

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 (Cluster) – MINOR MINERAL – CLUSTER –

PATTA LAND - FRESH QUARRY

THIRU G. ULAGANATHAN ROUGH STONE AND GRAVEL QUARRY

Extent – 2.39.0 Ha

Project Proponent



Thiru. G. Ulaganathan,

S/o. Gomathinayagam

No.15/31, Rajaji Street, Radha Nagar,

Chromepet Taluk,

Kancheepuram District– 600 044

PROJECT LOCATION	PROPOSED PRODUCTION
S.F.Nos.: 1/2C, 1/3, 1/4, 1/5 & 16/2A Sithalapakkam Village, Vembakkam Taluk Tiruvannamalai District, Tamil Nadu	Reserves: 2,79,180 m ³ of Rough Stone & 36,316 m ³ of Gravel Peak Production = 40,550m ³ of Rough Stone, 19,380 m ³ of Gravel Proposed Depth = 37m bgl
ToR Identification: T023B0108TN5735410N Dated: 01/04/2024	
Environmental Consultant GEO EXPLORATION AND MINING SOLUTIONS  Old No. 260-B, New No. 17, Advaitha Ashram Road, Alagapuram, Salem – 636 004, Tamil Nadu, India Accredited for sector 1 Cat ‘A’, sector 31 & 38 Cat ‘B’ Certificate No : NABET/EIA/2225/RA 0276 Phone: 0427-2431989, Email: infogeoexploration@gmail.com Web: www.gemssalem.com 	Laboratory GLOBAL LAB AND CONSULTANCY SERVICES Approved by ISO:9001:2015, NABL, FSSAI, Experts in QHSE No:92/3A2, Geetha Nagar, Alagapuram Pudur, Salem-636
Baseline Monitoring Period MARCH TO MAY 2024 JUNE 2024	

UNDERTAKING

I G.Ulaganathan given undertaking that this EIA & EMP report prepared for our Rough stone and Gravel quarry situated in S.F. No 1/2C, 1/3, 1/4, 1/5, & 16/2A, over an extent of 2.39.0Ha in Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District based on the ToR issued by the State Level Environmental Impact Assessment Authority (SEIAA), Tamil Nadu vide ToR Identification: T023B0108TN5735410N Dated: 01/04/2024.I hereby assured that the Data's submitted and information given by me is true and correct to the best of my knowledge.

Signature of the Project Proponent



G.Ulaganathan

Place: Tiruvannamalai

Dated:

DECLARATION

I Dr. M.Ifthikhar Ahmed – EIA Co Ordinator declare that the EIA & EMP report for the Rough stone and Gravel quarry in S.F. No /2C, 1/3, 1/4, 1/5, & 16/2A, over an extent of 2.39.0Ha in Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District has been prepared by Geo Exploration and Mining Solutions, Salem, Tamil Nadu.

The Data's provided in the EIA report are true and correct to the best of my knowledge.

Signature of the EIA Co Ordinator



Dr. M. Ifthikhar Ahmed

Managing Partner

M/s. Geo Exploration and Mining Solutions

Place: Salem

Dated:

