANITE CLUSTER QUARRIES S.F.Nos. 333 (P), 341/1(P), 339/1(P) Soolamalai Village, Bargur Taluk, Krishnagiri District.		
Sampling Method	IS 9989	Sample Drawn by	Laboratory
Sample Name	Noise Level Monitoring	Sample Code	EHS360/ 012
Sample Description	Ambient Noise	Sample Collected Date	26.12.2023

Location	N7- MGR Nagar(Bargur - 12°31'56.75"N 78°20'51.88"E			AAQ 8 - Kammampalli 12°32'18.96"N78°16'9.94"E		
Parameter	Min	Max	Result	Min	Max	Result
Time	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
06:00-07:00	39.4	44.6	42.7	38.8	43.6	41.8
07:00-08:00	40.2	45.8	43.8	39.7	44.2	42.5
08:00-09:00	38.4	43.1	41.4	38.4	43.1	41.4
09:00-10:00	37.5	43.1	41.1	37.5	43.1	41.1
10:00-11:00	38.6	43.1	41.4	35.6	41.2	39.2
11:00-12:00	37.9	42.6	40.9	37.9	42.6	40.9
12:00-13:00	39.3	45.1	43.1	36.4	42.2	40.2
13:00-14:00	36.8	41.2	39.5	36.8	41.2	39.5
14:00-15:00	38.2	43.5	41.6	38.2	43.5	41.6
15:00-16:00	40.7	45.6	43.8	40.7	45.6	43.8
16:00-17:00	38.2	42.7	41.0	38.2	42.7	41.0
17:00-18:00	39.5	45.1	43.1	39.5	45.1	43.1
18:00-19:00	40.2	45.7	43.8	40.2	45.7	43.8
19:00-20:00	38.5	43.2	41.5	38.5	43.2	41.5
20:00-21:00	39.8	44.5	42.8	39.8	44.5	42.8
21:00-22:00	40.8	45.6	43.8	40.8	45.6	43.8
22:00-23:00	39.6	44.5	42.7	39.6	44.5	42.7
23:00-00:00	32.5	37.4	35.6	34.5	37.4	36.2
00:00-01:00	33.7	39.5	37.5	33.7	39.5	37.5
01:00-02:00	31.5	37.1	35.1	31.9	37.1	35.2
02:00-03:00	33.4	38.9	37.0	33.4	38.9	37.0
03:00-04:00	32.3	38.1	36.1	32.3	38.1	36.1
04:00-05:00	33.8	38.7	36.9	33.8	38.7	36.9
05:00-06:00	30.4	35.4	33.6	32.6	35.4	34.2
Result	Day Means		42.2	Day Means		41.8
	Night Means		36.0	Night Means		36.2

Note: CPCB Norms Industrial Area Day Time:75 dB(A); Night Time:70 dB(A)
The Noise level in the above location exists within the permissible limits of CPCB.

Verified by




Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/ 013	Report Date	05.01.2024
Site Location	M/s. SOOLAMALAI COLOUR GRANITE CLUSTER QUARRIES S.F.Nos. 333 (P), 341/1(P), 339/1(P) Soolamalai Village, Bargur Taluk, Krishnagiri District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 013
Sample Description	Soil 1	Sample Collected Date	26.12.2023
Qty. of Sample Received	2 KG	Sample Received On	27.12.2023
Sample Condition	Good	Test Commenced On	28.12.2023
Sampling Location	Soil – 1 – Project Area 12°29'50.28"N 78°18'2.78"E		

S. No	Test Parameters	Protocols	Results
01	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff:2016)	8.44
02	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2016)	469 µmhos/cm
03	Water Holding Capacity	By Gravimetric Method	44.7 %
04	Bulk Density	By Cylindrical Method	1.10 g/cm ³
05	Porosity	By Gravimetric Method	45.9 %
06	Calcium as Ca	Food and Agriculture organization of the united Nation Rome 2007 : 2018	105.5 mg/kg
07	Magnesium as Mg		35.1 mg/kg
08	Chloride as Cl		70.0 mg/kg
09	Soluble Sulphate as SO ₄		0.021 %
10	Total Phosphorus as P		2.26 mg/kg
11	Total Nitrogen as N	IS 14684 : 1999 (Reaff:2019)	418.6 mg/kg
12	Organic Matter	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.81 %
13	Organic Carbon	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.05 %

*****End of Report*****

Page 1 of 1

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Authorised Signatory

Name : Santhosh Kumar A
Designation : Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/ 013	Report Date	05.01.2024
Site Location	M/s. SOOLAMALAI COLOUR GRANITE CLUSTER QUARRIES S.F.Nos. 333 (P), 341/1(P), 339/1(P) Soolamalai Village, Bargur Taluk, Krishnagiri District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 013
Sample Description	Soil 1	Sample Collected Date	26.12.2023
Qty. of Sample Received	2 KG	Sample Received On	27.12.2023
Sample Condition	Good	Test Commenced On	28.12.2023
Sampling Location	Soil – 1 – Project Area 12°29'50.28"N 78°18'2.78"E		

S. No	Test Parameters	Protocols	Results
14	Texture :		
	Clay	Gravimetric Method	34.8 %
	Sand		31.7 %
	Silt		33.5 %
15	Manganese as Mn	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	21.8 mg/kg
16	Zinc as Zn		1.04 mg/kg
17	Boron as B		3.54 mg/kg
18	Potassium as K		31.1 mg/kg
19	Cadmium as Cd		BDL (DL : 1.0 mg/kg)
20	Total Chromium as Cr		BDL (DL : 1.0 mg/kg)
21	Copper as Cu		BDL (DL : 1.0 mg/kg)
22	Lead as Pb		1.76 mg/kg
23	Iron as Fe		2.66 mg/kg
24	Cation Exchange Capacity		USEPA 9080 – 1986	46.7 meq/100g of soil

*****End of Report*****



Verified by

Authorised Signatory

Name : Santhosh Kumar A
Designation : Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/ 014	Report Date	05.01.2024
Site Location	M/s. SOOLAMALAI COLOUR GRANITE CLUSTER QUARRIES S.F.Nos. 333 (P), 341/1(P), 339/1(P) Soolamalai Village, Bargur Taluk, Krishnagiri District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 014
Sample Description	Soil 2	Sample Collected Date	26.12.2023
Qty. of Sample Received	2 KG	Sample Received On	27.12.2023
Sample Condition	Good	Test Commenced On	28.12.2023
Sampling Location	Soil – 2 – Project Area 12°29'34.62"N 78°18'5.54"E		

