



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

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

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

Total Extent of Cluster – 8.63.26 Ha

Tvl. TOP GRANITES MULTICOLOUR GRANITE QUARRY

PROJECT PROPONENT	PROPOSED PROJECT	PRODUCTION DETAIL
Tvl. Top Granites, old No.7. New No. 16, First Floor, First Street, North Gopalapuram- Chennai - 600 086.	Extent: 2.40.46 ha S.F. No: 1124/5, 1124/6, 1151/5, 1151/6 and 1172/2A Irudhukottai Village, Denkanikottai Taluk, Krishnagiri District, Tamil Nadu State.	Mineable ROM – 41,530m ³ Multicolour – 16,612m ³ @ 40% Recovery Peak Production – 2,104m ³ of ROM Depth – 26m bgl
ToR obtained vide Letter No. SEIAA-TN/F.No. 10476/SEAC/ToR-1638/2023 Dated :12/12/2023		
<p style="text-align: center;">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</p>  	<p style="text-align: center;">Laboratory EHS 360 LABS PRIVATE LIMITED, 10/2 Ground floor, 50th street, 7th Avenue, Ashok Nagar, Chennai – 600 083.</p>	
<u>Baseline Monitoring Period</u> Dec 2023-Feb 2024		
MAY 2024		

Tvl. Top Granites, Multi Colour Granite Quarry

For easy representation of Proposed and Existing 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	Tvl.Top Granites	1124/5, 1124/6, 1151/5, 1151/6 and 1172/2A Irudhukottai Village	2.40.46	Letter No. SEIAA- TN/F.No. 10476/SEAC/ToR- 1638/2023 Dated :12/12/2023
P2	M/s.K.P.R.Granites	1123/4A,4B,5A,5B,6A,6 B,1125/6,1123/8(P), Irudhukottai Village	2.34.3	Adjacent applied area
P3	M/s.K.P.R.Granites	1121/6, 1125/3 Irudhukottai Village	1.97.0	Adjacent applied area
P4	M/s.S.V.Granites	1124/7(P),1130/7(P),113 1/7, 1131/8 Irudhukottai Village	1.91.5	Mining plan approved (SEIAA Pending)
TOTAL EXTENT			8.63.26 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**Tvl.Top Granites**

Letter No. SEIAA-TN/F.No. 10476/SEAC/ToR-1638/2023 Dated :12/12/2023

SPECIFIC CONDITIONS

1.	The PP shall furnish the Modified Mining Plan for an area of Extent of 1.13.46ha where the mining operations will be carried out.	Furnished details as per mining plan as per ToR
2	The PP shall furnish the evidence of the green belt development activities carried out in the other 'non-working' leasehold area situated at the western side at the time of EIA presentation.	It will submit evidence of the green belt development activities in the final EIA
3	The PP shall mark the DGPS reference pillars painted with blue and white colour indicating the safety barrier of 7.5m to be left under the Rule 13 (1) of MCDR,1998 within the lease boundary and protective bunds, at the time of EIA presentation.	DGPS reference pillars painted will be furnish in the lease boundary. It will submit EIA Presentation.
4.	The PP shall provide the mitigation measures to be carried out as CNWL is located nearby, in consultation with the concerned DFO.	Cauvery (North) Wildlife Sanctuary (CNWL) – 2.0km - SW it is located from quarry. Mitigation measures: time slot using bomb blasting and using wiresaw cutting in the quarry. Enclosed DFO Letter Noc. no 2785/2022/L dated 28.08.2022

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 details with map included in the Chapter-3 Socio economic 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 <ul style="list-style-type: none"> ➤ Odai – 140m – North West ➤ Tank - 270m – East
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 2785/2022/L dated 28.08.2022
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 period the mining operation is proposed to carry out up to the depth of 26m 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 30m 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.K.P.R.Granites and M/s. S.V. Granites																
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 – 41,530 m ³ Depth of mining 26m Ultimate Depth <table border="1" data-bbox="863 712 1378 927"> <thead> <tr> <th colspan="4">Maximum Dimensions in meters</th> </tr> <tr> <th>Block No.</th> <th>Length</th> <th>Width</th> <th>Depth</th> </tr> </thead> <tbody> <tr> <td>Block – A</td> <td>178</td> <td>54</td> <td>26</td> </tr> <tr> <td>Block – B</td> <td>167</td> <td>68</td> <td>17</td> </tr> </tbody> </table> Tvl. Top Granites a partnership firm. The partnership deed has executed on 01.09.2021 Year wise production ROM – 10,310m ³ Multicolor Granite – 4,124m ³ @ 40% Recovery Peak Production – 2,104m ³ of ROM It is a fresh lease application	Maximum Dimensions in meters				Block No.	Length	Width	Depth	Block – A	178	54	26	Block – B	167	68	17
Maximum Dimensions in meters																		
Block No.	Length	Width	Depth															
Block – A	178	54	26															
Block – B	167	68	17															
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..	It will submit on final EIA presentation.																
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	The details of mineral reserves have been provided in Chapter No 1, Mineable reserves ROM – 34,960 m ³ Ultimate Depth 80m(L) x 72m (W) x 23m (D)																

	surrounding environment, and the remedial measures for the same.	Year wise production for first five years ROM – 8,520m ³ Color Granite – 825m ³ @ 10% Recovery Peak Production – 2,400m ³ of ROM Depth – 23m bgl
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 38 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 (Winter season) Dec 2023 to Feb 2024 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	Not Applicable.

	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.	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.	The Flora and Fauna study around the vicinity of the site is carried out by the Functional area experts along with Local School Students.
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 1200nos 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. it is proposed to plant 1200Nos 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	Occupational Health impacts chapter- 10

	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.	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.	Chapter-8 discussed about benefits of projects.
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 in chapter-10
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 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.
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 a proposed lease area.
Forest		
19	The project proponent shall detail study on impact of mining on Reserve forests free ranging wildlife.	Nearest Reserve Forest is Kolatti R.F 2.17km-S
20	The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.	The area is surrounded by 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-1km-S Cauvery South wildlife sanctuary-12km-SE
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. 3,08,03,000/- 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 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

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	Map showing –

	land forms of the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics.	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 have approval from State land use board or the concerned authority.	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.
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 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.	Not Applicable. There is no Forest Land involved in the proposed project area. The proposed project area is a patta land. 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.	Kolatti R.F 2.17km-S
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. Kolatti R.F 2.17km-S
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,	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.

	<p>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.</p>	<p>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.</p>
19	<p>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.</p>	<p>Not Applicable.</p> <p>Project area / Study area is not declared in 'Critically Polluted' Area and does not come under 'Aravalli Range'.</p>
20	<p>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).</p>	<p>Not Applicable.</p> <p>The project doesn't attract The C. R. Z. Notification, 2018.</p>
21	<p>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.</p>	<p>Not Applicable.</p> <p>There are no approved habitations within a radius of 300 meters.</p> <p>Therefore, R&R Plan / Compensation details for the Project Affected People (PAP) is not anticipated and Not Applicable for this project.</p>
22	<p>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</p> <p>CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled</p>	<p>Baseline Data were collected for Winter Season Dec 2023 – Feb 2024 as per CPCB Notification and MoEF & CC Guidelines.</p> <p>Details in Chapter No. 3.</p>

	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 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 pre-dominant 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 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.	Cumulatively total Water Requirement: 2.5 KLD 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	Not Applicable. The ground water table inferred 64-69m below ground level. The ultimate depth of quarry is 26m agl.

	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.	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 64-69m below ground level. The ultimate depth of quarry is 26m agl
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 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 of the project and preventive measures are detailed under Chapter 4, Page No.127.
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 38 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. 3,08,03,000/- CER Cost is Rs 5,00,000/-
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 data were collected and the sources should be indicated.	List of Tables and source of the data collected are 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: 4 th 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

The project proponent Tvl.Top Granites applied for Multicolour granite quarry over an extent of 2.40.46Ha in S.F. No 1124/5, 1124/6, 1151/5, 1151/6 and 1172/2A, Irudhukottai Village, Denkanikottai Taluk, Krishnagiri District. As per the EIA Notification, 2006 and subsequent amendments and OM The proposal falls in the B1 Category (Cluster quarries - 4 proposal quarry in the 500m Radius forming Cluster Category - Cluster area calculated as per MoEF & CC Notification S.O. 2269(E) Dated 1st July 2016).

Hence proponent applied for the Terms of Reference and the ToR obtained vide Letter No Lr. No. SEIAA-TN/F.No.9489/SEAC/ToR-1305/2022 Dated:07.12.2022.

The Baseline Monitoring study has been carried out during the period of **Dec2023-Feb2024** and this EIA and EMP report is prepared for considering cumulative impacts arising out of this project, 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.

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.

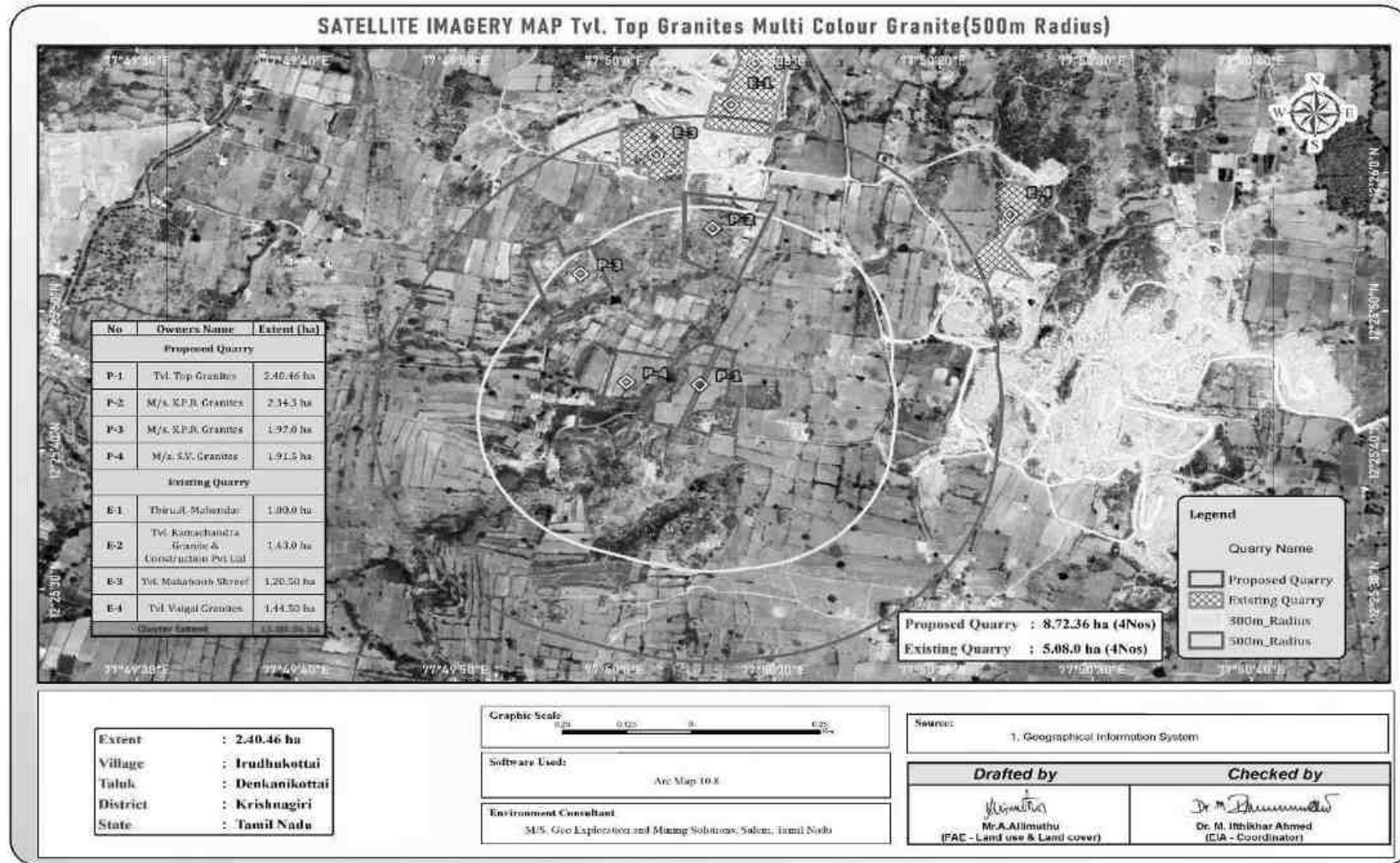
1.1 Purpose of the Report

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 Project 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 project is 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.

“Final EIA/ EMP Report is prepared on the basis of ToR Obtained and Outcome of Public Hearing carried out Dated: 02.08.2023 for the grant of Environmental Clearance from SEIAA, Tamil Nadu”

Figure1.0: Satellite Imagery of the Cluster Quarries



1.2 Identification of Project and Project Proponent

1.2.1 Identification of Project –

Table 1.1: Salient Features of the proposed project

PROPOSAL	
Name of the Project	Multicolour granite Quarry project belongs to Tvl.Top Granites
S.F. No.	1124/5,6 1151/5,6 and 1172/2A
Extent	2.40.46 Ha
Land Type	Own patta Land
Village Taluk and District	Irudhukottai Village, Denkanikottai Taluk, Krishnagiri District

Source: Approved Mining plan

1.2.2 Identification of Project Proponent

Table 1.2: Details of Project Proponent

PROPOSAL	
Name of the Project proponent	Tvl.Top Granites, Managing Partner Thiru.U.Rajagopal S/o.G. Ulaganathan
Address	Old No.7, New no 16, First floor, First street, North Gopalapuram, Chennai -600 086
Mobile	+91 90432 61426, 98431 45292
Email	rasaulaganathan@gmail.com
Status	Partnership firm

1.3 Brief Description of the Project

1.3.1 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	=	41,530 m³
Total Mineable Recoverable Reserves of Granite @ 40%	=	16,612m ³
Average Production per year @ 40%	=	3,322.4m ³ /5 Years = 664.48 m ³
Estimated Life of the quarry	=	16,612m ³ /664.48 m ³
Life of the quarry	=	20 Years

Table 1.3: Resources and Reserves of Project

Description	ROM in m ³	Granite recovery @40% in m ³	Granite waste @60% recovery	Top Soil in m ³
Geological Resources	4,97,865	1,99,146	2,98,719	48,086
Mineable Reserves	41,530	16,612	24,918	12,828
Year wise Production for Five years	10,310	4,124	6,186	3,690

Source: Approved Mining Plan

Table 1.4: Salient features of the proposed project

Name of the Quarry	Tvl.Top Granites
Lease period	20 years
Mining Lease area	2.40.46 Ha
Type of Land	Proponent own patta Land
Location	S.F.No. 1124/5,6 1151/5,6 and 1172/2A of Irudhukottai Village, Denkanikottai Taluk, Krishnagiri District, Tamilnadu.
Mining Plan Period	5Years
Life of the Mine	20 years
Year wise production	10,310 m ³
The Annual Peak Production (as Per ToR)	2,104m ³
Proposed Depth for five years plan period	26m
Ultimate Depth	Block A: 178m(L) x 54m (W) x 26m (D) Block B: 167m(L) x 68m (W) x 17m (D)
Toposheet No	57 H/15
Latitude between	12°25'41.0417"N to 12°25'47.7539"N
Longitude between	77°50'01.3513"E to 77°50'07.7665"E
Topography	The area is situated in Slightly elevated terrain. The Altitude – 942m – 956m above from MSL. Slope - towards Northwest
Mechanization	1.Jackhammer- 6 Nos 2.Compressor-2 Nos 3.Diamond Wiresaw -2 Nos 4. Diesel Generator-1 No 5.Crawler Crane – 1 No 6. Excavator – 2 Nos 7. Tipper- 2 Nos
Water Requirement	2.5 KLD
Proposed manpower deployment	38
Total cost	3,04,23,000/-
Total EMP Cost	3,80,000/-
Total Project cost	3,08,03,000/-
CER Cost	Rs. 5,00,000/-
Nearest habitation	490m-SE
Nearest R.F Boundary	Kolatti R.F 2.17km-S
Nearest Wildlife sanctuary	Cauvery North wildlife sanctuary-1km-S Cauvery South wildlife sanctuary-12km-SE

1.3.2 Location of the Project

- The area is located in *S.F.Nos. 1124/5,6 1151/5,6 and 1172/2A of Irudhukottai Village, Denkanikottai Taluk, Krishnagiri District, Tamilnadu.*
- The area is mentioned in GSI Topo sheet No. **57-H/15**
- The Latitude between of **12°25'41.0417"N to 12°25'47.7539"N**
- The Longitude between of **77°50'01.3513"E to 77°50'07.7665"E** on WGS 1984 datum.

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

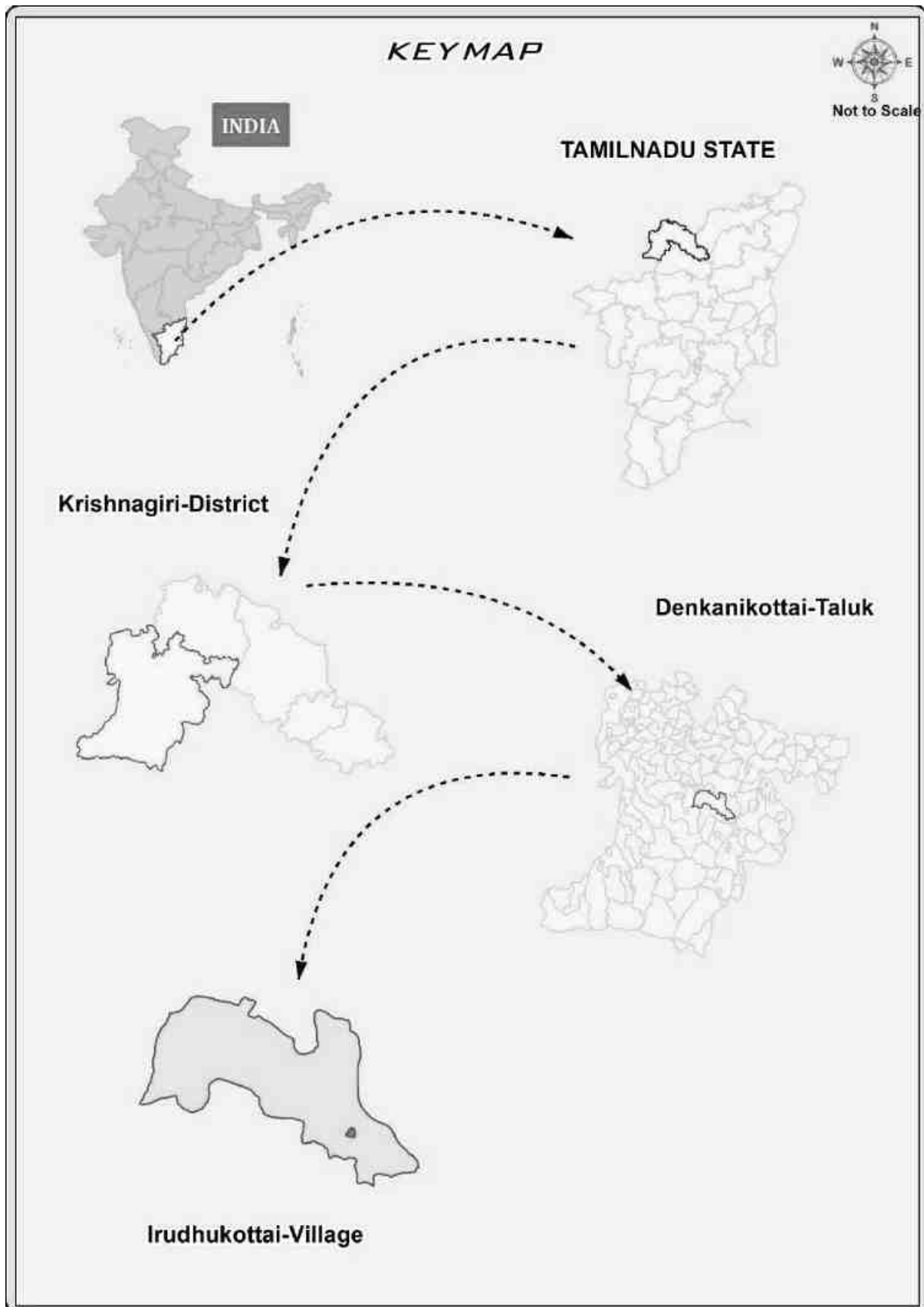
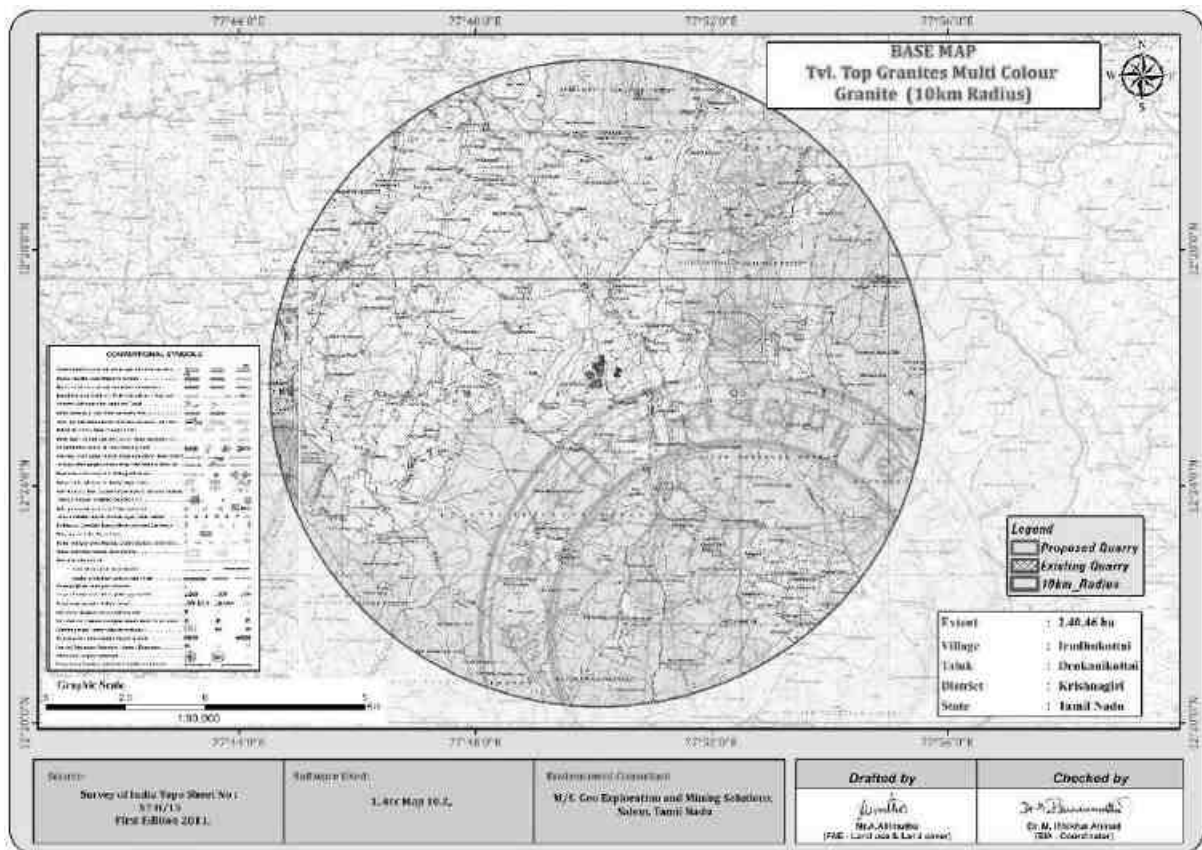


Figure 1.2: Toposheet Map of the Study Area 10 Km Radius



1.4 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 –

- The proponent applied for Granite Quarry Lease, Dated: 24.09.2021
- The precise area communication has been granted as per Govt. letter No. 3954748/MME.2/2023-1 dated: 08.05.2023 for a period of 20 years.
- The Mining plan was approved by the Director of Geology and Mining, Guindy, Chennai Vide Rc. No. 8037/MM4/2022, dated: 05.09.2023.
- Proponent applied for ToR to get Environmental Clearance vide online Proposal No. SIA/TN/MIN/447526/2023 Dated: 09.10.2023.

SCOPING –

- The proposal was placed in 423st SEAC meeting held on 15.11.2023 and the committee recommended for issue of ToR.
- The proposal was considered in 678^h SEIAA meeting held on 11.12.2023 and 12.12.2023 and issued ToR vide Letter No. SEIAA-TN/F.No.10476/SEAC/ToR-1638/2023 Dated :12/12/2023.

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 Public hearing was conducted by TNPCB, Krishnagiri Dated on 02.08.2023.

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 **Letter No. SEIAA-TN/F.No.10476/SEAC/ToR-1638/2023 Dated :12/12/2023.**
- 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.

1.5 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.

1.6 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.

1.7 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. 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 Winter season for Dec 2023 to Feb 2024** 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 1.5: Environment Attributes

Sl.No.	Attributes	Parameters	Source and Frequency
1	Ambient Air Quality	PM10, PM 2.5, SO ₂ , NO ₂	Continuous 24-hourly samples twice a week for three months at 8 locations (1 Core & 7 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 5 ground water and 1 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)	7 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 **Letter No. SEIAA-TN/F.No.10476/SEAC/ToR-1638/2023 Dated :12/12/2023.**

2. PROJECT DESCRIPTION

2.0 General

Proposed Quarry in Irudhukottai Village, Denkanikottai 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 8.63.26ha consisting of three 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 project is located in S.F. Nos 1124/5,6 1151/5,6 and 1172/2A in Irudhukottai Village, Denkanikottai Taluk, Krishnagiri District and Tamil Nadu State. The precise area communication has been granted as per Govt. letter No. 3954748/MME.2/2023-1 dated: 08.05.2023, the mining plan has been prepared and got approved Director of Geology and Mining Guindy, Chennai, vide R.C No 8037/MM4/2022, dated: 05.09.2023.

The area over an extent of 2.40.46Ha in S.F. No: 1124/5,6 1151/5,6 and 1172/2A previously leased to **Tvl. Top Granites** a partnership firm. The partnership deed has executed on 01.09.2021 under the Indian Partnership Act, 1932 with two partners

S.No	Name	Designation
1	Thiru.S. Baskaran, S/o. R. Swaminathan	Partner
2	Thiru.U. Rajagopal, S/o. G. Ulaganathan	Partner

Lease period of 20 years.

Multicolour 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 **S.F.Nos. 1124/5,6 1151/5,6 and 1172/2A of Irudhukottai Village, Denkanikottai Taluk, Krishnagiri District, Tamilnadu.**
- The entire quarry lease area falls in the Patta land, the area is situated in a Slightly Elevated terrain.
- The Altitude of the area is ranges from **942-956m AMSL**
- The area is mentioned in GSI Topo sheet No. **57-H/15**
- The Latitude between of **12°25'41.0417"N to 12°25'47.7539"N**
- The Longitude between of **77°50'01.3513"E to 77°50'07.7665"E** on WGS 1984 datum.

Table 2.1: Site connectivity to the project area

Nearest Roadway	NH844 - Hosur – Dharmapuri – 22km-NE SH-17B- Hosur – Denkanikottai – 12.5km-NE
Nearest Village	Bilalam Village – 1km-W
Nearest Town	Denkanikottai – 12 km - NW
Nearest Railway Station	Kelamangalam – 21 km - NE

Nearest Airport	Bangalore Airport – 60km – North West
Seaport	Chennai 284km North East

Source: PFR, Survey of India Toposheet

Table 2.2: Boundary Co-Ordinates of Proposed Project

S.No	Latitude	Longitude
1	12°25'42.3523" N	77°50'01.3513"E
2	12°25'46.7104" N	77°50'04.0681"E
3	12°25'47.7539" N	77°50'05.4876"E
4	12°25'47.4918" N	77°50'06.4502"E
5	12°25'42.5395" N	77°50'04.4198"E
6	12°25'41.5121" N	77°50'03.9832"E
7	12°25'41.7380" N	77°50'04.2943"E
8	12°25'42.4642" N	77°50'04.6029"E
9	12°25'47.4951" N	77°50'06.6654"E
10	12°25'47.0955" N	77°50'07.5219"E
11	12°25'43.3572" N	77°50'06.9825"E
12	12°25'43.1780" N	77°50'07.7665"E
13	12°25'41.2511" N	77°50'07.5509"E
14	12°25'41.8187" N	77°50'06.1715"E
15	12°25'41.0417" N	77°50'06.0080"E
Datum: UTM-WGS84, Zone 44 North		

Figure 2.1: Photographs of the project Area



Figure 2.1A: Fencing and Plantation Photographs



Figure 2.2: Google Image Showing Project Area

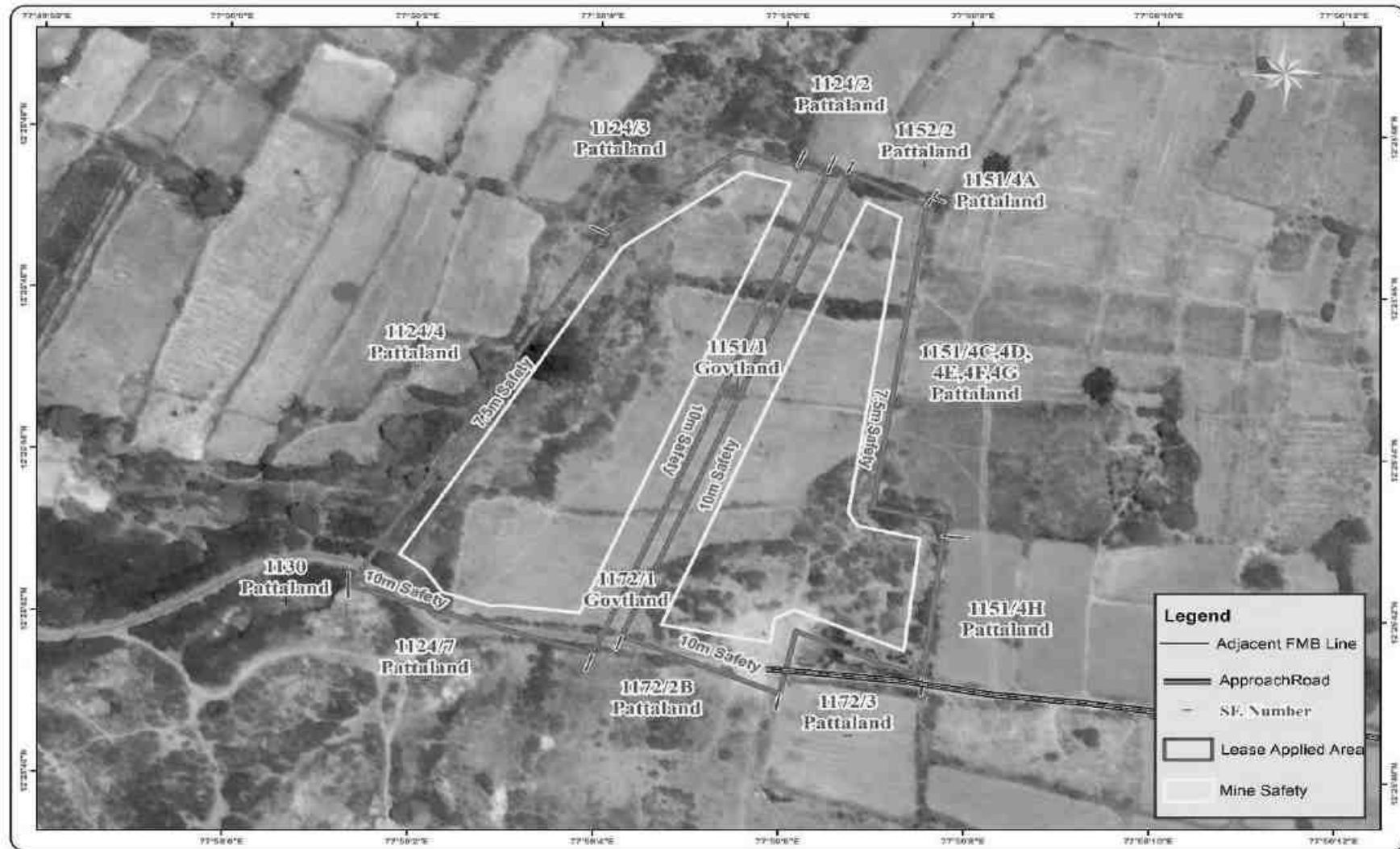


Figure 2.3: Quarry Lease Plan & Surface Plan

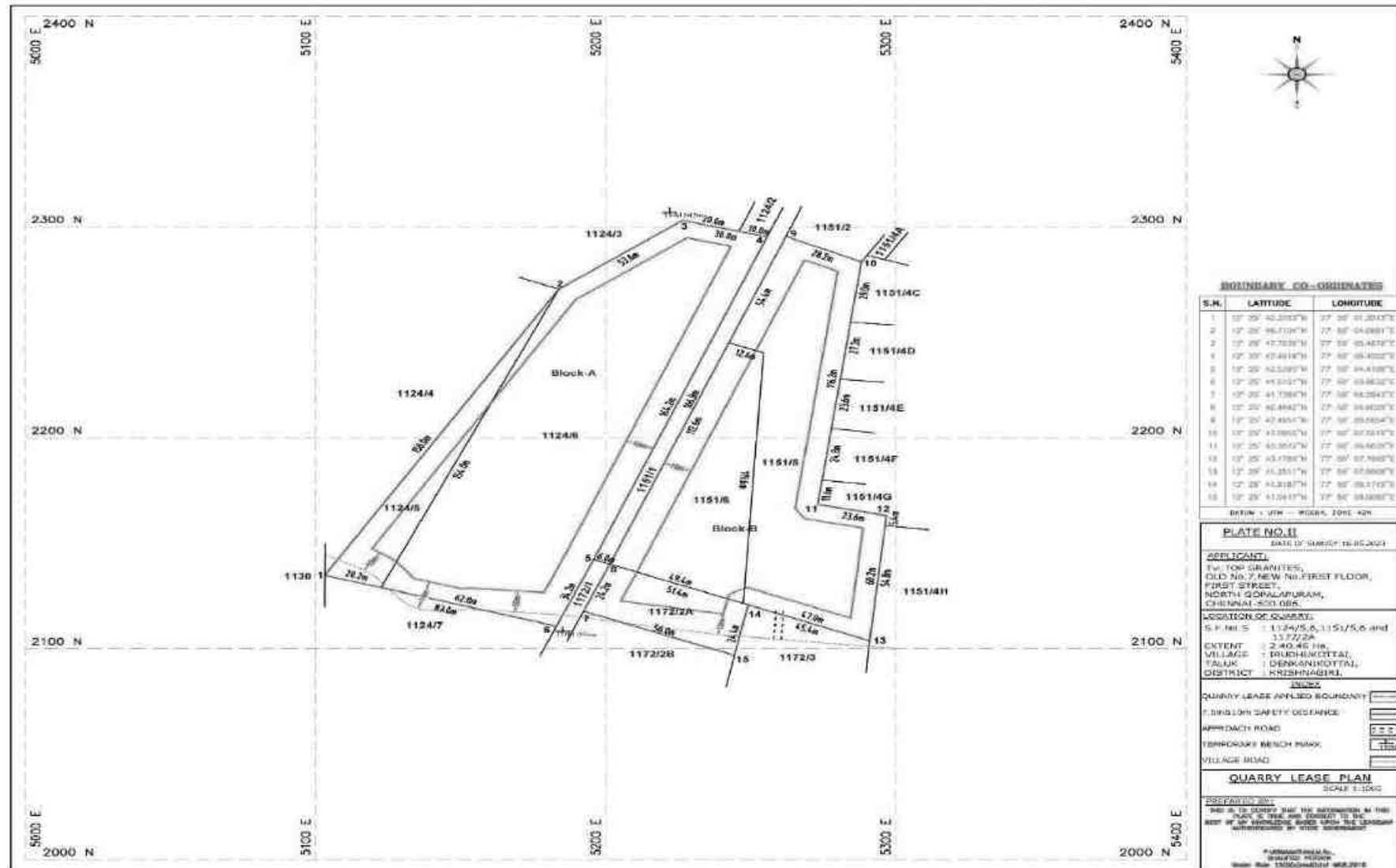


Figure 2.4: Village map superimposed on google earth image

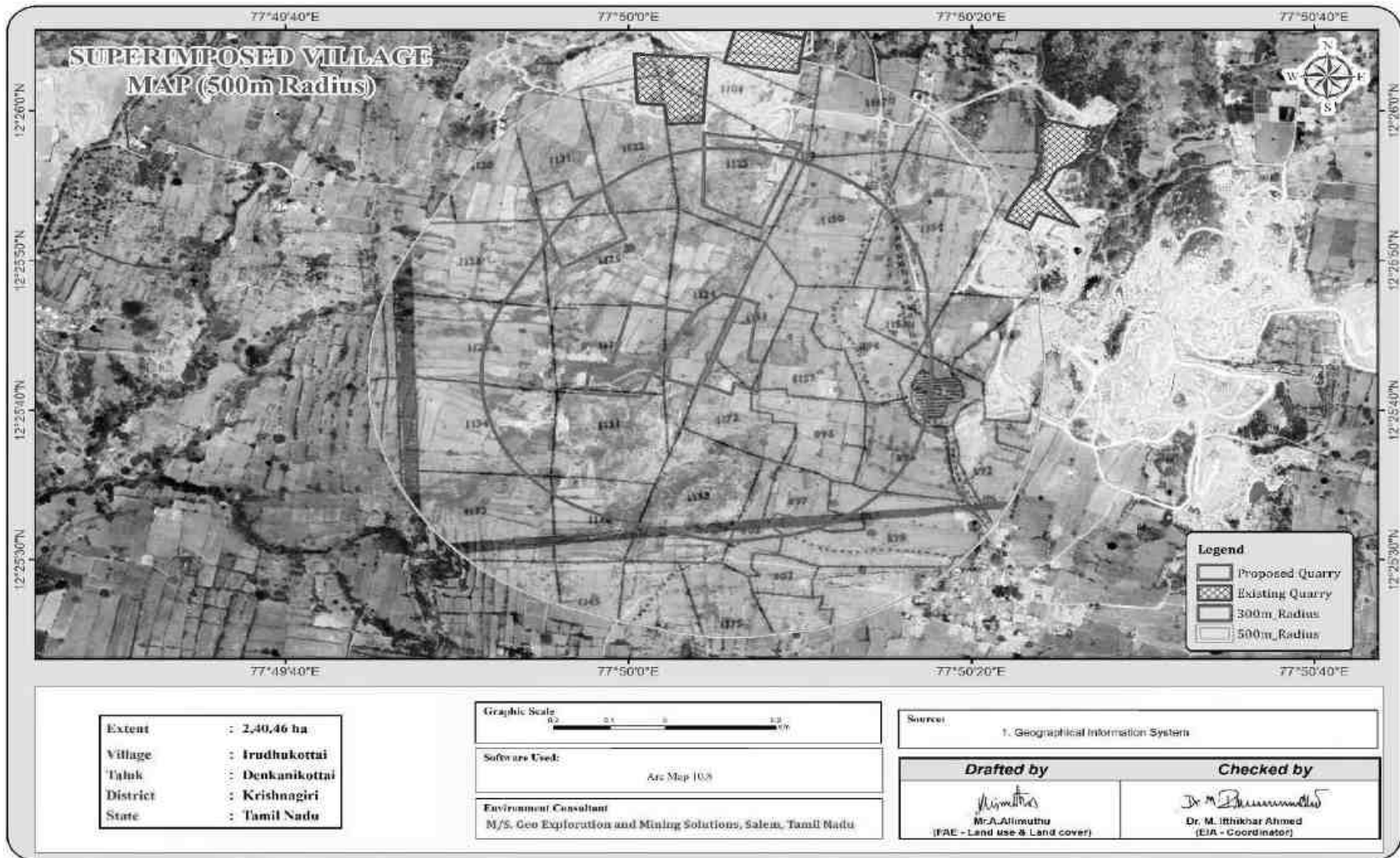


Figure 2.5: Image Showing Surface Features Around 10 Km Radius

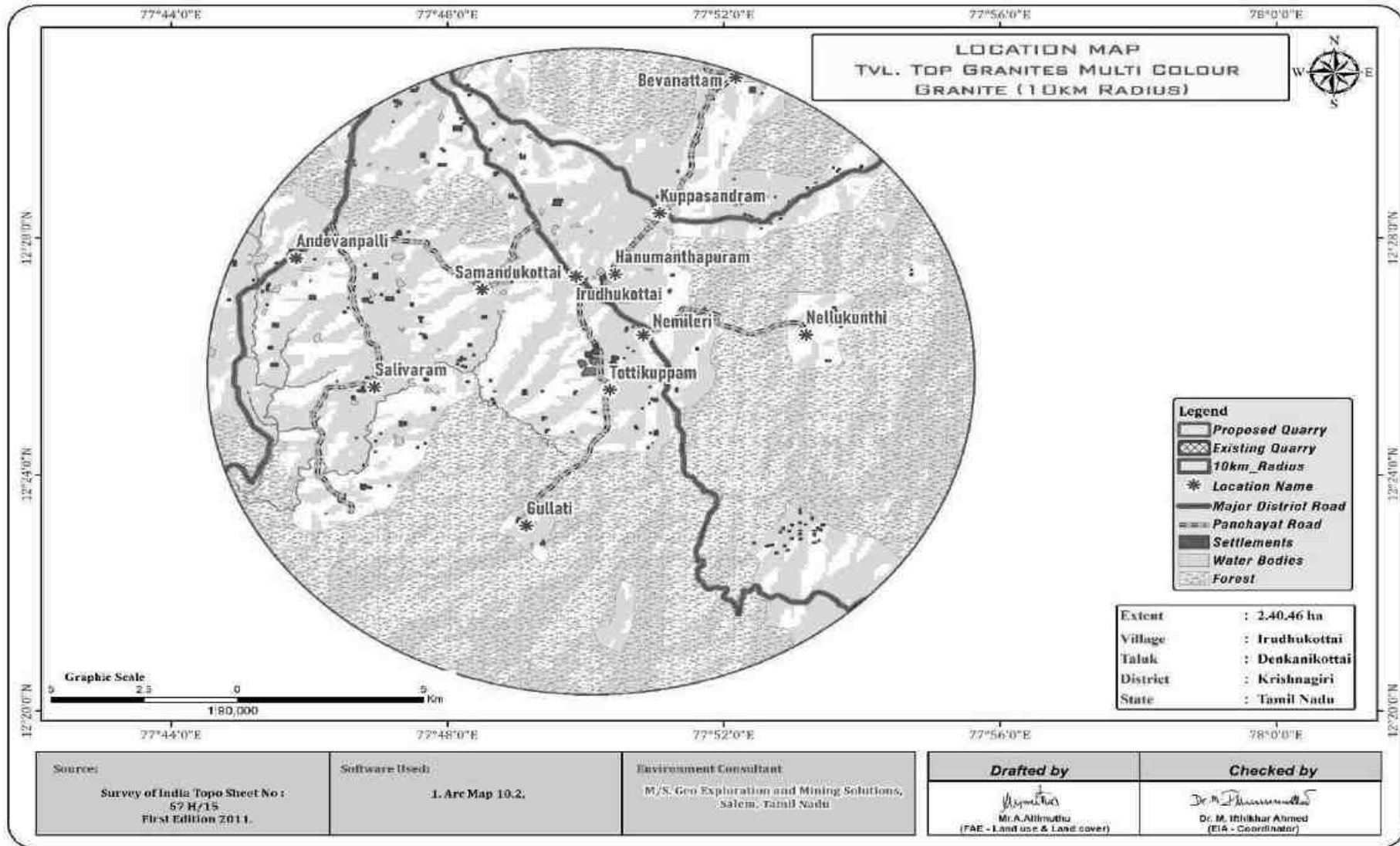


Figure 2.6: Image Showing Surface Features Around 5km Radius

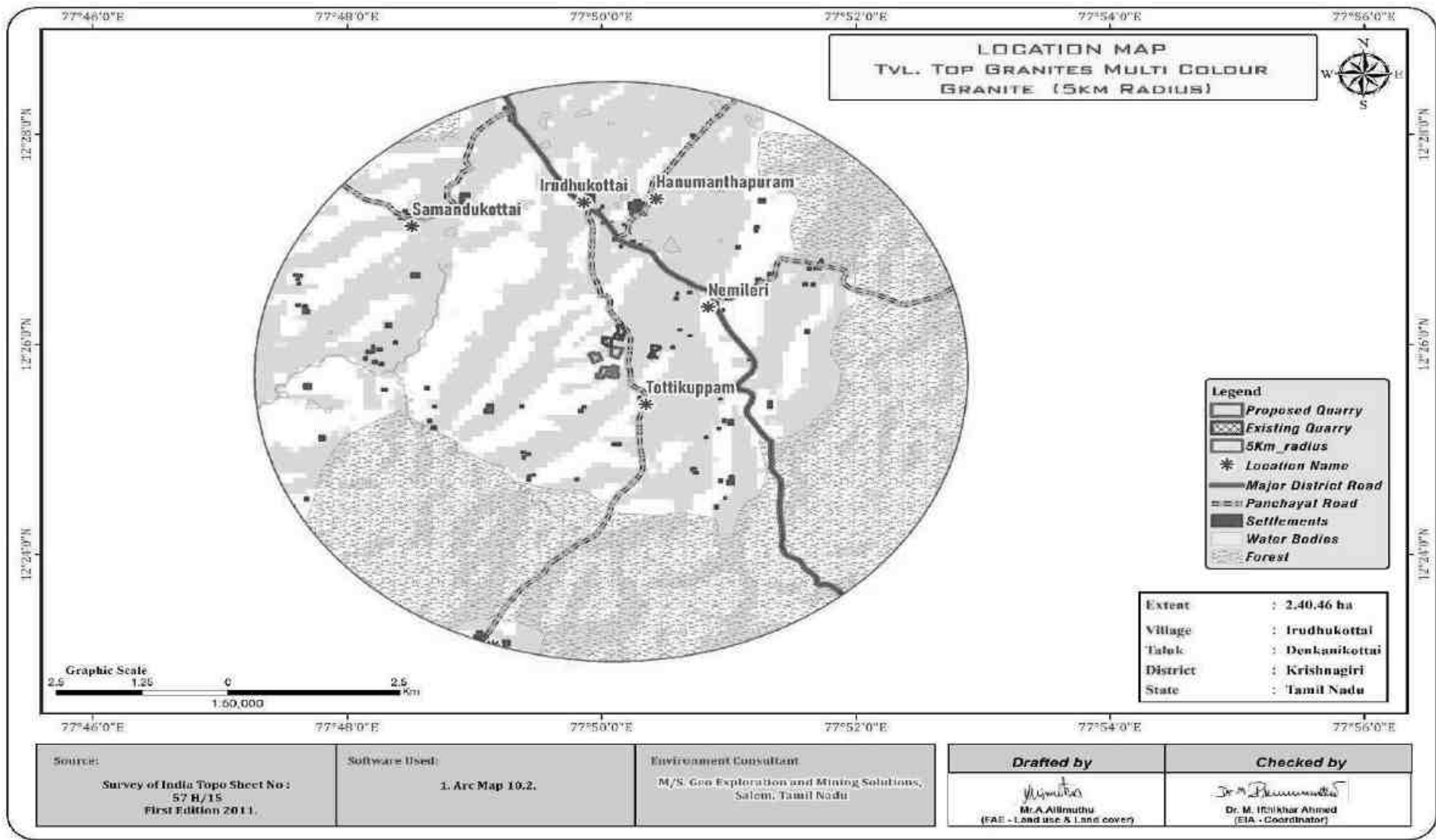
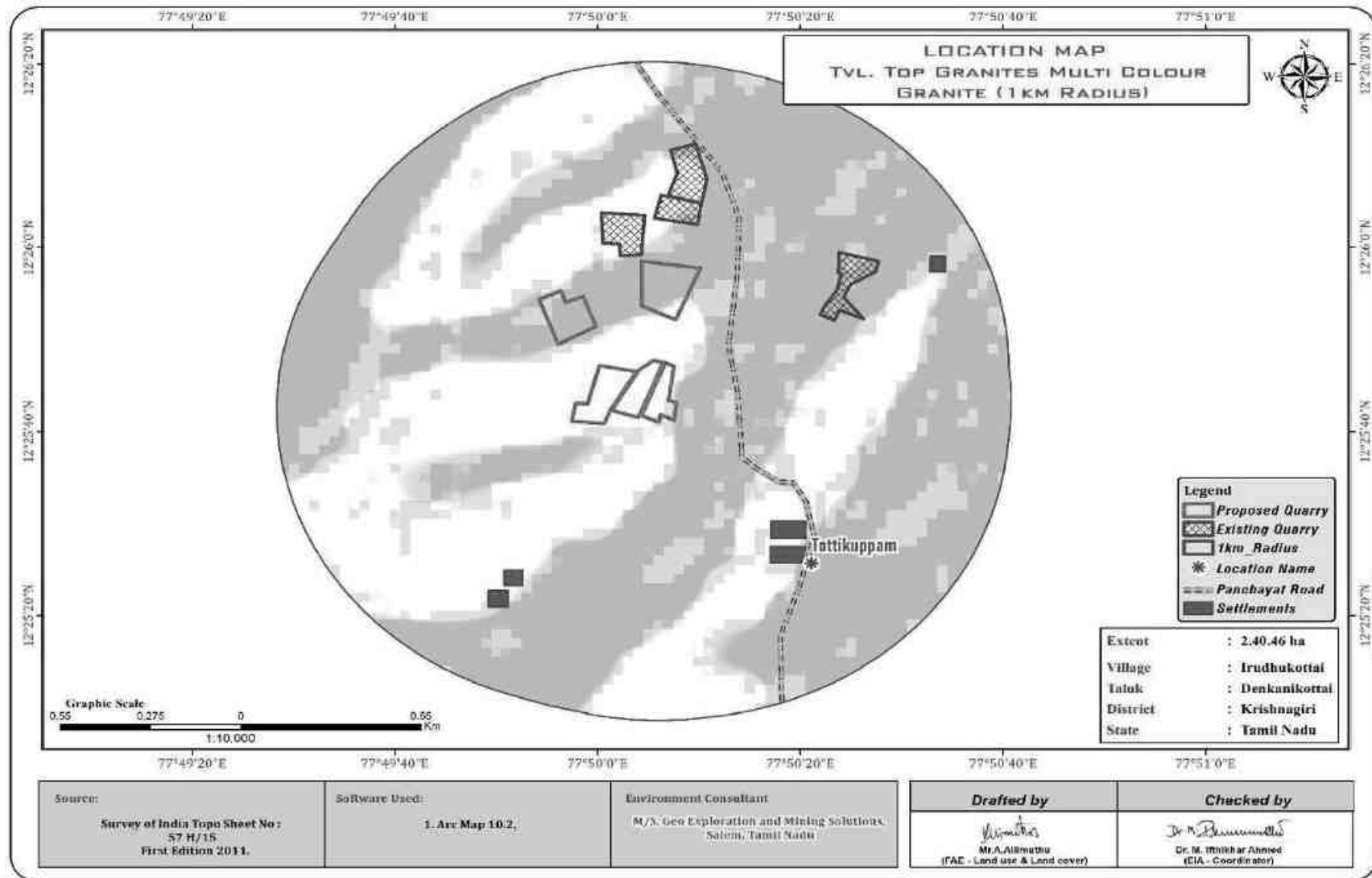


Figure 2.7: Image Showing Surface Features Around 1 Km Radius



2.2.1 Project Area

- The Topography of the Proposed Project is Slightly elevated terrain, 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 942m-956m above from MSL, showing gentle gradient towards Northwest
- There is no forest land involved in the proposed project area and the area is devoid of major vegetation.

Table 2.3: Land use pattern of the proposed project

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	0.35.75	1.47.30
Waste dump	Nil	0.23.42	# Backfilled
Site Services	Nil	0.02.00	0.03.00
Roads	Nil	0.01.00	0.02.00
Green Belt	Nil	0.19.44	0.79.64
Unutilized/ Stocking Blocks	2.40.46	1.58.85	0.08.52
Grand Total	2.40.46	2.40.46	2.40.46

Source: Approved Mining plan

2.2.2 Size or Magnitude of Operation

Table 2.4: Operational details

Description	Details
Geological Resources ROM	4,97,865
Granite Recovery (40 % in m ³)	1,99,146
Granite Waste (60 % in m ³)	2,98,719
Top Soil in m ³	48,086
Mineable Reserves ROM	41,530
Granite Recovery (40 % in m ³)	16,612
Granite Waste (60 % in m ³)	24,918
Top Soil in m ³	12,828
Proposed Production for five years plan period ROM	10,310
Granite Recovery (40% in m ³)	4,124
Granite Waste (60 % in m ³)	6,186
Top Soil in m ³	3,690
Number of Working Days	300
Production of ROM per day in five-year plan period	9
Production of Granite per day	3
Total Waste per day (Granite waste)	4

Source: Approved Mining Plan

2.3 Geology

2.3.1 Regional Geology

The hard rock terrain of Archaean to Late Proterozoic comprises of predominantly Granite, Gneiss, Charnockite group of rocks and their magmatic derivatives, supracrustal sequences intruded by ultramafic complexes, basic dykes, granites.

The northern part of Tamil Nadu, north of Noyil – Cauvery River is characterized by the occurrences of a number of Dolerite dykes in contrast to the areas south of Noyil – Cauvery River where the dykes are absent. The dolerite dykes in general trending is in WNW- ESE and NNE – SSE directions and rarely in N-S and NNW – SSE directions.

Due to emplacement of Dolerite Dykes along narrower plains of weakness, the rock on solidification develops cracks and fractures mostly along the contacts with the country rocks. The dolerite dykes are mostly emplaced as ‘swarms’ in an area.

Granites were formed from molten rock referred to as “Magma” formed at great depths within the crust of the earth. During the cooling process, some of the minerals grow into larger crystals of colours peculiar to those minerals or get aligned along certain preferred directions giving rise to beautiful colours and patterns. 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 and water and weathering and denudation over the past several million years.

The granitic group ranges in composition from granite, through grano diorites to adamellite, augite-diorite, monzonite, etc., and contains inclusions of hornblende rocks. To what extent they represent intrusive of different ages is yet to be determined, but their very complex nature is unquestionable since they include composite gneisses, migmatites, granitised older crystalline rocks and true granites with their aplitic and quartz vein systems.

The Multicolour is a basic igneous rock formed from ultramafic magmas by partial melting. The composition of the rock is plagioclase (Labradorite) and pyroxene (Augite). The texture is ophitic i.e., large oligoclase of Augite enclose the laths of plagioclase feldspar. The colour is termed as Leucocratic. Free silica is rare or absent. The rock is holocrystalline, black colour, hardness-5 to 6, prismatic cleavage.

Geological succession of Krishnagiri District:

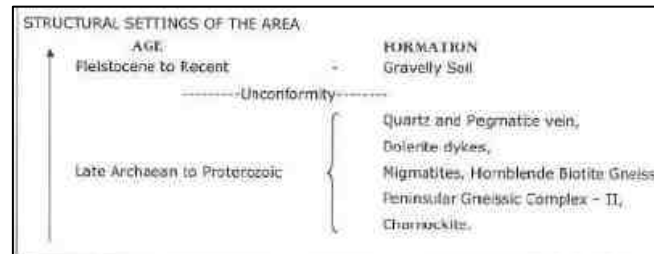
Krishnagiri district is underlain by hard Crystalline rocks of Archaean age comprising of various rock types such as Gneiss, Charnockite, Migmatites, etc. The Gneissic type of Crystalline formation is found in the North and North Eastern part of the District Shoolagiri, Hosur, Mattur and Soolamalai areas covered by Granitic Gneiss (Migmatite).

In the Krishnagiri district of Tamil Nadu is characterized by the occurrences of Numerous Dolerite dykes. The dolerite dykes are general trending in NNW- SSE direction and rarely in NNE– SSW directions.

2.3.3. Geology of the lease applied area

The Multicolour is clearly visible right from the fresh quarry pits and detached boulders are scattered within the lease area and remaining area concealed under reddish gravelly soil with an average thickness of 1m and followed by fresh Multicolour. The Granite Gneiss forms the country rock of the area with trending of NE-SW with almost vertical dipping and “Multicolour” (Dolerite) intruded between the batholithic formation of pre-

existing country rock of Granite Gneiss discordantly with trending of East – West with Vertical dipping. The width of the Multicolour is varying from 22m to 68m which stretches about the entire area (Please refer Plate No-III and IV of Approved Mining Plan). The Multicolour is clearly exposed in the existing quarry pit and few small detached boulders are scattered with linear strike direction of the dyke with spheroidal weathering and cuboidal and oblique joints.



Exploration studies

State Geology and Mining Department has carried out the regional prospecting and exploration in these areas during 1992 to 1993 Geological survey of India has carried out detailed mapping in Krishnagiri District, besides the Functional Area Experts (FAE) in Geology and Hydrogeology carried out detailed Geological studies in the area. The Granite outcrops is clearly visible in some places within the study area.

2.3.4 Hydrogeology

Krishnagiri district is underlined by Archaean crystalline formations with Recent alluvial deposits of limited areal extent and thickness along the courses of major rivers. The occurrence and movement of ground water are controlled by various factors such as physiography, climate, geology and structural features. Weathered, and fractured crystalline rocks constitute the important aquifer systems in the district. Ground water generally occurs under phreatic conditions in the weathered mantle and under semi-confined conditions in the fractured zones at deeper levels. The thickness of weathered zones in the district ranges from less than a meter to more than 15 m (Source Central Ground Water Board – Krishnagiri).

Figure 2.8: Regional Geology Map

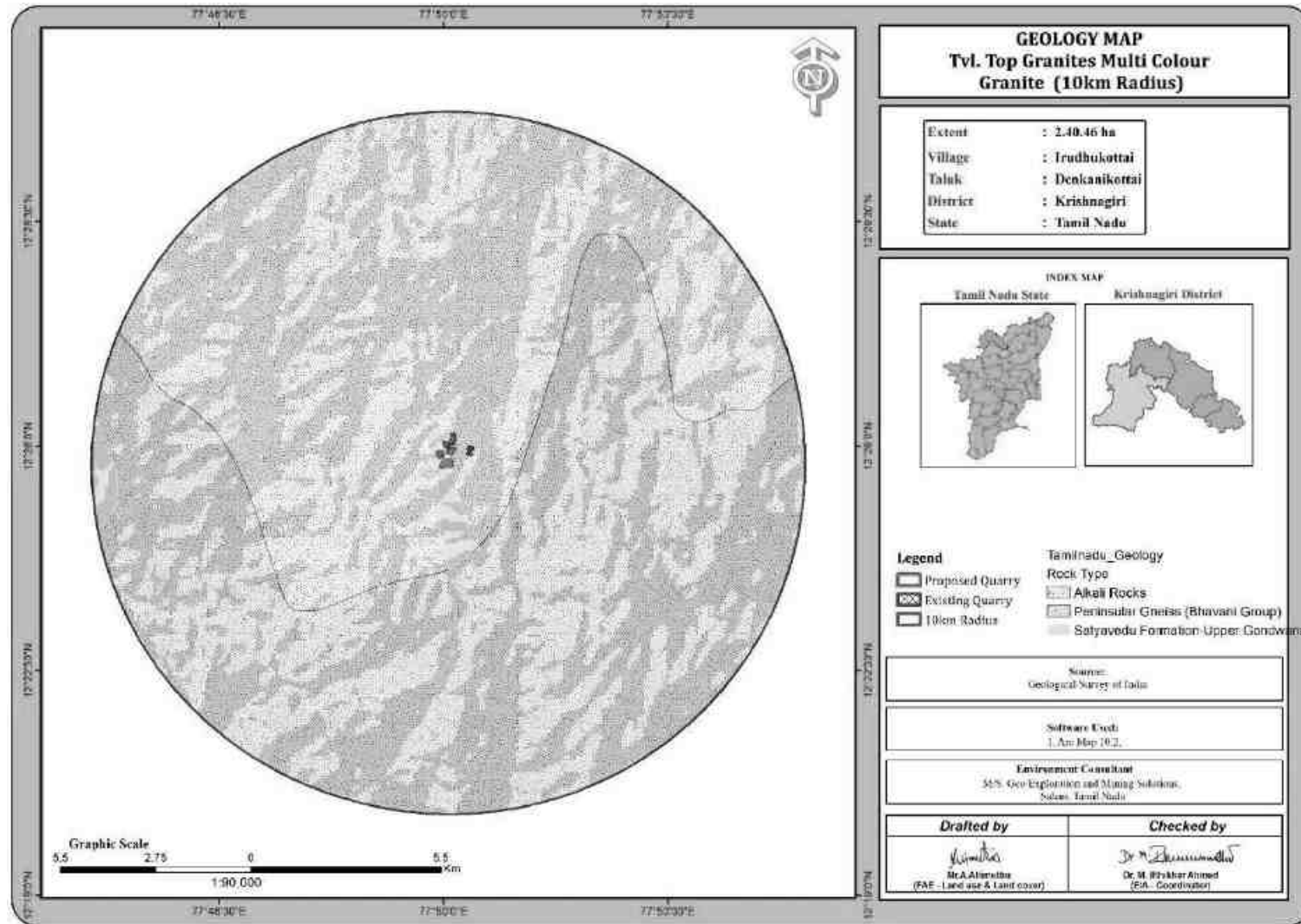


Figure 2.9: Geomorphology Map of The Study Area

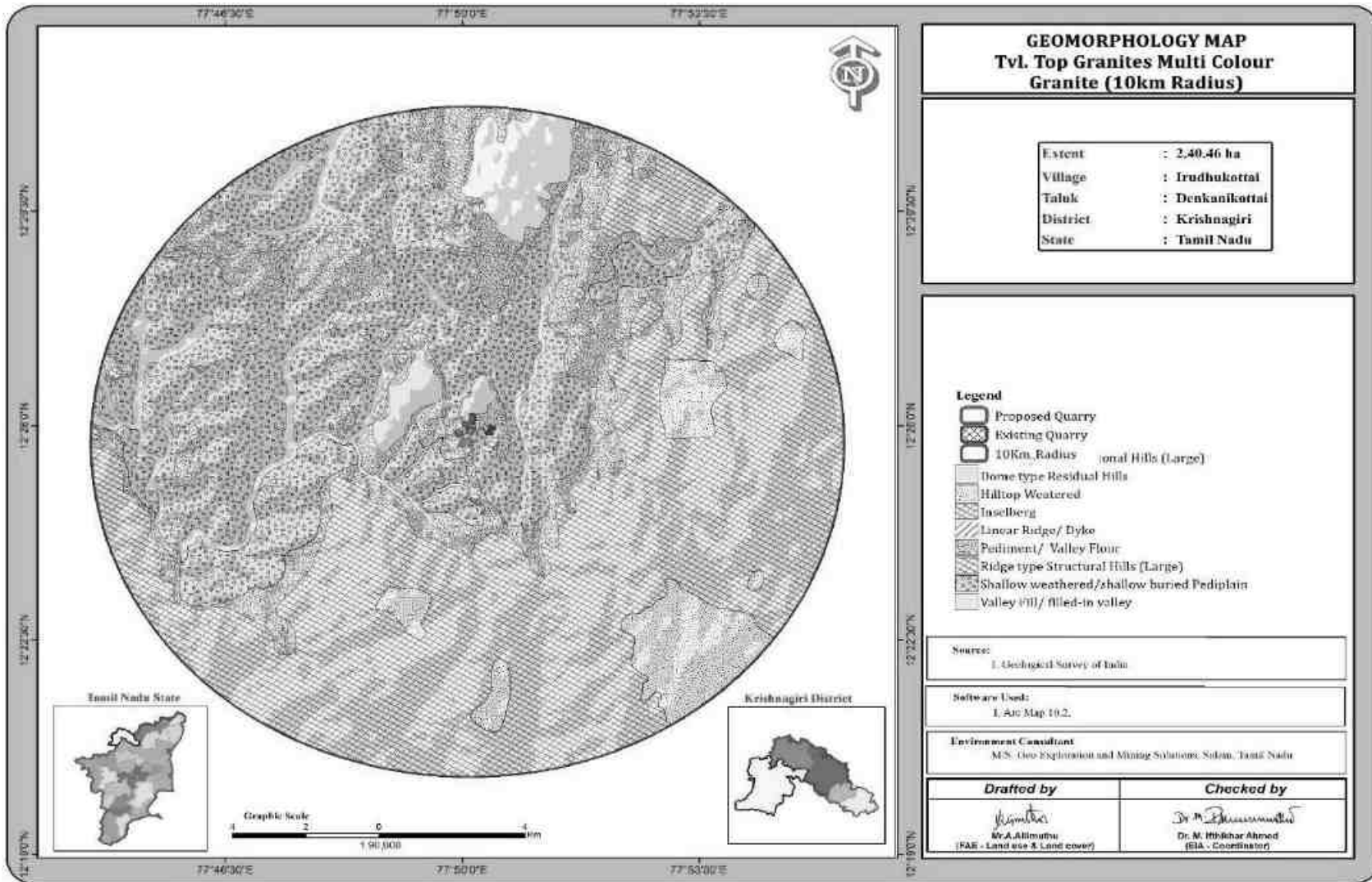
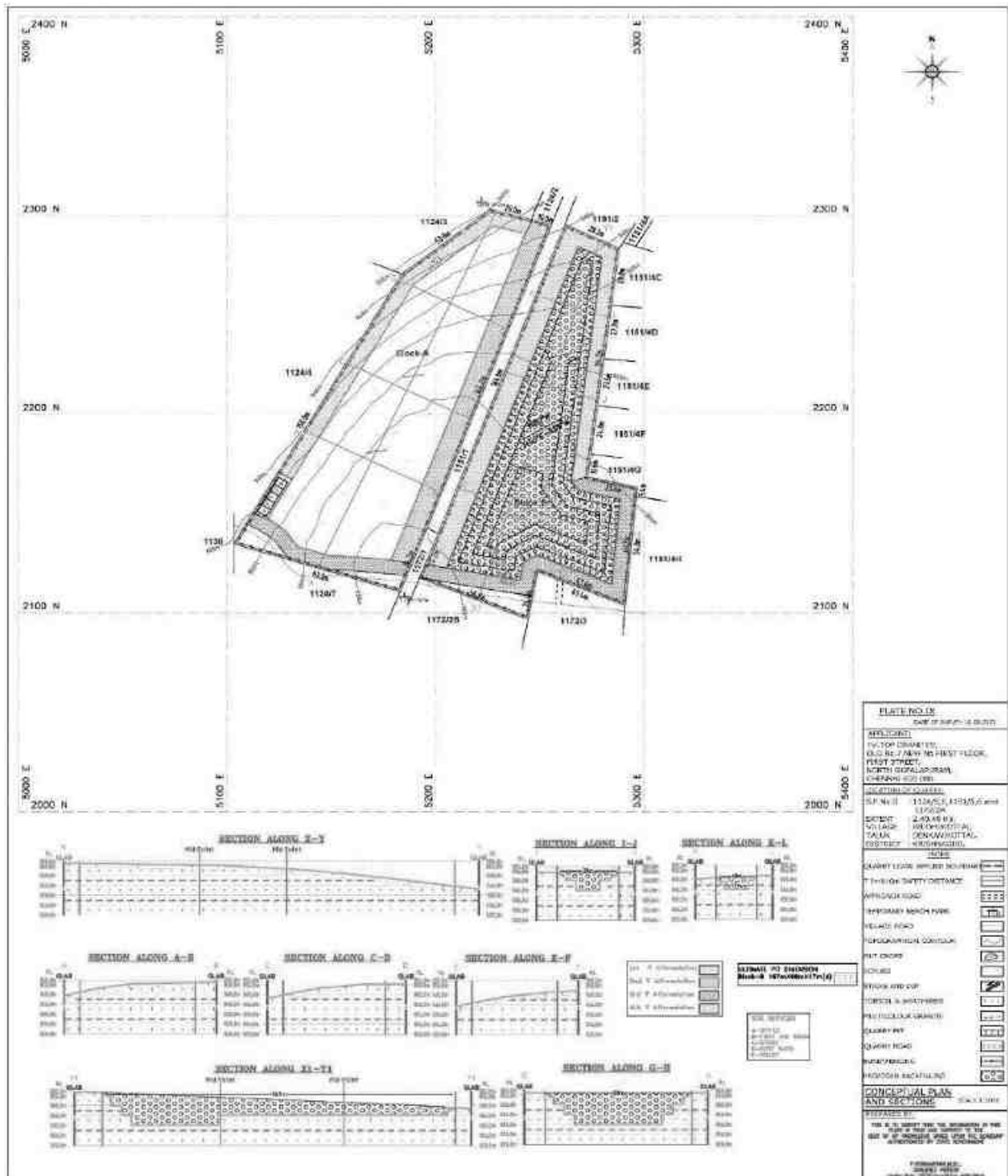
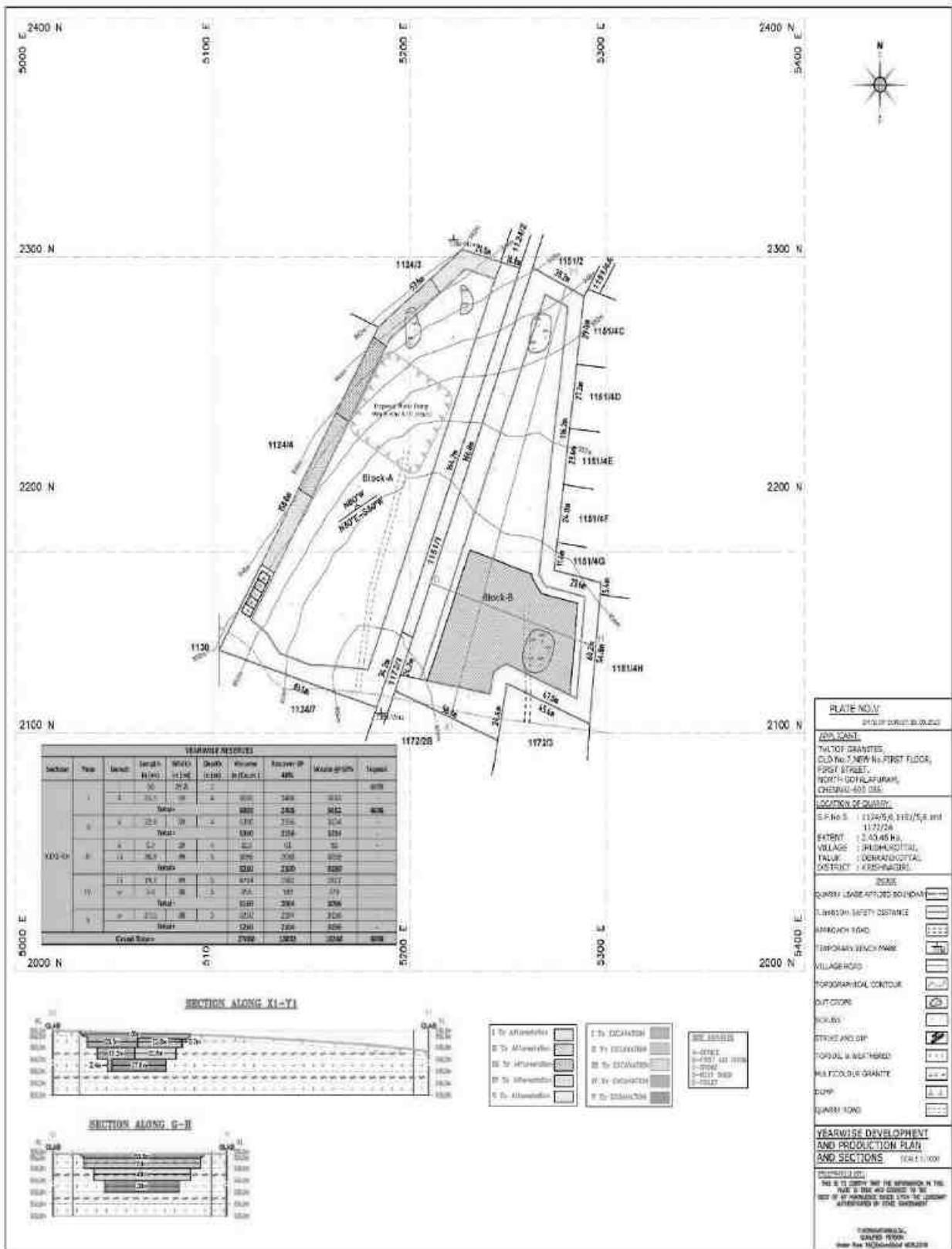


Figure 2.10: Conceptual Plan and Section



Source: Approved Mining plan

Figure 2.11: Year-Wise Development Production Plan and Section



Source: Approved Mining plan

2.4 Resources and Reserves

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

Table 2.5 Resources, Reserves

Description	ROM in m ³	Granite recovery @40% in m ³	Granite waste @60% recovery	Top Soil in m ³
Geological Resources	4,97,865	1,99,146	2,98,719	48,086
Mineable Reserves	41,530	16,612	24,918	12,828
Year wise Production for Five years	10,310	4,124	6,186	3,690

Source: Approved Mining plan

Table 2.6 Year Wise Production Plan

Year	ROM in m ³	Granite Recovery @ 40 % in m ³	Granite Waste @ 60 % in m ³	Topsoil in m ³
I	2,028	811.2	1216.8	1,710
II	2,028	811.2	1216.8	1,170
III	2,104	841.6	1262.4	810
IV	2,100	840	1260	-
V	2,050	820	1230	-
Total	10,310	4,124	6,186	3,690

Source: Approved Mining plan

Stacking of Granite Rejects and Disposal of Waste

a) Topsoil:

There is 3,690m³ of topsoil will be generated during the mining plan period. The excavated topsoil will be preserved all along the safety zone and utilized for construction of bund and 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 6,186m³ the same will be proposed to dump on the Northeast side with maximum dimension of (Area) 2,342m² x (Height) 6.9m.

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 2.7 Ultimate Pit Dimension

Maximum Dimensions in meters			
Block No.	Length	Width	Depth
Block – A	178	54	26
Block – B	167	68	17

Source: 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

Drilling Equipment's					
Type	No of Unit	Dia of Hole mm	Size capacity	Make	Motive Power
Jack Hammer	6	35	1.2m to 6m	Atlas Copco	Compressed air
Compressor	2	-	400psi	Atlas Copco	Diesel drive
Diamond Wire Saw	2	-	20m ³ /day	Optima	Diesel Generator
Diesel Generator	1	-	125kva	Powerica	Diesel
Loading Equipment					
Type	No of Unit	Capacity	Make	Motive Power	
Crawler Crane	1	855	Tata P & H	Diesel Drive	
Excavator	2	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	

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

Traffic density measurements were performed at Two locations

TS-1- Tottikuppam-Irudhukottai Panchayat Road- 1.5km North

TS-2- Denkanikottai-Marandahalli District Road- 3.0km North

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. 2.12: Mineral Transportation Route Map

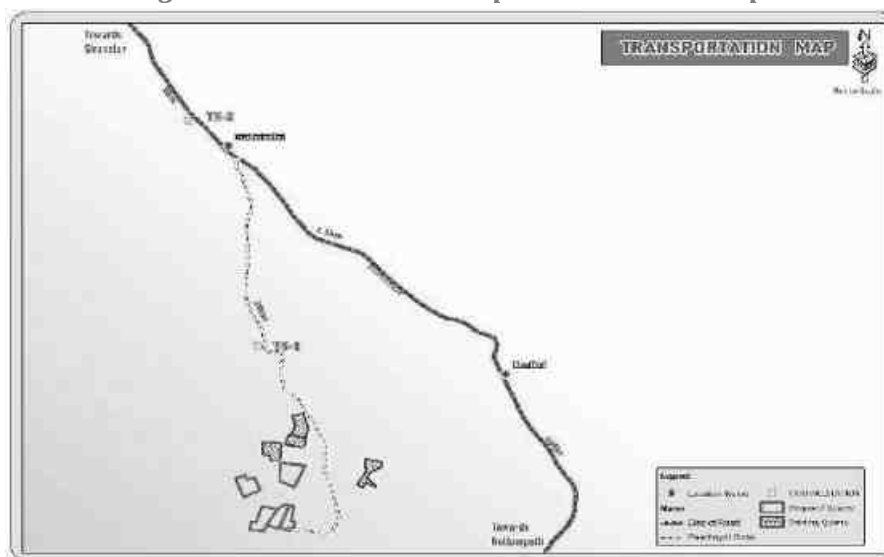


Table.2.9: Traffic Survey Locations

Station Code	Road Name	Distance and Direction	Type of Road
TS1	Tottikuppam-Irudhukottai	1.5km North	Panchayat Road
TS2	Denkanikottai-Marandahalli	3.0km North	District 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	100	300	75	75	100	50	425
TS2	150	450	125	125	130	65	640

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	9	27	3

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
Tottikuppam-Irudhukottai	425	27	452	1200
Denkanikottai-Marandahalli	640	27	667	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

2.7.1 Water Source & Requirement

Detail of water requirements in KLD as given below:

Table 2.13 Water Requirement for the Project

Purpose	Quantity	Source
Domestic & Drinking purpose	0.5KLD	From Existing, bore wells and drinking water will be sourced from Approved Water vendors.
Dust Suppression	1.0KLD	From Existing bore wells from nearby area
Green Belt	1.0KLD	From Existing bore wells from nearby area
Total	2.5 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

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

Per hour Excavator will consume = 16 liters / hour

Per hour Excavator will excavate = 10m³

For 27,080m³ (for mining plan period) = 10,310/10

Diesel consume 2,230 working hours = 1,031hours x 16 liters

= **16,496Ltrs** 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).

Source: Prefeasibility Report

2.8 Employment Requirement:

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

S.No	Description	Numbers
Skilled Labour		
1	Mines Manager	1
2	Mines Foreman	1
3	Machinery Operators	4
Ordinary Employees		
4	Skilled labour	6
5	Semi-skilled	18
6	Unskilled	8
Total		38

Source: Approved Mining Plan

2.9 Project Implementation Schedule

The mining 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

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 December 2023 - February 2024 with CPCB guidelines. Environmental data has been collected with reference to cluster quarries by EHS 360 Labs Private Limited (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 Winter season i.e., Dec 2023-Feb 2024.

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 (1 surface water & 5 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-Krishnagiri
*Ambient Air Quality	PM10 PM2.5 SO2 NOX Fugitive Dust	24 hourly twice a week (Dec– Feb 2024)	7 (1 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	7 (1 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 Quadrante & 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 (LISS-III) (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 July 2020, Swath 141km wide.

SOI Toposheet No - 57 H/ 11

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)

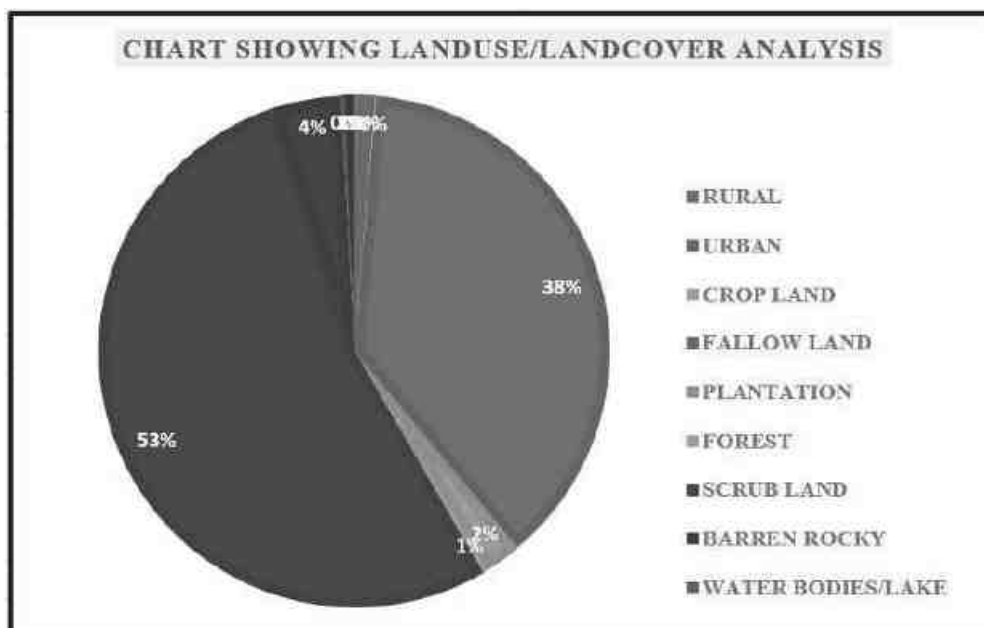
Details of the same are given in Table - 3.3 and the map is shown in Figure - 3.2

Table: 3.3 Land Use / Land Cover Details of Study Area

S.No	CLASSIFICATION	AREA HA	AREA %
BUILTUP			
1	RURAL	105.01	0.33
2	URBAN	308.10	0.96
3	MINING	39.28	0.12
AGRICULTURAL LAND			
4	CROP LAND	12067.43	37.57
5	FALLOW LAND	735.04	2.29
6	PLANTATION	118.17	0.37
FOREST			
7	FOREST	17129.37	53.34
BARREN/WASTE LANDS			
8	SCRUB LAND	1344.63	4.19
9	BARREN ROCKY	90.44	0.28
WETLANDS/ WATER BODIES			
10	WATER BODIES/LAKE	178.35	0.56
TOTAL		32115.83	100.00

Source: Bhuvan, NRSC.