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

PROPOSED QUARRIES					
CODE	Name of the Owner	Village	S.F. Nos	Extent in Ha	Status
P1	Thiru.G. Ulaganathan, S/o,Gomathimayagam, No.15/31, Rajaji street, Radha Nagar, Chrompet, Kancheepuram District	Sithalapakkam	1/2C, 1/3, 1/4, 1/5 & 16/2A	2.39.0	ToR Identification: T023B0108TN5735410 N Dated: 01/04/2024.
P2	Thiru.M.N.Balasundara, S/o.Subramaniam, No.72, main road, Mankadu,Kundrathur Taluk, Kancheepuram.	Sithalapakkam	8/1A,8/1B,8/ 1C,8/1D, etc.	3.87.5	-
TOTAL EXTENT				6.26.50	
EXISTING QUARRIES					
CODE	Name of the Owner	Village	S.F. Nos	Extent in Ha	Status
E-1	Thiru G.Manavaian, S/o, Govindhanaidu, No.294 perumal koil street, Thenagkulam village, Valajapath Taluk, Kancheepuram	Sithalapakkam	28/12 & 28/13	2.01.5	17.11.2021 to 16.11.2031
E-2	Thiru Muthukrishnan, No.221, Chenjiamman Koil street, Chithapakkam village, Vempakkam Taluk, Kancheepuram.	Sithalapakkam	16/6,16/7 & 17/1	1.26.0	22.11.2018 to 21.11.2023
E-3	Thiru C.Sugumar, S/o, Chandrababu, No- 18A, V.V. Kovil street, walajabad taluk, kancheepuram	Ezhacheri	20/1H,20/11, 20/3B,20/3C & 20/3D	1.82.5	16.11.2018 to 15.11.2023
E-4	Tvl.Golden Sands, No.15,4 th street, East coast road, Chennai-115	Ezhacheri	1/2c,1/2B2B ,1/2D,1/7,1/ 8,1/9,20/3A	3.74.5	07.11.2018 to 06.11.2023
E-5	Thiru P.sankar,S/o Ponnapan,No.1/63, pillaiyar koil street,Erumaiyur village, Thirumudivakkam, Chennai-600 044	Ezhacheri	21/2F,2G,2H ,2I,2J & 2k	2.09.5	02.11.2021 to 01.11.2026
TOTAL EXTENT				10.94.0	
ABANDONED QUARRY					
A-1	Thiru M.R.Azhagiri,S/o, M.P.Rajalingam, No.120, Shanmuganandhar,Kovil street, Mangadu, sriperumbuthur Taluk, Kancheepuram district.	Sithalapakkam	8/1A,8/1B, 1C etc..	3.87.5	17.10.2018 to 16.10.2023
TOTAL CLUSTER EXTENT				17.20.50	

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

TERMS OF REFERENCE (ToR) COMPLIANCE

Site Specific		
1	The Project Proponent shall furnish the revised EMP based on the study carried out on impact of the dust & other environmental impacts due to proposed quarrying operations on the nearby agricultural lands for remaining life of the mine in the format prescribed by the SEAC considering the cluster situation	Detailed on Chapter No.10
2	The PP shall undertake a detailed Hydrogeology study considering nearby existing wells, Aquifers, Ground water & surface water levels etc within the radius of 1km.	Detailed Chapter No.3
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.	Not Applicable
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 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
4	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
5	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.	Noted and agreed
6	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	Not Applicable. It is a Fresh Quarry

	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.	
7	However, in case of the fresh/virgin quarries, The Proponent shall submit a conceptual 'Slope Stability Assessment' for the proposed quarry during the appraisal while obtaining the EC, when the depth of the proposed working is extended beyond 30 m below ground level.	For the first five years plan period the mining operation is proposed to carry out upto the depth of 37m bgl. It is ensured that the slope stability will be carried when the depth reaches 30m bgl.
8	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.
9	The PP shall present a conceptual design for carrying out only controlled blasting operation involving line drilling and muffle blasting in the proposed quarry such that the blast-induced ground vibrations are controlled as well as no fly rock travel beyond 30 m from the blast site.	Noted and agreed
10	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.	No other quarries in the name of the proponent
11	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	Not Applicable
13	What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?	Not Applicable
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.	Not Applicable
14	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.
15	The PP shall carry out Drone video survey covering the cluster. green belt, fencing, etc..	Noted and agreed
16	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	The area has been fenced and plantation activities carried out within the project site.

	bodies nearby provided as per the approved mining plan.	
17	The Project Proponent shall provide the details of mineral reserves and mineable reserves, planned production capacity, proposed working methodology with justifications, the anticipated impacts of the mining operations on the surrounding environment, and the remedial measures for the same.	The details of mineral reserves have been provided in Chapter No 1, Total Mineable Reserves Rough Stone - 2,79,180m ³ Gravel – 36,316m ³ Production for Ten years MP period Rough Stone - 2,79,180m ³ Gravel – 36,316m ³
18	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 35 Nos inclusive of Competent persons. Mines Manager & Foreman Details are given in the Chapter No.2.
19	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,
20	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 (Pre Monsoon) Mar to May 2024 as per CPCB Notification and MoEF & CC Guidelines. Details in Chapter No. 3
21	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
22	Rain water harvesting management with recharging details along with water balance (both) monsoon & non-monsoon) be submitted.	Noted and agreed
23	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.
24	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.	No waste is anticipated