S. No	Test Parameters	Protocols	Results
01	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff:2016)	8.75
02	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2016)	610 µmhos/cm
03	Water Holding Capacity	By Gravimetric Method	46.1 %
04	Bulk Density	By Cylindrical Method	1.10 g/cm ³
05	Porosity	By Gravimetric Method	47.1 %
06	Calcium as Ca	Food and Agriculture organization of the united Nation Rome 2007 : 2018	126 mg/kg
07	Magnesium as Mg		60.1 mg/kg
08	Chloride as Cl		71 mg/kg
09	Soluble Sulphate as SO ₄		0.0018 %
10	Total Phosphorus as P		1.19 mg/kg
11	Total Nitrogen as N	IS 14684 : 1999 (Reaff:2019)	400.5 mg/kg
12	Organic Matter	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.67 %
13	Organic Carbon	IS : 2720 Part 22: 1972 (Reaff: 2015)	0.97 %

*****End of Report*****

Page 1 of 1

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Name : Santhosh Kumar A
Designation : Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/ 014	Report Date	05.01.2024
Site Location	M/s. SOOLAMALAI COLOUR GRANITE CLUSTER QUARRIES S.F.Nos. 333 (P), 341/1(P), 339/1(P) Soolamalai Village, Bargur Taluk, Krishnagiri District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 014
Sample Description	Soil 2	Sample Collected Date	26.12.2023
Qty. of Sample Received	2 KG	Sample Received On	27.12.2023
Sample Condition	Good	Test Commenced On	28.12.2023
Sampling Location	Soil – 2 – Project Area 12°29'34.62"N 78°18'5.54"E		

S. No	Test Parameters	Protocols	Results
14	Texture :		
	Clay	Gravimetric Method	32.7 %
	Sand		32.9 %
	Silt		34.4 %
15	Manganese as Mn	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	25.5 mg/kg
16	Zinc as Zn		2.9 mg/kg
17	Boron as B		1.88 mg/kg
18	Potassium as K		30 mg/kg
19	Cadmium as Cd		BDL (DL : 1.0 mg/kg)
20	Total Chromium as Cr		BDL (DL : 1.0 mg/kg)
21	Copper as Cu		BDL (DL : 1.0 mg/kg)
22	Lead as Pb		0.69 mg/kg
23	Iron as Fe		2.16 mg/kg
24	Cation Exchange Capacity		USEPA 9080 – 1986

*****End of Report*****

Page 1 of 1

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Authorised Signatory

Name : Santhosh Kumar A
Designation : Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/ 015	Report Date	05.01.2024
Site Location	M/s. SOOLAMALAI COLOUR GRANITE CLUSTER QUARRIES S.F.Nos. 333 (P), 341/1(P), 339/1(P) Soolamalai Village, Bargur Taluk, Krishnagiri District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 015
Sample Description	Soil 3	Sample Collected Date	26.12.2023
Qty. of Sample Received	2 KG	Sample Received On	27.12.2023
Sample Condition	Good	Test Commenced On	28.12.2023
Sampling Location	Soil – 3 – Achamangalam- 12°29'19.05"N 78°19'17.09"E		

S. No	Test Parameters	Protocols	Results
01	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff:2016)	8.50
02	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2016)	423 µmhos/cm
03	Water Holding Capacity	By Gravimetric Method	44.8 %
04	Bulk Density	By Cylindrical Method	1.13 g/cm ³
05	Porosity	By Gravimetric Method	45.4 %
06	Calcium as Ca	Food and Agriculture organization of the united Nation Rome 2007 : 2018	57.6 mg/kg
07	Magnesium as Mg		55 mg/kg
08	Chloride as Cl		97.6 mg/kg
09	Soluble Sulphate as SO ₄		0.0034 %
10	Total Phosphorus as P		2.5 mg/kg
11	Total Nitrogen as N	IS 14684 : 1999 (Reaff:2019)	440mg/kg
12	Organic Matter	IS : 2720 Part 22: 1972 (Reaff: 2015)	2.22 %
13	Organic Carbon	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.29 %

*****End of Report*****

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Name : Santhosh Kumar A
Designation : Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/ 015	Report Date	05.01.2024
Site Location	M/s. SOOLAMALAI COLOUR GRANITE CLUSTER QUARRIES S.F.Nos. 333 (P), 341/1(P), 339/1(P) Soolamalai Village, Bargur Taluk, Krishnagiri District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 015
Sample Description	Soil 3	Sample Collected Date	26.12.2023
Qty. of Sample Received	2 KG	Sample Received On	27.12.2023
Sample Condition	Good	Test Commenced On	28.12.2023
Sampling Location	Soil – 3 – Achamangalam- 12°29'19.05"N 78°19'17.09"E		

S.No	Test Parameters	Protocols	Results
14	Texture :		
	Clay	Gravimetric Method	32.6 %
	Sand		33.3 %
	Silt		34.1 %
15	Manganese as Mn	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	19.4 mg/kg
16	Zinc as Zn		2.6 mg/kg
17	Boron as B		2.34 mg/kg
18	Potassium as K		30.1 mg/kg
19	Cadmium as Cd		BDL (DL : 1.0 mg/kg)
20	Total Chromium as Cr		BDL (DL : 1.0 mg/kg)
21	Copper as Cu		BDL (DL : 1.0 mg/kg)
22	Lead as Pb		1.16 mg/kg
23	Iron as Fe		2.54 mg/kg
24	Cation Exchange Capacity		USEPA 9080 – 1986

*****End of Report*****



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[Signature]

Authorised Signatory

[Signature]

Name : Santhosh Kumar A
Designation : Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/ 016	Report Date	05.01.2024
Site Location	M/s. SOOLAMALAI COLOUR GRANITE CLUSTER QUARRIES S.F.Nos. 333 (P), 341/1(P), 339/1(P) Soolamalai Village, Bargur Taluk, Krishnagiri District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 016
Sample Description	Soil 4	Sample Collected Date	26.12.2023
Qty. of Sample Received	2 KG	Sample Received On	27.12.2023
Sample Condition	Good	Test Commenced On	28.12.2023
Sampling Location	Soil – 4 – Elathagiri - 12°32'53.98"N 78°17'42.82"E		

S. No	Test Parameters	Protocols	Results
01	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff:2016)	8.50
02	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2016)	466.3 µmhos/cm
03	Water Holding Capacity	By Gravimetric Method	47.5. %
04	Bulk Density	By Cylindrical Method	1.19 g/cm ³
05	Porosity	By Gravimetric Method	42.6 %
06	Calcium as Ca	Food and Agriculture organization of the united Nation Rome 2007 : 2018	157.5 mg/kg
07	Magnesium as Mg		68.7 mg/kg
08	Chloride as Cl		54.9 mg/kg
09	Soluble Sulphate as SO ₄		0.0035 %
10	Total Phosphorus as P		1.20 mg/kg
11	Total Nitrogen as N	IS 14684 : 1999 (Reaff:2019)	484.6 mg/kg
12	Organic Matter	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.98 %
13	Organic Carbon	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.15 %