Figure 3.1: Chart showing Landuse/Landcover analysis using LISS III Data



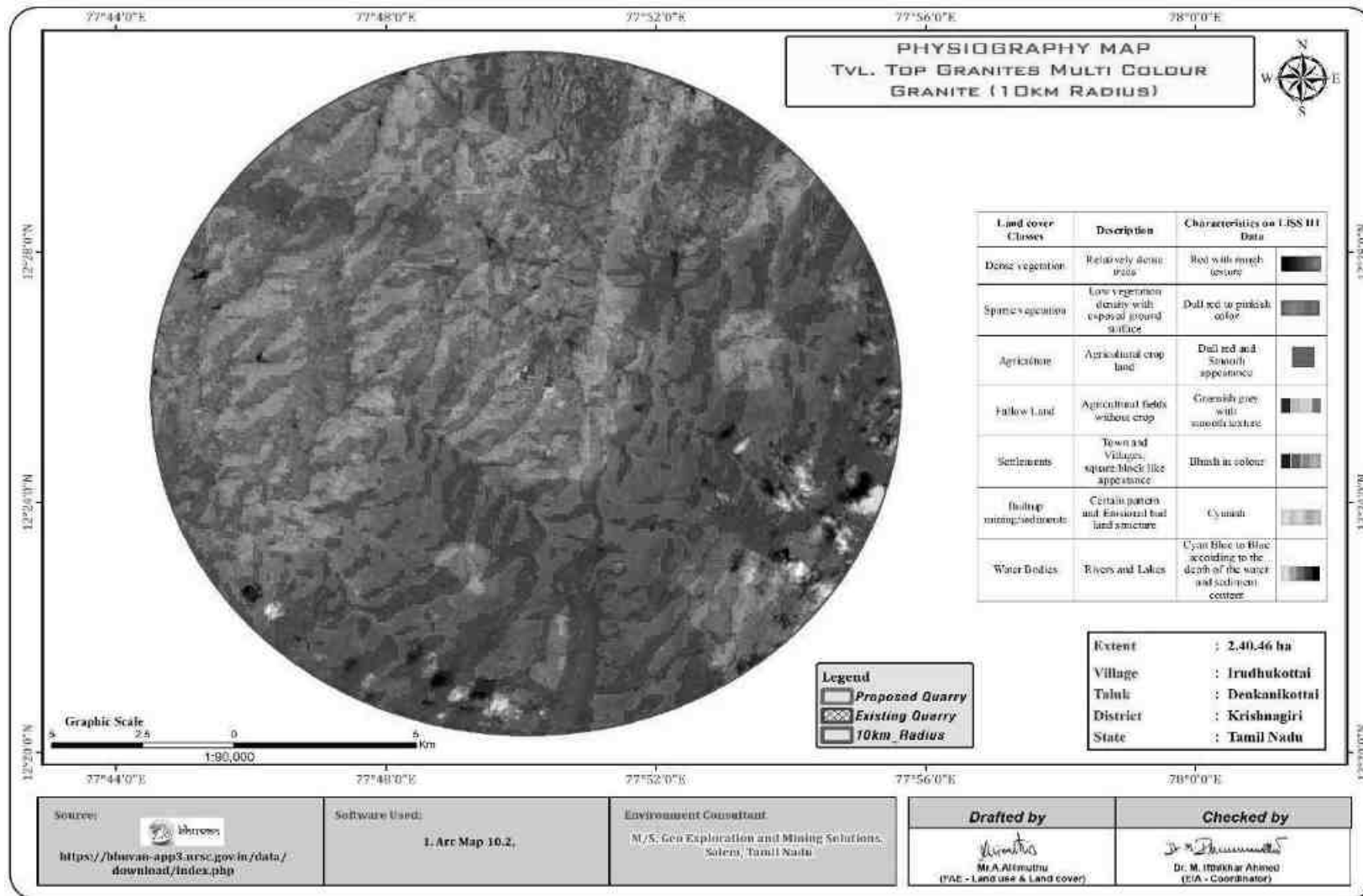


Figure 3.2: Map Showing False Color Composite (3,2,1) Satellite Imagery of The Study Area

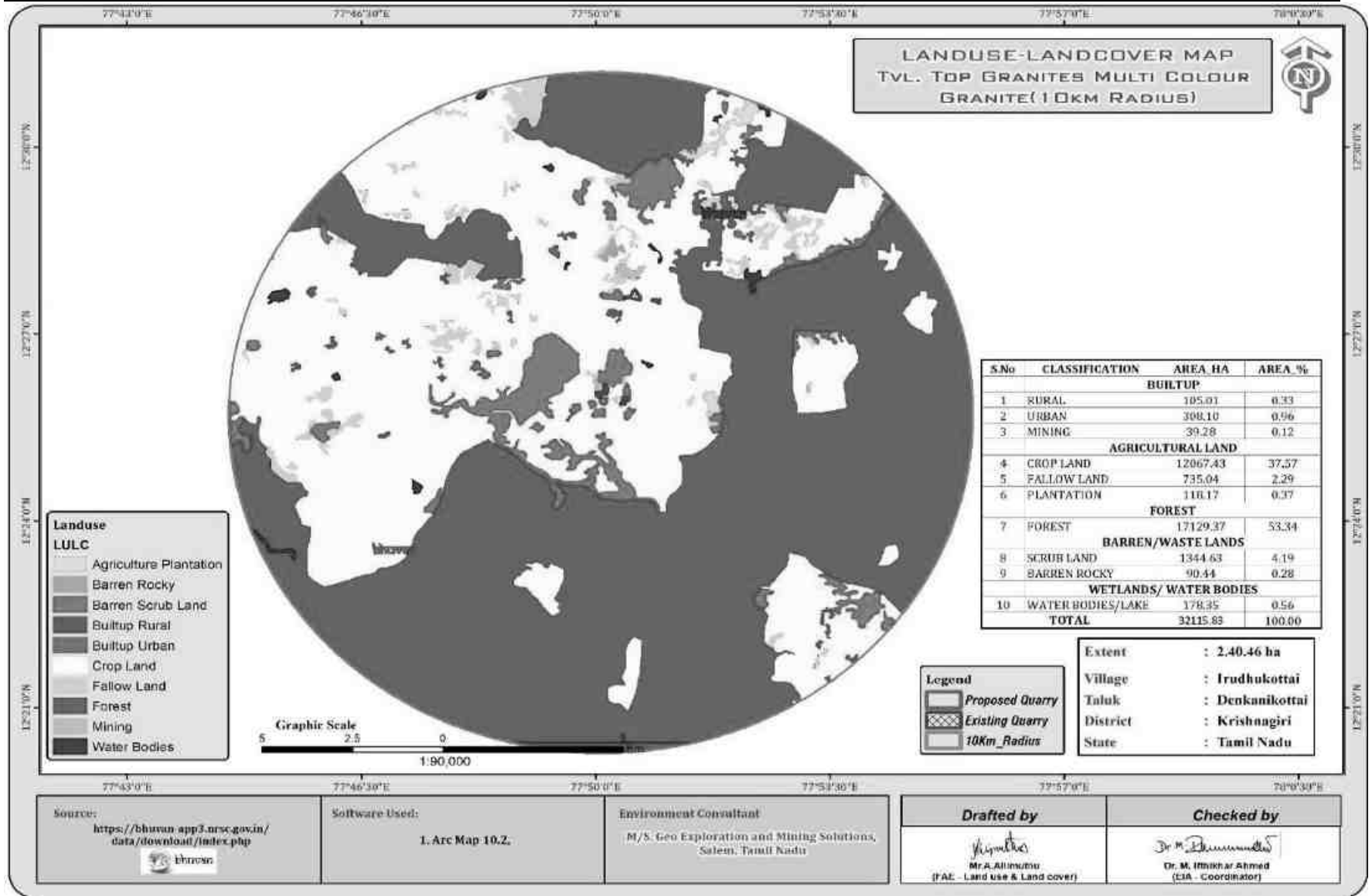


Figure 3.3: Land Use Land Cover Map 10km Radius

3.1.4 Interpretation

- ☞ The 10 km radius study area mainly comprises of crop land & Agriculture Plantation land accounting of 37.57% & 0.37% of the total study area. The study area also consists of fallow land of 2.29%.
- ☞ Water Bodies such as ponds/ lakes comprises of 0.56% of the core and buffer area.
- ☞ The Scrub land accounts of 4.19%. 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.
- ☞ 0.12% of the total study area is occupied by the mine industries of captive mines. The area occupied by Mainly Multi colour 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.
- ☞ 1.29% of the area is covered under the human Settlement. The nearest village within the 3 km radius from the project site boundary is observed to be villages like Bilalam, Namrelli, Bikanapally etc.,

3.1.4.1 Cropping Pattern of the Buffer Zone

The productivity of Agriculture in the Southern and Northern part of the Tamil Nadu is comparatively like the Krishnagiri district has more favourable conditions for the agriculture. As observed, within the study area agriculture is the dominant occupation. Krishnagiri district is one of the potential districts for cultivation of horticultural crops. Total area under cultivation is 182888 ha. In that, Horticultural crops have been cultivated in about 80499 ha and the prominent crops under cultivation are Mango, Banana, Tomato, Beans, Cabbage, Cauliflower, Brinjal, Coriander, Potato, Carrot, Beetroot, Knol Khol, Turmeric, Rose, Gerbera, Carnation, Jasmine and Chrysanthemum. Mango is the major crop grown in this district.

3.1.4.2 Interpretation and Conclusion

- ☞ Irudhukottai Village Multicolor granite quarries has proposed Project.
- ☞ Out of the total project area i.e., 32115 ha, 0.37% (i.e., 118.17ha) will be developed under greenbelt development/ plantation.
- ☞ As new Proposed mine is coming in the area, percentage of human settlement will be increased in surrounding of project site and Infrastructure facilities also will be developed on the basis of requirement.
- ☞ The 10 km study area mostly covers of crop land 37.57%. As per current study 4.19% of the area is occupied by scrub land. Barren rocky land 0.28% in 10km radius from the study area land use into quarries purpose land for this proposed project.
- ☞ Forest area is covered 53.34% and Scrub Land is 4.19%.
- ☞ The project site falls under the Multicolor granite quarry region. Therefore, the area is appropriate for developing Road development and building etc., it shows that the region has good prospects in the future. Due to proposed Multicolor granite quarry in this region, economic condition of locals is expected to be improved directly & indirectly. Hence project will prove to be the best economic proposal for the coming times.

3.1.5.1 Topography

The area is situated in Slightly elevated terrain with gentle gradient towards North –West side, maximum elevation of the area is 942-956 m above Mean Sea level there are no hilly regions in and around the area.

3.1.5.6 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.

3.1.5.7 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.

3.1.5.8 Environmental Features in the Study Area

Cauvery North Wildlife Sanctuary is situated 1km South. 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 3.3.

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 Cauvery South wild life sanctuary	1km South 12km-SE
2	Reserve Forest	Gullatty R.F	2.17km -South
		Ariyur Ext R.F	2.3km-South East
		Noganoor R.F	4.5km-North West
		Denkanikottai R.F	7.0km-North
3	Lake Reservoir	Odai	140m NW
		Tank	270m East
		Tank	9.2km NW
4	Tiger Reserve/ Elephant Reserve/ Biosphere Reserve	None	Nil within 10 km Radius
5	Critically Polluted Areas	Ranipet - SIPCOT Industrial Complex	Around 169.0 km- North East
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

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 3.4 and Figure 3.3.

Table 3.5: Soil Sampling Locations

S. No	Location Code	Monitoring Locations	Distance (km) and Direction	Coordinates
1	S-1	Core Zone	Project Area	12°25'44.75"N 77°50'6.93"E
2	S-2	Salivaram	5.5km SW	12°25'28.71"N 77°46'54.33"E
3	S-3	Arasajaur	3km NE	12°26'30.32"N 77°51'39.05"E
4	S-4	Unsatti	2.2km SE	12°25'12.98"N 77°51'14.03"E
5	S-5	Kurubatti	5.5km North	12°28'34.82"N 77°49'33.44"E
6	S-6	Maniyampadi	5.8km NW	12°27'0.21"N 77°47'8.11"E

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

Figure 3.4: Collection of Soil Sample**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

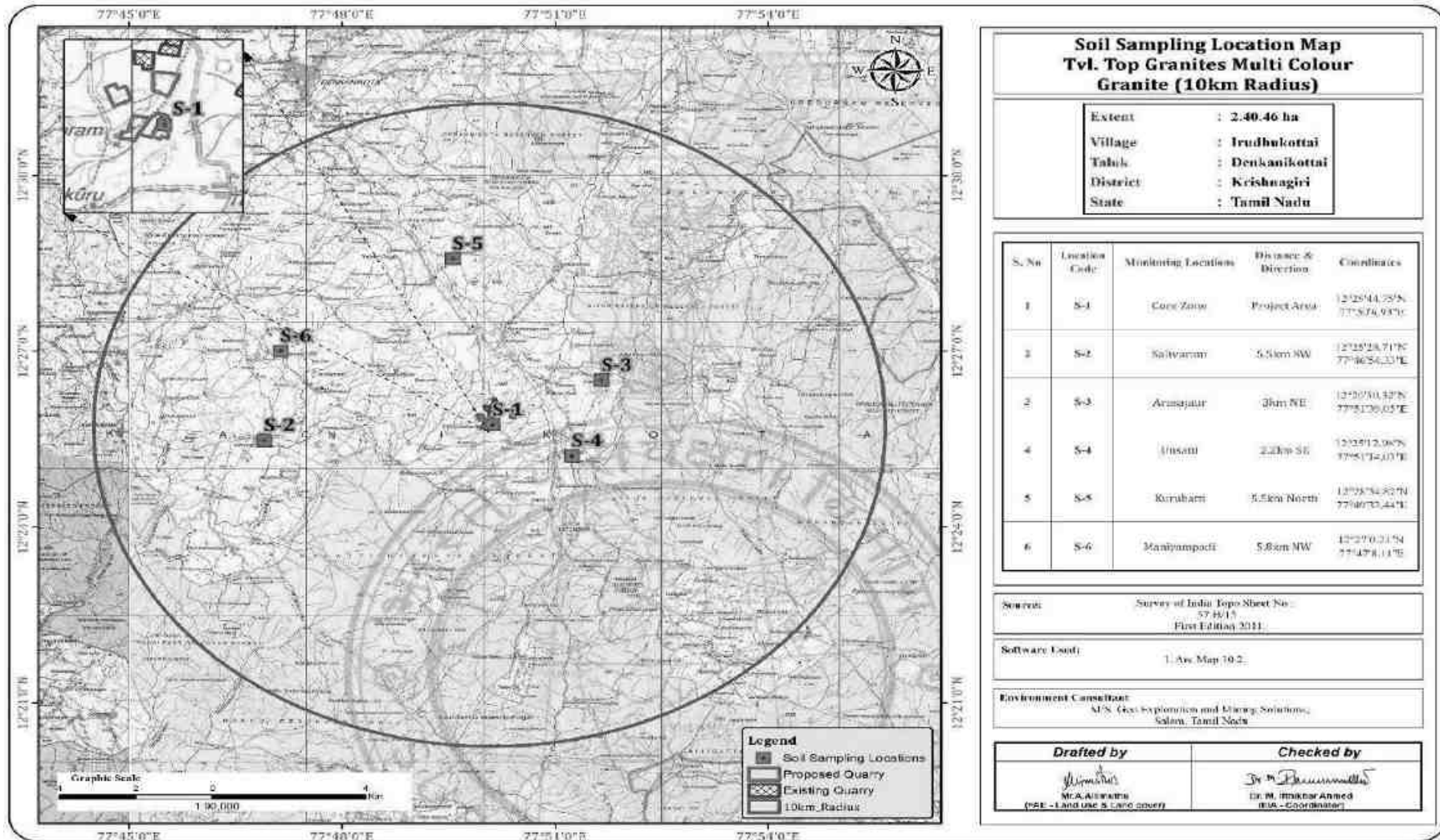


Figure 3.6: Soil Map

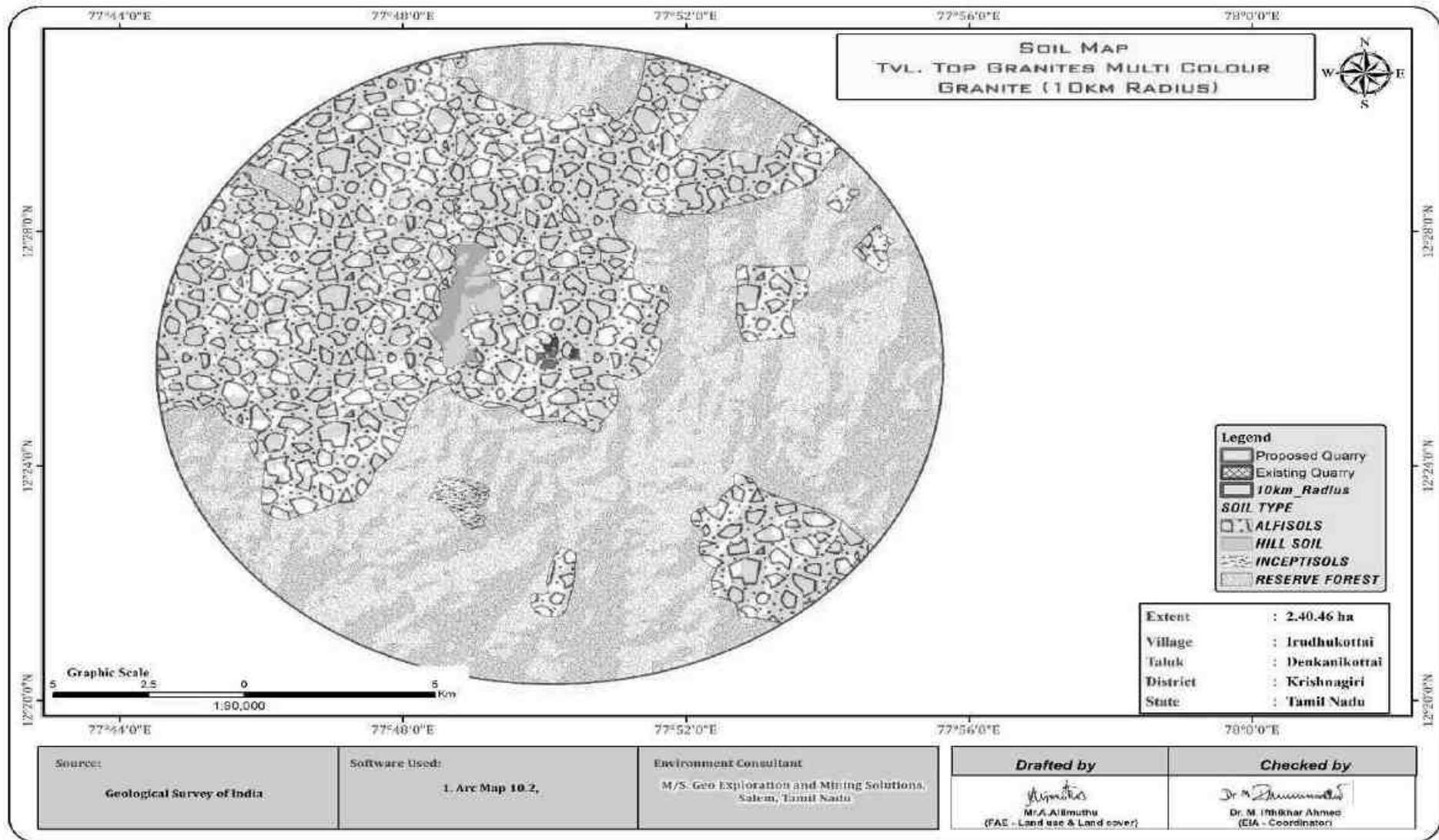


Table 3.7: Soil Quality of the Study Area

S.No	Test Parameters	Protocols	S1-Core zone	S2- Salivaram	S3- Arasajaur	S4- Unsatti	S5- Kurubatti	S6- Maniyampadi
1	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff:2016)	8.16	8.71	8.66	8.08	8.61	8.56
2	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2016)	485 µmhos/cm	550 µmhos/cm	404 µmhos/cm	550 µmhos/cm	350 µmhos/cm	586 µmhos/cm
3	Water Holding Capacity	By Gravimetric Method	48.1 %	48.6 %	47.3 %	45.8. %	47.1 %	45.6 %
4	Bulk Density	By Cylindrical Method	1.01 g/cm3	0.99 g/cm3	1.04 g/cm3	1.08 g/cm3	1.11 g/cm3	1.10 g/cm3
5	Porosity	By Gravimetric Method	46.7 %	47.2 %	46.6 %	47.5 %	48.3 %	46.8 %
6	Calcium as Ca	Food and Agriculture organization of the united Nation Rome 2007 : 2018	41.3 mg/kg	50.1 mg/kg	40.1 mg/kg	60 mg/kg	72.2 mg/kg	57.3 mg/kg
7	Magnesium as Mg	organization of the united Nation Rome 2007 : 2018	31 mg/kg	44 mg/kg	32.6 mg/kg	57.1 mg/kg	42.5 mg/kg	30.1 mg/kg
8	Chloride as Cl	APHA 23 rd Edn 2019 4500 Cl B	51.2 mg/kg	24.1 mg/kg	30 mg/kg	31 mg/kg	28 mg/kg	62 mg/kg
9	Soluble Sulphate as SO ₄	IS 2720 Part 27 : 1977 (Reaff:2015)	0.0012 %	0.0019 %	0.0021 %	0.0031 %	0.0012 %	0.0020 %
10	Total Phosphorus as P	IS 10158 : 1982 (Reaff: 2019)	4.1 mg/kg	3.42 mg/kg	2.9 mg/kg	4.9 mg/kg	3.41 mg/kg	6.11 mg/kg
11	Total Nitrogen as N	IS 14684 : 1999 (Reaff:2019)	402 mg/kg	483.5 mg/kg	510 mg/kg	488 mg/kg	409 mg/kg	430 mg/kg
12	Organic Matter	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.71 %	1.98 %	1.84 %	2.12 %	1.77 %	1.93 %
13	Organic Carbon	IS : 2720 Part 22: 1972 (Reaff: 2015)	0.99 %	1.15 %	1.07 %	1.23 %	1.03 %	1.12 %
14	Texture :							
	Clay		32.6 %	28.9 %	28.6 %	31.8 %	32.5 %	30.1 %
	Sand		31.9 %	32.4 %	32.2 %	32.0 %	33.4 %	32.6 %
	Silt	Gravimetric Method	35.5 %	38.7 %	39.2 %	36.2 %	34.1 %	37.3 %
15	Manganese as Mn	USEPA 3050 B – 1996 &	15.1 mg/kg	20.1 mg/kg	32 mg/kg	15 mg/kg	23 mg/kg	26.1 mg/kg
16	Zinc as Zn	USEPA 6010 C - 2000	2.8 mg/kg	5.16 mg/kg	4.55 mg/kg	7.8 mg/kg	3.13 mg/kg	5.02 mg/kg
17	Boron as B		3.1 mg/kg	4.48 mg/kg	5.66 mg/kg	9.1 mg/kg	5.2 mg/kg	1.11 mg/kg
18	Potassium as K		32.5 mg/kg	43.3 mg/kg	7.43 mg/kg	24 mg/kg	15.5 mg/kg	17 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		2.55	BDL (DL : 1.0 mg/kg)	2.91	3.01	4.1	1.02
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		2.15 mg/kg	1.2 mg/kg	2.22 mg/kg	2.15 mg/kg	2.16 mg/kg	1.16 mg/kg
23	Iron as Fe		3.15 mg/kg	2.39 mg/kg	1.19 mg/kg	4.01 mg/kg	8.16 mg/kg	2.18 mg/kg
24	Cation Exchange Capacity	USEPA 9080 – 1986	41.5 meq/100g of soil	38.2 meq/100g of soil	45 meq/100g of soil	47.0 meq/100g of soil	46 meq/100g of soil	36.6 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 28.6% to 32.6% and Bulk Density of Soils in the study area varied between 0.99– 1.11 g/cm³. The Water Holding Capacity and Porosity of the soil samples is found to be medium i.e. ranging from 45.6 – 48.6 %. And 46.6-48.3%.

- The nature of soil is slightly alkaline to strongly alkaline with pH range 8.16 to 8.71
- The available Nitrogen content range between 402to 510 mg/kg
- The available Phosphorus content range between 2.9 mg/kg -4.9 mg/kg
- The available Potassium range between 7.43 mg/kg to 43.3 mg/kg
- Whereas, the micronutrient as zinc (Zn) and iron (Fe) were found in the range of 2.8 mg/kg to 7.8 mg/kg; 1.19 mg/kg to 8.16 mg/kg.

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

Sl.No.	Water Bodies	Distance
1	Odai	140m NW
2	Tank	270m East
3	Tank	9.2km 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 3.8 and shown as Figure 3.5.

Table 3.9: Water Sampling Locations

S. No	Location Code	Monitoring Locations	Distance & Direction	Coordinates
1	SW-1	Tank Near Andevanapalli	9km NW	12°27'34.34"N 77°45'21.85"E
2	WW-1	Near Project Area	230m East	12°25'43.00"N 77°50'15.26"E
3	WW-2	Salivaram	5.5km SW	12°25'32.41"N 77°46'58.52"E
4	BW-1	Near Project Area	280m West	12°25'42.41"N 77°49'55.13"E
5	BW-2	Unsatti	2.2km SE	12°25'20.40"N 77°51'17.91"E
6	BW-3	Kurubatti	5.5km North	12°28'37.51"N 77°49'31.82"E

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

Figure 3.7: Collection of Water Sample



Table 3.10: Ground Water Sampling Results

S.NO	Parameter	Unit	WW1- Near Project Area	WW2- Salivaram	BW1 Near Project Area	BW2- Unsatti	BW3- Kurubatti
1	Color	Hazen	5	5	5	5	5
2	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
3	pH@ 25°C	-	7.23	7.86	7.09	8.02	7.09
4	Electrical Conductivity	µs/cm	949 µmhos/cm	943 µmhos/cm	983 µmhos/cm	795 µmhos/cm	1105 µmhos/cm
5	Turbidity	NTU	1.0 NTU	1.0 NTU	1.0 NTU	1.0 NTU	1.0 NTU
6	Total Dissolved Solids	mg/l	560 mg/l	556 mg/l	580 mg/l	469 mg/l	652 mg/l
7	Total Hardness as CaCO ₃	mg/l	211.39 mg/l	180.24 mg/l	216.03 mg/l	174.27 mg/l	200.82 mg/l
8	Calcium as Ca	mg/l	37.1 mg/l	32.2 mg/l	35.5 mg/l	30.3 mg/l	35.5 mg/l
9	Magnesium as Mg	mg/l	28.9 mg/l	24.3 mg/l	31 mg/l	24 mg/l	27.3 mg/l
10	Total Alkalinity	mg/l	165 mg/l	165.5 mg/l	180 mg/l	132.4 mg/l	195.1 mg/l
11	Chloride as Cl ⁻	mg/l	112.4 mg/l	124 mg/l	115 mg/l	72.5 mg/l	150 mg/l
12	Sulphate as SO ₄ ⁻	mg/l	51.5 mg/l	38.1 mg/l	51.9 mg/l	44 mg/l	75 mg/l
13	Iron as Fe	mg/l	0.23 mg/l	0.31 mg/l	0.21 mg/l	0.12 mg/l	0.11 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)	BDL (DL:0.1 mg/l)
15	Fluoride as F	mg/l	0.14 mg/l	0.20 mg/l	0.24 mg/l	0.22 mg/l	0.25 mg/l
16	Nitrates as NO ₃	mg/l	5.5 mg/l	4.13 mg/l	5.1 mg/l	3.33 mg/l	5.0 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)	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)	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)	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)	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)	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)	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)	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)	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)	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)	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)	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)	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)	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)	BDL (DL:0.01 mg/l)
31	Total Coliform	Per 100ml	153 MPN/100ml	177 MPN/100ml	150 MPN/100ml	120 MPN/100ml	128 MPN/100ml
32	E-Coli	Per 100ml	< 1.8 MPN/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)	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)	BDL (DL:0.01 mg/l)
35	Sulphida 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)	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)	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)	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)	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 - Tank Near Andevanapalli
1	Color	Hazen	10 Hazen
2	Odour	-	Agreeable
3	pH@ 25°C	-	7.49
4	Electrical Conductivity @ 25°C	µs/cm	1000 µmhos/cm
5	Turbidity	NTU	4.5 NTU
6	Total Dissolved Solids	mg/l	589 mg/l
7	Total Hardness as CaCO ₃	mg/l	201.82 mg/l
8	Calcium as Ca	mg/l	39.2 mg/l
9	Magnesium as Mg	mg/l	25.3 mg/l
10	Total Alkalinity as CaCO ₃	mg/l	191 mg/l
11	Chloride as Cl ⁻	mg/l	102.7 mg/l
12	Sulphate as SO ₄ ⁻	mg/l	60 mg/l
13	Iron as Fe	mg/l	0.38 mg/l
14	Free Residual Chlorine	mg/l	BDL (DL:0.1 mg/l)
15	Fluoride as F	mg/l	0.25 mg/l
16	Nitrates as NO ₃	mg/l	16.1 mg/l
17	Copper as Cu	mg/l	BDL (DL:0.01 mg/l)
18	Manganese as Mn	mg/l	BDL (DL:0.02 mg/l)
19	Mercury as Hg	mg/l	BDL (DL:0.0005 mg/l)
20	Cadmium as Cd	mg/l	BDL (DL:0.001 mg/l)
21	Selenium as Se	mg/l	BDL (DL:0.005 mg/l)
22	Aluminium as Al	mg/l	BDL (DL:0.005 mg/l)
23	Lead as Pb	mg/l	BDL (DL:0.005 mg/l)
24	Zinc as Zn	mg/l	BDL(DL : 0.05 mg/l)
25	Total Chromium	mg/l	BDL(DL : 0.02 mg/l)
26	Boron as B	mg/l	BDL(DL : 0.05 mg/l)
27	Mineral Oil	mg/l	BDL(DL : 0.01 mg/l)
28	Phenolic Compunds as	mg/l	BDL (DL:0.0005 mg/l)
29	Anionic Detergents as	mg/l	BDL (DL:0.01 mg/l)
30	Cynaide as CN	mg/l	BDL (DL:0.01 mg/l)
31	Biological Oxygen	mg/l	10.1 mg/l
32	Chemical Oxygen	mg/l	44 mg/l
33	Dissolved Oxygen	mg/l	5.5 mg/l
34	Total Coliform	Per 100ml	590 MPN/100ml
35	E-Coli	Per 100ml	162 MPN/100ml
36	Barium as Ba	mg/l	BDL(DL:0.05 mg/l)
37	Ammonia-n (as Total	mg/l	1.42 mg/l
38	Sulphide as H ₂ S	mg/l	BDL (DL:0.01 mg/l)
39	Molybdenum as Mo	mg/l	BDL (DL:0.02 mg/l)
40	Total Arsenic as As	mg/l	BDL (DL:0.005 mg/l)
41	Total Suspended Solids	mg/l	16.0 mg/l

Source: Sampling Results by EHS 360 Labs Private Limited,

3.2.4 Interpretation & Conclusion

Surface Water

Ph:

The pH varied from 7.49 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 589 mg/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 102.7 mg/l, Nitrates varied from 16.1 mg/l, while sulphates varied from 60 mg/l.

Ground Water

The pH of the water samples collected ranged from 7.09 to 7.86 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. The Total Dissolved Solids were found in the range of 469-652mg/l in all samples. The Total hardness varied between 174.27–211.39mg/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-ATS Instrument by qualified Geo physicist with the help of IGIS software and it was inferred that the low resistance encountered at the depth between 64m Bgl. The maximum depth proposed out of proposed projects is 26 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 26m 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 up to 5 m depending upon the topographic conditions. The study area falls in the Denkanikottai which is categorized as Safe (< 70%) as per G.O (MS) No 113 dated 09.06.2016.

There are Six open wells and seven 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	Name	LATITUDE	LONGITUDE	Dec-23	Jan-24	Feb-24
1	BW1	12° 25' 42.3156" N	77° 49' 55.0651" E	63	63.6	64.2
2	BW2	12° 25' 48.3221" N	77° 49' 24.8556" E	63.5	64.1	64.7
3	BW3	12° 26' 17.5279" N	77° 49' 46.2813" E	63.2	63.8	64.4
4	BW4	12° 26' 11.2398" N	77° 50' 30.8482" E	62.8	63.4	64
5	BW5	12° 26' 03.4788" N	77° 50' 42.1788" E	63.6	64.2	64.8
6	BW6	12° 25' 30.6895" N	77° 50' 21.5072" E	63.8	64.4	65
7	BW7	12° 25' 01.2914" N	77° 50' 09.2114" E	63.1	63.7	64.3

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	Dec-23	Jan-24	Feb-24
1	OW-1	12° 25' 43.0465" N	77° 50' 15.3219" E	11.6	12.4	13
2	OW-2	12° 26' 01.5077" N	77° 50' 44.0764" E	12.4	13.2	13.8
3	OW-3	12° 25' 03.5477" N	77° 50' 26.6386" E	12.1	12.9	13.5
4	OW-4	12° 25' 59.7134" N	77° 49' 39.5040" E	12.7	13.5	14.1
5	OW-5	12° 26' 17.6540" N	77° 50' 45.5427" E	11.9	12.7	13.3
6	OW-6	12° 26' 16.8534" N	77° 49' 33.0389" E	13.1	13.9	14.5

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

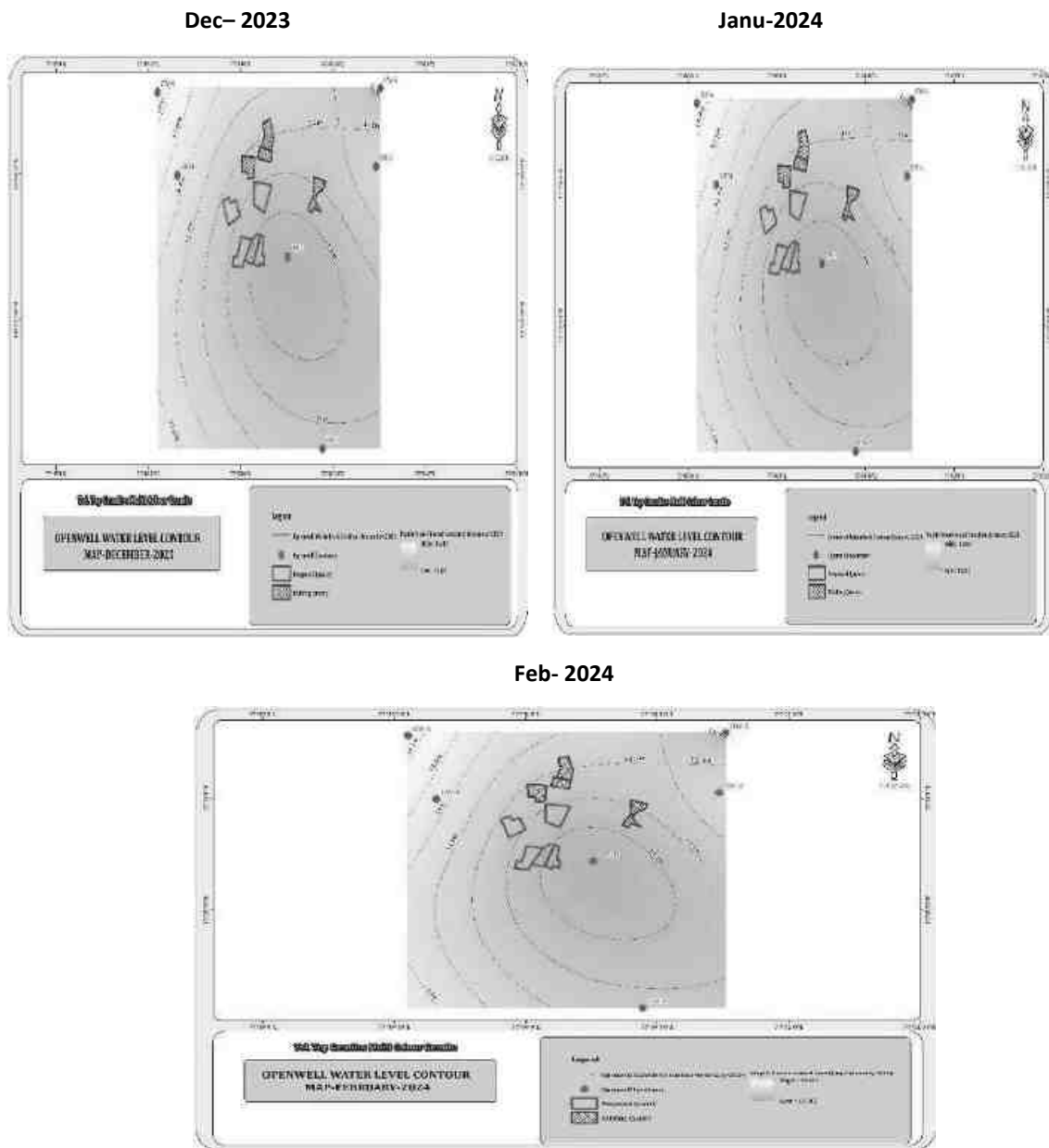


Figure 3.10: Drainage Map Around 10 Km Radius from Project Site

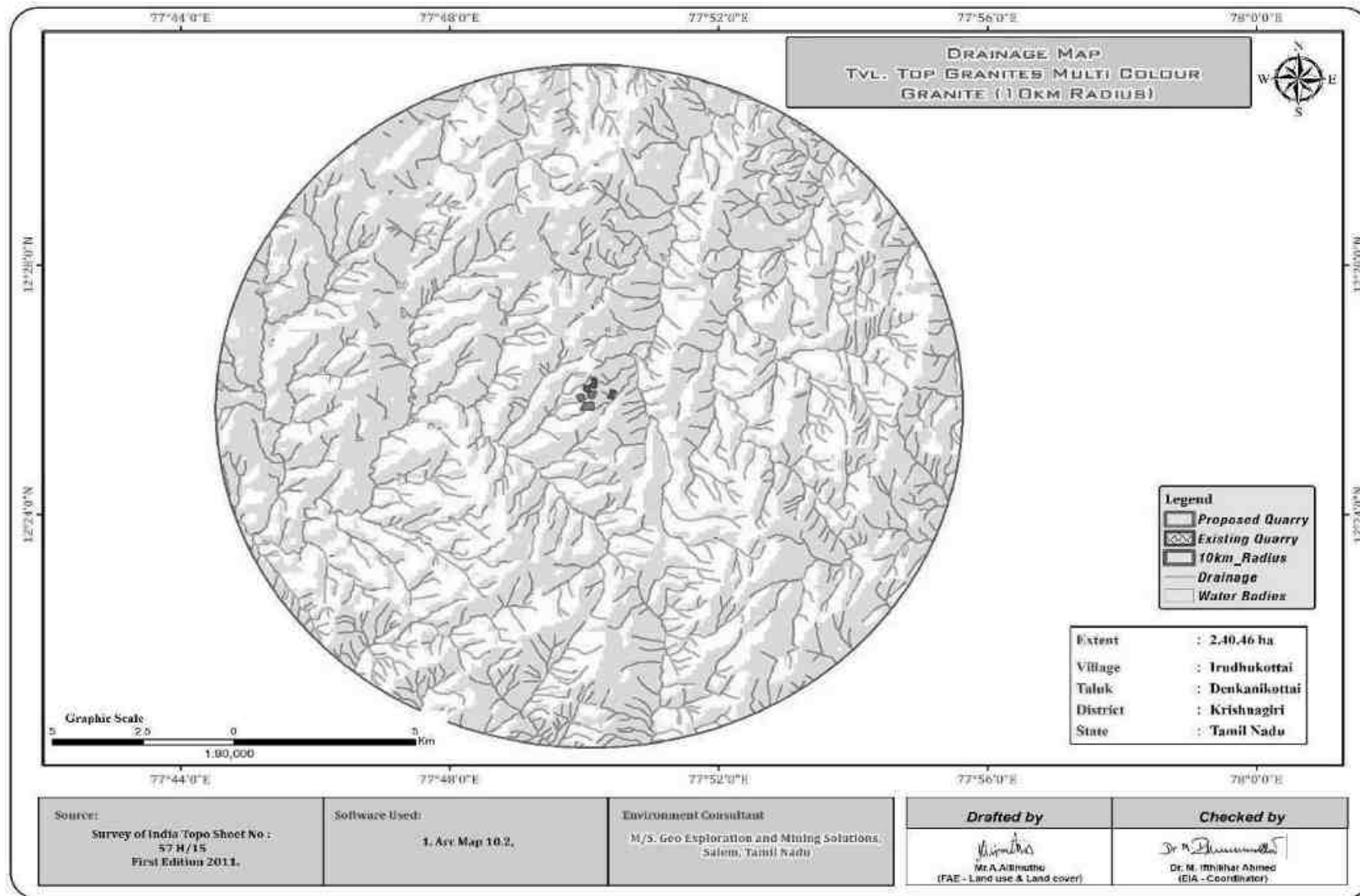
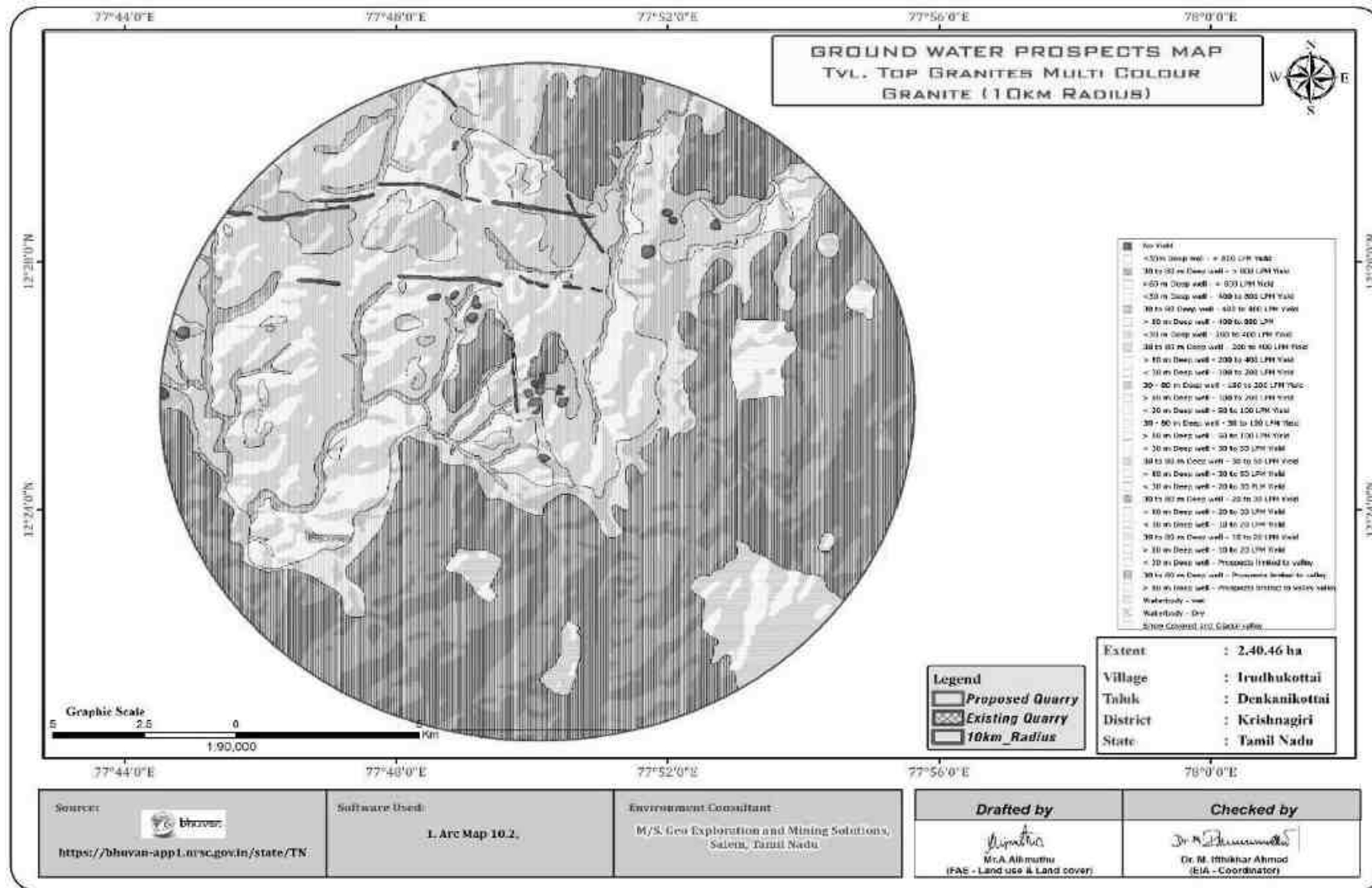


Figure 3.11: Ground Water Prospect Map



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. The summers are much rainier than the winters in Krishnagiri. This climate is considered to be Aw according to the Köppen-Geiger climate classification. The temperature here averages 25.5 °C | 77.9 °F.
- Precipitation here is about 773 mm | 30.4 inch per year.
- Because Krishnagiri is located near the equator, the summers are not easy to define.
- The most opportune time to visit are 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. The greatest amount of precipitation occurs in October, with an average of 144 mm | 5.7 inch. With an average of 29.0 °C | 84.2 °F, April is the warmest month.
- The lowest average temperatures in the year occur in December, when it is 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>

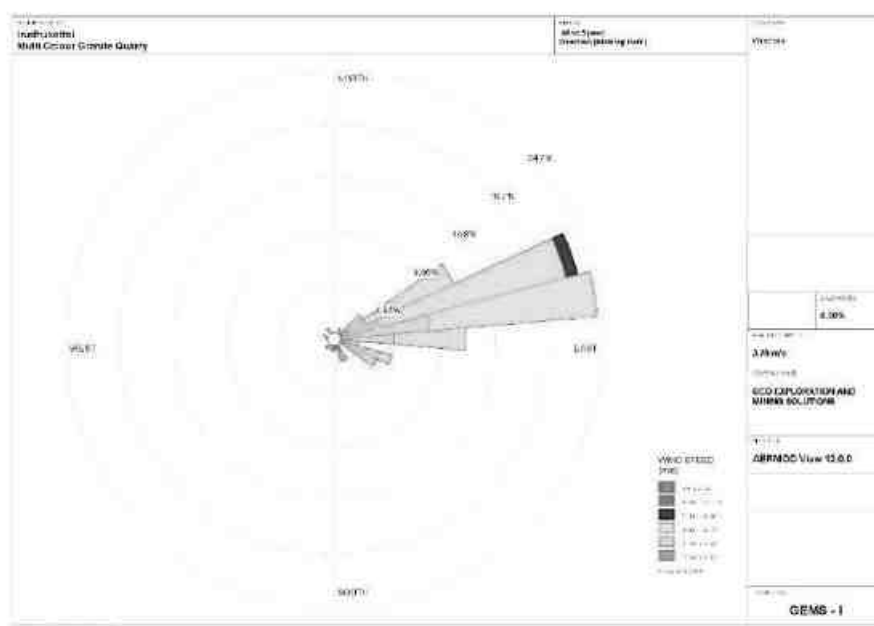
Table 3.15: Meteorological Data Recorded at Site

S.No	Parameters		Dec-2023	Jan-2024	Feb-2024
1	Temperature (°C)	Max	25.63	25.39	28.24
		Min	19.88	22.15	22.85
		Avg	22.75	23.77	25.545
2	Relative Humidity (%)	Avg	76.15	68.18	60.90
3	Wind Speed (m/s)	Max	5.29	5.95	5.05
		Min	1.88	2.27	1.83
		Avg	3.58	4.11	3.44
4	Cloud Cover (OKTAS)		0-8	0-8	0-8
5	Wind Direction		ENE,NE	ENE,E	E, ENE

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 19.88 to 28.24 °C
- Relative humidity ranging from 60.90 to 76.15 %

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 ($\mu\text{g}/\text{m}^3$)	Annual Avg.* 24 hours**	50.0	20.0
			80.0	80.0
2	Nitrogen Dioxide ($\mu\text{g}/\text{m}^3$)	Annual Avg. 24 hours	40.0	30.0
			80.0	80.0
3	Particulate matter (size less than $10\mu\text{m}$) PM ₁₀ ($\mu\text{g}/\text{m}^3$)	Annual Avg. 24 hours	60.0	60.0
			100.0	100.0
4	Particulate matter (size less than $2.5\mu\text{m}$) PM _{2.5} ($\mu\text{g}/\text{m}^3$)	Annual Avg. 24 hours	40.0	40.0
			60.0	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 Seven (7) locations, adopting a continuous 24 hourly (3 shift of 8-hour) schedule for the period Dec 2023 to Feb 2024. 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 $3 \pm 0.5\text{m}$ 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

Seven (7) 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	Core Zone	Project Area	12°25'41.68"N 77°50'5.87"E
2	AAQ2	Thottikuppam	450m SE	12°25'32.77"N 77°50'20.04"E
3	AAQ3	Salivaram	5.5km SW	12°25'27.03"N 77°46'53.39"E
4	AAQ4	Arasajaur	3km NE	12°26'32.51"N 77°51'36.79"E
5	AAQ5	Unsatti	2.2km SE	12°25'12.47"N 77°51'13.50"E
6	AAQ6	Kurubatti	5.5km North	12°28'36.59"N 77°49'32.74"E
7	AAQ7	Maniyampadi	5.8km NW	12°26'58.08"N 77°47'8.52"E

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

Figure 3.13: Site Photographs of Ambient Air Quality Monitoring



Source: Field Photos

Figure 3.14: Ambient Air Quality Locations Around 10 Km Radius

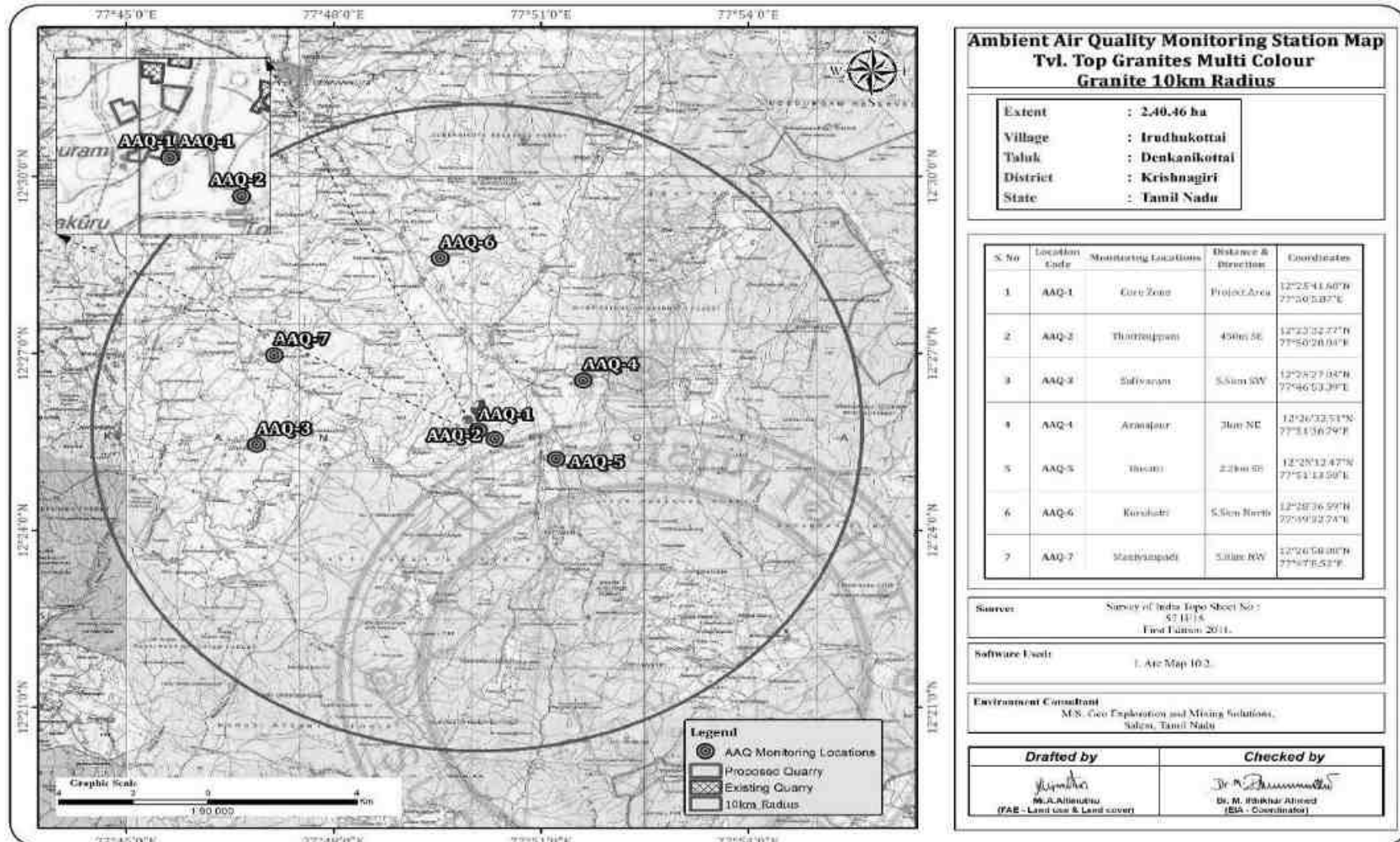


Table 3.26: Abstract of Ambient Air Quality Data

1	Parameter	PM10	PM2.5	SO ₂	NO ₂
2	No. of Observations	260	260	260	260
3	10 th Percentile Value	42.9	19.4	5.2	21.2
4	20 th Percentile Value	43.6	20.2	5.5	21.9
5	30 th Percentile Value	43.9	20.6	5.8	22.3
6	40 th Percentile Value	44.1	21.0	6.1	22.6
7	50 th Percentile Value	44.6	21.3	6.3	22.9
8	60 th Percentile Value	44.8	21.5	6.5	23.4
9	70 th Percentile Value	45.1	21.7	6.6	23.7
10	80 th Percentile Value	45.6	22.0	6.9	23.9
11	90 th Percentile Value	45.9	22.6	7.4	24.6
12	95 th Percentile Value	46.5	22.9	7.6	24.8
13	98 th Percentile Value	46.8	23.1	7.9	25.2
14	Arithmetic Mean	44.9	21.5	6.5	23.3
15	Geometric Mean	44.9	21.5	6.5	23.3
16	Standard Deviation	1.2	1.1	0.9	1.3
17	Minimum	42.9	19.4	5.2	21.2
18	Maximum	46.8	23.1	7.9	25.2
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 3.27: Summary of Ambient Air Quality Data (AAQ1-AAQ7)

PM10	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7
Arithmetic Mean	45.3	43.8	45.0	45.1	45.0	45.0	43.6
Minimum	43.8	42.0	43.2	43.6	43.6	42.1	41.9
Maximum	46.9	45.3	46.7	46.8	46.5	46.7	45.8
NAAQ Norms	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PM2.5	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7
Arithmetic Mean	21.1	21.3	20.8	22.2	45.0	43.8	19.4
Minimum	20.0	20.2	18.9	21.1	20.0	21.0	18.1
Maximum	21.8	23.0	22.4	23.9	21.9	23.2	20.9
NAAQ Norms	60.0	60.0	60.0	60.0	60.0	60.0	60.0
SO ₂	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7
Arithmetic Mean	6.8	6.7	6.2	6.2	6.2	6.0	6.0
Minimum	5.0	5.1	5.2	5.0	5.0	5.1	4.3
Maximum	8.0	7.9	7.7	7.9	7.3	7.6	7.2

NAAQ Norms	80.0	80.0	80.0	80.0	80.0	80.0	80.0
NO2	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7
Arithmetic Mean	23.5	23.3	23.0	23.4	23.1	22.4	21.6
Minimum	21.4	21.3	21.1	21.2	20.5	20.7	19.1
Maximum	24.9	24.9	24.4	25.6	24.9	23.9	23.9
NAAQ Norms	80.0	80.0	80.0	80.0	80.0	80.0	80.0

Figure 3.15: Bar diagram of summary of air quality model (AAQ1-AAQ8)

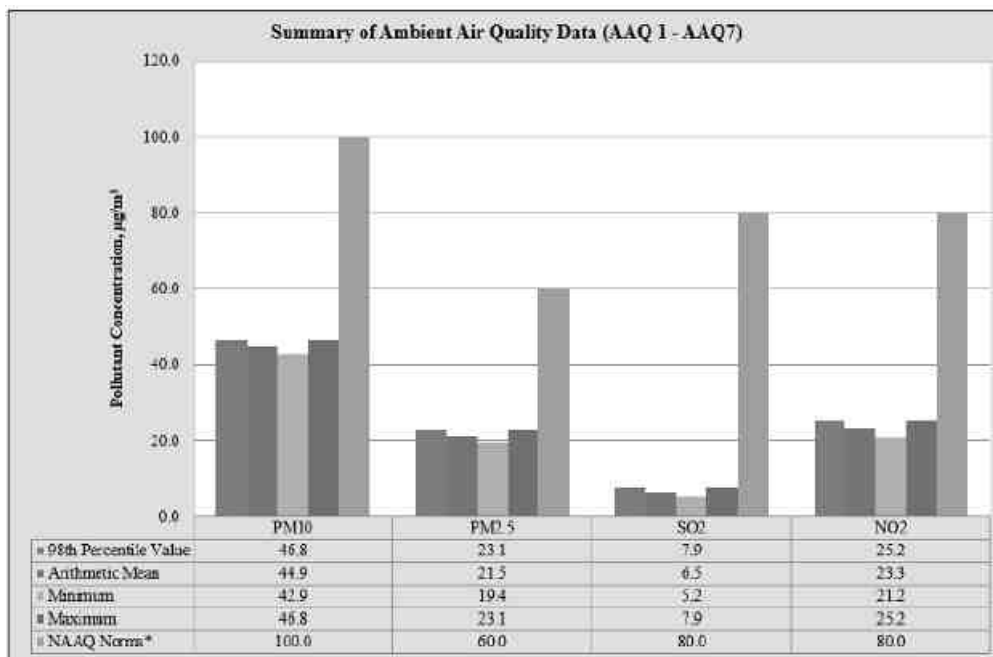


Figure 3.17-A : Bar diagram of particulate matter (PM2.5)

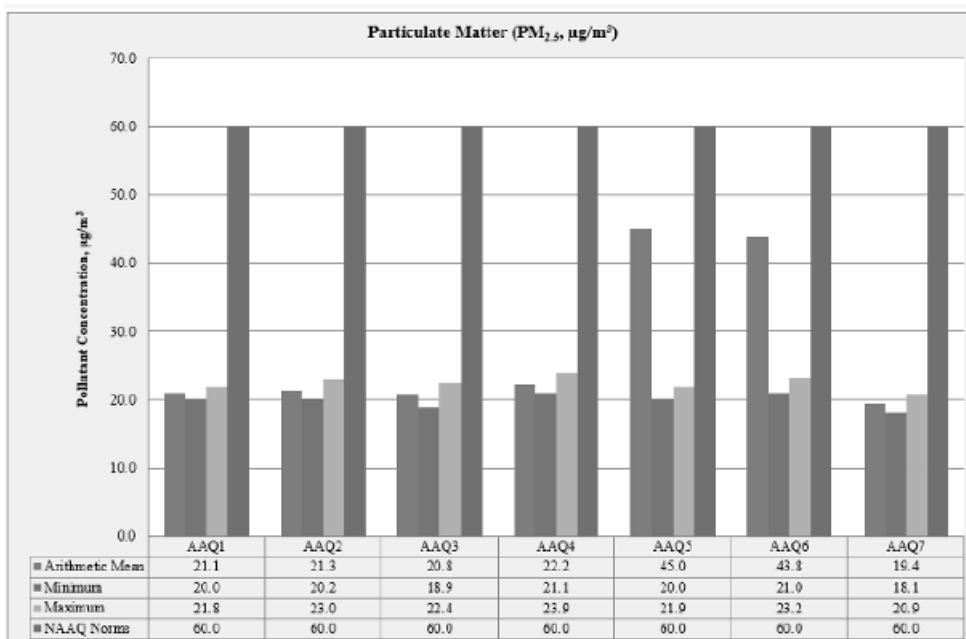


Figure 3.16: Bar diagram of particulate matter (PM₁₀)

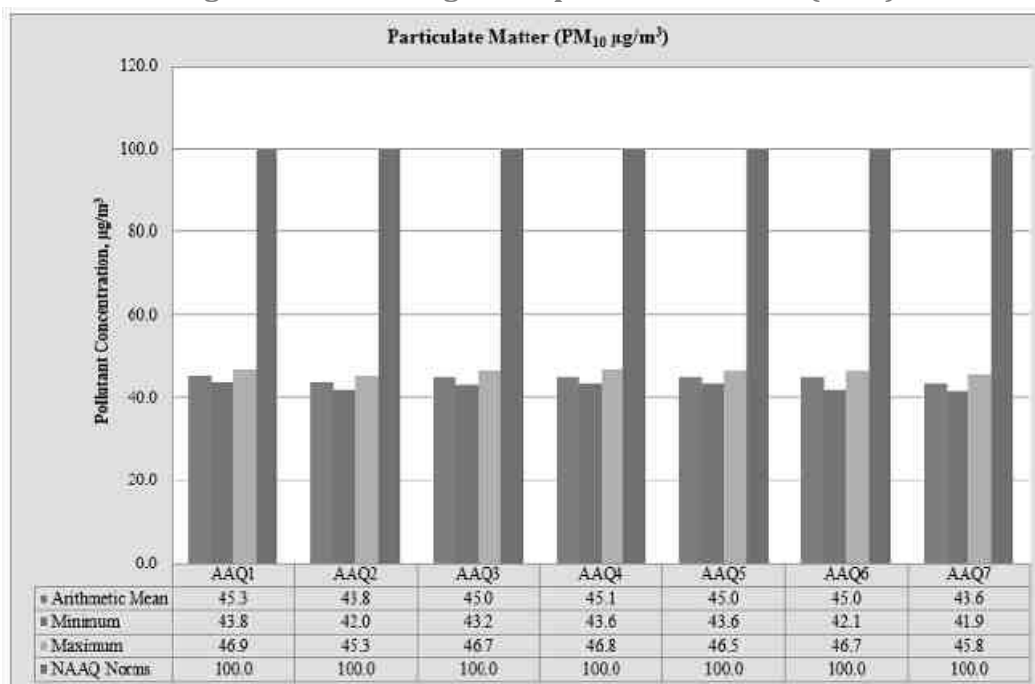


Figure 3.17: Bar diagram of particulate matter (SO₂)

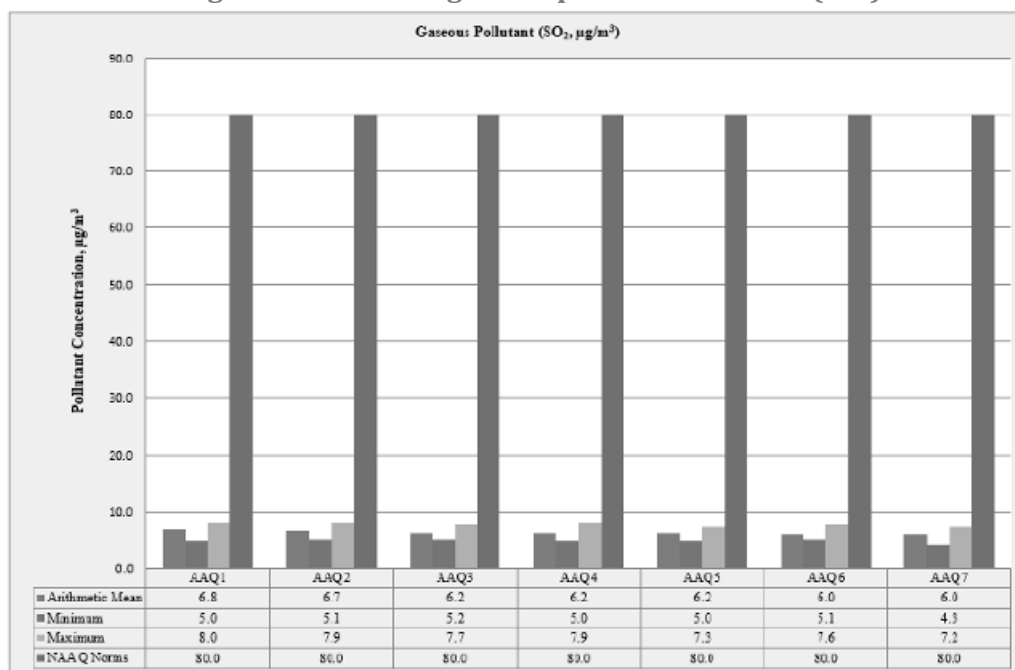
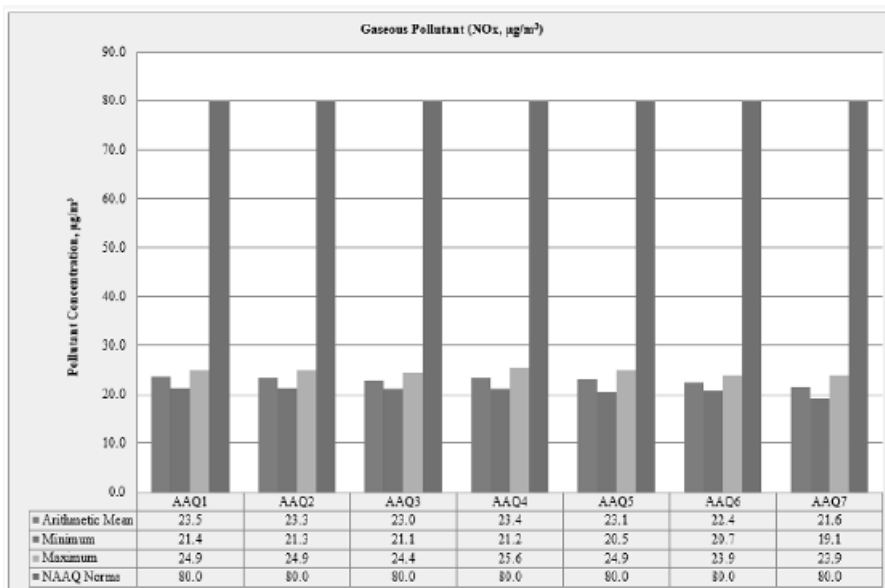


Figure 3.18: Bar diagram of particulate matter (SO₂)



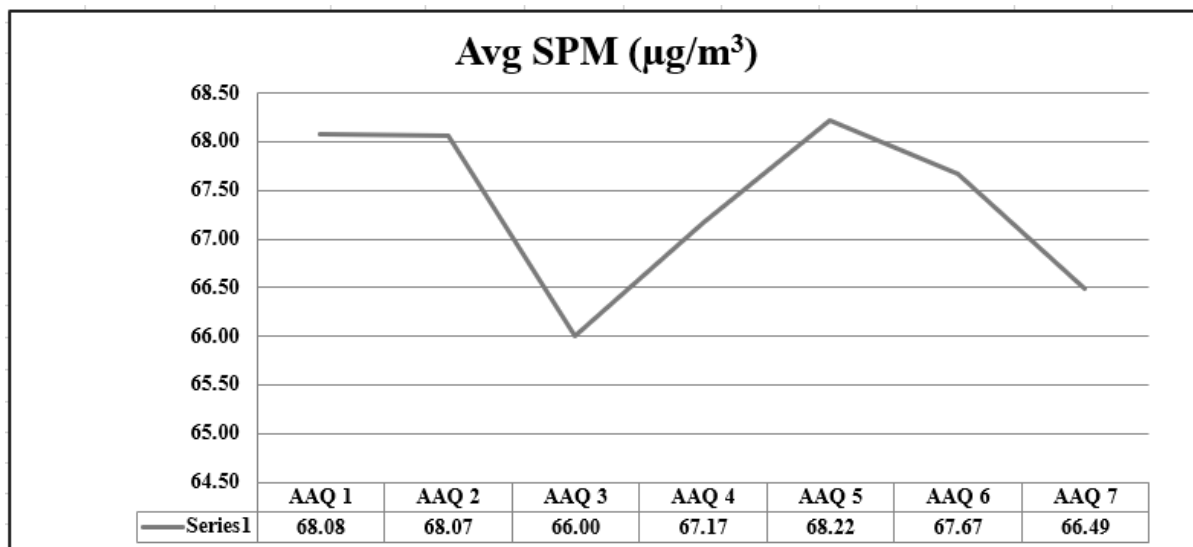
3.3.7 FUGITIVE DUST EMISSION –

Fugitive dust was recorded at 7 AAQ monitoring stations for 30 days average during the study period.

Table 3.28: Average Fugitive Dust Sample Values In mg/m³

AAQ Locations	Avg SPM (µg/m ³)
AAQ 1	68.08
AAQ 2	68.07
AAQ 3	66.00
AAQ 4	67.17
AAQ 5	68.22
AAQ 6	67.67
AAQ 7	66.49

Source: Onsite monitoring/ sampling by EHS360 Labs Private Limited

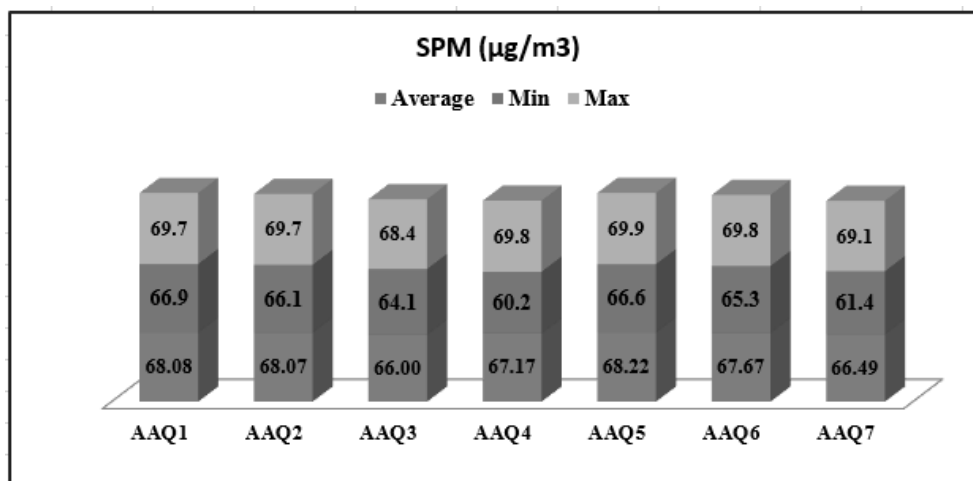


Source: Line Diagram of Table 3.25

Table 3.29 : 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
Average	68.08	68.07	66.00	67.17	68.22	67.67	66.49
Min	66.9	66.1	64.1	60.2	66.6	65.3	61.4
Max	69.7	69.7	68.4	69.8	69.9	69.8	69.1

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 $46.9 \mu\text{g}/\text{m}^3$ recorded at Core area and minimum is $41.9 \mu\text{g}/\text{m}^3$ recorded at Maniyampadi Village. The concentration of PM_{2.5} varies from $18.1 - 23.9 \mu\text{g}/\text{m}^3$ Minimum concentration was recorded at Maniyampadi Village and Maximum concentration of PM_{2.5} recorded at Arasajaur Village. SO₂ concentration level ranged from $4.3 - 8.0 \mu\text{g}/\text{m}^3$ and NO₂ concentration ranged from $19.1 - 25.6 \mu\text{g}/\text{m}^3$ 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).

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 3.30: Details of Noise Monitoring Locations

S. No	Location code	Monitoring Locations	Distance & Direction	Coordinates
1	N1	Core Zone	Project Area	12°25'43.17"N 77°50'5.19"E
2	N2	Thottikuppam	450m SE	12°25'32.41"N 77°50'20.57"E
3	N3	Salivaram	5.5km SW	12°25'27.81"N 77°46'53.81"E
4	N4	Arasajaur	3km NE	12°26'31.35"N 77°51'38.72"E
5	N5	Unsatti	2.2km SE	12°25'12.16"N 77°51'13.06"E
6	N6	Kurubatti	5.5km North	12°28'35.30"N 77°49'33.73"
7	N7	Maniyampadi	5.8km NW	12°26'59.77"N 77°47'8.00"E

Source: On-site monitoring/sampling by EHS360 Labs Private Limited in association with GEMS



Figure 3.19. Collection of Noise Sample

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.

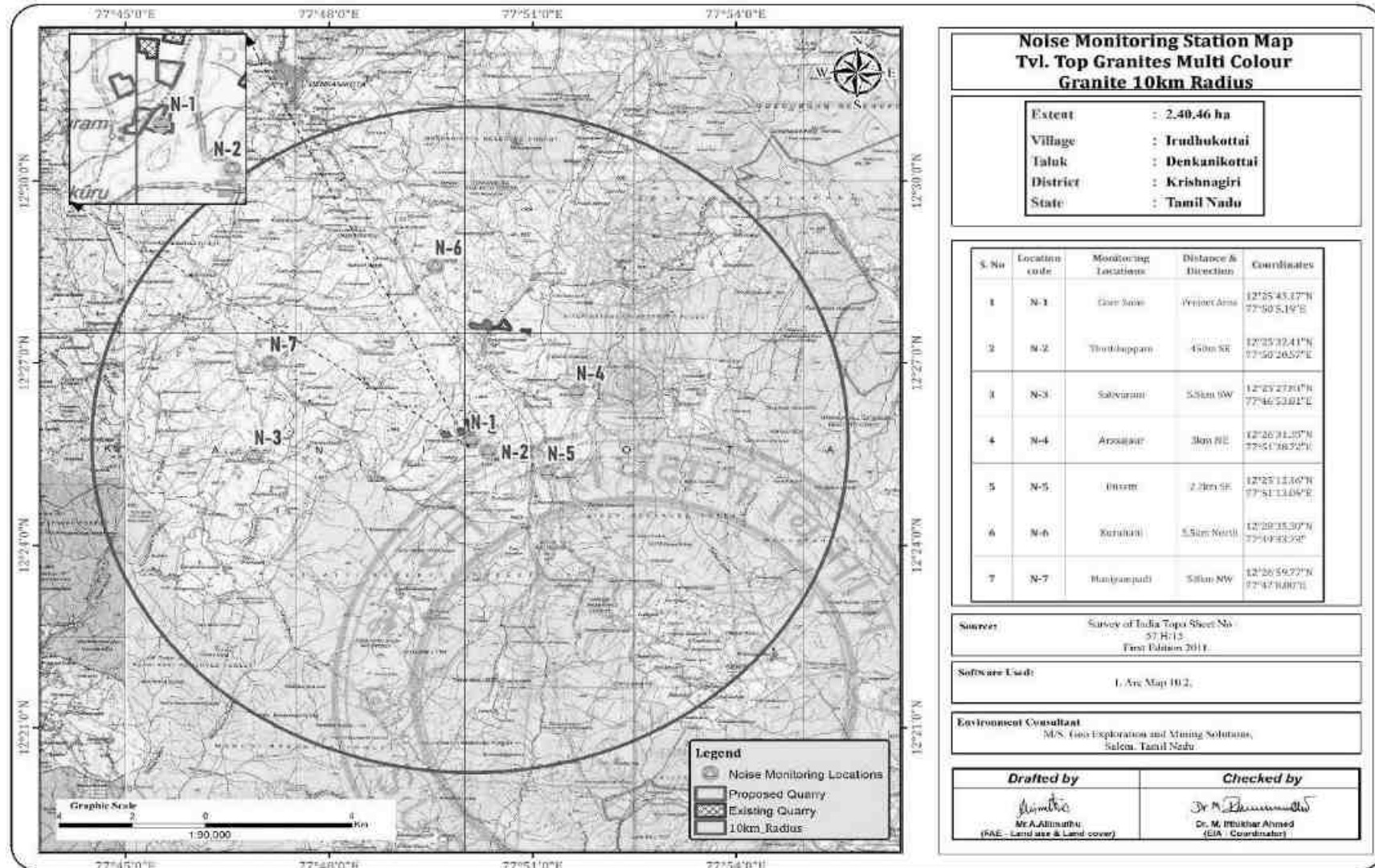
Measured noise levels, displayed as a function of time, is useful for describing the acoustical climate of the community. Noise levels recorded at each station with a time interval of about 60 minutes are computed for equivalent noise levels. Equivalent noise level is a single number descriptor for describing 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 3.20: 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.

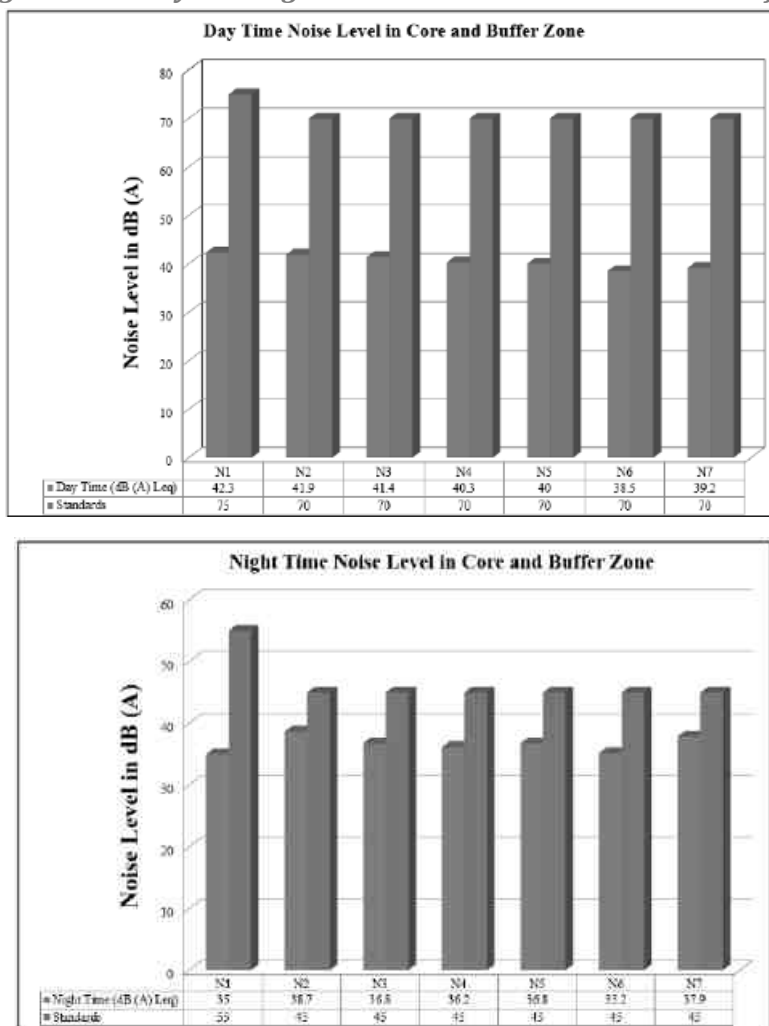
Night time: 22:00 hours to 6.00 hours.

Table 3.31: Ambient Noise Quality Result

S. No	Locations	Noise level (dB (A) Leq)		Ambient Noise Standards
		Day Time	Night Time	
1	Core Zone	42.3	35.0	Industrial Day Time- 75 dB (A) Night Time- 70 dB (A)
2	Near Existing Quarry	41.9	38.7	
3	Kadisihalli	41.4	36.8	
4	Muluvanapalli	40.3	36.2	Residential Day Time– 55 dB (A) Night Time- 45 dB (A)
5	Agalakotta	40.0	36.8	
6	Gangadevanpalli	38.5	35.2	
7	Kundhukottai	39.2	37.9	

Source: On-site monitoring/sampling by EHS360 Labs Private Limited in association with GEMS

Figure 3.21: Day and Night Time Noise Levels In Core And Buffer



3.4.4 Interpretation & Conclusion:

Ambient noise levels were measured at 7 (Seven) locations around the proposed project area. Noise levels recorded in core zone during day time were from 42.3 dB (A) Leq and during night time were from 35 dB (A) Leq. Noise levels recorded in buffer zone during day time were from 38.5– 41.9 dB (A) Leq and during night time were from 35.2 – 38.7 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 42.3 dB(A) Leq in core zone and 36.2 dB(A) Leq in minimum core zone area and 35 dB(A) in Core zone & 38.7 dB(A) in Thottikuppam village 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 8.63.26 Ha with 4 No. of quarries. 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 Irudhukottai Multicolour 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.

The present study was carried out in two separate headings for floral and faunal community. The aspects to be covered in the study for the project are given in Table No 3.53.

Table No: 3.53: Aspect to be covered in the study area

Aspect of Environment	Impacts
A. Terrestrial Ecology	Impacts on terrestrial flora and fauna
	Impacts on Rare-Endangered-Threatened (RET) wildlife
B. Aquatic Ecology	Impacts on aquatic fauna/flora
	Impacts on spawning and breeding grounds for aquatic species

3.5.2. Objectives of Biological Studies

- 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.
- Identification and listing of flora and fauna which are important as per the Wildlife (Protection) Act 1972.
- 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.
- To identify the impacts of mining on agricultural lands and how it affects.
- 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, 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 ordinates. 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).

The secondary baseline data of flora and fauna has been complied through the following data sources:

1. Forest working plan
2. Schedule I to V: Indian Wildlife (Protection) Act, 1972
3. Vivek Menon, Indian Mammals: A Field Guide. Hachette Book publishing India Pvt.Ltd., India.
4. Daniel J.C. The Book of Indian Reptiles and Amphibians, Bombay Natural History Society., India.
5. Ali, S and Ripley. handbook of the Birds of India and Pakistan together with those of Nepal, Sikkim and Bhutan, Oxford University Press, Bombay.
6. ENVIS Centre on Wildlife and Protected Area.
7. Birds Life Data Zone
8. Ebird.org
9. Global Biodiversity Information Facility

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. Field Equipment's/ References

Following tools/equipment was used for conducting phytosociological study.

- Ballpoint pen, Field bags, Field notebooks, field shoes, gloves, GPS, Measuring tapes and scales, Plant cutters, packet lens, ropes etc.
- 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 (Fauna Sampling)

3.5.4.1. Transect walk – Birds

Eight 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. 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 for trees, Shrubs, and herbs respectively.

3.5.1. Flora Composition in the Core Zone

Core zone flora sampling was conducted between 8.00 am to 10.00 am in two locations. The proposed applied area exhibits elevated terrain. We used with transect sampling methods. Taxonomically a total of 16 species belonging to 10 families have been recorded from the core zone mining lease area. The area is situated slightly elevated terrain. Based on the habitat classification of the enumerated plants the majority of species were Herbs 7, followed by Shrubs 4, Trees 4, and Climbers 1. Details of flora with the scientific names were mentioned in Table No. 3.54. The result of the core zone of flora studies shows that Fabaceae and Lamiaceae are the main dominating species in the study area mentioned in Table No.3.54. No species were found as threatened category.

Table No: 3.54. Flora in the Core zone of Cluster area, Irudhukottai Village, Multicolour Granite quarry (Primary data)

S.No	English Name	Vernacular Name	Scientific Name	Family Name
Trees				
1.	Mesquite	Velikathan maram	<i>Prosopis juliflora</i>	Fabaceae
2.	Millettia pinnata	Pongam oiltree	<i>Pongamia pinnata</i>	Fabaceae
3.	Acacia Nilotica	Karuvelam maram	<i>Vachellia nilotica</i>	Fabaceae
4.	Neem	Vembu	<i>Azadirachta indica</i>	Meliaceae
Shrubs				
1.	Wild sage	Unichedi	<i>Lantana camara</i>	Verbenaceae
2.	Milk Weed	Erukku	<i>Calotropis gigantea</i>	Apocynaceae
3.	Prickly pear	Nagathali	<i>Opuntia dillenii</i>	Cactaceae
4.	Tanner's cassia	Avaram	<i>Senna auriculata</i>	Fabaceae

Herbs				
1.	Indian doab	Arugampul	<i>Cynodon dactylon</i>	Poaceae
2.	Devil's thorn	Nerunji	<i>Tribulus terrestris</i>	Zygophyllales
3.	Carrot grass	Partiniyam	<i>Parthenium hysterophorus</i>	Asteraceae
4.	Holy basil	Thulasi	<i>Ocimum tenuiflorum</i>	Lamiaceae
5.	Coat buttons	Thatha poo	<i>Tridax procumbens</i>	Asteraceae
6.	Bitter bush	-	<i>Chromolaena odorata</i>	Asteraceae
7.	Bindii	Nerunji mullu	<i>Tribulus terrestris</i>	Zygophyllaceae
Climbers				
8.	Stemmed vine	Perandai	<i>Cissus quadrangularis</i>	Vitaceae

(Sources: Species observation in the field study)



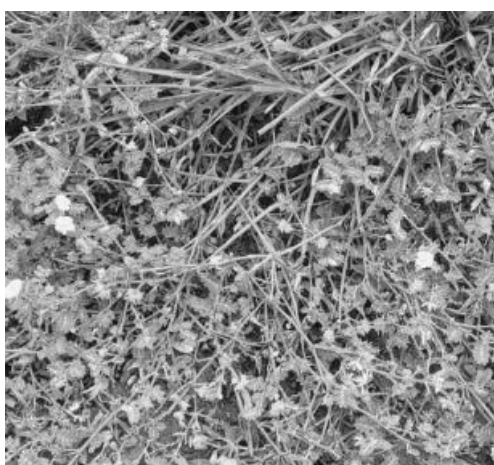
a. *Tridax procumbens*



b. *Ocimum tenuiflorum*



c. *Prosopis juliflora*



d. *Tribulus terrestris*



e.Opuntia ficus-indica

f.Euphorbia antiquorum

Figure No: 3.22. Flora species observation in the Core zone area

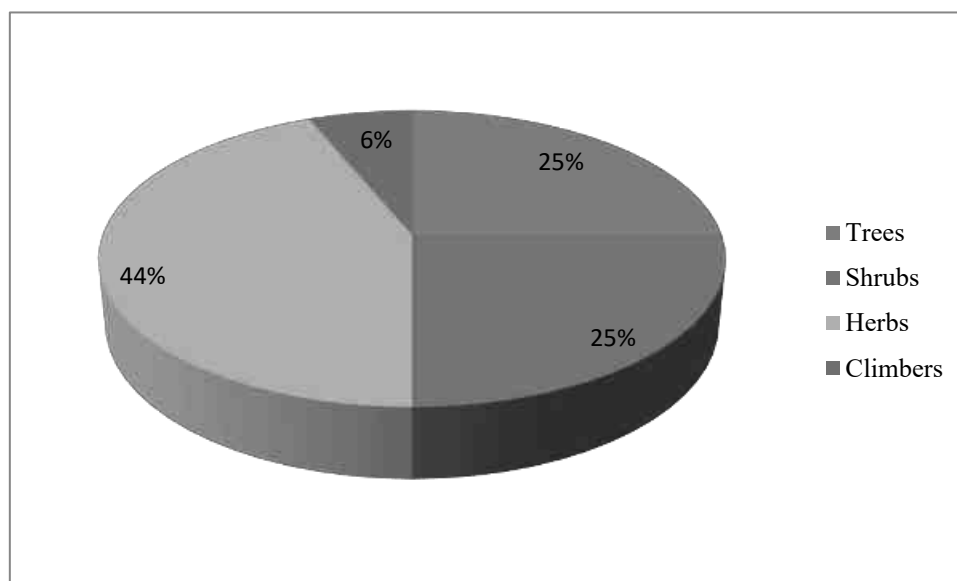


Fig No. 3.23: Graph Showing % Distribution Of Floral Life Forms (Core Zone- Cluster area)

The trees surveys were conducted around 300m radius from the proposed project site cluster are of Irudhukottai village. This is the standard scientific method followed by various workers in respect of phytosociological studies (Cottom and Curtis 1956; Ralhan et al. 1982; Saxena and Sing 1982; Nayak et al. 2000; Lu et al. 2004; Nautiyal 2008). While sampling, circumference at breast Height (CBH) of tree species was measured at 1.27m from ground level, along with the name of the species, phenology (flowering, fruiting, and flushes), and uses. After surveying areas, a detailed trees inventory has been compiled. A list of all plants from the study area was prepared and their habitats were recorded. The species of trees were documented during this base line survey. The dominant plant species growing in this area were *Azadirachta indica* *Prosopis juliflora*, etc. Please refer the Table No.3.55.