25	Proximity to Areas declared as 'Critically Polluted' (or) the Project areas which attracts the court restrictions for mining operations, should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the TNPCB (or) Dept of Geology and Mining should be secured and furnished to the effect that the proposed mining activities could be considered.	Not Applicable. Project area / Study area is not declared in 'Critically Polluted' Area and does not come under 'Aravalli Range.
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 on local transport infrastructure due to the Project should be indicated.	Transportation details mentioned in Chapter -2
28	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.
29	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
30	As a part of the study of flora and fauna around the vicinity of the proposed site, the EIA coordinator shall strive to educate the local students on the importance of preserving local flora and fauna by involving them in the study, wherever possible.	Noted and agreed
31	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.
32	Taller/one year old Saplings raised in appropriate size of bags, preferably eco-friendly bags should be planted as per the advice of local forest authorities/botanist/Horticulturist with regard to site specific choices. The proponent shall earmark the greenbelt area with GPS coordinates all along the boundary of the project site with at least 3 meters wide and in between blocks in an organized manner.	It is an Existing Lease. No trees within the project site. During the course of mining operation it is proposed to plant 1200 Nos of Trees in the safety barrier and Village roads.
33	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
34	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
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	Occupational Health impacts chapter- 10

	incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.	
36	Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.	No Public Health Implications anticipated due to this project. Details of CER are discussed under Chapter 8,
37	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
38	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
39	Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.	Noted and agreed
40	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.	Not Applicable. It is fresh quarry
41	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.
42	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		
Cluster Management committee		
1.	Cluster Management Committee shall be framed which must include all the proponents in the cluster as members including the existing as well as proposed quarry.	Cluster management committee has been formed with mutual agreement with the proponents including Existing and 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 co ordinate 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, Karur 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 streams.	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 be committed mentioned in EMP.	The area is Existing 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 Existing/ 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 Marudham R.F. 7.59 Km – North West
20	The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.	The area is surrounded by quarried land and Barren land. Details of flora and fauna studies given in the Chapter No.3.
21	The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection.	No major trees within the project area
22	The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site.	Noted & agreed. Karikili Bird Sanctuary - 18.0 km – South East
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 utilise 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	Details of carbon emission and mitigation activities are given in the Chapter No.4

	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.	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 55,97,000/- CER Cost = Rs 5,00,000/ Disaster Management plan & mine closure plan is discussed in chapter no.4 & 7
Risk Assessment		
37	To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining.	Detailed under Chapter 7
Disaster Management Plan		
38	To furnish disaster management plan and disaster mitigation measures in regard to all aspects to avoid/reduce vulnerability to hazards & to cope with disaster/untoward accidents in & around the proposed mine lease area due to the proposed method of mining activity & its related activities covering the entire mine lease period as per precise area communication order issued.	Details in Study 7.3 Disaster Management Plan in Chapter -7
Others		
39	The project proponent shall furnish VAO certificate with reference to 300m radius regard to approved habitations, schools, Archaeological sites, Structures. railway lines, roads. Water bodies such as streams, odai, vaari, canal, channel. river, lake pond, tank etc.	VAO certificate is attached as Annexure
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.	Noted and agreed
41	The project proponent shall study and furnish the possible pollution due to plastic and microplastic on the environment. The ecological risks and impacts of plastic & microplastics on aquatic environment and fresh water systems due to activities, contemplated during mining may be investigated and reported.	Details of carbon emission and mitigation activities are given in the Chapter No.4

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
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 with adjacent quarries details is enclosed in Figure No.1.1 Project area boundary coordinates superimposed on Toposheet – Figure No. 1.1A Toposheet of the project area covering 10km radius – Figure No. 1.2 Geology map of the project area covering 10km radius - Figure No. 2.11
5	Information should be provided in Survey of India Toposheet in 1:50,000 scale indicating geological map of the area, geomorphology of land forms of the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics.	Map showing – Geology map of the project area covering 10km radius - Figure No. 2.11 Geomorphological features are incorporated in the Toposheet map covering 10km radius around the project area Figure No. 2.12
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° 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	A 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.	No Reserve Forest within the Study Area.
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	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.