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Name : Santhosh Kumar A
Designation : Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/ 016	Report Date	05.01.2024
Site Location	M/s. SOOLAMALAI COLOUR GRANITE CLUSTER QUARRIES S.F.Nos. 333 (P), 341/1(P), 339/1(P) Soolamalai Village, Bargur Taluk, Krishnagiri District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 016
Sample Description	Soil 4	Sample Collected Date	26.12.2023
Qty. of Sample Received	2 KG	Sample Received On	27.12.2023
Sample Condition	Good	Test Commenced On	28.12.2023
Sampling Location	Soil - 4 - Elathagiri - 12°32'53.98"N 78°17'42.82"E		
No	Test Parameters	Protocols	Results
14	Texture :		
	Clay	Gravimetric Method	30.9 %
	Sand		34.4 %
	Silt		34.7 %
15	Manganese as Mn	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	26.9 mg/kg
16	Zinc as Zn		1.29 mg/kg
17	Boron as B		1.66 mg/kg
18	Potassium as K		44.5 mg/kg
19	Cadmium as Cd		BDL (DL : 1.0 mg/kg)
20	Total Chromium as Cr		BDL (DL : 1.0 mg/kg)
21	Copper as Cu		BDL (DL : 1.0 mg/kg)
22	Lead as Pb		1.97 mg/kg
23	Iron as Fe		2.01 mg/kg
24	Cation Exchange Capacity		USEPA 9080 – 1986

*****End of Report*****



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Authorised Signatory

Name : Santhosh Kumar A
Designation : Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/ 017	Report Date	05.01.2024
Site Location	M/s. SOOLAMALAI COLOUR GRANITE CLUSTER QUARRIES S.F.Nos. 333 (P), 341/1(P), 339/1(P) Soolamalai Village, Bargur Taluk, Krishnagiri District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 017
Sample Description	Soil 5	Sample Collected Date	26.12.2023
Qty. of Sample Received	2 KG	Sample Received On	27.12.2023
Sample Condition	Good	Test Commenced On	28.12.2023
Sampling Location	Soil – 5 – Periyapanmudlu- 12°29'49.21"N 78°15'59.89"E		

S. No	Test Parameters	Protocols	Results
01	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff:2016)	8.57
02	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2016)	510.7 μmhos/cm
03	Water Holding Capacity	By Gravimetric Method	47.4 %
04	Bulk Density	By Cylindrical Method	1.27 g/cm ³
05	Porosity	By Gravimetric Method	46.2 %
06	Calcium as Ca	Food and Agriculture organization of the united Nation Rome 2007 : 2018	120 mg/kg
07	Magnesium as Mg		71.3 mg/kg
08	Chloride as Cl		66.4 mg/kg
09	Soluble Sulphate as SO ₄		0.0014 %
10	Total Phosphorus as P		3.2 mg/kg
11	Total Nitrogen as N	IS 14684 : 1999 (Reaff:2019)	350.4 mg/kg
12	Organic Matter	IS : 2720 Part 22: 1972 (Reaff: 2015)	2.05 %
13	Organic Carbon	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.19 %

*****End of Report*****

Page 1 of 1

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Authorised Signatory

Name : Santhosh Kumar A
Designation : Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/ 017	Report Date	05.01.2024
Site Location	M/s. SOOLAMALAI COLOUR GRANITE CLUSTER QUARRIES S.F.Nos. 333 (P), 341/1(P), 339/1(P) Soolamalai Village, Bargur Taluk, Krishnagiri District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 017
Sample Description	Soil 2	Sample Collected Date	26.12.2023
Qty. of Sample Received	2 KG	Sample Received On	27.12.2023
Sample Condition	Good	Test Commenced On	28.12.2023
Sampling Location	Soil – 5 – Periyapanmudlu- 12°29'49.21"N 78°15'59.89"E		

S. No	Test Parameters	Protocols	Results
14	Texture :		
	Clay	Gravimetric Method	33.1 %
	Sand		31.5 %
	Silt		35.4 %
15	Manganese as Mn	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	15.5 mg/kg
16	Zinc as Zn		2.25 mg/kg
17	Boron as B		1.65 mg/kg
18	Potassium as K		36.7 mg/kg
19	Cadmium as Cd		BDL (DL : 1.0 mg/kg)
20	Total Chromium as Cr		BDL (DL : 1.0 mg/kg)
21	Copper as Cu		BDL (DL : 1.0 mg/kg)
22	Lead as Pb		1.15 mg/kg
23	Iron as Fe		2.68 mg/kg
24	Cation Exchange Capacity	USEPA 9080 – 1986	45.5 meq/100g of soil

*****End of Report*****

Page 1 of 1

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[Signature]

Name : Santhosh Kumar A
Designation : Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/ 018	Report Date	05.01.2024
Site Location	M/s. SOOLAMALAI COLOUR GRANITE CLUSTER QUARRIES S.F.Nos. 333 (P), 341/1(P), 339/1(P) Soolamalai Village, Bargur Taluk, Krishnagiri District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 018
Sample Description	Soil 6	Sample Collected Date	26.12.2023
Qty. of Sample Received	2 KG	Sample Received On	27.12.2023
Sample Condition	Good	Test Commenced On	28.12.2023
Sampling Location	Soil – 6 – Nakkalpatti- 12°27'39.47"N 78°17'43.67"E		

S. No	Test Parameters	Protocols	Results
01	pH @ 25°C	IS 2720 Part 26 - 1987	8.77
02	Conductivity @ 25°C	IS 14767 - 2000	455.7 µmhos/cm
03	Water Holding Capacity	By Gravimetric Method	44.1 %
04	Bulk Density	By Cylindrical Method	1.10 g/cm ³
05	Porosity	By Gravimetric Method	46.7 %
06	Calcium as Ca	Food and Agriculture organization of the united Nation Rome 2007 : 2018	90.7 mg/kg
07	Magnesium as Mg		65.5 mg/kg
08	Chloride as Cl		80.1 mg/kg
09	Soluble Sulphate as SO ₄		0.0019 %
10	Total Phosphorus as P		5.1 mg/kg
11	Total Nitrogen as N	IS 14684 : 1999	420.8 mg/kg
12	Organic Matter	IS : 2720 Part 22: 1972	2.17 %
13	Organic Carbon	IS : 2720 Part 22: 1972	1.26 %