Table No: 3.55. Tree survey around 300m radius from the proposed project site (Primary data)

S.No	English Name	Vernacular Name	Scientific Name	No of trees
Trees				
1.	Acacia Nilotica	Karuvelammaram	<i>Vachellianilotica</i>	15
2.	Mesquite	Mullumaram	<i>Prosopis juliflora</i>	44
3.	Neem	Vembu	<i>Azadirachta indica</i>	12
4.	Millettia Pinnata	Pongamoiltree	<i>Pongamia pinnata</i>	6
5.	Tanner's cassia	Avaram	<i>Senna auriculata</i>	8

(Sources: Species observation in the field study)

Table No: 3.56. Flora in Buffer Zone of Irudhukottai Village, Multicolour Granite quarry (Primary data & Secondary data)

Sl.No	English Name	Vernacular Name	Scientific Name	Family Name
Trees				
1.	Neem or Indian lilac	Vembu	<i>Azadirachta indica</i>	Meliaceae
2.	Millettia pinnata	Pongam oiltree	<i>Pongamia pinnata</i>	Fabaceae
3.	Gum arabic tree	Karuvelam	<i>Acacia nilotica</i>	Mimosaceae
4.	Coconut	Thennai maram	<i>Cocos nucifera</i>	Arecaceae
5.	Peepal	Arasamaram	<i>Ficus religiosa</i>	Moraceae
6.	Tamarind	Puliyamaram	<i>Tamarindus indica</i>	Legumes
7.	Beauty leaf	Punnai	<i>Calophyllum inophyllum</i>	Calophyllaceae
8.	Indian fig tree	Athi	<i>Ficus recemosa</i>	Moraceae
9.	Banana tree	Vazhaimaram	<i>Musa</i>	Musaceae
10.	Chebulic myrobalan	Kadukkai	<i>Terminalia chebula</i>	Combretaceae
11.	Indian fir tree	Nettilinkam	<i>Polylathia longifolia</i>	Annonaceae
12.	Castor oil plant	Amanakku	<i>Ricinus communis</i>	Euphorbiaceae
13.	Giant thorny bamboo	Perumungil	<i>Bambusa bambos</i>	Poaceae
14.	Cutch tree	Karungali	<i>Acacia sundra</i>	Legumes
15.	Manilkara zapota	Sapota	<i>Manilkara zapota</i>	Sapotaceae
16.	Eucalyptus	Eucalyptus	<i>Eucalyptus globules</i>	Myrtaceae
17.	Black plum	Navalmaram	<i>Sygygium cumini</i>	Myrtaceae
18.	Lemon	Ezhumuchaipalam	<i>Citrus lemon</i>	Rutaceae
19.	Banyan tree	Alamaram	<i>Ficus benghalensis</i>	Moraceae
20.	Asian Palmyra palm	Panai maram	<i>Borassus flabellifer</i>	Arecaceae
21.	Mango	Manga	<i>Mangifera indica</i>	Anacardiaceae

22.	Teak	Thekku	<i>Tectona grandis</i>	Verbenaceae
23.	Indian gooseberry	Nelli	<i>Emblica officinalis</i>	Phyllanthaceae
24.	Indian fir tree	Nettilinkam	<i>Polylathia longifolia</i>	Annonaceae
25.	Acacia Nilotica	Karuvelam maram	<i>Vachellia nilotica</i>	Fabaceae
26.	Jack fruit	Palamaram	<i>Artocarpus heterophyllus</i>	Moraceae
27.	Creamy Peacock Flower	Vadanarayani	<i>Delonix elata</i>	Fabaceae
28.	Henna	Marudaani	<i>Lawsonia inermis</i>	Lythraceae
29.	Haldina cordifolia	Manja kadambai	<i>Adina cordifolia</i>	Rubiaceae
30.	Papaya	Pappali maram	<i>Carica papaya L</i>	Caricaceae
31.	Chinese chaste tree	Nochi	<i>Vitex negundo</i>	Verbenaceae
32.	Indian bael	Vilvam	<i>Aegle marmelos</i>	Rutaceae
33.	Noni	Nuna maram	<i>Morinda citrifolia</i>	Rubiaceae
34.	Guava	Koyya	<i>Psidium guajava</i>	Myrtaceae
35.	Custard apple	Seethapazham	<i>Annona reticulata</i>	Annonaceae
36.	Curry tree	Velipparuthi	<i>Murraya koenigii</i>	Asclepiadaceae
37.	Bamboo	Moonghil	<i>Bambusa bambo</i>	Poaceae
38.	Hog plum	Chiru-illanthai	<i>Ximenia americana</i>	Olacaceae
Shrubs				
1.	Devil's trumpet	Umathai	<i>Datura metel</i>	Solanaceae
2.	Avaram	Avarai	<i>Senna auriculata</i>	Fabaceae
3.	Castor bean	Amanakku	<i>Ricinus communis</i>	Euphorbiaceae
4.	Puriging nut	Kattamanakku	<i>Jatropha curcas</i>	Euphorbiaceae
5.	Triangular spruge	Chaturakalli	<i>Euphorbia antiquorum</i>	Euphorbiaceae
6.	Jungle geranium	Idly Poo	<i>Ixora coccinea</i>	Rubiaceae
7.	Prickly pear	Nagathali	<i>Opuntia</i>	Cactaceae

8.	Rosy Periwinkle	Nithyakalyani	<i>Cathranthus roseus</i>	Apocynaceae
9.	Ceylon Date Palm	Icham	<i>Phoenix pusilla</i>	Arecaceae
10.	Shoe flower	Chemparuthi	<i>Hibiscu rosa-sinensis</i>	Malvaceae
11.	Milk Weed	Erukku	<i>Calotropis gigantea</i>	Apocynaceae
12.	Ipomoea cornea	Neivelikattamanaku	<i>Ipomoea carnea</i>	Convolvulaceae
13.	Puriging nut	Kattamanakku	<i>Jatropha curcas</i>	Euphorbiaceae
14.	Malabar catmint	Pei veratti	<i>Anisomelesmalabarica</i>	Lamiaceae
15.	Touch-me-not	Thottalchinungi	<i>Mimosa pudica</i>	Mimosaceae
16.	Indian mallow	Thuthi	<i>Abutilon indicum</i>	Meliaceae
17.	Night shade plan	Sundaika	<i>Solanum torvum</i>	Solanaceae
18.	Rosary pea	Kundumani	<i>Abrus precatorius</i>	Fabaceae
19.	Indian Oleander	Arali	<i>Nerium indicum</i>	Apocynaceae
20.	West Indian Lantana	Unni chedi	<i>Lantana camara</i>	Verbenaceae
Herbs				
1.	Carrot grass	Partiniyam	<i>Parthenium hysterophorus</i>	Asteraceae
2.	Billygoat weed	Pumpillu	<i>Ageratum conyzoides</i>	Asteraceae
3.	Aloe barbadensis	Katrazhai	<i>Aloe vera</i>	Asphodelaceae
4.	Madagascar Periwinkle	Nithyakalyani	<i>Catharanthus roseus</i>	Apocynaceae
5.	Indian Mercury	Kuppamani	<i>Acalypha indica</i>	Euphorbiaceae
6.	Indian nettle	Nayuruvi	<i>Achyranthes aspera</i>	Amaranthaceae
7.	Bui	Ciru-pulai	<i>Aervalanata</i>	Amaranthaceae
8.	Chocolate weed	Punnakkupoond	<i>Melochiacorchorifolia</i>	Sterculiaceae
9.	Indian doab	Arugampul	<i>Cynodondactylon</i>	Poaceae
10.	Cleome viscosa	Nai kadugu	<i>Celome viscosa</i>	Capparidaceae
11.	Common leucas	Thumbai	<i>Leucas aspera</i>	Lamiaceae

12.	Asthma-plant	Amman pacharisi	<i>Euphorbia hirta</i>	Euphorbiaceae
13.	Poor land flatsedg	Kunnakora	<i>Cyperus compressus</i>	Cyperaceae
14.	False daisy	Karisilanganni	<i>Ecliptaprostata</i>	Asteraceae
15.	Tridax daisy	Veetukaayapoond	<i>Tridax procumbens</i>	Asteraceae
16.	Slender amaranth	Sirukeerai	<i>Amaranthus polygonoides</i>	Amaranthaceae
17.	European black nightshade	Manathakkali	<i>Solanumnigrum</i>	Solanaceae
18.	Holy basil	Thulasi	<i>Ocimumtenuiflorum</i>	Lamiaceae
19.	Mexican prickly poppy	Eli-yotti	<i>Argemone mexicana</i>	Papaveraceae
20.	Punarnava	Mukkirattai	<i>Boerhaaviadiffusa</i>	Nyctaginaceae
21.	Prickly amaranth	Mullukkeerai	<i>Amaranthus spinosus</i>	Amaranthaceae
22.	Peanut	Kadalai	<i>Arachis hypogaea</i>	Fabaceae
23.	Red Hogweed	Mukurattai	<i>Boerhaviadiffusa</i>	Nyctaginaceae
24.	Tridax daisy	Thatha poo	<i>Tridax procumbens</i>	Asteraceae
25.	Gale of the wind	Keelaneeli	<i>Phyllanthus niruri</i>	Phyllanthaceae
26.	Eggplant	kathirikai	<i>Solanum melongena</i>	Solanaceae
27.	European black nightshade	Manathakkali	<i>Solanumnigrum</i>	Solanaceae
Climber/Creepers				
1	Ivy gourd	Kovai	<i>Coccinia grandis</i>	Cucurbitaceae
2	Stemmed vine	Perandai	<i>Cissus quadrangularis</i>	Vitaceae
3	Balloon vine	Mudakkotan	<i>Cardiospermum helicacabum</i>	Sapindaceae
4	Butterfly pea	Karkakartum	<i>Clitoria ternatea</i>	Fabaceae
5	Betel	Vettilai	<i>Piper betle</i>	Piperaceae
6	Indian sarsparilla	Nannari	<i>Hemidesmus indicus</i>	Asclepiadaceae
7	Pointed gourd	Kovakkai	<i>Trichosanthes dioica</i>	Cucurbitaceae
8	Butterfly-pea	Sangupoo	<i>Clitoriaternatia</i>	Fabaceae

9	Wild jasmine	Malli	<i>Jasminum augustifolium</i>	Oleaceae
10	Bottle Guard	Sorakkai	<i>Lagenaria siceraria</i>	Cucurbitaceae
11	Mukia maderaspatana	Musumusukkai	<i>Mukia maderaspatana</i>	Cucurbitaceae
12	Watermelon	Tharpoonsani	<i>Citrullus lanatus</i>	Cucurbitaceae
Creeper				
1	Water spinach	Vallikeerai	<i>Ipomoea aquatica</i>	Convolvulaceae
2	Grona triflora	Siru puladi	<i>Desmodium triflorum</i>	Fabaceae
3	Ground Spurge	Sithrapaalavi	<i>Euphorbia prostrata</i>	Euphorbiaceae
4	Nut grass	Korai	<i>Cyperus rotandus</i>	Poaceae
5	Creeping-oxeye	Malai mookuthi poondu	<i>Wedelia trilobata</i>	Asteraceae
Grass				
1	Eragrostis	Pullu	<i>Eragrostis ferruginea</i>	Poaceae
2	Finger grass	Kuruthupillu	<i>Chloris dolichostachya</i>	Poaceae
3	Nut grass	Korai	<i>Cyperus rotandus</i>	Poaceae
4	Marvel grass	Marvel grass	<i>Dichanthium annulatum</i>	Poaceae
5	Jungle rice	Kuthiraivaal Kattuarusi	<i>Echinochloa colona</i>	Poaceae
6	Windmill grass	Chevvarakupul	<i>Chloris barbata</i>	Amaranthaceae

(Sources: [Species observation in the field study and secondary data](#))

3.6. Flora Composition in the Buffer Zone (Primary & Secondary data)

Buffer zone flora sampling was conducted between 10.00 am to 4.00 pm in eight different locations in 10 km radius as per the ToR. The most important and widely used methods for a general assessment is belt transect/quadrates methods. The study area was divided according to habitat types followed the random sampling methods in the selected area. For plant biodiversity study in the ecosystems, the quadrates methods were followed. The proposed applied area is elevated terrain. A similar type of environment is also in buffer area but with more flora diversity compare to core zone area, because of nearby agriculture land and forest covers in all the directions. There are no impacts due to this mining activity all the reserve forest is away from the proposed project site. It contains a total of 105 species belonging to 44 families that have been recorded from the buffer zone. The floral (105) varieties among them Trees 38, Herbs 27, shrubs 20, Climbers 9, Creeper 5 and Grass 6 were identified. The result of the buffer zone of flora studies shows that Poaceae and Fabaceae, Cucurbitaceae are the main dominating species in the study area mentioned in Table No.3.56. 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 is shown in Table 3.57 and their % distribution is shown in Figure No 3.36.

Table No: 3.57. Number of floral life forms in the Study Area

S. No	Plant Life Form	Number of Species
1	Trees	38
2	Shrubs	20
3	Herbs	27
4	Creepers	5
5	Climbers	9
6	Grasses	6
Total No. of Species		105

(Sources:

Species observation in the field study

<https://www.jetir.org/papers/JETIR2204752.pdf>

Global Biodiversity Information Facility

<https://indiaflora-ces.iisc.ac.in/advsrh.php>

Tamil Nadu state Forest department working plan

<https://en.wikipedia.org>

<https://indiaflora-ces.iisc.ac.in>

<https://indiaflora-ces.iisc.ac.in/states.php?id=A-Z&cat=13&state=tamilnadu>

Ethno botanical Survey of Medicinal Plants used by Traditional Healers in Krishnagiri District of Tamil Nadu.

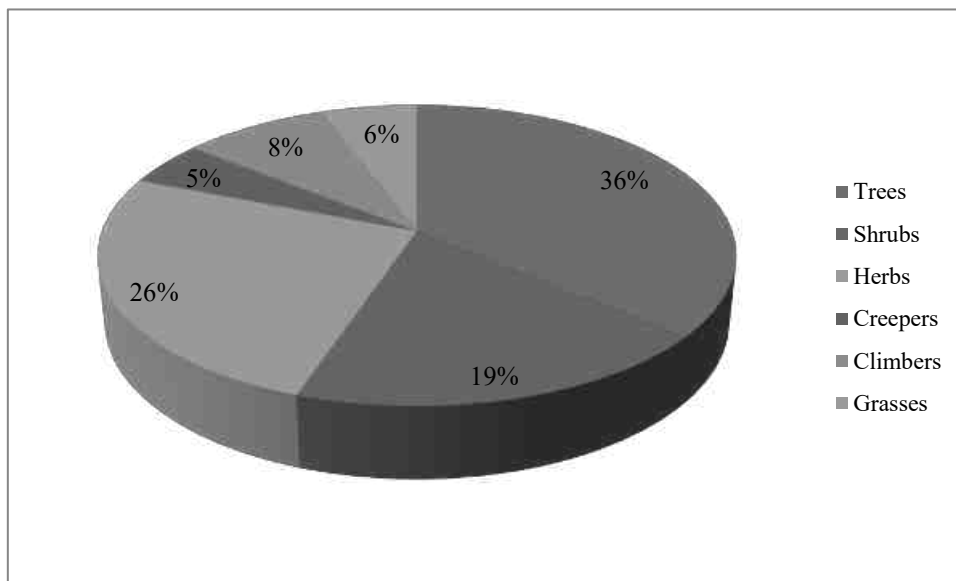


Fig No. 3.24: Graph Showing % Distribution Of Floral Life Forms (Buffer Zone)

3.6.1. 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.

3.6.2. Major Crops in the District

Owing to the climate and soil conditions Krishnagiri District suits to diverse type of cultivation. There are about 26 types 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

Table No: 3.58. List of medicinal plants recorded from the nearby forest area (Primary & Secondary data)

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

13.	Ormocarpum cochinchinense (Lour.) Merr.	Elumbotti	S	Bark	Fever, rheumatism and bone setting.
14.	Phyllanthus urinaria L	Malai Kizhanelli	H	Whole plant	Jaundice, gonorrhoea, urinary diseases, indigestion, bleeding piles and menstrual problems.

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

There is Cauvery North Wild life sanctuary situated at 2km on the Southern side and Eco sensitive zone situated at 1km on the southern side of the area. Gullatty Reserve Forest has located about 2.17 km on the south 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. Hence submission of clearance from the National Board of Wildlife does not arise. 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.

3.7. 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.

3.7.1. Fauna Composition in the Core Zone

Core zone fauna samplings were conducted between 6.00 am to 8.00 am in two locations. A total of 19 varieties of species were observed in the Core zone of Irudhukottai Village Cluster area, Multicolour granite quarry, and gravel quarry (Table No.3.59) among them numbers of Insects/ Butterflies 5, Reptiles 4, Mammals 2, and Avian 9. None of these species are threatened or endemic in the study area and surroundings. There is no Schedule I species and 13 species are under Schedule IV according to the Indian Wildlife Act 1972. A total of 9 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. 3.59.

Table No: 3.59. Fauna in the Core zone of Irudhukottai Village, Multicolour Granite quarry (Primary data)

SI. No	Common Name	Family Name	Scientific Name	Schedule list WPA 1972	IUCN Red List data
Insects/Butterflies					
1.	Striped tiger	Nymphalidae	<i>Danaus plexippus</i>	Schedule IV	LC
2.	Common Tiger	Nymphalidae	<i>Danaus genutia</i>	Schedule IV	LC
3.	Grasshopper	Acrididae	<i>Hieroglyphus sp</i>	NL	LC

4.	Common Tiger	Nymphalidae	<i>Danaus genutia</i>	NL	NL
5.	Termite	Blattodea	<i>Hamitermes silvestri</i>	NE	LC
Reptiles					
1.	Garden lizard	Agamidae	<i>Calotes versicolor</i>	NL	LC
2.	Common skink	Scincidae	<i>Mabuya carinatus</i>	NL	LC
3.	Rat snake	Colubridae	<i>Ptyas mucosa</i>	Sch II (Part II)	LC
4.	Green vine snake	Colubridae	<i>Ahaetulla nasuta</i>	Schedule IV	NL
Mammals					
1.	Indian Field Mouse	Muridae	<i>Mus booduga</i>	Schedule IV	NL
2.	Common rat	Muridae	<i>Rattus rattus</i>	Schedule IV	LC
Aves					
1.	Black drongo	Dicruridae	<i>Dicrurus macrocercus</i>	Schedule IV	LC
2.	Common myna	Sturnidae	<i>Acridotheres tristis</i>	Schedule IV	LC
3.	Sunbird	Nectariniidae	<i>Cinnyris asiaticus</i>	Schedule IV	LC
4.	Shikra	Laniidae	<i>Laniusexcubitor</i>	Schedule IV	LC
5.	House crow	Corvidae	<i>Corvus splendens</i>	Schedule V	LC
6.	Common quail	Phasianidae	<i>Coturnix coturnix</i>	Schedule IV	LC
7.	Koel	Cuculidae	<i>Eudynamys</i>	Schedule IV	LC
8.	Rock pigeon	Columba livi	<i>Columbidae</i>	Schedule IV	LC
9.	Rose-ringed parakeet	Psittaculidae	<i>Psittacula krameri</i>	Schedule IV	LC

(Sources: Species observation in the field study)

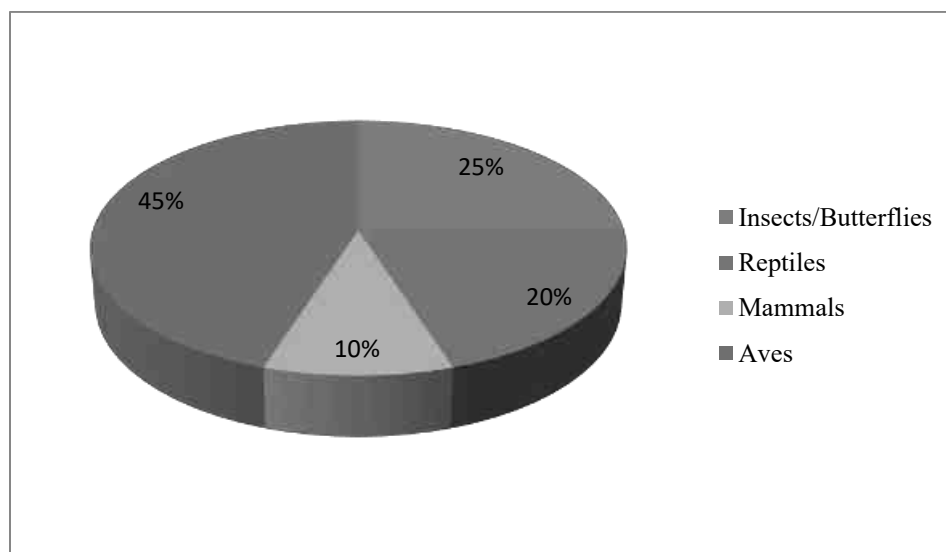


Fig No: 3.25. Distribution Of Faunal Communities (Core Zone)

3.7.2. Fauna Composition in the Buffer Zone

The Buffer zone fauna samplings were conducted between 6.00 am to 8.00 am and 2.30 pm to 6.30 pm in different locations. 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. There is Cauvery North Wild life sanctuary situated at 2km on the Southern side and Eco sensitive zone situated at 1km on the southern side of the area. Gullatty R.F is located about 2.0 km on the south side. 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.

The list of Mammals (*directly sighted animals & Secondary data) is given in table No.3.60. The list of bird species recorded during the field survey and literature from the study area are given in Table 3.61. The list of reptilian species recorded during the field survey and literature from the study area is given in Table 3.62. The list of insect species recorded during the field survey and literature from the study area are given in Table 3.63. The list of Butterflies species recorded during the field survey and literature from the study area are given in Table 3.64. 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.

Taxonomically a total of 69 species recorded were from the buffer zone area. Based on habitat classification the majority of species were birds 30, followed by Butterflies 14, Reptiles 9, Insects 4, Mammals 8, and Amphibians 4. There are two Schedule II species, two species are under the schedule III and thirty nine species are under Schedule IV according to the Indian Wildlife Act 1972. A total of 30 species of bird were sighted in the study area. There are no critically endangered, endangered, vulnerable, and endemic species were observed. There are no impacts on nearby fauna species.

Dominant species are mostly birds, butterflies, and insects, and four amphibian was observed during the extensive field visit *Sphaerotheca breviceps*, *Euphlyctis hexadactylus*, *Bufo melanostictus*, etc. There is no Schedule I Species in the study area. There are no critically endangered, endangered, vulnerable, and endemic species were observed.

Table No: 3.60. List of Fauna & Their Conservation Status, Mammals:

(*directly sighted animals & Secondary data)

Sl. No	Scientific Name	Common Name/English Name	Schedule list WPA 1972
1.	<i>Herpestes edwardsi</i>	Indian Grey Mongoose	Schedule II
2.	<i>Mus booduga</i>	Little Indian field mouse	Schedule IV
3.	<i>Bandicota bengalensis</i>	Indian mole-rat	Schedule IV

4.	<i>Mus musculus</i>	House mouse	Schedule IV
5.	<i>Funambulus palmarum</i>	Common Palm Squirrel	Schedule IV
6.	<i>Rattus rattus</i>	Black rat	Schedule IV
7.	<i>Bandicota indica</i>	Rat	Schedule IV
8.	<i>Lepus nigricollis</i>	Indian Hare	Schedule IV

Table No: 3.61. Listed birds (Primary data and Secondary data)

SI. No	Scientific Name	Common Name	Schedule list WPA 1972
1.	<i>Alcedo atthis</i>	Common Kingfisher	Schedule IV
2.	<i>Copsychus fulicatus</i>	Indian robin	Schedule IV
3.	<i>Dicrurus paradiseus</i>	Racket tailed drongo	Schedule IV
4.	<i>Corvus splendens</i>	House crow	Schedule V
5.	<i>Dicrurus macrocercus</i>	Black Drongo	Schedule IV
6.	<i>Halcyon smyrnensis</i>	White-breasted kingfisher	Schedule IV
7.	<i>Bubulcus ibis</i>	Cattle Egret	Schedule IV
8.	<i>Hypsipetes madagascariensis</i>	Black bulbul	Schedule IV
9.	<i>Columba livia</i>	Rock pigeon	Schedule IV
10.	<i>Turdoides caudatus</i>	Common Babbler	Schedule IV
11.	<i>Acridotheres tristis</i>	Common myna	Schedule IV
12.	<i>Psittacula krameri</i>	Rose ringed parakeet	Schedule IV
13.	<i>Coturnix coturnix</i>	Grey quail	Schedule IV
14.	<i>Passer domesticus</i>	House Sparrow	Schedule IV
15.	<i>Pycnonotus cafer</i>	Red vented Bulbul	Schedule IV
16.	<i>Accipiter badius</i>	Shikra	Schedule IV
17.	<i>Megalaima viridis</i>	Small green barbet	Schedule IV
18.	<i>Cuculus canorus</i>	Cuckoo	Schedule IV
19.	<i>Calidris minuta</i>	Little stint	Schedule IV
20.	<i>Merops orientalis</i>	Small green bee eater	Schedule IV
21.	<i>Nectarinia minima</i>	Small sunbird	Schedule IV
22.	<i>Ardeola grayii</i>	Pond Heron	Schedule IV
23.	<i>Spilopelia chinensis</i>	Spotted dove	Schedule IV
24.	<i>Milvus migrans</i>	Common Kite	Schedule IV
25.	<i>Phalacrocorax niger</i>	Little cormorant	Schedule IV
26.	<i>Egretta garzetta</i>	Little Egret	Schedule IV
27.	<i>Apus apus</i>	Common swift	Schedule IV

28.	<i>Ardea cinerea</i>	Grey heron	Schedule IV
29.	<i>Eudynamys scolopacea</i>	Koel	Schedule IV
30.	<i>Coracias benghalensis</i>	Indian roller	Schedule IV

Table No: 3.62. List of Reptiles either spotted or reported from the study area.

(*indicates direct observations & Secondary data)

SI. No	Scientific Name	Common Name/English Name	Schedule list WPA 1972
1.	<i>Calotes versicolor</i>	Oriental garden lizard	NL
2.	<i>Hemidactylus flaviviridis</i>	House lizards	Schedule IV
3.	<i>Naja naja</i>	Indian cobra	Sch II (Part II)
4.	<i>Ahaetulla nasuta</i>	Green vine snake	Schedule IV
5.	<i>Ptyas mucosa</i>	Rat snake	Sch IV (Part II)
6.	<i>Bungarus caeruleus</i>	Common krait	Schedule IV
7.	<i>Mabuya carinatus</i>	Common skink	NL
8.	<i>Nerodia piscator</i>	Fresh water snake	Sch III (Part II)
9.	<i>Groemyda bijuga</i>	Fresh water tortoise	Sch III (Part II)

Table No: 3.63. List of insects either spotted or reported from the study area

SI. No	Scientific Name	Common Name	Schedule list WPA 1972
1.	<i>Apis cerana</i>	Indian honey bee	-
2.	<i>Hamitermes silvestri</i>	Termite	NE
3.	<i>Hieroglyphus sp</i>	Grasshopper	NL
4.	<i>Ceratogomphus pictus</i>	Dragonfly	-

Table No: 3.64. List of Butterflies reported from the study area and Secondary data

SI. No	Scientific Name	Common Name	Schedule
1.	<i>Papilio clytia</i>	Common mime	-
2.	<i>Euploea core</i>	Euploea core	-
3.	<i>Pachliopta aristolochiae</i>	Common rose	-
4.	<i>Papilio polytes</i>	Common mormon	-
5.	<i>Spialia galba</i>	Indian Skipper	-
6.	<i>Danaus genutia</i>	Common tiger	-
7.	<i>Pachliopta hector</i>	Crimson rose	-
8.	<i>Eurema brigitta</i>	Eurema brigitta	-
9.	<i>Hypolimnas bolina</i>	Hypolimnas bolina	-
10.	<i>Castalius rosimon</i>	Common Pierrot	-

11.	<i>Curetis thetis</i>	Indian Sunbeam	-
12.	<i>Troides minos</i>	Southern birdwing	-
13.	<i>Papilio demoleus</i>	Lime Butterfly	-
14.	<i>Ariadne merione</i>	Common Castor	-

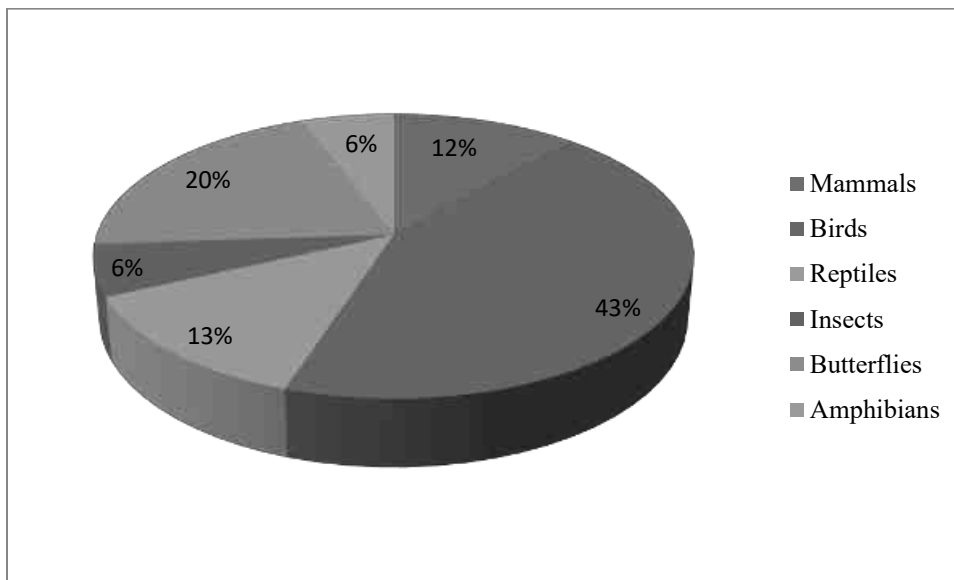


Fig No:3.26. Distribution Of Faunal Communities (Buffer Zone)

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 No 3.65.

Table No: 3.65 Characterizations 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	39	-
5.	Schedule V	1	-
6.	Schedule VI	0	-

Fig No: 3.27. Schedule Of Wildlife Protection Act 1972

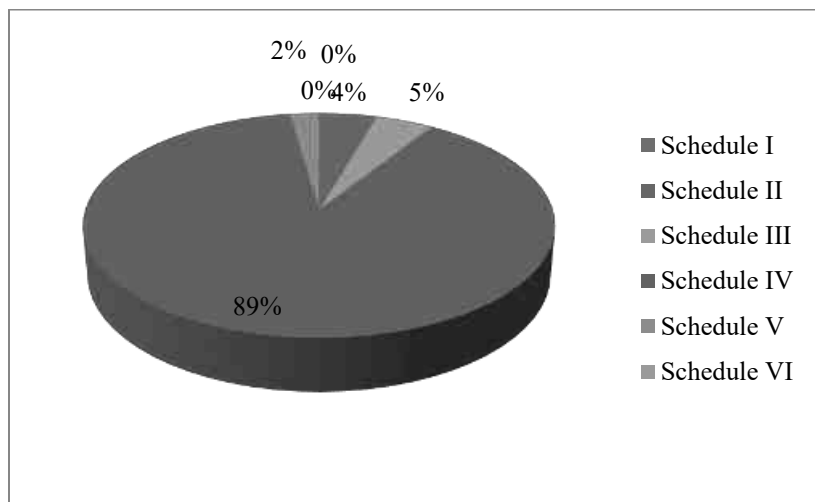


Table 3.66: Description of Flora & Fauna

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	-
11.	Invasive Alien species	None	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 3.66 are the species recorded/reported from the study area, out of which 2 species belongs to schedule-II, 2 species belong to schedule-III, 1 species belongs to schedule-V and rest of the species belongs to schedule-IV of Wildlife protection Act, 1972. And there is no Invasive alien species (IAP) in the study area.

3.7.3. Aquatic Vegetation

The study area has one seasonal lake (Water body) is located about 1.5km on the northeast side. But no major drainage system can be found within the study area. No Aquatic diversity is noticed in the core zone area. 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 3.67.

Table No: 3.67. List of aquatic plants observed in the study area

S.No	Scientific Name	Common Name	Type
1.	<i>Typha angustifolia</i>	Lesser Bulrush	Emergent hydrophytes
2.	<i>Pistia stratiotes</i>	Water lettuce	Free floating hydrophytes
3.	<i>Cyperus articulatus</i>	Jointed flatsedge	Emergent Hydrophytes
4.	<i>Eichhornia crassipes</i>	Common water hyacinth	Free floating hydrophytes

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.

3.6.3.3. Aquatic Faunal Diversity

Amphibian species like the common Indian Burrowing frog, and green pond frog, and etc. were sighted near the water bodies located in the study area.

Table no. 3.68. Amphibians Observed/Recorded from the Study Area

SI. No	Scientific Name	Common Name/English Name	Schedule list wildlife Protection act 1972
1.	<i>Sphaerotheca breviceps</i>	Indian Burrowing frog	Schedule IV
2.	<i>Euphlyctis hexadactylus</i>	Green pond frog	Schedule IV
3.	<i>Bufo melanostictus</i>	Indian Toad	Schedule IV
4.	<i>Euphlyctiscynophlyctis</i>	Skipper	Schedule IV

3.10. Findings/Results

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

S.No	Ecological sensitive habitat	Direction and Distance from the project site
1.	National Parks/ Wildlife Sanctuary/ Biosphere reserves/ Elephant Reserve/ Any Other Reserve	There is Cauvery North Wild life sanctuary situated at 2km on the Southern side and Eco sensitive zone situated at 1km on the southern side of the area. Gullatty R.F is located about 2.0 km on the south side.
2.	Reserved Forests	Nil

3.	Wildlife Corridors & Routes	No notified wildlife corridors are present in 10 km vicinity.
4.	Wetlands / Water bodies	-
5.	Ramsar Site	Nil
6.	Important Bird Habitats	Nil
7.	Breeding/nesting areas of endangered species	Not present
8.	Mangroves	None

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.

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.

Sources:

Invasive Alien Species | IUCN

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3.6 Socio Economic Environment

An essential part of environmental study is socio-economic environment incorporating various facts related to socio-economic conditions in the area, which deals with the total environment. Socio economic study 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 features of aesthetic significance such as temples, historical monuments etc. at the baseline level. This would help in visualizing and predicting the possible impact depending upon the nature and magnitude of the project. Socio-economic study of an area provides a good opportunity to assess the socio-economic conditions and possibly makes a change in living and social standards of the particular area benefitted due to the Project. It can undoubtedly be said that the project will provide direct and indirect employment and improve the infrastructural facilities and standards of living of the area.

3.6.1 Objectives of the Study

The objective of this socio-economic study is:

- To know the current socio-economic situation in the study area covering the sub factors of education, health, sanitation, water, employment and business
- To recommend practical strategic interventions to improve the area
- To help in providing better living standards
- To help in providing better employment opportunities for locals in the study area.

3.6.2 Scope of Work

- ❖ To study the socio-economic environment of the study area
- ❖ Data collection during primary field survey and collate it with the secondary sources
- ❖ Identification of possible impacts from the project
- ❖ Prediction of probable impact due to the project
- ❖ Mitigation measures
- ❖ Action plan for the implementation of mitigation measures.

3.6.3 Methodology

Collection of Data

Data for this project was collected from primary sources like Field survey, Interviews of locals and secondary sources like Government department, Maps, Literature research etc. GEMS conducted the socio-economic **baseline survey using a survey team of Field Assistants and a Supervisor apprising them about the project area and relevant documents**. The Survey was conducted **using Simple Random Sampling method** with a well-structured questionnaire prepared enabling subjects to reply appropriately. The questionnaires were designed to suit the subjects considering their rural background enabling them to furnish correct information and data to the extent possible. Primary data has been collected at village level, household level by questionnaires and focused group discussions. The study area for the field survey has been divided into three major segments namely Primary Zone. (0 - 3 km), Secondary Zone (3 - 7 km) and Outer Zone (7 - 10 km).

Table no. 3.69. Major segments from the Study Area

Major segments	No of Village	%of Respondents
0-3km	2	14
3-7km	4	33
7-10km	7	53

total	13	100
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Source: <https://censusindia.gov.in/>

Presentation of Data and Analysis

The data collected were presented in a suitable, concise form i.e., tabular or diagrammatic or graphic form for further analysis. These tabulated data were interpreted and analyzed with the help of various qualitative techniques and ideographic approaches.

A detailed socio-economic survey was conducted in the buffer zone 10 km radius of the Multicolor granite quarry at village: Erudukottai Taluk: Denkanikottai District: Krishnagiri, Tamil Nadu) to identify the social and economic impacts. To get an overview of the villager's views and preferences about the plant, socio-economic parameters i.e., population growth, density, literacy etc. were taken to determine the impact of the quarry production on the human population of the study area.

3.6.4 Population Growth Rate

In 1991, there were only 21 districts in the State of Tamil Nadu. In 2001, eight new districts were created by reorganising the territorial jurisdiction. The nine districts are – Krishnagiri, Namakkal, Perambalur, Viluppuram, Thiruvarur, Nagapattinam, and Theni. The population and its growth trend are important economic factors in a developing economy.

Year	Tamil Nadu	India
1941	11.91	14.22
1951	14.66	13.31
1961	11.85	21.51
1971	22.30	24.80
1981	17.50	24.66
1991	15.39	23.86
2001	11.19	21.34
2011	15.61	5.96
2021	5.96	1.0

3.6.5 Krishnagiri District

Krishna' refers to 'black' and 'giri' refers to 'hill'. This district is gifted with Multicolour hillocks and named as "krishnagiri". The region came under the rule of Krishna Deva Raya and hence it might have been named after this king.

Krishnagiri district is bounded by Vellore and Thiruvannamalai districts in the East, Karnataka state in the west, State of Andhra Pradesh in the North Dharmapuri District in the south. Its area is **5143 Sq. Kms.** This district is elevated from 300m to 1400m above the mean sea level. Source: <https://krishnagiri.nic.in/about-district/district-at-a-glance/>

It is located between 11° 12'N to 12° 49'N Latitude, 77° 27'E to 78° 38'E Longitude.

3.6.7 Study Area

Detailed socio-economic survey was conducted in the study area (Core and buffer zone) within 10 km radius of the area village: Erudukottai Taluk: Denkanikottai District: Krishnagiri, Tamil Nadu. In order to determine the impact of the proposed project on nature and inhabitant. To get an overview of the villagers and their perspectives about this proposed activity, different demographic parameters and social aspects such population density, sex ratio, literacy rate, worker ratio etc. has been identified, analyzed, studied together. These impacts may be beneficial or disadvantageous. If disadvantageous anticipated suggestions measures are advocated in order to have collective development.

3.6.8 Demographic pattern of 10km study area characteristics a comparative analysis

Table 3.70 Shows the socio-economic profile of the study area as compared to district, state and national level socio-economic profile

Particular	India	Tamil Nadu	Krishnagiri District	Study Area (10km Radius)
Area (in sq. km.)	3,287,263	130058	5143	318
Population Density/ sq. Km.	368	554	370	143
No. of Households	249454252	13357027	448053	10130
Population	1210569573	72147030	1879809	45589
Male	623121843	36137975	960232	23658
Female	587447730	36009055	919577	21931
Scheduled Tribes	104281034	794697	22388	1344
Scheduled Castes	201378086	14438445	267386	6304
Literacy Rate	73%	80%	72%	58.06%
Sex Ratio (Females per 1000 Males)	943	996	956	927

Source: Census of India, 2011

Multicolour granite quarry is located in the Krishnagiri district of the State of Tamil Nadu. The total no. of villages observed within the 10 km radius from the project area is 13. two taluk falls within the 10 km buffer area. The population as per 2011 Census records is 45589 (for 10 km radius) and there is total 10,130 households residing within the studied area. Average household size is 5 which is the standard family size in India. Sex ratio of the study area is 927 (females per 1000 males). Total SC and ST population distribution is 6,304 and 1,344 respectively. The literacy rate in the Study area is observed to be 58.06 The village - wise demographic features of the study area as per area classification are given in Table 3.2 below:

3.6.8 Population Distribution

Total number of males in the study area is **23658** and females are **21,931**. The sex ratio was calculated to be 927 females per 1000 males within the 10 km buffer area which is not very poor compared to the national sex ratio. Within the study area, it was observed child population is increasing as per census 2011 participation increase in current scenario due to proper treatment provided to infants this is because of the awareness of the family.

Table 3.71 Zone wise Demographic Profile of Study Area

Zone	No. of Villages	Total Household	Total Population	Male Population	%	Female Population	%
Primary Zone (0 - 3 Km)	2	1344	6337	3328	52.52	3009	47.48
Secondary Zone (3 - 7 Km)	4	3267	14990	7736	51.61	7254	48.39
Tertiary Zone (7 - 10 km)	7	5519	24262	12594	51.91	11668	48.09
Study Area (0-10 km)	13	10130	45589	23658	51.89	21931	48.11

Source: Census of India, 2011

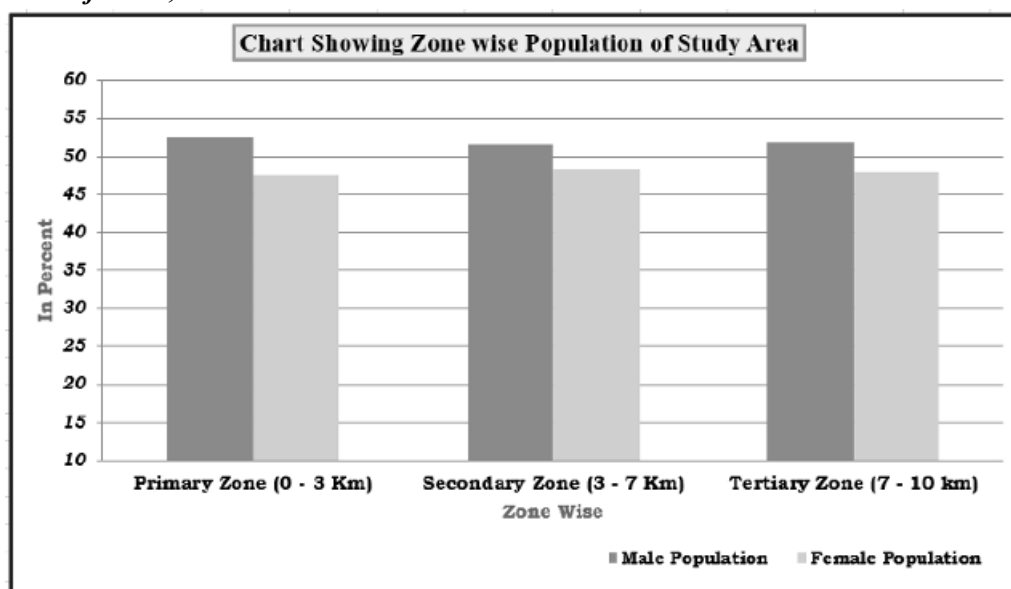


Figure 3.28 Population of study area

- ✓ Above table identifies the presence of villages and their subsequent population divided under three zones from plant boundary (i.e., Primary, secondary and tertiary zone).
- ✓ Primary zone has 2 villages where as much as 1344 households with 6337 population are located. Mostly lying on Built-up land for their livelihood and substance.
- ✓ Secondary and tertiary zone both comprise of 4 and 7 villages having a total population of 14,990 and 24,262 respectively.

Table 3.72 Village wise Demographic Profile of the Study Area (Core and Buffer Zone)

Sno	Name	No.of Households	Total population	Total Male	Total Female	Population below 6	Male below 6	Female below 6	SC population	SC Male	SC Female	ST population	ST Male	ST Female	Literate population	Male Literate	Female Literate	Total workers	Main workers	Marginal workers	Nonworkers
0-3km																					
1	Erudukotta	1190	5563	2914	2649	685	353	332	821	424	397	29	12	17	2636	1571	1065	2862	2242	620	2701
2	Bilalam	154	774	414	360	105	56	49	6	3	3	0	0	0	256	174	82	423	333	90	351
	Total	1344	6337	3328	3009	790	409	381	827	427	400	29	12	17	2892	1745	1147	3285	2575	710	3052
3-7km																					
1	Bikkanapalli	209	981	489	492	115	57	58	0	0	0	70	35	35	539	288	251	489	476	13	492
2	Hanumanthapuram	1125	5241	2712	2529	705	366	339	652	328	324	739	373	366	2667	1578	1089	2983	2694	289	2258
3	Santhanapalli	1433	6545	3417	3128	673	358	315	1922	976	946	112	61	51	3400	1974	1426	3697	3330	367	2848
4	Kolatti	500	2223	1118	1105	227	127	100	245	121	124	0	0	0	1238	698	540	1035	960	75	1188
	Total	3267	14990	7736	7254	1720	908	812	2819	1425	1394	921	469	452	7844	4538	3306	8204	7460	744	6786
7-10km																					
1	Bevunutham	823	3768	1985	1783	457	239	218	300	163	137	3	1	2	1935	1157	778	2072	1852	220	1696
2	Rathnagiri	505	2342	1221	1121	305	156	149	369	191	178	127	62	65	1316	766	550	1321	840	481	1021
3	Noganoor	692	2984	1546	1438	319	169	150	424	227	197	19	10	9	1695	968	727	1662	1533	129	1322
4	Irudhukottai	863	3678	1934	1744	437	221	216	283	146	137	6	5	1	1806	1145	661	1857	1836	21	1821
5	Andevanapalli	1101	4908	2509	2399	504	268	236	383	185	198	1	0	1	2653	1550	1103	2739	2254	485	2169
6	Salivaram	817	3407	1735	1672	348	169	179	477	238	239	148	78	70	1770	1064	706	2102	2043	59	1305
7	Malligarjunadurgam	718	3175	1664	1511	412	214	198	422	218	204	90	44	46	1486	893	593	1854	1713	141	1321
	Total	5519	24262	12594	11668	2782	1436	1346	2658	1368	1290	394	200	194	12661	7543	5118	13607	12071	1536	10655
	G.Total	10130	45589	23658	21931	5292	2753	2539	6304	3220	3084	1344	681	663	23397	13826	9571	25096	22106	2990	20493

Source: Village Wise Demographic Profile of the Study Area, Census of India, 2011

3.6.9 Gender and Sex Ratio

Sex ratio is used to describe the number of females per 1000 of males. Sex ratio is a valuable source for finding the population of women in India and what is the ratio of women to that of men in India. In the Population Census of 2011, it was revealed that the population ratio in India 2011 is 940 females per 1000 of males. The study area has 927 females per 1000 males. Gender and sex ratio determine the Human Development Index (HDI) of an area thereby understanding the status of women in that region. Following table entails information about sex ratio of 13 villages lying in study area (buffer zone) as primary, secondary and tertiary zone.

Table 3.73 Sex ratio of the study area

S. No.	Buffer Zone	Sex Ratio of Study area Female/ 1000 Male
1	Primary Zone (0-3 km)	904
2	Secondary zone (3-7 km)	938
3	Tertiary Zone (7-10 km)	926

Source: Census of India, 2011

Figure 3.29 Sex Ratio within 10 Km study area

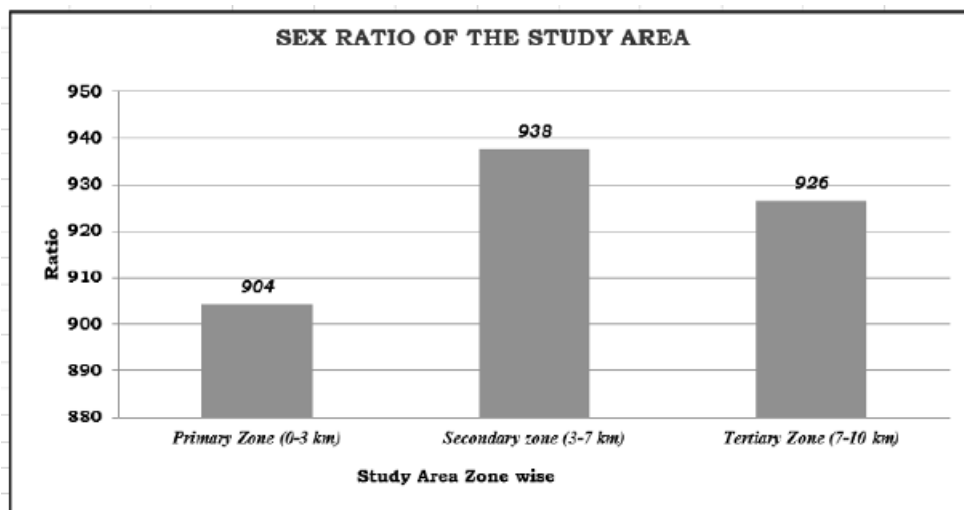


Table 3.74 Child Sex ratio of the study area

S. No.	Buffer Zone	Sex Ratio of Study area Female/ 1000 Male
1	Primary Zone (0-3 km)	932
2	Secondary zone (3-7 km)	894
3	Tertiary Zone (7-10 km)	937

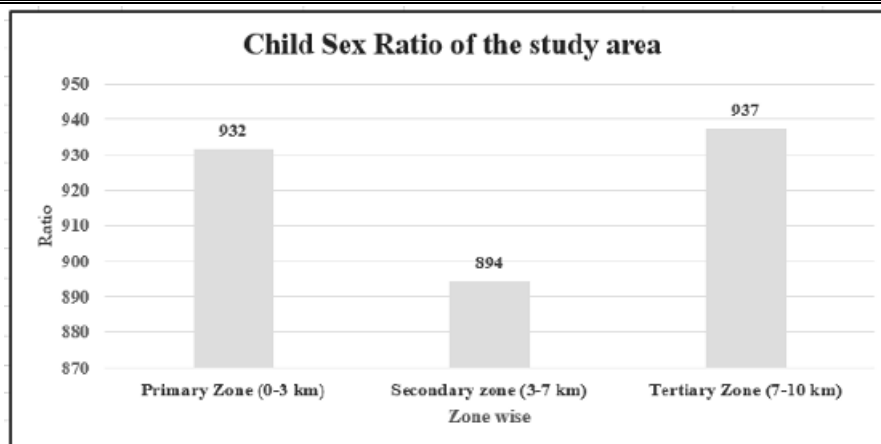


Figure 3.30 Child Sex Ratio within 10 Km study area

3.6.10 Literacy Rate in Study Area

Literacy is the ability to read and write one's own name and further for knowledge and interest, write coherently, and think critically about the written word. The analysis of the literacy levels is done in the study area. The 10 km radius study area demonstrates a literacy rate of 58% as per census 2011. The male literacy rate works out to be 66.14% whereas the female literacy rate, which is an important factor for social change, is observed to be 49.36% in the study area. This indicates that the education facilities in the villages are not up to the mark and there is need to be aware as the female literacy as it is very important for our society and from the survey it is clear that the literacy rate of female is far low comparison to male.

Table 3.75 Literacy Rate of the Study Area

Zone	No. of Villages	Male Literacy Population	Male literacy Rate	Female Literacy Population	Female literacy Rate	Total Literacy	Total Literacy Rate
Primary Zone (0 - 3 Km)	2	1745	59.78	1147	43.65	2892	52.14
Secondary Zone (3 - 7 Km)	4	4538	66.46	3306	51.32	7844	59.11
Tertiary Zone (7 - 10 Km)	7	7543	67.60	5118	49.58	12661	58.94
Study Area (0-10km)	13	13826	66.14	9571	49.36	23397	58.06

Source: Census of India, 2011

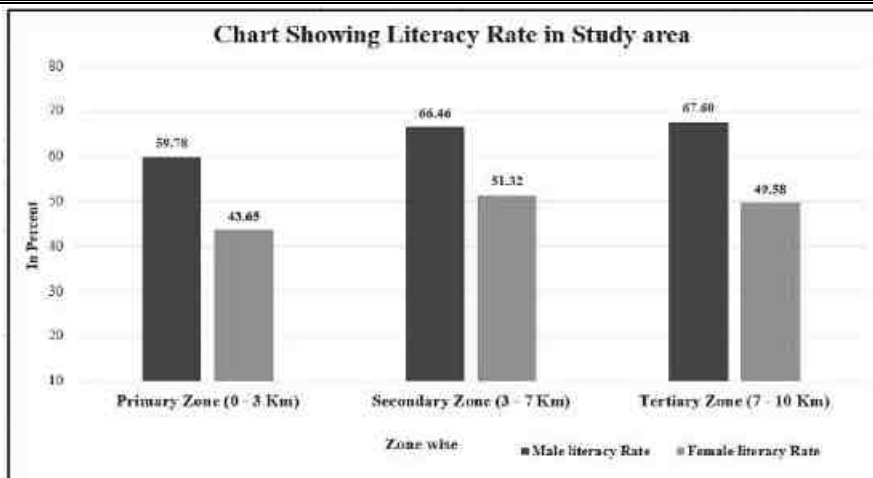


Figure 3.31 Gender wise Literacy Rate in the study area

3.6.11 Vulnerable Group

While developing an action plan, it is very important to identify the population that falls under the marginalized and vulnerable groups and special attention should be given towards these groups while making action plans. In the observed villages schedule caste (SC) population is ~14% and Schedule Tribe population ~3% in study area. 83% population observed as other.

Table 3.76vulnerable groups of the study area

Zone	No. of Villages	Vulnerable Groups					
		SC Population	%	ST Population	%	Other Population	%
Primary Zone (0 - 3 Km)	2	827	13.05	29	0.46	5481	86.49
Secondary Zone (3 - 7 Km)	4	2819	18.81	921	6.14	11250	75.05
Tertiary Zone (7 - 10 Km)	7	2658	10.96	394	1.62	21210	87.42
Total area (10km)	13	6304	13.83	1344	2.95	37941	83.22

Source: Census of India, 2011

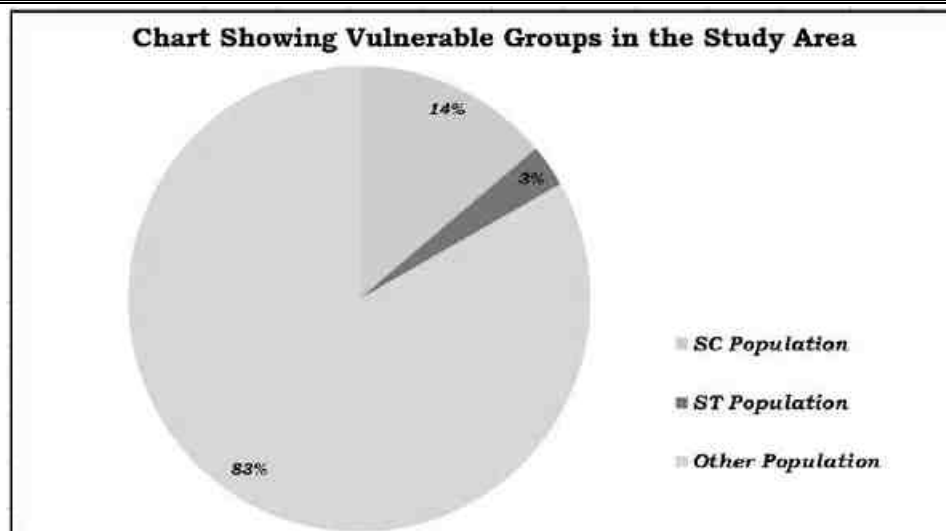


Figure 3.32 vulnerable groups

3.6.12 Economic Activities

The economy of an area is defined by the occupational pattern and income level of the people in the area. The occupational structure of residents in the study area is studied with reference to work category. The Population is divided occupation wise into three categories, viz., main workers, marginal workers and non-workers. The workers include cultivators, agricultural labourers, those engaged in household industry and other services. The marginal workers are those workers engaged in some work for a period of less than 180 days during the reference year. The non-workers include those engaged in unpaid household duties, students, retired persons, dependents, beggars, vagrants etc. besides institutional inmates or all other non-workers who do not fall under the above categories.

Table 3.77 shows the work force of the study area

Zone	No. of Villages	Total Workers	%	Main Workers	%	Marginal Workers	%	Non-Workers	%
Primary Zone (0 - 3 Km)	2	3285	51.84	2575	40.63	710	11.20	3052	48.16
Secondary Zone (3 - 7 Km)	4	8204	54.73	7460	49.77	744	4.96	6786	45.27
Tertiary Zone (7 - 10 Km)	7	13607	56.08	12071	49.75	1536	6.33	10655	43.92
Study Area (10 Km)	13	25096	55.05	22106	48.49	2990	6.56	20493	44.95

Source: Census of India, 2011

Total working population within the 10 km study area are 55%, where 48% are main workers and 6.56% of the total working population are marginal worker 44.95% of the total population are non-Workers.



Figure 3.33 Working population in the study area

3.6.13 Population Projection of the Study Area

Krishnagiri Population 2022 – 2023

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 2022 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 for the future, on assumptions made for three components: fertility, mortality and migration.

Table 3.78 Total Population of Study Area

SI No.	Population in 2001	Population in 2011
1	41,126	45,589

Source: <https://censusindia.gov.in/census.website/>

Table 3.79 Population Projection of Study Area

S. No	Year	Projected Population (Approximately)
1.	2021	50,052
2.	2031	54,515
3.	2041	58,978
4.	2051	63,441

Source: Calculated by SPSS V23 Linear Regression Method.

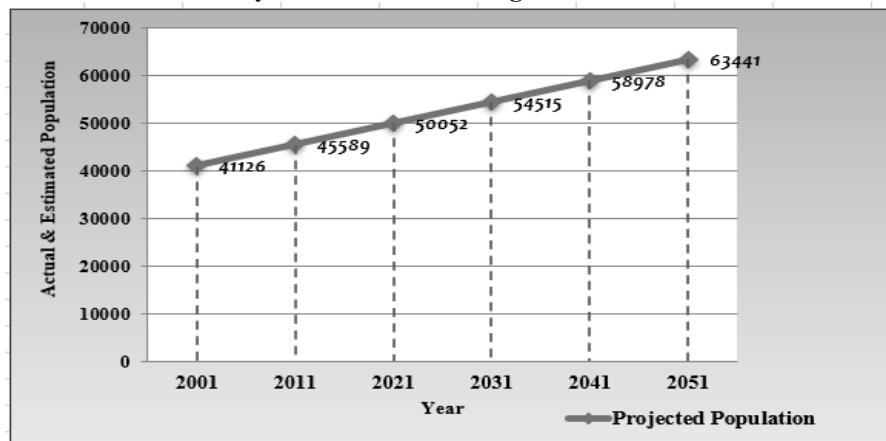


Fig 3.34 Graph Showing Population Projection

Following formula has been used for the projection of population.

$$Y = a + bt$$

Where: Y= Dependent variable (Population)

a=Intercept

b=Slope

t=Interdependent variables (Time)

Above formula is applied to project population for the years (2021, 2031,2041,2051). Due to avoid the errors in manual calculation the statistical software SPSS (demo version 23) is used to calculate the intercept and the slope.

Due to the shortage of data on population the results show same value of growth for the years (2021,2031,2041,2051). If the researcher gets enough the data on population for earlier years the data projection will be accurate.

- Ref: Indian Economic survey, the SLR (Simple Linear Regression) techniques are used by statistical department, Government of India to project population.
- Source: <https://www.ibm.com/in-en/analytics/spss-statistics-software>

3.6.14 Population Growth of the Study Area

Table 3.80 Population Growth rate in Study area

Year	Actual Population	Growth Rate %
2001	41126	
2011	45589	11.09
2021	50052	10.98
2031	54515	10.89
2041	58978	10.82
2051	63441	10.76

Source: Compiled by Author-2022

above table no 3.80 is showing the growth rate of population since 2001, as per census in 2001 the population of study area was 41,126 and 2011 it was 45,589 if the population growth rate is 11.09%, it will approximately gradually an increase about 50,052 in year 2021 and 63,441 in the year of 2051. It has approximately population growth rate decline will be 10.76%.

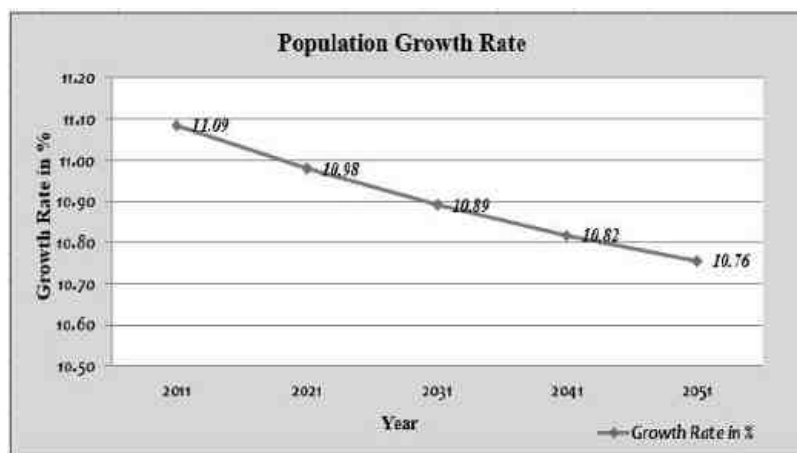


Fig.3.35 Graph Showing Population Growth Rate

Planning Analysis:

Calculating Growth Rates

The percent change from one period to another is calculated from the formula:

Where:

PR=Percent Rate

$V_{Present}$ =Present or Future Value

V_{Past} = Past or Present Value

$$PR = \frac{(V_{Present} - V_{Past})}{V_{Past}} \times 100$$

The *annual* percentage growth rate is simply the percent growth divided by N, the number of years.

Source: <https://pages.uoregon.edu/rgp/PPPM613/class8a.htm>

3.6.15 Infrastructure Base

A. EDUCATION FACILITIES

Education and learning are one of the most important processes in today's society. Education is not just restricted to teaching a person the basic academics, say computers, mathematics, geography or history, education is a much larger term. It is really a means to discover new things which we don't know about and increase our knowledge. Government has provided educational facilities in each village instead some villages do not have school facility. According to census India handbook 2011, Primary Schools are nil every village and Middle, Secondary and Senior Secondary School (depend on population size) are available in some of the villages. It can be concluded from the available census data that people have to go far away from the villages for colleges and schooling. For higher education people have to migrate to the bigger cities. And also, totally forest area around 10km radius. Educational and literacy details were collected from census India handbook 2011 and we observed. lack of Education. After analysing the literacy rate from census data, we found that literacy rate is good. The available educational structure for the population in the case study area is mentioned in the table below.

Table No 3.81 Educational facilities in the study area

Zone	No. of Villages	Primary School	Middle School	Higher Secondary School	Govt.College
Primary Zone (0 - 3 Km)	2	0	0	0	-
Secondary Zone (3 - 7 Km)	4	0	0	0	-
Tertiary Zone (7 - 10 Km)	7	2	0	1	-
Study Area (10 Km)	13	2	0	1	-

Source: <https://censusindia.gov.in/>

B. HEALTH FACILITIES

Health is a premier asset of human capital which is an important factor for growth of any economy. It is a source of human welfare. Health and nutrition play a major role for developing a healthy society as it impacts the productivity of a person. The healthcare facilities in the study area consisted of Primary Health Centre (PHC), Primary Health Sub-Centre's (PHSC); Maternity and Child Welfare Centre (MCWS); Dispensaries and TB Clinic, Veterinary hospitals (VH), Non-Govt. medical facilities Medicine shops (MS), sub-centres and Primary Health Centres. As per the data of 10 km radius study area collected from Census India Handbook 2011, medical facilities are far below the basic need and patients have to move to Cities for any serious illness. So, the action plan which is to be prepared should focus on the more improvement of health facilities.

Table No 3.82 Health/ Medical Facilities in the study area

Health/ Medical Facilities in the Surveyed Area										
Zone	No. of Villages	Community Health Centre	PHC/GH	Primary Health Sub Centre	Maternity Child welfare Centre	Hospital	Dispensary/Health centres	Veterinary Hospital	Family welfare centres	Non-Government Medical
Primary Zone (0 - 3Km)	2	0	1	1	0	0	0	0	0	1
Secondary Zone (3- 7Km)	4	0	1	0	1	0	0	0	0	0
Tertiary Zone (7- 10km)	7	0	2	3	2	0	1	1	1	0
Study Area (10 Km)	13	0	4	4	3	0	1	1	1	1

Source: <https://censusindia.gov.in/>

Electrification in the Area

The source of electricity is fulfilled by the Government. Most of the villages are electrified and power supply is good in the study area.

Drinking Water Facilities:

As per the data collected from census India handbook 2011, it has been noticed that the requirement of drinking water is being fulfilled by Well and handpumps and lakes. All villagers are availing drinking water facilities from Hand pumps. The drinking and domestic water sources are open wells and hand pumps, tanks.

Transport and Road Infrastructure Facilities

Villages have fare road connectivity and Private bus operators operate transport service in the villages. Road condition of the villages is fairly good and the area is well connected with highways such as NH- 844 located at 22km in Eastern direction connecting Rayakotta –Dharmapuri Road. As per the survey, in some villages, there are proper roads with the bus stops available for the people convenience.

Electrification

All the villages surveyed in the study area were electrified. Electricity is available for the various domestic, non-domestic, industrial, agricultural and public lighting purposes. But being a rural area, the electric supply is discontinuous most of the times and is supplied in shifts (eight hours in the morning or evening).

ECONOMIC EXPOSURE AND DEVELOPMENT

Implementation of the project will make financial institutions as well as related economic facilities, infrastructure and services available to the people. This will expose and introduce the local population to factors of economic development including the banking system, financial services, and credit and investment schemes. The exposure will enable community members to invest their income and prevent dependency or living a life of “tomorrow will take care of itself”.

3.6.18 ADVERSE SOCIAL IMPACTS

Health Impacts

The project has the potential for triggering health impacts through increased dust, creation of breeding grounds for disease vectors, population influx which might introduce new diseases in the area and inadequate sanitation facilities.

Noise and Vibration

The mining activity is carrying out by eco-friendly surface miner without drilling & blasting. The noise & vibration is generated only for short time due to transportation of vehicles thus there is no major adverse impact has seen.

Livelihood change

Due to the labour intensity of the mining sector, the project will attract the more able-bodied persons from the community which in turn will lead to low labour availability in other sectors of the economy including agricultural, education and health skilled workers. Local employment opportunities to be created by the project. This impact will not be significant due to low level of education and skills in the area which will result in sourcing skilled workforce from outside the immediate area. But the magnitude of this impact will be high due to high number of dependents in a household.

Managing Loss of Livelihood and Income

To cushion the population against impacts of mine closure, comprehensive retrenchment packages that include adequate advance warning to employees and contractors to allow them to source alternative opportunities should be undertaken. Skills development programmes should also be undertaken well before the closure of the mines. However, adequate protection measures will be taken by the mine management to take care of environment and to guard against adverse environmental impact.

3.6.19 Inference of the Socio-economic Study

- The Socio-Economic study provides the clear picture of demographic as well as economic attributes such as population, average household size, working, non-working population, literacy rate, sex ratio, occupation etc.
- Percentage of the male population is observed to be higher than women population with the study area. As observed, the majority of the villages are spatially distributed with the secondary zone of the study area. The sex ratio is 927 females of every 1000 males in the study area which is not very poor compared to the national sex ratio.
- As far as the literacy rate is concerned, the study area has an average level as the literacy rate of people is growing.
- Vulnerable people are very low in the buffer zone area.

Morbidity Pattern

Morbidity rate refers to the rate at which a disease or illness occurs in a population and can be used to determine the health of a population and its healthcare needs. Illnesses can range from acute to chronic, long-lasting conditions. There is no such major morbidity pattern has been found in the area as per the data sources of the health department. Some minor morbidity may be seen like respiratory diseases were commonest morbidity followed by cataract, cardiovascular. As the age increases chances of getting morbidities were more. Also, water quality results of some of the villages indicates that there is fluoride content in the ground water which may lead to fluorosis disease among the population.

Recommendation and Suggestion

The village development plans are made in consultation with the community through Gram Sabah; 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 programme, Common education centre for increase the literacy.
- Education – free uniform, construction of common rooms, secondary schools, colleges and library, computer education and physical education, additional schools for girls, furniture and equipment in schools to promote education.
- Vocational Trainings – establishment of a vocational training center within the villages with a curriculum designed to suit market demands. Vocational training for disability persons.
- Agriculture/livestock –infrastructure such as agriculture electric 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 – improvement in sanitary conditions of the villages, assistance with construction of latrines, improvement in drainage system, health camps and awareness campaigns for diseases like malaria, typhoid, tuberculosis, yellow fever and pneumonia. Repairing of PHCs and Aanganbadi centers, Provision of water tanks at discreet village locations for sanitation, extending health facility to needy amongst surrounding villages, ambulances to local health centres in improving facility to public health. Establishment of new PHCs and medicinal shops.
- Persons with disability: Establishment of center for special education, sensitization of the community towards disabled and awareness on Govt.
- Roads-- Laying of new roads and pucca roads in the study area which can increase in the transportation facilities.

3.6.20 Structure studies300m radius

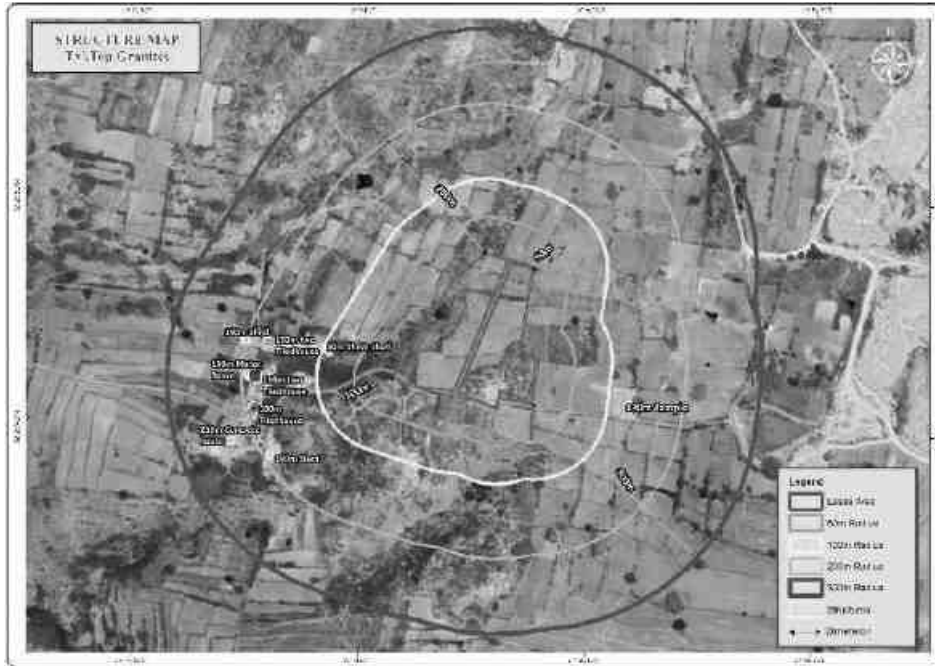


Fig.3.36 Structure map around 30m Radius

Table No 3.83 Structures details in the study area around 300m Radius

0-50m radius
Number of Structures – Nil

50 -100m radius -1 Structure
Sheet Shed – No persons residing – Temporary usage

STRUCTURE ENUMURATION 100 -200m				Number of Structures - 8 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	Temple – 130m – East	Used to Worship	-	Nil	No	Yes	Worship only in festival
2	Tile house 5 Nos	Residential	Residential	12	No	Yes	Nearest house is 150m
3	Shed- 2 Nos 190m – West & SW	Used to store agriculture	Commercial	Nil	No	Yes	Used as store Room

		goods and materials					
4	Motor room – 1 NO 190m West	Agriculture	Agriculture	Nil	No	Yes	Occasional Usage
STRUCTURE ENUMURATION 200-300m				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	House -1 No (Concrete)	Residential	Residential	3 Nos	No	Yes	Residential purpose

Source: Primary data site visit, Krishnagiri

3.6.20 CONCLUSION

The environment baseline study was conducted in the project area by both secondary data and primary data collections. Abiotic factors including air, water and soil were studied for the core and buffer zone. It was found that most of the parameters were within the limits as per the Standards. Similarly, the study for the biotic factors was conducted. It can be concluded that the present environment status of the study area is good enough for the project activity. Adoption of adequate pollution control measures will protect the surrounding environment.

Social Impact assessment study was also conducted during the study period which revealed that area further require improvement in the Economy, Employment and Infrastructure Development of the area. Hence, it can be concluded that the present baseline environment status of the study area will not be affected by the project Proponent will adopt adequate control measures to protect the surrounding environment and will contribute in social & economic development of the areas in vicinity & study area.

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 2.40.60 Ha, the total extent of the cluster is 8.63.26 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 land, No forest land involved in this lease applied area. The ultimate depth of the proposed project is quarrying is varying from 38m 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 Anticipated Impact

Solid waste is in the form of Granite waste which does not produce any toxic effluent during dumping. Garland drains will be constructed around the waste dump to prevent the rainwater entering into the quarrying pit besides this garland drain will also help in facilitating the rainwater to the natural gradient.

There is 3,690m³ of topsoil will be generated during the mining plan period. The excavated topsoil will be preserved all along the safety zone and utilized for construction of bund and green belt development purpose. The total waste to be produced during the first five years is around 6,186m³ the same will be proposed to dump on the Northeast side with maximum dimension of (Area) 2,342m² x (Height) 6.9m. 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.

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 is 37m 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

Purpose	Quantity	Source
Domestic & Drinking purpose	0.5KLD	From Existing, bore wells and drinking water will be sourced from Approved Water vendors.
Dust Suppression	1.0KLD	From Existing bore wells from nearby area
Green Belt	1.0KLD	From Existing bore wells from nearby area
Total	2.5KLD	

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 proposed production of 10,310cbm (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 10km 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 PM₁₀

Activity	Source type	Value	Unit
Drilling	Point Source	0.032424999	g/s
Blasting	Point Source	0.000008670	g/s
Mineral Loading	Point Source	0.032013185	g/s
Haul Road	Line Source	0.002482751	g/s/m
Overall Mine	Area Source	0.054146289	g/s

Table 4.3: Estimated Emission Rate for So₂

Activity	Source type	Value	Unit
Drilling	Point Source	3.91164E-05	g/s

Table 4.4: Estimated Emission Rate for No_x

Activity	Source type	Value	Unit
Overall Mine	Area Source	0.000002053	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

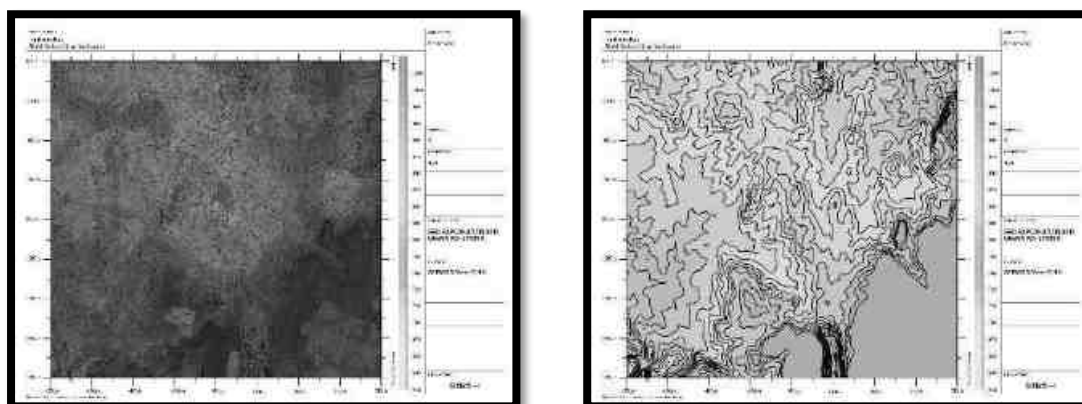


Figure 4.2: Predicted Incremental Concentration of Fugitive Dust

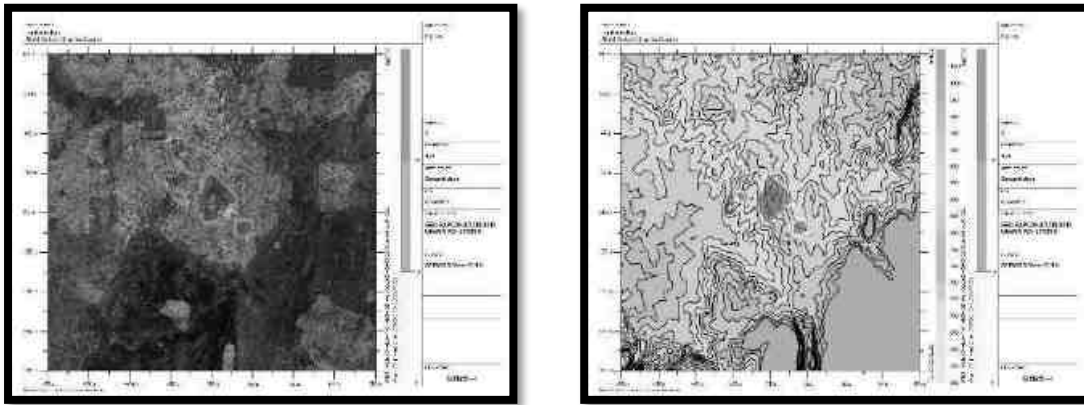


Figure 4.3: Predicted Incremental Concentration of PM₁₀

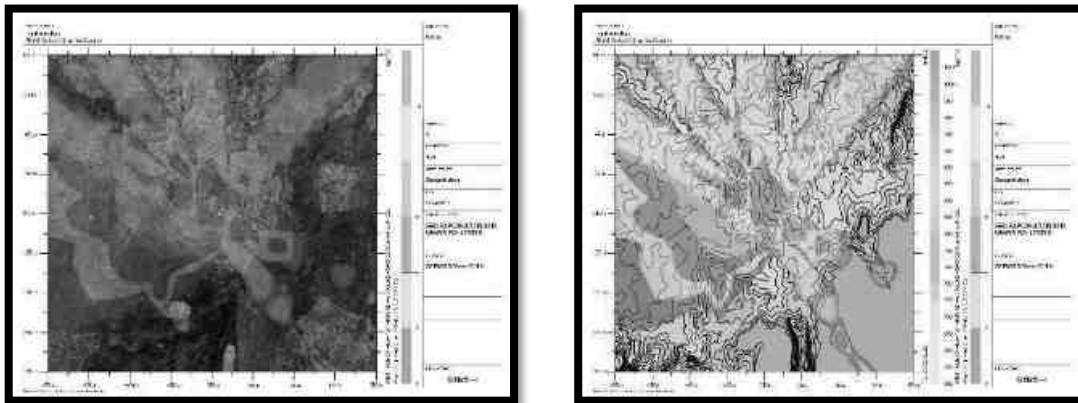


Figure No 4.4: Predicted Incremental Concentration of PM_{2.5}

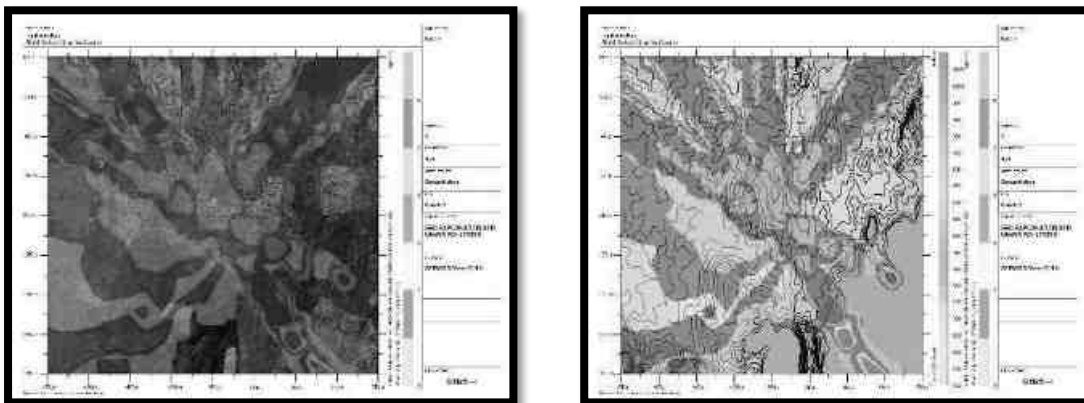


Figure No 4.5: Predicted Incremental Concentration of SO₂

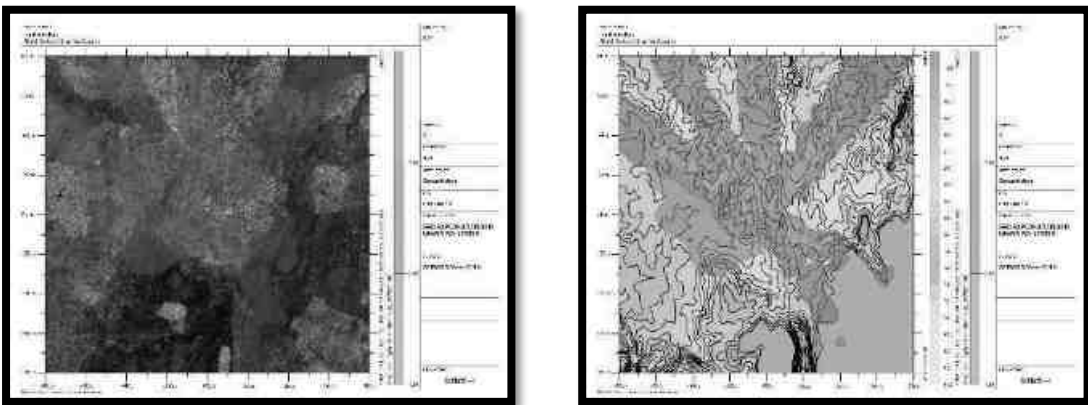
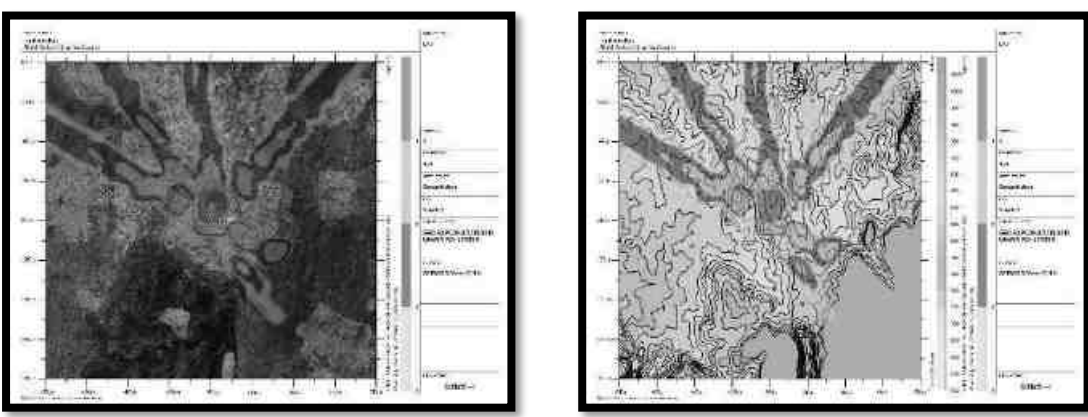


Figure No 4.6: Predicted Incremental Concentration of NO_x



4.3.2.1 Model Results

The post project Resultant Concentrations of Fugitive Dust emission, PM₁₀, PM_{2.5}, SO₂ & 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°25'41.68"N 77°50'5.87"E	24	-76	68.08	27	95.1
AAQ2	12°25'32.77"N 77°50'20.04"E	452	-356	68.07	10	78.1
AAQ3	12°25'27.03"N 77°46'53.39"E	-5855	-535	66.00	0	66.0
AAQ4	12°26'32.51"N 77°51'36.79"E	2796	1491	67.17	0	67.2
AAQ5	12°25'12.47"N 77°51'13.50"E	2086	-988	68.22	7	75.2
AAQ6	12°28'36.59"N 77°49'32.74"E	-993	5345	67.67	0	67.7
AAQ7	12°26'58.08"N 77°47'8.52"E	-5391	2290	66.49	0	66.5

Table 4.6: Incremental & Resultant GLC OF PM₁₀

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°25'41.68"N 77°50'5.87"E	24	-76	45.3	14.9	60.2
AAQ2	12°25'32.77"N 77°50'20.04"E	452	-356	43.8	14.5	58.3
AAQ3	12°25'27.03"N 77°46'53.39"E	-5855	-535	45.0	7	52.0
AAQ4	12°26'32.51"N 77°51'36.79"E	2796	1491	45.1	0	45.1
AAQ5	12°25'12.47"N 77°51'13.50"E	2086	-988	45.0	14.1	59.1
AAQ6	12°28'36.59"N 77°49'32.74"E	-993	5345	45.0	10.77	55.8
AAQ7	12°26'58.08"N 77°47'8.52"E	-5391	2290	43.6	12.9	56.5

Table 4.7: Incremental & Resultant GLC OF PM_{2.5}

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline PM _{2.5} ($\mu\text{g}/\text{m}^3$)	Incremental value of PM _{2.5} due to mining ($\mu\text{g}/\text{m}^3$)	Total PM _{2.5} ($\mu\text{g}/\text{m}^3$) (5+6)
AAQ1	12°25'41.68"N 77°50'5.87"E	24	-76	21.1	6.85	27.9
AAQ2	12°25'32.77"N 77°50'20.04"E	452	-356	21.3	6.48	27.8
AAQ3	12°25'27.03"N 77°46'53.39"E	-5855	-535	20.8	3.6	24.4
AAQ4	12°26'32.51"N 77°51'36.79"E	2796	1491	22.2	0	22.2
AAQ5	12°25'12.47"N 77°51'13.50"E	2086	-988	45.0	6.12	51.1
AAQ6	12°28'36.59"N 77°49'32.74"E	-993	5345	43.8	4.95	48.8
AAQ7	12°26'58.08"N 77°47'8.52"E	-5391	2290	19.4	5.39	24.8

Table 4.8: Incremental & Resultant GLC OF SO₂

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline SO ₂	Incremental value of SO ₂ due	Total SO ₂ ($\mu\text{g}/\text{m}^3$)
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				($\mu\text{g}/\text{m}^3$)	to mining ($\mu\text{g}/\text{m}^3$)	(5+6)
AAQ1	12°25'41.68"N 77°50'5.87"E	24	-76	6.8	1.89	8.7
AAQ2	12°25'32.77"N 77°50'20.04"E	452	-356	6.7	1.84	8.5
AAQ3	12°25'27.03"N 77°46'53.39"E	-5855	-535	6.2	0.2	6.4
AAQ4	12°26'32.51"N 77°51'36.79"E	2796	1491	6.2	0	6.2
AAQ5	12°25'12.47"N 77°51'13.50"E	2086	-988	6.2	1.8	8.0
AAQ6	12°28'36.59"N 77°49'32.74"E	-993	5345	6.0	1.53	7.5
AAQ7	12°26'58.08"N 77°47'8.52"E	-5391	2290	6.0	1.11	7.1

Table 4.9: Incremental & Resultant GLC OF NO_x

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline Nox ($\mu\text{g}/\text{m}^3$)	Incremental value of Nox due to mining ($\mu\text{g}/\text{m}^3$)	Total Nox ($\mu\text{g}/\text{m}^3$) (5+6)
AAQ1	12°25'41.68"N 77°50'5.87"E	24	-76	23.5	9.67	33.1
AAQ2	12°25'32.77"N 77°50'20.04"E	452	-356	23.3	8.1	31.4
AAQ3	12°25'27.03"N 77°46'53.39"E	-5855	-535	23.0	0	23.0
AAQ4	12°26'32.51"N 77°51'36.79"E	2796	1491	23.4	0	23.4
AAQ5	12°25'12.47"N 77°51'13.50"E	2086	-988	23.1	7	30.1
AAQ6	12°28'36.59"N 77°49'32.74"E	-993	5345	22.4	0	22.4
AAQ7	12°26'58.08"N 77°47'8.52"E	-5391	2290	21.6	1	22.6
AAQ8	12°25'41.68"N 77°50'5.87"E	24	-76	23.5	9.67	33.1

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 PM₁₀, PM_{2.5}, SO₂ & 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	44.6	45.2	45.1	42.3	45.6	39.9	39.9	
Incremental Value dB(A)	66.1	56.0	44.8	34.1	25.8	29.7	27.0	29.2	
Total Predicted Noise level dB(A)	66.2	56.3	48.0	45.4	42.4	45.7	40.1	40.3	
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 66.1 dB (A) in Core Zone and 27 to 56.0dB (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)

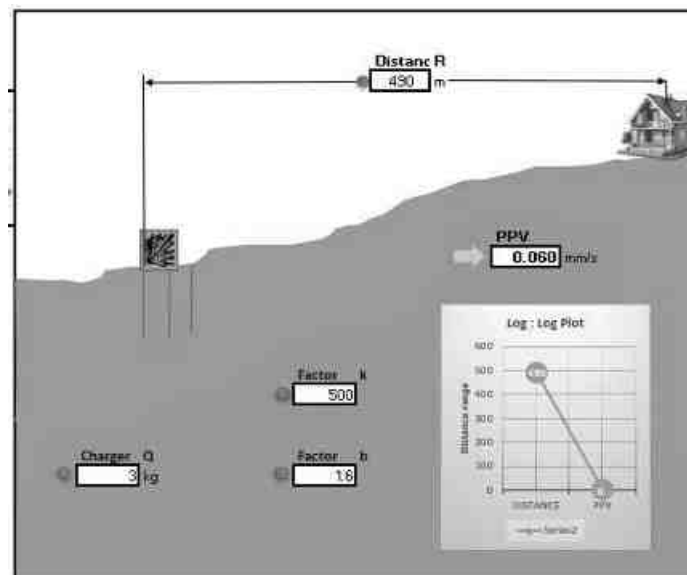
K = site and rock factor constant

Q = maximum instantaneous charge (kg)

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

R = distance from charge (m)

Figure No 4.7: Ground Vibration Prediction



From the above graph, the charge per blast of 3 kg 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 Impact on the Biological Environment

4.5.1. Anticipated Impact on agricultural land associated with flora

1. Dust particle settle on neighbouring agricultural land it is located about 200m on the North and west side. During operation and minerals are transported in approach roads.
2. 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.