*****End of Report*****

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Name : Santhosh Kumar A
Designation : Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/ 018	Report Date	05.01.2024
Site Location	M/s. SOOLAMALAI COLOUR GRANITE CLUSTER QUARRIES S.F.Nos. 333 (P), 341/1(P), 339/1(P) Soolamalai Village, Bargur Taluk, Krishnagiri District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 018
Sample Description	Soil 6	Sample Collected Date	26.12.2023
Qty. of Sample Received	2 KG	Sample Received On	27.12.2023
Sample Condition	Good	Test Commenced On	28.12.2023
Sampling Location	Soil – 6 – Nakkalpatti- 12°27'39.47"N 78°17'43.67"E		

S. No	Test Parameters	Protocols	Results
14	Texture :		
	Clay	Gravimetric Method	32.2 %
	Sand		33.9 %
	Silt		33.9 %
15	Manganese as Mn	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	17.4 mg/kg
16	Zinc as Zn		1.9 mg/kg
17	Boron as B		4.4 mg/kg
18	Potassium as K		36.3 mg/kg
19	Cadmium as Cd		BDL (DL : 1.0 mg/kg)
20	Total Chromium as Cr		BDL (DL : 1.0 mg/kg)
21	Copper as Cu		BDL (DL : 1.0 mg/kg)
22	Lead as Pb		1.22 mg/kg
23	Iron as Fe		2.33 mg/kg
24	Cation Exchange Capacity		USEPA 9080 – 1986

*****End of Report*****

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[Signature]



Authorised Signatory

[Signature]
Name: Santhosh Kumar A
Designation : Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/ 019	Report Date	05.01.2024
Site Location	M/s. SOOLAMALAI COLOUR GRANITE CLUSTER QUARRIES S.F.Nos. 333 (P), 341/1(P), 339/1(P) Soolamalai Village, Bargur Taluk, Krishnagiri District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/019
Sample Description	Surface Water (SW-1)	Sample Collected Date	26.12.2023
Qty. of Sample Received	2 Litres	Sample Received On	27.12.2023
Sample Condition	Fit for Analysis	Test Commenced On	28.12.2023
Sampling Location	Narayanapuram Eri- 12°29'36.69"N 78°18'33.69"E		

S.No.	Parameters	Test Method	RESULTS
Discipline: Chemical			
1	Colour	IS 3025 Part 4:1983	5 Hazen
2	Odour	IS 3025 Part 5:2018	Agreeable
3	pH at 25°C	IS 3025 Part 11:1983	7.66
4	Conductivity @ 25°C	IS 3025 Part 14:2013	1144 µmhos/cm
5	Turbidity	IS 3025 Part 10:1984	7.4 NTU
6	Total Dissolved Solids	IS 3025 Part 16:1984	675 mg/l
7	Total Hardness as CaCO ₃	IS 3025 Part 21:2009	198.66 mg/l
8	Calcium as Ca	IS 3025 Part 40:1991	37.6 mg/l
9	Magnesium as Mg	IS 3025 Part 46:1994	25.5 mg/l
10	Total Alkalinity as CaCO ₃	IS 3025 Part 23:1986	231 mg/l
11	Chloride as Cl	IS 3025 Part 32:1988	188.7 mg/l
12	Sulphate as SO ₄	IS 3025 Part 24:1986	78.4 mg/l
13	Iron as Fe	IS 3025 Part 53:2003	0.18 mg/l
14	Residual Free Chlorine	IS 3025 Part 26:1986	BDL (DL:0.1 mg/l)
15	Fluoride as F	APHA 23 rd Edn. 2017:4500 F,D	0.26 mg/l
16	Nitrate as NO ₃	IS 3025 Part 34:1988	6.6 mg/l

*****End of Report*****



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Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/019	Report Date	05.01.2024
Site Location	M/s. SOOLAMALAI COLOUR GRANITE CLUSTER QUARRIES S.F.Nos. 333 (P), 341/1(P), 339/1(P) Soolamalai Village, Bargur Taluk, Krishnagiri District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/019
Sample Description	Surface Water (SW-1)	Sample Collected Date	26.12.2023
Qty. of Sample Received	2 Litres	Sample Received On	27.12.2023
Sample Condition	Fit for Analysis	Test Commenced On	28.12.2023
Sampling Location	Narayanapuram Eri- 12°29'36.69"N 78°18'33.69"E		

S.No.	Parameters	Test Method	RESULTS
17	Copper as Cu	IS 3025 Part 65:2014	BDL (DL:0.01 mg/l)
18	Manganese as Mn	IS 3025 Part 65:2014	0.11
19	Mercury as Hg	USEPA 200.8	BDL (DL:0.0005 mg/l)
20	Cadmium as Cd	IS 3025 Part 65:2014	BDL (DL:0.001 mg/l)
21	Selenium as Se	IS 3025 Part 65:2014	BDL (DL:0.005 mg/l)
22	Aluminium as Al	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
23	Lead as Pb	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
24	Zinc as Zn	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
25	Total Chromium as Cr	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.02 mg/l)
26	Boron as B	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
27	Mineral Oil	IS 3025 Part 39-1991 (Reaff. 2019)	BDL(DL : 0.01 mg/l)
28	Phenolic compounds as C ₆ H ₅ OH	IS 3025 Part 43-1992(Reaff: 2019)	BDL (DL:0.0005 mg/l)
29	Anionic Detergents (as MBAS)	IS 13428 – 2005 (Reaff:2019) (Annex K)	BDL (DL:0.01 mg/l)
30	Cyanide as CN	IS 3025 Part 27-1986 (Reaff. 2019)	BDL (DL:0.01 mg/l)
31	BOD @ 27°C for 3 days	IS 3025 Part 44:1993 (Reaff:2019)	7.9 mg/l
32	Chemical Oxygen Demand	IS 3025 Part 58:2006 (Reaff:2017)	32 mg/l
33	Dissolved Oxygen	IS 3025 Part 38:1989 (Reaff:2019)	5.4 mg/l
34	Barium as Ba	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL:0.05 mg/l)
35	Ammonia (as total ammonia-N)	IS 3025 Part 34-1988 (Reaff. 2019)	2.5 mg/l
36	Sulphide as H ₂ S	IS 3025 Part 29-1986 (Reaff: 2019)	BDL (DL:0.01 mg/l)
37	Molybdenum as Mo	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
38	Total Arsenic as As	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
39	Total Suspended Solids	IS 3025 Part 17 -1984 (Reaff:2017)	12.9 mg/l
	Discipline: Biological	Group: Water	
40	Total Coliform	APHA 23 rd Edn. 2017:9221B	710 MPN/100ml
41	<i>Escherichia coli</i>	APHA 23 rd Edn. 2017:9221F	100 MPN/100ml

*****End of Report*****



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Authorised Signatory

Name: Santhosh Kumar A.
Designation: Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/ 020	Report Date	05.01.2024
Site Location	M/s. SOOLAMALAI COLOUR GRANITE CLUSTER QUARRIES S.F.Nos. 333 (P), 341/1(P), 339/1(P) Soolamalai Village, Bargur Taluk, Krishnagiri District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/020
Sample Description	Surface Water (SW-2)	Sample Collected Date	26.12.2023
Qty. of Sample Received	2 Litres	Sample Received On	27.12.2023
Sample Condition	Fit for Analysis	Test Commenced On	28.12.2023
Sampling Location	Badethalav Eri -12°32'48.40"N 78°14'39.74"E		

S.No.	Parameters	Test Method	RESULTS
	Discipline: Chemical		
1	Colour	IS 3025 Part 4:1983	5 Hazen
2	Odour	IS 3025 Part 5:2018	Agreeable
3	pH at 25°C	IS 3025 Part 11:1983	7.91
4	Conductivity @ 25°C	IS 3025 Part 14:2013	768 µmhos/cm
5	Turbidity	IS 3025 Part 10:1984	2.7 NTU
6	Total Dissolved Solids	IS 3025 Part 16:1984	453 mg/l
7	Total Hardness as CaCO ₃	IS 3025 Part 21:2009	157.17 mg/l
8	Calcium as Ca	IS 3025 Part 40:1991	27.4 mg/l
9	Magnesium as Mg	IS 3025 Part 46:1994	21.6 mg/l
10	Total Alkalinity as CaCO ₃	IS 3025 Part 23:1986	144.2 mg/l
11	Chloride as Cl	IS 3025 Part 32:1988	88.54 mg/l
12	Sulphate as SO ₄	IS 3025 Part 24:1986	51.7 mg/l
13	Iron as Fe	IS 3025 Part 53:2003	0.26 mg/l
14	Residual Free Chlorine	IS 3025 Part 26:1986	BDL (DL:0.1 mg/l)
15	Fluoride as F	APHA 23 rd Edn. 2017:4500 F,D	0.30 mg/l
16	Nitrate as NO ₃	IS 3025 Part 34:1988	7.2 mg/l

*****End of Report*****



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Name: Santhosh Kumar A
Designation: Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/ 020	Report Date	05.01.2024
Site Location	M/s. SOOLAMALAI COLOUR GRANITE CLUSTER QUARRIES S.F.Nos. 333 (P), 341/1(P), 339/1(P) Soolamalai Village, Bargur Taluk, Krishnagiri District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/020
Sample Description	Surface Water (SW-2)	Sample Collected Date	26.12.2023
Qty. of Sample Received	2 Litres	Sample Received On	27.12.2023
Sample Condition	Fit for Analysis	Test Commenced On	28.12.2023
Sampling Location	Badethalav Eri -12°32'48.40"N 78°14'39.74"E		

S.No.	Parameters	Test Method	RESULTS
17	Copper as Cu	IS 3025 Part 65:2014	BDL (DL:0.01 mg/l)
18	Manganese as Mn	IS 3025 Part 65:2014	BDL (DL:0.02 mg/l)
19	Mercury as Hg	USEPA 200.8	BDL (DL:0.0005 mg/l)
20	Cadmium as Cd	IS 3025 Part 65:2014	BDL (DL:0.001 mg/l)
21	Selenium as Se	IS 3025 Part 65:2014	BDL (DL:0.005 mg/l)
22	Aluminium as Al	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
23	Lead as Pb	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
24	Zinc as Zn	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
25	Total Chromium as Cr	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.02 mg/l)
26	Boron as B	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
27	Mineral Oil	IS 3025 Part 39-1991 (Reaff. 2019)	BDL(DL : 0.01 mg/l)
28	Phenolic compounds as C ₆ H ₅ OH	IS 3025 Part 43-1992(Reaff: 2019)	BDL (DL:0.0005 mg/l)
29	Anionic Detergents (as MBAS)	IS 13428 – 2005 (Reaff:2019) (Annex K)	BDL (DL:0.01 mg/l)
30	Cyanide as CN	IS 3025 Part 27-1986 (Reaff. 2019)	BDL (DL:0.01 mg/l)
31	BOD @ 27°C for 3 days	IS 3025 Part 44:1993 (Reaff:2019)	9.4 mg/l
32	Chemical Oxygen Demand	IS 3025 Part 58:2006 (Reaff:2017)	40 mg/l
33	Dissolved Oxygen	IS 3025 Part 38:1989 (Reaff:2019)	5.0 mg/l
34	Barium as Ba	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL:0.05 mg/l)
35	Ammonia (as total ammonia-N)	IS 3025 Part 34-1988 (Reaff. 2019)	1.3 mg/l
36	Sulphide as H ₂ S	IS 3025 Part 29-1986 (Reaff: 2019)	BDL (DL:0.01 mg/l)
37	Molybdenum as Mo	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
38	Total Arsenic as As	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
39	Total Suspended Solids	IS 3025 Part 17 -1984 (Reaff:2017)	16.7 mg/l
	Discipline: Biological	Group: Water	
40	Total Coliform	APHA 23 rd Edn. 2017:9221B	760 MPN/100ml
41	<i>Escherichia coli</i>	APHA 23 rd Edn. 2017:9221F	120 MPN/100ml

*****End of Report*****



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Authorised Signatory

Name: Santhosh Kumar A.
Designation: Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/ 021	Report Date	05.01.2024
Site Location	M/s. SOOLAMALAI COLOUR GRANITE CLUSTER QUARRIES S.F.Nos. 333 (P), 341/1(P), 339/1(P) Soolamalai Village, Bargur Taluk, Krishnagiri District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/021
Sample Description	Ground Water (WW-1)	Sample Collected Date	26.12.2023
Qty. of Sample Received	2 Litres	Sample Received On	27.12.2023
Sample Condition	Fit for Analysis	Test Commenced On	28.12.2023
Sampling Location	Near Project Area - 12°30'4.03"N 78°18'11.77"E		