4.5.2 Mitigation Measures

4.5.2.1. 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.

4.5.2.2. 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.

4.5.2.3. 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.

4.5.3.4. Selection of Plant Species for Green Belt Development

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. Green belt is plantation of trees for reducing the air pollution as they absorb both gaseous and particulate pollutant, thus removing them from atmosphere. Green plants form a surface capable of absorbing air pollutants and forming sinks for pollutants. It improves the aesthetic value of local environment. Under present project, green belts have been planned with emphasis on creating biodiversity;

enhance natural surroundings and mitigating pollution. Regional tree saplings in eco-friendly bags like *Pterocarpus marsupium*, *Pongamia pinnata*, *Limonia acidissima*, and *Cassia roxburghii* will be planted along the Lease boundary and avenues as well as over non-active dumps with intervals 3m in between with the GPS Coordinates. The greenbelt development plan aims to overall improvement in the environmental conditions of the region Native plant species will be preferred.

- The species should be wind-firm and deep-rooted.
- The species should form a dense canopy.
- Fast-growing plants will be planted
- Species tolerance to air pollution like SO₂ and NO₂ should be preferred.
- Plants having large leaf area index will be considered
- Soil improving plants (Nitrogen fixing rapidly decomposable leaf litter).
- Attractive appearance with good flowering and fruit-bearing.
- Birds and insects attract tree species.
- Roadsides will be planted with local vegetation.

Table No 4.11. List of plant species proposed for Greenbelt development

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

(*Source: Term of Reference-ToR)

Table No 4.12. Species suitable for abatement of noise and dust pollution

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

4.5.4. Anticipated Impact on Fauna

- Noise generation due to vehicle may affect avifauna.

- The lease area is not inhabited by any wild life, as there is no forest cover, hence there will not be any effect on migration or extinction of wildlife.
- There is Cauvery North Wild life sanctuary situated at 2km on the Southern side and Eco sensitive zone situated at 1km on the southern side of the 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

- The major lake along the project sites doesn't have a rich biodiversity and almost all the species of both fauna and flora listed are either least concerned or not evaluated.
- There is no impact on fish habitats and the food WEB/ food chain in the water body and Reservoir.

Table No. 4.13. Overall Ecological impact assessments of Irudhukottai Village, Multicolor Granite quarry, Krishnagiri District, Tamil Nadu.

S. No	Attributes	Assessment
	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 Cauvery North Wild life sanctuary situated at 2km on the Southern side and Eco sensitive zone situated at 1km on the southern side of the area. Gullatty R.F is located about 2.0 km on the south 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.

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

4.5.2.2. 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, Mango 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.4.14 and preparation of green belt details are given in Table No.4.14.

Table 4.14: Greenbelt development plan

Plantation details	Required	No. of trees provided (Considering 80% survival rate)	1 st Year
No of Plants	1200	1440	1440
Yearly %	100%	120%	100%

4.5.2.2.1. Species Recommendation for Plantation

Following points have been considered while recommending the species for plantation:

- Natural growth of existing species and survival rate of various species.
- Suitability of a particular plant species for a particular type of area.
- Creating of biodiversity.
- Fast growing, thick canopy copy, perennial and evergreen large leaf area.
- Efficient in absorbing pollutants without major effects of natural growth.
- The following species may be considering primary for plantation best suited for the prevailing climate condition in the area.

4.6 ANTICIPATED IMPACT ON SOCIO-ECONOMIC ENVIRONMENT AND MITIGATION MEASURES

4.6.1 Construction Phase

Anticipated Impacts:

- ♣ No. of people will get employment during the construction stage resulting in the ancillary development and growth. Nearby Local people will be given preference for employment on the basis of their skill and experience.
- ♣ Further due to proposed project, influx of working community will also generate an indirect employment through development of nearby market/ shops, trade centers, activities, transportation etc.
- ♣ Population influx during the construction phase can introduce various water and vector borne diseases which can lead to various unhygienic health problems in the area by disturbing the existing sanitation infrastructure.

♣ Rapid diverse population influx at the project site can create unusual behavioural activity such as worker-community conflicts, increase violence such as theft/stabbing and increased consumption of drugs/alcohol within the area.

♣ Impacts on the health of nearby villagers can be envisaged due to the transportation activities leading to short term exposure of fugitive dust, resulting in various acute diseases such as increased eye irritation, nausea, headache etc.

Mitigation measures:

♣ Deploying of mobile toilets or the construction of temporary toilets will be done near to the construction site with the adequate water supply.

♣ Awareness programme will be conducted before the monsoon season regarding the spread of water borne/vector diseases.

♣ Mosquito repellents will be provided in the nearby villages and at construction site to avoid the spread of diseases.

♣ To overcome behavioural impact, proper site in charge with timely supervision will be done. In advance, facilities with equipped medical and safety services will be provided to take a control over the incident/violence if any caused.

♣ To overcome behavioural impact, supervision will be done by site in charge. In advance, emergency cell will be formed with fully equipped communication system, medical and safety services to take control over the incident/violence caused.

4.6.2 Operation Phase:

Anticipated Impacts:

♣ Long term exposure to the pollutants such as PM, SO₂ and NO₂ Cement dust have a potential to create health impacts such as risk of cardiovascular and respiratory disease, eye irritation, bronchitis, lung damage, increased heart ailments, etc.

♣ Other impacts, associated with the applied for rough stone and gravel quarry Project will create a positive impact as it will result in the overall development of the area in respect to the infrastructure development, educational growth, health facilities etc., as a part of the CSR activity.

Mitigation Measures:

♣ In order to mitigate the long-term health impacts, efficient Air Pollution Control Equipment (APCE) like Bag House / Bag Filter / ESP will be installed at all major stacks to keep the emissions within the permissible limits. To reduce the gaseous emission, Pyro-process itself acts as a long SO₂ scrubber and De - NO_x system will be installed for fuel burning along with calciner for low NO_x formation. To reduce fugitive emission from vehicles and machineries will be regularly monitored and maintained.

♣ For emergency, proposed to develop an occupational health centre for its employees and nearby villagers.

4.6.3 Impact Evaluation:

Table 4.15 Impact Evaluation Impact evaluation is given in table below.

Impact Evaluation Element	Impact on socio economics due to the applied for Irudhukottai Multicolor granite quarry over an extent of 2.40.46ha of Patta land of
----------------------------------	--

	Irudhukottai Village, Denkanikottai Taluk, Krishnagiri District, Tamil Nadu State.			
Potential Effect/ Concern	Proposed project will provide direct & indirect employment opportunities to the local residents, which will help to increase their earning and better living standard as well as further up-liftment of socio-economic status of the area.			
Characteristics of Impacts				
Nature	Positive		Negative	Netural
	✓			
Type	Direct	Indirect	Cumulative	
			✓	
Extent	Project area	Local	Zonal	Regional
		✓		
Duration	Short time		Long term	
			✓	
Intensity	Low		Medium	High
			✓	
Frequency	Remote (R)	Occasional (O)	Periodic (P)	Continuous (C)
			✓	
Significance of Impact				
Significance	Insignificant	Minor	Moderate	Major
			✓	

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 are 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 for Tvl. Top Granites Multicolour is Rs.3,80,000 for conducting Air Quality, Meteorology, Water Quality, Hydrology, Soil Quality, Noise Quality Vibration Study, Greenbelt.

Table 6.3: Environmental Monitoring Budget

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					76,000	3,80,000

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 was submitted along with this Draft EIA / EMP Report and the outcome of public hearing proceedings is detailed in this Final EIA/EMP Report.

7.1.2 Public Consultation:

There are no specific issues addressed by the public/Village peoples hence no specific action plan is required. The Environmental Management plan will be followed as mentioned in the Chapter No. 10.

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 7.2.

Table 7.2 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;

			<ul style="list-style-type: none"> ▪ 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	<p>Sliding of benches</p> <p>Height and slope of the benches</p> <p>Drainage facilities</p>	<ul style="list-style-type: none"> ▪ Dumps benches are maintained with proper 3 m height and 37° slope to prevent slope failure and terraced. ▪ 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	<p>Due to improper and unsafe practices</p> <p>Due to high pressure of compressed air, hoses may burst</p> <p>Drill Rod may break</p>	<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	<p>Fly rock, ground vibration, Noise and dust.</p> <p>Improper charging, stemming & Blasting/fining of blast holes</p> <p>Vibration due to movement of vehicles</p>	<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

			<ul style="list-style-type: none"> ▪ 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	<p>Potential hazards and unsafe workings contributing to accident and injuries Overloading of material While reversal & overtaking of vehicle</p> <p>Operator of truck leaving his cabin when it is loaded.</p>	<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 ▪ 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	<ul style="list-style-type: none"> • Ultimate or over all pit slope shall be below 60° and each bench height shall be 5m height.

7.3 Disaster Management Plan

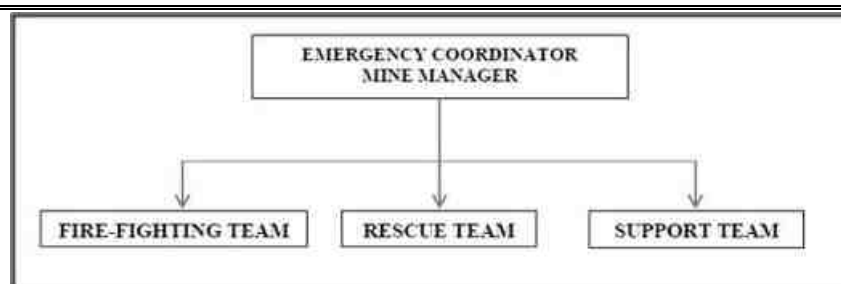
The Disaster Management Plan is aimed to ensure safety of life, protection of environment, protection of installation, restoration of production and salvage operations in this same order of priorities.

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 7.3: 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 7.4: Proposed Type of Fire Extinguishers

Location	Type of Fire Extinguishers
Electrical Equipment's	CO2 type, foam type, dry chemical powder type
Fuel Storage Area	CO2 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 quarries forms the cluster category. The list of quarries is as below

Table 7.5: List of Quarries in the Cluster

PROPOSED QUARRIES				
CODE	Name of the Owner	S.F. Nos & Village	Extent	Status
P1	Tvl.Top Granites	1151/5, 6, 1172/2A Irudhukottai Village	2.40.46	Letter No. SEIAA-TN/F.No. 10476/SEAC/ToR-1638/2023 Dated :12/12/2023
P2	M/s.K.P.R.Granites	1123/4A,4B,5A,5B,6A,6 B,1125/6,1123/8(P), Irudhukottai Village	2.34.3	Adjacent applied area
P3	M/s.K.P.R.Granites	1121/6, 1125/3 Irudhukottai Village	1.97.0	Adjacent applied area
P4	M/s.S.V.Granites	1124/7(P),1130/7(P),113 1/7, 1131/8 Irudhukottai Village	1.91.5	Mining plan approved (SEIAA Pending)
TOTAL EXTENT			8.63.26 Ha	

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

Table 7.5 A: Salient Features of Proposed Projects-P1

Name of the Quarry	Tvl. Top Granites
Lease period	20 years
Mining Lease area	2.40.46 Ha
Type of Land	Proponent own patta Land
Location	S.F.No. 1124/5,6 1151/5,6 and 1172/2A of Irudhukottai Village, Denkanikottai Taluk, Krishnagiri District, Tamilnadu.
Mining Plan Period	5Years
Life of the Mine	20 years
The Annual Peak Production (as Per ToR)	2,104m ³

Proposed Depth for five years plan period	26m
Ultimate Depth	Block A: 178m(L) x 54m (W) x 26m (D) Block B: 167m(L) x 68m (W) x 17m (D)
Toposheet No	57 H/15
Latitude between	12°25'41.0417"N to 12°25'47.7539"N
Longitude between	77°50'01.3513"E to 77°50'07.7665"E
Topography	The area is situated in Slightly elevated terrain. The Altitude – 942m – 956m above from MSL. Slope - towards Northwest
Mechanization	1.Jackhammer- 6 Nos 2.Compressor-2 Nos 3.Diamond Wiresaw -2 Nos 4. Diesel Generator-1 No 5.Crawler Crane – 1 No 6. Excavator – 2 Nos 7. Tipper- 2 Nos
Water Requirement	2.5 KLD
Proposed manpower deployment	38
Total cost	3,04,23,000/-
Total EMP Cost	3,80,000/-
Total Project cost	3,08,03,000/-
CER Cost	Rs. 5,00,000/-
Nearest habitation	490m-SE
Nearest R.F Boundary	Kolatti R.F 2.17km-S
Nearest Wildlife sanctuary	Cauvery North wildlife sanctuary-1km-S Cauvery South wildlife sanctuary-12km-SE

Table 7.5 B: Salient Features of Proposed Projects-P4

Name of the Quarry	Tvl. S.V Granites, Partners Mr.B.Chinnasamy
Lease period	20 years
Mining Lease area	1.91.50 Ha
Type of Land	Patta land (Registered in name of M/s. S.V.Granites Partners Mr.B.Chinnasamy & Mr.B.Sudhakar vide Patta No.9241
Location	S.F.No. 1124/7(P), 1130/7(P), 1131/7 & 1131/8 of Irudhukottai Village, Denkanikottai Taluk, Krishnagiri District, Tamilnadu.
Mining Plan Period	5Years
Life of the Mine	20 years
Proposed production of Mine	Capacity of Multi Colour Granite : 36,855 m ³ Recoverable Reserve @60% : 22,113 m ³
The Annual Peak Production	7,650m ³
Proposed Depth for five years plan period	28m Bgl
Ultimate Depth of Mining	125m(L) x 64m (W) x 38m (D) (1m topsoil+2m Weathered Granite+35.0m Multicolor granite)
Water table	52-60m
Toposheet No	57 H/15
Latitude between	12° 25' 41.1003" N to 12° 25' 36.5229" N
Longitude between	77° 50' 03.8947" E to 77° 49' 57.9786" E

Topography	The area is situated in Slightly elevated terrain. The Altitude 936m above from MSL.
Mechanization	1.Jackhammer- 3 Nos 2.Compressor-2 Nos 3.Diamond Wiresaw -1 Nos 4. Diesel Generator-1 No 5. Excavator – 1 Nos 6. Tipper- 1 Nos
Water Requirement	3.0 KLD
Proposed manpower deployment	18
Total cost	Rs. 1,24,90,000/-
Total EMP Cost	Rs. 4,05,000/-
Total Project cost	Rs. 1,28,95,000/-
CER Cost	Rs. 6,00,000/-
Nearest habitation	490m-SE
Nearest R.F Boundary	Denkanikotta R.F. – 7.10 km, N Manchi R.F. – 7.70 km, SW Udedurgam R.F. – 7.91 km, NE Galigattam R.F. – 11.28 km, SE

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 7.5A

Table 7.6: 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	41,530	16,612	10,310	7	11	3
P2	-	-	--	-	-	-
P3	-	-	-	-	-	-
P4	1,55,325	93,195	33,570	22	13	2
Total	1,96,855	1,09,807	43,880	29	24	5

Source: Approved Mining plan of Respective mines

On a cumulative basis considering all the Proposed quarry. it can be seen that the overall production of Granite ROM per day is 29 m³ and overall production of Granite is 24m³ per day (recovery percentage is vary from one quarry to another), No of Lorry loads per day is 5.

Based on the above production quantities the emissions due to various activities 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 7.7.

Table 7.7: Emission Estimation from Quarries within 500 Meter Radius

Emission Estimation for quarry P1				
Estimated Emission Rate for PM10	Activity	Source type	Value	Unit
	Drilling	Point Source	0.032424999	g/s
	Blasting	Point Source	0.000008670	g/s
	Mineral Loading	Point Source	0.032013185	g/s
	Haul Road	Line Source	0.002482751	g/s/m
	Overall Mine	Area Source	0.054146289	g/s
Estimated Emission rate for SO2	Overall Mine	Area Source	3.91164E-05	g/s
Estimated Emission rate for NOX	Overall Mine	Area Source	0.000002053	g/s

Source: Emission Calculations

Emission Estimation for quarry P4				
Estimated Emission Rate for PM10	Activity	Source type	Value	Unit
	Drilling	Point Source	0.042103815	g/s
	Blasting	Point Source	0.000032005	g/s
	Mineral Loading	Point Source	0.034380486	g/s
	Haul Road	Line Source	0.002483366	g/s/m
	Overall Mine	Area Source	0.049549033	g/s
Estimated Emission rate for SO2	Overall Mine	Area Source	7.95267E-05	g/s
Estimated Emission rate for NOX	Overall Mine	Area Source	0.000003405	g/s

Table 7.8: Incremental & Resultant GLC within Cluster

PM ₁₀ in µg/m ³	
Location	CORE
Background	45.3
Highest Incremental	14.5
Resultant	60.2
NAAQ standard	100 µg/m ³
PM _{2.5} in µg/m ³	
Location	CORE
Background	21.1
Highest Incremental	6.85
Resultant	27.9
NAAQ standard	60 µg/m ³
SO ₂ in µg/m ³	
Location	CORE
Background	6.8
Highest Incremental	1.89
Resultant	8.7
NAAQ standard	80 µg/m ³
NO _x in µg/m ³	
Location	CORE
Background	23.5
Incremental	9.67
Resultant	33.1
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.

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

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.

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

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 7.9: Predicted Noise Incremental Values from Cluster Quarry

Location ID	Background Value (Day) dB(A)	Incremental Value dB(A)	Total Predicted dB(A)	Residential Area Standards dB(A)
Habitation Near P1	47.9	46.1	50.1	55
Habitation Near P2	-	--	-	-
Habitation Near P3	-	-	-	-
Habitation Near P4	48.6	40.8	49.3	55

The incremental noise level is found within the range of 46.1 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. 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.).

Socio Economic Environment –

Table 7.10: Socio Economic Benefits from 4 Quarries

Location code	Employment	Project Cost	CER
P1	38	Rs. 3,08,03,000/-	Rs.5,00,000/-
P2	-	-	-
P3	-	-	-
P4	18	Rs. 1,28,95,000/-	Rs. 6,00,000/-
Total	56	Rs. 4,36,98,000	Rs.11,00,000/-

About 38 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 Rs.5,00,000/-

CHAPTER – 8: PROJECT BENEFITS

8.0 General

Multi colour Granite Quarry of Tvl. Top Granites, 16,612 m³ of Granite @ 40% recovery (ROM 41,530m³ for the entire period- Life of the mine) 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 38 persons 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 in Erudukottai Village, Denkanikottai Taluk and 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 Tvl. Top Granites 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 Irudhukottai 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.

Table 8.1: CER – Action Plan

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

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 – **Tvl. Top Granites Multi Colour Granite Quarry**

- 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
Re fuelling 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 –

There is 3,690m³ of topsoil will be generated during the mining plan period. The excavated topsoil will be preserved all along the safety zone and utilized for construction of bund and green belt development purpose.

10.3.2 Overburden / Waste and Side Burden Management –

The total waste to be produced during the first five years is around 6,186m³ the same will be proposed to dump on the Northeast side with maximum dimension of (Area) 2,342m² x (Height) 6.9m.

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 access 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
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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>Sl.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>Albiziafalcataria</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	24046	24046
	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	48092
	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 Tons of Blasted Material	0	16084
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	24046	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	480920	10000
	3. Progressive Closure Activity Green belt development - 500 trees per one hectare - Proposal for 1200Trees - (330Inside Lease Area & 1110 Outside Lease Area)	Site clearance, preparation of land, digging of pits / trenches, soil amendments, transplanted of saplings @ 200 per plant (capital) for plantation inside the lease area and @ 30 per plant maintenance (recurring)	66000	9900

		Avenue Plantation @ 300 per plant (capital) for plantation outside the lease area and @ 30 per plant maintenance (recurring)	333000	33300
	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	88500	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	36497	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) -38Employees	152000	38000
	Health check up for workers will be provisioned	IME & PME Health checkup @ Rs. 1000/- per employee	0	38000
	First aid facility will be provided	Provision of 2 Kits per Hectare @ Rs. 2000/-	0	4809.2
	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	120230	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			2820242	1209730.8

In order to implement the environmental protection measures, an amount of Rs.28.20 lakhs as capital cost and recurring cost as Rs. 12.09 lakhs as recurring cost is proposed considering present market price considering present market scenario for the proposed project.

Year Wise Break Up	
1st Year	₹ 40,29,972.8
2nd Year	₹ 12,70,217.3
3rd Year	₹ 13,33,728.2
4th Year	₹ 14,00,414.6
5th Year	₹ 15,58,935.3
Total	₹ 96 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 – 11: SUMMARY AND CONCLUSIONS

Tvl. Top Granites Multi Colour Granite Quarry 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. 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 Dec to Feb 2024 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 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 Granite as per market demand.

Sustainable and modern mining leads us to see positive impact of mining operation and providing consistent employment for nearly 38 people directly in the cluster and indirectly around 50 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 the Tvl. Top Granites Multi Colour Granite Quarry.

12. DISCLOSURE OF CONSULTANTS

Tvl. Top Granites 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 Multicolour Granite Quarry Tvl. Top Granites over an Extent of 2.40.46ha in Irudhukottai Village of Denkanikottai 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:

Dr. M. Ifthikhar Ahmed





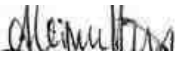





Period of Involvement: **Dec 2022 to till date**

Associated Team Member with EIA Coordinator:


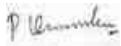

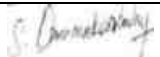
1. Mr.S.Nagamani
2. Mr. P.Viswanathan
3. Mr. Santhoshkumar
4. Mr. S. Iavarasan

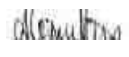

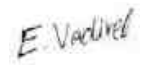



FUNCTIONAL AREA EXPERTS ENGAGED IN THE PROJECT

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	<i>[Signature]</i>
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	<i>Dr. M. Ifthikhar Ahmed</i>
			Mr. N. Senthilkumar	<i>[Signature]</i>
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	<i>[Signature]</i>
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	<i>Dr. M. Ifthikhar Ahmed</i>
			Dr. P. Thangaraju	<i>[Signature]</i>
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	<i>[Signature]</i>
6	EB	<ul style="list-style-type: none"> ▪ Collection of Baseline data of Flora and Fauna. 	Mrs. Amirtham	<i>[Signature]</i>

		<ul style="list-style-type: none"> 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. 	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 Multicolour Granite Quarry Tvl. Top Granites over an Extent of 2.40.46ha in Irudhukottai Village of Denkanikottai 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

Tvl. TOP GRANITES MULTICOLOUR GRANITE QUARRY

S.F. Nos: 1124/5, 1124/6, 1151/5, 1151/6 and 1172/2A

Irudhukottai Village, Denkanikottai Taluk,

Krishnagiri District

EXTENT = 2.40.46 ha

ToR obtained vide

Letter No. SEIAA-TN/F.No. 10476/SEAC/ToR-1638/2023 Dated :12/12/2023

Project Proponent

Tvl. Top Granites,

old No.7. New No. 16, First Floor,

First Street,

North - Gopalapuram

Chennai - 600 086.

LIST OF ANNEXURES

ANNEXURES	DESCRIPTION	PAGE NOS
P1 - TVL.TOP GRANITES	COPY OF TERMS OF REFERENCE	1A – 24A
	COPY OF 500M RADIUS QUARRIES DETAILS LETTER	25A – 26A
	COPY OF MINING PLAN APPROVED LETTER	27A – 32A
	COPY OF APPROVED MINING PLAN WITH PLATES	33A – 147A
	COPY OF 300m & VAO ATTESTATION LETTER	148A – 149A
	COPY OF HYDROGEOLOGICAL REPORT	150A – 158A
	COPY OF INSPECTION REPORT	159A – 170A
	COPY OF DFO LETTER	171A – 176A
	COPY OF EXPLOSIVES LETTER	177A – 179A
P4 - M/S.S.V.GRANITES	COPY OF TERMS OF REFERENCE	180A – 200A
	COPY OF BASE LINE MONITORING DATA	201A – 242A
	COPY OF CONSULTANT ACCREDITATION CERTIFICATE	243A



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.10476/SEAC/ToR-1638/2023 Dated: 12.12.2023

To

Tvl. Top Granites,
Old No.7, New No. 16, First Floor,
First Street, North Gopalapuram,
Chennai - 600 086.

Sir / Madam,

Sub: SEIAA, Tamil Nadu – Terms of Reference with Public Hearing (ToR) for the Proposed Multi Colour Granite quarry over an extent of 1.13.46 Ha at S.F. Nos. 1151/5, 1151/6 and 1172/2A of Irudhukottai Village, Denkanikottai Taluk, Krishnagiri District, Tamil Nadu by Tvl. Top Granites – 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/447526/2023, Dated: 09.10.2023
2. Your application submitted for Terms of Reference dated: 13.10.2023
3. Minutes of the 423rd SEAC meeting held on 15.11.2023
4. Minutes of the 678th SEIAA meeting held on 11.12.2023 & 12.12.2023

Kindly refer to your proposal submitted to the State Level Impact Assessment Authority for Terms of Reference.

The proponent, Tvl. Top Granites has submitted application for Terms of Reference (ToR) on 13.10.2023, in Form-I, Pre-Feasibility report for the Proposed Multi Colour Granite quarry over


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an extent of 1.13.46 Ha at S.F. Nos. 1151/5, 1151/6 and 1172/2A of Irudhukottai Village, Denkanikottai Taluk, Krishnagiri District, Tamil Nadu.

Discussion by SEAC and the Remarks:-

Proposed Multi Colour Granite quarry over an extent of 1.13.46 Ha at S.F. Nos. 1151/5, 1151/6 and 1172/2A of Irudhukottai Village, Denkanikottai Taluk, Krishnagiri District, Tamil Nadu by Tvl. Top Granites - For Terms of Reference.

The proposal was placed for appraisal in this 423rd meeting of SEAC held on 15.11.2023. 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, Tvl. Top Granites has applied seeking Terms of Reference for the proposed Multi Colour Granite quarry over an extent of 1.13.46 Ha at S.F. Nos. 1151/5, 1151/6 and 1172/2A of Irudhukottai Village, Denkanikottai Taluk, Krishnagiri District, Tamil Nadu.
2. The proposed quarry/activity is covered under Category "B1" of Item 1(a) "Mining Projects" of the Schedule to the EIA Notification, 2006, as amended.
3. The precise area communication was issued for the period of 20 Years. The mining plan is for 5 Years. The annual peak production shall not exceed 6020 m³ ROM which includes 2408 m³ of granite recovery (@40%) & 3612 m³ of granite waste (@60%) for the ultimate depth of 26m.
4. Here it is observed that a Govt. land of 10 m width splits the mine lease into two different parts resulting in 'non-contiguous' granite deposit.

During the presentation, while ascertaining the Mining Plan, the PP was advised to submit the Modified Mining plan considering the S.F. Nos. 1151/5, 1151/6, 1172/2A of 1.13.46 Ha (eastern side boundary of the said quarry) for the proposed quarry activity and leaving the S.F. Nos. 1124/5, 1124/6 of 1.27.0 Ha (western side boundary of the said quarry) from the extent of 2.40.46 Ha of Irudhukottai Village, Denkanikottai Taluk, Krishnagiri District for the safety reasons and also to develop & maintain the greenbelt.

Based on the presentation made by the project 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 details issued by the MOEF & CC and additional ToR conditions given in ANNEXURE-I are to be included in EIA/EMP Report beside the following specific conditions:


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1. The PP shall furnish the Modified Mining Plan for an area of extent of 1.13.46 Ha where the mining operations will be carried out.
2. The PP shall furnish the evidence of the green belt development activities carried out in the other 'non-working' leasehold area situated at the western side at the time of EIA presentation.
3. 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, at the time of EIA presentation.
4. The PP shall provide the mitigation measures to be carried out as CNWL is located nearby, in consultation with the concerned DFO.

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.


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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 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.


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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.
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


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- 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.
 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.


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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
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.


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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.

Appendix

List of Native Trees Suggested for Planting

1. *Aegle marmelos* – Vilvam
2. *Adenaanthera pavonina* - Manjadi
3. *Albizia lebbek* – Vaagai
4. *Albizia amara* - Usil
5. *Bauhinia purpurea* - Mantharai
6. *Bauhinia racemosa* - Aathi
7. *Bauhinia tomentosa* – Iruvathi
8. *Buchanania axillaris* - Kattuma
9. *Borassus flabellifer* - Panai
10. *Butea monosperma* - Murukka maram
11. *Bobax ceiba* – Ilavu, Sevvilavu


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12. *Calophyllum inophyllum* - Punnai
13. *Cassia fistula* - Sarakondrai
14. *Cassia roxburghii*- Sengondrai
15. *Chloroxylon sweitenia* - Purasa maram
16. *Cochlospermum religiosum* – Kongu, Manjal Ilavu
17. *Cordia dichotoma* – Mookuchali maram
18. *Creteva adansonii* – Mavalingum
19. *Dillenia indica* – Uva, Uzha
20. *Dillenia pentagyna* – Siru Uva, Sitruzha
21. *Diospyros ebenum* - Karungali
22. *Diospyros chloroxylon* – Vaganai
23. *Ficus amplissima* – Kal Itchi
24. *Hibiscus tiliaceus* – Aatru poovarasu
25. *Hardwickia binata* – Aacha
26. *Holoptelia integrifolia* - Aayili
27. *Lannea coromandelica* - Odhiam
28. *Lagerstroemia speciosa* - Poo Marudhu
29. *Lepisanthus tetraphylla* - Neikottai maram
30. *Limonia acidissima* - Vila maram
31. *Litsea glutinosa* –Pisin pattai
32. *Madhuca longifolia* - Illuppai
33. *Manilkara hexandra* – Ulakkai Paalai
34. *Mimusops elengi* - Magizha maram
35. *Mitragyna parvifolia* - Kadambu
36. *Morinda pubescens* – Nuna
37. *Morinda citrifolia* – Vellai Nuna
38. *Phoenix sylvestre* - Eachai
39. *Pongamia pinnata* – Pungam
40. *Premna mollissima* – Munnai
41. *Premna serratifolia* – Narumunnai
42. *Premna tomentosa* - Purangai Naari, Pudanga Naari
43. *Prosopis cinerea* - Vanni maram


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44. *Pterocarpus marsupium* - Vengai
45. *Pterospermum canescens* - Vennangu, Tada
46. *Pterospermum xylocarpum* - Polavu
47. *Puthranjiva roxburghii* - Puthranjivi
48. *Salvadora persica* - Uгаа Maram
49. *Sapindus emarginatus* - Manipungan, Soapu kai
50. *Saraca asoca* - Asoca
51. *Streblus asper* - Piraya maram
52. *Strychnos nuxvomica* - Yetti
53. *Strychnos potatorum* - Therthang Kottai
54. *Syzygium cumini* - Naval
55. *Terminalia bellerica* - Thandri
56. *Terminalia arjuna* - Ven marudhu
57. *Toona ciliate* - Sandhana vembu
58. *Thespesia populnea* - Puvarasu
59. *Walsuratrifoliata* - valsura
60. *Wrightia tinctoria* - Veppalai
61. *Pithecellobium dulce* - Kodukkapuli

Discussion by SEIAA and the Remarks:-

The proposal was placed in the 678th Authority meeting held on 11.12.2023 & 12.12.2023. The Authority noted that this proposal was placed for appraisal in 423rd SEAC meeting held on 15.11.2023, the committee has furnished its recommendations for granting ToR with Public Hearing subject to the conditions stated therein. 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 conditions in '**Annexure B**' of this minutes.

1. The PP shall submit the Modified Mining Plan along with EIA report for an area of extent of 1.13.46 Ha where the mining operations will be carried out.

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/ topo sheet, topographic sheet, geomorphology and geology of the area should be provided.


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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, confirming the involvement of forest land, if any, in the project area. In the event of any


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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 also be


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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.


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- 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.
 - 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 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)


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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.
- 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.


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- 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.


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Copy to:

1. The Additional Chief Secretary to Government, Environment, Climate Change and 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 - 110 032.
3. The Chairman, 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 - 110 003.
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
Tvl. Top Granites,
Old No. 7, New No. 16,
First Floor, First Street, North
Gopalapuram,
Chennai - 600 086.

Roc.No.1133/2021 /Mines dated: 21.09.2023.

Sir,

Sub: Mines and Minerals - Minor Mineral - Multi Colour Granite - Krishnagiri District - Denkanikottai Taluk-Irudhukottai Village Patta lands in S.F.Nos.1124/5 (0.16.0), 1124/6 (1.11.0), 1151/5 (0.64.0), 1151/6 (0.36.50) and 1172/2A (0.12.96) over an extent of 2.40.46 Hect - Quarry lease granted to Tvl. Top Granites - Additional Details requested by the applicant -Details furnished - reg.

Ref: 1. The District Collector, Krishnagiri proposal file Roc.No.1133/2021/Mines dated: 23.11.2022.
2. The Commissioner of Geology and Mining, Chennai, file Roc. No.8037/MM4/2022, dated: 11.01.2023.
3. Mining plan submitted by Tvl. Top Granites approved by Director, Department of Geology & Mining Rc.No.8037/MM4/2022 dated: 05.09.2023.
4. Tvl. Top Granites letter dated 21.09.2023.


kind attention is invited to the reference cited above.

2) Tvl. Top Granites have preferred a quarry lease application for the grant of quarry lease to quarry Multi Colour Granite over an extent of 2.40.46 Hects of patta lands in S.F.Nos.1124/5 (0.16.0), 1124/6 (1.11.0), 1151/5 (0.64.0), 1151/6 (0.36.50) and 1172/2A (0.12.96) of Irudukottai Village, Denkanikottai Taluk, Krishnagiri District for a period of 20 years as per Rule 19-A of Tamil Nadu Minor Mineral Concession Rules, 1959.

3. The above said quarry lease application has been recommended and forwarded to Government through the Commissioner of Geology and Mining,

Details of other Proposed/applied quarries

Sl. No	Name of the Lessee and address	Collector / Deputy Director Proceedings No. & date	Taluk & Village	S.F.No.	Extent in Hectares	Period of lease
1.	Tvl. Top Granites, Old No. 7, New No. 16, First Floor, First Street, North Gopalapuram, Chennai - 600 086	Roc.No. 1133/2021/Mines, dated: 05.08.2021.	Irudukottai Denkanikottai	1124/5, 1124/6, 1151/5, 1151/6, 1172/2A	2.40.46	Instant Proposal (Precise area issued)
2.	M/s. K.P.R.Granites, No.2/223, Avvai Nagar, Noolahalli Post, Pennakaram Taluk, Krishnagiri District.	Roc.No. 985/2019/Mines, dated: 31.10.2019.	Denkanikottai Taluk, Irudukottai Village	1123/4A, 4B, 5A,5B,6A, 6B, 1125/6, 1123/8(P)	2.34.3	Adjacent applied area (Mining plan approved)
3.	M/s. K.P.R.Granites, No.2/223, Avvai Nagar, Noolahalli Post, Pennakaram Taluk, Krishnagiri District.	Roc.No. 986/2019/Mines, dated: 31.10.2019	Denkanikottai Taluk, Irudukottai Village	1121/6, 1125/3	1.97.0	Adjacent applied area
4.	M/s. S.V.Granites, No. 17B/3, Vellakottai 1 st Cross, Chennai Salai, Krishnagiri.	Roc.No. 754/2021/Mines, dated: 05.08.2021	Denkanikottai Taluk, Irudukottai Village	1124/7(P), 1130/7(P), 1131/7, 1131/8	1.91.5	Mining Plan Approved (SEIAA Pending)


 Deputy Director,
 Dept of Geology and Mining,
 Krishnagiri.


 22/09/23

Copy to :-

The Chairman, Tamil Nadu State Environment Impact Assessment Authority,
 3rd Floor, Panakal Maligai,
 No. 1 Jeenes Road, Saidapet,
 Chennai -15.

DIRECTORATE OF GEOLOGY AND MINING

From
Thiru.L.Nirmal Raj, I.A.S.,
Director,
Department of Geology and Mining,
Guindy, Chennai - 600 032.

To
Tvl. Top Granites.,
Old No.7, New No.16, First
Floor, First Street, North
Gopalapuram,
Chennai -600 086.

Rc. No.8037/MM4/2022, dated: 05.09.2023

Sir,

Sub: Mines and Minerals – Minor Mineral – Multi Colour Granite – Krishnagiri district - Denkanikottai taluk – Irudhukottai village - over an extent of 2.40.46 ha of lands – S.F.Nos.1124/5(0.16.0), 1124/6(1.11.0), 1151/5(0.64.0), 1151/6(0.36.5) and 1172/2A(0.12.96) – Quarry lease application preferred by Tvl.Top Granites., Chennai – Precise area communicated by the Government – Mining Plan submitted by Tvl.Top Granites., Chennai – Recommended by the Deputy Director (G&M), Krishnagiri - Approval accorded.

- Ref:
1. Commissioner of Geology and Mining original file No. Rc.No.8037/MM4/2022 dated 11.01.2023 forwarded under single file system.
 2. Government letter No. 3954748/MME.2/2023-1 dated 08.05.2023.
 3. Draft Mining plan submitted by. Tvl.Top Granites., Chennai dated.02.06.2023 at district office.
 4. The Deputy Director of Geology and Mining, Krishnagiri letter Rc.No.1133/2021 (Mines), dated 30.06.2023.
 5. This office Rc.No.8037/MM4/2022, dated 31.07.2023.
 6. The Deputy Director of Geology and Mining, Krishnagiri letter Rc.No.1133/2021 (Mines), dated 14.08.2023.

Kind attention is invited to the above references cited.

2) A quarry lease application preferred by Tvl.Top Granites, Chennai., for quarrying Multi Colour Granite over an extent of 2.40.46 ha of patta lands in S.F.Nos. 1124/5 (0.16.0), 1124/6 (1.11.0), 1151/5 (0.64.0), 1151/6 (0.36.5) and 1172/2A (0.12.96) in Irudhukottai village, Denkanikottai taluk, Krishnagiri district was forwarded to the Government by the Commissioner of Geology and

Mining vide reference 1st cited for grant of quarry lease under rule 8-C of TNMMCR, 1959. Now, the Government letter dated 08.05.2023 have communicated the precise area over an extent of 2.40.46 ha and requested the applicant firm to submit the approved mining plan through the Commissioner of Geology and Mining and to produce environmental clearance obtained from the competent authority for the subject area for grant of quarry lease.

3) Accordingly, the mining plan submitted by Tvl.Top Granites, Chennai., has been forwarded and recommended by the Deputy Director, (G&M), Krishnagiri vide reference 4th for the subject area for approval.

4) On Scrutinizing the mining plan submitted by Tvl.Top Granites, Chennai., and the report of the Deputy Director (G&M), Krishnagiri, the following are submitted.

- i. The Deputy Director (G&M), Krishnagiri has reported that the draft mining plan is prepared by the Recognized Qualified Person and the details such as geological, mineable reserves, year wise production and development program have been incorporated in the draft mining plan.
- ii. The proposed year wise production:

Year	ROM (cbm)	Production (m ³) @ 40% Recovery	Granite Waste @ 60% cbm
1 st year	6020	2408	3612
2 nd year	5390	2156	3234
3 rd year	5250	2100	3150
4 th year	5160	2064	3096
5 th year	5260	2104	3156
Total	27080	10832	16248

- iii. As per the Mining plan submitted by Tvl.Top Granites, Chennai., it is mentioned that the total mineable reserves @ 40% recovery is about 1,09,815 cbm for a total depth of 26 m. Production for first 5 years Mining plan period is 10832 cbm at 40% recovery for a depth of 26 m.

- iv. With regard to the dumping of waste during the Mining Plan period, it has been proposed to dump on the south side of the lease boundary area.
- v. Finally, the Deputy Director (G&M), Krishnagiri has recommended and forwarded the mining plan submitted by Tvl.Top Granites, Chennai, for quarrying Multi Colour Granite over an extent of 2.40.46 ha in S.F.Nos. 1124/5(0.16.0), 1124/6(1.11.0), 1151/5(0.64.0), 1151/6(0.36.5) and 1172/2A(0.12.96) in Irudhukottai village, Denkanikottai taluk, Krishnagiri district to the Director of Geology and Mining, Chennai for approval.

5) The mining plan submitted by Tvl.Top Granites, Chennai, and report of the Deputy Director (G&M), Krishnagiri have been examined with reference to the provisions of Rule 12, 13 and 15 of Granite Conservation and Development Rules, 1999 read with G.O.(Ms). No. 87, Industries (MMC.1), Department dated: 22.02.2001. Based on the recommendation of the Deputy Director (G&M), Krishnagiri the mining plan submitted by Tvl.Top Granites, Chennai, 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. Relaxation to be obtained under Rule 106(2)(b) of Metalliferous Mines Regulations, 1961 from the Director of Mines Safety, if necessary.
- vii. If anything is found to be concealed as required by the Granite Conservation and Development Rules, 1999 and Tamil Nadu Minor Mineral Concession Rules, 1959 and proposal for rectification has not been made, the approval shall be deemed to have been withdrawn with immediate effect.
- viii. No blasting and transportation of materials in vehicles should be carried out from 6.00 PM to 6.00AM.
- ix. A green belt should be constructed to prevent sound and air pollution due to the proposed quarrying activity by planting at least 250 seedlings all along the boundary the area.
- x. No hindrance shall be caused to the adjacent Patta lands and Government poramboke lands if any while quarrying and transportation of granite.
- xi. The applicant firm shall strictly adhere to the statutory and safety requirements and the applicant firm should ensure the periodical medical checkup to the quarry workers to safeguard them from quarry related diseases.
- xii. The waste materials generated during the course of quarrying should be dumped only within the lease hold area that will be earmarked for the purpose in the mining plan as per rule 31 of GCDR, 1999.
- xiii. 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.

- xiv. 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 m 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 CD to the Deputy Director (G&M), Krishnagiri.
- xv. The boundary stone should be fixed for the subject quarry and the district administration / Geology and Mining Department should ensure that the quarrying operation should be restricted only within the area granted for lease.
- xvi. 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.
- xvii. As per rule 12 (v) of 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.
- xviii. The conditions mentioned in G.O No. 79 Industries Department dated 06.04.2015 should be complied with.
- xix. The applicant firm may use mild explosives during quarrying, and storing of explosives if required, by obtaining valid license under explosive Acts and Rules.
- xx. 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.
- xxi. 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.
- xxii. The applicant firm should remit the Stamp Duty as per the approved modified mining plan during the currency of the lease period.

- xxiii. The earlier instances of irregular / illegal quarrying, if any, shall not be regularized through the approval of this document.
- xxiv. The lessee shall remit the penalty / cost of mineral / other dues if any as arrived by the District Collector / Deputy Director (G&M), Krishnagiri district.
- xxv. Non adherence to any condition set-out above, the approval shall be deemed to have been withdrawn with immediate effect.
- xxvi. 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 per the Order of the Hon'ble Supreme Court of India, dated.08.01.2020 states that, "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 their mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc".
- xxvii. 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 using the agencies empaneled by the CGM on 01.03.2023, 08.03.2023, 17.03.2023 and 18.03.2023.

Sd/-L. Nirmal Raj
Director of Geology and Mining

Forwarded/By Order


Additional Director

Copy to:

1. The Additional Chief Secretary to Government,
Natural Resources Department,
4th Floor, Secretariat, Chennai-9.
2. The Director of Mines Safety,
3rd Floor, Left Wing,
New Additional Building,
CGO Complex, Shastri Bhawan,
Nungambakkam, Chennai - 06
3. The District Collector,
Krishnagiri District.


05/9/2023



**MINING PLAN ALONG WITH
PROGRESSIVE QUARRY CLOSURE PLAN FOR
IRUDHUKOTTAI MULTI COLOUR GRANITE**

(Under Rule 19A of Tamil Nadu Minor Mineral Concession Rules, 1959 and
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 : 2.40.46 HECTARES
S.F.Nos. : 1124/5,6, 1151/5,6 and 1172/2A
VILLAGE : IRUDHUKOTTAI
TALUK : DENKANIKOTTAI
DISTRICT : KRISHNAGIRI
STATE : TAMIL NADU

FOR

APPLICANT/LESSEE

TVL TOP GRANITES,

Old No. 7, New No.16, First Floor,
First Street, North Gopalapuram,
Chennai,

Tamil Nadu State – 600 086.

PREPARED BY

P. VISWANATHAN, M.Sc.,

Qualified Person

(Under Rule 15(I)(a) and (b) of MCR 2016)

No.17, Advaita Ashram Road,
Alagapuram,
Salem District,

Tamil Nadu – 636 004.

+91 94422 78601 & 94433 56539.

E-mail: infogeoexploration@gmail.com



TVL. TOP GRANITES,
Old No. 7, New No.16, First Floor,
First Street, North Gopalapuram,
Chennai,
Tamil Nadu State – 600 086.

CONSENT LETTER FROM APPLICANT

The Mining Plan in respect of Irudhukottai Multi Colour Granite over an extent of 2.40.46 Hectares of Patta lands in S.F.Nos. 1124/5, 1124/6, 1151/5, 1151/6 and 1172/2A of Irudhukottai Village, Denkanikottai Taluk, Krishnagiri District, Tamil Nadu State has been prepared by

P. VISWANATHAN, M.Sc.,
Qualified Person,

I request the Commissioner, Department of Geology and Mining, Chennai to make further correspondence regarding the modification of the Mining Plan with the said Qualified Person at his following address.

P. VISWANATHAN, M.Sc.,
No.17, Advaitha 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 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 Tvl. Top Granites,


(U. Rajagopal)
Partner

Place: Chennai

Date: 10.05.2023

TVL. TOP GRANITES,
Old No. 7, New No.16, First Floor,
First Street, North Gopalapuram,
Chennai,
Tamil Nadu State – 600 086.



DECLARATION OF APPLICANT

The Mining Plan in respect of Irudhukottai Multi Colour Granite over an extent of 2.40.46 Hectares of Patta lands in S.F.Nos. 1124/5, 1124/6, 1151/5, 1151/6 and 1172/2A of Irudhukottai Village, Denkanikottai Taluk, Krishnagiri District, Tamil Nadu State has been prepared in full consultation with me by

P. VISWANATHAN, M.Sc.,
Qualified Person,

I have understood its contents and agree to implement the same in accordance with Laws applicable to Mines.

Signature of the applicant
For Tvl. Top Granites,


(U. Rajagopal)
Partner

Place: Chennai

Date: 24.05.2023

CERTIFICATE FROM THE QUALIFIED PERSON



Certified that I, **P. Viswanathan, M.Sc.**, having an office at No.17, Advaita Ashram Road, Alagapuram, Salem District, Tamil Nadu – 636 004, Post Graduate Degree in Geology (M.Sc. Geology) from Periyar University, Salem and I worked in the field of Geology in a role of Geologist.

Rule 15(I)(a) and (b) of Minerals (Other than Atomic, Hydro Carbons Energy Minerals) Concession Rules 2016 stipulates the eligibility for preparing Mining plans as "(I)(a) a post graduate degree in Geology granted by a university established" and (I)(b) "Professional experience of five years of working in a supervisory capacity in the field of mining after obtaining the degree". Since my qualification and experience are satisfied the Rule (I)(a) and (I)(b) of 15 of the said Rules, I am eligible to prepare Mining Plans for both Major and Minor Minerals.

Accordingly, I prepare this Mining Plan along with Progressive Quarry Closure Plan in respect of Irudhukottai Multi Colour Granite over an extent of 2.40.46 Hectares of Patta lands in S.F.Nos. 1124/5, 1124/6, 1151/5, 1151/6 and 1172/2A of Irudhukottai Village, Denkanikottai Taluk, Krishnagiri District, Tamil Nadu State for **Tvl. Top Granites**, having an office at Old No. 7, New No.16, First Floor, First Street, North Gopalapuram, Chennai, Tamil Nadu State – 600 086. Since the Mining Plan is prepared as per the provisions contained in Rule 15(I)(a) and (I)(b) of Minerals (Other than Atomic, Hydro Carbons Energy Minerals) Concession Rules, 2016.

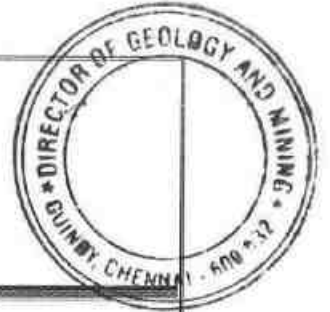
Signature of the Qualified Person

P. Viswanathan, M.Sc.,

Place : Salem

Date : 24.05.2023

P. VISWANATHAN, M.Sc.,
No.17, Advaitha Ashram Road,
Alagapuram,
Salem – 636 004.
+91 94422 78601 & 94433 56539.



CERTIFICATE FROM THE 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 Irudhukottai Multi Colour Granite over an extent of 2.40.46 Hectares of Patta lands in S.F.Nos. 1124/5, 1124/6, 1151/5, 1151/6 and 1172/2A of Irudhukottai Village, Denkanikottai Taluk, Krishnagiri District, Tamil Nadu State has been prepared for

TVL. TOP GRANITES,

Old No. 7, New No.16, First Floor,
First Street, North Gopalapuram,
Chennai,
Tamil Nadu State – 600 086.

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.

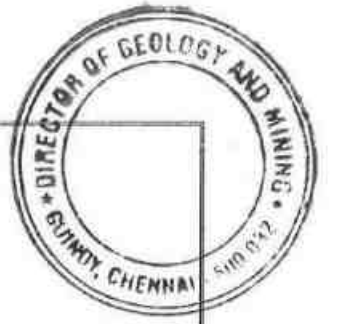
Signature of the Qualified Person

P. Viswanathan, M.Sc.,

Place : Salem

Date : 24.05.2023

P. VISWANATHAN, M.Sc.,
No.17, Advaita Ashram Road,
Alagapuram,
Salem – 636 004.
+91 94422 78601 & 94433 56539.



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 Irudhukottai Multi Colour Granite over an extent of 2.40.46 Hectares of Patta lands in S.F.Nos. 1124/5, 1124/6, 1151/5, 1151/6 and 1172/2A of Irudhukottai Village, Denkanikottai Taluk, Krishnagiri District, Tamil Nadu State has been prepared for

TVL. TOP GRANITES,
Old No. 7, New No.16, First Floor,
First Street, North Gopalapuram,
Chennai,
Tamil Nadu State – 600 086.

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 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 Qualified Person


P. Viswanathan, M.Sc.,

Place : Salem

Date : 24.05.2023.

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**MINING PLAN ALONG WITH PROGRESSIVE
QUARRY CLOSURE PLAN FOR IRUDHUKOTTAI
MULTI COLOUR 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 Multi Colour Granite belonging to **Tvl. Top Granites**, having an office at Old No. 7, New No.16, First Floor, First Street, North Gopalapuram, Chennai, Tamil Nadu State – 600 086 for which precise area communication has been granted as per Govt. **letter No. 3954748/MME.2/2023-1, Dated: 08.05.2023** with the conditions to provide (Please refer Annexure -I):-

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 (Pathai) in S.F.Nos. 1172/1 and 1151/1 situated on the middle of the applied S.F.Nos. 1124/6 and 1151/6.
3. A safety distance of 10m shall be maintained for the Government land (Pathai) in S.F.No. 1172/1 situated in between S.F.Nos. 1124/6 and 1172/2A.
4. A safety distance of 10m shall be maintained for the state on ground village road situated on the Southern side of the applied area.
5. The quarrying operation should be restricted only in the area granted on lease.
6. Barbed wire fencing or Compound wall should be erected all along the boundary of the lease granted area and the boundary pillars should be erected as per DGMS norms.
7. The waste materials generated during the course of quarrying should be dumped only within the lease hold area.
8. Environmental Clearance should be obtained from the Competent 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 clearance if any.
9. 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 with DGPS readings.
10. A Green belt should be constructed by planting trees along the boundary of the area to control air and noise pollution.
11. No encroachment shall be made in the adjacent Government lands.
12. As per the order of Hon'ble Supreme Court of India dated 08.01.2020 in W.P. (C). No. 144/2014, after ceasing quarry operations re-grassing the quarry area and



- any other area which may have been disturbed due to this quarrying activities and restore the land to a condition which is fit for growth of fodder, floral fauna, etc.,
13. The four boundaries of the proposed area for the grant of multi colour granite quarry lease over an extent of 2.40.46 Hectares of patta lands in S.F.No. 1124/5 (0.16.0), 1124/6(1.11.0), 1151/5(0.64.0), 1151/6(0.36.5) and 1172/2A(0.12.96) in Irudhukottai Village, Denkanikottai Taluk, Krishnagiri District should be fixed and the District Administration/ Geology and Mining Department should ensure that the quarrying operation should be restricted in the area granted on lease while issuing transport permit.
 14. Quarrying activity should be carried out from 6.00 A.M. to 6.00 P.M. only.
 15. A Green belt should be constructed to prevent sound and air pollution due to the proposed quarrying activity over an extent 2.40.46 Hectares of the applied area by planting atleast 300 seedings of Neem and Pungan all around the area.
 16. In order to prevent illicit quarrying, when quarried material is transported, necessary permits have to be produced before the forest officials.
 17. If elephant crosses during the quarry operation, quarry should be stopped until the elephant migrates from the subject area.
 18. Quarry operation should be carried out by complying all the forest Act/rules without hindrance to the forest animals.
 19. Necessary contribution has to be given by the quarry owners to avoid migration of animals from the forest.
 20. The applicant firm should fence the lease granted area with Barbed wire before the execution of the 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 digitalized map with DGPS readings should be submitted in the CD form to the Deputy Director (G&M), Krishnagiri.
 21. The conditions mentioned in G.O. (Ms) No.79, Industries (MMC. 1) Department, dated 06.04.2015 should be comply with.
 22. As per rule 12(v) of the 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.



23. The applicant firm should not cause hindrance to the patta and Government lands while quarrying and transportation of Granite.
24. The applicant firm should carry out DGPS survey and erection of RCC boundary pillars as per the norms stipulated in the EOI notification No. 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.
25. Child labourers should not be engaged in the quarry works.
26. 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.
27. 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.
28. 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.
29. 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.

The company 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. **The lease applied area divided into two Blocks (Block-A and Block-B) due to the Government land (pathai) passing in between the lease applied area.** Hence, the lease applied area splitted as two Blocks.

The area applied for Multi Colour granite quarry lease is over an extent of **2.40.46 Hectares** of Patta lands in **S.F.Nos. 1124/5, 1124/6, 1151/5, 1151/6 and 1172/2A of Irudhukottai Village, Denkanikottai Taluk, Krishnagiri District.** It is patta lands Classified as punjai. The lands are jointly registered in the name of 1. Thiru. U. Rajagopal, 2. Thiru.D. Anandhan, 3. Thiru. V. Senthil Nathan, 4. Thiru. S. Baskaran Vide Patta No.9258 (Please refer Annexure No. IV to VI). The company has obtained **registered lease agreement from the joint pattadhar** for the period of **25 years from 01.10.2021 to 30.09.2046** (Please refer Annexure No. VII). Hence, the company has got surface rights over the area applied for quarry lease.

The lease applied area is situated in flat terrain, the Multi Colour granite is clearly visible right from the surface outcrops and other areas concealed under Reddish gravelly soil and Weathered rock having an average thickness of 2m and followed by fresh Multi Colour 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 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

2.1 NAME OF THE APPLICANT WITH ADDRESS

Name : **Tvl. Top Granites**
 Address : Old No. 7, New No.16, First Floor
 First Street
 North Gopalapuram
 Chennai
 State : Tamil Nadu
 Pin code : 600 086
 Phone : +91 90432 61426 and 98431 45292
 E-mail ID : rasaulaganathan@gmail.com.
 Aadhaar No. : 5358 9671 9942 (Refer annexure Nos. XI).

2.2 STATUS OF THE APPLICANT

The applicant is a Partnership firm. The partnership deed has executed on 01.09.2021 under the Indian Partnership Act, 1932 with tow partners. The details of partners are given table below (Refer annexure No. IX).

Table - 1

S.No.	Name	Designation
1	Thiru. S. Baskaran, S/o. R. Swaminathan.	Partner
2	Thiru. U. Rajagopal, S/o. G. Ulaganathan.	Partner

Thiru. U. Rajagopal (Partner) is an authorized person to signing all the documents on behalf of the firm (Refer annexure Nos. X).

2.3 MINERAL WHICH THE APPLICANT INTENDS TO MINE

The applicant intends to quarry **Multi Colour Granite** dimensional stone and Petrologically called as **Granite Gneiss**.



2.4 NAME AND ADDRESS OF THE QUALIFIED PERSON WHO PREPARED THE MINING PLAN

Name : P. VISWANATHAN, M.Sc.,
Qualified Person (As per Rule 15(I)(a) and (b) of MCR 1982)

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. XII and XIII)

2.5 NAME AND ADDRESS OF THE PROSPECTING AGENCY

State Geology and Mining Department, 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 Qualified Person and his team members made a detailed geological study of the area and demarcated clearly the Multi Colour granite deposit with a mine surveyor. The granite formation is clearly visible right from the surface outcrops. 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.

2.6 DETAILS OF THE AREA

- a. The area is marked in the Survey of India, Topo Sheet No. 57H/15.
- b. The details of the land covered by the area is given below.

Table - 2

District And State	Taluk	Village	S.F.No.	Area (Ha.)	Patta No.	Classification
Krishnagiri and Tamil Nadu	Denkanikottai	Irudhukottai	1124/5	0.16.00	9258	It is Patta Lands, classified as Punjai (Refer Annexure Nos. IV - VI).
			1124/6	1.11.00		
			1151/5	0.64.00		
			1151/6	0.36.50		
			1172/2A	0.12.96		
Total				2.40.46		

The area lies between the Latitudes of 12°25'41.0417"N to 12°25'47.7539"N and Longitudes of 77°50'01.3513"E to 77°50'07.7665"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 3km Southern side of Irudhukottai hamlet and 12km Southeast side of Denkanikottai town (Please refer plate No- I and IA).

The nearest town is Denkanikottai which is located about 12km on the Northwest side of the area, where basic facilities like Hospital, Communication centre, Schools, Police Station and Bus terminus are available. District head quarters and District Administrative Offices are available in Krishnagiri located at 42km on the Northeast side of the area.

The approach (Asphalt Road) road is available on the Southern side of the area, which is leads to Denkanikottai – Irudhukottai Village road located at 3km on the northern side of the area. There is no other patta lands are encountered for the haulage of Multi Colour Granite (Please refer Plate No.I to IC).

Table - 3

Particulars	Location	Approximate aerial Distance and Direction from the lease applied area
Nearest Post Office	Irudhukottai	3km - North
Nearest Dispensary	Andevanapalli	8km - NW
Nearest School	Tottikuppam	1km - SE
Nearest Police Station	Denkanikottai	12km - NW
Nearest Hospital	Denkanikottai	12km - NW
Nearest Town	Denkanikottai	12km - NW
Nearest D.S.P.Office	Denkanikottai	12km - NW
Nearest State Highway	Denkanikottai – Hosur (SH-17A)	12.5km - NW
Nearest National Highway	Hosur – Dharmapuri (NH-844)	22km - NE
Nearest Railway Line	Hosur – Rayakottai	16km - NE
Nearest Railway Station	Kelamangalam	21km - NE
Nearest Airport	Bengaluru	60km - NW
Nearest Seaport	Chennai	276km - NE
District Head Quarters	Krishnagiri	42km - NE

There is no National Monuments, Places of Worship, Public Interest and Permanent structures situated around 300m radius from the lease applied area. The nearest Eco Sensitive Zone is Cauvery North Wild life sanctuary, which is located at 1km on the Southern side of the area (Refer Annexure No. VIII).

WATER:

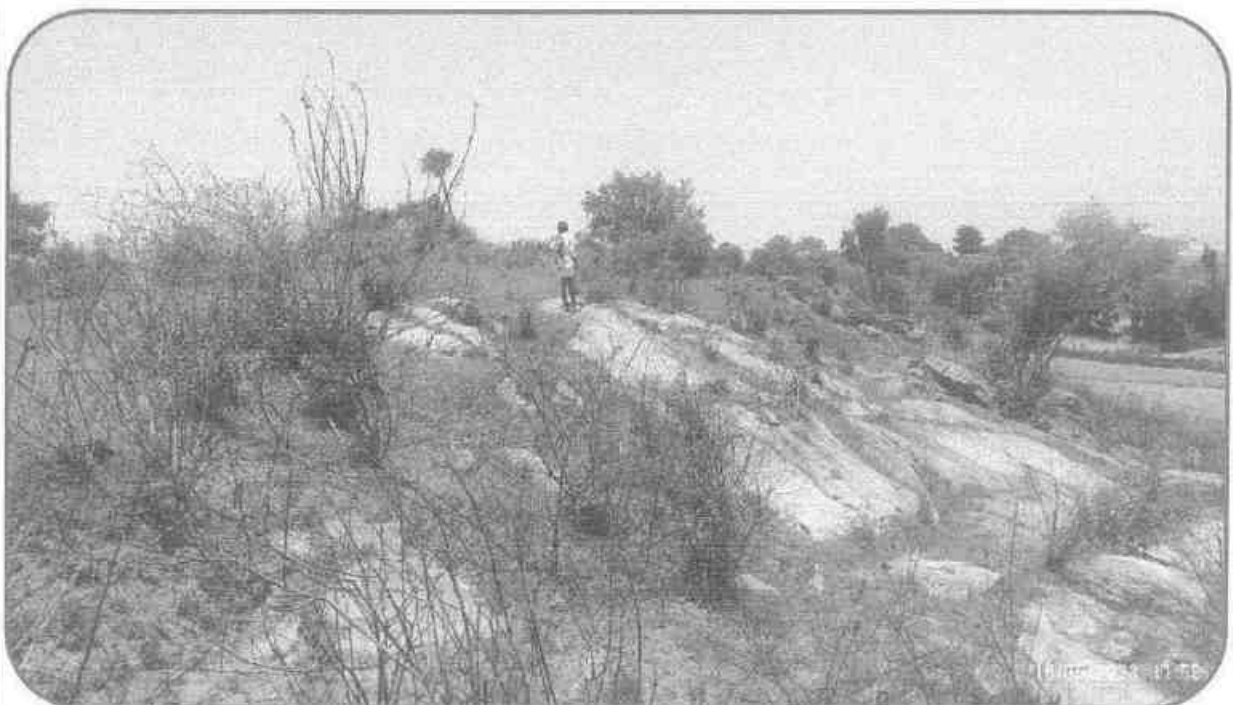
Packaged drinking water is available from the nearby water vendor in Denkanikottai located at 12km on the Northwest side of the area, the ground water is also potable without adverse any health effects. The water table is found 64m below from ground level, this is observed from the nearby borewells.

**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 slightly elevated terrain. The gradient is 1 in 5 towards Northwest side and altitude of the area varies from 942m to 956m above from MSL. The Multi Colour granite is clearly visible right from the surface outcrops and other places are concealed under Reddish gravelly soil. The Multi Colour Granite is medium to Coarse grained with quartz and feldspar as major constituents, Garnet, Pyroxene, Mica, and other mafic minerals are accessories.

Images of Irudhukottai Multi Colour Granite quarry lease applied area



3.2 REGIONAL GEOLOGY & GEOLOGICAL SUCCESSION

The Multi Colour Granite is medium to coarse grained in size. Orthoclase feldspar quartz and Garnet are the major constituents and Pyroxene mica 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.

3.2.1 Geology of the Krishnagiri Area

This Multi Colour granite is Petrologically called as "**Granite Gneiss**" 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 Granite Gneiss, Migmatites, Charnockite, Dolerite, 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).

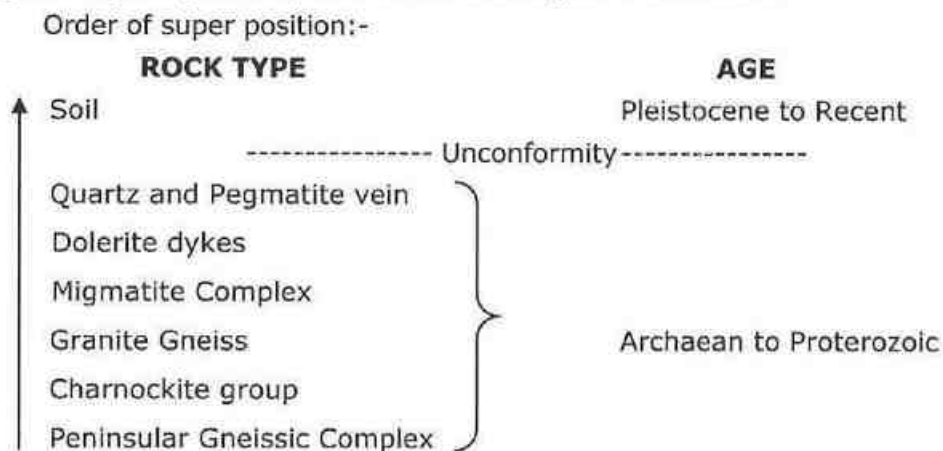
The Late Archean crust of Krishnagiri, Tamil Nadu, consists of tonalitic-trondhjemitic-granodioritic (TTG) gneisses with mafic and sedimentary inclusions formed between 2.7 and 2.5 Ga and metamorphosed at amphibolite facies in the north to granulite facies in the south close to 2.5 Ga. Migmatization 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 Multi Colour 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:-



3.2.2. Geology of the lease applied area

The Multi Colour granite deposit is clearly visible right from the outcrops situated on the northeastern part of the area and other area is mostly concealed under Reddish gravelly soil and weathered rock having an average thickness of 2m and followed by fresh Multi Colour granite. Topsoil is mostly occupied by an overburden part and the weathered formation is very meager in the overburden. 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 and Pyroxene, Garnet, mica and other mafic minerals are accessories. The lease applied area comprises **Granitic gneiss**.

The Granite gneiss is leucocratic, euhedral, medium to coarse grained, equigranular 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 N30°E- S30°W (i.e., the cutting direction of the multicolor granite). The colour of the rock is

pale pink - pale yellowish 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.

Well developed strike and dip joints 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 40% upto 26m (2m Topsoil and Weathered + 24m Multi colour granite) depth has been computed as economically safe and systematic quarrying. This mining plan is discussed based on an 40% 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 Multi Colour Granite deposit of this area is given below:-

Strike Direction	-	N30°E - S30°W
Dip amount and direction	-	NW80°.

3.3 DETAILS OF EXPLORATION

3.3.1. ALREADY CARRIED OUT

The Multi colour granite is clearly visible from the outcrops. As far as Multi Colour Granite deposits are concerned, the only practical method is the systematic geological mapping and delineation of commercial Multi Colour 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 Multi Colour Granite stone may be beyond 26m from the Petrogenetic character of the rock, only 26m (2m Topsoil and Weathered rock + 24m Multi Colour 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 Multi Colour Granite stones has been estimated as 40% and if the recovery percentage is good it may enhance or or bad it may 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 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 eight sections have been drawn, two along the strike direction as (X-Y and X1-Y1) length wise and other six cross sections are drawn perpendicular to strike as (A-B, C-D, E-F, G-H, I-J and K-L) 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 26m 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 40% 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 more than 40%. During the operation the method of quarry, deployment of men and machineries will not have any significant impact on the Environment. It is worth mentioning 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 may not be 100% of the R.O.M

As the sale of Multi Colour 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 ESTIMATION OF GEOLOGICAL RESOURCES AND GRADE:**

Table - 4

Maximum dimension of the Geological Resources			
Block No.	Length (m)	Width (m)	Depth (m)
Block - A	199	73	26 (OB + Granite)
Block - B	190	88	26 (OB + Granite)

Table - 4A

Section	Bench	Length (m)	Width (m)	Depth (m)	ROM (m ³)	Recovery @ 40% (m ³)	Granite Waste @ 60%(m ³)	Topsoil (m ³)
XY-AB	i	65	73	2	-	-	-	9490
	ii	65	49	4	12740	5096	7644	-
	iii	65	71	5	23075	9230	13845	-
	iv	65	73	5	23725	9490	14235	-
	v	65	73	5	23725	9490	14235	-
	vi	65	73	5	23725	9490	14235	-
Total					106990	42796	64194	9490
XY-CD	i	42	66	2	-	-	-	5544
	ii	30	37	3	3330	1332	1998	-
	iii	42	59	5	12390	4956	7434	-
	iv	42	66	5	13860	5544	8316	-
	v	42	66	5	13860	5544	8316	-
	vi	42	66	5	13860	5544	8316	-
Total					57300	22920	34380	5544
XY-EF	i	92	58	2	-	-	-	10672
	iii	42	34	5	7140	2856	4284	-
	iv	81	57	5	23085	9234	13851	-
	v	92	58	5	26680	10672	16008	-
	vi	92	58	5	26680	10672	16008	-
Total					83585	33434	50151	10672
X1Y1-GH	i	70	88	2	-	-	-	12320
	ii	70	88	4	24640	9856	14784	-
	iii	70	88	5	30800	12320	18480	-
	iv	70	88	5	30800	12320	18480	-
	v	70	88	5	30800	12320	18480	-
	vi	70	88	5	30800	12320	18480	-
Total					147840	59136	88704	12320
X1Y1-IJ	i	59	47	2	-	-	-	5546
	ii	27	47	3	3807	1523	2284	-
	iii	59	47	5	13865	5546	8319	-
	iv	59	47	5	13865	5546	8319	-
	v	59	47	5	13865	5546	8319	-
	vi	59	47	5	13865	5546	8319	-
Total					59267	23707	35560	5546
X1Y1-KL	i	61	37	2	-	-	-	4514
	iii	61	37	4	9028	3611	5417	-
	iv	61	37	5	11285	4514	6771	-
	v	61	37	5	11285	4514	6771	-
	vi	61	37	5	11285	4514	6771	-
Total					42883	17153	25730	4514
Grand Total					497865	199146	298719	48086

Total Geological Resources in ROM	=	4,97,865m ³
Total Recoverable Resources @ 40%	=	1,99,146m ³
Granite waste @ 60%	=	2,98,719m ³
Topsoil	=	48,086m ³
Granite : Waste ratio	=	1:1.5

The Geological resources computed based on the geological cross sections up to the economically workable depth of 26m below from the existing ground profile at the rate of 40% recovery yields 1,99,146m³ and 4,97,865m³ of ROM.



3.6 ESTIMATION OF MINEABLE RESERVES AND GRADE:

Table - 5

Maximum dimension of the Mineable Reserves			
Block No.	Length (m)	Width (m)	Depth (m)
Block - A	178	54	26 (OB + Granite)
Block - B	167	68	17 (OB + Granite)

Table - 5A

Section	Bench	Length (m)	Width (m)	Depth (m)	ROM (m ³)	Recovery @ 40% (m ³)	Granite Waste @ 60% (m ³)	Topsoil (m ³)
XY-AB	i	57	54	2	-	-	-	6156
	ii	53	35	4	7420	2968	4452	-
	iii	48	42	5	10080	4032	6048	-
	iv	43	32	5	6880	2752	4128	-
	v	37	22	5	4070	1628	2442	-
	vi	32	12	5	1920	768	1152	-
Total					30370	12148	18222	6156
XY-CD	i	42	47	2	-	-	-	3948
	ii	30	23	3	2070	828	1242	-
	iii	42	36	5	7560	3024	4536	-
	iv	42	26	5	5460	2184	3276	-
	v	42	16	5	3360	1344	2016	-
Total					18450	7380	11070	3948
XY-EF	i	79	39	2	-	-	-	6162
	iii	42	20	5	4200	1680	2520	-
	iv	72	28	5	10080	4032	6048	-
	v	61	17	5	5185	2074	3111	-
Total					19465	7786	11679	6162
X1Y1-GH	i	56	68	2	-	-	-	7616
	ii	53	62	4	13144	5258	7886	-
	iii	47	52	5	12220	4888	7332	-
	iv	42	42	5	8820	3528	5292	-
Total					34184	13674	20510	7616
X1Y1-IJ	i	59	28	2	-	-	-	3304
	ii	27	21	3	1701	680	1021	-
	iii	59	11	5	3245	1298	1947	-
Total					4946	1978	2968	3304
X1Y1-KL	i	53	18	2	-	-	-	1908
	iii	50	12	4	2400	960	1440	-
Total					2400	960	1440	1908
Grand Total					109815	43926	65889	29094

Total Mineable Reserves ROM = 1,09,815m³

Total Mineable Recoverable Reserves @ 40% = 43,926m³

Granite waste @ 60% = 65,889m³

Topsoil = 29,094m³

Granite : waste ratio = 1:1.5

Mineable reserves have been computed as 43,926m³ at the rate of 40% recovery and 1,09,815m³ of ROM upto a depth of 26m 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 26m depth.



The Multi Colour 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 patches, 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 Metalliferous 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 Multi Colour 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 = 62m

Maximum Width = 54m

Maximum Depth = 26m

Table - 6

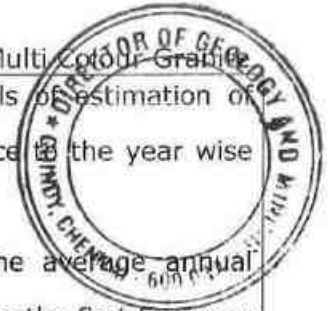
Section	Year	Bench	Length (m)	Width (m)	Depth (m)	ROM (m ³)	Recovery @ 40% (m ³)	Granite Waste @60%(m ³)	Topsoil (m ³)
XY-AB	I	i	62	54	2	-	-	-	6696
		ii	43	35	4	6020	2408	3612	-
		Total					6020	2408	3612	6696
	II	ii	13	35	4	1820	728	1092	-
		iii	17	42	5	3570	1428	2142	-
		Total					5390	2156	3234
	III	iii	25	42	5	5250	2100	3150	-
		Total					5250	2100	3150
	IV	iii	4	42	5	840	336	504	-
		iv	27	32	5	4320	1728	2592	-
		Total					5160	2064	3096
	V	iv	9	32	5	1440	576	864	-
		v	26	22	5	2860	1144	1716	-
		vi	16	12	5	960	384	576	-
		Total					5260	2104	3156
	Grand Total						27080	10832	16248	6696

Total Proposed Reserves ROM = 27,080m³Total Year wise Recoverable Reserves @ 40% = 10,832m³Granite waste @ 60% = 16,248m³Topsoil = 6,696m³

Granite : waste ratio = 1: 1.5

Estimated Life of QuarryTotal Mineable Recoverable Reserves @ 40% = 43,926m³Average Production per Year @ 40% = 10,832m³/5 = 2,166m³Estimated Life of the Quarry = 43,926m³/2,166m³

= 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 2,166m³ for the first five year plan period considering at the rate of 40% 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 2,166m³ per annum @ 40% 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 at present scenario.

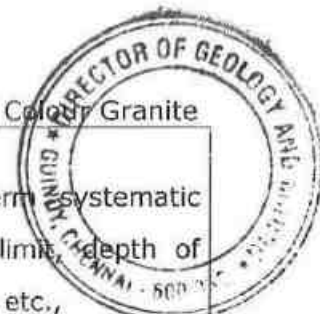
An optimum depth of 26m depth has been proposed as economically viable depth. Eventually this depth is the optimum for safe and scientific quarrying.

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 Multi Colour Granite quarry is thus arrived as **43,926m³ @ 40% recovery** and **1,09,815m³ of ROM** for an assumed **depth of 26m** 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 Multi Colour Granite from this quarry is **2,166m³ per year** and Mineable Reserves **43,926m³** considering 40% 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 is anticipated about 20 years** (considering all the safety factors) at 40% recovery, if the quarry is being worked continuously with an average annual production of 2,166m³. 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 limits, 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			
Block No.	Length	Width	Depth
Block - A	178	54	26
Block - B	167	68	17

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 1,38,909m³ (ROM 1,09,815m³ + Topsoil 29,094m³) to a depth of 26m. The generation of total waste is estimated about 65,889m³ and marketable Multi Colour Granite as 43,926m³.

During the first five years the excavated waste (16,248m³) will be proposed to dump on the Northeast side with maximum dimension of (Area) 2,342m² x (Height) 6.9m, 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 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 obtained for disposal of waste the remaining unsold overburden will be utilized for backfilling in the part of the pit and remaining 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, 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). The Conceptual Mining is based upon the entire ROM proposed for the life of the Mine.



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 very difficult to maintain the 60° slope 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 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). The entire terrain is made up of hard rock, compact sheet and possess high stability on slope even at higher vertical angles. The same will be inspected by the Director of Mines Safety and permission to be obtained under Rule 106(2)(b) of the Metalliferous Mines Regulation, 1961.

4.4.2 EXTENT OF MECHANIZATION

The following machineries are proposed to utilize for the development and production work at this quarry. The proposed and adopted machinery make may variable, if machinery making companies provide upgraded machines the same will be applied as per availability of market.

Table - 8

I. DRILLING AND CUTTING MACHINE

S.No.	Type	No.	Dia Hole mm	Size Capacity	Make (same or any other similar model)	Motive power
1	Jack hammer	6	35	1.2m to 6m	Atlas Copco	Compressed air
2	Compressor	2	-	400psi	Atlas Copco	Diesel drive
3	Diamond Wire saw	2	-	20m ³ /day	Optima	Diesel Generator
4	Diesel Generator	1	-	125kva	Kirloskar	Diesel



Table - 9

II. LOADING EQUIPMENT

S.No.	Type	Nos	Capacity	Make (same or any other similar model)	Motive Power
1	Crawler Crane	1	855	Tata P&H	Diesel Drive
2	Excavator	2	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	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. '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.
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 during this mining plan period.



5.0 BLASTING

In general for granite quarrying deep hole drilling and blasting is not practiced. During future development of quarrying, removal of rock mass will be done by mild blasting with explosives in holes drilled by Jack hammer of 35mm 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 blasting is taken care by the company's qualified Statutory Mine Manager, Mines Foreman and Mine Mate certificate of competency holder. The Competent Qualified Statutory personnels of the Company will maintain the records of Explosives as per the Indian Explosives Act.

Now-a-days Diamond wire saw cutting machine is used for splitting the blocks from parent sheet mass. It is a new innovative Eco-friendly splitting technique without involving blasting. This is increase the recovery percentage of granite blocks and reduced from induce fissures due to blasting. Besides those are noise free Eco friendly machineries.

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 5HP motor pumps and the drained out water will be utilized for afforestation. Anyhow, Garland drain will be constructed all along the boundary to prevent surface run-off water entering into the quarry.

7.0 STACKING OF MINERAL WASTE AND DISPOSAL OF WASTE

a) Topsoil:

There is 6,696m³ of topsoil will be generated during the mining plan period. The excavated topsoil will be preserved all along the safety zone and utilized for construction of bund and 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 16,248m³ the same will be proposed to dump on the Northeast side with maximum dimension of (Area) 2,342m² x (Height) 6.9m.

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 out Multi Colour 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 Multi Colour 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 Multi Colour 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 Denkanikottai town (12km-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 Denkanikottai town also from nearby Company's borewell can be transported to the work site in tippers if neccessary, 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 (Refer Plate No VI).



12. EMPLOYMENT POTENTIAL

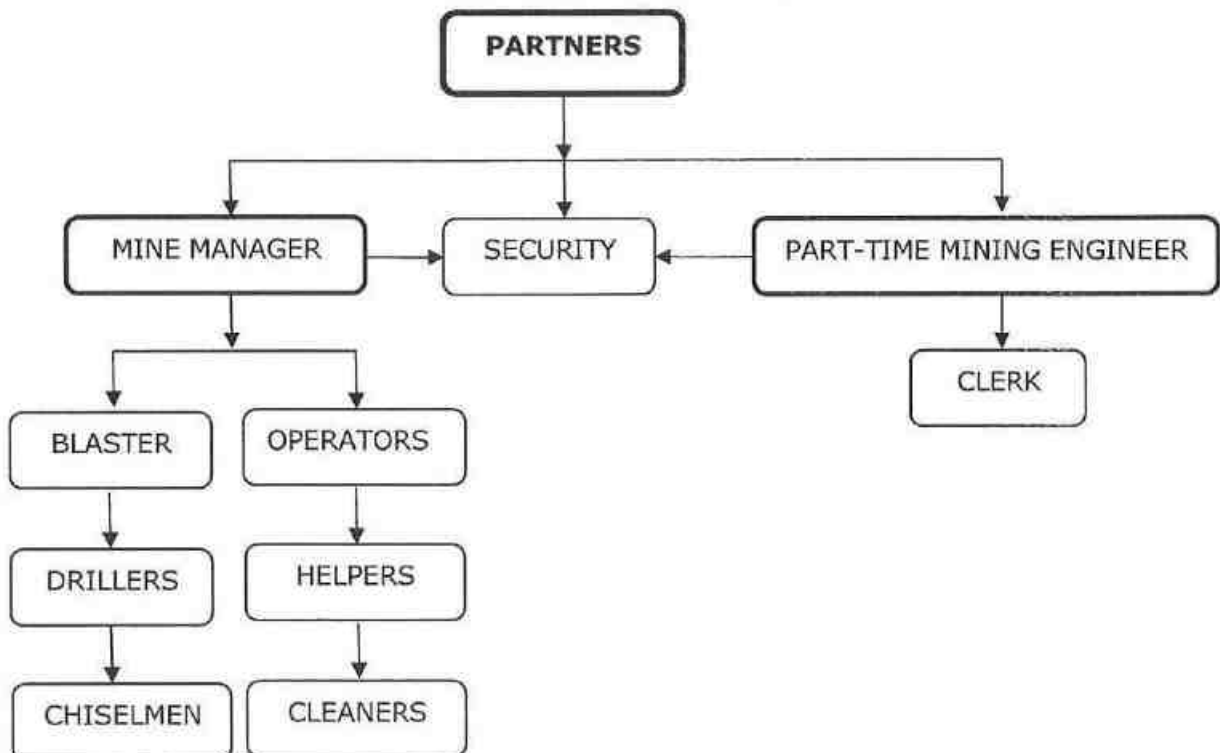
The following manpower for machineries as well as for operational activities are proposed to carry out the day-to-day quarrying activities aimed at the proposed production target and also to comply with the statutory provisions of the metalliferous mines regulations, 1961.

1. Mines manager (with valid statutory qualification) : 1
2. Mines foreman (with valid statutory qualification) : 1
3. Machinery operators (Certified) : 4

WORKERS:

- | | | |
|----|----------------|-------------|
| a. | Skilled labour | : 6 |
| b. | Semi-skilled | : 18 |
| c. | Unskilled | : 8 |
| | Total | : 38 |

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 Directorate of 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 slightly elevated terrain. The gradient is 1 in 5 towards Northwest side and altitude of the area varies from 942m to 956m 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 any purpose. The region experiences semi - humid climate and there is scanty growth of vegetation around the area (seasonal cultivation is mostly practiced). At present the area is virgin.

Existing Land use pattern

Table - 11

Description	Area at present (ha)	Utilized (%)
Area under quarry	Nil	-
Waste dump	Nil	-
Infrastructure	Nil	-
Roads	Nil	-
Green Belt	Nil	-
Unutilized	2.40.46	100
Grand Total	2.40.46	100

II. WATER REGIME:

Ground water occurrence in this area is 64m depth below ground level. The quarry operation will be restricted to 26m 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. There is no major water body like lake, river or reservoir located within 50m radius of the area. During rainy season the water table in the adjacent area may raise up. The subject area is a hard batholithic formation hence, the water table will not encounter from adjacent lands.

III. FLORA AND FAUNA:

The main floras of Neem, Pongamia pinnata, Cocos nucifera, Mango trees, Cactus, Calatropis, thorny bushes, Aloe vera and Shrubs are observed in and 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 43°C and winter encounters a minimum temperature of 18°C.



V. HUMAN SETTLEMENT:

There is no approved habitation located within 300m radius of the area and few villages are located within 5km radius of the area, approximate distance with direction & population are furnished below.