S.No.	Parameters	Test Method	RESULTS
Discipline: Chemical			
1	Colour	IS 3025 Part 4:1983	5
2	Odour	IS 3025 Part 5:2018	Agreeable
3	pH at 25°C	IS 3025 Part 11:1983	7.48
4	Conductivity @ 25°C	IS 3025 Part 14:2013	681 µmhos/cm
5	Turbidity	IS 3025 Part 10:1984	1.1 NTU
6	Total Dissolved Solids	IS 3025 Part 16:1984	402 mg/l
7	Total Hardness as CaCO ₃	IS 3025 Part 21:2009	146.27 mg/l
8	Calcium as Ca	IS 3025 Part 40:1991	25.5 mg/l
9	Magnesium as Mg	IS 3025 Part 46:1994	20.1 mg/l
10	Total Alkalinity as CaCO ₃	IS 3025 Part 23:1986	135 mg/l
11	Chloride as Cl	IS 3025 Part 32:1988	71.6 mg/l
12	Sulphate as SO ₄	IS 3025 Part 24:1986	43.3 mg/l
13	Iron as Fe	IS 3025 Part 53:2003	0.16 mg/l
14	Residual Free Chlorine	IS 3025 Part 26:1986	BDL (DL:0.1 mg/l)
15	Fluoride as F	APHA 23 rd Edn. 2017:4500 F,D	0.22 mg/l
16	Nitrate as NO ₃	IS 3025 Part 34:1988	4.0 mg/l

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Name: Santhosh Kumar A
Designation: Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/ 021	Report Date	05.01.2024
Site Location	M/s. SOOLAMALAI COLOUR GRANITE CLUSTER QUARRIES S.F.Nos. 333 (P), 341/1(P), 339/1(P) Soolamalai Village, Bargur Taluk, Krishnagiri District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/021
Sample Description	Ground Water (WW-1)	Sample Collected Date	26.12.2023
Qty. of Sample Received	2 Litres	Sample Received On	27.12.2023
Sample Condition	Fit for Analysis	Test Commenced On	28.12.2023
Sampling Location	Near Project Area - 12°30'4.03"N 78°18'11.77"E		

S.No.	Parameters	Test Method	RESULTS
17	Copper as Cu	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.01 mg/l)
18	Manganese as Mn	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
19	Mercury as Hg	USEPA 200.8	BDL (DL:0.0005 mg/l)
20	Cadmium as Cd	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.001 mg/l)
21	Selenium as Se	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
22	Aluminium as Al	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
23	Lead as Pb	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
24	Zinc as Zn	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
25	Total Chromium as Cr	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.02 mg/l)
26	Boron as B	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
27	Mineral Oil	IS 3025 Part 39-1991 (Reaff. 2019)	BDL(DL : 0.01 mg/l)
28	Phenolic compounds as C ₆ H ₅ OH	IS 3025 Part 43-1992(Reaff: 2019)	BDL (DL:0.0005 mg/l)
29	Anionic Detergents (as MBAS)	IS 13428 – 2005 (Reaff:2019) (Annex K)	BDL (DL:0.01 mg/l)
30	Cyanide as CN	IS 3025 Part 27-1986 (Reaff. 2019)	BDL (DL:0.01 mg/l)
31	Barium as Ba	IS 3025 Part 44:1993 (Reaff:2019)	BDL(DL:0.05 mg/l)
32	Ammonia (as total ammonia-N)	IS 3025 Part 58:2006 (Reaff:2017)	BDL (DL:0.01 mg/l)
33	Sulphide as H ₂ S	IS 3025 Part 38:1989 (Reaff:2019)	BDL (DL:0.01 mg/l)
34	Molybdenum as Mo	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
35	Total Arsenic as As	IS 3025 Part 34-1988 (Reaff. 2019)	BDL (DL:0.005 mg/l)
36	Total Suspended Solids	IS 3025 Part 29-1986 (Reaff: 2019)	BDL (DL:1.0 mg/l)
	Discipline: Biological	Group: Water	
37	Total Coliform	APHA 23 rd Edn. 2017:9221B	120 MPN/100ml
38	<i>Escherichia coli</i>	APHA 23 rd Edn. 2017:9221F	< 1.8 MPN/100ml

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 Name: Santhosh Kumar A
 Designation: Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/ 022	Report Date	05.01.2024
Site Location	M/s. SOOLAMALAI COLOUR GRANITE CLUSTER QUARRIES S.F.Nos. 333 (P), 341/1(P), 339/1(P) Soolamalai Village, Bargur Taluk, Krishnagiri District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/022
Sample Description	Ground Water (WW-2)	Sample Collected Date	26.12.2023
Qty. of Sample Received	2 Litres	Sample Received On	27.12.2023
Sample Condition	Fit for Analysis	Test Commenced On	28.12.2023
Sampling Location	Periyapanmudlu- 12°29'50.45"N 78°15'50.10"E		

S.No.	Parameters	Test Method	RESULTS
	Discipline: Chemical		
1	Colour	IS 3025 Part 4:1983	5
2	Odour	IS 3025 Part 5:2018	Agreeable
3	pH at 25°C	IS 3025 Part 11:1983	7.09
4	Conductivity @ 25°C	IS 3025 Part 14:2013	810 µmhos/cm
5	Turbidity	IS 3025 Part 10:1984	1.2 NTU
6	Total Dissolved Solids	IS 3025 Part 16:1984	478 mg/l
7	Total Hardness as CaCO ₃	IS 3025 Part 21:2009	175.45 mg/l
8	Calcium as Ca	IS 3025 Part 40:1991	31.1 mg/l
9	Magnesium as Mg	IS 3025 Part 46:1994	23.8 mg/l
10	Total Alkalinity as CaCO ₃	IS 3025 Part 23:1986	156.2 mg/l
11	Chloride as Cl	IS 3025 Part 32:1988	91 mg/l
12	Sulphate as SO ₄	IS 3025 Part 24:1986	67 mg/l
13	Iron as Fe	IS 3025 Part 53:2003	0.29 mg/l
14	Residual Free Chlorine	IS 3025 Part 26:1986	BDL (DL:0.1 mg/l)
15	Fluoride as F	APHA 23 rd Edn. 2017:4500 F,D	0.21 mg/l
16	Nitrate as NO ₃	IS 3025 Part 34:1988	3.3 mg/l

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Name: Santhosh Kumar A
Designation: Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/ 022	Report Date	05.01.2024
Site Location	M/s. SOOLAMALAI COLOUR GRANITE CLUSTER QUARRIES S.F.Nos. 333 (P), 341/1(P), 339/1(P) Soolamalai Village, Bargur Taluk, Krishnagiri District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/022
Sample Description	Ground Water (WW-2)	Sample Collected Date	26.12.2023
Qty. of Sample Received	2 Litres	Sample Received On	27.12.2023
Sample Condition	Fit for Analysis	Test Commenced On	28.12.2023
Sampling Location	Periyapanmudlu- 12°29'50.45"N 78°15'50.10"E		

S.No.	Parameters	Test Method	RESULTS
17	Copper as Cu	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.01 mg/l)
18	Manganese as Mn	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
19	Mercury as Hg	USEPA 200.8	BDL (DL:0.0005 mg/l)
20	Cadmium as Cd	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.001 mg/l)
21	Selenium as Se	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
22	Aluminium as Al	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
23	Lead as Pb	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
24	Zinc as Zn	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
25	Total Chromium as Cr	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.02 mg/l)
26	Boron as B	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
27	Mineral Oil	IS 3025 Part 39-1991 (Reaff. 2019)	BDL(DL : 0.01 mg/l)
28	Phenolic compounds as C ₆ H ₅ OH	IS 3025 Part 43-1992(Reaff: 2019)	BDL (DL:0.0005 mg/l)
29	Anionic Detergents (as MBAS)	IS 13428 – 2005 (Reaff:2019) (Annex K)	BDL (DL:0.01 mg/l)
30	Cyanide as CN	IS 3025 Part 27-1986 (Reaff. 2019)	BDL (DL:0.01 mg/l)
31	Barium as Ba	IS 3025 Part 44:1993 (Reaff:2019)	BDL(DL:0.05 mg/l)
32	Ammonia (as total ammonia-N)	IS 3025 Part 58:2006 (Reaff:2017)	BDL (DL:0.01 mg/l)
33	Sulphide as H ₂ S	IS 3025 Part 38:1989 (Reaff:2019)	BDL (DL:0.01 mg/l)
34	Molybdenum as Mo	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
35	Total Arsenic as As	IS 3025 Part 34-1988 (Reaff. 2019)	BDL (DL:0.005 mg/l)
36	Total Suspended Solids	IS 3025 Part 29-1986 (Reaff: 2019)	BDL (DL:1.0 mg/l)
	Discipline: Biological	Group: Water	
37	Total Coliform	APHA 23 rd Edn. 2017:9221B	160 MPN/100ml
38	<i>Escherichia coli</i>	APHA 23 rd Edn. 2017:9221F	< 1.8 MPN/100ml


*****End of Report*****

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Verified by




Authorised Signatory


 Name : Santhosh Kumar A
 Designation : Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/ 023	Report Date	05.01.2024
Site Location	M/s. SOOLAMALAI COLOUR GRANITE CLUSTER QUARRIES S.F.Nos. 333 (P), 341/1(P), 339/1(P) Soolamalai Village, Bargur Taluk, Krishnagiri District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/023
Sample Description	Ground Water (BW-1)	Sample Collected Date	26.12.2023
Qty. of Sample Received	2 Litres	Sample Received On	27.12.2023
Sample Condition	Fit for Analysis	Test Commenced On	28.12.2023
Sampling Location	Chendrapalli- 12°29'7.99"N 78°17'59.20"E		

S.No.	Parameters	Test Method	RESULTS
Discipline: Chemical			
1	Colour	IS 3025 Part 4:1983	5
2	Odour	IS 3025 Part 5:2018	Agreeable
3	pH at 25°C	IS 3025 Part 11:1983	7.10
4	Conductivity @ 25°C	IS 3025 Part 14:2013	780 µmhos/cm
5	Turbidity	IS 3025 Part 10:1984	1.3 NTU
6	Total Dissolved Solids	IS 3025 Part 16:1984	460 mg/l
7	Total Hardness as CaCO ₃	IS 3025 Part 21:2009	173.34 mg/l
8	Calcium as Ca	IS 3025 Part 40:1991	29.1 mg/l
9	Magnesium as Mg	IS 3025 Part 46:1994	24.5 mg/l
10	Total Alkalinity as CaCO ₃	IS 3025 Part 23:1986	140 mg/l
11	Chloride as Cl	IS 3025 Part 32:1988	88 mg/l
12	Sulphate as SO ₄	IS 3025 Part 24:1986	65.7 mg/l
13	Iron as Fe	IS 3025 Part 53:2003	0.42 mg/l
14	Residual Free Chlorine	IS 3025 Part 26:1986	BDL (DL:0.1 mg/l)
15	Fluoride as F	APHA 23 rd Edn. 2017:4500 F,D	0.26 mg/l
16	Nitrate as NO ₃	IS 3025 Part 34:1988	4.2 mg/l

*****End of Report*****

Page 1 of 1

Verified by




Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/ 023	Report Date	05.01.2024
Site Location	M/s. SOOLAMALAI COLOUR GRANITE CLUSTER QUARRIES S.F.Nos. 333 (P), 341/1(P), 339/1(P) Soolamalai Village, Bargur Taluk, Krishnagiri District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/023
Sample Description	Ground Water (BW-1)	Sample Collected Date	26.12.2023
Qty. of Sample Received	2 Litres	Sample Received On	27.12.2023
Sample Condition	Fit for Analysis	Test Commenced On	28.12.2023
Sampling Location	Chendrapalli- 12°29'7.99"N 78°17'59.20"E		

S.No.	Parameters	Test Method	RESULTS
17	Copper as Cu	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.01 mg/l)
18	Manganese as Mn	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
19	Mercury as Hg	USEPA 200.8	BDL (DL:0.0005 mg/l)
20	Cadmium as Cd	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.001 mg/l)
21	Selenium as Se	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
22	Aluminium as Al	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
23	Lead as Pb	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
24	Zinc as Zn	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
25	Total Chromium as Cr	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.02 mg/l)
26	Boron as B	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
27	Mineral Oil	IS 3025 Part 39-1991 (Reaff. 2019)	BDL(DL : 0.01 mg/l)
28	Phenolic compounds as C ₆ H ₅ OH	IS 3025 Part 43-1992(Reaff: 2019)	BDL (DL:0.0005 mg/l)
29	Anionic Detergents (as MBAS)	IS 13428 – 2005 (Reaff:2019) (Annex K)	BDL (DL:0.01 mg/l)
30	Cyanide as CN	IS 3025 Part 27-1986 (Reaff. 2019)	BDL (DL:0.01 mg/l)
31	Barium as Ba	IS 3025 Part 44:1993 (Reaff:2019)	BDL(DL:0.05 mg/l)
32	Ammonia (as total ammonia-N)	IS 3025 Part 58:2006 (Reaff:2017)	BDL (DL:0.01 mg/l)
33	Sulphide as H ₂ S	IS 3025 Part 38:1989 (Reaff:2019)	BDL (DL:0.01 mg/l)
34	Molybdenum as Mo	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
35	Total Arsenic as As	IS 3025 Part 34-1988 (Reaff. 2019)	BDL (DL:0.005 mg/l)
36	Total Suspended Solids	IS 3025 Part 29-1986 (Reaff: 2019)	BDL (DL:1.0 mg/l)
	Discipline: Biological	Group: Water	
37	Total Coliform	APHA 23 rd Edn. 2017:9221B	85 MPN/100ml
38	<i>Escherichia coli</i>	APHA 23 rd Edn. 2017:9221F	< 1.8 MPN/100ml