Table - 12

S.No.	Name of the Village	Direction	Approximate Distance	Approximate population
1.	Irudhukottai	North	3km	5,600
2.	Hanumenthapuram	North	3km	5,250
3.	Santhanapalli	NW	4km	6,550
4.	Belalam	SW	1km	800
5	Bikkanapalli	NW	4km	1,000

Basic human welfare amenities such as Health Center, Schools, Communication Facilities, and Commercial Centers etc are available at Denkanikottai which is located at 12km on the Northwest side of the area.

VI. PUBLIC BUILDINGS, MONUMENTS AND PLACES OF WORSHIPS:

There is no Public Building/ Historical/ National Monument/ Place of Worship situated within 300m radius of the area (Please Refer Table No. 3 and 13).

VII. WHEATHER THE AREA FALLS UNDER NOTIFIED AREA UNDER WATER ACT, 1974.:

The area falls under notified area under water (Prevention and Control of Pollution) 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. If any significant variation found during the Half year compliance the Environment Managaement Plan will be altered accordingly.



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 village road located on the Southern side, a safety distance of 10m has been provided to the road (refer Plate No. II).			
3.	Habitation / Village/ Public Building, Historical or National Monument	300m	There is no approved habitation or other features located within 300m radius of the area (Refer Plate No. IC).			
4.	Adjacent Land – Patta / Govt.	7.5m / 10m	Direction	S.F.No.	Classification	Safety Distance
			North	1124/2,3 and 1151/2	Patta land	7.5m
			East	1151/4C, 4D, 4E, 4F, 4G and 1151/4H	Patta land	7.5m
			South	1124/7, 1172/2B and 3	Patta land	10m to the Village Road
			West	1124/3, 4 and 1130	Patta land	7.5m
			Center	1151/1 and 1172/1	Govt. land	10m to the Pathai
(Please refer Plate No. II).						
5.	Housing area, EB line (HT & LT Line)	50m	There is no EB (LT/HT) line or Housing area located within 50m radius (Please refer Plate No. IC).			
6.	Boundaries of the permitted area	7.5m	North – S.F.Nos. 1124/2,3 and 1151/2. East – S.F.Nos. 1151/4C, 4D, 4E, 4F, 4G and 1151/4H. South – S.F.Nos. 1124/7, 1172/2B and 3. West – S.F.Nos. 1124/3, 4 and 1130. Center – S.F.Nos. 1151/1 and 1172/1 (Please refer Plate No. II).			
7.	Reserve forest	60m	There is no Reserved Forest situated within 60m radius of the area (Please refer Plate No. IA). The nearest Reserve forest is Gullatty R.F. situated at 2km on the Southern side (Refer Annexure No. VIII).			
8.	Protected area / ECO sensitive area/State or National border	10km	There is Cauvery North Wild life sanctuary situated at 2km on the Southern side and Eco Sensitive zone situated at 1km on the Southern side of the area (Refer Annexure No. VIII). No State border/ HACA/ CRZ/ Critically polluted area situated within 10km radius of the applied area (Refer Plate No. IA).			

Table - 14

A. Project Cost

S.No.	Description	Approximate Cost (Rs.)
1.	Land Cost (As per Govt. Guideline value). 2.40.46Ha. x Rs. 7,41,500/Ha = Rs. 17,83,011/- (source : https://tnreginet.gov.in/portal/)	17,83,000
2.	Labour Shed	3,00,000
3.	Sanitary Facility	1,00,000
4.	First aid Room and Accessories	50,000
5.	Excavator (2 Nos.)	1,12,00,000
6.	Crawler Crane (1 No.)	75,00,000
7.	Tipper (2 Nos.)	50,00,000
8.	Diesel Generator (1 No.)	7,50,000
9.	Wire Saw (2 Nos.)	8,00,000
10.	Compressor with loose tools (2 Nos.)	18,00,000
11.	Jack Hammer (6 Nos.)	3,00,000
12.	Drinking Water Facility	1,00,000
13.	Safety Kits	50,000
14.	Fencing Cost (1,050m length x Rs. 300/- per meter)	3,15,000
15.	Garland drain (250m length x Rs. 300/- per meter)	75,000
16.	Green belt development under safety zone during this plan period (500m sapling x Rs. 200/- per sapling)	1,00,000
17.	Green belt development on Haul road during 1 st year of this Plan period (500m sapling x Rs. 200/- per sapling)	1,00,000
18.	Water sprinkling	1,00,000
Total Cost		3,04,23,000

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					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	3,04,23,000
B. EMP Cost	3,80,000
Total Project Cost (A+B)	3,08,03,000
C. The applicant Indents to involve corporate Environment responsibilities (CER) activity like Water purifier, Class rooms renovation, Plantation and Sanitary facilities to the Tottikuppam Govt. School at 2.0% from the total project cost. The cost would be around Rs. 6,16,000/.	6,16,000
Total Cost (A+B+C)	3,14,19,000

(Total project cost including EMP cost is about rupees three crore fourteen lakh and nineteen 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 period will be around 16,248m³ proposed to dump on the Northeast side with maximum dimension of (Area) 2342m² x (Height) 6.9m.

The quarried out topsoil 6,696m³ 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 Multi Colour Granite in this quarry is beyond the workable limits. In the proposed mining plan, only 26m 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 convert to the M-Sand, building and road construction material from concerned authorities after paying the seniorage fee. When the entire mineral reserves will be completely exhausted if permission obtained for disposal of waste the remaining unsold overburden will be utilized for backfilling in the part of the pit and remaining 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, 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

The safety zone along the South and Eastern side lease boundary has been utilized for green belt development. It is proposed to plan 100 tree saplings inside the quarry lease applied area and 500 tree saplings in the haul road during the first year of the plan period and maintain atleast 1000 plants during the entire life of the quarry. Manuring and tree gaurds will be provided by company to safeguard and maintain the plants. Appropriate species of Neem, Manjanathi, Pongamia pinnata, Casuarina, Thespesia populnea, 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	100	389	Neem, Manjanathi,	80	80
II	100	389	Pongamia pinnata,	80	80
III	100	389	Casuarina,	80	80
IV	100	389	Thespesia	80	80
V	100	388	populnea, etc.,	80	80

Nearly 1,944m² area is proposed for afforestation by planting 500 Nos. of tree sapling during the mining plan period and expected growth is minimum 400 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 35mm 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 Directorate of Mines Safety Regulations. Care and techniques will be adopted to arrest the dust at the source as follows.

- a. Compaction, gradation and drainage on both sides for haulage road.
- b. Fixed water sprinkling arrangements by own water tankers.
- c. Wet drilling with latest eco friendly drill machine with separate dust extractor unit.
- d. Muffle blasting on Overburden an waste to controle fly rocks during blasting.
- e. Enforcing speed limits of 20km/hr within quarry area.
- f. Regular monitoring of exhaust fumes as per RTO norms.
- g. All personnel protective equipment like Nose-mask, earplug/ muffs will be provided to the Workers.

13.3.5 MEASURES TO MINIMIZE GROUND VIBRATION DUE TO BLASTING AND CHECK NOISE POLLUTION

Shallow holes of 35mm 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. Anyhow, the following Care and techniques will be adopted to controle the Noise and Vibration.

- a. Proper maintenance at done with regular interval by the Oiling and greasing for the machineries and vehicles to controle the Source of noise during operation and transportation.
- b. NONEL blasting will be practiced to controle Noise, ground vibration and fly rocks for removal of Overburden and Waste rocks.
- c. Transporting vehicles are enforcing the speed limits of 20km/hr within quarry area to reduce Noise level.
- d. All personnel protective equipment like earplug/ muffs will be provided to the Workers.

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 also 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 Multi Colour Granite quarry lease applied area over an extent of 2.40.46 Hectares of Patta lands in S.F.Nos. 1124/5, 1124/6, 1151/5; 1151/6 and 1172/2A of Irudhukottai Village, Denkanikottai Taluk, Krishnagiri District, Tamil Nadu State has been prepared for **Tvl. Top Granites**, having an office at Old No. 7, New No.16, First Floor, First Street, North Gopalapuram, Chennai, Tamil Nadu State - 600 086.

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
Unutilized	2.40.46
Grand Total	2.40.46

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 Multi Colour 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 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 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.

P. VISWANATHAN, M.Sc.,

Qualified Person

No.17, Advaita Ashram Road,

Alagapuram, Salem-636 004.

Cell: +91 94422 78601 and 94433 56539.

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 Multi Colour 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 the quarry operation carried out only 0.35.75Ha area out of 1.47.30 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. At present the area is virgin.

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	0.35.75	1.47.30
Waste dump	Nil	0.23.42	# Backfilled
Site Services	Nil	0.02.00	0.03.00
Roads	Nil	0.01.00	0.02.00
Green Belt	Nil	0.19.44	0.79.64
Unutilized/ Stocking Blocks	2.40.46	1.58.85	0.08.52
Grand Total	2.40.46	2.40.46	2.40.46

If permission is granted for disposal of waste from the State Government, the quarried out overburden only utilized for backfilling. If permission not obtained for disposal of waste, backfilling will be carried out with total waste and spread out the preserved topsoil to facilitate green belt development 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 6,696m³ of topsoil will be generated 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 16,248m³. The total waste material will be proposed to dump on the Northeast side with maximum dimension of (Area) 2,342m² x (Height) 6.9m. 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 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 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 are purchased fresh, 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 unauthorized 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.
- Installation of CCTV cemasas in the quarry and entrance of th quarry.
- Monitoring of Quarrying operation by external agency as directed by authorities.

(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.

Environmental Monitoring Cell:

A dedicated team nominated by the mine manager or Agent will monitor and maintain the environmental compliances of the quarry as per the approved Environment Management Plan and report the Compliance to the Mine Manager half yearly.

Disaster Management Cell:

The Competent Qualified Statutory managers appointed by the company as per the Director of Mines Safety will be responsible for Disaster Management. It care of any eventualities his mobile number will be displayed and he will take all the precautions and safety measures as per Mines and Minerals (Development and Regulations) Act, 1957.



(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	Cost (Rs.)
		I	II	III	IV	V		
Plantation under safety zone	Nos.	100	100	100	100	100	Rs.200 Per sapling	1,00,000
	Cost	20,000	20,000	20,000	20,000	20,000		
Plantation in the Haul road	Nos.	500	-	-	-	-	Rs. 300 Per Meter	1,00,000
	Cost	1,00,000	-	-	-	-		
Barbed wire fencing (In Mtrs) 1,050 Mtrs		3,15,000	-	-	-	-	Rs. 300 Per Meter	3,15,000
Garland drain (In Mtrs) 250 Mtrs		75,000	-	-	-	-	Rs. 300 Per Meter	75,000
TOTAL								5,90,000

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, as per amendment notification in the EIA notification 2006 is given by Ministry of Environment, Forest and Climate Change vide S.O.1807(E), dated:12.04.2022, the validity of environmental clearance is through out end of lease period. 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.

I hereby ensure that the information provided is correct to best of my knowledge and experience, some of the information contained in this report has been provided by external sources and by the applicant and is presented as the form as submitted by the applicant. The information is not intended to serve as legal advice related to the individual situation. I do not owe and specifically disclaim any liability resulting from the use during the course of quarrying operations after the grant of lease. The document may be scrutinized by the competent authority before approval.

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

P. VISWANATHAN, M.Sc.,
Qualified Person

Place: Salem

Date: 24.05.2023



DIRECTOR 24/5/2023

 Department of Geology & Mining

 Guindy, Chennai - 600 032.



04/9/2023

This Mining Plan is Approved
 Subject to the Conditions/ stipulation
 indicated in the Mining Plan Approval
 Letter No/ 8037 /mny/2022 Dated



Industries, Investment Promotion and
Commerce (MME.2) Department
Secretariat, Chennai - 600 009



Letter No.3954748/MME.2/2023-1, dated 08.05.2023

From
Thiru S.Krishnan, I.A.S.,
Additional Chief Secretary to Government.

To
✓ Tvl. Top Granites,
Old No.7, New No.16, First Floor,
First Street, North Gopalapuram,
Chennai - 600 086.

Sir,

Sub: Industries, Investment Promotion and Commerce -
Mines and Minerals - Multi colour Granite - Krishnagiri
District - Denkanikottai Taluk - Irudhukottai Village -
over an extent of 2.40.46 hectares of Patta lands in
S.F.Nos. 1124/5(0.16.0), 1124/6(1.11.0), 1151/5
(0.64.0), 1151/6 (0.36.5) and 1172/2A (0.12.96) -
Quarry Lease Application preferred by M/s. Top
Granites - Precise Area Communicated - Approved
mining Plan and Environmental Clearance - Called for.

Ref: 1 Your Quarry Lease Application, dated 24.09.2021.
2 From the District Collector, Krishnagiri File Roc.
No.1133/2021/Mines, dated 23.11.2022.
3 From the Commissioner of Geology and Mining, File
Rc. No.8037/MM4/2022, dated 11.01.2023.

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 multi colour Granite over an extent of 2.40.46 hectares of Patta lands in S.F.Nos. 1124/5(0.16.0), 1124/6(1.11.0), 1151/5 (0.64.0), 1151/6 (0.36.5) and 1172/2A(0.12.96) of Irudhukottai Village, Denkanikottai 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 over an extent of 2.40.46 hectares of Patta lands in S.F.Nos. 1124/5(0.16.0), 1124/6(1.11.0), 1151/5 (0.64.0), 1151/6 (0.36.5) and 1172/2A(0.12.96) of Irudhukottai Village, Denkanikottai Taluk, Krishnagiri District and accordingly, the



Industries, Investment Promotion and Commerce (MME.2) Department Secretariat, Chennai - 600 009

Letter No.3954748/MME.2/2023-1, dated 08.05.2023

From
Thiru S.Krishnan, I.A.S.,
Additional Chief Secretary to Government.

To
✓ Tvl. Top Granites,
Old No.7, New No.16, First Floor,
First Street, North Gopalapuram,
Chennai - 600 086.

Sir,

Sub: Industries, Investment Promotion and Commerce - Mines and Minerals - Multi colour Granite - Krishnagiri District - Denkanikottai Taluk - Irudhukottai Village - over an extent of 2.40.46 hectares of Patta lands in S.F.Nos. 1124/5(0.16.0), 1124/6(1.11.0), 1151/5 (0.64.0), 1151/6 (0.36.5) and 1172/2A (0.12.96) - Quarry Lease Application preferred by M/s. Top Granites - Precise Area Communicated - Approved mining Plan and Environmental Clearance - Called for.

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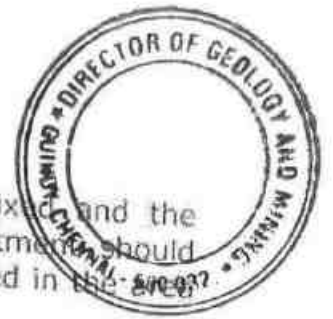
2. The Government carefully examined the recommendations of the District Collector, Krishnagiri and the Commissioner of Geology and Mining to communicate precise area for over an extent of 2.40.46 hectares of Patta lands in S.F.Nos. 1124/5(0.16.0), 1124/6(1.11.0), 1151/5 (0.64.0), 1151/6 (0.36.5) and 1172/2A(0.12.96) of Irudhukottai Village, Denkanikottai 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 7.5m shall be maintained for the adjacent patta lands.
2. A safety distance of 10 m shall be maintained for the Government land (Pathai) in S.F.Nos. 1172/1 and 1151/1 situated on the middle of the applied S.F.Nos.1124/6 and 1151/6.
3. A safety distance of 10 m shall be maintained for the Government land (Pathai) in S.F.Nos.1172/1 situated in between S.F.Nos. 1124/6 and 1172/2A.
4. A safety distance of 10 m shall be maintained for the state on ground village road situated on the southern side of the applied area.
5. The quarrying operation should be restricted only in the area granted on lease.
6. Barbed wire fencing or compound wall should be erected all along the boundary of the lease granted area and the boundary pillars should be erected as per DGPS norms.
7. The waste materials generated during the course of quarrying should be dumped only within the lease hold area.
8. Environment Clearance should be obtained from the competent authority in respect of the subject area as per rule 42 of TNMMCR, 1959 and as per the notification of the Ministry of Environment and Forest and any other clearances if any.
9. As per rule 12 (V) of Mineral (other than Atomic and Hydro Carbons Energy Minerals) Concession Rules, 2016, the applicant firm shall at his own expenses erect, maintain and keep in repair all the boundary pillars with DGPS readings.
10. A green belt should be constructed by planting trees along the boundary of the area to control air and noise pollution.
11. No encroachment shall be made in the adjacent Government lands.
12. As per the Hon'ble Supreme Court of India order dated 08.01.2020 in W.P. (C). No. 144 / 2014, after Ceasing quarry operation re-grassing the quarry area and any other area which may have been disturbed due to the quarrying activity and restore the land to a condition which is fit for growth of fodder, flora, fauna etc.
13. The four boundaries of the proposed area for the grant of multi colour granite quarry lease over an extent of 2.40.46 Hects of patta lands in S.F.Nos.1124/5 (0.16.0), 1124/6(1.11.0), 1151/5 (0.64.0), 1151/6 (0.36.5) and 1172/2A (0.12.96) in Irudukottai village





- Denkanikottai Taluk, Krishnagiri District should be fixed and the District Administration / Geology and Mining Department should ensure that the quarrying operation should be restricted in the area granted on lease while issuing transport permit.
14. Quarrying activity should be carried out from 6.00 A.M. to 6.00 P.M. only.
 15. A green belt should be constructed to prevent sound and air pollution due to the proposed quarrying activity over an extent 2.40.46 Hects of the applied area by planting atleast 300 seedlings of Neem and Pungan all around the area.
 16. In order to prevent illicit quarrying, when quarried material is transported, necessary permits have to be produced before the forest officials.
 17. If elephant crosses during the quarry operation, quarry should be stopped until the elephant migrates from the subject area.
 18. Quarry operation should be carried out by complying all the forest Act/ rules without hindrance to the forest animals.
 19. Necessary contribution has to be given by the quarry owners to avoid migration of animals from the forest.
 20. 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.
 21. The conditions mentioned in G.O.(Ms). No.79 Industries (MMC.1) Department, dated 06.04.2015 should be complied with.
 22. 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.
 23. The applicant firm should not cause hindrance to the patta and Government lands while quarrying and transportation of Granite.
 24. 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 before execution of quarry lease through the empanelled agencies.
 25. Child labour should not be engaged in the quarry works.
 26. 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.

27. The applicant firm shall submit scheme of mining; mine and other statutory requirements within the time stipulated for submission of the above, as per rules.
28. If any violation is found during quarrying operation, provisions of the Tamil Nadu Minor Mineral Concession Rules and other rules and act in force will attract.
29. 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.



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. Further, the District Administration/Geology and Mining Department should ensure the compliance of the conditions imposed in G.O.(Ms).No.79, Industries (MMC.1) Department, dated 06.04.2015 and G.O.(Ms).No.295, Industries (MMC.1) Department dated 03.11.2021 are complied.

Yours faithfully,

[Handwritten Signature]
08/05/23

for Additional Chief Secretary to Government

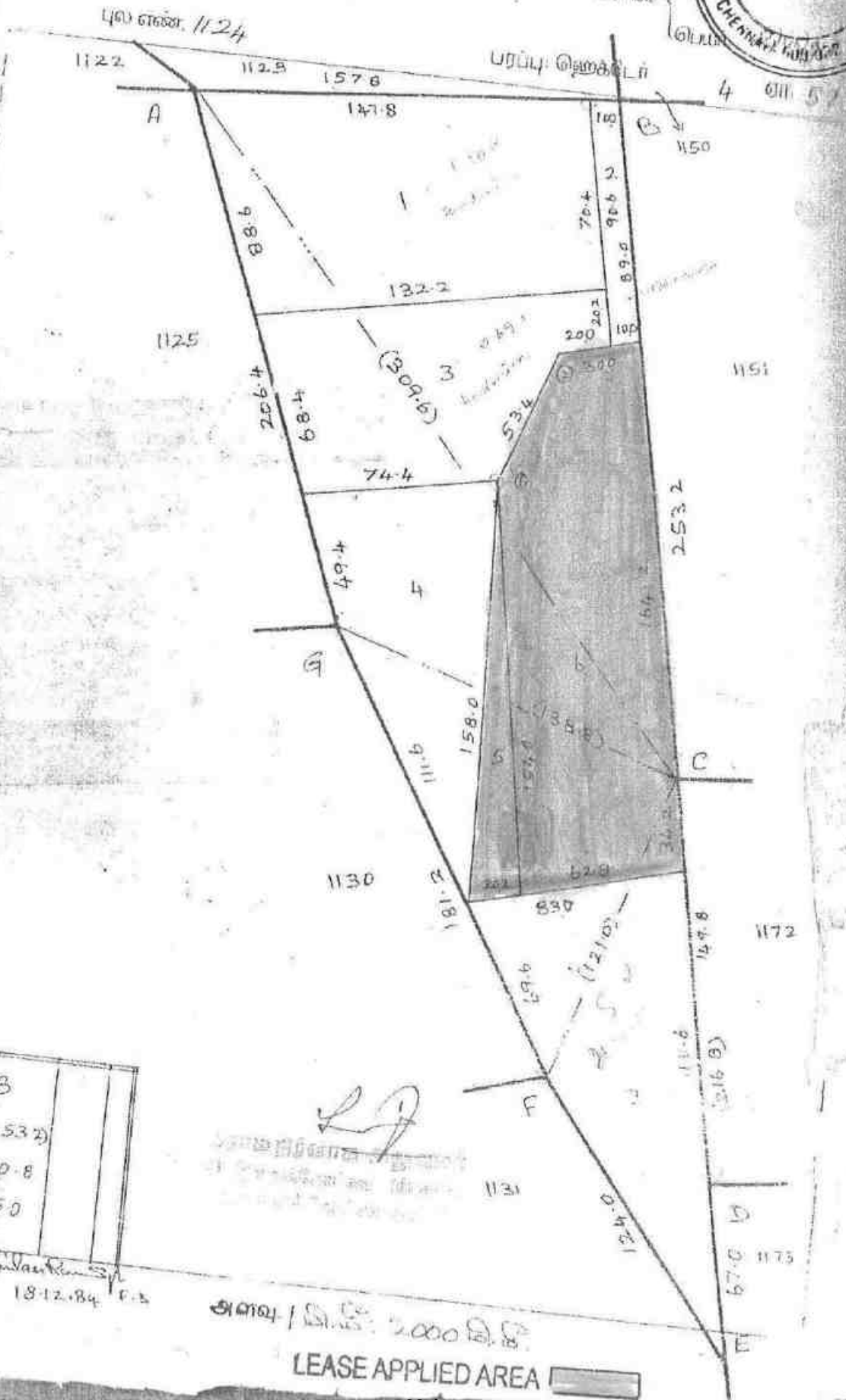
[Handwritten Signature]
05/05/2023

Copy to:
The Commissioner of Geology and Mining,
Guindy, Chennai-600 032.

The District Collector,
Krishnagiri.



சுலாபு எண் 412/84
 மெட்ரா. சி.வி.பி.சி. சபாலை



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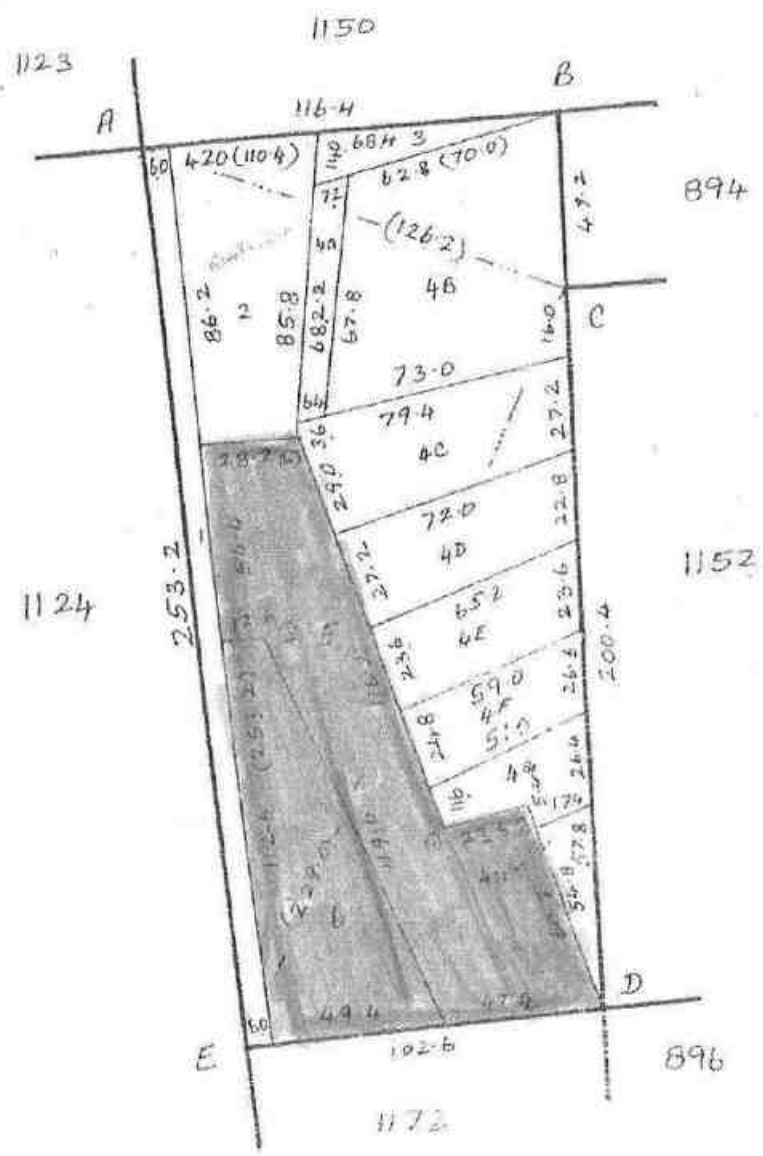
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LEASE APPLIED AREA



1151

1150



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(2532)		
1650	346	1
1126	188	5
E		
C		
(2290)		
916	172	
764	282	
E		
A		
(1262)		
190	458	
B		

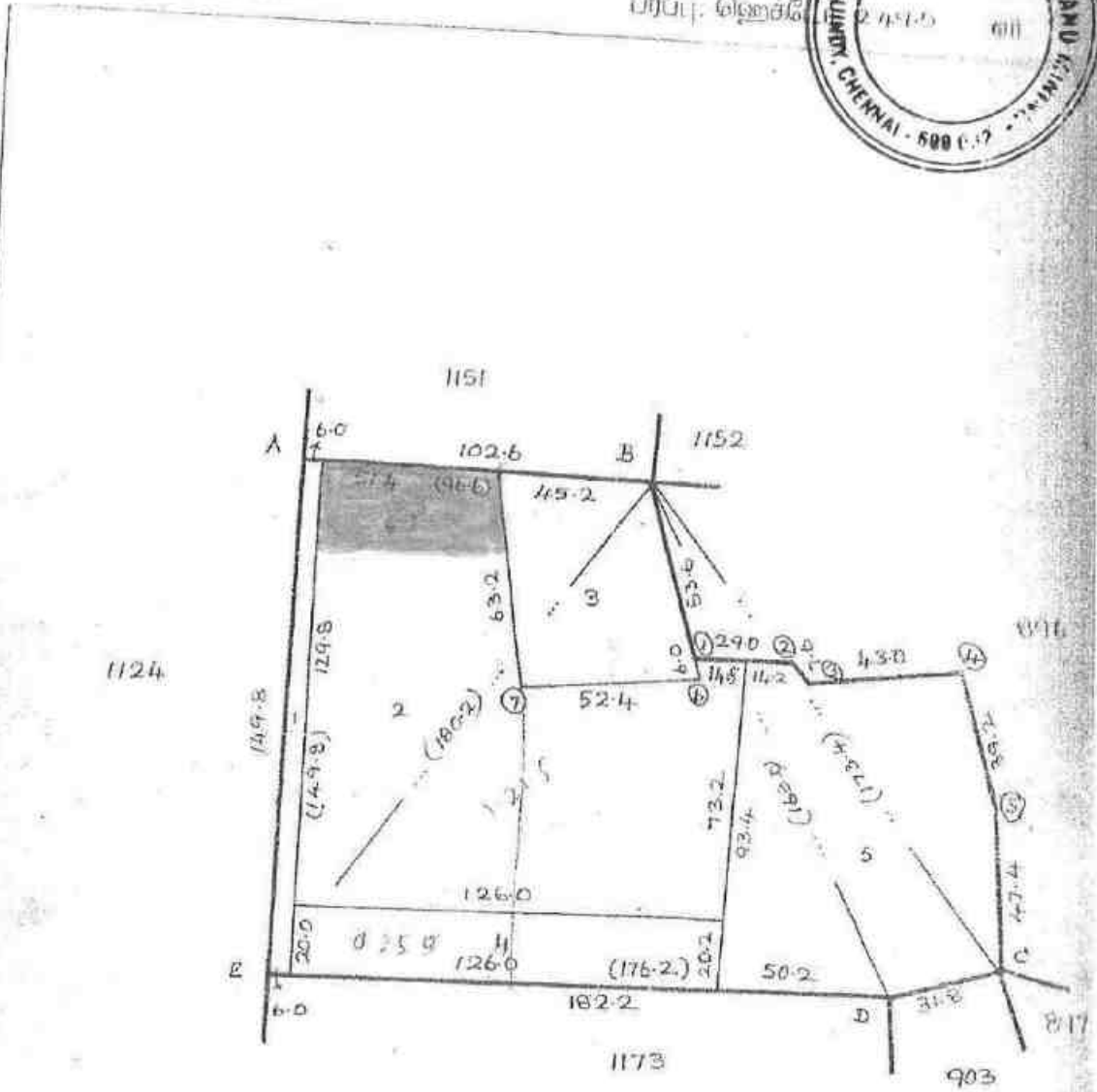
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11284 2000

LEASE APPLIED AREA

புள்ளி எண்: 1172

பகுப்பு: வெள்ளை



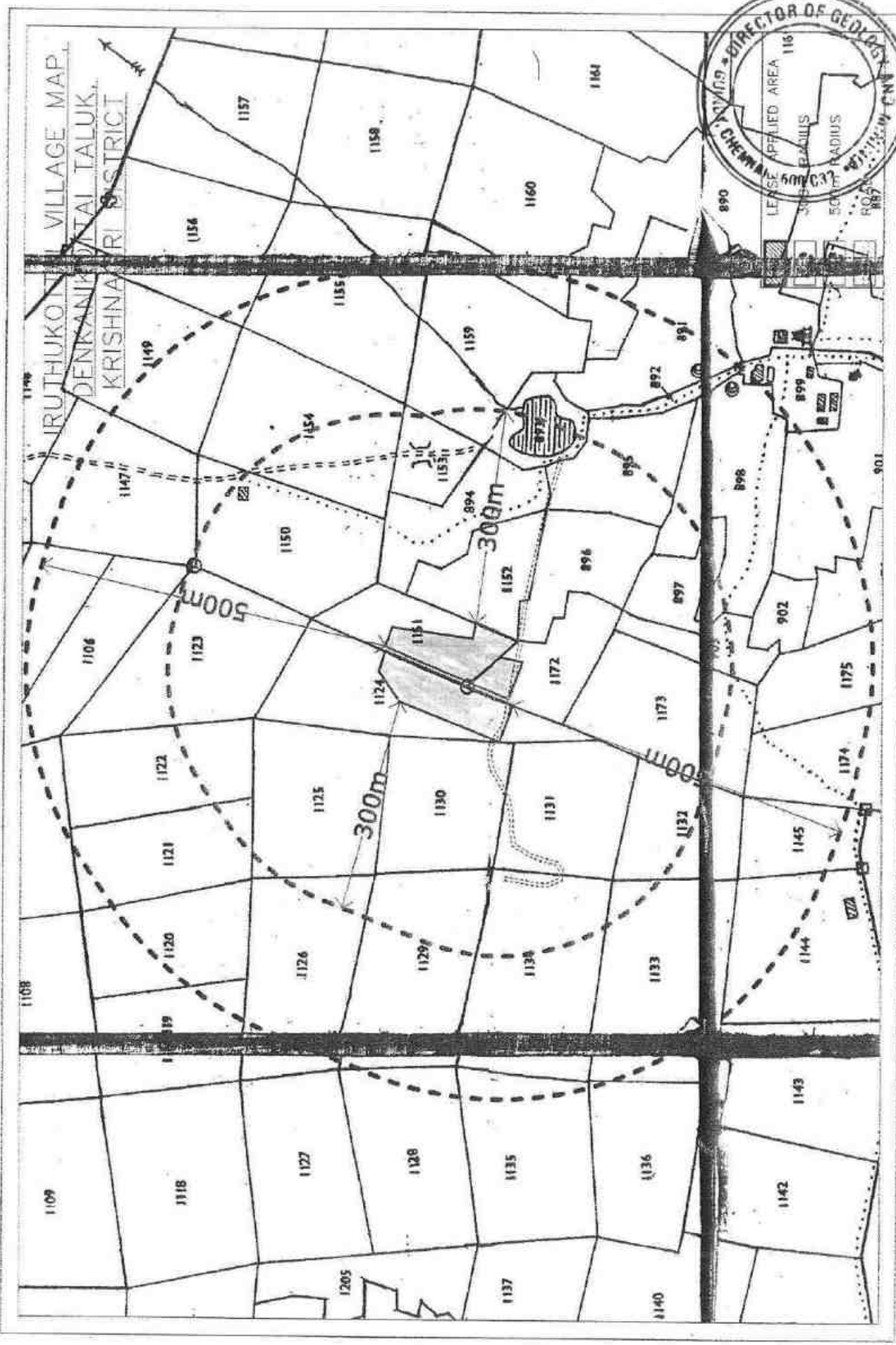
	C						
	1134						
5	26.2	134.0					
4	39.8	97.4					
3	3.8	74.8					
2	2.2	67.2					
	55.6	22.2	6	E			
	49.6	20.0	1	180.2			
			7	7.6	69.8		
				B			

சுற்றுலா மற்றும் திரைப்படத்துறை அமைச்சர்

அளவை: 11 மீ. x 200 மீ. மீ

LEASE APPLIED AREA

287



LEASE APPLIED AREA



தமிழக அரசு

வருவாய்த் துறை

நில உரிமை விபரங்கள் : இ. எண் 10(1) பிரிவு

மாவட்டம் : கிருஷ்ணகிரி

வட்டம் : டெங்கனிகோட்டா

வருவாய் கிராமம் : இருதுகோட்டா

பட்டா எண் : 9258

உரிமையாளர்கள் பெயர்

1. உலகநாதன்	மகன்	ராஜகோபால்
2. துரைசாமி	மகன்	ஆனந்தன்
3. வெங்கடேசன்	மகன்	செந்தில்நாதன்
4. சுவாமிநாதன்	மகன்	பாஸ்கரன்

புல எண்	உட்பிரிவு	புன்செய்		நன்செய்		மற்றவை		குறிப்புகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	
1124	5	0 - 16.00	0.10	--	--	--	--	2021/0103/31/179853- -- -- 07-09-2021
1151	5	0 - 64.00	0.69	--	--	--	--	2021/0103/31/179853- -- -- 07-09-2021
1172	2A	0 - 12.96	0.14	--	--	--	--	2021/0103/31/179853- -2021/31/10/000251SD -- 07-09-2021
1151	6	0 - 36.50	0.40	--	--	--	--	2021/0103/31/179853- -- -- 07-09-2021
1124	6	1 - 11.00	0.68	--	--	--	--	2021/0103/31/179853- -- -- 07-09-2021
		2 - 40.46	2.01					

குறிப்பு 2 :

	1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தரங்கள் https://eservices.tn.gov.in என்ற இணைய தளத்தில் 31/10/041/09258/100184 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
	2. இத் தகவல்கள் 24-09-2021 அன்று 05:52:26 PM நேரத்தில் அச்சடிக்கப்பட்டது.
	3. கைப்பேசி கேமராவின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்



Sl. No.	பொது தகவல் (General Information)				புத்தகம் குறித்து (Book Details)					புத்தகம் குறித்து (Book Details)					மொத்தம் (Total)
	பெயர் (Name)	பெயர் (Name)	பெயர் (Name)	பெயர் (Name)	பெயர் (Name)	பெயர் (Name)	பெயர் (Name)	பெயர் (Name)	பெயர் (Name)	பெயர் (Name)	பெயர் (Name)	பெயர் (Name)	பெயர் (Name)	பெயர் (Name)	
124	5	0160	010	1896	1896	1896	1896	1896	1896	1896	1896	1896	1896	1896	1896
124	6	1110	068	1896	1896	1896	1896	1896	1896	1896	1896	1896	1896	1896	1896
1151	5	0640	069	1896	1896	1896	1896	1896	1896	1896	1896	1896	1896	1896	1896
1151	6	0245	040	1896	1896	1896	1896	1896	1896	1896	1896	1896	1896	1896	1896
1172	2A	0130	01A	9189	9189	9189	9189	9189	9189	9189	9189	9189	9189	9189	9189

2001 09 10 15 00 00

[Signature]
 Director of Geology and Mining
 41, Cross Street, Chennai - 600 032

123



1	2	3	4	5	6	7	8	9	10		
1170	4	1170-4	ஈ	11		8-5	12	0 62	0 80-5	0 50	543 தி. மீ. ராஜகவுண்டி.
								2 88-5	1 66		
1171	1	1171-1	ஈ	11	...	8-5	12	0 62	0 21-0	0 13	1398 வெ. ராமன்.
	2	-2	ஈ	11	...	8-5	12	0 62	0 19-0	0 12	1804 மு. நா. ராஜகவுண்டி.
	3A	-3A	ஈ	11	...	8-5	12	0 62	0 14-0	0 09	534 கா. தி. மீ. ராஜகவுண்டி.
	3B	-3B	ஈ	11	...	8-5	12	0 62	0 01-5	0 06	383 கு. சின்ன பிட்டப்பா.
	4A	-4A	ஈ	11	...	8-5	12	0 62	0 50-0	0 31	1804 மு. நா. ராஜகவுண்டி.
	4B	-4B	ஈ	11	...	8-5	12	0 62	0 02-0	0 06	383 கு. சின்ன பிட்டப்பா.
	5	-5	ஈ	11	...				0 16-0	...	...
	6	-6	ஈ	11	...	8-5	12	0 62	1 45-5	0 90	351 மு. முனியம்மா.
	7	-7	ஈ	11	...	8-5	12	0 62	1 02-0	0 63	543 தி. மீ. ராஜகவுண்டி.
	8A	-8A	ஈ	11	...	8-5	12	0 62	0 77-5	0 46	534 கா. தி. மீ. ராஜகவுண்டி.
	8B	-8B	ஈ	11	...	8-5	12	0 62	0 06-5	0 06	383 கு. சின்ன பிட்டப்பா.
								4 55-0	2 62		
1172	1	1172-1	ஈ	11	...				0 09-5	...	...
	2	-2	ஈ	11	...	8-4	10	1 09	1 21-5	1 32	254 கு. சந்திரன்.
	3	-3	ஈ	11	...	8-4	10	1 09	0 29-0	0 31	273 D. G. கா. தி. மீ. ராஜகவுண்டி.
	4	-4	ஈ	11	...	8-4	10	1 09	0 25-5	0 27	1079 வெ. ரத்னம்மா.
	5	-5	ஈ	11	...	8-4	10	1 09	0 64-0	0 68	46 சி. அழகம் தம்பி.
								2 49-5	2 58		
1173	1	1173-1	ஈ	11	...				0 17-5	...	...
	2	-2	ஈ	11	...	8-4	10	1 09	0 26-5	0 28	1078 கா. ரத்னம்மா.
	3	-3	ஈ	11	...	8-4	10	1 09	0 30-0	0 32	1025 நா. முனியம்மா.
	4	-4	ஈ	11	...	8-4	10	1 09	2 34-0	2 54	...



1	2	3	4	5	6	7	8	9	10		
1151	1	1151-1	சு	4.00	...	...	...	0 15.5	...	...
	2	2	சு	4	...	8-4	10	1 09	0 31.5	0 34	1028 அ. முனிப்பாளர்
	3	-3	சு	4	...	8-4	10	1 09	0 04.5	0 06	1028 அ. முனிப்பாளர்
	4A	4.00	சு	4	...	8-4	10	1 09	0 05.0	0 06	1028 அ. முனிப்பாளர்
	4B	4.00	சு	4	...	8-4	10	1 09	0 44.5	0 49	221 அ. கோபால்
	4C	4.00	சு	4	...	8-4	10	1 09	0 21.0	0 23	386 அ. சிவன் ஆர்.சி.
	4D	4.00	சு	4	...	8-4	10	1 09	0 22.0	0 24	49 அ. அனுமாத் தம்பர்
	4E	-4.00	சு	4	...	8-4	10	1 09	0 14.0	0 15	1029 அ. முத்தப்பா
	4F	-4.00	சு	4	...	8-4	10	1 09	0 12.0	0 13	886 அ. மாறப்பா
	4G	-4.00	சு	4	...	8-4	10	1 09	0 08.0	0 09	735 அ. பெரிய ஆர்.சி.
	4H	-4.00	சு	4	...	8-4	10	1 09	0 05.0	0 06	1029 அ. முத்தப்பா
	5	-5	சு	4	...	8-4	10	1 09	0 64.0	0 69	188 அ. முனிப்பாளர்
	6	-6	சு	4	...	8-4	10	1 09	0 36.5	0 40	188 அ. முனிப்பாளர்
									2 83.5	2 94	
1152	1A	1152 1.00	சு	4	...	8-4	10	1 09	0 04.5	0 06	221 அ. கோபால்
	1B	-1.00	சு	4	...	8-4	10	1 09	0 17.0	0 19	386 அ. சிவன் ஆர்.சி.
	1C	-1.00	சு	4	...	8-4	10	1 09	0 14.0	0 15	49 அ. அனுமாத் தம்பர்
	1D	-1.00	சு	4	...	8-4	10	1 09	0 19.0	0 21	1029 அ. முத்தப்பா
	1E	-1.00	சு	4	...	8-4	10	1 09	0 25.0	0 27	886 அ. மாறப்பா
	1F	1.00	சு	4	...	8-4	10	1 09	0 29.0	0 32	735 அ. பெரிய ஆர்.சி.
	1G	1.00	சு	4	...	8-4	10	1 09	0 78.0	0 85	1028 அ. முனிப்பாளர்
	1H	1.00	சு	4	...	8-4	10	1 09	0 12.0	0 13	1164 கோ. ராஜ்ஜம்மா
	2	2	சு	4	...	8-4	10	1 09	0 48.0	0 52	1164 கோ. ராஜ்ஜம்மா
									2 46.5	2 70	
1153	1A	1153 1.00	சு	4	...	8-4	10	1 09	0 65.5	0 71	1394 தா. வெங்கட்மீனா
	1B	-1.00	சு	4	...	8-4	10	1 09	0 18.5	0 20	1394 தா. வெங்கட்மீனா

உள் பார்வு

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	2	3	4	5	6	7	8	9	10	11
							நு. ஸப	தொ. ஏள்	நு. ஸப.	
1	1124-5	ர	4	...	8-5	12	0 61	0 16-0	0 10	1027 ரா. முனி தலைமா
2	-6	ர	4	...	8-5	12	0 62	1 11-0	0 68	1169 கு. ரா. நா கிருஷ்ணன்
7	-7	ர	4	...	8-5	12	0 62	0 78-5	0 48	1027 ரா. முனி ரத்தலைமா
							4 57-5		2 81	
1	1125-1	அ	4D	...				0 11-5		பாலை
2	-2	ர	4	...	8-4	10	1 09	0 04-0	0 06	1405 ப. ஜெய ராமன்
3	-3	ர	4	...	8-4	10	1 09	0 93-0	1 01	1707 செ. செல் லப்பா (!), பெ. வேழயப்பன் (2), சி. வேழயப்பன் (3)
4	-4	ர	4	...	8-4	10	1 09	0 57-0	0 62	771 ரா. பொன்னு சாமி
5	-5	அ	4	...	8-4	10	1 09	0 26-0	0 28	பொருகால்
6	-6	ர	4	...	8-4	10	1 09	0 23-5	0 26	537 மு. திம்மா ராயப்பன்
7	-7	ர	4	...	8-4	10	1 09	0 71-0	0 77	772 முனுசாமி மனைவி பொன்னம்மா
8	-8	ர	4	...	8-4	10	1 09	0 30-0	0 33	219 அ. கோவிந்தப் பன்
9	-9	ர	4	...	8-4	10	1 19	1 21-5	1 31	220 மு. கோவிந்தப் பன்
							4 37-5		4 64	
1	1126-1	அ	4D	...				0 15-5		பாலை
2	-2	ர	4	...	8-4	10	1 09	0 26-5	0 29	1495 ப. ஜெய ராமன்
3	-3	ர	4	...	8-4	10	1 09	1 27-0	1 38	771 ரா. பொன்னு சாமி
4	-4	ர	4	...	8-4	10	1 09	0 36-5	0 39	1607 ரா. செல்நா யன் (1), ரா. கப்பிரமணி (2)
5	-5	ர	4	...	8-4	10	1 09	0 33-5	0 36	732 மு. பொருமன்
6	-6	ர	4	...	8-4	10	1 09	1 27-5	1 39	255 அ. சுவந்த கவந்தி
7	-7	ர	4	...	8-4	10	1 19	0 82-0	0 89	219 அ. கோவிந்த பன்

TP/108678806/2022

1216/2022



தமிழ்நாடு தமிழ்நாடு TAMILNADU 10-2-22
Top granites chennai

AZ 810541

P.S. Yasantha

Stamp Vendor L.No. 3086/B1/97
S. MANIKOTTA.

LEASE AGREEMENT

This Lease Agreement is made and executed on this 10th day of FEBRUARY- 2022 by and between:-

1. Mr. M.D. ANANDAN, (aged about 81 years), Son of Mr. M. Duraisamy (PAN: AFNPA0385E), Cell No. 9176669596) residing at Old No.7, New No.16, 1st Street, North Gopalapuram, Chennai.600086. Aadhaar No.915771676904

2. Mr. V.SENTHILNATHAN, (aged about 57 years), Son of Mr. Sri. M.D. Venkatesan, PAN: AAGPS0268J, residing at Old No.18, New No.35, Bagirathi Ammal Street, T.Nagar, Chennai-600017. Aadhaar No.489139221493

LESSORS

[Handwritten signatures of lessors]

LESSEES

[Handwritten signature of lessee]

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Contains 16 Sheets 1 Sheet

SUB-REGISTRAR
DENKANIKOTTAI





3. **Mr. U.RAJAGOPAL**, (aged about 44 years), Son of Mr. G. Ulaganathan, (PAN :AWIPR9743D), residing at D.No.2/36, Santhaipeetai Village, Anjanahalli, Moongilmaduru Post, pennagaram, Dharmapuri District. Aadhaar No.535896719942

4. **Mr. S.BHASKARAN**, (aged about 60 years), Son of Mr. Sri. R. Swaminathan, PAN: AAPPB6936P, New. No.16,I Street, North Gopalapuram, Chennai-600086. Aadhaar No.267518323224 (Hereinafter referred to as the LESSORS of the FIRST PART.

: AND IN FAVOUR OF:

TOP GRANITES, a Partnership concern, represented by its partners- Pan. AASFT0369H,

1. **Mr. S BHASKARAN**, (aged about 60 years), Son of Mr. Sri.R. Swaminathan, PAN: AAPPB6936P, New. No.16,I Street, North Gopalapuram, Chennai-600086. Aadhaar No.267518323224

2. **Mr. U RAJAGOPAL**, (aged about 44 years), Son of Mr. G. Ulaganathan, (PAN :AWIPR9743D), residing at D.No.2/36, Santhaipeetai Village, Anjanahalli, Moongilmaduru Post, Pennagaram, Dharmapuri District. Aadhaar No.535896719942 (Hereinafter referred to as the LESSEES of the SECOND PART.

Whereas the first Part are absolute owners of the schedule mentioned property situated at village Irudhukottai Village, Denkanikottai Taluk, Krishnagiri District, Tamilnadu, which is more fully described in the schedule hereunder belongs to them by way of registered **Sale Deed Vide Document No.5519/2021**, at **SRO Denkanikottai**, and whereas the first part have agreed to let out the said land on Lease basis under the following terms and conditions.

LESSORS

LESSEES

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SUB-REGISTRAR
DENKANIKOTTAI



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NOW THIS AGREEMENT WITNESSESS AS FOLLOWS:-



1. The leased property described in the schedule is deemed to commence and come into existence, **25 years from 01.10.2021 to 30-09-2046.**
2. The lease amount fixed as **Rs.15,000/- (RUPEES FIFTEEN THOUSAND ONLY)** per month and it should be payable before 10th of every month. The advance as fixed **Rs.1,00,000/-**
3. The second part shall utilize the land for Quarrying/ Mining purpose only.
4. The first part have given consent that have no objection to apply mining lease Quarry work operation and to get transport permit from government to move valued granite materials etc. In 1). S.F.No.1124/5, Hec.0.16.00, Ac 0.40 Cents. 2). S.F.No.1124/6, Hec.1.11.00, Ac 2.74 Cents, 3).S.F.No.1151/5, Hec.0.64.00, Ac 1.58 Cents, 4). S.F.No.1151/6, Hec.0.36.50, Ac 0.90 Cents, 5). S.F.No.1172/2A, Hec.0.12.96, Ac 0.32 Cents and total extent of Ac.5.94 Cents (or) Hec.2.40.4, in Irudhukottai village, Denkanikottai Taluk, Krishnagiri District. Solemnly confirm and sincerely declare that they have no objection to grant the mining lease for the period of 25 Years.
5. Both first part and second part agreed that no charges, modification or alteration of the terms of this lease deed shall apply unless the same is put in writing and signed by both the first part and second part.
6. This lease deed has been read out and explained to both the first part and the second part. The first part and second part declared that both have understood fully the contents thereof.

LESSORS

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LESSEES

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Document No. <u>1216</u> of 2022 of Book <u>1</u>
Contains <u>16</u> Sheets <u>3</u> Sheet
<u>6</u> SUB-REGISTRAR DENKANIKOTTAI





- 7. The second part should maintain and use the proper way to quarry from road side and should not deviate.
- 8. The second part should do the activity within the lease boundaries only and they should not overrule the mining norms and regulations.

SCHEDULE OF PROPERTY

In **IRUDHUKOTTAI VILLAGE** of Denkanikottai Taluk, Krishnagiri District, Attached to the Regn. District of Krishnagiri and Sub Registration District of DENKANIKOTTAI bearing Survey Nos:-

- 1. **1124/5** Dry Ext.0.16.00, In **AC.0.40 Cents** Full Land,
- 2. **1124/6** Dry Ext.1.11.00, In **AC.2.74 Cents** Full Land,
- 3. **1151/5** Dry Ext.0.64.00, In **AC.1.58 Cents** Full Land,
- 4. **1151/6** Dry Ext.0.36.50, In **AC.0.90 Cents** Full Land,
- 5. **1172/2A** Dry Ext.0.12.96, In **AC.0.32 Cents** Full Land,

All together Five Survey Nos Making an Total extent of **Ac. 5.94 Cents Full Land**, of Quarry land and including Common Rights of all common roads only, belongs to this deed of LEASE.

In witness where of the parties hereunto have set their respective hands and signature the day and year first above written,

LESSORS

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[Handwritten signature]

LESSEES

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 Contains 16 Sheets 4 Sheet
 SUB-REGISTRAR
 DENKANIKOTTAI





The above said property comes under **IRUDHUKOTTAI** Panchayat
Kelamangalam Union Council

LESSORS

[Handwritten signatures of lessors]

LESSEES

[Handwritten signature of lessee]

WITNESSES:-

1. P. L. S/o Ramaswami, Mariyamman Temple ^{Street} D. Kottai
2. *[Signature]* w/o Arunachalam, Kowdhalam.

Drafted by:



K.S. Ranganathan
K.S. RANGANATHAN, DOCUMENT WRITER,
LICENCE NO. B/37/99/KSG, DENKANIKOTTAI - 635107.
PHONE NO -9443407578.

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6
SUB-REGISTRAR
DENKANIKOTTAI





25 Years X 12 Months = 300 Months	Rs.45,00,000/-
ADVANCE	Rs. 1,00,000/-
18% GST	Rs. 8,28,000/-
Total	Rs.54,28,000/-

LESSORS

A
S
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[Signature]

LESSEES

[Signature]
[Signature]

Document No. 1216 of 2022 of Book 1
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SUB-REGISTRAR
DENKANIKOTTAI





தமிழக அரசு

வருவாய்த் துறை

நில உரிமை விபரங்கள் ; இ. எண் 10(1) பிரிவு

மாவட்டம் : கிருஷ்ணகிரி

வட்டம் : டெங்கனிகோட்டா

வருவாய் கிராமம் : இருதுகோட்டா

பட்டா எண் : 9258

உரிமையாளர்கள் பெயர்

1.	உலகநாதன்	மகன்	ராஜகோபால்	-
2.	துரைசாமி	மகன்	ஆனந்தன்	-
3.	வெங்கடேசன்	மகன்	செந்தில்நாதன்	-
4.	சுவாமிநாதன்	மகன்	பாஸ்கரன்	-

புல எண்	உட்பிரிவு	புன்செய்		நன்செய்		மற்றவை		குறிப்புகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக்ட - ஏர்	ரூ - பை	ஹெக்ட - ஏர்	ரூ - பை	ஹெக்ட - ஏர்	ரூ - பை	
1124	5	0 - 16.00	0.10	--	--	--	--	2021/0103 /31/179853--- 07-09-2021
1151	5	0 - 64.00	0.69	--	--	--	--	2021/0103 /31/179853--- 07-09-2021
1172	2A	0 - 12.96	0.14	--	--	--	--	2021/0103 /31/179853-2021 /31/10/00025150 -- 07-09-2021
1151	6	0 - 36.50	0.40	--	--	--	--	2021/0103 /31/179853--- 07-09-2021
1124	6	1 - 11.00	0.68	--	--	--	--	2021/0103 /31/179853--- 07-09-2021
		2 - 40.46	2.01					

குறிப்பு2 :



- மேற்கண்ட தகவல் / சான்றிதழ் நுகர்வோர்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 31/10/041 /09258/100184 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
- இத் தகவல்கள் 10-02-2022 அன்று 02:04:24 PM நேரத்தில் அச்சடிக்கப்பட்டது.
- கைப்பேசி கேமராவின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

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SUB-REGISTRAR
DENKANIKOTTAI

98A

2/10/2022 2:06 PM

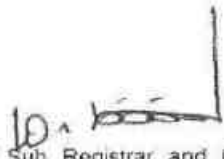


CERTIFICATE UNDER SECTION 42 OF THE INDIAN STAMP ACT 1899

S.No 827 of 2022

I hereby certify that a sum of ₹ 53,300/- (Rupees Fifty Three Thousand Three Hundred only) on account of deficit stamp duty has been levied under section 41 of the Stamp Act in respect of this instrument from Mr. M.D.ANANDAN residing at Old No.7, New No.16, 1st Street, North Gopalapuram, Chennai.600086, Chennai, Tamil Nadu, India, 600086.

Sub Registrar: Thenkanikottai
Date: 10/02/2022


Signature of Sub Registrar and Collector under Section 41 of the Indian Stamp Act

Presented in the office of the Sub Registrar of Thenkanikottai and fee of ₹ 20,300/- paid at 03.41 PM on the 10/02/2022 by

Left Thumb



A

Additions as per recitals of document

Execution admitted by
Left Thumb



A

Additions as per recitals of document
Identity of the person verified through Consent based AADHAAR Authentication using Iris with UIDAI reference No. : 916045f8f74358a0664a66945f6f46c9489c0d

Execution admitted by
Left Thumb



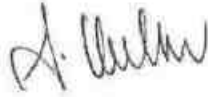











A

Additions as per recitals of document
Identity of the person verified through Consent based AADHAAR Authentication using Thumb Impression with


UIDAI reference No. 216 of 2022 of Book 1
Document No. 1216
6856767c246ac4b8564a30a69cf582ebc645a9
Contains 16 Sheets 8 Sheet



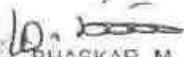
<p>Execution admitted by Left Thumb</p>  	 <p>Additions as per recitals of document Identity of the person verified through Consent based AADHAAR Authentication using Thumb Impression with UIDAI reference No. : 8024097b590560c8af48cb9a8aac92ec9bd617</p>
<p>Execution admitted by Left Thumb</p>  	 <p>Additions as per recitals of document Identity of the person verified through Consent based AADHAAR Authentication using Thumb Impression with UIDAI reference No. : 983859bc8331a9e153464a975410beaaa7ee9f</p>
<p>Claim admitted by Left Thumb</p>  	 <p>Additions as per recitals of document Identity of the person verified through Consent based AADHAAR Authentication using Thumb Impression with UIDAI reference No. : 921469c42d0a36926c450fbde52e61820ba330</p>
<p>Claim admitted by Left Thumb</p>  	 <p>Additions as per recitals of document Identity of the person verified through Consent based AADHAAR Authentication using Thumb Impression with UIDAI reference No. : 6890354b2cb74768c343fca6dec54c180d03e2</p>

10th day of February 2022

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SUB-REGISTRAR
DENKANIKOTTAI
213




BHASKAR M
Sub Registrar
Thenkanikottai

R/Thenkanikottai/Book-1/1216/2022



Registered as Number R/Thenkanikottai/Book-1/1216/2022.

Date: 10/02/2022

Thenkanikottai



BHASKAR M
Sub Registrar

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SUB-REGISTRAR
DENKANIKOTTAI





आयकर विभाग
INCOME TAX DEPARTMENT

भारत सरकार
GOVT OF INDIA

पतनसंख्या संख्या कार्ड
Patents Account Number Card

AASFT0369H

नाम / Name
TOP GRANITES

पंजीकरण की तिथि
Date of Incorporation/Formation
01/09/2021



यदि कार्ड के लोप/खत हो कृपया सूचित करें/वेबसाइट
आयकर विभाग कार्ड, एन एन डी यूएन
5 वीं मंजूर, 3री मंजूर,
प्लॉट नं. 341, सर्वे नं. 997/3,
मॉडल कॉलोनी, नया दफ्तर इंग्लिश चौराहा,
पुणे - 411 016.

If this card is lost / someone's lost card is found,
please inform / aware to :-
Income Tax PAN Services Unit, NNDA,
5th Floor, Model Building,
Plot No. 341, Survey No. 997/3,
Model Colony, Near Dooty Bungalow Chowk,
Pune - 411 016.

Tel: 91-20-2721 6980 Fax: 01-20-2721 8081
e-mail: hamfo@ndia.co.in

Handwritten signature

Document No 1216 of 2022 of Book 1
Contains 16 Sheets 11 Sheet

Handwritten signature
SUB-REGISTRAR
DENKANIKOTTAI






 Government of India
 Unique Identification Authority of India
 Download Date: 01/02/2020
 Issue Date: 27/02/2019
 Person's Name: **செந்தி நாதர்**
Senthil Nathan
 Date of Birth (DOB): 27/04/1965
 Gender: **MALE**
4891 3922 1493
VID : 9170 9491 9051 7494


 Unique Identification Authority of India
 Address: **மீ.டி.வெங்கடேசன், 35, தியாகராஜ நகர், தியாகராஜ நகர், சென்னை - 600017**
M.D. Venkatesan, 35, Baghrami Ammal Street, Thyagaraya Nagar, Thyagaraya Nagar, Chennai - 600017
4891 3922 1493
VID : 9170 9491 9051 7494

4

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 DENKANIKOTTAI





भारत सरकार
Government of India

Issue Date: 06/07/2013



S Bhaskaran
பிழைப்பு எண் / DOB: 30/04/1960
பால / Male

2675 1832 3224

मेरा आधार, मेरी पहचान

Unique Identification Number: 500 630

Print Date: 18/11/2021

Address: S/O R Swaminathan, OLD NO 7,
NEW NO 16, FIRST STREET NORTH,
GOPALAPURAM, Gopalapuram, Chennai,
Tamil Nadu, 600086

2675 1832 3224

1947 help@uidai.gov.in www.uidai.gov.in

J. Miller

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இந்திய அரசாங்கம்
Government of India


மது ஆனந்தன்
M D Anandan
பிறந்தவருடம் / Year of Birth 1940
ஆண்மால் / Male



9157 7167 6904

ஆதார் - சாதாரண மனிதனின் அதிகாரம்


இந்திய அடையாள அமைப்பு ஆணையர்
Unique Identification Authority of India

முகவரி
S/O துரைசாமி ம. ப எண் 7 பு
எண் 16, முதல் தெரு, வடக்கு
கோபாலபுரம், கோபாலபுரம்,
சென்னை, கோபாலபுரம் தமிழ்
நாடு, 600086

Address
S/O: Doraisamy M, OLD NO 7
NEW NO 16, 1ST STREET,
NORTH GOPALAPURAM
Gopalapuram, Chennai
Gopalapuram, Tamil Nadu,
600086

9157 7167 6904

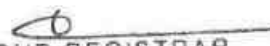
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1800 300 1947

 help@uidai.gov.in

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Government of India



விஜய் ராமன்
Vijay Raman
பிறந்த நாள்: DOB: 20/04/1996
பாலினம் / GENDER: MALE

Issue Date: 07/07/2013

7895 3659 2823
VID : 9158 5297 0743 5141

மாணியுடன் மட்டுமே பயன்படுத்த வேண்டுகோள்



भारत सरकार
GOVERNMENT OF INDIA



முருகம்மாள் அருணாச்சலம்
Murugammal Arunachalam
பிறந்த நாள் / DOB : 02/07/1991
பாலினம் / FEMALE

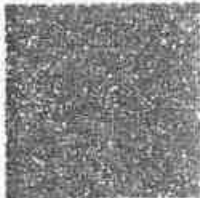


8255 2364 1673

புதுச்சேரி மனிதனின் அதிகாரம்

भारत सरकार
Unique Identification Authority of India

முகவரி:
S/O: ராமன், கடை 1771, மாரியம்மன்
கோவில் தெரு, கிருஷ்ணகிரி,
கிழக்கு கன்னடம்,
தமிழ் நாடு - 635107



Address:
S/O: Raman, D NO 1771, MARIYAMMAN
KOVIL STREET, Denkanikottai, Krishnagiri,
Tamil Nadu - 635107

7895 3659 2823
VID : 9158 5297 0743 5141

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भारतीय विशिष्ट पहचान प्राधिकरण
UNIQUE IDENTIFICATION AUTHORITY OF INDIA

முகவரி:
W/O: அருணாச்சலம்,
பச்சனாத்தி டி. அருணாச்சலம்,
தெற்கோட்டை டி. அருணாச்சலம்,
கொத்தலம் கிராமம்,
பிதிர்சேடி டி. கிருஷ்ணகிரி,
தமிழ் நாடு, 635113

Address:
W/O: Arunachalam,
PACHANATTI POST,
DENKOTTAI TALUK,
GOWTHALAM VILLAGE,
Bithireddi, Krishnagiri, Tamil
Nadu, 635113



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DENKANIKOTTAI



வனம் காப்போம்

தமிழ்நாடு வனத்துறை

அனுப்புதல்

செல்வி. க. கார்த்திகேயனி, இ.வ.ப.,
 வனஉயிரினக் காப்பாளர்,
 மத்திகிரி, ஒசூர் - 635 110
 தொலைபேசி எண். 04344-296600.

பெறுதல்

மாவட்ட ஆட்சித்தலைவர்,
 கிருஷ்ணகிரி மாவட்டம்
 கிருஷ்ணகிரி.

ந.க.எண். 2785/2022/எல் நாள். 28.08.2022

(மூலக்கிருது வருடம், ஆவணி மாதம் 12, திருவள்ளூர் ஆண்டு 2053)

அய்யா,

பொருள் : கனிமங்களும் குவாரிகளும் - கிருஷ்ணகிரி மாவட்டம் - தேன்கனிக்கோட்டை வட்டம் - இருதுகோட்டை கிராமம் - பட்டா புல எண்கள். 1124/5(0.16.20), 1124/6(1.10.90), 1151/5(0.64.00), 1151/6(0.36.40) மற்றும் 1172/2ஏ(0.13.00) ஆகியவற்றில் 2.40.40 ஹெக்டர் பரப்பளவில் பலவண்ண கிராளைட் கற்கள் வெட்டியெடுக்க தி/ள். டாப் கிராளைட்ஸ், சென்னை என்ற நிறுவனத்தினர் குவாரி குத்தகை கோருதல் - வனத்துறையின் தடையில்லாச் சான்று வழங்குதல் - தொடர்பாக.

- பார்வை :**
1. முதன்மை தலைமை வனப்பாதுகாவலர் (குறைத் தலைவர்), சென்னை ந.க.எண்.வ.உ.5(ஏ)/21948/2013 நாள்.18.09.2020.
 2. தி/ள். டாப் கிராளைட்ஸ், பழைய எண். 7, புதிய எண். 16 முதல் தளம், முதல் தெரு, வடக்கு கோபாலபுரம், சென்னை - 600 086 என்ற நிறுவனத்தினரது மனு நாள். 06.10.2021.
 3. மாவட்ட ஆட்சியர், கிருஷ்ணகிரி ந.க.எண். 1133/2021/கனிமம் நாள்.08.10.2021.
 4. வனச்சரக அலுவலர், தேன்கனிக்கோட்டை ந.க.எண்.132/2022 நாள்.04.06.2022.
 5. வனஉயிரின காப்பாளர், ஒசூர் ந.க.எண்.4056/2022/எல் நாள்.18.05.2022.
 6. வனப்பாதுகாவலர், தருமபுரி ந.க.எண். 6563/2022/வ நாள். 30.07.2022.
 7. முதன்மை தலைமை வனப்பாதுகாவலர் (குறைத் தலைவர்), சென்னை ந.க.எண்.டி.எஸ்1/23307/2022 நாள். 22.08.2022.

தெரிவித்துக்கொள்வதாவது, மேற்காண் பொருள் தொடர்பாக, பார்வை 1ல் கண்ட கடிதத்தில், தி/ள். டாப் கிராளைட்ஸ், பழைய எண். 7, புதிய எண். 16 முதல் தளம், முதல் தெரு, வடக்கு கோபாலபுரம், சென்னை என்ற நிறுவனத்தினர், கிருஷ்ணகிரி மாவட்டம், தேன்கனிக்கோட்டை வட்டம், இருதுகோட்டை கிராமம், பட்டா புல எண்கள். 1124/5(0.16.20), 1124/6(1.10.90), 1151/5(0.64.00), 1151/6(0.36.40) மற்றும் 1172/2ஏ(0.13.00) ஆகியவற்றில் 2.40.40 ஹெக்டர் பரப்பளவில் பலவண்ண கிராளைட் கற்கள் வெட்டி எடுக்க அனுமதி கோரிய



5. மேற்படி பலவண்ண கிராளைட் கற்கள் வெட்டி எடுக்க அனுமதி கோரியுள்ள பட்டா புல எண்ணில் மர வகைகளோ, அரியவகை தாவரங்களோ மற்றும் வனஉயிரினங்களோ ஏதும் காணப்படவில்லை.

எனவே, மேற்படி பகுதியில் பலவண்ண கிராளைட் கற்கள் வெட்டி எடுக்க, மனுதாரர் வரையறுக்கப்பட்ட எல்லையினை மீறாமலும், வரையறுக்கப்பட்ட பகுதிக்குள்ளேயே கற்குவாரி அமைத்திடவும், பணிகள் மேற்கொள்ளவும், கனிம வளத்துறை மூலமாக மாதம் தவறாமல் களத்தணிக்கை மேற்கொண்டு சரியாக உள்ள பட்சத்தில் உரிய அனுமதி படிவங்களை வழங்கி கேட்டுக்கொண்டும், எதிர்வரும் காலங்களில் வரையறுக்கப்பட்ட எல்லையினை மீறி ஒப்பந்ததாரர் வேலை செய்யும் பட்சத்தில் கண்டறியப்பட்டால், மாவட்ட ஆட்சியர் மற்றும் வனஉயிரின காப்பாளர் ஆகியோரின் மேலான கவனத்திற்கு கொண்டுவரப்பட வேண்டும் என்ற நிபந்தனைகளுக்கு உட்பட்டு, மேற்படி, கிருஷ்ணகிரி மாவட்டம், தேன்கனிக்கோட்டை வட்டம், இருதுகோட்டை கிராமம், பட்டா புல எண்கள். 1124/5(0.16.20), 1124/6(1.10.90), 1151/5(0.64.00), 1151/6(0.36.40) மற்றும் 1172/2ஏ(0.13.00) ஆகியவற்றில் 2.40.40 ஹெக்டார் பரப்பளவில் பலவண்ண கிராளைட் கற்கள் வெட்டி எடுக்க தடையில்லாச் சான்று (No Objection Certificate) வழங்கலாம் என வனச்சரக அலுவலர் பரிந்துரை செய்துள்ளார்.

தேன்கனிக்கோட்டை வனச்சரக அலுவலரின் பரிந்துரையினை கருத்தில் கொண்டு ஓசூர் கோட்ட வனஉயிரின காப்பாளரால் மேற்படி புலத்தினை 07.06.2022 அன்று களத்தணிக்கை மேற்கொள்ளப்பட்டது. களத்தணிக்கையில் கிருஷ்ணகிரி வனச்சரக அலுவலர் கூறிய கருத்துக்கள் ஏற்றுக்கொள்ளக்கூடியதாக உள்ளது.

மேலும், மேற்படி அனுமதி கோரியுள்ள புலத்திலிருந்து 25 கிமீ சுற்றளவிற்குள் கீழ்க்கண்ட காப்புக்காடுகள் அமைந்துள்ளன.

வ.எண்.	கோட்டம்	சரகம்	காப்புக்காட்டின் பெயர்
1	ஓசூர்	தேன்கனிக்கோட்டை (காவேரி வடக்கு வனஉயிரின சரணாலயம்)	குல்லட்டி
2	"	"	அய்யூர் விரிவாக்கம் 1
3	"	"	அய்யூர் விரிவாக்கம் 2
4	"	"	அய்யூர் விரிவாக்கம் 3
5	"	"	அய்யூர்
6	"	"	அய்யூர் விரிவாக்கம்
7	"	"	என்.எஸ். அக்ரஹாரம்
8	"	"	மாரண்டஹள்ளி விரிவாக்கம்
9	"	"	தொளுவபெட்டா
10	"	"	தொளுவபெட்டா விரிவாக்கம்
11	"	"	கெம்பகரை
12	"	"	சாமேரி
13	"	"	மாரண்டஹள்ளி
14	"	"	காளிகட்டம்



வ.எண்.	கோட்டம்	சரகம்	காப்புக்காட்டின் பெயர்
45	"	"	கேசர்குழி விரிவாக்கம்
46	"	"	குத்திராயன் (பகுதி)
47	"	"	அத்திமுட்லு
48	"	"	பி.செட்டிப்பள்ளி
49	"	"	ரங்கம்பட்டி
50	"	"	தொட்டபடகானப்பள்ளி
51	"	"	கும்பனூர்
52	கர்நாடக மாநிலம் - பன்னர்கட்டா தேசிய பூங்கா	கோடிஹள்ளி	கோடிஹள்ளி சரகம்

எனவே, பார்வை 7ல் கண்ட முதன்மை தலைமை வனப்பாதுகாவலர் (துறைத் தலைவர்) அவர்களின் உத்தரவின்படி, மேற்படி பகுதியில் பலவண்ண கிராணைக் கற்கள் வெட்டி எடுக்க கீழ்க்கண்ட நிபந்தனைகளுடன் வனத்துறையின் தடையில்லாச் சான்று வழங்கப்படுகிறது.

- 1) பலவண்ண கிராணைக் கற்கள் வெட்டி எடுக்க குவாரி குத்தகை அனுமதி கோரப்பட்டுள்ள கிருஷ்ணகிரி மாவட்டம், தேன்கனிக்கோட்டை வட்டம், இருதுகோட்டை கிராமம், பட்டாபுல எண்கள். 1124/5(0.16.20), 1124/6(1.10.90), 1151/5(0.64.00), 1151/6(0.36.40) மற்றும் 1172/2ஏ(0.13.00) ஆகியவற்றில் 2.40.40 ஹெக்டார் பரப்பளவின் எல்லையை நிர்ணயம் செய்யவும், கனிமவளத் துறையால் அனுமதி நடைசீட்டு வழங்கும் முன் அனுமதிக்கப்பட்ட பரப்பில் மட்டும் குவாரி பணி செய்வதை மாவட்ட நிர்வாகம் / கனிம வளத்துறை உறுதி செய்தல் வேண்டும்.
- 2) காலை 6.00 மணி முதல் மாலை 6.00 மணி வரை மட்டுமே கற்குவாரி பணி செய்ய அனுமதி வழங்கப்பட வேண்டும்.
- 3) குவாரி பணி செய்ய தேர்வு செய்யப்பட்டுள்ள மேற்படி 2.40.40 ஹெக்டார் பரப்பளவில், பலவண்ண கிராணைக் கற்குவாரி பணி செய்யும் பகுதியைச் சுற்றி ஒலி மற்றும் காற்று மாசுபடுவதை தவிர்க்க புங்கன் மற்றும் வேம்பு உள்ளிட்ட குறைந்த பட்சம் 300 மரக்கன்றுகள் நடவு செய்து பசுமை போர்வை ஏற்படுத்தி பராமரிக்க வேண்டும்.
- 4) அரசாணை (நிலை) எண்.79 தொழில் (கனிமம் 1) துறை நாள்.06.04.2015-ல் வழங்கப்பட்டுள்ள நிபந்தனைகள் மற்றும் அரசு ஆணை (நிலை) எண். 295 தொழில் துறை நாள்.03.11.2021-ல் தெரிவிக்கப்பட்ட நிபந்தனைகளையும் மாவட்ட நிர்வாகம் / கனிம வளத்துறை கடைபிடிப்பதை உறுதி செய்ய வேண்டும்.
- 5) மேற்படி புலத்தில் குவாரி பணி செய்ய அனுமதி வழங்கும் பட்சத்தில், கனிமவள குற்றங்களைத் தடுத்திடும் பொருட்டு, சாலைகளின் வழியே வாகனங்களில் கனிமங்களை கொண்டு செல்லும்பொழுது, வனப்பணியாளர்கள் சோதனை மற்றும் ஆய்வு செய்ய உட்பட்டிருக்க வேண்டும்.
- 6) உத்தேச குவாரிப் பகுதிக்கு அருகில் யானைகள் உள்ளிட்ட வனஉயிரினங்கள் வந்தால், அவைகள் அப்பகுதியிலிருந்து வேறு இடத்திற்கு செல்லும்வரை குவாரி பணி மேற்கொள்ளக்கூடாது.



தமிழ்நாடு தமிழ்நாடு TAMILNADU

19 AUG 2021

CL 12330

S. AYATH BA

STAMP VEND

L.NO.3/331

No. 43, SEETHAMM,

TEYNAMPET, CHEN

Phone: 984164



TOP GRANITES

CHENNAI

DEED OF PARTNERSHIP

THIS DEED OF PARTNERSHIP IS EXECUTED AT CHENNAI THIS 1ST DAY OF SEPTEMBER, 2021 BETWEEN:

- 1) S.Bhaskaran, son of Late Shri.R.Swaminathan, aged about 60 years (PAN: AAPPB6936P) residing at New No.16, First Street, North Gopalapuram, Chennai - 600 086, TN herein after called the Party of the FIRST PART.
- 2) U.Rajagopal, son of Shri.G.Ulaganathan, aged about 43 years (PAN: AWIPR9743D) residing at 2/36, Santhalpettai Village, Anjanahalli, Moongil Maduvu Post, Pennagaram, Dharmapuri District - 636 810, TN herein after called the Party of the SECOND PART.

WHEREAS the above said parties decided to carry on the business of Quarrying, Extracting for Development and Exports etc., under the name and style of "TOP GRANITES".

S. Bhaskaran

U. Rajagopal

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தமிழ்நாடு தமிழ்நாடு TAMILNADU

19 AUG 2021

EL 123310

TOP GRANITES
CHENNAI

S AYATH BASHA
STAMP VENDOR
L.NO.3 / 3 / 2000
No 43, SEETHAMMAL ROAD
TEYNAMPET, CHENNAI - 18
Phone: 9841640694



AND WHEREAS the parties are now desirous of reducing their terms of partnership into writing by a format instrument of partnership and there by regulate and control the relationship between the parties interest.

NOW THIS DEED OF PARTNERSHIP WITNESSETH AS FOLLOWS:-

- 1) The business of the partnership shall be carried on under the name and style of "TOP GRANITES".
- 2) That the registered office of the Firm shall be at Old No.7, New No.16, First Floor, First Street, North Gopalapuram, Chennai - 600 066 or at such other place or places as the parties to this deed may mutually agree upon from time to time and that the parties shall be free to open branches as and when necessary.
- 3) The business of the partnership shall be quarrying and to take on lease from any private parties, Patta land, Revenue land, government tenders and etc. for extracting the granites, developing into required shapes and dressing up, converting them into slabs, blocks of distinct dimensions and making them marketable and engaging in local and export sales and representing foreign firms as Inspection agents to carry out inspections jobs and such other business or business as may be mutually agreed upon by the parties from time to time.

[Handwritten Signature]

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தமிழ்நாடு தமில்நாடு TAMILNADU

119 AUG 2021

CL 123311



109 GRANITES
CHENNAI

S. AYATH BASHA
STAMP VENDOR
L.NO.3 / 3 / 2000
No. 43, SEETHAMMAL R.
TEYNAMPET, CHENNAI.
Phone: 9841640634

- 4) The Capital of the partnership shall be in a sum of Rs.1,00,000 (Rupees One Lakh only) which shall be contributed by the parties hereto as follows:-

Party of the First Part : Rs.50,000/-
Party of the Second Part : Rs.50,000/-

Such capital and additional contribution if any for the purpose of business shall carry interest at the rates specified hereinafter.

- 5) If any time additional funds are required for the purpose of the business of the partnership, such funds shall be contributed by the parties hereto and/or borrowed from outsiders including banks and financial institutions with the unanimous consent of all parties hereto at such rate of interest as may be prevailing in the market.
- 6) a) It is hereby mutually agreed that simple interest at the rates mentioned hereunder against each partner as prescribed/permitted now under the Income Tax Act, 1961 or at such rates as may be further amended and in force shall be payable with effect from date of inception of this deed in respect of:

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- i) Initial and additional capital contribution
- ii) Amounts due to the partners on their current accounts and
- iii) Amount that may be borrowed as loans from partners for purposes of the business of partnership

b) It is hereby mutually agreed that the interest payment to partners as aforesaid be charged to the Profit and Loss Account.

7) a) The parties of the FIRST and SECOND parts have agreed to work in the partnership and shall be working partners actively engaged, participating and attending to the conduct of the affairs of the firm as contemplated under the Income Tax Act., 1961, as amended from time to time. It is hereby mutually agreed by the parties hereto that in consideration of the parties hereto devoting their time and attention to the business of the firm and working in the partnership, they shall be entitled for their services to remuneration (whether as salary, bonus, commission by whatever name called) as mentioned herein below and the same shall be payable by the firm with effect from the date of inception of this deed.

b) It has been mutually agreed that the salary at the rate of Rs 30,000/- per month by each partner of the firm and the same shall be charged to Profit and Loss and adjusted to their respective current accounts.

c) The quantum of remuneration or the mode of calculation of the remuneration to the working partners may be altered when felt necessary as may be mutually agreed upon by the parties hereto from time to time and the same be supported by a suitable deed. It is also mutually agreed that in the absence of sufficient "Book Profit" for provision of salary to the partner's hereto his remuneration shall be reduced on a pro-rata basis equally such that the remuneration provided to him shall go to reduce the Book Profits to Nil.

d) The quantum of remuneration or the mode of calculation of the remuneration to the working partner may be altered when felt necessary as may be mutually agreed upon by the parties hereto from time to time and the same be supported by a suitable deed

e) The Partners may withdraw amount from the Partnership firm from their capital/ current/ loan accounts or may withdraw in period in such manner as may be decided by the parties hereto by mutual consent.

Signature

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- f) Salary, bonus, commission or remuneration to working partner shall be adjusted to their respective current account at the end of the accounting year.
- g) Share of profit or loss of the partner for each year shall also be adjusted to the respective current accounts of the partners at the end of the accounting year.
- h) Interest to partners may be adjusted to their respective interest outstanding account or drawings account, closing debit balance from drawings account of the partners shall be transferred to their respective current account at the end of the accounting year.
- i) If the interest to partners hereto is drawn in cash the partners concerned may subsequently invest from such amount in the firm if so desired.

8) The Net Profits or Losses of the partnership business after charging all outgoing and expenses and creating reserves etc., shall be divided among or borne by the parties hereto as follows:-

Name of the Working Partner's	Share of Profit/Loss
S. Bhaskaran	50%
U. Rajagopal	50%

- 9) The Bankers of the partnership shall be any Scheduled or Nationalised Bank or Banks for the purpose of carrying out all kinds of bank transactions including deposits and availing financial loan facility of any type and such bank account shall be operated by First Part only.
- 10) That the duration of the partnership shall be "ONE AT WILL"
- 11) Proper books of accounts shall be maintained wherein shall be entered all receipts and disbursements and all assets acquired and liabilities incurred in relation to the business of the partnership.
- 12) The accounts of the partnership shall be closed on 31st March of the every year or on such date as may be decided upon by the parties hereto. A statement of Assets and Liabilities and Profit & Loss Accounts shall be taken on that date and shall be signed by all the parties hereto

A. K. Kulkarni

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- 13) The Partners may from time to time with mutual consent enter into any agreement with any person to lease any of the partnership property in the best interest of the partnership and such lease agreement shall be signed by the party of the First Part and shall be binding on the partnership.
- 14) Any License, permit or concessions from Government or other obtained in the name of any one partner relating to this business be utilized for the benefit of partnership and shall be treated as the property of the partnership.
- 15) The Partners hereto shall be just and faithful to each other and shall at all times give to each other full information and truthful explanations of all matters relating to the affairs of the business of the partnership and afford every assistance in his/her power to facilitate smooth and successful working of the partnership business.
- 16) Any partner may retire from the firm after giving notice of thirty days in writing to other partner (s). On such retirement the retiring partner shall be paid all the amounts due to him/her or the amounts due from him/her shall be collected from such retiring partner on such terms and conditions as may be agreed upon by the parties hereto.
- 17) The parties may by mutual agreement admit one or more parties in the interest of the partnership on such terms and conditions as may be agreed upon by the parties hereto.
- 18) No partners shall without the written consent of the other partner assign in favor of any other person who is not a partner of the firm wholly or in part his/her share of profit or interest in the firm.
- 19) The parties shall be entitled to vary, alter, modify such clause or clauses of the partnership as may be mutually agreed.
- 20) Death, retirement or insolvency of any of the partner shall not dissolve the firm but the firm shall be continued by the surviving partners.
- 21) No Personal loan or liability of any partner shall be binding on the partnership business.

[Handwritten signature]

Document No. 59 of 2021 of Book
IV Contain 14 SHEETS 6 SHEET
116 A
REGISTERING OFFICER

[Handwritten signature]



the present or any other matter touching the partnership shall be referred to arbitration and shall be settled by means of arbitration.

23) The partnership shall be generally governed by the provisions of the Indian Partnership Act, 1932 except in so far as the said provisions have been modified or excluded by the terms of this agreement.

IN WITNESS WHEREOF THE PARTIES HERETO HAVE SET THEIR HANDS THE DAY, MONTH AND YEAR FIRST ABOVE WRITTEN.

[Handwritten signature]

PARTY OF THE FIRST PART

[Handwritten signature]

PARTY OF THE SECOND PART

WITNESS:-

1. T. B. T. VENKATESAN S/o Thandapani
No: 52-A, MANICKAVELU STREET,
KOVUR, CH. 122
(Ph: 994330956)

Document No. 59 of 2021 of Book
I V Contain 14 SHEETS 7 SHEET
REGISTERING OFFICER

2. *[Handwritten signature]*
Sethukumar S/o Mangalam
Ponnagaram (636810)
Dharmapri



[Handwritten signature]

M. RANGASAMI B.COM., L.L.B.,
ADVOCATE,

DOOR NO.7, PYCROFTS ROAD,
ROYAPETTAH, CHENNAI - 600 014.
ENROLL NO. MS. 190/2012,

DATED 11.01.2012

117 A
7 CELL NO. 9840020946





R/Chennai Central Joint I/Book-4/59/2021

Presented in the office of the Sub Registrar of Chennai Central Joint I and fee of ₹ 1,245/-

on 01/09/2021 by

Left Thumb



of Kulkarni
9043261426

Additions as per recitals of document

Execution admitted by

Left Thumb



of Kulkarni

Additions as per recitals of document

Identity of the person verified through Consent based AADHAAR Authentication using Thumb Impression with UIDAI reference No 00160976aa8e1b33d7af4d8ba2f7984050d4e066

Execution admitted by

Left Thumb



Boonraj. 9843145292

Additions as per recitals of document

Identity of the person verified through Consent based AADHAAR Authentication using Thumb Impression with UIDAI reference No. 0099206313dda0d673ab469d952e159d9b15521a

1st day of September 2021



[Signature]
Prashavathi M
Sub Registrar
Chennai Central Joint I

SUB-REGISTRAR
DISTRICT REGISTRAR CADRE
JOINT 1, CENTRAL CHENNAI

Registered as Number R/Chennai Central Joint I/Book-4/59/2021

Date: 01/09/2021
Chennai Central Joint I

Document No. 59 of 2021 of Book

IV Contain. 14 SHEETS. 82 SHEET

REGISTERING OFFICER

118 A



[Signature]
Prashavathi M
Sub Registrar

SUB-REGISTRAR
DISTRICT REGISTRAR CADRE
JOINT 1, CENTRAL CHENNAI



பெயர்: பி. சி. சிவசாமி

ஆய்வு எண்: 1000000000



பெயர்: பி. சி. சிவசாமி

பணி: கணினி இயக்குநர்

தேதி: 20.04.2020

20.04.2020

www.geology.tn.gov.in

12.10.20

தமிழ்நாடு கல்வியியல் துறை

கணினி இயக்குநர், கணினி இயக்குநர்

இது ஒரு கணினி இயக்குநர் ஆய்வு எண் ஆகும். இது கணினி இயக்குநர் ஆய்வு எண் ஆகும். இது கணினி இயக்குநர் ஆய்வு எண் ஆகும்.