*****End of Report*****

Page 1 of 1

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Authorised Signatory


 Name : Santhosh Kumar A
 Designation : Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/ 024	Report Date	05.01.2024
Site Location	M/s. SOOLAMALAI COLOUR GRANITE CLUSTER QUARRIES S.F.Nos. 333 (P), 341/1(P), 339/1(P) Soolamalai Village, Bargur Taluk, Krishnagiri District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/024
Sample Description	Ground Water (BW-2)	Sample Collected Date	26.12.2023
Qty. of Sample Received	2 Litres	Sample Received On	27.12.2023
Sample Condition	Fit for Analysis	Test Commenced On	28.12.2023
Sampling Location	MGR Nagar (Bargur)- 12°31'57.15"N 78°20'52.58"E		

S.No.	Parameters	Test Method	RESULTS
	Discipline: Chemical		
1	Colour	IS 3025 Part 4:1983	5
2	Odour	IS 3025 Part 5:2018	Agreeable
3	pH at 25°C	IS 3025 Part 11:1983	7.73
4	Conductivity @ 25°C	IS 3025 Part 14:2013	732 µmhos/cm
5	Turbidity	IS 3025 Part 10:1984	1.4 NTU
6	Total Dissolved Solids	IS 3025 Part 16:1984	432 mg/l
7	Total Hardness as CaCO ₃	IS 3025 Part 21:2009	160.32 mg/l
8	Calcium as Ca	IS 3025 Part 40:1991	28.5 mg/l
9	Magnesium as Mg	IS 3025 Part 46:1994	21.7 mg/l
10	Total Alkalinity as CaCO ₃	IS 3025 Part 23:1986	146 mg/l
11	Chloride as Cl	IS 3025 Part 32:1988	70.5 mg/l
12	Sulphate as SO ₄	IS 3025 Part 24:1986	52 mg/l
13	Iron as Fe	IS 3025 Part 53:2003	0.29 mg/l
14	Residual Free Chlorine	IS 3025 Part 26:1986	BDL (DL:0.1 mg/l)
15	Fluoride as F	APHA 23 rd Edn. 2017:4500 F,D	0.22 mg/l
16	Nitrate as NO ₃	IS 3025 Part 34:1988	5.2 mg/l

*****End of Report*****



Verified by



Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/ 024	Report Date	05.01.2024
Site Location	M/s. SOOLAMALAI COLOUR GRANITE CLUSTER QUARRIES S.F.Nos. 333 (P), 341/1(P), 339/1(P) Soolamalai Village, Bargur Taluk, Krishnagiri District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/024
Sample Description	Ground Water (BW-2)	Sample Collected Date	26.12.2023
Qty. of Sample Received	2 Litres	Sample Received On	27.12.2023
Sample Condition	Fit for Analysis	Test Commenced On	28.12.2023
Sampling Location	MGR Nagar (Bargur)- 12°31'57.15"N 78°20'52.58"E		

S.No.	Parameters	Test Method	RESULTS
17	Copper as Cu	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.01 mg/l)
18	Manganese as Mn	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
19	Mercury as Hg	USEPA 200.8	BDL (DL:0.0005 mg/l)
20	Cadmium as Cd	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.001 mg/l)
21	Selenium as Se	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
22	Aluminium as Al	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
23	Lead as Pb	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
24	Zinc as Zn	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
25	Total Chromium as Cr	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.02 mg/l)
26	Boron as B	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
27	Mineral Oil	IS 3025 Part 39-1991 (Reaff. 2019)	BDL(DL : 0.01 mg/l)
28	Phenolic compounds as C ₆ H ₅ OH	IS 3025 Part 43-1992(Reaff: 2019)	BDL (DL:0.0005 mg/l)
29	Anionic Detergents (as MBAS)	IS 13428 – 2005 (Reaff:2019) (Annex K)	BDL (DL:0.01 mg/l)
30	Cyanide as CN	IS 3025 Part 27-1986 (Reaff. 2019)	BDL (DL:0.01 mg/l)
31	Barium as Ba	IS 3025 Part 44:1993 (Reaff:2019)	BDL(DL:0.05 mg/l)
32	Ammonia (as total ammonia-N)	IS 3025 Part 58:2006 (Reaff:2017)	BDL (DL:0.01 mg/l)
33	Sulphide as H ₂ S	IS 3025 Part 38:1989 (Reaff:2019)	BDL (DL:0.01 mg/l)
34	Molybdenum as Mo	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
35	Total Arsenic as As	IS 3025 Part 34-1988 (Reaff. 2019)	BDL (DL:0.005 mg/l)
36	Total Suspended Solids	IS 3025 Part 29-1986 (Reaff: 2019)	BDL (DL:1.0 mg/l)
	Discipline: Biological	Group: Water	
37	Total Coliform	APHA 23 rd Edn. 2017:9221B	123 MPN/100ml
38	<i>Escherichia coli</i>	APHA 23 rd Edn. 2017:9221F	< 1.8 MPN/100ml

*****End of Report*****

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Authorised Signatory

A-17

Name: Santhosh Kumar A
Designation: Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.



National Accreditation Board for Education and Training



Certificate of Accreditation

Geo Exploration & Mining Solutions, Salem

No. 17, Advaita Ashram Road, Fairlands, Salem – 636 004, Tamilnadu, India.

The organization is accredited as **Category-A** under the QCI-NABET Scheme for Accreditation of EIA Consultant Organization, Version 3: for preparing EIA-EMP reports in the following Sectors –

S.No	Sector Description	Sector (as per)		Cat.
		NABET	MoEFCC	
1	Mining of minerals opencast only	1	1 (a) (i)	A
2	Industrial estates/ parks/ complexes/areas, export processing Zones (EPZs), Special Economic Zones (SEZs), Biotech Parks, Leather Complexes	31	7 (c)	B
3	Building and construction projects	38	8(a)	B

Note: Names of approved EIA Coordinators and Functional Area Experts are mentioned in RAAC minutes dated Jan 06, 2023 and posted on QCI-NABET website.

The Accreditation shall remain in force subject to continued compliance to the terms and conditions mentioned in QCI-NABET's letter of accreditation bearing no QCI/NABET/ENV/ACO/23/2684 dated Feb 20, 2023. The accreditation needs to be renewed before the expiry date by Geo Exploration & Mining Solutions, Salem following due process of assessment.

Sr. Director, NABET
Dated: Feb 20, 2023

Certificate No.
NABET/EIA/2225/RA 0276

Valid up to
August 06, 2025

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