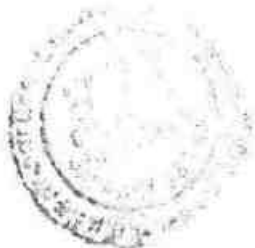
கணினி இயக்குநர் ஆய்வு எண்
20.04.2020
பி. சி. சிவசாமி
தேதி: 20.04.2020

In case this card is lost/found, kindly inform return to the issuing authority :

Commissioner of Incomes-tax (Computer Operations),
121, Mahatma Gandhi Road,
Nungambakkam,
Chennai - 600 032.

Handwritten signature

Document No. 59 of 2021 of Book
IV Contain. 14 SHEETS 9 SHEET
~~REGISTERING OFFICER~~





இந்திய அரசாங்கம்
Government of India

பெயர்: S Bhaskaran
 தந்தை: Swaminathan R.

பிறந்த தேதி: 1960
 பாலினம்: Male

2675 1832 3224

ஆதார் - சாதாரண மனிதனின் அதிகாரம்

Unique Identification Authority of India

Address: S/O R Swaminathan, OLD NO 7 NEW NO 18, FIRST STREET NORTH GOPALAPURAM, Gopalapuram, Chennai, Gopalapuram, Tamil Nadu, 600086

2675 1832 3224

1800 202 1047 help@uidai.gov.in www.uidai.gov.in

Document No... 59... of 2021 of Book
 I V Contain... 14 SHEETS, 10 SHEET
 REGISTERING OFFICER





आयकर विभाग
INCOME TAX DEPARTMENT



भारत सरकार
GOVT. OF INDIA

U RAJAGOPAL
ULAGANATHAN

15/07/1977

Permanent Account Number

AWIPR9743D

[Handwritten Signature]

Signature



In case this card is lost / found, kindly inform / return to:
Income Tax PAN Service Unit, UTESI,
Plot No. 3, Sector 11, CBD Belapur,
Navi Mumbai - 400 614.

यदि यह कार्ड खोया/प्राप्त हो, कृपया सूचना दें/वापस करें।
आयकर सेवा इकाई, UTESI,
प्लॉट नं. 3, सेक्टर 11, सीडी बी बेलपुर,
नवी मुंबई - 400 614।

[Handwritten Signature]

Document No. 59 of 2021 of Book
I contain 14 SHEETS of 11 SHEET
REGISTERING OFFICER




இந்திய அரசாங்கம்
Government of India




வெங்கடேசன்
Venkatesan

பிறந்த நாள் / DOB: 04/07/1967
ஆண்பால் / Male
4139 5700 4318



எனது ஆதார், எனது அடையாளம்






அடார்
Unique Identification Authority of India


முன்பதிர். தலைநகர் / தலைநகர்
தலைநகர், C-22 பிளாக் தலைநகர்
வெங்கடேசலாம் தெரு
ராயபட்டி, சென்னை
ராயபட்டி, தமிழ் நாடு
600014

Address: S/O. Thangavel, C-22 B
S N L Outears No 45,
Venkatchalam Street,
Royapattah, Chennai,
Royapattah, Tamil Nadu, 600014

4139 5700 4318


 1947


help@uidai.gov.in


www.uidai.gov.in

17

Document No... 59 ... of 2021 of Book
 IV Contain... 14 SHEETS 13 SHEET
 REGISTERING OFFICER





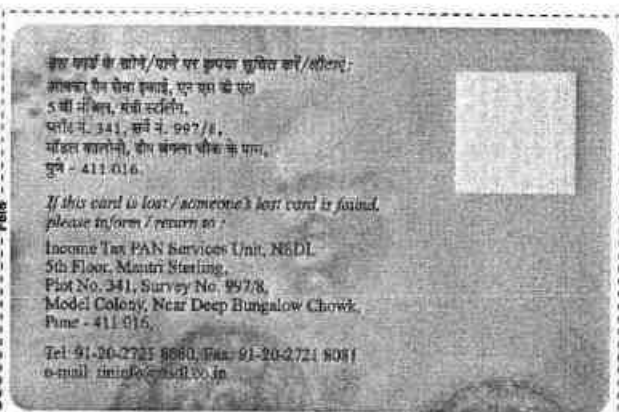
ई- स्थायी लेखा संख्या कार्ड
e - Permanent Account Number (e-PAN) Card
AASFT0369H

नाम / Name	TOP GRANITES
निगमन/गठन की तारीख Date of Incorporation / Formation	01/09/2021



- ✓ Permanent Account Number (PAN) facilitate Income Tax Department linking of various documents, including payment of taxes, assessment, tax demand tax arrears, matching of information and easy maintenance & retrieval of electronic information etc. relating to a taxpayer. स्थायी लेखा संख्या (पैन) एक करदाता से संबंधित विभिन्न दस्तावेजों को जोड़ने में आयकर विभाग को सहायक होता है, जिसमें करों के भुगतान, आकलन, कर मांग, टैक्स बकाया, सूचना के मिलान और इलेक्ट्रॉनिक जानकारी का आसान रखरखाव व बहाली आदि भी शामिल है।
- ✓ Quoting of PAN is now mandatory for several transactions specified under Income Tax Act, 1961 (Refer Rule 114B of Income Tax Rules, 1962) आयकर अधिनियम, 1961 के तहत निर्दिष्ट कई लेनदेन के लिए स्थायी लेखा संख्या (पैन) का उल्लेख अब अनिवार्य है (आयकर नियम, 1962 के नियम 114B, का संदर्भ लें)
- ✓ Possessing or using more than one PAN is against the law & may attract penalty of upto Rs. 10,000. एक से अधिक स्थायी लेखा संख्या (पैन) का रखना या उपयोग करना, कानून के विरुद्ध है और इसके लिए 10,000 रुपये तक का दंड लगाया जा सकता है।
- ✓ The PAN Card enclosed contains Enhanced QR Code which is readable by a specific Android Mobile App. Keyword to search this specific Mobile App on Google Play Store is "Enhanced QR Code Reader for PAN Card". संलग्न पैन कार्ड में एनहांस क्यूआर कोड शामिल है जो एक विशिष्ट एंड्रॉइड मोबाइल ऐप द्वारा पठनीय है। Google Play Store पर इस विशिष्ट मोबाइल ऐप को खोजने के लिए कीवर्ड "Enhanced QR Code Reader for PAN Card" है।

Cut



Electronically issued and Digitally signed ePAN is a valid mode of issue of Permanent Account Number (PAN) post amendments in clause (c) in the Explanation occurring after sub-section (8) of Section 139A of Income Tax Act, 1961 and sub-rule (6) of Rule 114 of the Income Tax Rules, 1962. For more details, [click here](#)



सत्यमेव जयते



Government of India
Form GST REG-06
[See Rule 10(1)]

Registration Certificate

Registration Number : 33AASFT0369H1ZW

1.	Legal Name	TOP GRANITES			
2.	Trade Name, if any	TOP GRANITES			
3.	Constitution of Business	Partnership			
4.	Address of Principal Place of Business	FIRST FLOOR, NEW NO.16, OLD NO.7, FIRST STREET, NORTH GOPALAPURAM, Gopalapuram, Chennai, Chennai, Tamil Nadu, 600086			
5.	Date of Liability				
6.	Period of Validity	From	16/03/2022	To	Not Applicable
7.	Type of Registration	Regular			
8.	Particulars of Approving Authority	Centre			
Signature					
Signature Not Verified Digitally signed by DS GOODS AND SERVICES TAX NETWORK(4) Date: 2022.03.16 10:00:36 IST					
Name		Shanthi Maiappan			
Designation		Superintendent			
Jurisdictional Office		MYLAPORE			
9. Date of issue of Certificate		16/03/2022			
Note: The registration certificate is required to be prominently displayed at all places of business in the State.					

This is a system generated digitally signed Registration Certificate issued based on the approval of application granted on 16/03/2022 by the jurisdictional authority.



सत्यमेव जयते

GSTIN 33AASFT0369H1ZW
Legal Name TOP GRANITES
Trade Name, if any TOP GRANITES

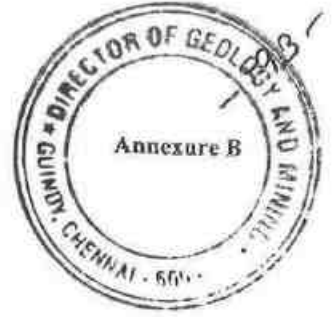


Details of Additional Places of Business

Total Number of Additional Places of Business in the State 0



GSTIN 33AASFT0369H1ZW
Legal Name TOP GRANITES
Trade Name, if any TOP GRANITES



Details of Managing / Authorized Partners

1



Name BHASKARAN
Designation/Status MANAGING PARTNER
Resident of State Tamil Nadu

2



Name ULAGANATHAN RAJAGOPAL
Designation/Status PARTNER
Resident of State Tamil Nadu

TOP GRANITES

New No. 16, First Floor, First Street, North Gopalapuram
Chennai - 600 086.



Dated: 23.05.2023

TO WHOM SO EVER IT MAY CONCERN

We, 1. S. Bhakaran, S/o. Thiru.R.Swaminathan, residing at New No.16, First Floor, First Street, North Gopalapuram, Chennai - 600 086.

2. U. Rajagopal, S/o. Thiru.G.Ulaganathan, residing at No.2/36, Santhalpettai Village, Anjanahalli, Moongil Madavu Post, Pennagaram, Dharmapuri District - 636 810.

Are the partners of the M/s. Top Granites, having office at Old No.7, New No.16, First Floor, First Street, North Gopalapuram, Chennai - 600 086, do here by authorize Thiru.U.Rajagopal the Partner of the firm to look after the day to day affairs of the business and sign in necessary documents on behalf of the firm and represent the firm in Government and other departments.

1. S. Bhakaran

Managing Partner

Top Granites

2. U. Rajagopal

Partner

Top Granites

(Signature of U. Rajagopal)

Signature Attested

1.

2.



भारत सरकार



ராஜகோபால் உலகநாதன்
Rajagopal Ulaganathan

பிறந்த நாள்/DOB :
15-07-1977
ஆண் / Male



5358 9671 9942

ஆதார் - சாதாரண மனிதனின் அதிகாரம்



भारतीय विशिष्ट पहचान प्राधिकरण

MINISTRY OF INDIA

முகவரி: தந்தை / தாய் பெயர்:
உலகநாதன், 2/36, சந்தை
புட்டை, அஜ்ஜனஅள்ளி,
அஜ்ஜனஹள்ளி, பென்னாகரம்,
தருமபுரி, தமிழ் நாடு, 636810

Address: S/O: Ulaganathan,
2/36, SANTHAI PETTAI,
Ajjanahalli, Pennagaram,
Dharmapuri, Tamil Nadu,
636810



1947
1800 300 1947

help@uidai.gov.in

www.uidai.gov.in

P.O. Box No. 1947,
Bengaluru-560 001



आयकर विभाग
INCOME TAX DEPARTMENT



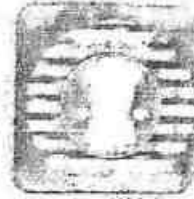
भारत सरकार
GOVT. OF INDIA

U RAJAGOPAL
ULAGANATHAN
15/07/1977

Permanent Account Number

AWIPR9743D


Signature



In case this card is lost / found, kindly inform / return to :

**Income Tax PAN Services Unit, UTITSL,
Plot No. 3, Sector 11, CBD Belapur,
Navi Mumbai - 400 614.**

इस कार्ड के खोने/पाने पर कृपया सूचित करें/सौंपएं :

**आयकर पैन सेवा यूनिट, UTITSL,
प्लॉट नं: 3, सेक्टर 11, सी.बी.डी. बेलपुर,
नवी मुंबई-400 614.**



भारत सरकार
Government of India



Issue Date: 08/03/2013



S Bhaskaran

பிறந்த நாள் / DOB: 30/04/1960

ஆண் / Male



2675 1832 3224

2675 1832 3224

मेरा आधार, मेरी पहचान



ஆதார்

இந்திய அடையாள அமைப்பு
Unique Identification Authority of India

முகவரி: ஸ: ரா சுவாமிநாதன்
பு எண் 7 பு எண் 16
முதல் தெரு வடக்கு கோபாலபுரம்
கோபாலபுரம், கோபாலபுரம், சென்னை
தமிழ் நாடு, 600086

Address: S/O: R
Swaminathan, OLD NO 7
NEW NO 16, FIRST
STREET NORTH
GOPALAPURAM,
Gopalapuram, Chennai,
Gopalapuram, Tamil Nadu,
600086

2675 1832 3224

1947
1800 300 1947

help@uidai.gov.in

www
www.uidai.gov.in



நிரந்தர கணக்கு எண் /PERMANENT ACCOUNT NUMBER

AAPPB6936P



குயர்/NAME

BHASKARAN

தந்தை குயர் /FATHER'S NAME

SWAMINATHAN

பிறந்த தேதி /DATE OF BIRTH

30-04-1960

கையொப்பம்/SIGNATURE

வருமானவர் ஆணையர் (கணினிப்பொறி இயக்கம்)

Commissioner of Income-tax (Computer Operations)



அறிவியல் புலம்
FACULTY OF SCIENCE

பெரியார் பல்கலைக்கழக ஆட்சிக்குழு 2010 ஆம் ஆண்டு ஏப்ரல் மாதம்
நடந்த பயன்பாட்டுப்புவியமைப்பியல் தேர்வில்
அரசு கலைக் கல்லூரி, சேலம் - 636 007 (தன்னாட்சி) பயின்ற
P விஸ்வநாதன் என்பவர்

முதல் வகுப்பு A++ தரத்தில் தேர்ச்சி பெற்றார் என்று தக்க
தேர்வாளர்கள் சான்றளித்தபடி அறிவியல் நிறைஞர் என்னும்
பட்டத்தை அவருக்குப் பல்கலைக்கழக இலச்சினையுடன் வழங்குகிறது.

The Syndicate of the Periyar University hereby makes known
that **VISWANATHAN P** *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**
WITH A++ GRADE *at the Examination held in* **APR-2010** *through*
GOVERNMENT ARTS COLLEGE, SALEM - 636 007 (AUTONOMOUS).



Given under the seal of this university

நாள்
Dated 28-02-2011
சேலம் 636011, தமிழ்நாடு, இந்தியா.
Salem 636011, Tamil Nadu, India.

பதிவாளர்
Registrar

கூணாவேந்தர்
Vice-Chancellor

TIN. No. : 3312 2703755
 C.S.T. No. : 880793 / 29.11.2005
 Area Code : 142



SUDHARSHAAN MINING CORPORATION

Mfrs : Dead Burnt Magnesite, Lightly Calcined Magnesite, Dunite Chips & Powder.
 S.F. No. 77, Kuduvampatty Road, Vinayagampatti, SALEM - 636 008.

Date : 28.12.2015.....

EXPERIENCE CERTIFICATE

This is to certify that **Shri.P.Viswanathan, S/o. P.Paramasivam, Geologist,** has worked in our Magnesite Mines from **13.09.2010 to 25.11.2015** as our company Geologist. During his service he used to maintain all records and returns submitted to Government Departments.

His nature of work in the mines was to show the plan of working and demarcate Magnesite reserve areas. He was looking after production of Magnesite and was maintaining quality of the Mineral as per the specifications given by the buyers.

During his tenor of his service he was very sincere and prompt in his duties.

I wish him the best of luck in all his future endeavours.

For M/s.SUDHARSHAAN MINING CORPORATION,

SUDHARSHAAN MINING CORPORATION
 SF-77, KUDUVAMPATTI ROAD,
 SALEM - 636 008. Tamilnadu.

G. Pasupathy
 G.PASUPATHY,
 Proprietor

28 Dec 2015

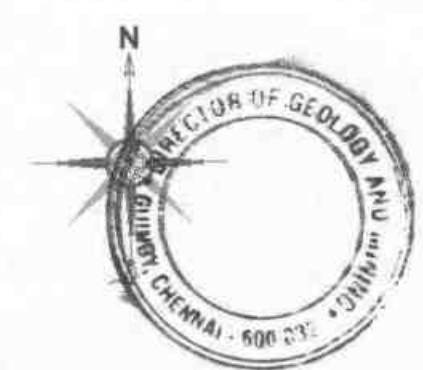


PLATE NO: I

DATE OF SURVEY: 16.05.2023

APPLICANT:
 Tvi.TOP GRANITES,
 OLD No.7,NEW No.FIRST FLOOR,
 FIRST STREET,
 NORTH GOPALAPURAM,
 CHENNAI-600 086.

LOCATION OF QUARRY:
 S.F.No.S : 1124/5,6,1151/5,6 and
 1172/2A
 EXTENT : 2.40.46 Ha,
 VILLAGE : IRUDHUKOTTAI,
 TALUK : DENKANIKOTTAI,
 DISTRICT : KRISHNAGIRI.

INDEX

Q. L.A. AREA : ●
 TOPO SHEET NO. : 57 H/15
 LATITUDE : 12° 25' 41.0417"N to 12° 25' 47.7539"N
 LONGITUDE : 77° 50' 01.3513"E to 77° 50' 07.7665"E

LOCATION PLAN

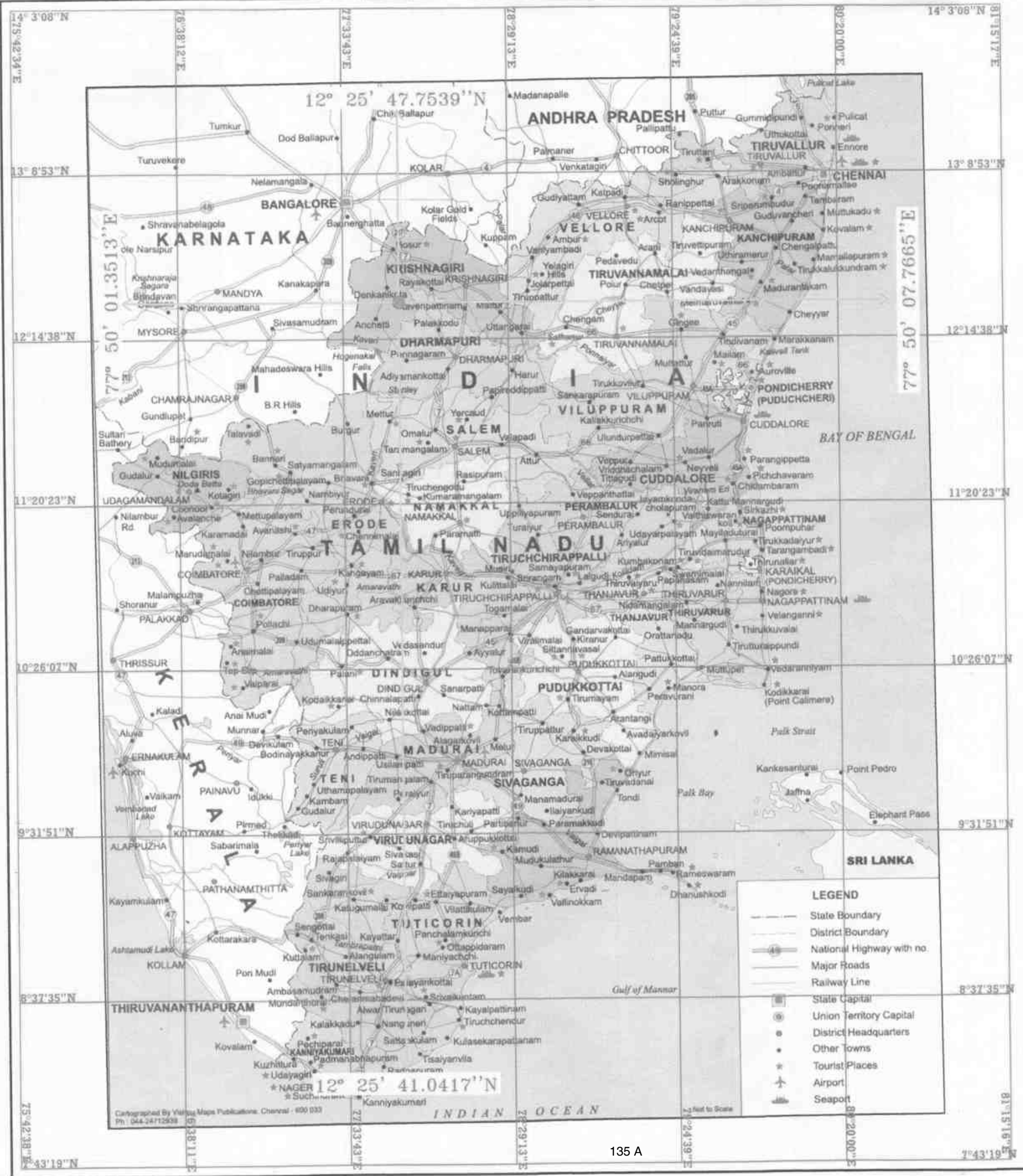
SCALE

1: 24,00,000

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 LEASEMAP
 AUTHENTICATED BY STATE GOVERNMENT

P. Viswanathan
 P.VISWANATHAN, M.Sc.,
 QUALIFIED PERSON
 Under Rule 15(i)(a) and (b) of MCR, 2016



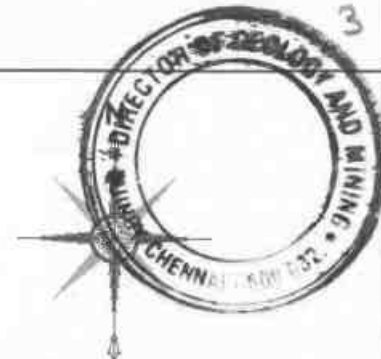


PLATE NO: I-B

DATE OF SURVEY: 16.05.2023

APPLICANT:

Tvl.TOP GRANITES,
 OLD No.7,NEW No.FIRST FLOOR,
 FIRST STREET,NORTH GOPALAPURAM,
 CHENNAI-600 086.

LOCATION OF QUARRY:

S.F.No.S : 1124/5,6,1151/5,6 and
 1172/2A
 EXTENT : 2.40.46 Ha,
 VILLAGE : IRUDHUKOTTAI,
 TALUK : DENKANIKOTTAI,
 DISTRICT : KRISHNAGIRI.

INDEX

Q.L.A BOUNDARY	
APPROACH ROAD	
MAJOR ROAD	
VILLAGE ROAD	

ROUTE MAP NOT TO SCALE

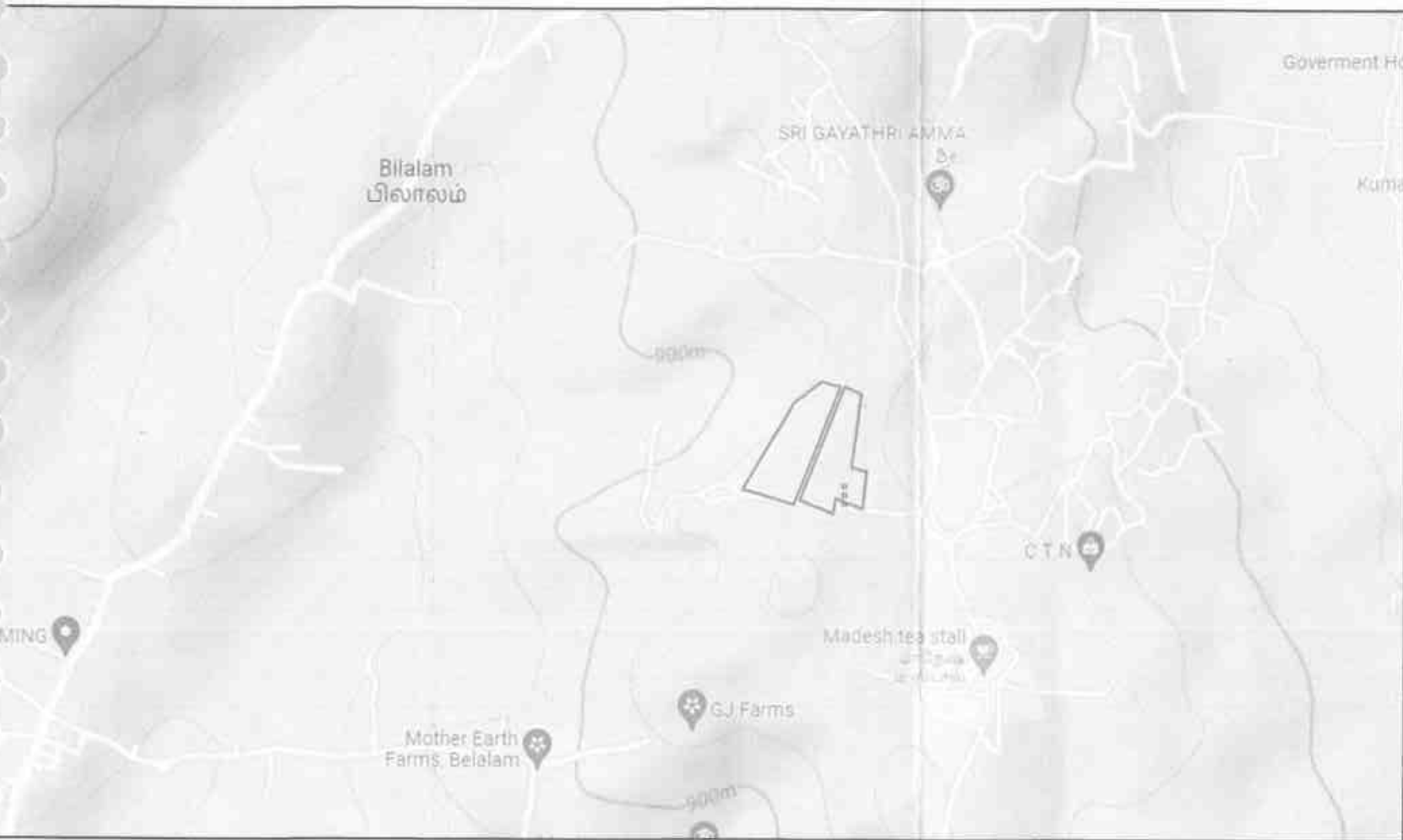
PREPARED BY:

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

P. Viswanathan

P.VISWANATHAN,M.Sc.,
 QUALIFIED PERSON

Under Rule 15(1)(a)and(b)of MCR,2016



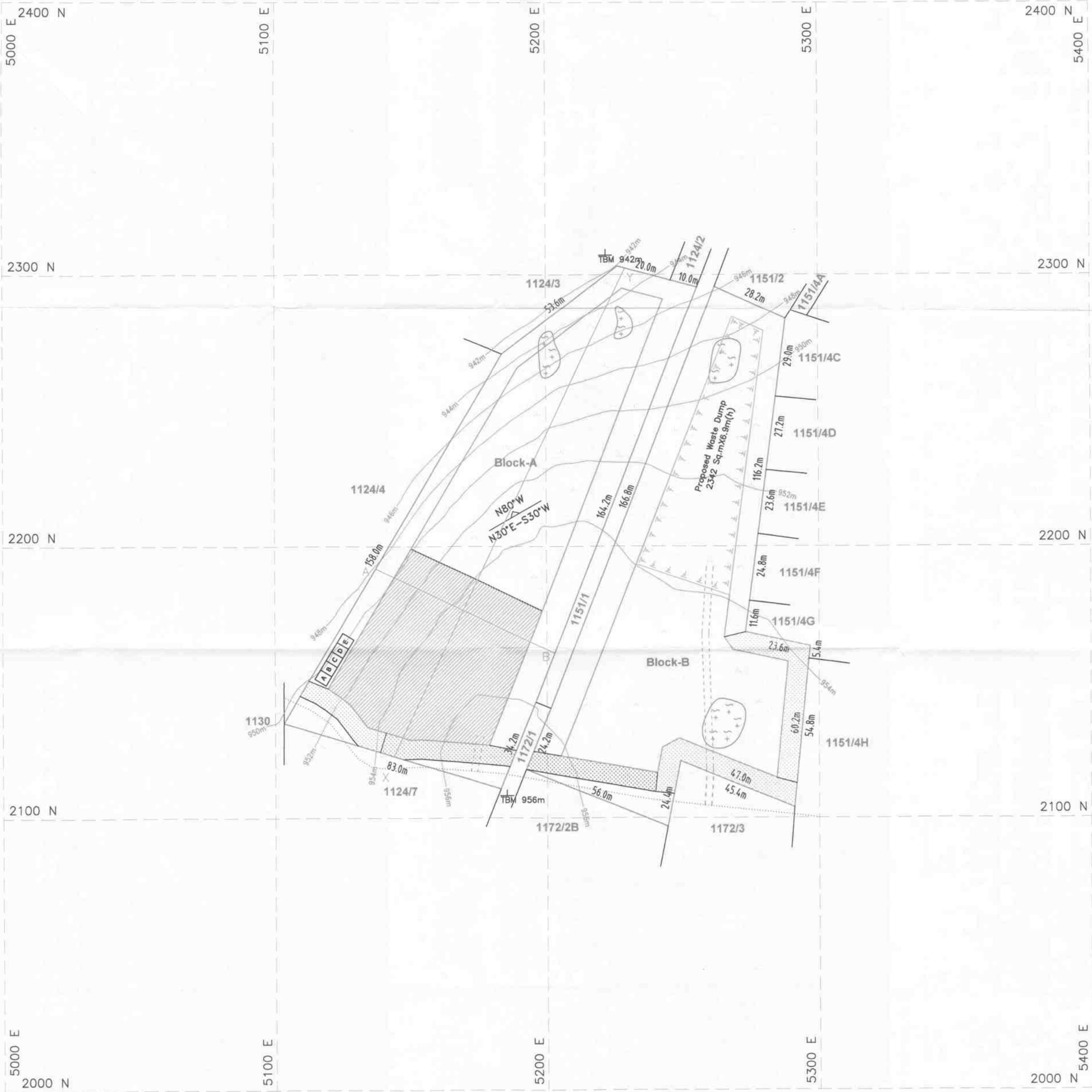


PLATE NO.V
DATE OF SURVEY:16.05.2023

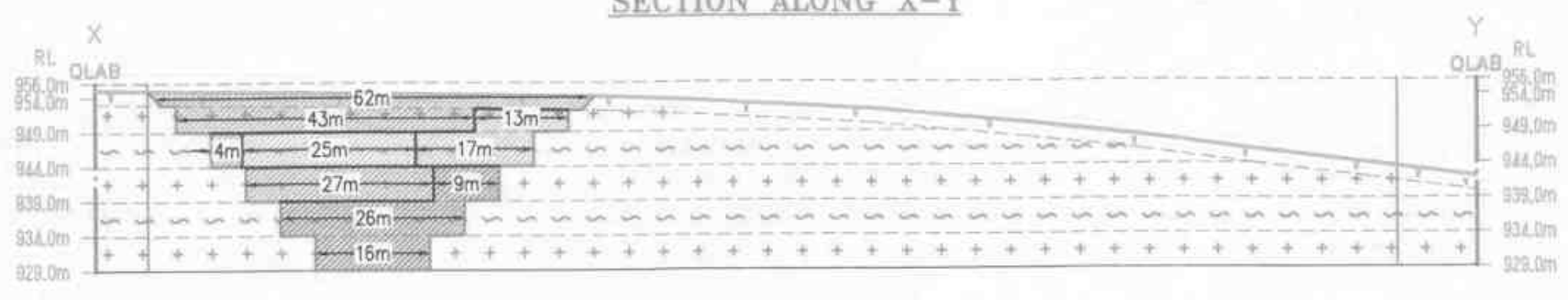
APPLICANT:
Tvl.TOP GRANITES,
OLD No.7,NEW No.FIRST FLOOR,
FIRST STREET,
NORTH GOPALAPURAM,
CHENNAI-600 086.

LOCATION OF QUARRY:
S.F.No.S : 1124/5,6,1151/5,6 and
1172/2A
EXTENT : 2.40.46 Ha,
VILLAGE : IRUDHUKOTTAI,
TALUK : DENKANIKOTTAI,
DISTRICT : KRISHNAGIRI.

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QUARRY LEASE APPLIED BOUNDARY	
7.5m&10m SAFETY DISTANCE	
APPROACH ROAD	
TEMPORARY BENCH MARK	
VILLAGE ROAD	
TOPOGRAPHICAL CONTOUR	
OUT CROPS	
SCRUBS	
STRIKE AND DIP	
TOPSOIL & WEATHERED	
MULTICOLOUR GRANITE	
DUMP	
QUARRY ROAD	

SECTION ALONG X-Y

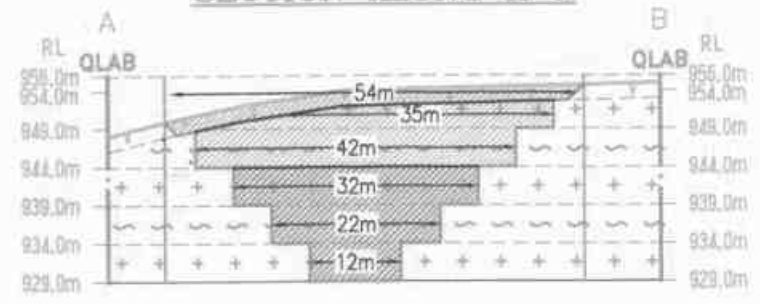


I Yr Afforestation		I Yr EXCAVATION	
II Yr Afforestation		II Yr EXCAVATION	
III Yr Afforestation		III Yr EXCAVATION	
IV Yr Afforestation		IV Yr EXCAVATION	
V Yr Afforestation		V Yr EXCAVATION	

SITE SERVICES

A-OFFICE	
B-FIRST AID ROOM	
C-STORE	
D-REST SHED	
E-TOILET	

SECTION ALONG A-B



(Signature)
DIRECTOR
Department of Geology & Mines
Chennai, Chennai-600 002

154
4/7/2023

YEARWISE DEVELOPMENT AND PRODUCTION PLAN AND SECTIONS 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
(Signature)
P.VISWANATHAN,M.Sc.,
QUALIFIED PERSON
Under Rule 15(i)(a)and(b)of MCR,2018



PLATE NO.VII

DATE OF SURVEY:16.05.2023

APPLICANT:
Tvi.TOP GRANITES,
OLD No.7,NEW No.FIRST FLOOR,
FIRST STREET,
NORTH GOPALAPURAM,
CHENNAI-600 086.

LOCATION OF QUARRY:
S.F.No.S : 1124/5,6,1151/5,6 and
1172/2A
EXTENT : 2.40.46 Ha,
VILLAGE : IRUDHUKOTTAI,
TALUK : DENKANIKOTTAI,
DISTRICT : KRISHNAGIRI.

INDEX

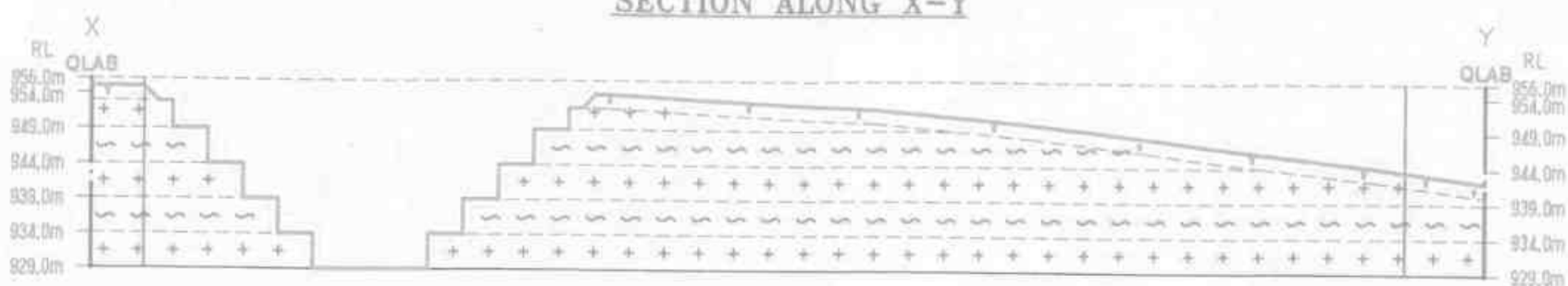
- QUARRY LEASE APPLIED BOUNDARY
- 7.5m&10m SAFETY DISTANCE
- APPROACH ROAD
- TEMPORARY BENCH MARK
- VILLAGE ROAD
- TOPOGRAPHICAL CONTOUR
- OUT CROPS
- SCRUBS
- STRIKE AND DIP
- TOPSOIL & WEATHERED
- MULTICOLOUR GRANITE
- DUMP
- QUARRY ROAD
- QUARRY PIT
- BUND\FENCING
- PROPOSED GARLAND DRAIN

SITE SERVICES
A-OFFICE
B-FIRST AID ROOM
C-STORE
D-REST SHED
E-TOILET

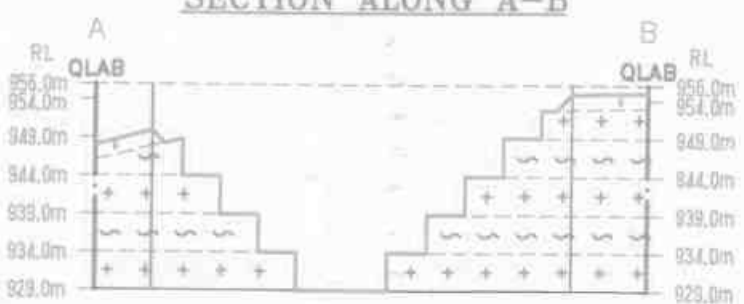
LANDUSE PATTERN

DESCRIPTION	PRESENT AREA (Ha)	AREA TO BE REQUIRED AT THE PRESENT MINING PLAN PERIOD (Ha)	AREA TO BE REQUIRED AT THE END OF LIFE OF QUARRY(Ha)	Color code
AREA UNDER QUARRY	NIL	0.35.75	1.47.30	
DUMPS	NIL	0.23.42	BACK FILLING	
INFRASTRUCTURE	NIL	0.02.00	0.03.00	
ROADS	NIL	0.01.00	0.02.00	
GREEN BELT	NIL	0.19.44	0.79.64	
STICKING BLOCKS	2.40.46	1.58.85	0.08.52	
TOTAL	2.40.46	2.40.46	2.40.46	

SECTION ALONG X-Y



SECTION ALONG A-B



PROGRESSIVE QUARRY CLOSURE PLAN AND SECTIONS

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 LEASEMAP
AUTHENTICATED BY STATE GOVERNMENT

P. Viswanathan
P.VISWANATHAN, M.Sc.,
QUALIFIED PERSON
Under Rule 15(i)(a)and(b)of MCR,2016

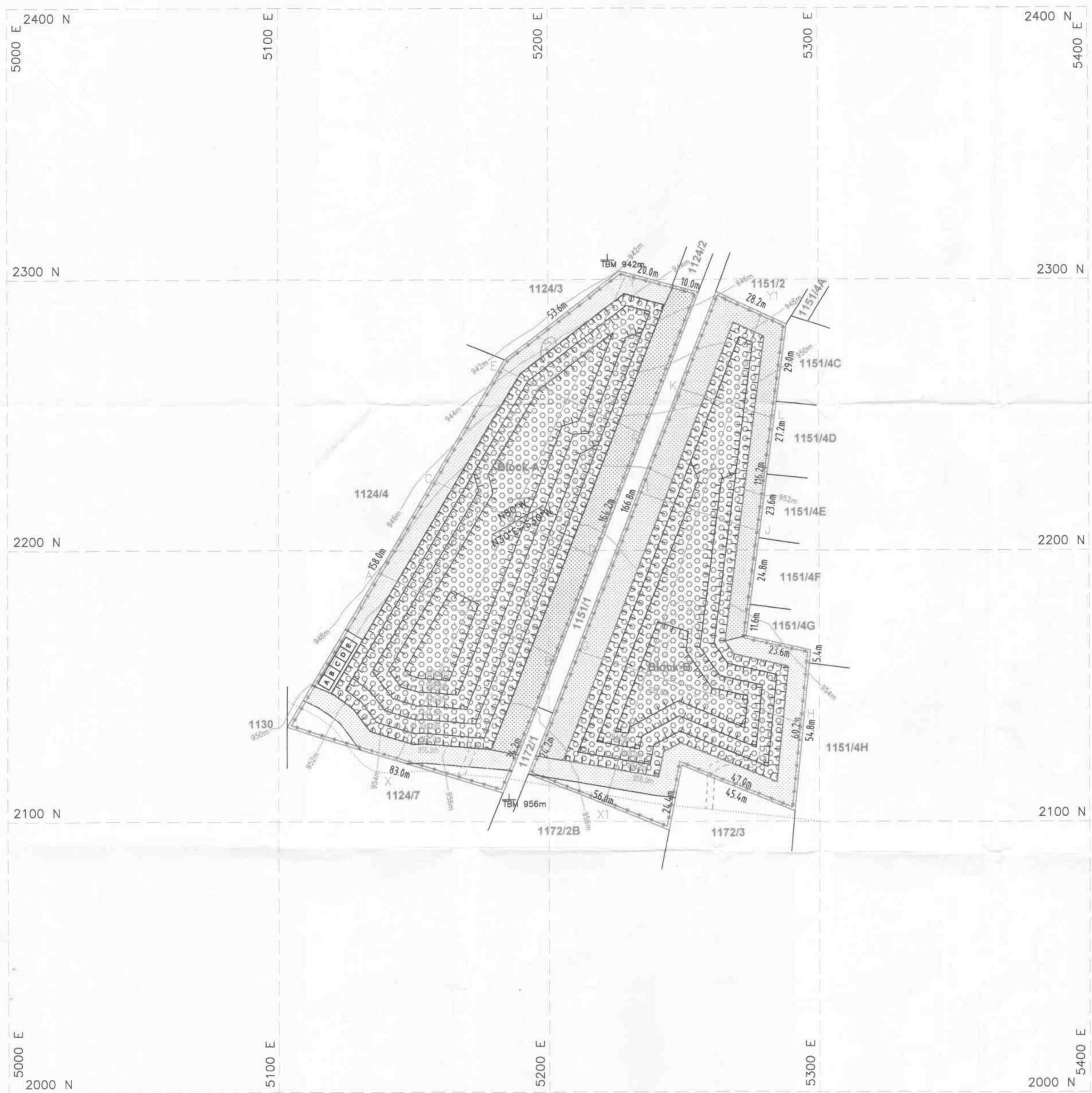


PLATE NO. IX
DATE OF SURVEY: 16.05.2023

APPLICANT:
TVI.TOP GRANITES,
OLD No.7,NEW No.FIRST FLOOR,
FIRST STREET,
NORTH GOPALAPURAM,
CHENNAI-600 086.

LOCATION OF QUARRY:
S.F.No.S : 1124/5,6,1151/5,6 and 1172/2A
EXTENT : 2.40.46 Ha,
VILLAGE : IRUDHUKOTTAI,
TALUK : DENKANIKOTTAI,
DISTRICT : KRISHNAGIRI.

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- QUARRY LEASE APPLIED BOUNDARY
- 7.5m&10m SAFETY DISTANCE
- APPROACH ROAD
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- OUT CROPS
- SCRUBS
- STRIKE AND DIP
- TOPSOIL & WEATHERED
- MULTICOLOUR GRANITE
- QUARRY PIT
- QUARRY ROAD
- BUND/FENCING
- PROPOSED BACKFILLING

CONCEPTUAL PLAN AND SECTIONS 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

P. Viswanathan
P.VISWANATHAN,M.Sc.,
QUALIFIED PERSON
Under Rule 15(i)(a)and(b)of MCR,2016

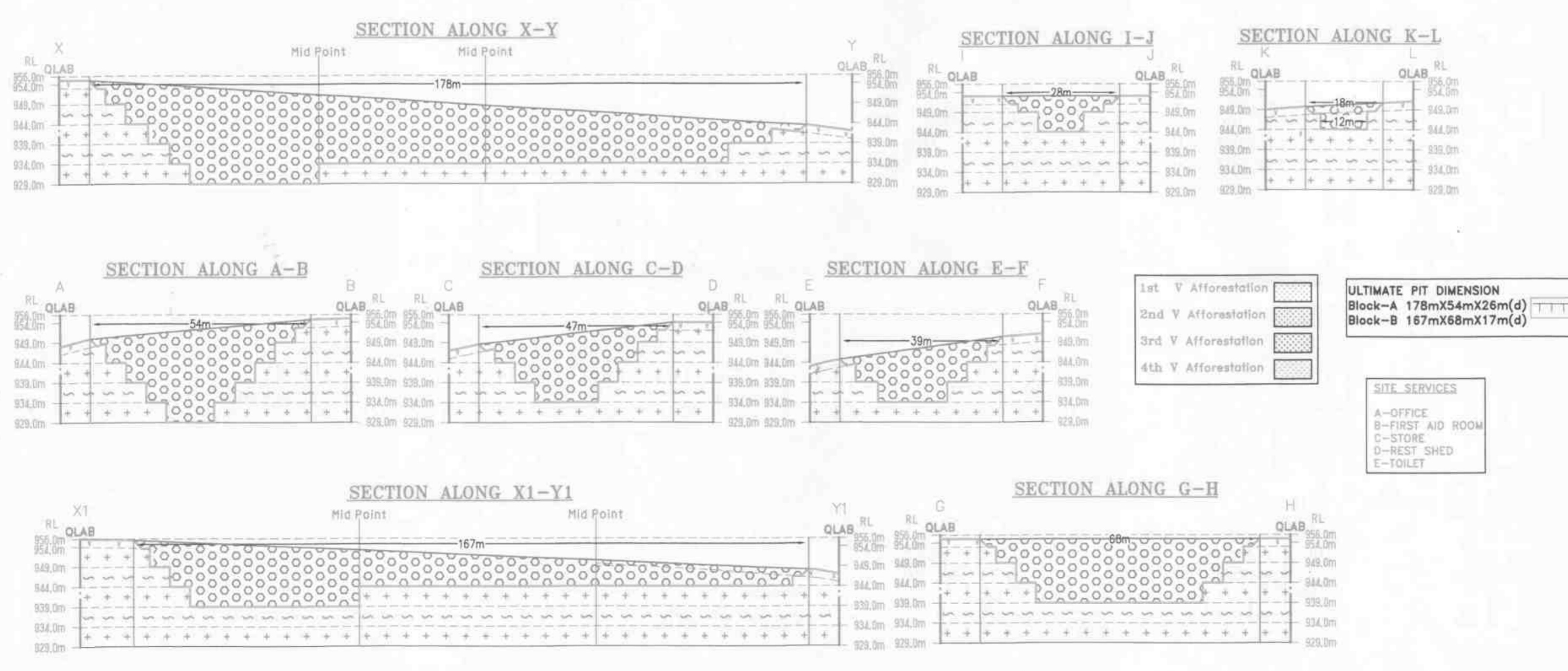




PLATE NO.I-D

DATE OF SURVEY:16.05.2023



APPLICANT:

Tvl.TOP GRANITES,
OLD No.7,NEW No.FIRST FLOOR,
FIRST STREET,NORTH GOPALAPURAM,
CHENNAI-600 086.

LOCATION OF QUARRY:

S.F.No.S : 1124/5,6,1151/5,6 and
1172/2A
EXTENT : 2.40.46 Ha,
VILLAGE : IRUDHUKOTTAI,
TALUK : DENKANIKOTTAI,
DISTRICT : KRISHNAGIRI.

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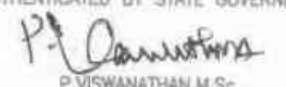
- Q.LEASE BOUNDARY 
- 500m RADIUS 

500m RADIUS SATELLITE IMAGE

SCALE 1:5000

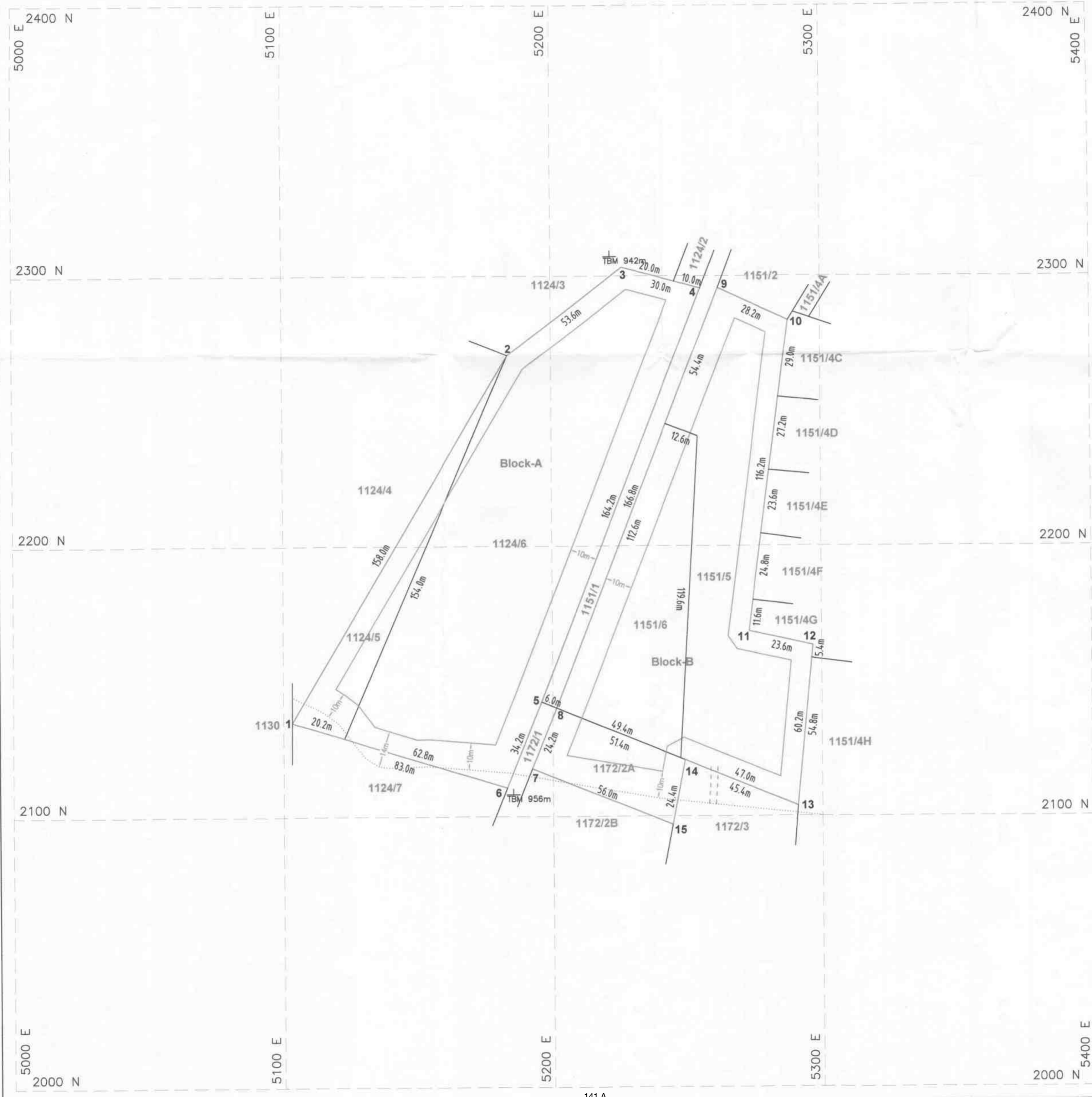
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AUTHENTICATED BY STATE GOVERNMENT



P.VISWANATHAN,M.Sc.,
QUALIFIED PERSON

Under Rule 15(i)(a)and(b)of MCR,2016



BOUNDARY CO-ORDINATES

S.N.	LATITUDE	LONGITUDE
1	12° 25' 42.3253"N	77° 50' 01.3513"E
2	12° 25' 46.7104"N	77° 50' 04.0681"E
3	12° 25' 47.7539"N	77° 50' 05.4876"E
4	12° 25' 47.4918"N	77° 50' 05.4502"E
5	12° 25' 42.5385"N	77° 50' 04.4198"E
6	12° 25' 41.5121"N	77° 50' 03.9832"E
7	12° 25' 41.7380"N	77° 50' 04.2943"E
8	12° 25' 42.4642"N	77° 50' 04.6029"E
9	12° 25' 47.4955"N	77° 50' 06.6654"E
10	12° 25' 47.0955"N	77° 50' 07.5219"E
11	12° 25' 43.3572"N	77° 50' 06.9825"E
12	12° 25' 43.1780"N	77° 50' 07.7665"E
13	12° 25' 41.2511"N	77° 50' 07.5609"E
14	12° 25' 41.6187"N	77° 50' 06.1715"E
15	12° 25' 41.0417"N	77° 50' 06.0080"E

DATUM : UTM - WGS84, ZONE 43N

PLATE NO.II

DATE OF SURVEY: 16.05.2023

APPLICANT:

T.VI.TOP GRANITES,
 OLD No.7, NEW No.FIRST FLOOR,
 FIRST STREET,
 NORTH GOPALAPURAM,
 CHENNAI-600 086.

LOCATION OF QUARRY:

S.F.No.S : 1124/5,6,1151/5,6 and
 1172/2A
 EXTENT : 2.40.46 Ha,
 VILLAGE : IRUDHUKOTTAI,
 TALUK : DENKANIKOTTAI,
 DISTRICT : KRISHNAGIRI.

INDEX

- QUARRY LEASE APPLIED BOUNDARY
- 7.5m&10m SAFETY DISTANCE
- APPROACH ROAD
- TEMPORARY BENCH MARK
- VILLAGE ROAD

QUARRY LEASE PLAN

SCALE 1:1000

PREPARED BY:

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P. Viswanathan
 P.VISWANATHAN, M.Sc.,
 QUALIFIED PERSON

Under Rule 15(1)(a) and (b) of MCR, 2016

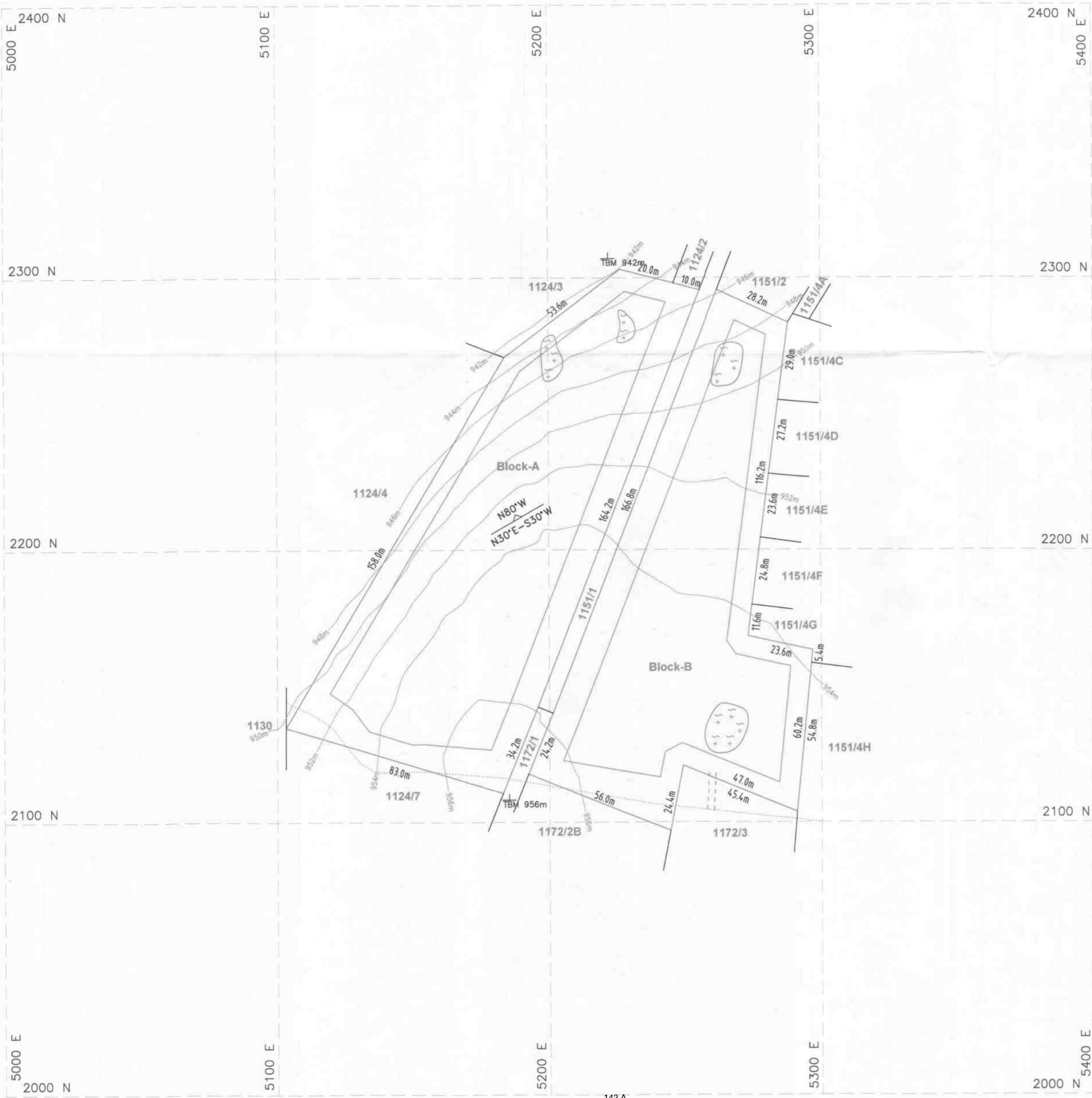


PLATE NO.III

DATE OF SURVEY: 16.05.2023

APPLICANT:

Tvi.TOP GRANITES,
 OLD No.7, NEW No.FIRST FLOOR,
 FIRST STREET,
 NORTH GOPALAPURAM,
 CHENNAI-600 086

LOCATION OF QUARRY:

S.F.No.S : 1124/5,6,1151/5,6 and
 1172/2A
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VILLAGE ROAD	
TOPOGRAPHICAL CONTOUR	
OUT CROPS	
SCRUBS	
STRIKE AND DIP	
TOPSOIL & WEATHERED	

SURFACE PLAN

SCALE 1:1000

PREPARED BY:

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 AUTHENTICATED BY STATE GOVERNMENT

P. Viswanathan
 P.VISWANATHAN,M.Sc.,
 QUALIFIED PERSON

Under Rule 15(i)(a)and(b)of MCR,2016

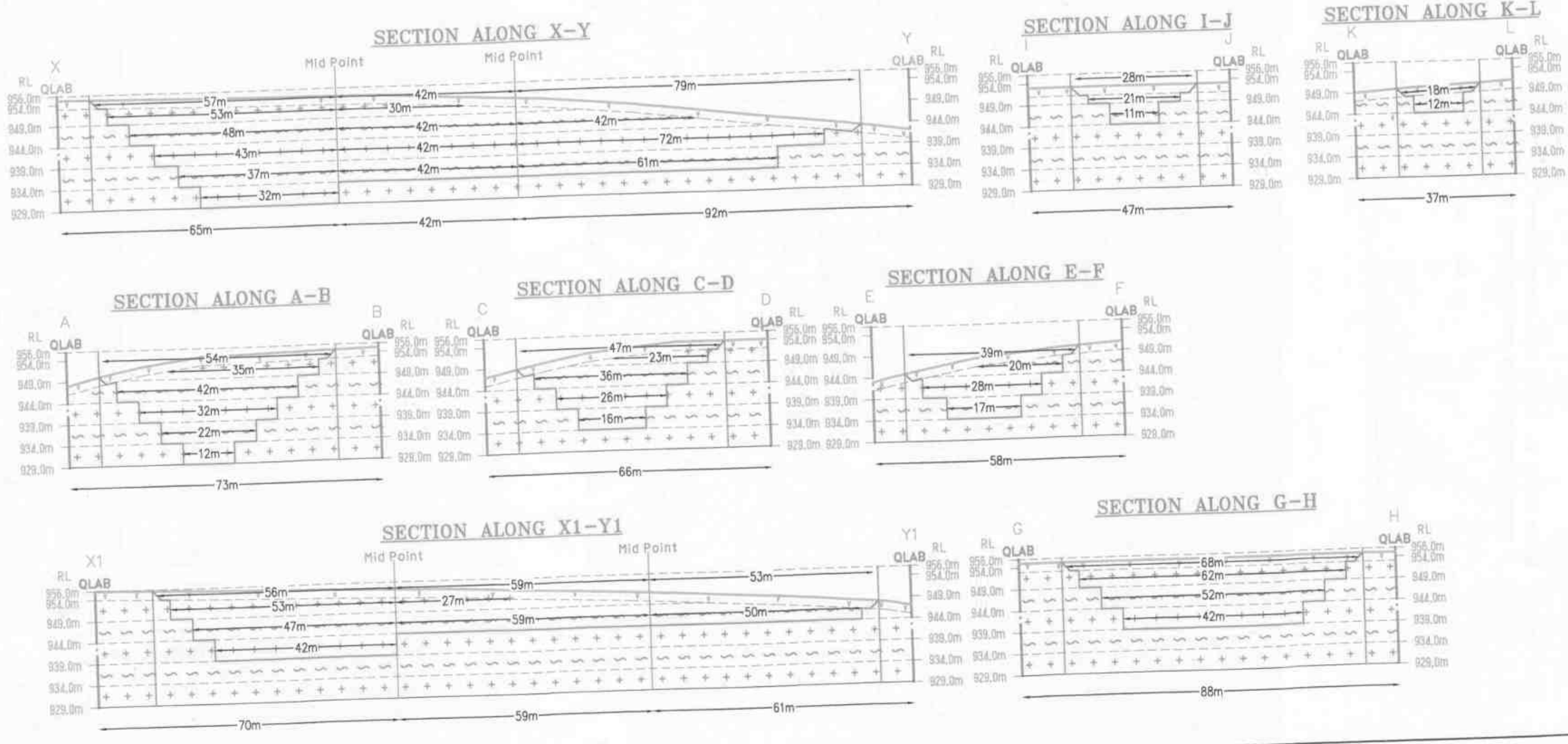
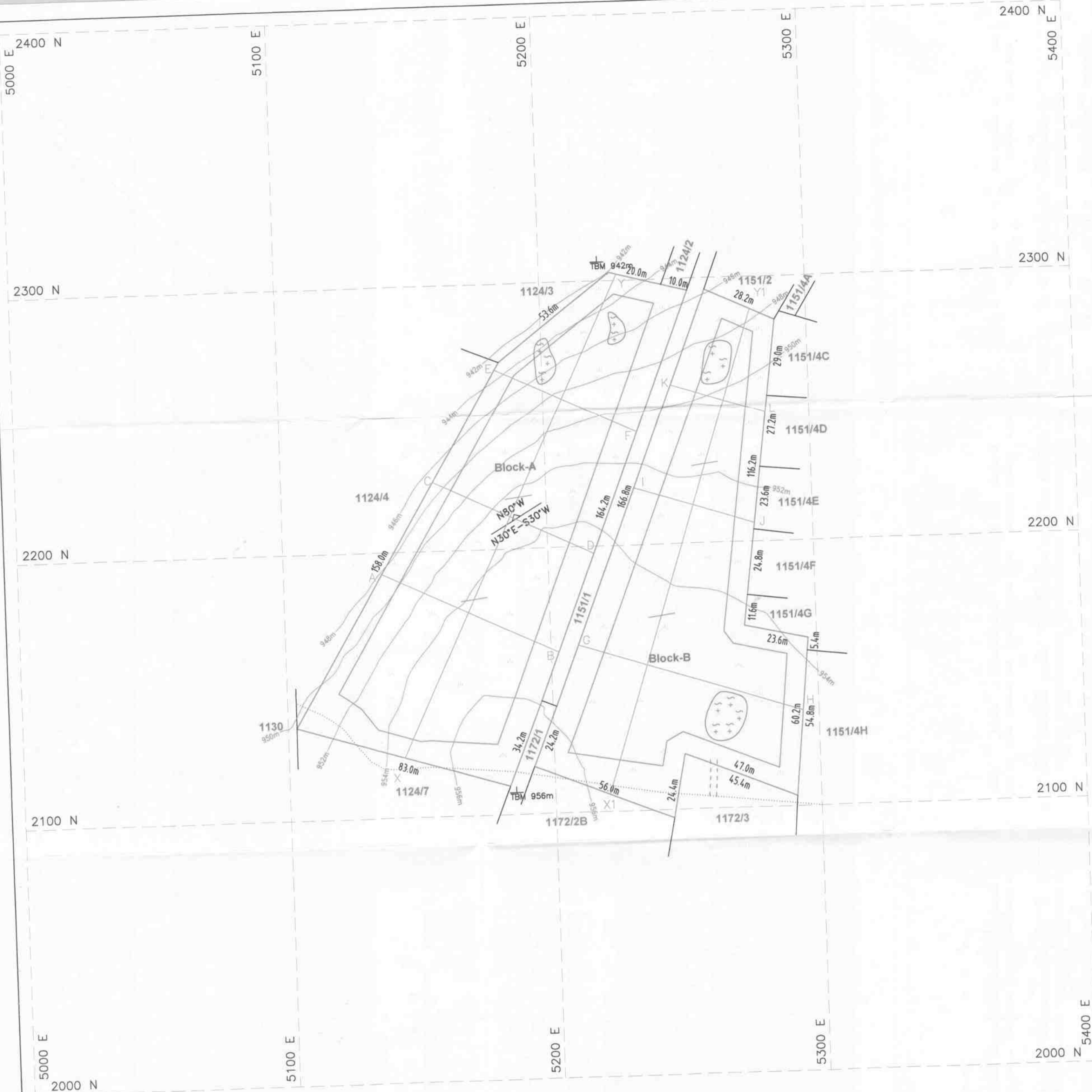


PLATE NO. IV
DATE OF SURVEY: 16.05

APPLICANT:
Tvl. TOP GRANITES,
OLD No.7, NEW No. FIRST FLOOR,
FIRST STREET,
NORTH GOPALAPURAM,
CHENNAI-600 086.

LOCATION OF QUARRY:
S.F.No.S : 1124/5,6,1151/5,
1172/2A
EXTENT : 2.40.46 Ha,
VILLAGE : IRUDHUKOTTAI,
TALUK : DENKANIKOTTAI,
DISTRICT : KRISHNAGIRI.

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QUARRY LEASE APPLIED BOUNDARY
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TEMPORARY BENCH MARK
VILLAGE ROAD
TOPOGRAPHICAL CONTOUR
OUT CROPS
SCRUBS
STRIKE AND DIP
TOPSOIL & WEATHERED
MULTICOLOUR GRANITE

GEOLOGICAL PLAN AND SECTIONS

PREPARED BY:
THIS IS TO CERTIFY THAT THE INFORMATION
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P. Viswanathan
P. VISWANATHAN, M.Sc.,
QUALIFIED PERSON
Under Rule 15(i)(a) and (b) of MCR

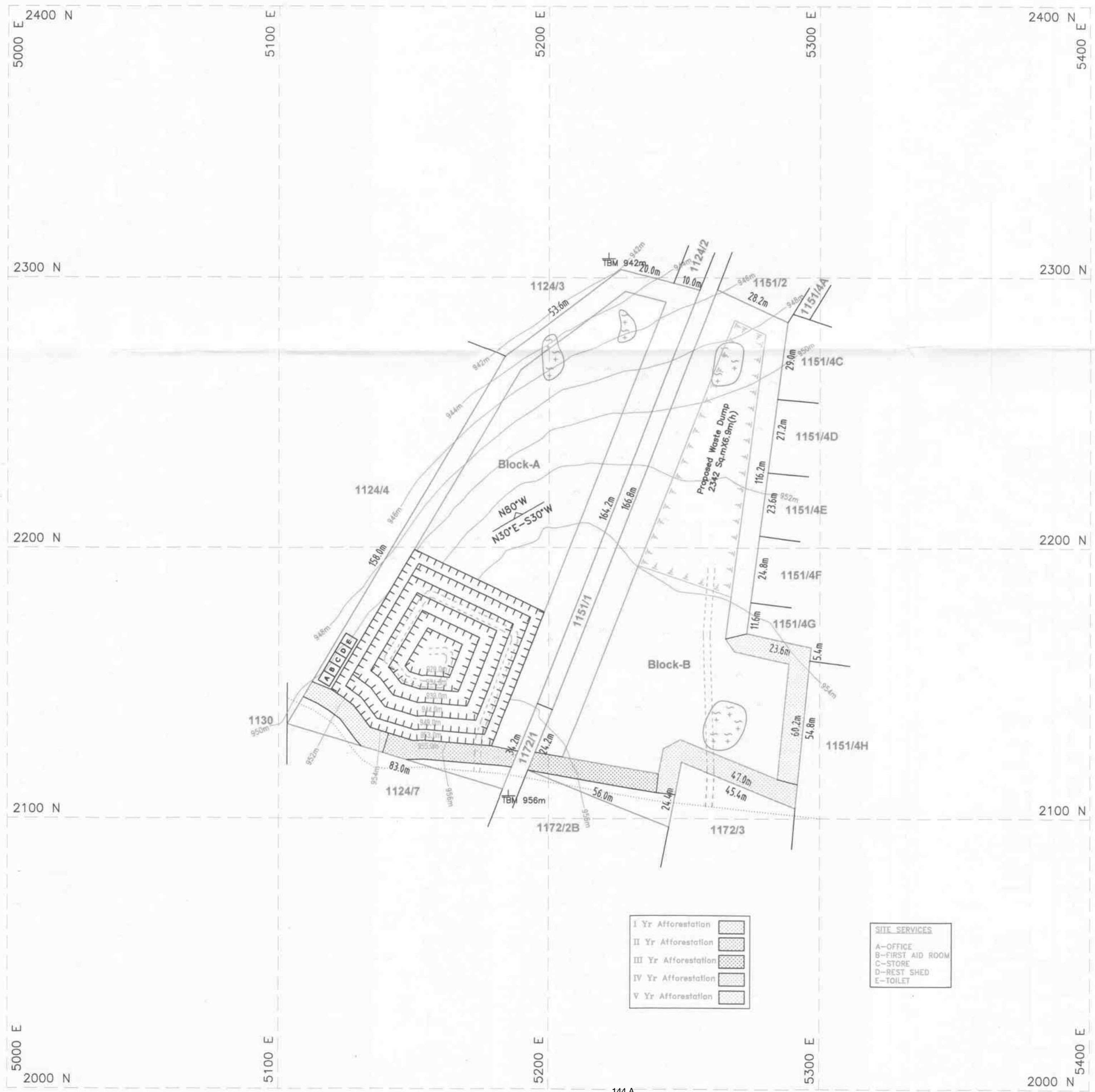


PLATE NO.VI
DATE OF SURVEY:16.05.2023

APPLICANT:
TVI.TOP GRANITES,
OLD No.7,NEW No.FIRST FLOOR,
FIRST STREET,
NORTH GOPALAPURAM,
CHENNAI-600 086.

LOCATION OF QUARRY:
S.F.No.S : 1124/5,6,1151/5,6 and
1172/2A
EXTENT : 240.46 Ha,
VILLAGE : IRUDHUKOTTAI,
TALUK : DENKANIKOTTAI,
DISTRICT : KRISHNAGIRI.

INDEX

QUARRY LEASE APPLIED BOUNDARY	[Symbol]
7.5m&10m SAFETY DISTANCE	[Symbol]
APPROACH ROAD	[Symbol]
TEMPORARY BENCH MARK	[Symbol]
VILLAGE ROAD	[Symbol]
TOPOGRAPHICAL CONTOUR	[Symbol]
OUT CROPS	[Symbol]
SCRUBS	[Symbol]
STRIKE AND DIP	[Symbol]
TOPSOIL & WEATHERED	[Symbol]
MULTICOLOUR GRANITE	[Symbol]
DUMP	[Symbol]
QUARRY ROAD	[Symbol]
QUARRY PIT	[Symbol]

I Yr Afforestation	[Symbol]
II Yr Afforestation	[Symbol]
III Yr Afforestation	[Symbol]
IV Yr Afforestation	[Symbol]
V Yr Afforestation	[Symbol]

SITE SERVICES

A-OFFICE
B-FIRST AID ROOM
C-STORE
D-REST SHED
E-TOILET

QUARRY LAYOUT AND AFFORESTATION PLAN
SCALE 1:1000

PREPARED BY:
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AUTHENTICATED BY STATE GOVERNMENT
P. Viswanathan
P.VISWANATHAN,M.Sc.,
QUALIFIED PERSON
Under Rule 15(i)(a)and(b)of MCR,2016

OCTOBER TO DECEMBER

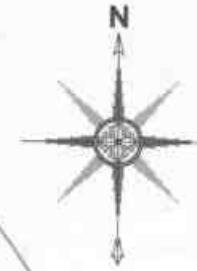


PLATE NO.VIII

DATE OF SURVEY:16.05.2023

APPLICANT:

Tvl.TOP GRANITES,
OLD No.7,NEW No.FIRST FLOOR,
FIRST STREET,NORTH GOPALAPURAM,
CHENNAI-600 086.

LOCATION OF QUARRY:

S.F.No.S : 1124/5,6,1151/5,6 and
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EXTENT : 2.40.46 Ha,
VILLAGE : IRUDHUKOTTAI,
TALUK : DENKANIKOTTAI,
DISTRICT : KRISHNAGIRI.

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Q.LEASE BOUNDARY



60M RADIUS



500m RADIUS



WIND DIRECTION



TREES



PANCHAYAT ROAD



APPROACH ROAD



AGRICULTURAL LAND



QUARRY PIT



DUMP



HABITATION



ENVIRONMENTAL PLAN

SCALE 1:5000

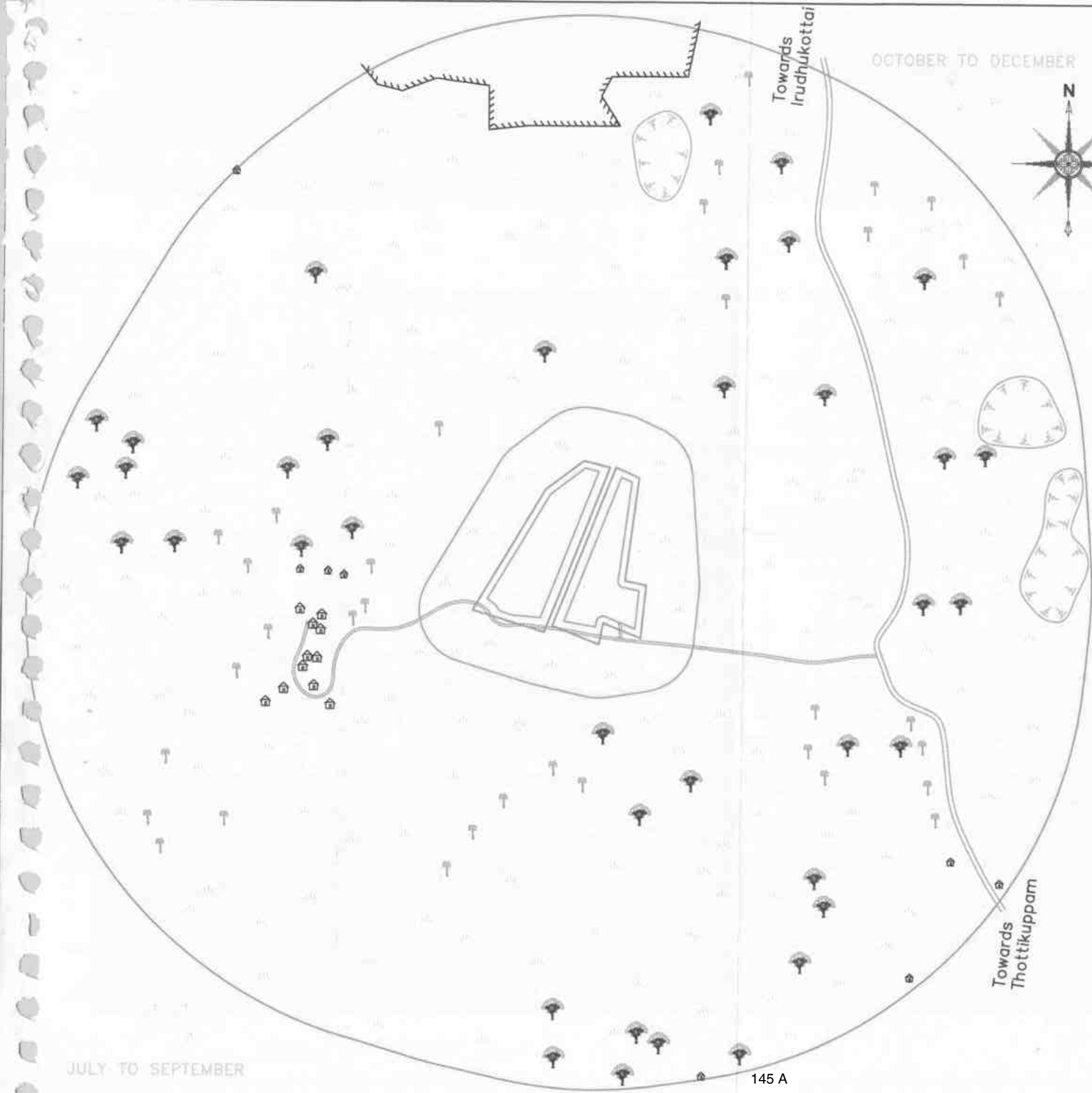
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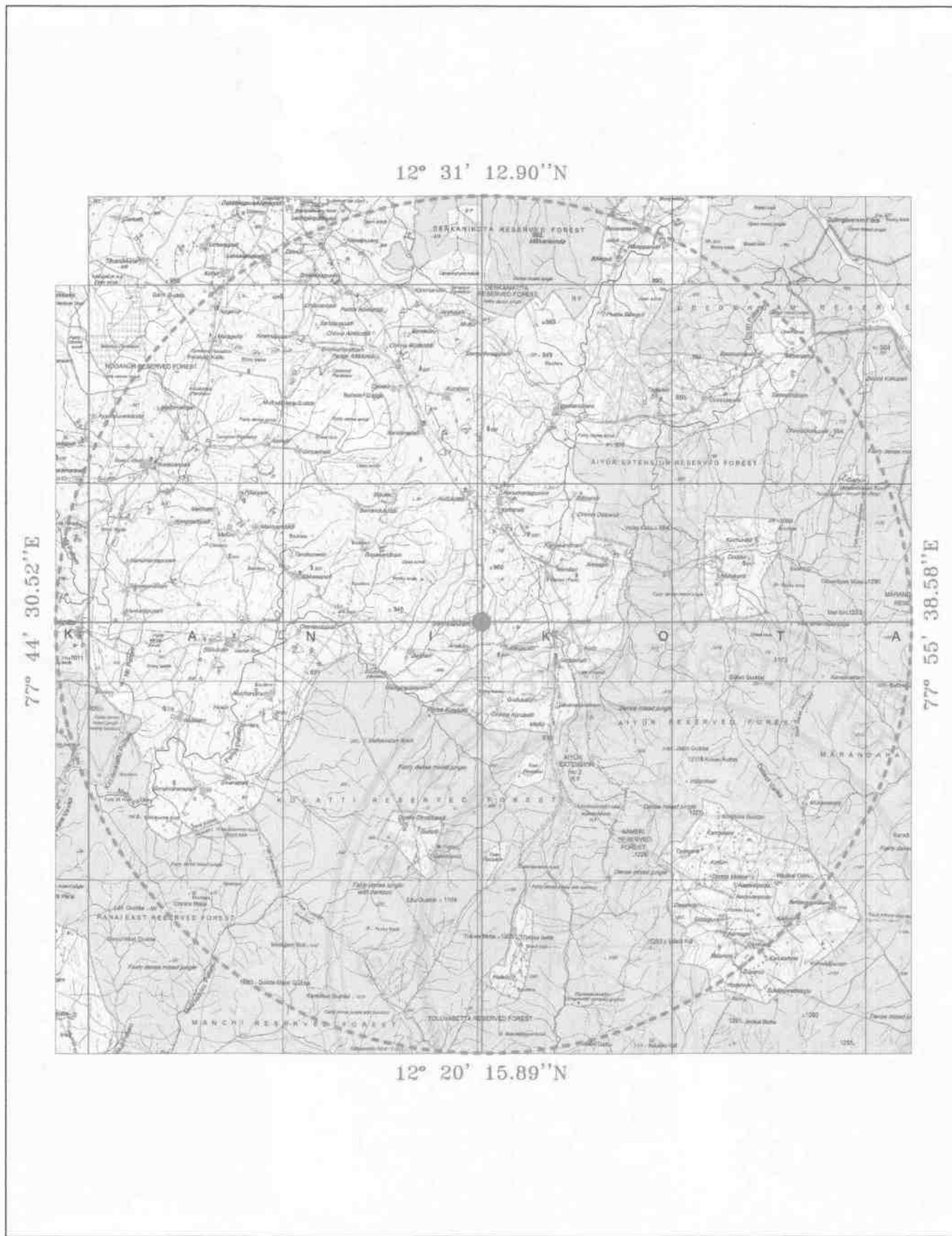
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AUTHENTICATED BY STATE GOVERNMENT

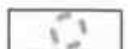

P. Viswanathan

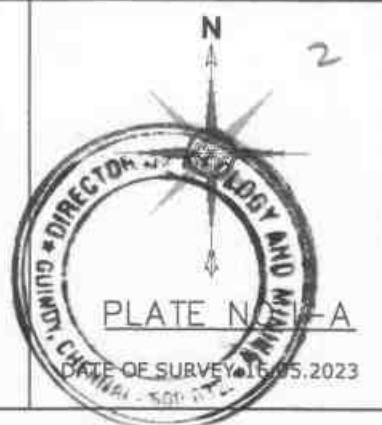
P.VISWANATHAN,M.Sc.,
QUALIFIED PERSON
Under Rule 15(1)(a)and(b)of MCR,2016

JULY TO SEPTEMBER





TOPO SHEET NO. : 57 H/15
 LATITUDE : 12° 25' 41.0417"N to 12° 25' 47.7539"N
 LONGITUDE : 77° 50' 01.3513"E to 77° 50' 07.7665"E
 10KM RADIUS : 
 Q.L.A. BOUNDARY : 



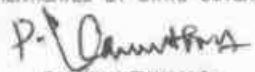
APPLICANT:
 Tvi.TOP GRANITES,
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 FIRST STREET,
 NORTH GOPALAPURAM,
 CHENNAI-600 086.

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 VILLAGE : IRUDHUKOTTAI,
 TALUK : DENKANIKOTTAI,
 DISTRICT : KRISHNAGIRI.

INDEX

CONVENTIONAL SYMBOLS	
Express highway: with toll, with bridge, with distance stone	
Roads, metalled, according to importance	
Roads, double carriageway according to importance	
Unmetalled road, Cart-track, Pack-track with pass, Foot-path	
Streams, with track in bed, unlined, Canal	
Dams, masonry or rock-filled, earthwork, Weir	
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 gauge: double, single with station, under constn.	
Railways, other gauges: double, single with distance stone, do.	
Mineral line or tramway, Kin, Cutting with tunnel	
Contours with sub-features, Rocky slopes, Cliffs	
Sand features (1)flat, (2)sand-hills(permanent), (3)dunes(shifting)	
Towns or Villages, inhabited, deserted, Fort	
Huts, permanent, temporary, Tower, Antiquities	
Temple, Chattr, Church, Mosque, Idgah, Tomb, Graves	
Lighthouse, Lightship, Buoys: lighted, unlighted, Anchorage	
Mine, Vine on belts, Grass, Scrub	
Plains: palms; other, Plantain, Conifer, Bamboo, Other trees	
Areas: cultivated, wooded, Surveyed tree	
Boundary, international	
state: demarcated, undemarcated	
district: subdivision, taluk or taluk, forest	
Boundary pillars: surveyed, unlocated	
Heights: triangulated, station, point, approximate	
Bench-mark: geodetic, tertiary, canal	
Post office, Telegraph office, Overhead tank	
Rest house or inspection bungalow, Circuit house, Police station	
Camping ground, Forest: reserved, protected	
Spaced names: administrative, locality or tribal	
Hospital, Dispensary, Veterinary, Hospital/Dispensary	
Aerodrome: Helipad, Tourist site	
Power line: with pylons surveyed, with poles unsurveyed	

KEY PLAN
 SCALE- 1:100000

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

 P. VISWANATHAN, M.Sc.,
 QUALIFIED PERSON
 Under Rule 15(1)(a) and (b) of MCR, 2016

LAND USE PATTERN	
DESCRIPTION	%
ROADS	(15%)
HABITATION	(05%)
AGRICULTURAL LAND	(65%)
TREES	(10%)
HILL LOCK AREA	(05%)

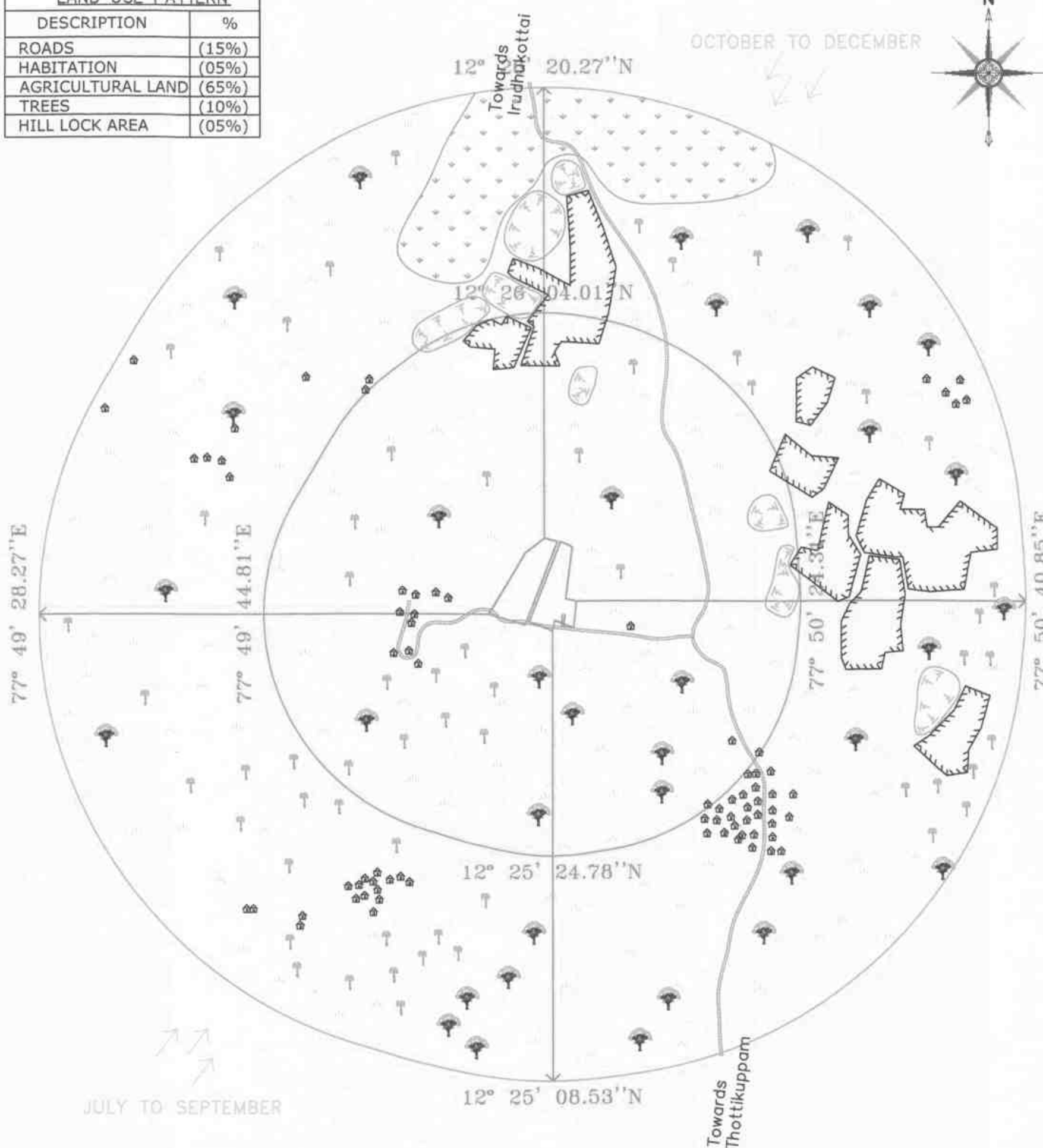


PLATE NO.I-C
DATE OF SURVEY:16.05.2023



APPLICANT:

Tvl.TOP GRANITES,
OLD No.7,NEW No.FIRST FLOOR,
FIRST STREET,
NORTH GOPALAPURAM,
CHENNAI-600 086.

LOCATION OF QUARRY:

S.F.No.S : 1124/5,6,1151/5,6 and
1172/2A
EXTENT : 2.40.46 Ha,
VILLAGE : IRUDHUKOTTAI,
TALUK : DENKANIKOTTAI,
DISTRICT : KRISHNAGIRI.

TOPO SHEET NO. : 57 H/15

LATITUDE :12° 25' 41.0417"N to 12° 25' 47.7539"N

LONGITUDE :77° 50' 01.3513"E to 77° 50' 07.7665"E

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Q.LEASE APPLIED BOUNDARY	
1KM RADIUS	
500m RADIUS	
WIND DIRECTION	
TREES	
PANCHAYAT ROAD	
APPROACH ROAD	
AGRICULTURAL LAND	
HABITATION	
HILLOCK	
QUARRY PIT	
DUMP	

ENVIRONMENTAL AND LANDUSE PLAN FOR 1KM RADIUS

SCALE 1:10000

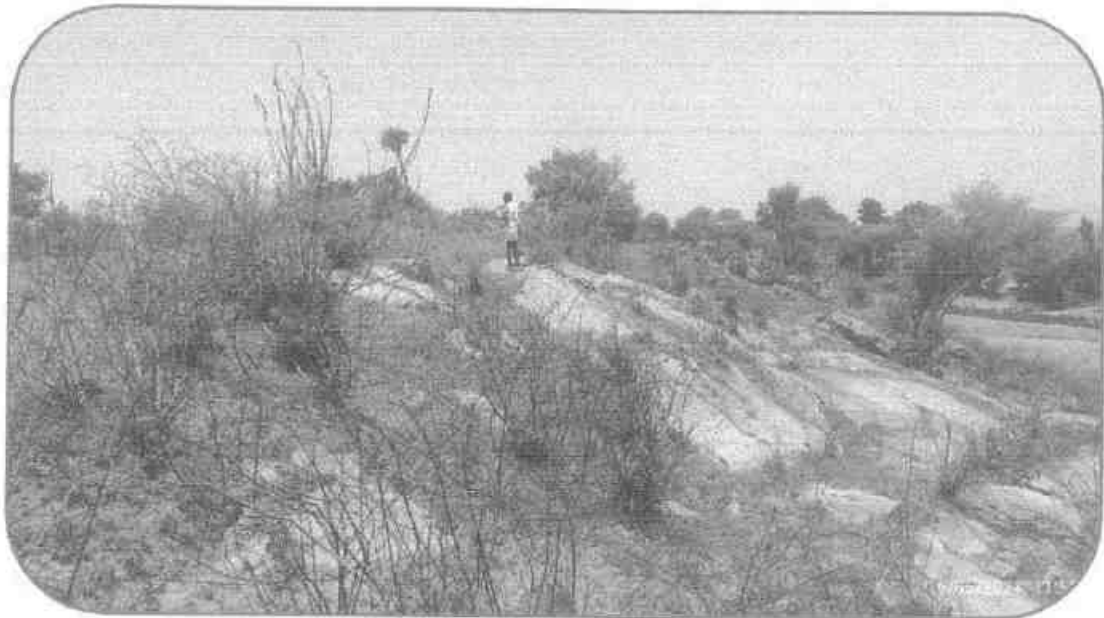
PREPARED BY:

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

P. Viswanathan

P.VISWANATHAN,M.Sc.,
QUALIFIED PERSON
Under Rule 15(1)(a)and(b)of MCR,2016

**TOPOGRAPHICAL VIEW OF IRUDHUKOTTAI MULTI COLOUR GRANITE
QUARRY LEASE APPLIED AREA**




NAME OF THE APPLICANT WITH ADDRESS

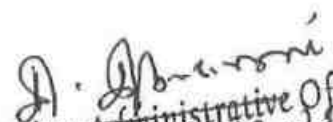
Name : **TVL. TOP GRANITES,**
Address : Old No. 7, New No.16, First Floor,
First Street, North Gopalapuram,
Chennai,
Tamil Nadu State – 600 086.

LOCATION OF THE AREA:

Extent : 2.40.46 Hectares
S.F.Nos. : 1124/5, 1124/6, 1151/5, 1151/6 and 1172/2A
Village : Irudhukottai
Taluk : Denkanikottai
District : Krishnagiri

Signature of the applicant
For Tvl. Top Granites,


(U. Rajagopal)
Partner


Village Administrative Officer
(Village Administrative Office),
IRUDHUKOTTAI (Village),
DENKANIKOTTAI (Tk), KRISHNAGIRI Dist.

Hydrogeological Report for
Multi Colour Granite Quarry Over an extent of 2.40.46Ha of
Patta lands in S.F.Nos. 1124/5, 1124/6, 1151/5, 1151/6 and
1172/2A of Irudhukottai Village, Denkanikottai Taluk,
Krishnagiri District, Tamilnadu

HYDROGEOLOGICAL REPORT FOR IRUDHUKOTTAI

MULTI COLOUR GRANITE QUARRY

1. INTRODUCTION

Name of the Applicant with Address-

Name of the applicant : **Tvl. Top Granites**
Address with contact Number: Old No. 7, New No.16, First Floor,
First Street
North Gopalapuram
Chennai
State : Tamil Nadu
Pin code : 600 086
Phone : +91 90432 61426 and 98431 45292
E-mail ID : rasaulaganathan@gmail.com.
Aadhaar No. : 5358 9671 9942 (Refer annexure Nos. XI).

Details of the Area-

Land Classification : Patta Land
Survey No : 1124/5, 1124/6, 1151/5, 1151/6 and 1172/2A
Extent in Hectares : 2.40.46Ha
Village : Irudhukottai
Taluk : Denkanikottai
District : Krishnagiri

The Client requires detailed information on Ground Water Occurrences at Proposed Project Site of Multi 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. 57H/15. The area lies between the Latitudes of 12°25'41.0417"N to 12°25'47.7539"N and Longitudes of 77°50'01.3513"E to 77°50'07.7665"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.

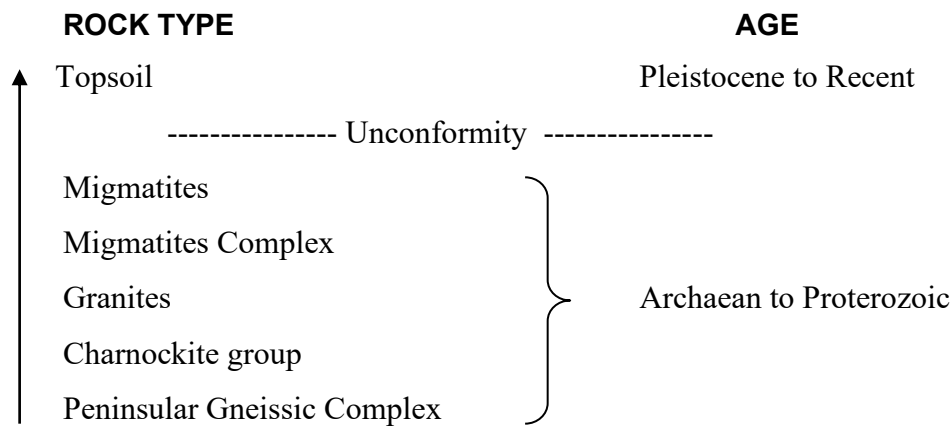
The Charnockite Group occupies a major part of the south-west portion of this district with small bands of Garnetiferous quartzo-feldspathic gneiss, Granite gneiss and dolerite dykes. The North-East and Northern part of the District mainly consist of granite gneiss with small patches of Pink Migmatite, 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. The Guthrayan Durg 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,

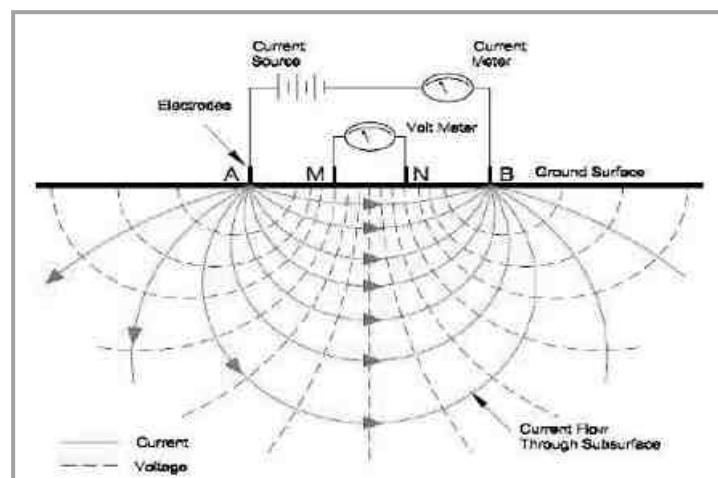
$$R = dV/I \text{ (Ohm)}$$

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:

$$R_s = (A/L) * (dV/I) \text{ (in Ohm m)}$$

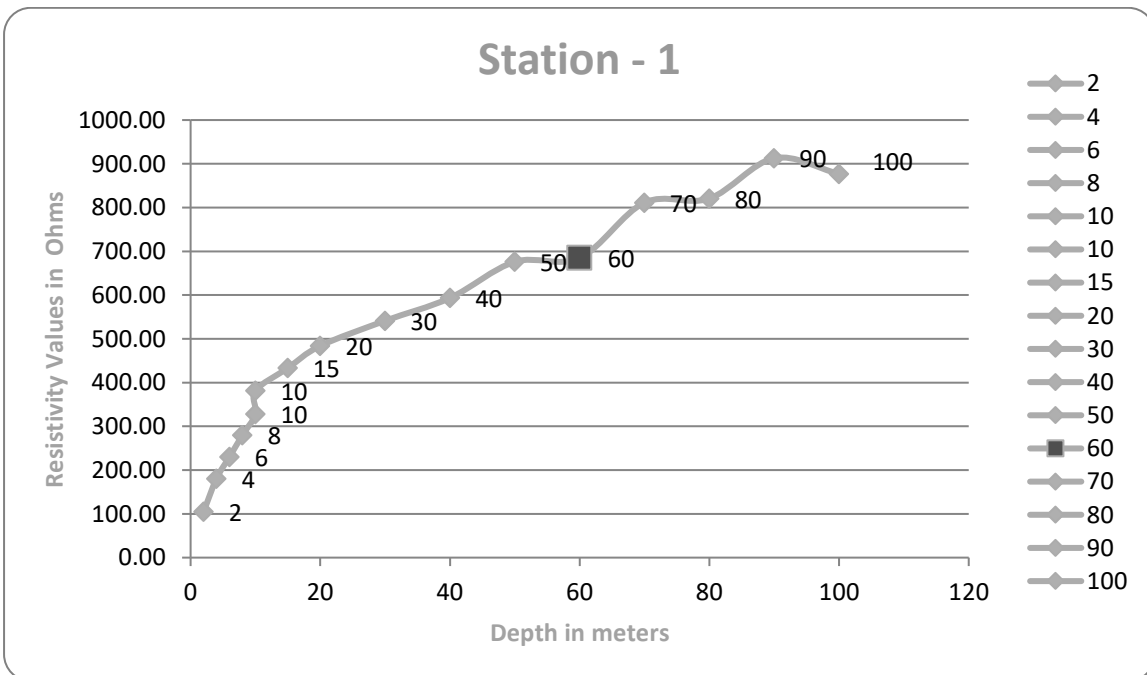
Vertical Electrical Sounding (VES)

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 subsurface is obtained. The depths and resistivity values provide the hydro geologist with information on the geological layering and thus the occurrence of groundwater.



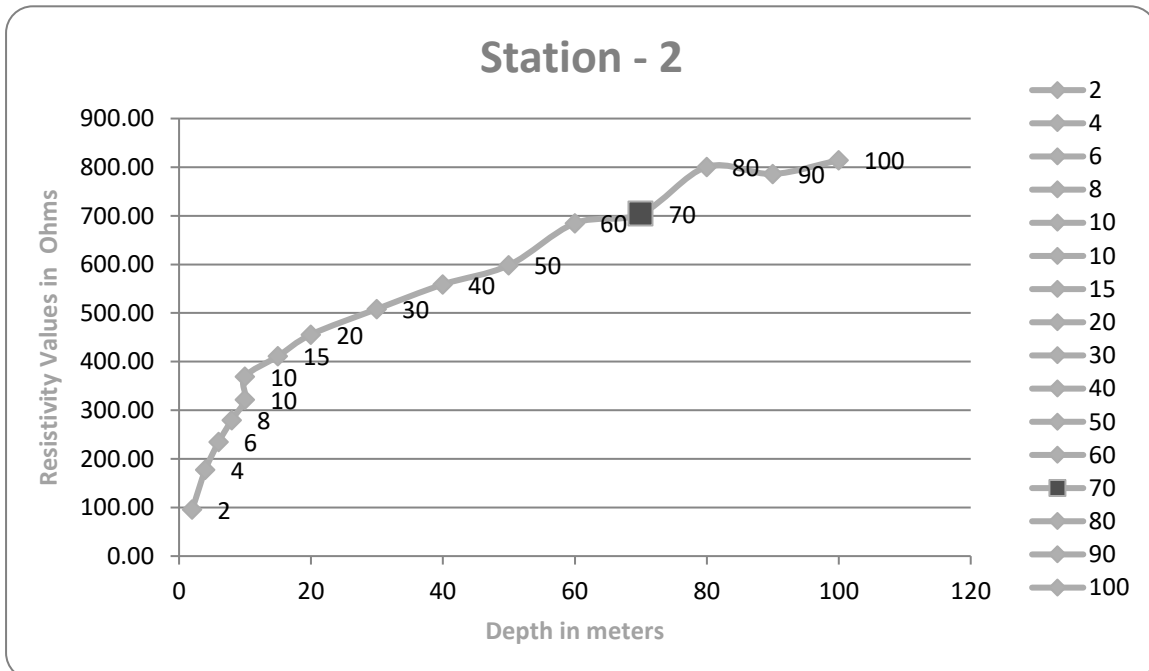
Vertical Electrical Sounding data's and Diagram

STATION-1					
GPS Coordinates - 12°25'41.0417"N 77°50'01.3513"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.

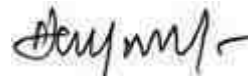
STATION-2					
GPS Coordinates - 12°25'47.7539"N 77°50'07.7665"E					
S.No	Ab/2(m)	Mn/2(m)	Geometrical factor (G)	Resistance Value in Ohms	Apparent Resistance in Ohms
1	2	1	4.71	20.35	95.85
2	4	1	23.55	7.55	177.80
3	6	1	54.95	4.27	234.64
4	8	1	98.91	2.83	279.92
5	10	1	155.45	2.07	321.78
6	10	5	23.55	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 26m which will have no impact on the Ground Water.



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Govt. Approved Hydro Geologist

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Mobile: +91 - 94433 56539

E-Mail: ifogeoexploration@gmail.com



அனுப்புநர்

பெறுநர்

மாவட்ட ஆட்சியர்,
கிருஷ்ணகிரி மாவட்டம்.

சார் ஆட்சியர்,
ஓசூர்.

ந.க.எண். 1133/2021/கனிமம் நாள். 10.2021.

அய்யா,

பொருள்: கனிமங்களும் குவாரிகளும் - பலவண்ண கிராணைட் - கிருஷ்ணகிரி மாவட்டம் - தேன்கனிக்கோட்டை வட்டம் - இருதுகோட்டை கிராமம் பட்டா புல எண்கள். 1124/5(0.16.00), 1124/6(1.10.90), 1151/5(0.64.00), 1151/6(0.36.50) மற்றும் 1172/2A(0.12.90) மொத்த விஸ்தீரணம் 2.40.46 ஹெக்டேர் பரப்பளவில் பலவண்ண கிராணைட் வெட்டியெடுக்க இருபது ஆண்டுகளுக்கு குவாரி குத்தகை அனுமதி தி/ள்.டாப் கிராணைட்ஸ் நிறுவனத்தினர் விண்ணப்பம் செய்துள்ளது - புலத்தணிக்கை மற்றும் நில உடமை குறித்த பரிந்துரை அறிக்கை கோருதல் - தொடர்பாக.

பார்வை: தி/ள்.டாப் கிராணைட்ஸ் பழைய எண். 7, புதிய எண். 16 முதல் தளம், முதல் தெரு, வடக்கு கோபாலபுரம், சென்னை - 600 086 என்பவர் விண்ணப்பம் நாள்:06.10.2021.

தி/ள்.டாப் கிராணைட்ஸ் பழைய எண். 7, புதிய எண். 16 முதல் தளம், முதல் தெரு, வடக்கு கோபாலபுரம், சென்னை - 600 086 என்பவர் - தேன்கனிக்கோட்டை வட்டம் - இருதுகோட்டை கிராமம் பட்டா புல எண்கள். 1124/5(0.16.00), 1124/6(1.10.90), 1151/5(0.64.00), 1151/6(0.36.50) மற்றும் 1172/2A(0.12.90) மொத்த விஸ்தீரணம் 2.40.46 ஹெக்டேர் பரப்பளவில் பலவண்ண கிராணைட் 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 கீழ்கண்ட இனங்கள் சம்பந்தமான குறிப்புகள் அடங்கிய விவரங்களுடன் பரிந்துரை அறிக்கையினை அனுப்புமாறு கேட்டுக்கொள்கிறேன்.

1. குவாரி குத்தகை கோரியுள்ள புலங்களிலிருந்து குடியிருப்பு பகுதிகள் எவில் 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.

(21/3)

08.11.21

மாவட்ட ஆட்சியருக்காக,
கிருஷ்ணகிரி.

நகல்:

1. வட்டாட்சியர், தேன்கனிக்கோட்டை. } இணைப்புகளுடன் அறிக்கையை ஓசூர், வருவாய் கோட்டாட்சியர் மூலமாக அனுப்பிவைக்குமாறு தெரிவிக்கப்படுகிறது.
2. தி/ள்.டாப் கிராணைட்ஸ், பழைய எண். 7, புதிய எண். 16 முதல் தளம், முதல் தெரு, வடக்கு கோபாலபுரம், சென்னை - 600 086.

அனுப்பப்பட்டது
நாள்: 21/11/21

1133/2021

1237/2022

ஆய்வுப்பதல்
திருமதி.வ.தேன்மொழி,பி.ஏ.,
வருவாய் கோட்டாட்சியர்,
ஓசூர்.

பெறுதல்
மாவட்ட ஆட்சியர்,
கிருஷ்ணகிரி.

ந.க.3518/2022/பி2

நாள்: 22.07.2022



ஐயா.

பொருள் : கனிமங்களும் குவாரிகளும்: கிருஷ்ணகிரி மாவட்டம், தேன்கணிக்கோட்டை வட்டம் மற்றும் உள்வட்டம், இருதுக்கோட்டை கிராம பட்டா புல எண்கள் 1124/5(0.16.00), 1124/6(1.11.00), 1151/5(0.64.00), 1151/6(0.36.50) மற்றும் 1172/2ஏ(0.12.96) மொத்த விஸ்தீரணம் 2.40.46 ஹெக்டேர் பரப்பளவில் பல வண்ண கிராணைட் வெட்டியெடுக்க இருபது ஆண்டுகளுக்கு குவாரி குத்தகை அனுமதி கோரி தி/ள் டாப் கிராணைட்ஸ் நிறுவனத்தினர் மனு செய்தது முன்மொழிவுகள் அனுப்பதல் தொடர்பாக.

பார்வை : 1.கிருஷ்ணகிரி மாவட்ட ஆட்சியர் அலுவலக
ந.க.1133/2021/கனிமம் நாள்: 08.10.2021.
2.தேன்கணிக்கோட்டை வட்டாட்சியரின் ந.க.751/2022/அ1
நாள்: 08.07.2022.

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கிருஷ்ணகிரி மாவட்டம், தேன்கணிக்கோட்டை வட்டம் மற்றும் உள்வட்டம் இருதுக்கோட்டை கிராம பட்டா புல எண்கள் 1124/5(0.16.00), 1124/6(1.11.00), 1151/5(0.64.00), 1151/6(0.36.50) மற்றும் 1172/2ஏ(0.12.96) மொத்த விஸ்தீரணம் 2.40.46 ஹெக்டேர் பரப்பளவில் பல வண்ண கிராணைட் வெட்டியெடுக்க இருபது ஆண்டுகளுக்கு தி/ள் டாப் கிராணைட்ஸ் நிறுவனத்தினர் குவாரி குத்தகை அனுமதி கோரியது தொடர்பாக புலத்தணிக்கை மற்றும் விசாரணை மேற்கொண்டு பார்வை-2ல் தேன்கணிக்கோட்டை வட்டாட்சியர் கீழ்க்கண்டவாறு அறிக்கை சமர்ப்பித்துள்ளார்.

கிருஷ்ணகிரி மாவட்டம், தேன்கணிக்கோட்டை வட்டம் மற்றும் உள்வட்டம், இருதுக்கோட்டை கிராம நில உடமை மேம்பாடு திட்டத்தின் புல எண்கள் 1124/5 விஸ்தீரணம் (0.16.00) ஹெக்டேர் தீர்வை 0.62 கொண்ட நிலம் பட்டா எண்:1027-ல் ரா.முனிரத்தனம்மா என்பவர் பெயரிலும், 1124/6 விஸ்தீரணம் (1.11.00) ஹெக்டேர் தீர்வை 0.62 கொண்ட நிலம் பட்டா எண்: 1169-ல் கு.ராதாகிருஷ்ணன் என்பவர் பெயரிலும், 1151/5 விஸ்தீரணம் (0.64.00) ஹெக்டேர் தீர்வை 1.09 கொண்ட நிலம் பட்டா எண்:188-ல் ச.குள்ளப்பா என்பவர் பெயரிலும், 1151/6 விஸ்தீரணம் (0.36.50) ஹெக்டேர் தீர்வை 1.09 கொண்ட நிலம் பட்டா எண்:188-ல் ச.குள்ளப்பா என்பவர் பெயரிலும் மற்றும் 1172/2 விஸ்தீரணம் (1.21.5) ஹெக்டேர் தீர்வை 1.09 கொண்ட

நிலம் பட்டா எண் 254-ல் கு.சந்தப்பா என்பவர் பெயரிலும் பட்டா நிலங்களைக் தாக்கலாகியுள்ளது. தற்போது மேற்கண்ட புல எண்கள் கணினி "அ" பதிவேடு மற்றும் கணினி சிட்டாவின் படி மேற்கண்ட புல எண்கள். 1124/5, 1124/6, 1151/5, 1151/6 மற்றும் 1172/2ஏ ஆனது பட்டா எண்.9258.ல் உலகநாதன் மகன் ராஜகோபால்(1), துரைசாமி மகன் ஆனந்தன் (2), வெங்கடேசன் மகன் செந்தில்நாதன்(3) மற்றும் சுவாமிநாதன் மகன் பாஸ்கரன்(4) ஆகியோர் பெயரில் கூட்டுபட்டாவாக தாக்கலாகியுள்ளது. இதன் பிறகு தேன்கணிக்கோட்டை சார்பதிவாளர் அலுவலக குத்தகை பத்திர ஆவண எண்.1216/2022, நாள்.10.02.2022-ன் படி திரு.M.D.ஆனந்தன், திரு.V.செந்தில்நாதன் ,திரு.P.ராஜகோபால் மற்றும் திரு.S.பாஸ்கரன் ஆகியோரால் தி/ள் டாப் கிரண்ட்ஸ் நிறுவனத்தினத்திற்கு அதன் பங்குதாரான திரு.எஸ்.பாஸ்கரன் மற்றும் திரு. P.ராஜகோபால் ஆகியோரின் பெயரில் 01.10.2021 முதல் 30.09.2046 வரை 25 ஆண்டுகளுக்கு குத்தகை ஆவணம் பதிவு செய்யப்பட்டுள்ளது. மேற்படி புலங்களுக்கு கீழ்க்கண்டவாறு செக்குபந்தி உள்ளது.

புல எண்.1124/5க்கு செக்குபந்தி

வடக்கு: பட்டா நிலம் புல எண்.1124/3
 தெற்கு: பட்டா புல எண்.1124/7
 கிழக்கு: பட்டா புலம் 1124/6
 மேற்கு: பட்டா புல எண்.1124/4

புல எண்.1124/6க்கு செக்குபந்தி

வடக்கு: பட்டா நிலம் புல எண்.1124/3,1124/2
 தெற்கு: பட்டா நிலம் புல எண்.1124/7
 கிழக்கு: பட்டா புலம் 1151/1
 மேற்கு: பட்டா நிலம் புல எண்.1124/5

புல எண்.1151/5க்கு செக்குபந்தி

வடக்கு: பட்டா நிலம் புல எண்.1151/2
 தெற்கு: பட்டா நிலம் புல எண்.1172
 கிழக்கு: பட்டா நிலம் புல எண்.1151/4C,4D,4E,4F,4G,4H
 மேற்கு: அரசு புறம்போக்கு பாதை புல எண்:1151/1

புல எண்.1151/6 க்கு செக்குபந்தி

வடக்கு: பட்டா நிலம் புல எண்.1151/5
 தெற்கு: பட்டா நிலம் புல எண்.1172
 கிழக்கு: அரசு புறம்போக்கு பாதை புல எண்:1151/1
 மேற்கு: பட்டா நிலம் புல எண்.1151/5

புல எண்.1172/2Aக்கு செக்குபந்தி

- வடக்கு: பட்டா நிலம் புல எண்.1151
- தெற்கு: பட்டா நிலம் புல எண்.1172/2பி
- கிழக்கு: பட்டா நிலம் புல எண்.1172/3
- மேற்கு: அரசு புறம்போக்கு பாதை புல எண்:1172/1

மேற்கண்ட புல வண்ண கிராளைட் வெட்டியெடுக்க குவாரி குத்தகை அமையவுள்ள புலங்களானது கீழ்கண்டவாறு அமைந்துள்ளது.

1. மேற்படி புல வண்ண கிராளைட் வெட்டியெடுக்க குவாரி குத்தகை அமையவுள்ள புலங்களின் 300 மீட்டர் சுற்றளவுக்குள் கிராம நத்தம், அரசு கட்டிடங்கள், பள்ளிகள், கல்லூரிகள், மருத்துவமனைகள் ஏதுமில்லை.
2. குவாரி குத்தகை அமையவுள்ள புலங்களில் மேல்நிலை நீர்தேக்க தொட்டிகள், உயர்மின்னழுத்த மின்கம்பிகள், தொலைபேசி பாதைகள் ஏதுமில்லை.
3. குவாரி குத்தகை அமையவுள்ள புலங்களில் 50 மீட்டர் சுற்றளவிற்குள் நீர் வழிப்பாதைகள் மற்றும் 500 மீட்டர் சுற்றளவிற்குள் புரதான சின்னங்கள் ஏதுமில்லை.
4. குவாரி குத்தகை அமையவுள்ள புலங்களில் வழிபாட்டுத்தலங்கள், மயானம், சந்தன மரங்கள் மற்றும் விலையுந்த மரங்கள் என்று எதுவும் இல்லை.
5. குவாரி குத்தகை உரிமம் கோரியுள்ள புலங்கள் ஆதிதிராவிடர் நிபந்தனைக்குட்பட்ட உட்பட்ட நிலங்கள் இல்லை. கோவில் நிலங்களில் அமையபெறவில்லை.
6. மேற்படி புலங்கள் நில உச்ச வரம்பு சட்டம் 1978 மற்றும் நிலசீர்திருத்த சட்டம் 1961 ன் கீழ் கவரப்படவில்லை.
7. நில எடுப்பு சட்டம் 1894 பிரிவு 4(1) ன் அறிவிக்கை செய்யப்படவில்லை.
8. குவாரி அமைக்கப்படவுள்ள புலங்களில் உயர் மற்றும் தாழ் மின்னழுத்தம் கம்பங்கள் எதுவும் அமையபெறவில்லை.

மேலும் தேன்கனிக்கோட்டை வட்டம் மற்றும் உள்வட்டம் இருதுக்கோட்டையிலிருந்து பேலாளம் செல்லும் சாலையில் புல எண் 892-ல் இருந்து பிரிவு சாலை ஒன்று பட்டா நிலங்கள் வழியாக சுமார் 2 கிலோ மீட்டர் தொலைவிற்கு செல்கிறது. இந்த தார் சாலை ஆனது வன்னியபுரம் கிராமத்திற்கு அணுகு சாலையாக உள்ளது. மேலும் இந்த சாலை குவாரி குத்தகை அனுமதி கோரும் புலங்களான 1124/5,1124/6 மற்றும் 1172/2ஏ ஆகியவற்றில் தெற்கு பகுதியில் கிழக்கிலிருந்து மேற்காக மேற்படி குவாரி குத்தகை அனுமதி கோரியுள்ள புலங்களின் ஊடாகவே செல்கிறது. குவாரி குத்தகை அனுமதி கோரியுள்ள புல எண்கள் 1124/6,1151/5,1151/6 மற்றும் 1172/2ஏ ஆகிய புல எண்களுக்கு மத்தியில் குத்தகை புலங்களை பிரிக்கும் வகையில் புல எண்

1151/1 விஸ் 0.15.5 ஹெக்டேர் கொண்ட பாதை நிலமும் மற்றும் அரசு புறம்போக்கு புல் எண் 1172/1 விஸ் 0.09.5 ஹெக்டேர் கொண்ட பாதை நிலமும் புல் வரைபடத்தில் உள்ளது ஆனால் புலத்தில் பாதை ஏதும் நடைமுறையில் இல்லை. குவாரி அமைக்கப்படவுள்ள புலங்களில் உயர் மற்றும் தாழ் மின்னழுத்தம் கம்பங்கள் எதுவும் அமையபெறவில்லை மற்றும் இப்புலத்தில் குவாரி அமைவதால் பொதுமக்களுக்கு எந்தவொரு இடையூறும் இல்லை என தேன்கனிக்கோட்டை வட்டாட்சியர் தெரிவித்துள்ளார்.

மேலும் கிருஷ்ணகிரி மாவட்டம், தேன்கனிக்கோட்டை வட்டம் மற்றும் உள்வட்டம் இருதுக்கோட்டை கிராம பட்டா புல் எண்கள் 1124/5(0.16.00), 1124/6(1.11.00), 1151/5(0.64.00), 1151/6(0.36.50) மற்றும் 1172/2ஏ(0.12.96) மொத்த விஸ்தீரணம் 2.40.46 ஹெக்டேர் பரப்பளவு கொண்ட நிலத்தில், மேற்படி புலங்களுக்கு அருகில் உள்ள அரசு புறம்போக்கு நிலங்களை ஆக்கிரமிப்பு செய்யக்கூடாது என்ற நிபந்தனையின் பேரிலும், குவாரி குத்தகை அனுமதி கோரியுள்ள புலங்களின் தெற்கில் ஊடாக கிழக்கிலிருந்து மேற்காக செல்லும் தார் சாலையானது அருகிலுள்ள கிராமத்திற்கு செல்லும் அணுகு சாலையாக உள்ளதால் மேற்கண்ட சாலைக்கு எவ்வித இடையூறும் இன்றி தி/ள். டாப் கிரனைட்ஸ் நிறுவனத்தினருக்கு பல வண்ண கிராளைட் கற்கள் வெட்டியெடுக்க இருபது ஆண்டுகளுக்கு குவாரி குத்தகை அனுமதி வழங்கலாம் என பரிந்துரை செய்து முன்மொழிவினை பார்வை-2ல் பரிந்துரை செய்து அனுப்பியுள்ளார்.

எனவே தேன்கனிக்கோட்டை வட்டாட்சியரின் பரிந்துரையின் அடிப்படையில் மேற்காணும் நிபந்தனைகளுக்குட்பட்டும் தேன்கனிக்கோட்டை வட்டம் மற்றும் உள்வட்டம் இருதுக்கோட்டை கிராம பட்டா புல் எண்கள் 1124/5(0.16.00), 1124/6(1.11.00), 1151/5(0.64.00), 1151/6(0.36.50) மற்றும் 1172/2ஏ(0.12.96) மொத்த விஸ்தீரணம் 2.40.46 ஹெக்டேர் பரப்பளவு கொண்ட நிலத்தில் தி/ள். டாப் கிரனைட்ஸ் நிறுவனத்தினருக்கு பல வண்ண கற்கள் வெட்டி எடுக்க 20 வருடங்களுக்கு குத்தகை உரிமம் கோரியுள்ள புலங்களில் தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 1959 விதி 19 மற்றும் 20-ன்படி குத்தகை உரிமம் வழங்கலாம் என்பதை தெரிவித்துக்கொண்டு இத்துடன் தேன்கனிக்கோட்டை வட்டாட்சியரின் அறிக்கை மற்றும் ஆவணங்கள் இணைத்து அனுப்பியுள்ளேன் என்பதை பணிவுடன் தெரிவித்துக்கொள்கிறேன்.

இணைப்பு : மேற்கண்டவாறு
//உண்மை நகல்//

ஓம்/-வ.தேன்மொழி
வருவாய் கோட்ட அலுவலர்,
ஒசூர்.

R.M. 22/7/22
நேர்முக உதவியாளர்

22/7/2022

ஓசூர் வருவாய் கோட்டாட்சியரின் புலதணிக்கை குறிப்பு

தணிக்கை நாள்: 21.07.2022.

வட்டம்: தேன்கனிக்கோட்டை

கிராமம்: இருதுக்கோட்டை

புல எண்கள்: 1124/5(0.16.00), 1124/6(1.11.00), 1151/5(0.64.00), 1151/6(0.36.50)

மற்றும் 1172/2ஏ(0.12.96) மொத்த விஸ்தீரணம் 2.40.46 ஹெக்டேர்

கிருஷ்ணகிரி மாவட்டம், தேன்கனிக்கோட்டை வட்டம் மற்றும் உள்வட்டம் இருதுக்கோட்டை கிராம பட்டா புல எண்கள் 1124/5(0.16.00), 1124/6(1.11.00), 1151/5(0.64.00), 1151/6(0.36.50) மற்றும் 1172/2ஏ(0.12.96) மொத்த விஸ்தீரணம் 2.40.46 ஹெக்டேர் பரப்பளவில் பல வண்ண கிராளைட் வெட்டியெடுக்க இருபது ஆண்டுகளுக்கு குவாரி குத்தகை அனுமதி கோரி தி/ள் டாப் கிராளைட்ஸ் நிறுவனத்தினர் மனு செய்தது தொடர்பாக 21.07.2022 அன்று புலத்தணிக்கை மேற்கொள்ளப்பட்டது. தணிக்கையின் போது தேன்கனிக்கோட்டை வட்டாட்சியர், மண்டல துணை வட்டாட்சியர், தேன்கனிக்கோட்டை வருவாய் ஆய்வாளர் மற்றும் நிலஅளவர், இருதுக்கோட்டை கிராம நிர்வாக அலுவலர் ஆகியோர் உடனிருந்தனர்.

தேன்கனிக்கோட்டை உள்வட்டம், இருதுக்கோட்டை கிராம நில உடமை மேம்பாடு திட்டத்தின் புல எண்கள் 1124/5 விஸ்தீரணம் (0.16.00)ஹெக்டேர் தீர்வை 0.62 கொண்ட நிலம் பட்டா எண்:1027-ல் தா.முனிரத்தனம்மா என்பவர் பெயரிலும், 1124/6 விஸ்தீரணம் (1.11.00) ஹெக்டேர் தீர்வை 0.62 கொண்ட நிலம் பட்டா எண்: 1169-ல் கு.ராதாகிருஷ்ணன் என்பவர் பெயரிலும், 1151/5 விஸ்தீரணம் (0.64.00) ஹெக்டேர் தீர்வை 1.09 கொண்ட நிலம் பட்டா எண்:188-ல் ச.குள்ளப்பா எனப்பவர் பெயரிலும் , 1151/6 விஸ்தீரணம் (0.36.50) ஹெக்டேர் தீர்வை 1.09 கொண்ட நிலம் பட்டா எண்:188-ல் ச.குள்ளப்பா என்பவர் பெயரிலும் மற்றும் 1172/2ஏ விஸ்தீரணம் (1.21.5)ஹெக்டேர் தீர்வை 1.09 கொண்ட நிலம் பட்டா எண் 254-ல் கு.சந்தப்பா என்பவர் பெயரிலும் பட்டா நிலங்களாக தாக்கலாகியுள்ளது. தற்போது மேற்கண்ட புல எண்கள் கணினி "அ" பதிவேடு மற்றும் கணினி சிட்டாவின் படி மேற்கண்ட புல எண்கள். 1124/5,1124/6,1151/5,1151/6 மற்றும் 1172/2ஏ ஆனது பட்டா எண்.9258.ல் உலகநாதன் மகன் ராஜகோபால்(1),துரைசாமி மகன் ஆனந்தன் (2),வெங்கடேசன் மகன் செந்தில்நாதன்(3) மற்றும் சுவாமிநாதன் மகன் பாஸ்கரன்(4) ஆகியோர் பெயரில் கூட்டுபட்டாவாக தாக்கலாகியுள்ளது. இதன் பிறகு தேன்கனிக்கோட்டை சார்பதிவாளர் அலுவலக குத்தகை பத்திர ஆவண எண்.1216/2022, நாள்.10.02.2022-ன் படி திரு.M.D.ஆனந்தன், திரு.V.செந்தில்நாதன் ,திரு.U.ராஜகோபால் மற்றும் திரு.S.பாஸ்கரன் ஆகியோரால் தி/ள் டாப் கிராளைட்ஸ் நிறுவனத்தினத்திற்கு அதன் பங்குதாரான திரு.எஸ்.பாஸ்கரன் மற்றும் திரு. U.ராஜகோபால் ஆகியோரின் பெயரில்

01.10.2021 முதல் 30.09.2046 வரை 25 ஆண்டுகளுக்கு குத்தகை ஆவணம் பதிவு செய்யப்பட்டுள்ளது.

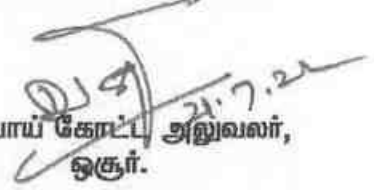
மேற்கண்ட பல வண்ண கிராண்ட் வெட்டியெடுக்க குவாரி குத்தகை அமையவுள்ள புலங்களானது கீழ்க்கண்டவாறு அமைந்துள்ளது.

1. மேற்படி பல வண்ண கிராண்ட் வெட்டியெடுக்க குவாரி குத்தகை அமையவுள்ள புலங்களின் 300 மீட்டர் சுற்றளவுக்குள் கிராம நத்தம், அரசு கட்டிடங்கள், பள்ளிகள், கல்லூரிகள், மருத்துவமனைகள் ஏதுமில்லை.
2. குவாரி குத்தகை அமையவுள்ள புலங்களில் மேல்நிலை நீர்தேக்க தொட்டிகள், உயர்மின்னழுத்த மின்கம்பிகள், தொலைபேசி பாதைகள் ஏதுமில்லை.
3. குவாரி குத்தகை அமையவுள்ள புலங்களில் 50 மீட்டர் சுற்றளவிற்குள் நீர் வழிப்பாதைகள் மற்றும் 500 மீட்டர் சுற்றளவிற்குள் புரதான சின்னங்கள் ஏதுமில்லை.
4. குவாரி குத்தகை அமையவுள்ள புலங்களில் வழிபாட்டுத்தலங்கள், மயானம், சந்தன மரங்கள் மற்றும் விலையுந்த மரங்கள் என்று எதுவும் இல்லை.
5. குவாரி குத்தகை உரிமம் கோரியுள்ள புலங்கள் ஆதிதிராவிடர் நிபந்தனைக்குட்பட்ட உட்பட்ட நிலங்கள் இல்லை. கோவில் நிலங்களில் அமையபெறவில்லை.
6. மேற்படி புலங்கள் நில உச்ச வரம்பு சட்டம் 1978 மற்றும் நிலசீர்திருத்த சட்டம் 1961 ன் கீழ் கவரப்படவில்லை.
7. நில எடுப்பு சட்டம் 1894 பிரிவு 4(1) ன் அறிவிக்கை செய்யப்படவில்லை.
8. குவாரி அமைக்கப்படவுள்ள புலங்களில் உயர் மற்றும் தாழ் மின்னழுத்தம் கம்பங்கள் எதுவும் அமையபெறவில்லை.

மேலும் தேன்கனிக்கோட்டை வட்டம் மற்றும் உள்வட்டம் இருதுக்கோட்டையிலிருந்து பேலாளம் செல்லும் சாலையில் புல எண் 892-ல் இருந்து பிரிவு சாலை ஒன்று பட்டா நிலங்கள் வழியாக சுமார் 2 கிலோ மீட்டர் தொலைவிற்கு செல்கிறது. இந்த தார் சாலை ஆனது வன்னியபுரம் கிராமத்திற்கு அணுகு சாலையாக உள்ளது. மேலும் இந்த சாலை குவாரி குத்தகை அனுமதி கோரும் புலங்களான 1124/5, 1124/6 மற்றும் 1172/2ஏ ஆகியவற்றில் தெற்கு பகுதியில் கிழக்கிலிருந்து மேற்காக மேற்படி குவாரி குத்தகை அனுமதி கோரியுள்ள புலங்களின் ஊடாகவே செல்கிறது. குவாரி குத்தகை அனுமதி கோரியுள்ள புல எண்கள் 1124/6, 1151/5, 1151/6 மற்றும் 1172/2ஏ ஆகிய புல எண்களுக்கு மத்தியில் குத்தகை புலங்களை பிரிக்கும் வகையில் புல எண் 1151/1 விஸ் 0.15.5 ஹெக்டேர் கொண்ட பாதை நிலமும் மற்றும் அரசு புறம்போக்கு புல எண் 1172/1 விஸ் 0.09.5 ஹெக்டேர் கொண்ட பாதை நிலமும் புல வரைபடத்தில் உள்ளது ஆனால் புலத்தில் பாதை ஏதும் நடைமுறையில் இல்லை.

குவாரி அமைக்கப்படவுள்ள புலங்களில் உயர் மற்றும் தாழ் மின்னழுத்தம் கம்பங்கள் எதுவும் அமையபெறவில்லை மற்றும் இப்புலத்தில் குவாரி அமைவதால் பொதுமக்களுக்கு எந்தவொரு இடையூறும் இல்லை

எனவே, கிருஷ்ணகிரி மாவட்டம், தேன்கனிக்கோட்டை வட்டம் மற்றும் உள்வட்டம் இருதுக்கோட்டை கிராம பட்டா புல எண்கள் 1124/5(0.16.00), 1124/6(1.11.00), 1151/5(0.64.00), 1151/6(0.36.50) மற்றும் 1172/2ஏ(0.12.96) மொத்த விஸ்தீரணம் 2.40.46 ஹெக்டேர் பரப்பளவு கொண்ட நிலத்தில், மேற்படி புலங்களுக்கு அருகில் உள்ள அரசு புறம்போக்கு நிலங்களை ஆக்கிரமிப்பு செய்யக்கூடாது என்ற நிபந்தனையின் பேரிலும், குவாரி குத்தகை அனுமதி கோரியுள்ள புலங்களின் தெற்கில் ஊடாக கிழக்கிலிருந்து மேற்காக செல்லும் தார் சாலையானது அருகிலுள்ள கிராமத்திற்கு செல்லும் அணுகு சாலையாக உள்ளதால் மேற்கண்ட சாலைக்கு எவ்வித இடையூறும் இன்றி தி/ள். டாப் கிரனைட்ஸ் நிறுவனத்தினருக்கு பல வண்ண கிராளைட் கற்கள் வெட்டியெடுக்க இருபது ஆண்டுகளுக்கு குவாரி குத்தகை அனுமதி வழங்கலாம்.


வருவாய் கோட்ட அலுவலர்,
ஒசூர்.

திரு.எஸ்.ஜி.குருநாதன் எம்.காம்,
வட்டாட்சியர்,
தேன்கனிக்கோட்டை.

பெறுதல்

1. மாவட்ட ஆட்சியர்
மாவட்ட ஆட்சியரகம்,
கிருஷ்ணகிரி.

வழிமுறை 2. வருவாய் கோட்டாட்சியர்
ஓசூர்.

ந.க. 751/ 2022/ அ1

நாள்: 07.07.2022.

ஆய்வாளர்/அம்மைவர்,



பொருள் : கனிமங்களும் குவாரிகளும்: கிருஷ்ணகிரி மாவட்டம், ,
தேன்கனிக்கோட்டை வட்டம் மற்றும் உள்வட்டம்
இருதுக்கோட்டை கிராம பட்டா புல எண்கள் 1124/5(0.16.00),
1124/6(1.11.00), 1151/5(0.64.00), 1151/6(0.36.50) மற்றும்
1172/2ஏ(0.12.96) மொத்த விஸ்தீரணம் 2.40.46 ஹெக்டேர்
பரப்பளவில் பல வண்ண கிராளைட் வெட்டியெடுக்க இருபது
ஆண்டுகளுக்கு குவாரி குத்தகை அனுமதி கோரிய தி/ள் டாப்
கிரளைட்ஸ் நிறுவனத்தினர் மனு மீது அறிக்கை சமர்ப்பித்தல்-
தொடர்பாக.

பார்வை :

1. கிருஷ்ணகிரி மாவட்ட ஆட்சியர் அலுவலக
ந.க.1133/2021/கனிமம் நாள்: 08.10.2022.
2. இவ்வலுவலக ந.க. 751/2022/அ1 நாள் : 04.03.2022
3. தேன்கனிக்கோட்டை வட்டாட்சியர் தணிக்கை குறிப்பு
நாள்: 28.06.2022
4. தேன்கனிக்கோட்டை மண்டல துணை வட்டாட்சியர்
தணிக்கை குறிப்பு நாள்: 28.06.2022
5. தேன்கனிக்கோட்டை வருவாய் ஆய்வாளர் அறிக்கை
நாள்: 03.3.2022.

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கிருஷ்ணகிரி மாவட்டம், தேன்கனிக்கோட்டை வட்டம் மற்றும் உள்வட்டம்
இருதுக்கோட்டை கிராம பட்டா புல எண்கள் 1124/5(0.16.00), 1124/6(1.11.00),
1151/5(0.64.00), 1151/6(0.36.50) மற்றும் 1172/2ஏ(0.12.96) மொத்த விஸ்தீரணம்
2.40.46 ஹெக்டேர் பரப்பளவில் பல வண்ண கிராளைட் வெட்டியெடுக்க இருபது
ஆண்டுகளுக்கு தி/ள் டாப் கிரளைட்ஸ் நிறுவனத்தினர் குவாரி குத்தகை அனுமதி
கோரியது தொடர்பாக புலத்தணிக்கை மற்றும் விசாரணை மேற்கொண்டு
எனதறிக்கையினை கீழ்க்கண்டவாறு சமர்ப்பித்துக் கொள்கிறேன்.

தேன்கனிக்கோட்டை உள்வட்டம், இருதுக்கோட்டை கிராம நில உடமை
மேம்பாடு திட்டத்தின் புல எண்கள் 1124/5 விஸ்தீரணம் (0.16.00) ஹெக்டேர் தீர்வை
0.62 கொண்ட நிலம் பட்டா எண்: 1027-ல் தா.முனிரத்தனம்மா என்பவர் பெயரிலும்,
1124/6 விஸ்தீரணம் (1.11.00) ஹெக்டேர் தீர்வை 0.62 கொண்ட நிலம் பட்டா எண்:
1169-ல் கு.ராதாகிருஷ்ணன் என்பவர் பெயரிலும், 1151/5 விஸ்தீரணம் (0.64.00)
ஹெக்டேர் தீர்வை 1.09 கொண்ட நிலம் பட்டா எண்: 188-ல் ச.குள்ளப்பா என்பவர்
பெயரிலும், 1151/6 விஸ்தீரணம் (0.36.50) ஹெக்டேர் தீர்வை 1.09 கொண்ட நிலம்
பட்டா எண்: 188-ல் ச.குள்ளப்பா என்பவர் பெயரிலும் மற்றும் 1172/2ஏ விஸ்தீரணம்
(1.21.5) ஹெக்டேர் தீர்வை 1.09 கொண்ட நிலம் பட்டா எண் 254-ல் கு.சந்தப்பா
என்பவர் பெயரிலும் பட்டா நிலங்களாக தரக்கலாகியுள்ளது. தற்போது மேற்கண்ட புல

எண்கள் கணினி "அ" பதிவேடு மற்றும் கணினி சிட்டாவின் படி மேற்கண்ட புல எண்கள். 1124/5,1124/6,1151/5,1151/6 மற்றும் 1172/2ஏ ஆனது பட்டா எண்.9258-ல் உலகநாதன் மகன் ராஜகோபால்(1),துரைசாமி மகன் ஆனந்தன் (2),வெங்கடேசன் மகன் செந்தில்நாதன்(3) மற்றும் சுவாமிநாதன் மகன் பாஸ்கரன்(4) ஆகியோர் பெயரில் கூட்டுபட்டாவாக தாக்கலாகியுள்ளது. இதன் பிறகு தேன்கனிக்கோட்டை சார்பதிவாளர் அலுவலக குத்தகை பத்திர ஆவண எண்.1216/2022, நாள்.10.02.2022-ன் படி திரு.M.D.ஆனந்தன், திரு.V.செந்தில்நாதன் ,திரு.ப.ராஜகோபால் மற்றும் திரு.S.பாஸ்கரன் ஆகியோரால் தி/ள் டாப் கிரண்ட்ஸ் நிறுவனத்தினத்திற்கு அதன் பங்குதாரான திரு.எஸ்.பாஸ்கரன் மற்றும் திரு. ப.ராஜகோபால் ஆகியோரின் பெயரில் 01.10.2020 முதல் 30.09.2046 வரை 25 ஆண்டுகளுக்கு குத்தகை ஆவணம் பதிவு செய்யப்பட்டுள்ளது. மேற்படி புலங்களுக்கு கீழ்க்கண்டவாறு செக்குபந்தி உள்ளது.

புல எண்.1124/5க்கு செக்குபந்தி

வடக்கு: பட்டா நிலம் புல எண்.1124/3
தெற்கு: பட்டா புல எண்.1124/7
கிழக்கு: பட்டா புலம் 1124/6
மேற்கு: பட்டா புல எண்.1124/4

புல எண்.1124/6க்கு செக்குபந்தி

வடக்கு: பட்டா நிலம் புல எண்.1124/3,1124/2
தெற்கு: பட்டா நிலம் புல எண்.1124/7
கிழக்கு: பட்டா புலம் 1151
மேற்கு: பட்டா நிலம் புல எண்.1124/5

புல எண்.1151/5க்கு செக்குபந்தி

வடக்கு: பட்டா நிலம் புல எண்.1151/2
தெற்கு: பட்டா நிலம் புல எண்.1172
கிழக்கு: பட்டா நிலம் புல எண்.1151/4C,4D,4E,4F,4G
மேற்கு: அரசு புறம்போக்கு பாதை புல எண்:1151/1

புல எண்.1151/6 க்கு செக்குபந்தி

வடக்கு: பட்டா நிலம் புல எண்.1151/5
தெற்கு: பட்டா நிலம் புல எண்.1172
கிழக்கு: அரசு புறம்போக்கு பாதை புல எண்:1151/1
மேற்கு: பட்டா நிலம் புல எண்.1151/5

புல எண்.1172/2Aக்கு செக்குபந்தி

வடக்கு: பட்டா நிலம் புல எண்.1151
தெற்கு: பட்டா நிலம் புல எண்.1172/4
கிழக்கு: பட்டா நிலம் புல எண்.1172/3
மேற்கு: அரசு புறம்போக்கு பாதை புல எண்:1172/1

பல வண்ண கிராண்ட் வெட்டியெடுக்க குவாரி குத்தகை அமையவுள்ள புலங்களின் 300 மீட்டர் சுற்றளவுக்குள் கிராம நத்தம், அரசு கட்டிடங்கள், பள்ளிகள்,, கல்லூரிகள், மருத்துவமனைகள், மேல்நிலை நீர்தேக்க தொட்டிகள் எதுவுமில்லை. உயர்மின்னழுத்த மின்கம்பிகள், தொலைபேசி பாதைகள் எதுமில்லை.மேலும் 50 மீட்டர் சுற்றளவிற்குள் நீர் வழிப்பாதைகள் எதுமில்லை. 500 மீட்டர் சுற்றளவிற்குள் புரதான சின்னங்கள் எதுமில்லை.

பல வண்ண கிராண்ட் வெட்டியெடுக்க குவாரி குத்தகை அமையவுள்ள புலங்களில் வழிபாட்டுத்தலங்கள், மயானம், சந்தன மரங்கள் மற்றும் விலையுந்த மரங்கள் என்று எதுவும் இல்லை. குவாரி குத்தகை உரிமம் கோரியுள்ள புலங்கள் ஆதிதிராவிடர் நிபந்தனைக்குட்பட்ட உட்பட்ட நிலங்கள் இல்லை. கோவில் நிலங்களில் அமையபெறவில்லை. மேற்படி புலங்கள் நில உச்ச வரம்பு சட்டம் 1978 மற்றும் நிலசீர்திருத்த சட்டம் 1961 ன் கீழ் கவரப்படவில்லை, நில எடுப்பு சட்டம் 1894 பிரிவு

4(1) ன் அறிவிக்கை செய்யப்படவில்லை. குவாரி அமைக்கப்படவுள்ள புலங்களில் உயர் மற்றும் தாழ் மின்னழுத்தம் கம்பங்கள் எதுவும் அமையபெறவில்லை.

இருதுக்கோட்டையிலிருந்து பேலாளம் செல்லும் சாலையில் புல எண் 892-ல் இருந்து பிரிவு சாலை ஒன்று பட்டா நிலங்கள் வழியாக சுமார் 2 கிலோ மீட்டர் தொலைவிற்கு செல்கிறது. இந்த தார் சாலை ஆனது வன்னியபுரம் கிராமத்திற்கு அணுகு சாலையாக உள்ளது. மேலும் இந்த சாலை குவாரி குத்தகை அனுமதி கோரும் புலங்களான 1124/5, 1124/6 மற்றும் 1172/2ஏ ஆகியவற்றில் தெற்கு பகுதியில் கிழக்கிலிருந்து மேற்காக மேற்படி குவாரி குத்தகை அனுமதி கோரியுள்ள புலங்களின் ஊடாகவே செல்கிறது. மேலும் குவாரி குத்தகை அனுமதி கோரியுள்ள புல எண்கள் 1124/6, 1151/5, 1151/6 மற்றும் 1172/2ஏ ஆகிய புல எண்களுக்கு மத்தியில் குத்தகை புலங்களை பிரிக்கும் வகையில் புல எண் 1151/1 விஸ் 0.15.5 ஹெக்டேர் கொண்ட பாதை நிலமும் மற்றும் அரசு புறம்போக்கு புல எண் 1172/1 விஸ் 0.09.5 ஹெக்டேர் கொண்ட பாதை நிலமும் புல வரைபடத்தில் உள்ளது. ஆனால் புலத்தில் பாதை ஏதும் நடைமுறையில் இல்லை.

குவாரி அமைக்கப்படவுள்ள புலங்களில் உயர் மற்றும் தாழ் மின்னழுத்தம் கம்பங்கள் எதுவும் அமையபெறவில்லை. இப்புலத்தில் குவாரி அமைவதால் பொதுமக்களுக்கு எந்தவொரு இடையூறும் இல்லை.

எனவே, கிருஷ்ணகிரி மாவட்டம், தேன்கனிக்கோட்டை வட்டம் மற்றும் உள்வட்டம் இருதுக்கோட்டை கிராம பட்டா புல எண்கள் 1124/5(0.16.00), 1124/6(1.11.00), 1151/5(0.64.00), 1151/6(0.36.50) மற்றும் 1172/2ஏ(0.12.96) மொத்த விஸ்தீரணம் 2.40.46 ஹெக்டேர் பரப்பளவு கொண்ட நிலத்தில், மேற்படி புலங்களுக்கு அருகில் உள்ள அரசு புறம்போக்கு நிலங்களை ஆக்கிரமிப்பு செய்யக்கூடாது என்ற நிபந்தனையின் பேரிலும், குவாரி குத்தகை அனுமதி கோரியுள்ள புலங்களின் தெற்கில் ஊடாக கிழக்கிலிருந்து மேற்காக செல்லும் தார் சாலையானது அருகிலுள்ள கிராமத்திற்கு செல்லும் அணுகு சாலையாக உள்ளதால் மேற்கண்ட சாலைக்கு எவ்வித இடையூறும் இன்றி தி/ள். டாப் கிரண்ட்ஸ் நிறுவனத்தினருக்கு பல வண்ண கிராண்ட் கற்கள் வெட்டியெடுக்க இருபது ஆண்டுகளுக்கு குவாரி குத்தகை அனுமதி வழங்கலாம் என பரிந்துரை செய்து இத்துடன் மண்டல துணை வட்டாட்சியரின் தணிக்கை குறிப்பு, தேன்கனிக்கோட்டை வருவாய் ஆய்வாளர் அறிக்கை, இருதுக்கோட்டை கிராம நிர்வாக அலுவலர் வாக்கு மூலம் மற்றும் கிராம கணக்கு நகல்கள் ஆகியவற்றை இத்துடன் இணைத்தனுப்பியுள்ளேன் என்பதை பணிவுடன் தெரிவித்துக்கொள்கிறேன்.

இணைப்பு : மேற்கண்டவாறு

[Handwritten Signature]
வட்டாட்சியர்
தேன்கனிக்கோட்டை

[Handwritten Signature]
17/10/20

வளம் காப்போம்

வளம் பெறுவோம்

தமிழ்நாடு வனத்துறை

அனுப்புதல்

செல்வி. க. கார்த்திகேயனி, இ.வ.ப.,
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மத்திகிரி, ஓசூர் - 635 110
தொலைபேசி எண். 04344-296600.

பெறுதல்

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கிருஷ்ணகிரி மாவட்டம்,
கிருஷ்ணகிரி.



ந.க.எண். 2785/2022/எல் நாள். 28.08.2022
(மூசுகிருது வருடம், ஆவணி மாதம் 12, திருவள்ளூர் ஆண்டு 2053)

அய்யா,

பொருள் : கனிமங்களும் குவாரிகளும் - கிருஷ்ணகிரி மாவட்டம் - தேன்கனிக்கோட்டை வட்டம் - இருதுகோட்டை கிராமம் - பட்டா புல எண்கள். 1124/5(0.16.20), 1124/6(1.10.90), 1151/5(0.64.00), 1151/6(0.36.40) மற்றும் 1172/2ஏ(0.13.00) ஆகியவற்றில் 2.40.40 ஹெக்டார் பரப்பளவில் பலவண்ண கிராணைட் கற்கள் வெட்டியெடுக்க தி/ள். டாப் கிராணைட்ஸ், சென்னை என்ற நிறுவனத்தினர் குவாரி குத்தகை கோருதல் - வனத்துறையின் தடையில்லாச் சான்று வழங்குதல் - தொடர்பாக.

*09.09.22
Admin report report*

- பார்வை :**
- முதன்மை தலைமை வனப்பாதுகாவலர் (குறைத் தலைவர்), சென்னை ந.க.எண்.வஉ 5(ஏ)/21948/2013 நாள்.18.09.2020.
 - தி/ள். டாப் கிராணைட்ஸ், பழைய எண். 7, புதிய எண். 16 முதல் தளம், முதல் தெரு, வடக்கு கோபாலபுரம், சென்னை - 600 086 என்ற நிறுவனத்தினரது மனு நாள். 06.10.2021.
 - மாவட்ட ஆட்சியர், கிருஷ்ணகிரி ந.க.எண். 1133/2021/கனிமம் நாள்.08.10.2021.
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 - வனப்பாதுகாவலர், தருமபுரி ந.க.எண். 6563/2022/வ நாள். 30.07.2022.
 - முதன்மை தலைமை வனப்பாதுகாவலர் (குறைத் தலைவர்), சென்னை ந.க.எண்.டிஎஸ்1/23307/2022 நாள். 22.08.2022.

தெரிவித்துக்கொள்வதாவது, மேற்காண் பொருள் தொடர்பாக, பார்வை 1ல் கண்ட கடிதத்தில், தி/ள். டாப் கிராணைட்ஸ், பழைய எண். 7, புதிய எண். 16 முதல் தளம், முதல் தெரு, வடக்கு கோபாலபுரம், சென்னை என்ற நிறுவனத்தினர், கிருஷ்ணகிரி மாவட்டம், தேன்கனிக்கோட்டை வட்டம், இருதுகோட்டை கிராமம், பட்டா புல எண்கள். 1124/5(0.16.20), 1124/6(1.10.90), 1151/5(0.64.00), 1151/6(0.36.40) மற்றும் 1172/2ஏ(0.13.00) ஆகியவற்றில் 2.40.40 ஹெக்டார் பரப்பளவில் பலவண்ண கிராணைட் கற்கள் வெட்டி எடுக்க அனுமதி கோரிய

வனத்துறையின் தடையில்லாச் சான்று கோரி, பார்வை 3-ல் கண்ட கிருஷ்ணகிரி மாவட்ட ஆட்சியர் அவர்கள் கேட்டுக்கொண்டுள்ளார்.

மேற்படி மனுமீது நடவடிக்கை மேற்கொள்ளும் பொருட்டு தேன்கனிக்கோட்டை வனச்சரக அலுவலர் தமது பணியாளர்களுடன் 22.05.2022 அன்று மேற்படி புலத்தினை தணிக்கை மேற்கொண்டு கீழ்க்கண்டவாறு அறிக்கை சமர்ப்பித்துள்ளார்.

1. மேற்படி பலவண்ண கிராணைட் கற்கள் வெட்டி எடுக்க விண்ணப்பித்துள்ள இருதுகோட்டை கிராமம், பட்டா புல எண்கள். 1124/5(0.16.20), 1124/6(1.10.90), 1151/5(0.64.00), 1151/6(0.36.40) மற்றும் 1172/2ஏ(0.13.00) ஆகியவற்றில் 2.40.40 ஹெக்டார் நிலமானது, தி/ள். டாப் கிராணைட்ஸ், சென்னை என்ற நிறுவனத்தின் பங்குதாரர்கள், திரு.எஸ்.பாஸ்கரன் த/பெ. ஆர்.சுவாமிநாதன், சென்னை மற்றும் திரு.யு.ராஜகோபால் த/பெ.ஜி. உலகநாதன், தருமபுரி மாவட்டம் ஆகியோரது பெயரிலும், மற்றும் திரு.எம்.டி.ஆனந்தன் த/பெ. எம்.துரைசாமி, சென்னை மற்றும் திரு.வி.செந்தில்நாதன் த/பெ. எம்.டி.வெங்கடேசன், சென்னை ஆகியோரது பெயரிலும் உள்ளது. பட்டா எண். 9258, இருதுகோட்டை கிராமம் ஆகும்.

மேற்படி புலத்தினை, நில உரிமையாளர்களின் பங்கு உள்ள திரு. எம்.டி.ஆனந்தன் த/பெ.எம்.துரைசாமி, சென்னை மற்றும் திரு.வி.செந்தில்நாதன் த/பெ. எம்.டி.வெங்கடேசன், சென்னை ஆகியோரிடமிருந்து, தி/ள். டாப் கிராணைட்ஸ் பங்குதாரர்களான திரு.எஸ்.பாஸ்கரன் த/பெ. ஆர்.சுவாமிநாதன், சென்னை மற்றும் திரு.யு.ராஜகோபால் த/பெ.ஜி. உலகநாதன், தருமபுரி மாவட்டம் ஆகியோர் 01.10.2021 முதல் 30.09.2046 வரை 25 ஆண்டுகளுக்கு குத்தகை பெற்றுள்ளனர். ஆவண எண். 1216/2022, சார் பதிவாளர் அலுவலகம், தேன்கனிக்கோட்டை.

2. மேற்படி பலவண்ண கிராணைட் கற்கள் வெட்டி எடுக்க அனுமதி கோரியுள்ள இடத்தின் GPS அளவுகள் N 12.428163°, E 77.834507° ஆகும்.
3. மேற்படி பலவண்ண கிராணைட் கற்கள் வெட்டி எடுக்க அனுமதி கோரியுள்ள இடமானது குல்லட்டி காப்புக்காட்டின் எல்லையிலிருந்து 2 கி.மீ தொலைவில் அமைந்துள்ளது. குல்லட்டி காப்புக்காடானது, காவேரி வடக்கு வனஉயிரின சரணாலயத்தின் ஒரு பகுதி ஆகும்.
4. Government of India Ministry of Environment, Forest and Climate Change notification S.O. 07 (E) dated: 01.01.2020 ஆணையின்படி, காவேரி வடக்கு வன உயிரின சரணாலயத்திற்கான Eco Sensitive Zone எல்லையானது, கர்நாடக மாநில எல்லை பகுதியில் 0 கி.மீ தொலைவு மற்றும் சென்னமாலம் வருவாய் கிராம பகுதியில் 1.75 கி.மீ தொலைவு தவிர, சரணாலயத்தின் இதர பகுதிகளுக்கு 1 கி.மீ என அறிவிக்கை வெளியிடப்பட்டுள்ளது. மேற்படி குவாரி குத்தகை அனுமதி கோரியுள்ள இடமானது காவேரி வடக்கு வனஉயிரின சரணாலய எல்லையிலிருந்து (குல்லட்டி காப்புக்காடு) 2 கி.மீ தொலைவில் அமைந்துள்ளதனால், சரணாலயத்திற்கான Eco Sensitive Zone எல்லை பகுதிக்குள் வருவதில்லை. மேற்படி அனுமதி கோரியுள்ள இடமானது சரணாலயத்திற்கான Eco Sensitive Zone எல்லையிலிருந்து 1 கி.மீ வெளியில் அமைந்துள்ளது.

5. மேற்படி பலவண்ண கிராணைட் கற்கள் வெட்டி எடுக்க அனுமதி கோரியுள்ள பட்டா புல எண்ணில் மர வகைகளோ, அரியவகை தாவரங்களோ மற்றும் வனஉயிரினங்களோ ஏதும் காணப்படவில்லை.

எனவே, மேற்படி பகுதியில் பலவண்ண கிராணைட் கற்கள் வெட்டி எடுக்க, மனுதாரர் வரையறுக்கப்பட்ட எல்லையினை மீறாமலும், வரையறுக்கப்பட்ட பகுதிக்குள்ளேயே கற்குவாரி அமைத்திடவும், பணிகள் மேற்கொள்ளவும், கனிம வளத்துறை மூலமாக மாதம் தவறாமல் களத்தணிக்கை மேற்கொண்டு சரியாக உள்ள பட்சத்தில் உரிய அனுமதி படிவங்களை வழங்கிட கேட்டுக்கொண்டும், எதிர்வரும் காலங்களில் வரையறுக்கப்பட்ட எல்லையினை மீறி ஒப்பந்ததாரர் வேலை செய்யும் பட்சத்தில் கண்டறியப்பட்டால், மாவட்ட ஆட்சியர் மற்றும் வனஉயிரின காப்பாளர் ஆகியோரின் மேலான கவனத்திற்கு கொண்டு வரப்பட வேண்டும் என்ற நிபந்தனைகளுக்கு உட்பட்டு, மேற்படி, கிருஷ்ணகிரி மாவட்டம், தேன்கனிக்கோட்டை வட்டம், இருதுகோட்டை கிராமம், பட்டா புல எண்கள். 1124/5(0.16.20), 1124/6(1.10.90), 1151/5(0.64.00), 1151/6(0.36.40) மற்றும் 1172/2ஏ(0.13.00) ஆகியவற்றில் 2.40.40 ஹெக்டர் பரப்பளவில் பலவண்ண கிராணைட் கற்கள் வெட்டி எடுக்க தடையில்லாச் சான்று (No Objection Certificate) வழங்கலாம் என வனச்சரக அலுவலர் பரிந்துரை செய்துள்ளார்.

தேன்கனிக்கோட்டை வனச்சரக அலுவலரின் பரிந்துரையினை கருத்தில் கொண்டு ஓசூர் கோட்ட வனஉயிரின காப்பாளரால் மேற்படி புலத்தினை 07.06.2022 அன்று களத்தணிக்கை மேற்கொள்ளப்பட்டது. களத்தணிக்கையில் கிருஷ்ணகிரி வனச்சரக அலுவலர் கூறிய கருத்துக்கள் ஏற்றுக்கொள்ளக்கூடியதாக உள்ளது.

மேலும், மேற்படி அனுமதி கோரியுள்ள புலத்திலிருந்து 25 கி.மீ சுற்றளவிற்குள் கீழ்க்கண்ட காப்புக்காடுகள் அமைந்துள்ளன.

வ.எண்.	கோட்டம்	சரகம்	காப்புக்காட்டின் பெயர்
1	ஓசூர்	தேன்கனிக்கோட்டை (காவேரி வடக்கு வனஉயிரின சரணாலயம்)	குல்லட்டி
2	"	"	அய்யூர் விரிவாக்கம் 1
3	"	"	அய்யூர் விரிவாக்கம் 2
4	"	"	அய்யூர் விரிவாக்கம் 3
5	"	"	அய்யூர்
6	"	"	அய்யூர் விரிவாக்கம்
7	"	"	என்.எஸ். அக்ரஹாரம்
8	"	"	மாரண்டஹள்ளி விரிவாக்கம்
9	"	"	தொளுவபெட்டா
10	"	"	தொளுவபெட்டா விரிவாக்கம்
11	"	"	கெம்பகரை
12	"	"	சாமேரி
13	"	"	மாரண்டஹள்ளி
14	"	"	காளிகட்டம்

வ.எண்.	கோட்டம்	சரகம்	காப்புக்காட்டின் பெயர்
15	"	"	குத்திராயன்
16	"	தேன்கனிக்கோட்டை	நொகனூர்
17	"	"	தேன்கனிக்கோட்டை
18	"	"	தேன்கனிக்கோட்டை விரிவாக்கம்
19	"	அஞ்செட்டி (காவேரி வடக்கு வனஉயிரின சரணாலயம்)	பனை (பகுதி)
20	"	"	பனை விரிவாக்கம்
21	"	"	மஞ்சி
22	"	"	அஞ்செட்டி
23	"	அஞ்செட்டி	உப்ராணி
24	"	"	பிலிகுண்டுலு
25	"	"	பிலிகுண்டுலு விரிவாக்கம்
26	"	"	நாற்றம்பாளையம்
27	"	"	ஒட்டப்பட்டி
28	"	உரிகம்	துக்கட்டி
29	"	"	உரிகம்
30	"	ஐவளகிரி	உளிபண்டா
31	"	ஐவளகிரி (காவேரி வடக்கு வனஉயிரின சரணாலயம்)	பனை (பகுதி)
32	"	"	ஐவளகிரி
33	"	ஓசூர்	சானமாவு
34	"	"	தொரப்பள்ளி அக்ரஹாரம்
35	"	இராயக்கோட்டை (காவேரி வடக்கு வனஉயிரின சரணாலயம்)	ஊடே தூர்கம் (பகுதி)
36	"	இராயக்கோட்டை	செங்கோட சின்னஹள்ளி
37	"	"	இராயக்கோட்டை 2
38	"	"	இராயக்கோட்டை 3
39	"	"	இராயக்கோட்டை 4
40	"	"	சொக்கம்பட்டி
41	"	ஓசூர்	சானமாவு
42	தருமபுரி	பாலக்கோடு (காவேரி வடக்கு வனஉயிரின சரணாலயம்)	ஊடே தூர்கம் (பகுதி)
43	தருமபுரி	பாலக்கோடு	மொரப்பூர்
44	"	"	கேசர்குழி

வ.எண்.	கோட்டம்	சரகம்	காப்புக்காட்டின் பெயர்
45	"	"	கேசர்குழி விரிவாக்கம்
46	"	"	குத்திராயன் (பகுதி)
47	"	"	அத்திமுட்டு
48	"	"	பி.செட்டிப்பள்ளி
49	"	"	ரங்கம்பட்டி
50	"	"	தொட்டபடகானப்பள்ளி
51	"	"	சும்மனூர்
52	கர்நாடக மாநிலம் - பன்னர்கட்டா தேசிய பூங்கா	கோடிஹள்ளி	கோடிஹள்ளி சரகம்

எனவே, பார்வை 7ல் கண்ட முதன்மை தலைமை வனப்பாதுகாவலர் (குறைத் தலைவர்) அவர்களின் உத்தரவின்படி, மேற்படி பகுதியில் பலவண்ண கிராணைட் கற்கள் வெட்டி எடுக்க கீழ்க்கண்ட நிபந்தனைகளுடன் வனத்துறையின் தடையில்லாச் சான்று வழங்கப்படுகிறது.

- 1) பலவண்ண கிராணைட் கற்கள் வெட்டி எடுக்க குவாரி குத்தகை அனுமதி கோரப்பட்டுள்ள கிருஷ்ணகிரி மாவட்டம், தேன்கனிக்கோட்டை வட்டம், இருதுகோட்டை கிராமம், பட்டா புல எண்கள். 1124/5(0.16.20), 1124/6(1.10.90), 1151/5(0.64.00), 1151/6(0.36.40) மற்றும் 1172/2ஏ(0.13.00) ஆகியவற்றில் 2.40.40 ஹெக்டார் பரப்பளவின் எல்லையை நிர்ணயம் செய்யவும், கனிமவளத் துறையால் அனுமதி நடைசீட்டு வழங்கும் முன் அனுமதிக்கப்பட்ட பரப்பில் மட்டும் குவாரி பணி செய்வதை மாவட்ட நிர்வாகம் / கனிம வளத்துறை உறுதி செய்தல் வேண்டும்.
- 2) காலை 6.00 மணி முதல் மாலை 6.00 மணி வரை மட்டுமே கற்குவாரி பணி செய்ய அனுமதி வழங்கப்பட வேண்டும்.
- 3) குவாரி பணி செய்ய தேர்வு செய்யப்பட்டுள்ள மேற்படி 2.40.40 ஹெக்டார் பரப்பளவில், பலவண்ண கிராணைட் கற்குவாரி பணி செய்யும் பகுதியைச் சுற்றி ஒலி மற்றும் காற்று மாசுபடுவதை தவிர்க்க புங்கன் மற்றும் வேம்பு உள்ளிட்ட குறைந்த பட்சம் 300 மரக்கன்றுகள் நடவு செய்து பசுமை போர்வை ஏற்படுத்தி பராமரிக்க வேண்டும்.
- 4) அரசாணை (நிலை) எண்.79 தொழில் (கனிமம் 1) துறை நாள்.06.04.2015-ல் வழங்கப்பட்டுள்ள நிபந்தனைகள் மற்றும் அரசு ஆணை (நிலை) எண். 295 தொழில் துறை நாள்.03.11.2021-ல் தெரிவிக்கப்பட்ட நிபந்தனைகளையும் மாவட்ட நிர்வாகம் / கனிம வளத்துறை கடைபிடிப்பதை உறுதி செய்ய வேண்டும்.
- 5) மேற்படி புலத்தில் குவாரி பணி செய்ய அனுமதி வழங்கும் பட்சத்தில், கனிமவள குற்றங்களைத் தடுத்திடும் பொருட்டு, சாலைகளின் வழியே வாகனங்களில் கனிமங்களை கொண்டு செல்லும்பொழுது, வனப்பணியாளர்கள் சோதனை மற்றும் ஆய்வு செய்ய உட்பட்டிருக்க வேண்டும்.
- 6) உத்தேச குவாரிப் பகுதிக்கு அருகில் யானைகள் உள்ளிட்ட வனஉயிரினங்கள் வந்தால், அவைகள் அப்பகுதியிலிருந்து வேறு இடத்திற்கு செல்லும்வரை குவாரி பணி மேற்கொள்ளக்கூடாது.

- 7) நடைமுறையிலுள்ள பல்வேறு வனச்சட்டங்கள் மற்றும் வன விதிகளுக்கும், வனம் மற்றும் வனஉயிரினங்களுக்கும் எந்தவிதமான பாதிக்கும் ஏற்படாவண்ணம் சுரங்கப் பணிகள் மேற்கொள்ளப்பட வேண்டும்.
- 8) வனம் மற்றும் வனஉயிரினங்கள் பாதுகாப்பின் முக்கியத்துவம் கருதி, வனவிலங்குகள் காப்புக்காட்டினை விட்டு வெளியேறுவதைத் தடுக்கும்பொருட்டு, தடுப்பு நடவடிக்கைகள் மேற்கொள்ள கனம் குத்தகைதாரர் தம் விருப்பத்தின் அடிப்படையில் பங்களிப்பு வழங்கிட முன்வர வேண்டும்.

மேற்கண்ட அனைத்து நிபந்தனைகளுக்கும் உட்பட்டு மனுதாரருக்கு கிருஷ்ணகிரி மாவட்டம், தேன்கனிக்கோட்டை வட்டம், இருதுகோட்டை கிராமம், பட்டா புல எண்கள். 1124/5(0.16.20), 1124/6(1.10.90), 1151/5(0.64.00), 1151/6(0.36.40) மற்றும் 1172/2ஏ(0.13.00) ஆகியவற்றில் 2.40.40 ஹெக்டர் பரப்பளவில் பலவண்ண கிராண்ட் கற்கள் வெட்டி எடுக்க தடையில்லாச் சான்று (No Objection Certificate) வழங்கப்படுகிறது. மேற்படி நிபந்தனைகளை மனுதாரர் கடைபிடிக்கவில்லை எனில், வனத்துறையால் வழங்கப்படும் இத்தடையின்மை சான்று மாவட்ட ஆட்சித்தலைவரின் கவனத்திற்கு கொண்டு சென்று இரத்து செய்யப்படும் என்பதை அன்புடன் தெரிவித்துக்கொள்கிறேன்.

தங்கள் அன்புள்ள,
ஓம்/- க. கார்த்திகேயனி,
வனஉயிரின காப்பாளர்,
ஓசூர் வனக்கோட்டம்.

நகல் -

- 1) முதன்மை தலைமை வனப்பாதுகாவலர் (குறைத் தலைவர்), சென்னை அவர்களுக்கு பணிந்து சமர்ப்பிக்கப்படுகிறது.
- 2) வனப்பாதுகாவலர், தருமபுரி மண்டலம் அவர்களுக்கு பணிந்து சமர்ப்பிக்கப்படுகிறது.
- 3) துணை இயக்குநர், புவியியல் மற்றும் சுரங்கத்துறை, கிருஷ்ணகிரி மாவட்டம்.
- 4) வனச்சரக அலுவலர், தேன்கனிக்கோட்டை சரகம்.

மேற்படி குவாரி குத்தகை அனுமதி கோரியுள்ள பகுதிகளில் அடிக்கடி களத்தணிக்கை மேற்கொண்டு, வனம் / வன உயிரினங்களுக்கு பாதிப்பு / ஒழுங்கீனங்கள் ஏதுவும் ஏற்படாமல் தகுந்த பாதுகாப்பு நடவடிக்கை மேற்கொள்ளவும், அருகிலுள்ள வனநிலங்களில் அத்துமீறல்கள் ஏதும் நடைபெறாமல் பாதுகாப்பு நடவடிக்கை மேற்கொள்ளவும் வனச்சரக அலுவலர் அறிவுறுத்தப்படுகிறார்.

//உ.ந.உ.ப//


கண்காணிப்பாளர்





Sri Devi Explosives

Specialist in All Type of Drilling, Blasting, Chemical Method Blasting,
Supply Explosives, Rope Cutting Method



To
M/s TOP GRANITE S,
Old No. 7, New No. 16,
1st Floor, First Street,
North Gopalapuram,
Chennai - 600 086.

Dr. 21/09/2023

Ref: Your Letter dated

Sub: Regarding blasting work using explosives in your proposed quarry.

Sir,

We are having explosives licence in Form 22 holding No. E/SC/TN/22/72 (E10244) situated in Survey No. S.F.No. 214/4E, Mavathal Village, Mettur Taluk, Salem District. Our office functions at Address:- M/s. SRI DEVI EXPLOSIVES, No. 5/1-60, Opp R C Plant, Raman Nagar post, Mettur Taluk, Salem District.

We are enacting 2 explosives vans for transporting detonators and class 2 separately for our Magazine to our work site and well experienced and licensed blasters and shot firer for safe Blasting work since 2 years without untoward incident.

We are willing to undertake work on contract basis at your S.F. No. 1124/5, 1124/6, 1151/5, 1151/6 & 1172/2A in frudhukottai Village, Denkanikottai Taluk, Krishnagiri District.

Thanking you,

For Sri Devi Explosives,


(Proprietor)

Enclosure:

1. Licence Copy

98427 33654
81444 29999
99523 66280

◆ Sridevi devi16@gmail.com



No. 5-1-60, Erattai Puliyamarathur, Raman Nagar, Mettur Dam, Salem



GOVERNMENT OF INDIA
MINISTRY OF COMMERCE & INDUSTRY
PETROLEUM AND EXPLOSIVES SAFETY ORGANISATION (PESO)
(Formerly Department of Explosives)
No.3, Vth East Cross Road
Gandhi Nagar Vellore 632006
Tele: 2242513
Email: dyccecvellore@explosives.gov.in

No : E/SV/TN/30/894(E121298)

Dated : 09/04/2019

To,
MRURGESAN RAMAGOUNDER,
No. 69/27, Periyar Nagar, Old Suramangalam, Salem City,
Distt. SALEM, State: Tamil Nadu, Pincode-636005

Subject: Shotfirer's Certificate No. E/SV/TN/30/894(E121298) issued to MRURGESAN RAMAGOUNDER, No. 69/27, Periyar Nagar, Old Suramangalam, Salem City, granted in Form LE-10 of Explosives Rules, 2008 - Issue of Certificate regarding.

Sirs),

Please refer to your letter No. 15910 dated 03/04/2019 and the subsequent examination held on 09/04/2019. Please find enclosed herewith Shotfirer's Certificate No. E/SV/TN/30/894(E121298) valid upto 09/04/2024 for the purpose of

Class : (F), Category : Agricultural, All phases of blasting in agricultural and well sinking as per the provisions of Rule 107 of Explosives Rules, 2008.

Conditions:

1)Blasting work in connection with well Sinking/Road Construction/Agricultural work etc.

It may please be noted that no explosives should be purchased on the strength of the above certificate. You are advised to strictly follow Rules 89 to 98 of Explosives Rules 2008 while undertaking blasting operations.

• In case of validity of the certificate to be extended , application with following documents shall be submitted :

- a. Application in Form AE-10.
- b. Original Shot firer's Certificate in Form LE-10.
- c. Scrutiny fee of revalidation Rs. 400/-, DD shall be drawn in favour of Jt. Chief Controller of Explosives, Chennai payable at Chennai.
- d. Five copies of holder's colour passport size photographs duly signed 'in front' by 'black color indelible ink'.
- e. A physical fitness certificate from Registered medical practitioner.
- f. A consent letter from the present employer holding Licence in Form LE-3 and intending to hire the services of Certificate holder.
- g. The shot firer certificate holder has to present himself physically before reviewing/revalidating Authority.
- h. This certificate is liable to be cancelled/withdrawn on contravention of provisions of Explosive Rules, 2008 committed during blasting operations, resulting in loss of human life.

An amount of Rs. 400/- balance is in your credit, which may be utilized for future transaction by quoting this reference.

Enclosures :

Yours faithfully,

(Dr. Dasharath Laxman Kamble)
विस्फोटक नियंत्रक, वेल्डूर
Controller of Explosives, Vellore

अनुज्ञप्ति प्ररूप एल.ई. -10 | Form LE-10
 शॉर्ट फायर कर्ता प्रमाण-पत्र | Shot Firer's Certificate
 (अनुसूची IV के भाग 1 का अनुच्छेद 10 देखें | See article 10 of Part 1 of Schedule IV)
 विस्फोटक नियम, 2008 का नियम 107(5) देखें | see rule 107(5) of Explosives Rules, 2008]

(खान अधिनियम, 1952 के अधीन न आने वाले क्षेत्र में विस्फोट करने के लिए सक्षमता प्रमाणपत्र)
 (Certificate of competency to carry out blasting of explosives in area not coming under the
 Mines Act, 1952)



संख्या | No.: E/SV/FN/30/894(E121298)

प्रमाणित किया जाता है कि श्री MRURGESAN RAMAGOUNDER,
 जिनका जन्म 01/06/1972 को हुआ था, जो No. 69/27, Periyar Nagar, Old Suramangalam, Salem City., SALEM,
 Tamil Nadu - 636005 के निवासी है ने उप विस्फोटक नियंत्रक, वैल्लूर द्वारा तारीख 09/04/2019 को आयोजित शॉर्ट फायर
 की परीक्षा तारीख को 09/04/2019 उत्तीर्ण कर ली है और वह विस्फोटक अधिनियम, 1884 और उसके अधीन विरचित
 नियमों के उपबंधों के अधीन रहते हुए खान अधिनियम, 1952 की परिधि के अधीन आनेवाले खानों से अन्यथा क्षेत्र में
 नीचे यथा उल्लिखित विस्फोटकों का उपयोग करते हुए विस्फोट प्रचालन करने के लिए प्राधिकृत है।

This is to certify that Shri MRURGESAN RAMAGOUNDER,
 born on 01/06/1972, resident of No. 69/27, Periyar Nagar, Old Suramangalam, Salem City., SALEM, Tamil Nadu -
 636005 passed the shotfirer's examination held on 09/04/2019 conducted by Dy. Controller of Explosives, Vellore
 and is authorised to conduct blasting operations as mentioned below using explosives in areas other than mines coming
 under the purview of the Mines Act 1952, subject to the provisions of the Explosives Act, 1884 and the rules framed
 thereunder.

विस्फोट करने के प्राधिकृत वर्ग, प्रवर्ग और प्रकार :
 वर्ग(च), श्रेणी: कृषि, कृषि और कुआँ गलाने में ब्लास्टिंग के सभी चरण

Authorised class, category and type of blasting :
 Class : (F), Category : Agricultural, All phases of blasting in agricultural and well sinking

[नियम 107 का उप-नियम (5) का स्पष्टीकरण देखें | See explanation of sub-rule (5) of rule 107]

यह प्रमाणपत्र 09/04/2024 (जारी करने की तारीख से पांच वर्ष) तक विधिमान्य होगा।
 This certificate shall remain valid till 09/04/2024 (five years from the date of issue)

यह प्रमाण-पत्र, अधिनियम या उसके अधीन विरचित नियमों अथवा इस प्रमाण-पत्र की शर्तों का कोई अधिक्रमण
 करने पर या यदि आवेदक द्वारा आवेदन प्ररूप में दी गई सूचना में कोई फर्क या विचलन होता है तो निलम्बित या
 अभिखंडित कर दिया जाएगा।

This certificate is liable to be suspended or revoked for any violation of the Act or rules framed thereunder or the
 conditions of this certificate or if there is any discrepancy or deviation in the information or suppression of facts
 furnished by the applicant in his application form.

स्थान | Place : वैल्लूर | Vellore
 दिनांक | Date: 09/04/2019

उप मुख्य विस्फोटक नियंत्रक | Dy. Chief Controller of Explosives
 विस्फोटक नियंत्रक, वैल्लूर | Vellore
 Controller of Explosives, Vellore

पुनर्विधिमान्यनकरण के लिए पृष्ठांकन
 Endorsement for revalidation



**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.9443/ToR- 1297/2022 Dated: 28.10.2022.

To

Tvl.S.V.Granites
No.17B/3, Vellakottai 1st street
Chennai Salai
Krishnagiri-635001

Sir / Madam,

Sub: SEIAA, Tamil Nadu – Terms of Reference with public Hearing (ToR) for the Proposed Multicolour Granite Quarry over an Extent of 1.91.50 Ha in S.F.Nos. 1124/7 (P), 1130/7 (P), 1131/7 and 1131/8 of Irudukottai Village, Denkanikottai Taluk, Krishnagiri District, Tamil Nadu by Tvl.S.V.Granites- under project category – “BI” 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/82402/2022, dated 17.08.2022.
 2. Your application submitted for Terms of Reference dated: 22.08.2022.
 3. Minutes of the 319th SEAC meeting held on 12.10.2022.
 4. Minutes of the 564th Authority meeting held on 28.10.2022.

Kindly refer to your proposal submitted to the State Level Impact Assessment Authority for Terms of Reference.

The proponent, Tvl.S.V.Granites has submitted application for Terms of Reference (ToR) with public Hearing on 22.08.2022, for the Proposed Multicolour Granite Quarry over an Extent of 1.91.50 Ha in S.F.Nos. 1124/7 (P), 1130/7 (P), 1131/7 and 1131/8 of Irudukottai Village, Denkanikottai Taluk, Krishnagiri District, Tamil Nadu.

**MEMBER SECRETARY
SEIAA-TN**

Discussion by SEAC and the Remarks: -

Proposed Multicolour Granite Quarry lease over an extent of 1.91.5 Ha at S.F.Nos. 1124/7 (P), 1130/7 (P), 1131/7 and 1131/8 of Irudukottai Village, Denkanikottai Taluk, Krishnagiri District, Tamil Nadu by Tvl. S.V. Granites - For Terms of Reference.


The proposal was placed in 319th SEAC meeting held on 12.10.2022. 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, Tvl. S.V. Granites has applied for Terms of Reference for the Proposed Multicolour Granite Quarry lease over an extent of 1.91.5 Ha at S.F.Nos. 1124/7 (P), 1130/7 (P), 1131/7 and 1131/8 of Irudukottai Village, Denkanikottai Taluk, Krishnagiri District, Tamil Nadu.
2. The project/activity is covered under Category "B1" of Item 1(a) "Mining Projects" of the Schedule to the EIA Notification, 2006.

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 details issued by the MOEF & CC to be included in EIA/EMP Report:

1. The proponent is requested to carry out a survey and enumerate on the structures located within 50m, 100m, 150m, 200m, 250m, 300m and 500m from the boundary of the mine lease area.
2. The proponent shall detail the mitigation measures in CNWLS at the cost of 10 lakhs in EMP, after consulting the concerned Wildlife Warden.
3. The proponent shall adhere to the bench height - 5m as stated in the approved mining plan.
4. The proponent shall give an affidavit stating that the quarry will participate in the Anna University Star Rating system annually after the commencement of mining operations.
5. The Project Proponent shall conduct the 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) 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. Necessary data and documentation in this regard may be provided.


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6. The PP shall prepare and submit a Standard Operating Procedures (SoP) during the EIA appraisal, which is in line with the safety provisions as laid for the operation of Diamond Wire Saw machines and use of Cranes vide DGMS Tech Circulars No: 02 of 29.11.2019 & No. 10 of 19.07.2002 respectively.
7. The proponent shall submit the details on the type of controlled blasting activity if it is proposed during the quarrying operation.
8. The PP shall furnish DFO letter stating that the proximity distance of Reserve Forests, Protected Areas, Sanctuaries, Tiger reserve etc., upto a radius of 25 km from the proposed site.
9. The PP shall make necessary announcement regarding the Public Hearing to the nearby house owners located in the vicinity of the project site such that their presence is ensured during the meeting.
10. In the case of proposed lease in an existing (or old) quarry where the benches are non-existent (or) partially formed critical of the bench geometry approved in the Mining Plan, the Project Proponent (PP) shall prepare and submit an 'Action Plan' for carrying out the realignment of the 'highwall' benches to ensure slope stability in the proposed quarry lease which shall be vetted by the concerned Asst. Director of Geology and Mining, during the time of appraisal for obtaining the EC.
11. The Proponent shall submit a conceptual 'Slope Stability Plan' for the proposed quarry indicating the proposed stabilizing measures during the appraisal while obtaining the EC, when the depth of the working is extended beyond 30 m below ground level.
12. 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.
13. The PP shall furnish a Standard Operating Procedure for carrying out the safe blasting operation if any other quarries lies/operates in a radial distance of 500 m from the proposed quarry.
14. Details of Green belt & fencing shall be included in the EIA Report.
15. 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.


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16. 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,
17. What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?
- 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.
18. 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).
19. The PP shall carry out Drone video survey covering the cluster, Green belt, fencing etc.,
20. 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.
21. 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.
22. 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 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.


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23. 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.
24. 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.
25. Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.
26. 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.
27. 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.
28. 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.
29. 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.
30. Impact on local transport infrastructure due to the Project should be indicated.
31. 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.
32. A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.


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33. Public Hearing points raised and commitments 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 and to be submitted to SEIAA/SEAC with regard to the Office Memorandum of MoEF& CC accordingly.
34. The Public hearing advertisement shall be published in one major National daily and one most circulated vernacular daily.
35. The PP shall produce/display the EIA report, Executive summary and other related information with respect to public hearing in Tamil Language also.
36. 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.
37. 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.
38. 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
39. 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.
40. 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.
41. 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


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- project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.
42. 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.
 43. 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.
 44. Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.
 45. 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.
 46. 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.
 47. 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.
 48. 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.

Discussion by SEIAA and the Remarks: -

The proposal was placed in the 564th Authority meeting held on 28.10.2022. The Authority noted that the proposal was placed in 319th SEAC meeting held on 12.10.2022.

Based on the presentation made by the proponent SEAC decided to recommend for grant of Terms of Reference (TOR) with Public Hearing. After detailed deliberations, the Authority accepted the recommendations of SEAC and decided to grant Terms of Reference subject to the conditions as

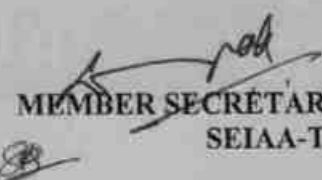

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recommended by SEAC in addition to the following conditions and conditions stated therein vide Annexure 'B':

1. Restricting the depth to 23m in Section XIY1-AB and 18m in Section XIY1-CD considering safety aspects and to ensure sustainable mining. Hence, authority decided to issue Terms of Reference for a production quantity of 20,142 m³ of Multi colour Granite @ 60% recovery.
2. From the KML file uploaded by the proponent in online through Parivesh portal, it is ascertained that the proposed mine lease area appears to be a micro catchment. Hence, the proponent shall submit a detailed report on the following
 - (i) Impacts on nearby agricultural land due to the proposed activity and its mitigation measures.
 - (ii) Due to the proposed mining activity the hillock will be deprived of water and hence shall discuss about the measures that will be adopted to mitigate.
 - (iii) The hillock will act as sponge for slow runoff of water. Hence, it's impacts and mitigation measures shall be studied in detail conducted by reputed government intuitions only. (Excluding NABET accredited institutions).
 - (iv) Impact on Biodiversity, Horticulture, Flora & Fauna and soil.
 - (v) Number of trees that will be removed and its impact.
 - (vi) Pattern of Rainfall in the proposed area and it's drainage pattern.
 - (vii) Runoff characteristics and the reduction in the runoff due to the proposed mine area and further it's effects on the agricultural land which is dependent on the runoff for irrigation purposes.

Annexure 'B'

1. Cluster Management Committee, 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.


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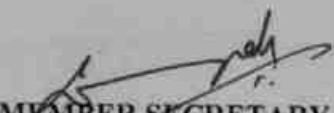
4. Detailed Operational Plan must be submitted which must include the blasting frequency with respect to the nearby quarry situated in the cluster, the usage of haul roads by the individual quarry in the form of route map and network.
5. The committee shall deliberate on risk management plan pertaining 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. 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 streams.
11. The committee shall furnish an action plan to achieve sustainable development goals with reference to water, sanitation & safety.
12. The committee shall furnish the fire safety and evacuation plan in the case of fire accidents.
13. The measures taken to control Noise, Air, Water, Dust Control and steps adopted to efficiently utilise the Energy shall be furnished.


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14. 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.
15. Impact on surrounding agricultural fields around the proposed mining Area.
16. Erosion Control measures.
17. Impact on soil flora & vegetation around the project site.
18. 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.
19. 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.
20. 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.
21. 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.
22. 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.
23. Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.
24. The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir.
25. The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components.
26. The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.
27. The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection.
28. The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites.


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29. The Environmental Impact Assessment should hold detailed study on EMP with budget for Green belt development and mine closure plan including disaster management plan.
30. The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock.
31. The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site.
32. The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands, Horticulture, Agriculture and livestock.
33. The project proponent shall study and furnish the details on potential fragmentation impact of natural environment, by the activities.
34. 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.
35. 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.
36. The project proponent shall detailed study on impact of mining on Reserve forests free ranging wildlife.
37. 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.
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.
39. To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining.


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40. Detailed Mine Closure Plan covering the entire mine lease period as per precise area communication order issued.
41. Detailed Environment Management Plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued.


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


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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 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


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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 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


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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 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



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- 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 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


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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.
 - 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


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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.
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


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- 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.
 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


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during the operations of the mines.

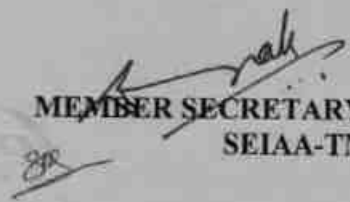
29. A specific study should include impact on flora & fauna, disturbance to migratory pattern of animals.
30. Reserve funds should be earmarked for proper closure plan.
31. A detailed plan on plastic waste management shall be furnished. Further, the proponent should strictly comply with, Tamil Nadu Government 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 take further necessary action for obtaining environmental clearance in accordance with the procedure prescribed under the EIA Notification, 2006.


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- 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.


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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.

TEST REPORT



TC-9583

Report No	EHS360/TR/2024-25/024	Report Date	07.03.2024
Site Location	TVL TOP GRANITES MULTI COLOUR GRANITE QUARRY S.F.Nos. . 1124/5, 1124/6, 1151/5, 1151/6 and 1172/2A Irudhukottai Village, Denkanikottai Taluk, Krishnagiri District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/024
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ 1 – Core Zone-12°25'41.68"N 77°50'5.87"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)
05.12.2023	7:00-7:00	45.8	21.6	7.4	22.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.12.2023	7:15-7:15	44.3	21.5	7.5	23.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
12.12.2023	7:00-7:00	44.6	20.2	7.2	22.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.12.2023	7:15-7:15	45.7	21.2	8.0	21.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
19.12.2023	7:00-7:00	45.8	20.7	6.3	23.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.12.2023	7:15-7:15	45.5	21.5	6.2	22.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
26.12.2023	7:00-7:00	44.9	21.4	6.4	21.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.12.2023	7:15-7:15	45.8	20.3	6.6	23.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.01.2024	7:00-7:00	45.5	20.1	7.4	22.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
03.01.2024	7:15-7:15	44.9	21.1	7.7	22.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.01.2024	7:00-7:00	45.1	21.8	6.6	23.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
10.01.2024	7:15-7:15	44.6	20.0	6.8	22.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.01.2024	7:00-7:00	43.8	20.5	6.6	23.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
17.01.2024	7:15-7:15	44.7	21.4	7.4	23.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.01.2024	7:00-7:00	45.8	21.8	6.5	24.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
24.01.2024	7:15-7:15	45.9	21.3	6.9	23.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
30.01.2024	7:00-7:00	44.6	20.8	7.2	22.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
31.01.2024	7:15-7:15	46.8	21.5	7.6	23.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.02.2024	7:00-7:00	46.0	20.2	6.2	24.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
07.02.2024	7:15-7:15	44.4	21.7	6.8	23.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.02.2024	7:00-7:00	46.4	21.3	6.6	24.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
14.02.2024	7:15-7:15	46.9	21.6	5.0	24.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.02.2024	7:00-7:00	45.6	20.2	6.2	23.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
21.02.2024	7:15-7:15	44.1	21.7	6.8	24.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.02.2024	7:00-7:00	45.4	21.3	6.6	24.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
28.02.2024	7:15-7:15	45.9	21.6	6.0	23.8	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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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/2024-25/024	Report Date	07.03.2024
Site Location	TVL. TOP GRANITES MULTI COLOUR GRANITE QUARRY S.F.Nos. . 1124/5, 1124/6, 1151/5, 1151/6 and 1172/2A Irudhukottai Village, Denkanikottai Taluk, Krishnagiri District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/024
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ 1 – Core Zone-12°25'41.68"N 77°50'5.87"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)
05.12.2023	7:00-7:00	68.8	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	69.1	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	68.5	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	68.9	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	68.3	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	69.4	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	69.7	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	69.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
02.01.2024	7:00-7:00	68.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
03.01.2024	7:15-7:15	67.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
09.01.2024	7:00-7:00	67.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
10.01.2024	7:15-7:15	67.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
16.01.2024	7:00-7:00	68.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
17.01.2024	7:15-7:15	68.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
23.01.2024	7:00-7:00	68.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
24.01.2024	7:15-7:15	67.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
30.01.2024	7:00-7:00	67.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
31.01.2024	7:15-7:15	67.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.02.2024	7:00-7:00	67.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
07.02.2024	7:15-7:15	67.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.02.2024	7:00-7:00	67.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
14.02.2024	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)
20.02.2024	7:00-7:00	68.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
21.02.2024	7:15-7:15	67.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
27.02.2024	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)
28.02.2024	7:15-7:15	68.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
NAAQ* Standard		<200	<100	<60	<80	<80	<100

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 7 of 7

Verified by



Authorised Signatory

A S K

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/2024-25/025	Report Date	07.03.2024
Site Location	TVL. TOP GRANITES MULTI COLOUR GRANITE QUARRY S.F.Nos. . 1124/5, 1124/6, 1151/5, 1151/6 and 1172/2A Irudhukottai Village, Denkanikottai Taluk, Krishnagiri District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/025
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ 2 – Thottikuppam-12°25'32.77"N 77°50'20.04"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)
05.12.2023	7:00-7:00	45.3	20.5	6.5	22.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.12.2023	7:15-7:15	43.5	21.6	7.3	23.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
12.12.2023	7:00-7:00	44.7	21.3	7.9	24.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.12.2023	7:15-7:15	42.6	21.8	6.0	23.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
19.12.2023	7:00-7:00	43.8	20.9	6.4	22.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.12.2023	7:15-7:15	44.9	20.2	6.3	23.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
26.12.2023	7:00-7:00	42.6	22.1	7.4	21.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.12.2023	7:15-7:15	44.0	21.0	6.6	24.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.01.2024	7:00-7:00	42.5	21.7	6.4	23.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
03.01.2024	7:15-7:15	43.6	20.6	6.9	23.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.01.2024	7:00-7:00	43.8	20.7	7.4	24.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
10.01.2024	7:15-7:15	45.0	20.5	7.1	23.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.01.2024	7:00-7:00	44.2	21.7	6.4	21.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
17.01.2024	7:15-7:15	44.8	20.6	6.7	23.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.01.2024	7:00-7:00	43.6	21.0	7.6	22.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
24.01.2024	7:15-7:15	43.6	22.6	7.7	22.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
30.01.2024	7:00-7:00	44.8	21.8	6.1	23.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
31.01.2024	7:15-7:15	43.6	20.3	5.8	24.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.02.2024	7:00-7:00	42.9	21.0	6.6	23.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
07.02.2024	7:15-7:15	44.9	20.8	6.4	21.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.02.2024	7:00-7:00	42.0	21.6	7.5	22.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
14.02.2024	7:15-7:15	44.6	21.4	7.9	22.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.02.2024	7:00-7:00	43.9	22.9	5.1	23.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
21.02.2024	7:15-7:15	43.2	23.0	5.6	23.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.02.2024	7:00-7:00	44.1	21.3	6.8	22.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
28.02.2024	7:15-7:15	42.7	21.6	6.0	24.2	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*****

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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/2024-25/025	Report Date	07.03.2024
Site Location	TVL. TOP GRANITES MULTI COLOUR GRANITE QUARRY S.F.Nos. . 1124/5, 1124/6, 1151/5, 1151/6 and 1172/2A Irudhukottai Village, Denkanikottai Taluk, Krishnagiri District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/025
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ 2 – Thottikuppam-12°25'32.77"N 77°50'20.04"E		

Date	Period. hrs	SPM (µg/m³)	As (ng/m³)	C6H6 (µg/m³)	BaP (ng/m³)	Pb (µg/m³)	Ni (ng/m³)
05.12.2023	7:00-7:00	69.7	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	68.5	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	69.1	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	69.5	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	68.2	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	68.7	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	67.6	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	68.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
02.01.2024	7:00-7:00	68.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
03.01.2024	7:15-7:15	69.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
09.01.2024	7:00-7:00	69.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
10.01.2024	7:15-7:15	68.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
16.01.2024	7:00-7:00	68.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
17.01.2024	7:15-7:15	68.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
23.01.2024	7:00-7:00	68.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
24.01.2024	7:15-7:15	67.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
30.01.2024	7:00-7:00	66.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
31.01.2024	7:15-7:15	66.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.02.2024	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)
07.02.2024	7:15-7:15	68.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.02.2024	7:00-7:00	68.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
14.02.2024	7:15-7:15	67.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
20.02.2024	7:00-7:00	67.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
21.02.2024	7:15-7:15	67.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
27.02.2024	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)
28.02.2024	7:15-7:15	67.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
NAAQ* Standard		<200	<100	<60	<80	<80	<100

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

AS

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



TC-9583

Report No	EHS360/TR/2024-25/026	Report Date	07.03.2024
Site Location	TVL. TOP GRANITES MULTI COLOUR GRANITE QUARRY S.F.Nos. . 1124/5, 1124/6, 1151/5, 1151/6 and 1172/2A Irudhukottai Village, Denkanikottai Taluk, Krishnagiri District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/026
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ3 –Salivaram - 12°25'27.03"N 77°46'53.39"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)
05.12.2023	7:00-7:00	44.7	21.3	6.9	22.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.12.2023	7:15-7:15	45.3	22.2	6.7	22.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
12.12.2023	7:00-7:00	44.1	21.9	6.2	23.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.12.2023	7:15-7:15	45.9	22.3	5.3	21.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
19.12.2023	7:00-7:00	44.3	21.1	5.4	22.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.12.2023	7:15-7:15	45.7	21.1	6.2	22.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
26.12.2023	7:00-7:00	45.2	22.4	6.6	23.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.12.2023	7:15-7:15	44.8	21.5	6.4	21.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.01.2024	7:00-7:00	44.1	21.7	5.5	22.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
03.01.2024	7:15-7:15	45.8	22.1	5.2	21.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.01.2024	7:00-7:00	44.2	20.6	5.8	23.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
10.01.2024	7:15-7:15	43.4	19.9	6.7	23.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.01.2024	7:00-7:00	43.9	19.1	5.9	22.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
17.01.2024	7:15-7:15	43.2	18.9	5.8	22.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.01.2024	7:00-7:00	45.7	20.5	5.3	23.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
24.01.2024	7:15-7:15	44.2	20.9	5.7	23.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
30.01.2024	7:00-7:00	45.6	20.3	5.5	23.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
31.01.2024	7:15-7:15	46.2	19.9	5.2	22.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.02.2024	7:00-7:00	46.6	21.5	5.8	22.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
07.02.2024	7:15-7:15	44.1	20.1	5.6	23.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.02.2024	7:00-7:00	45.7	21.7	5.5	24.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
14.02.2024	7:15-7:15	45.2	20.4	7.7	23.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.02.2024	7:00-7:00	46.7	19.7	7.6	23.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
21.02.2024	7:15-7:15	45.9	18.9	7.3	24.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.02.2024	7:00-7:00	44.4	20.1	7.6	23.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
28.02.2024	7:15-7:15	44.7	21.3	7.7	22.7	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*****

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/2024-25/026	Report Date	07.03.2024
Site Location	TVL. TOP GRANITES MULTI COLOUR GRANITE QUARRY S.F.Nos. . 1124/5, 1124/6, 1151/5, 1151/6 and 1172/2A Irudhukottai Village, Denkanikottai Taluk, Krishnagiri District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/026
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ3 –Salivaram - 12°25'27.03"N 77°46'53.39"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)
05.12.2023	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)
06.12.2023	7:15-7:15	67.2	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	65.7	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	64.8	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	65.5	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	66.3	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	67.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
02.01.2024	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)
03.01.2024	7:15-7:15	67.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
09.01.2024	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)
10.01.2024	7:15-7:15	66.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
16.01.2024	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)
17.01.2024	7:15-7:15	65.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
23.01.2024	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)
24.01.2024	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)
30.01.2024	7:00-7:00	64.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
31.01.2024	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)
06.02.2024	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)
07.02.2024	7:15-7:15	67.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.02.2024	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)
14.02.2024	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)
20.02.2024	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)
21.02.2024	7:15-7:15	66.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
27.02.2024	7:00-7:00	68.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
28.02.2024	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)
NAAQ* Standard		<200	<100	<60	<80	<80	<100

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 S J

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/2024-25/027	Report Date	07.03.2024
Site Location	TVL. TOP GRANITES MULTI COLOUR GRANITE QUARRY S.F.Nos. . 1124/5, 1124/6, 1151/5, 1151/6 and 1172/2A Irudhukottai Village, Denkanikottai Taluk, Krishnagiri District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/027
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ4 – Arasajaur- 12°26'32.51"N 77°51'36.79"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)
05.12.2023	7:00-7:00	44.7	21.7	7.6	21.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.12.2023	7:15-7:15	45.1	22.6	7.2	22.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
12.12.2023	7:00-7:00	44.9	21.1	5.6	23.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.12.2023	7:15-7:15	44.8	21.9	5.8	21.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
19.12.2023	7:00-7:00	43.6	22.6	7.3	22.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.12.2023	7:15-7:15	45.1	22.4	7.9	23.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
26.12.2023	7:00-7:00	46.8	23.9	6.5	22.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.12.2023	7:15-7:15	45.0	22.4	6.1	23.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.01.2024	7:00-7:00	44.6	21.9	5.0	21.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
03.01.2024	7:15-7:15	45.8	22.5	5.3	25.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.01.2024	7:00-7:00	44.8	21.7	6.7	23.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
10.01.2024	7:15-7:15	45.2	21.5	5.6	24.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.01.2024	7:00-7:00	46.6	21.3	6.3	25.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
17.01.2024	7:15-7:15	45.1	22.0	6.9	24.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.01.2024	7:00-7:00	44.8	22.9	5.6	25.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
24.01.2024	7:15-7:15	45.0	22.6	5.9	23.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
30.01.2024	7:00-7:00	43.7	21.4	5.5	22.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
31.01.2024	7:15-7:15	45.6	21.8	6.2	22.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.02.2024	7:00-7:00	44.7	21.1	6.7	24.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
07.02.2024	7:15-7:15	45.6	22.0	5.6	22.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.02.2024	7:00-7:00	45.8	22.9	5.3	23.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
14.02.2024	7:15-7:15	46.1	23.0	5.6	24.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.02.2024	7:00-7:00	44.6	22.6	6.5	23.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
21.02.2024	7:15-7:15	45.7	21.3	5.8	24.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.02.2024	7:00-7:00	44.1	22.1	6.6	22.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
28.02.2024	7:15-7:15	45.6	22.8	6.4	23.4	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/2024-25/027	Report Date	07.03.2024
Site Location	TVL. TOP GRANITES MULTI COLOUR GRANITE QUARRY S.F.Nos. . 1124/5, 1124/6, 1151/5, 1151/6 and 1172/2A Irudhukottai Village, Denkanikottai Taluk, Krishnagiri District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/027
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ4 – Arasajaur- 12°26'32.51"N 77°51'36.79"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)
05.12.2023	7:00-7:00	69.5	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	60.8	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	69.4	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	69.3	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	69.5	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	68.9	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	69.0	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	61.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
02.01.2024	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)
03.01.2024	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)
09.01.2024	7:00-7:00	60.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
10.01.2024	7:15-7:15	69.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
16.01.2024	7:00-7:00	69.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
17.01.2024	7:15-7:15	69.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
23.01.2024	7:00-7:00	69.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
24.01.2024	7:15-7:15	69.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
30.01.2024	7:00-7:00	69.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
31.01.2024	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)
06.02.2024	7:00-7:00	60.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
07.02.2024	7:15-7:15	68.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.02.2024	7:00-7:00	69.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
14.02.2024	7:15-7:15	69.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
20.02.2024	7:00-7:00	69.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
21.02.2024	7:15-7:15	69.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
27.02.2024	7:00-7:00	68.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
28.02.2024	7:15-7:15	69.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
NAAQ* Standard		<200	<100	<60	<80	<80	<100

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 S J

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/2024-25/028	Report Date	07.03.2024
Site Location	TVL. TOP GRANITES MULTI COLOUR GRANITE QUARRY S.F.Nos. . 1124/5, 1124/6, 1151/5, 1151/6 and 1172/2A Irudhukottai Village, Denkanikottai Taluk, Krishnagiri District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/028
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ5 – Unsatti- 12°25'12.47"N 77°51'13.50"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)
05.12.2023	7:00-7:00	43.7	20.7	7.3	22.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.12.2023	7:15-7:15	44.8	21.6	7.1	23.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
12.12.2023	7:00-7:00	45.0	20.0	6.9	22.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.12.2023	7:15-7:15	45.6	21.6	6.4	22.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
19.12.2023	7:00-7:00	45.7	20.8	6.5	21.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.12.2023	7:15-7:15	44.6	21.1	7.0	22.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
26.12.2023	7:00-7:00	44.8	21.0	7.2	21.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.12.2023	7:15-7:15	44.1	20.4	5.6	20.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.01.2024	7:00-7:00	43.6	20.6	6.1	24.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
03.01.2024	7:15-7:15	44.0	21.1	6.7	23.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.01.2024	7:00-7:00	44.8	20.8	5.1	23.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
10.01.2024	7:15-7:15	46.1	21.4	5.6	23.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.01.2024	7:00-7:00	44.1	21.3	6.4	24.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
17.01.2024	7:15-7:15	43.6	21.0	6.3	24.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.01.2024	7:00-7:00	45.8	20.3	5.9	23.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
24.01.2024	7:15-7:15	45.6	20.7	5.2	22.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
30.01.2024	7:00-7:00	44.1	21.2	5.0	23.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
31.01.2024	7:15-7:15	44.8	21.6	6.2	22.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.02.2024	7:00-7:00	45.6	20.3	6.6	23.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
07.02.2024	7:15-7:15	45.1	20.4	5.2	22.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.02.2024	7:00-7:00	45.9	21.9	6.3	24.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
14.02.2024	7:15-7:15	46.3	21.8	6.0	24.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.02.2024	7:00-7:00	44.9	20.4	5.3	23.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
21.02.2024	7:15-7:15	45.8	21.0	5.9	23.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.02.2024	7:00-7:00	45.7	21.7	6.5	22.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
28.02.2024	7:15-7:15	46.5	21.5	6.3	23.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
NAAQ* Standard		<100	<60	<805	<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 S K

Name: Santhosh Kumar A
Designation : Quality Manager

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TEST REPORT

Report No	EHS360/TR/2024-25/028	Report Date	07.03.2024
Site Location	TVL. TOP GRANITES MULTI COLOUR GRANITE QUARRY S.F.Nos. . 1124/5, 1124/6, 1151/5, 1151/6 and 1172/2A Irudhukottai Village, Denkanikottai Taluk, Krishnagiri District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/028
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ5 – Unsatti- 12°25'12.47"N 77°51'13.50"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)
05.12.2023	7:00-7:00	69.9	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	68.2	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	69.4	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	68.8	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	68.9	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	67.6	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	69.5	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	67.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
02.01.2024	7:00-7:00	68.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
03.01.2024	7:15-7:15	67.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
09.01.2024	7:00-7:00	68.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
10.01.2024	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)
16.01.2024	7:00-7:00	69.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
17.01.2024	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)
23.01.2024	7:00-7:00	66.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
24.01.2024	7:15-7:15	67.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
30.01.2024	7:00-7:00	69.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
31.01.2024	7:15-7:15	69.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.02.2024	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)
07.02.2024	7:15-7:15	67.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.02.2024	7:00-7:00	67.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
14.02.2024	7:15-7:15	68.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
20.02.2024	7:00-7:00	68.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
21.02.2024	7:15-7:15	69.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
27.02.2024	7:00-7:00	67.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
28.02.2024	7:15-7:15	66.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
NAAQ* Standard		<200	<100	<60	<80	<80	<100

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

AS7

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/2024-25/029	Report Date	07.03.2024
Site Location	TVL. TOP GRANITES MULTI COLOUR GRANITE QUARRY S.F.Nos. . 1124/5, 1124/6, 1151/5, 1151/6 and 1172/2A Irudhukottai Village, Denkanikottai Taluk, Krishnagiri District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/029
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ 6 –Kurubatti- 12°28'36.59"N 77°49'32.74"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)
05.12.2023	7:00-7:00	43.6	21.3	7.6	21.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.12.2023	7:15-7:15	44.8	22.6	7.1	22.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
12.12.2023	7:00-7:00	42.5	21.8	5.2	23.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.12.2023	7:15-7:15	43.6	23.0	5.8	22.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
19.12.2023	7:00-7:00	45.0	22.7	5.5	23.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.12.2023	7:15-7:15	44.9	21.3	5.4	22.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
26.12.2023	7:00-7:00	44.1	21.9	6.6	21.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.12.2023	7:15-7:15	43.6	21.7	6.1	21.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.01.2024	7:00-7:00	42.8	22.9	6.6	20.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
03.01.2024	7:15-7:15	44.6	22.1	5.8	22.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.01.2024	7:00-7:00	45.0	21.4	5.4	23.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
10.01.2024	7:15-7:15	43.6	21.8	5.3	22.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.01.2024	7:00-7:00	42.8	22.6	6.5	22.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
17.01.2024	7:15-7:15	44.6	22.8	6.3	23.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.01.2024	7:00-7:00	43.7	21.7	6.6	22.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
24.01.2024	7:15-7:15	42.1	21.0	5.1	23.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
30.01.2024	7:00-7:00	44.0	22.6	5.4	21.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
31.01.2024	7:15-7:15	43.8	21.7	5.2	21.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.02.2024	7:00-7:00	43.2	21.1	6.7	21.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
07.02.2024	7:15-7:15	42.3	22.3	6.5	22.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.02.2024	7:00-7:00	43.6	22.6	6.5	21.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
14.02.2024	7:15-7:15	46.7	23.2	5.6	22.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.02.2024	7:00-7:00	43.2	21.4	5.2	22.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
21.02.2024	7:15-7:15	42.9	21.9	5.7	23.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.02.2024	7:00-7:00	43.5	22.5	5.4	22.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
28.02.2024	7:15-7:15	44.9	21.4	6.2	23.4	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/2024-25/029	Report Date	07.03.2024
Site Location	TVL TOP GRANITES MULTI COLOUR GRANITE QUARRY S.F.Nos. . 1124/5, 1124/6, 1151/5, 1151/6 and 1172/2A Irudhukottai Village, Denkanikottai Taluk, Krishnagiri District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/029
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ 6 –Kurubatti- 12°28'36.59"N 77°49'32.74"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)
05.12.2023	7:00-7:00	67.4	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	66.8	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	67.1	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	68.0	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	66.7	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	66.6	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	68.0	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	67.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
02.01.2024	7:00-7:00	68.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
03.01.2024	7:15-7:15	69.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
09.01.2024	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)
10.01.2024	7:15-7:15	68.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
16.01.2024	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)
17.01.2024	7:15-7:15	68.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
23.01.2024	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)
24.01.2024	7:15-7:15	68.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
30.01.2024	7:00-7:00	67.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
31.01.2024	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)
06.02.2024	7:00-7:00	68.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
07.02.2024	7:15-7:15	69.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.02.2024	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)
14.02.2024	7:15-7:15	68.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
20.02.2024	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)
21.02.2024	7:15-7:15	68.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
27.02.2024	7:00-7:00	67.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
28.02.2024	7:15-7:15	69.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
NAAQ* Standard		<200	<100	<60	<80	<80	<100

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 S J

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/2024-25/031	Report Date	07.03.2024
Site Location	TVL TOP GRANITES MULTI COLOUR GRANITE QUARRY S.F.Nos. . 1124/5, 1124/6, 1151/5, 1151/6 and 1172/2A Irudhukottai Village, Denkanikottai Taluk, Krishnagiri District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/031
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ7 –Maniyampadi- 12°26'58.08"N 77°47'8.52"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)
05.12.2023	7:00-7:00	43.9	20.3	6.6	22.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.12.2023	7:15-7:15	43.7	19.9	6.9	20.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
12.12.2023	7:00-7:00	44.5	19.5	5.1	21.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.12.2023	7:15-7:15	42.4	18.1	4.8	22.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
19.12.2023	7:00-7:00	43.3	19.6	4.3	22.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.12.2023	7:15-7:15	44.0	19.1	5.2	23.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
26.12.2023	7:00-7:00	43.5	18.7	5.3	22.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.12.2023	7:15-7:15	45.8	19.5	6.0	21.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.01.2024	7:00-7:00	43.9	20.9	6.9	22.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
03.01.2024	7:15-7:15	44.2	19.0	6.6	23.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.01.2024	7:00-7:00	44.4	19.9	4.4	22.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
10.01.2024	7:15-7:15	45.2	18.7	5.9	21.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.01.2024	7:00-7:00	45.6	19.4	5.8	22.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
17.01.2024	7:15-7:15	43.0	18.6	5.5	21.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.01.2024	7:00-7:00	43.3	19.4	7.2	20.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
24.01.2024	7:15-7:15	43.7	19.0	6.9	20.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
30.01.2024	7:00-7:00	44.0	19.6	6.1	20.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
31.01.2024	7:15-7:15	43.9	18.6	6.6	20.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.02.2024	7:00-7:00	43.7	19.9	6.9	21.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
07.02.2024	7:15-7:15	43.6	19.3	6.3	22.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.02.2024	7:00-7:00	43.5	18.6	7.1	22.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
14.02.2024	7:15-7:15	42.3	18.8	6.8	21.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.02.2024	7:00-7:00	42.2	19.1	5.8	19.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
21.02.2024	7:15-7:15	42.6	20.9	5.5	19.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.02.2024	7:00-7:00	41.9	20.8	5.9	21.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
28.02.2024	7:15-7:15	42.1	19.1	6.1	20.9	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/2024-25/030	Report Date	07.03.2024
Site Location	TVL. TOP GRANITES MULTI COLOUR GRANITE QUARRY S.F.Nos. . 1124/5, 1124/6, 1151/5, 1151/6 and 1172/2A Irudhukottai Village, Denkanikottai Taluk, Krishnagiri District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/030
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AQ7 –Maniyampadi- 12°26'58.08"N 77°47'8.52"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)
05.12.2023	7:00-7:00	66.6	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	67.2	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	65.5	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	66.2	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	61.4	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	62.5	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	66.3	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	66.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
02.01.2024	7:00-7:00	67.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
03.01.2024	7:15-7:15	65.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
09.01.2024	7:00-7:00	67.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
10.01.2024	7:15-7:15	66.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
16.01.2024	7:00-7:00	67.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
17.01.2024	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)
23.01.2024	7:00-7:00	68.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
24.01.2024	7:15-7:15	68.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
30.01.2024	7:00-7:00	69.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
31.01.2024	7:15-7:15	67.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.02.2024	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)
07.02.2024	7:15-7:15	65.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.02.2024	7:00-7:00	68.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
14.02.2024	7:15-7:15	68.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
20.02.2024	7:00-7:00	67.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
21.02.2024	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)
27.02.2024	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)
28.02.2024	7:15-7:15	67.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
NAAQ* Standard		<200	<100	<60	<80	<80	<100

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/2024-25/031	Report Date	07.03.2024
Site Location	TVL. TOP GRANITES MULTI COLOUR GRANITE QUARRY S.F.Nos. . 1124/5, 1124/6, 1151/5, 1151/6 and 1172/2A Irudhukottai Village, Denkanikottai Taluk, Krishnagiri District.		
Sampling Method	IS 9989	Sample Drawn by	Laboratory
Sample Name	Noise Level Monitoring	Sample Code	EHS360/ 031
Sample Description	Ambient Noise	Sample Collected Date	29.02.2024

Location	N1 – Core Zone- 12°25'43.17"N 77°50'5.19"E			N2 – Thottikuppam-12°25'32.41"N 77°50'20.57"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	38.5	44.6	42.5	33.6	40.2	38.0
07:00-08:00	36.7	42.7	40.7	36.1	46.6	44.0
08:00-09:00	40.9	46.3	44.4	37.5	46.9	44.4
09:00-10:00	41.8	48.3	46.2	37.2	48.1	45.4
10:00-11:00	42.5	47.3	45.5	38.1	48.5	45.9
11:00-12:00	44.3	45.3	44.8	38.4	47.2	44.7
12:00-13:00	40.9	45.5	43.8	34.9	43.4	41.0
13:00-14:00	43.4	46.1	45.0	37.2	48.8	46.1
14:00-15:00	41.9	42.9	42.4	36.2	43.7	41.4
15:00-16:00	39.6	40.4	40.0	35.9	46.3	43.7
16:00-17:00	35.1	38.7	37.3	31.6	38.4	36.2
17:00-18:00	35.5	39.9	38.2	32.5	40.9	38.5
18:00-19:00	34.8	45.2	42.6	34.4	43.4	40.9
19:00-20:00	38.1	45.9	43.6	31.2	39.7	37.3
20:00-21:00	35.2	44.9	42.3	36.9	46.5	43.9
21:00-22:00	39.6	45.3	43.3	32.5	40.8	38.4
22:00-23:00	35.4	38.7	37.4	35.4	44.3	41.8
23:00-00:00	32.7	37.6	35.8	34.1	42.4	40.0
00:00-01:00	33.8	38.8	37.0	32.9	40.7	38.4
01:00-02:00	31.3	34.3	33.1	32.3	42.9	40.3
02:00-03:00	32.6	37.1	35.4	33.7	41.2	38.9
03:00-04:00	32.4	36.7	35.1	34.6	38.5	37.0
04:00-05:00	32.4	35.5	34.2	34.1	40.7	38.5
05:00-06:00	33.6	34.8	34.2	35.6	39.5	38.0
Result	Day Means		42.3	Day Means		41.9
	Night Means		35.0	Night Means		38.7

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*****

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/2024-25/0322	Report Date	07.03.2024
Site Location	TVL. TOP GRANITES MULTI COLOUR GRANITE QUARRY S.F.Nos. . 1124/5, 1124/6, 1151/5, 1151/6 and 1172/2A Irudhukottai Village, Denkanikottai Taluk, Krishnagiri District.		
Sampling Method	IS 9989	Sample Drawn by	Laboratory
Sample Name	Noise Level Monitoring	Sample Code	EHS360/ 032
Sample Description	Ambient Noise	Sample Collected Date	29.02.2024

Location	N3 – Salivaram-12°25'27.81"N 77°46'53.81"E			N4 – Arasajaur - 12°26'31.35"N 77°51'38.72"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	35.1	39.5	37.8	33.8	42.6	39.6
07:00-08:00	35.4	40.2	38.4	35.6	43.3	40.1
08:00-09:00	35.6	41.6	39.6	35.7	44.5	41.0
09:00-10:00	35.1	41.2	39.1	31.6	46.9	42.0
10:00-11:00	34.9	43.4	41.0	36.4	48.3	44.0
11:00-12:00	36.2	45.7	43.2	32.8	45.7	45.6
12:00-13:00	34.1	48.2	45.4	34.6	43.2	42.9
13:00-14:00	32.9	49.3	46.4	32.9	41.4	40.8
14:00-15:00	38.4	49.7	47.0	37.4	49.3	39.0
15:00-16:00	34.6	47.9	45.1	32.6	40.7	46.6
16:00-17:00	32.9	40.8	38.4	32.7	40.3	38.3
17:00-18:00	34.1	43.4	40.9	31.6	38.5	38.0
18:00-19:00	33.6	41.6	39.2	31.8	38.3	36.3
19:00-20:00	32.8	40.8	38.4	32.4	40.4	36.2
20:00-21:00	34.1	43.4	40.9	33.6	41.3	38.0
21:00-22:00	36.9	45.5	43.1	32.9	40.2	39.0
22:00-23:00	32.7	41.9	39.4	31.7	39.7	37.9
23:00-00:00	34.2	43.6	41.1	32.6	40.4	37.3
00:00-01:00	32.6	40.8	38.4	33.9	37.1	38.1
01:00-02:00	31.3	35.5	33.9	35.2	38.7	35.8
02:00-03:00	32.8	36.9	35.3	34.6	35.9	37.3
03:00-04:00	34.1	37.3	36.0	33.7	36.5	35.3
04:00-05:00	35.5	37.1	36.4	32.6	35.5	35.3
05:00-06:00	33.9	38.5	36.8	32.1	42.2	34.3
Result	Day Means		41.4	Day Means		40.3
	Night Means		36.8	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.

*****End of Report*****
Page 1 of 1

Verified by




Authorised Signatory

A.S.K

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



TC-9583

Report No	EHS360/TR/2024-25/033	Report Date	07.03.2024
Site Location	TVL. TOP GRANITES MULTI COLOUR GRANITE QUARRY S.F.Nos. . 1124/5, 1124/6, 1151/5, 1151/6 and 1172/2A Irudhukottai Village, Denkanikottai Taluk, Krishnagiri District.		
Sampling Method	IS 9989	Sample Drawn by	Laboratory
Sample Name	Noise Level Monitoring	Sample Code	EHS360/ 033
Sample Description	Ambient Noise	Sample Collected Date	29.02.2024

Location	N5 – Unsatti–12°25'12.16"N 77°51'13.06"E			N6 – Kurubatti –12°28'35.30"N 77°49'33.73"		
Parameter	Min	Max	Result	Min	Max	Result
Time	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
06:00-07:00	31.2	39.9	37.4	34.5	43.2	40.7
07:00-08:00	33.7	41.5	39.2	33.7	40.4	38.2
08:00-09:00	34.5	42.8	40.4	32.8	41.8	39.3
09:00-10:00	35.5	44.5	42.0	33.9	38.1	36.5
10:00-11:00	36.1	45.1	42.6	34.7	40.6	38.6
11:00-12:00	38.2	43.3	41.5	34.1	40.2	38.1
12:00-13:00	38.3	41.7	40.3	32.8	38.5	36.5
13:00-14:00	36.7	42.4	40.4	34.7	43.2	40.8
14:00-15:00	32.7	45.9	43.1	32.6	40.6	38.2
15:00-16:00	31.5	40.5	38.0	31.3	38.9	36.6
16:00-17:00	32.5	41.7	39.2	32.6	41.2	38.8
17:00-18:00	36.5	44.3	42.0	33.5	42.7	40.2
18:00-19:00	34.2	43.7	41.2	34.4	43.2	40.7
19:00-20:00	33.8	41.4	39.1	32.9	40.6	38.3
20:00-21:00	31.2	39.5	37.1	33.6	41.4	39.1
21:00-22:00	32.8	40.6	38.3	31.5	38.6	36.4
22:00-23:00	33.9	41.4	39.1	32.5	40.1	37.8
23:00-00:00	31.4	38.5	36.3	31.7	38.2	36.1
00:00-01:00	32.8	40.1	37.8	32.3	39.3	37.1
01:00-02:00	33.5	36.2	35.1	33.9	38.4	36.7
02:00-03:00	35.7	39.5	38.0	31.5	35.5	33.9
03:00-04:00	36.1	39.2	37.9	32.4	36.3	34.8
04:00-05:00	35.2	38.1	36.9	34.1	35.8	35.0
05:00-06:00	34.6	36.9	35.9	32.6	33.6	33.1
Result	Day Means		40.0	Day Means		38.5
	Night Means		36.8	Night Means		35.2

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.

*****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/2024-25/034	Report Date	07.03.2024
Site Location	TVL. TOP GRANITES MULTI COLOUR GRANITE QUARRY S.F.Nos. . 1124/5, 1124/6, 1151/5, 1151/6 and 1172/2A Irudhukottai Village, Denkanikottai Taluk, Krishnagiri District.		
Sampling Method	IS 9989	Sample Drawn by	Laboratory
Sample Name	Noise Level Monitoring	Sample Code	EHS360/ 034
Sample Description	Ambient Noise	Sample Collected Date	29.02.2024

Location	N7 - Maniyampadi - 12°26'59.77"N 77°47'8.00"E		
Parameter	Min	Max	Result
Time	dB(A)	dB(A)	dB(A)
06:00-07:00	31.5	38.1	35.9
07:00-08:00	32.6	40.7	38.3
08:00-09:00	33.9	41.4	39.1
09:00-10:00	31.4	39.5	37.1
10:00-11:00	32.5	40.2	37.9
11:00-12:00	33.8	41.4	39.1
12:00-13:00	35.6	43.6	41.2
13:00-14:00	31.8	38.4	36.2
14:00-15:00	33.9	41.7	39.4
15:00-16:00	32.5	40.9	38.5
16:00-17:00	34.8	43.6	41.1
17:00-18:00	32.6	40.4	38.1
18:00-19:00	35.1	43.1	40.7
19:00-20:00	36.1	40.2	38.6
20:00-21:00	34.2	43.6	41.1
21:00-22:00	36.5	47.1	44.5
22:00-23:00	33.8	41.2	38.9
23:00-00:00	33.9	42.1	39.7
00:00-01:00	31.5	39.4	37.0
01:00-02:00	32.9	40.2	37.9
02:00-03:00	33.4	41.7	39.3
03:00-04:00	31.7	38.5	36.3
04:00-05:00	32.6	40.8	38.4
05:00-06:00	31.3	38.6	36.3
Result	Day Means		39.2
	Night Means		37.9

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*****

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/2024-25/035	Report Date	07.03.2024
Site Location	TVL. TOP GRANITES MULTI COLOUR GRANITE QUARRY S.F.Nos. . 1124/5, 1124/6, 1151/5, 1151/6 and 1172/2A Irudhukottai Village, Denkanikottai Taluk, Krishnagiri District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 035
Sample Description	Soil 1	Sample Collected Date	29.02.2024
Qty. of Sample Received	2 KG	Sample Received On	01.03.2024
Sample Condition	Good	Test Commenced On	07.03.2024
Sampling Location	Core Zone		

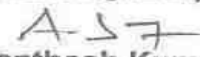
S.No	Test Parameters	Protocols	Results
01	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff:2016)	8.16
02	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2016)	485 µmhos/cm
03	Water Holding Capacity	By Gravimetric Method	48.1 %
04	Bulk Density	By Cylindrical Method	1.01 g/cm ³
05	Porosity	By Gravimetric Method	46.7 %
06	Calcium as Ca	Food and Agriculture organization of the united Nation Rome 2007 : 2018	41.3 mg/kg
07	Magnesium as Mg		31 mg/kg
08	Chloride as Cl	APHA 23 rd Edn 2019 4500 Cl B	51.2 mg/kg
09	Soluble Sulphate as SO ₄	IS 2720 Part 27 : 1977 (Reaff:2015)	0.0012 %
10	Total Phosphorus as P	IS 10158 : 1982 (Reaff: 2019)	4.1 mg/kg
11	Total Nitrogen as N	IS 14684 : 1999 (Reaff:2019)	402 mg/kg
12	Organic Matter	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.71 %
13	Organic Carbon	IS : 2720 Part 22: 1972 (Reaff: 2015)	0.99 %

*****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/2024-25/035	Report Date	07.03.2024
Site Location	TVL. TOP GRANITES MULTI COLOUR GRANITE QUARRY S.F.Nos. . 1124/5, 1124/6, 1151/5, 1151/6 and 1172/2A Irudhukottai Village, Denkanikottai Taluk, Krishnagiri District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/035
Sample Description	Soil 1	Sample Collected Date	29.02.2024
Qty. of Sample Received	2 KG	Sample Received On	01.03.2024
Sample Condition	Good	Test Commenced On	07.03.2024
Sampling Location	Core Zone		

S.No	Test Parameters	Protocols	Results
14	Texture :		
	Clay	Gravimetric Method	32.6 %
	Sand		31.9 %
	Silt		35.5 %
15	Manganese as Mn	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	15.1 mg/kg
16	Zinc as Zn		2.8 mg/kg
17	Boron as B		3.1 mg/kg
18	Potassium as K		32.5 mg/kg
19	Cadmium as Cd		BDL (DL : 1.0 mg/kg)
20	Total Chromium as Cr		2.55
21	Copper as Cu		BDL (DL : 1.0 mg/kg)
22	Lead as Pb		2.15 mg/kg
23	Iron as Fe		3.15 mg/kg
24	Cation Exchange Capacity		USEPA 9080 – 1986

*****End of Report*****
Page 1 of 1

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Authorised Signatory

A S F

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/2024-25/036	Report Date	07.03.2024
Site Location	TVL. TOP GRANITES MULTI COLOUR GRANITE QUARRY S.F.Nos. . 1124/5, 1124/6, 1151/5, 1151/6 and 1172/2A Irudhukottai Village, Denkanikottai Taluk, Krishnagiri District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 036
Sample Description	Soil 2	Sample Collected Date	29.02.2024
Qty. of Sample Received	2 KG	Sample Received On	01.03.2024
Sample Condition	Good	Test Commenced On	07.03.2024
Sampling Location	Salivaram		

S.No	Test Parameters	Protocols	Results
01	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff:2016)	8.71
02	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2016)	550 µmhos/cm
03	Water Holding Capacity	By Gravimetric Method	48.6 %
04	Bulk Density	By Cylindrical Method	0.99 g/cm ³
05	Porosity	By Gravimetric Method	47.2 %
06	Calcium as Ca	Food and Agriculture organization of the united Nation Rome 2007 : 2018	50.1 mg/kg
07	Magnesium as Mg		44 mg/kg
08	Chloride as Cl	APHA 23 rd Edn 2019 4500 Cl B	24.1 mg/kg
09	Soluble Sulphate as SO ₄	IS 2720 Part 27 : 1977 (Reaff:2015)	0.0019 %
10	Total Phosphorus as P	IS 10158 : 1982 (Reaff: 2019)	3.42 mg/kg
11	Total Nitrogen as N	IS 14684 : 1999 (Reaff:2019)	483.5 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 %

*****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/2024-25/036	Report Date	07.03.2024
Site Location	TVL. TOP GRANITES MULTI COLOUR GRANITE QUARRY S.F.Nos. . 1124/5, 1124/6, 1151/5, 1151/6 and 1172/2A Irudhukottai Village, Denkanikottai Taluk, Krishnagiri District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 036
Sample Description	Soil 2	Sample Collected Date	29.02.2024
Qty. of Sample Received	2 KG	Sample Received On	01.03.2024
Sample Condition	Good	Test Commenced On	07.03.2024
Sampling Location	Salivaram		

S.No	Test Parameters	Protocols	Results
14	Texture :		
	Clay	Gravimetric Method	28.9 %
	Sand		32.4 %
	Silt		38.7 %
15	Manganese as Mn	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	20.1 mg/kg
16	Zinc as Zn		5.16 mg/kg
17	Boron as B		4.48 mg/kg
18	Potassium as K		43.3 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		1.2 mg/kg
23	Iron as Fe		2.39 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

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/2024-25/037	Report Date	07.03.2024
Site Location	TVL. TOP GRANITES MULTI COLOUR GRANITE QUARRY S.F.Nos. . 1124/5, 1124/6, 1151/5, 1151/6 and 1172/2A Irudhukottai Village, Denkanikottai Taluk, Krishnagiri District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 037
Sample Description	Soil 3	Sample Collected Date	29.02.2024
Qty. of Sample Received	2 KG	Sample Received On	01.03.2024
Sample Condition	Good	Test Commenced On	07.03.2024
Sampling Location	Arasajaur		

S.No	Test Parameters	Protocols	Results
01	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff:2016)	8.66
02	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2016)	404 µmhos/cm
03	Water Holding Capacity	By Gravimetric Method	47.3 %
04	Bulk Density	By Cylindrical Method	1.04 g/cm ³
05	Porosity	By Gravimetric Method	46.6 %
06	Calcium as Ca	Food and Agriculture organization of the united Nation Rome 2007 : 2018	40.1 mg/kg
07	Magnesium as Mg		32.6 mg/kg
08	Chloride as Cl	APHA 23 rd Edn 2019 4500 Cl B	30 mg/kg
09	Soluble Sulphate as SO ₄	IS 2720 Part 27 : 1977 (Reaff:2015)	0.0021 %
10	Total Phosphorus as P	IS 10158 : 1982 (Reaff: 2019)	2.9 mg/kg
11	Total Nitrogen as N	IS 14684 : 1999 (Reaff:2019)	510 mg/kg
12	Organic Matter	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.84 %
13	Organic Carbon	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.07 %

*****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/2024-25/037	Report Date	07.03.2024
Site Location	TVL. TOP GRANITES MULTI COLOUR GRANITE QUARRY S.F.Nos. . 1124/5, 1124/6, 1151/5, 1151/6 and 1172/2A Irudhukottai Village, Denkanikottai Taluk, Krishnagiri District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 037
Sample Description	Soil 3	Sample Collected Date	29.02.2024
Qty. of Sample Received	2 KG	Sample Received On	01.03.2024
Sample Condition	Good	Test Commenced On	07.03.2024
Sampling Location	Arasajaur		

S.No	Test Parameters	Protocols	Results
14	Texture :		
	Clay	Gravimetric Method	28.6 %
	Sand		32.2 %
	Silt		39.2 %
15	Manganese as Mn	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	32 mg/kg
16	Zinc as Zn		4.55 mg/kg
17	Boron as B		5.66 mg/kg
18	Potassium as K		7.43 mg/kg
19	Cadmium as Cd		BDL (DL : 1.0 mg/kg)
20	Total Chromium as Cr		2.91
21	Copper as Cu		BDL (DL : 1.0 mg/kg)
22	Lead as Pb		2.22 mg/kg
23	Iron as Fe		1.19 mg/kg
24	Cation Exchange Capacity		USEPA 9080 – 1986

*****End of Report*****

Page 1 of 1

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AS

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/2024-25/038	Report Date	07.03.2024
Site Location	TVL. TOP GRANITES MULTI COLOUR GRANITE QUARRY S.F.Nos. . 1124/5, 1124/6, 1151/5, 1151/6 and 1172/2A Irudhukottai Village, Denkanikottai Taluk, Krishnagiri District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 038
Sample Description	Soil 4	Sample Collected Date	29.02.2024
Qty. of Sample Received	2 KG	Sample Received On	01.03.2024
Sample Condition	Good	Test Commenced On	07.03.2024
Sampling Location	Unsatti		

S.No	Test Parameters	Protocols	Results
01	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff:2016)	8.08
02	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2016)	550 µmhos/cm
03	Water Holding Capacity	By Gravimetric Method	45.8. %
04	Bulk Density	By Cylindrical Method	1.08 g/cm ³
05	Porosity	By Gravimetric Method	47.5 %
06	Calcium as Ca	Food and Agriculture organization of the united Nation Rome 2007 : 2018	60 mg/kg
07	Magnesium as Mg		57.1 mg/kg
08	Chloride as Cl	APHA 23 rd Edn 2019 4500 Cl B	31 mg/kg
09	Soluble Sulphate as SO ₄	IS 2720 Part 27 : 1977 (Reaff:2015)	0.0031 %
10	Total Phosphorus as P	IS 10158 : 1982 (Reaff: 2019)	4.9 mg/kg
11	Total Nitrogen as N	IS 14684 : 1999 (Reaff:2019)	488 mg/kg
12	Organic Matter	IS : 2720 Part 22: 1972 (Reaff: 2015)	2.12 %
13	Organic Carbon	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.23 %

***** End of Report *****

Page 1 of 1

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A S K

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/2024-25/038	Report Date	07.03.2024
Site Location	TVL TOP GRANITES MULTI COLOUR GRANITE QUARRY S.F.Nos. . 1124/5, 1124/6, 1151/5, 1151/6 and 1172/2A Irudhukottai Village, Denkanikottai Taluk, Krishnagiri District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 038
Sample Description	Soil 4	Sample Collected Date	29.02.2024
Qty. of Sample Received	2 KG	Sample Received On	01.03.2024
Sample Condition	Good	Test Commenced On	07.03.2024
Sampling Location	Unsatti		

S.No	Test Parameters	Protocols	Results
14	Texture :		
	Clay	Gravimetric Method	31.8 %
	Sand		32.0 %
	Silt		36.2 %
15	Manganese as Mn	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	15 mg/kg
16	Zinc as Zn		7.8 mg/kg
17	Boron as B		9.1 mg/kg
18	Potassium as K		24 mg/kg
19	Cadmium as Cd		BDL (DL : 1.0 mg/kg)
20	Total Chromium as Cr		3.01
21	Copper as Cu		BDL (DL : 1.0 mg/kg)
22	Lead as Pb		2.15 mg/kg
23	Iron as Fe		4.01 mg/kg
24	Cation Exchange Capacity		USEPA 9080 – 1986

*****End of Report*****
Page 1 of 1

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Authorised Signatory

AS7
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/2024-25/039	Report Date	07.03.2024
Site Location	TVL. TOP GRANITES MULTI COLOUR GRANITE QUARRY S.F.Nos. . 1124/5, 1124/6, 1151/5, 1151/6 and 1172/2A Irudhukottai Village, Denkanikottai Taluk, Krishnagiri District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 039
Sample Description	Soil 5	Sample Collected Date	29.02.2024
Qty. of Sample Received	2 KG	Sample Received On	01.03.2024
Sample Condition	Good	Test Commenced On	07.03.2024
Sampling Location	Kurubatti		

S.No	Test Parameters	Protocols	Results
01	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff:2016)	8.61
02	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2016)	350 µmhos/cm
03	Water Holding Capacity	By Gravimetric Method	47.1 %
04	Bulk Density	By Cylindrical Method	1.11 g/cm ³
05	Porosity	By Gravimetric Method	48.3 %
06	Calcium as Ca	Food and Agriculture organization of the united Nation Rome 2007 : 2018	72.2 mg/kg
07	Magnesium as Mg		42.5 mg/kg
08	Chloride as Cl	APHA 23 rd Edn 2019 4500 Cl B	28 mg/kg
09	Soluble Sulphate as SO ₄	IS 2720 Part 27 : 1977 (Reaff:2015)	0.0012 %
10	Total Phosphorus as P	IS 10158 : 1982 (Reaff: 2019)	3.41 mg/kg
11	Total Nitrogen as N	IS 14684 : 1999 (Reaff:2019)	409 mg/kg
12	Organic Matter	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.77 %
13	Organic Carbon	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.03 %

*****End of Report*****

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Authorised Signatory

A S J
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/2024-25/039	07.03.2024	07.03.2024
Site Location	TVL. TOP GRANITES MULTI COLOUR GRANITE QUARRY S.F.Nos. . 1124/5, 1124/6, 1151/5, 1151/6 and 1172/2A Irudhukottai Village, Denkanikottai Taluk, Krishnagiri District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 039
Sample Description	Soil 5	Sample Collected Date	29.02.2024
Qty. of Sample Received	2 KG	Sample Received On	01.03.2024
Sample Condition	Good	Test Commenced On	07.03.2024
Sampling Location	Kurubatti		

S.No	Test Parameters	Protocols	Results
14	Texture :		
	Clay	Gravimetric Method	32.5 %
	Sand		33.4 %
	Silt		34.1 %
15	Manganese as Mn	USEPA 3050 B – 1996 & USEPA 6010 C – 2000	23 mg/kg
16	Zinc as Zn		3.13 mg/kg
17	Boron as B		5.2 mg/kg
18	Potassium as K		15.5 mg/kg
19	Cadmium as Cd		BDL (DL : 1.0 mg/kg)
20	Total Chromium as Cr		4.1
21	Copper as Cu		BDL (DL : 1.0 mg/kg)
22	Lead as Pb		2.16 mg/kg
23	Iron as Fe		8.16 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

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/2024-25/040	Report Date	07.03.2024
Site Location	TVL. TOP GRANITES MULTI COLOUR GRANITE QUARRY S.F.Nos. . 1124/5, 1124/6, 1151/5, 1151/6 and 1172/2A Irudhukottai Village, Denkanikottai Taluk, Krishnagiri District		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 040
Sample Description	Soil 6	Sample Collected Date	29.02.2024
Qty. of Sample Received	2 KG	Sample Received On	01.03.2024
Sample Condition	Good	Test Commenced On	07.03.2024
Sampling Location	Maniyampadi		

S.No	Test Parameters	Protocols	Results
01	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff:2016)	8.56
02	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2016)	586 µmhos/cm
03	Water Holding Capacity	By Gravimetric Method	45.6 %
04	Bulk Density	By Cylindrical Method	1.10 g/cm ³
05	Porosity	By Gravimetric Method	46.8 %
06	Calcium as Ca	Food and Agriculture organization of the united Nation Rome 2007 : 2018	57.3 mg/kg
07	Magnesium as Mg		30.1 mg/kg
08	Chloride as Cl	APHA 23 rd Edn 2019 4500 Cl B	62 mg/kg
09	Soluble Sulphate as SO ₄	IS 2720 Part 27 : 1977 (Reaff:2015)	0.0020 %
10	Total Phosphorus as P	IS 10158 : 1982 (Reaff: 2019)	6.11 mg/kg
11	Total Nitrogen as N	IS 14684 : 1999 (Reaff:2019)	430 mg/kg
12	Organic Matter	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.93 %
13	Organic Carbon	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.12 %

*****End of Report*****

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A S K

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/2024-25/040	Report Date	07.03.2024
Site Location	TVL. TOP GRANITES MULTI COLOUR GRANITE QUARRY S.F.Nos. . 1124/5, 1124/6, 1151/5, 1151/6 and 1172/2A Irudhukottai Village, Denkanikottai Taluk, Krishnagiri District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 040
Sample Description	Soil 6	Sample Collected Date	29.02.2024
Qty. of Sample Received	2 KG	Sample Received On	01.03.2024
Sample Condition	Good	Test Commenced On	07.03.2024
Sampling Location	Maniyampadi		

S.No	Test Parameters	Protocols	Results
14	Texture :		
	Clay	Gravimetric Method	30.1 %
	Sand		32.6 %
	Silt		37.3 %
15	Manganese as Mn	USEPA 3050 B – 1996 & USEPA 6010 C – 2000	26.1 mg/kg
16	Zinc as Zn		5.02 mg/kg
17	Boron as B		1.11 mg/kg
18	Potassium as K		17 mg/kg
19	Cadmium as Cd		BDL (DL : 1.0 mg/kg)
20	Total Chromium as Cr		1.02
21	Copper as Cu		BDL (DL : 1.0 mg/kg)
22	Lead as Pb		1.16 mg/kg
23	Iron as Fe		2.18 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

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/2024-25/041	Report Date	07.03.2024
Site Location	TVL. TOP GRANITES MULTI COLOUR GRANITE QUARRY S.F.Nos. . 1124/5, 1124/6, 1151/5, 1151/6 and 1172/2A Irudhukottai Village, Denkanikottai Taluk, Krishnagiri District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/041
Sample Description	Surface Water (SW-1)	Sample Collected Date	29.02.2024
Qty. of Sample Received	2 Litres	Sample Received On	01.03.2024
Sample Condition	Fit for Analysis	Test Commenced On	07.03.2024
Sampling Location	Tank Near Andevanapalli		

S.No.	Parameters	Test Method	RESULTS
Discipline: Chemical			
1	Colour	IS 3025 Part 4:1983	10 Hazen
2	Odour	IS 3025 Part 5:2018	Agreeable
3	pH at 25°C	IS 3025 Part 11:1983	7.49
4	Conductivity @ 25°C	IS 3025 Part 14:2013	1000 µmhos/cm
5	Turbidity	IS 3025 Part 10:1984	4.5 NTU
6	Total Dissolved Solids	IS 3025 Part 16:1984	589 mg/l
7	Total Hardness as CaCO ₃	IS 3025 Part 21:2009	201.82 mg/l
8	Calcium as Ca	IS 3025 Part 40:1991	39.2 mg/l
9	Magnesium as Mg	IS 3025 Part 46:1994	25.3 mg/l
10	Total Alkalinity as CaCO ₃	IS 3025 Part 23:1986	191 mg/l
11	Chloride as Cl	IS 3025 Part 32:1988	102.7 mg/l
12	Sulphate as SO ₄	IS 3025 Part 24:1986	60 mg/l
13	Iron as Fe	IS 3025 Part 53:2003	0.38 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	0.25 mg/l
16	Nitrate as NO ₃	IS 3025 Part 34:1988	16.1 mg/l

*****End of Report*****

Page 1 of 1

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A.S.K.
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/2024-25/041	Report Date	07.03.2024
Site Location	TVL. TOP GRANITES MULTI COLOUR GRANITE QUARRY S.F.Nos. . 1124/5, 1124/6, 1151/5, 1151/6 and 1172/2A Irudhukottai Village, Denkanikottai Taluk, Krishnagiri District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/041
Sample Description	Surface Water (SW-1)	Sample Collected Date	29.02.2024
Qty. of Sample Received	2 Litres	Sample Received On	01.03.2024
Sample Condition	Fit for Analysis	Test Commenced On	07.03.2024
Sampling Location	Tank Near Andevanapalli		

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)	10.1 mg/l
32	Chemical Oxygen Demand	IS 3025 Part 58:2006 (Reaff:2017)	44 mg/l
33	Dissolved Oxygen	IS 3025 Part 38:1989 (Reaff:2019)	5.5 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)	1.42 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)	16.0 mg/l
	Discipline: Biological	Group: Water	
40	Total Coliform	APHA 23 rd Edn. 2017:9221B	590 MPN/100ml
41	<i>Escherichia coli</i>	APHA 23 rd Edn. 2017:9221F	162 MPN/100ml

*****End of Report*****

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Authorised Signatory

A S K

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/2024-25/042	Report Date	07.03.2024
Site Location	TVL TOP GRANITES MULTI COLOUR GRANITE QUARRY S.F.Nos. . 1124/5, 1124/6, 1151/5, 1151/6 and 1172/2A Irudhukottai Village, Denkanikottai Taluk, Krishnagiri District.		
Customer Name			
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/042
Sample Description	Ground Water (WW-1)	Sample Collected Date	29.02.2024
Qty. of Sample Received	2 Litres	Sample Received On	01.03.2024
Sample Condition	Fit for Analysis	Test Commenced On	07.03.2024
Sampling Location	Near Project Area		

S.No.	Parameters	Test Method	RESULTS
	Discipline: Chemical	Group: Water	
1	Colour	IS 3025 Part 4:1983 (Reaff:2017)	5
2	Odour	IS 3025 Part 5:2018	Agreeable
3	pH at 25°C	IS 3025 Part 11:1983 (Reaff:2017)	7.23
4	Conductivity @ 25°C	IS 3025 Part 14:2013 (Reaff:2019)	949 µmhos/cm
5	Turbidity	IS 3025 Part 10:1984 (Reaff:2017)	1.0 NTU
6	Total Dissolved Solids	IS 3025 Part 16:1984 (Reaff:2017)	560 mg/l
7	Total Hardness as CaCO ₃	IS 3025 Part 21:2009 (Reaff:2019)	211.39 mg/l
8	Calcium as Ca	IS 3025 Part 40:1991 (Reaff:2019)	37.1 mg/l
9	Magnesium as Mg	IS 3025 Part 46:1994 (Reaff:2019)	28.9 mg/l
10	Total Alkalinity as CaCO ₃	IS 3025 Part 23:1986 (Reaff:2019)	165 mg/l
11	Chloride as Cl	IS 3025 Part 32:1988 (Reaff:2019)	112.4 mg/l
12	Sulphate as SO ₄	IS 3025 Part 24:1986 (Reaff:2019)	51.5 mg/l
13	Iron as Fe	IS 3025 Part 53:2003 (Reaff:2019)	0.23 mg/l
14	Residual Free Chlorine	IS 3025 Part 26:1986 (Reaff:2019)	BDL (DL:0.1 mg/l)
15	Fluoride as F	APHA 23 rd Edn. 2017:4500 F,D	0.14 mg/l
16	Nitrate as NO ₃	IS 3025 Part 34:1988 (Reaff:2019)	5.5 mg/l

*****End of Report*****
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AS
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/2024-25/042	Report Date	07.03.2024
Site Location	TVL. TOP GRANITES MULTI COLOUR GRANITE QUARRY S.F.Nos. . 1124/5, 1124/6, 1151/5, 1151/6 and 1172/2A Irudhukottai Village, Denkanikottai Taluk, Krishnagiri District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/042
Sample Description	Ground Water (WW-1)	Sample Collected Date	29.02.2024
Qty. of Sample Received	2 Litres	Sample Received On	01.03.2024
Sample Condition	Fit for Analysis	Test Commenced On	07.03.2024
Sampling Location	Near Project Area		

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	153 MPN/100ml
38	<i>Escherichia coli</i>	APHA 23 rd Edn. 2017:9221F	< 1.8 MPN/100ml

*****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/2024-25/043	Report Date	07.03.2024
Site Location	TVL TOP GRANITES MULTI COLOUR GRANITE QUARRY S.F.Nos. . 1124/5, 1124/6, 1151/5, 1151/6 and 1172/2A Irudhukottai Village, Denkanikottai Taluk, Krishnagiri District.		
Customer Name			
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/043
Sample Description	Ground Water (WW-2)	Sample Collected Date	29.02.2024
Qty. of Sample Received	2 Litres	Sample Received On	01.03.2024
Sample Condition	Fit for Analysis	Test Commenced On	07.03.2024
Sampling Location	Salivaram		

S.No.	Parameters	Test Method	RESULTS
	Discipline: Chemical	Group: Water	
1	Colour	IS 3025 Part 4:1983 (Reaff:2017)	5
2	Odour	IS 3025 Part 5:2018	Agreeable
3	pH at 25°C	IS 3025 Part 11:1983 (Reaff:2017)	7.86
4	Conductivity @ 25°C	IS 3025 Part 14:2013 (Reaff:2019)	943 µmhos/cm
5	Turbidity	IS 3025 Part 10:1984 (Reaff:2017)	1.0 NTU
6	Total Dissolved Solids	IS 3025 Part 16:1984 (Reaff:2017)	556 mg/l
7	Total Hardness as CaCO ₃	IS 3025 Part 21:2009 (Reaff:2019)	180.24 mg/l
8	Calcium as Ca	IS 3025 Part 40:1991 (Reaff:2019)	32.2 mg/l
9	Magnesium as Mg	IS 3025 Part 46:1994 (Reaff:2019)	24.3 mg/l
10	Total Alkalinity as CaCO ₃	IS 3025 Part 23:1986 (Reaff:2019)	165.5 mg/l
11	Chloride as Cl	IS 3025 Part 32:1988 (Reaff:2019)	124 mg/l
12	Sulphate as SO ₄	IS 3025 Part 24:1986 (Reaff:2019)	38.1 mg/l
13	Iron as Fe	IS 3025 Part 53:2003 (Reaff:2019)	0.31 mg/l
14	Residual Free Chlorine	IS 3025 Part 26:1986 (Reaff:2019)	BDL (DL:0.1 mg/l)
15	Fluoride as F	APHA 23 rd Edn. 2017:4500 F,D	0.20 mg/l
16	Nitrate as NO ₃	IS 3025 Part 34:1988 (Reaff:2019)	4.13 mg/l

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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/2024-25/043	Report Date	07.03.2024
Site Location	TVL. TOP GRANITES MULTI COLOUR GRANITE QUARRY S.F.Nos. . 1124/5, 1124/6, 1151/5, 1151/6 and 1172/2A Irudhukottai Village, Denkanikottai Taluk, Krishnagiri District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/043
Sample Description	Ground Water (WW-2)	Sample Collected Date	29.02.2024
Qty. of Sample Received	2 Litres	Sample Received On	01.03.2024
Sample Condition	Fit for Analysis	Test Commenced On	07.03.2024
Sampling Location	Salivaram		

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	177 MPN/100ml
38	<i>Escherichia coli</i>	APHA 23 rd Edn. 2017:9221F	< 1.8 MPN/100ml

*****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/2024-25/045	Report Date	07.03.2024
Site Location	TVL. TOP GRANITES MULTI COLOUR GRANITE QUARRY S.F.Nos. . 1124/5, 1124/6, 1151/5, 1151/6 and 1172/2A Irudhukottai Village, Denkanikottai Taluk, Krishnagiri District.		
Customer Name			
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/045
Sample Description	Ground Water (BW-1)	Sample Collected Date	29.02.2024
Qty. of Sample Received	2 Litres	Sample Received On	01.03.2024
Sample Condition	Fit for Analysis	Test Commenced On	07.03.2024
Sampling Location	Near Project Area		

S.No.	Parameters	Test Method	RESULTS
	Discipline: Chemical	Group: Water	
1	Colour	IS 3025 Part 4:1983 (Reaff:2017)	5
2	Odour	IS 3025 Part 5:2018	Agreeable
3	pH at 25°C	IS 3025 Part 11:1983 (Reaff:2017)	7.09
4	Conductivity @ 25°C	IS 3025 Part 14:2013 (Reaff:2019)	983 µmhos/cm
5	Turbidity	IS 3025 Part 10:1984 (Reaff:2017)	1.0 NTU
6	Total Dissolved Solids	IS 3025 Part 16:1984 (Reaff:2017)	580 mg/l
7	Total Hardness as CaCO ₃	IS 3025 Part 21:2009 (Reaff:2019)	216.03 mg/l
8	Calcium as Ca	IS 3025 Part 40:1991 (Reaff:2019)	35.5 mg/l
9	Magnesium as Mg	IS 3025 Part 46:1994 (Reaff:2019)	31 mg/l
10	Total Alkalinity as CaCO ₃	IS 3025 Part 23:1986 (Reaff:2019)	180 mg/l
11	Chloride as Cl	IS 3025 Part 32:1988 (Reaff:2019)	115 mg/l
12	Sulphate as SO ₄	IS 3025 Part 24:1986 (Reaff:2019)	51.9 mg/l
13	Iron as Fe	IS 3025 Part 53:2003 (Reaff:2019)	0.21 mg/l
14	Residual Free Chlorine	IS 3025 Part 26:1986 (Reaff:2019)	BDL (DL:0.1 mg/l)
15	Fluoride as F	APHA 23 rd Edn. 2017:4500 F,D	0.24 mg/l
16	Nitrate as NO ₃	IS 3025 Part 34:1988 (Reaff:2019)	5.1 mg/l

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A S J
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/2024-25/045	Report Date	07.03.2024
Site Location	TVL TOP GRANITES MULTI COLOUR GRANITE QUARRY S.F.Nos. . 1124/5, 1124/6, 1151/5, 1151/6 and 1172/2A Irudhukottai Village, Denkanikottai Taluk, Krishnagiri District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/045
Sample Description	Ground Water (BW-1)	Sample Collected Date	29.02.2024
Qty. of Sample Received	2 Litres	Sample Received On	01.03.2024
Sample Condition	Fit for Analysis	Test Commenced On	07.03.2024
Sampling Location	Near Project Area		

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	150 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

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/2024-25/046	Report Date	07.03.2024
Site Location	TVL. TOP GRANITES MULTI COLOUR GRANITE QUARRY S.F.Nos. . 1124/5, 1124/6, 1151/5, 1151/6 and 1172/2A Irudhukottai Village, Denkanikottai Taluk, Krishnagiri District.		
Customer Name			
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/046
Sample Description	Ground Water (BW-2)	Sample Collected Date	29.02.2024
Qty. of Sample Received	2 Litres	Sample Received On	01.03.2024
Sample Condition	Fit for Analysis	Test Commenced On	07.03.2024
Sampling Location	Unsatti		

S.No.	Parameters	Test Method	RESULTS
	Discipline: Chemical	Group: Water	
1	Colour	IS 3025 Part 4:1983 (Reaff:2017)	5
2	Odour	IS 3025 Part 5:2018	Agreeable
3	pH at 25°C	IS 3025 Part 11:1983 (Reaff:2017)	8.02
4	Conductivity @ 25°C	IS 3025 Part 14:2013 (Reaff:2019)	795 µmhos/cm
5	Turbidity	IS 3025 Part 10:1984 (Reaff:2017)	1.0 NTU
6	Total Dissolved Solids	IS 3025 Part 16:1984 (Reaff:2017)	469 mg/l
7	Total Hardness as CaCO ₃	IS 3025 Part 21:2009 (Reaff:2019)	174.27 mg/l
8	Calcium as Ca	IS 3025 Part 40:1991 (Reaff:2019)	30.3 mg/l
9	Magnesium as Mg	IS 3025 Part 46:1994 (Reaff:2019)	24 mg/l
10	Total Alkalinity as CaCO ₃	IS 3025 Part 23:1986 (Reaff:2019)	132.4 mg/l
11	Chloride as Cl	IS 3025 Part 32:1988 (Reaff:2019)	72.5 mg/l
12	Sulphate as SO ₄	IS 3025 Part 24:1986 (Reaff:2019)	44 mg/l
13	Iron as Fe	IS 3025 Part 53:2003 (Reaff:2019)	0.12 mg/l
14	Residual Free Chlorine	IS 3025 Part 26:1986 (Reaff:2019)	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 (Reaff:2019)	3.33 mg/l

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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/2024-25/046	Report Date	07.03.2024
Site Location	TVL. TOP GRANITES MULTI COLOUR GRANITE QUARRY S.F.Nos. . 1124/5, 1124/6, 1151/5, 1151/6 and 1172/2A Irudhukottai Village, Denkanikottai Taluk, Krishnagiri District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/046
Sample Description	Ground Water (BW-2)	Sample Collected Date	29.02.2024
Qty. of Sample Received	2 Litres	Sample Received On	01.03.2024
Sample Condition	Fit for Analysis	Test Commenced On	07.03.2024
Sampling Location	NeUnsatti		

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

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/2024-25/047	Report Date	07.03.2024
Site Location	TVL. TOP GRANITES MULTI COLOUR GRANITE QUARRY S.F.Nos. . 1124/5, 1124/6, 1151/5, 1151/6 and 1172/2A Irudhukottai Village, Denkanikottai Taluk, Krishnagiri District.		
Customer Name			
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/047
Sample Description	Ground Water (BW-3)	Sample Collected Date	29.02.2024
Qty. of Sample Received	2 Litres	Sample Received On	01.03.2024
Sample Condition	Fit for Analysis	Test Commenced On	07.03.2024
Sampling Location	Kurubatti		

S.No.	Parameters	Test Method	RESULTS
	Discipline: Chemical	Group: Water	
1	Colour	IS 3025 Part 4:1983 (Reaff:2017)	5
2	Odour	IS 3025 Part 5:2018	Agreeable
3	pH at 25°C	IS 3025 Part 11:1983 (Reaff:2017)	7.09
4	Conductivity @ 25°C	IS 3025 Part 14:2013 (Reaff:2019)	1105 µmhos/cm
5	Turbidity	IS 3025 Part 10:1984 (Reaff:2017)	1.0 NTU
6	Total Dissolved Solids	IS 3025 Part 16:1984 (Reaff:2017)	652 mg/l
7	Total Hardness as CaCO ₃	IS 3025 Part 21:2009 (Reaff:2019)	200.82 mg/l
8	Calcium as Ca	IS 3025 Part 40:1991 (Reaff:2019)	35.5 mg/l
9	Magnesium as Mg	IS 3025 Part 46:1994 (Reaff:2019)	27.3 mg/l
10	Total Alkalinity as CaCO ₃	IS 3025 Part 23:1986 (Reaff:2019)	195.1 mg/l
11	Chloride as Cl	IS 3025 Part 32:1988 (Reaff:2019)	150 mg/l
12	Sulphate as SO ₄	IS 3025 Part 24:1986 (Reaff:2019)	75 mg/l
13	Iron as Fe	IS 3025 Part 53:2003 (Reaff:2019)	0.11 mg/l
14	Residual Free Chlorine	IS 3025 Part 26:1986 (Reaff:2019)	BDL (DL:0.1 mg/l)
15	Fluoride as F	APHA 23 rd Edn. 2017:4500 F,D	0.25 mg/l
16	Nitrate as NO ₃	IS 3025 Part 34:1988 (Reaff:2019)	5.0 mg/l

*****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/2024-25/047	Report Date	07.03.2024
Site Location	TVL. TOP GRANITES MULTI COLOUR GRANITE QUARRY S.F.Nos. . 1124/5, 1124/6, 1151/5, 1151/6 and 1172/2A Irudhukottai Village, Denkanikottai Taluk, Krishnagiri District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/047
Sample Description	Ground Water (BW-3)	Sample Collected Date	29.02.2024
Qty. of Sample Received	2 Litres	Sample Received On	01.03.2024
Sample Condition	Fit for Analysis	Test Commenced On	07.03.2024
Sampling Location	Kurubatti		

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	128 MPN/100ml
38	<i>Escherichia coli</i>	APHA 23 rd Edn. 2017:9221F	< 1.8 MPN/100ml

*****End of Report*****



Verified by

[Signature]

Authorised Signatory

[Signature]

Name : Santhosh Kumar A
Designation : Quality Manager

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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

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Sr. Director, NABET
Dated: Feb 20, 2023

Certificate No.
NABET/EIA/2225/RA 0276

Valid up to
August 06, 2025

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