	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.	Detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] was carried out and discussed under Chapter No. 3. There is no schedule I species of animals observed within study area as per Wildlife Protection Act 1972 as well as no species is in vulnerable, endangered or threatened category as per IUCN. There is no endangered red list species found in the study area.
19	Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravalli Range', (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Department should be secured and furnished to the effect that the proposed mining activities could be considered.	Not Applicable. Project area / Study area is not declared in 'Critically Polluted' Area and does not come under 'Aravalli Range'.
20	Similarly, for coastal Projects, A CRZ map duly authenticated by one of the authorized agencies demarcating LTL, HTL, CRZ area, location of the mine lease w.r.t CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).	Not Applicable. The project doesn't attract The C. R. Z. Notification, 2018.
21	R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine lease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspects should be discussed in the Report.	Not Applicable. There are no approved habitations within a radius of 300 meters. Therefore, R&R Plan / Compensation details for the Project Affected People (PAP) is not anticipated and Not Applicable for this project.
22	One season (non-monsoon) [i.e. March-May (Summer Season); October-December (post monsoon season); December-February (winter season)] primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The	Baseline Data were collected for Summer Season (Mar 2024 -May 2024) as per CPCB Notification and MoEF & CC Guidelines. Details in Chapter No. 3.

	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 Model. Details in Chapter No. 4.
24	The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated.	Total Water Requirement for this project is given in the chapter No 2, Table No 2.13.
25	Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.	Water for dust suppression, greenbelt development and domestic use will be obtained from accumulated rainwater/seepage water in mine pits. Drinking water will be sourced from the approved water vendors, No 2, Table No 2.13.
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.	The rain water collected in the pits after spell of rain will be used for greenbelt development and dust suppression.
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 Quality discussed in Chapter No. 4.
28	Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter-alia, shall include details of the aquifers present and impact of mining activities on these aquifers. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.	The ground water table is at 57m below ground level. The ultimate depth of this projects is 37m from the general ground profile. Maximum depth is proposed in this EIA project is 37m.
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.	Highest elevation of the project area is 97m AMSL Ultimate depth of the mine is 37m AMSL Water level in the area is 57m BGL
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.	Progressive greenbelt development plan has been prepared and discussed along with Recommended Species details are given in the Chapter 4, Table No.4.9
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	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 much significant impact due to 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.	proposed transportation from the project area. Details in Chapter 2.
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.	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. .
33	Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.	Discussed in 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.	Details in Chapter 10.
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.	Details in Chapter 10.
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.	Details in Chapter 4,
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.	Environment Management Plan Chapter 10.
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.	The outcome of public hearing will be updated in the final EIA/EMP report
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.	No litigation is pending in any court against this 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.	The proposed capital cost for Environmental Monitoring Programme is Rs 3,80,000/- and the recurring cost is Rs 76,000/- per annum. Details in Chapter 6 .
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.	Details in Chapter 10.
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	Encloses as separate volume
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 given properly.
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 mining plan
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.	Instructions issued by MoEF & CC O.M. No. J-11013/41/2006-IA. II (I) Dated: 4th August, 2009 are followed.
H	Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the PFR for securing the TOR) should be brought to the attention of MoEF & CC with reasons for such changes and permission should be sought, as the TOR may also have to be altered. Post Public Hearing changes in structure and content of the draft EIA/EMP (other than modifications arising out of the P.H. process) will entail conducting the PH again with the revised documentation	Noted & agreed.
I	As per the circular no. J-11011/618/2010-IA. II(I) Dated: 30.5.2012, certified report of the status of compliance of the conditions stipulated in the environment clearance for the existing operations of the project, should be obtained from the Regional Office of Ministry of Environment, Forest and Climate Change, as may be applicable.	Not applicable.
J	The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and sections and (iii) sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area.	Surface Plan – Figure No. 2.2. Geological Plan – Figure No 2.9. Working Plan – Figure No 2.9. Closure Plan – Figure No.2.10.

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1.INTRODUCTION

1.0 PREAMBLE

Project History: -

The project proponent Thiru G.Ulaganathan applied for Rough Stone and Gravel Quarry over an extent of 2.39.0 Ha in S.F.No 1/2C, 1/3, 1/4, 1/5 & 16/2A, Sitalapakkam Village, Vembakkam Taluk, Tiruvannamalai District.

- Proponent applied for Rough stone and Gravel quarry lease on 13.09.2022
- Precise area communication letter was issued by the District Collector vide RC. No. 197/Kanimam/2022 Dated 08.09.2023
- The Mining plan has been prepared by the Qualified person and got approval vide Letter RC. No. 197/kanimam/2022 Dated 25.10.2023
- The Mining plan has been approved for the quantity of 2,79,180 m³ of Rough stone 36,316m³ Gravel up to the depth of 37m bgl for the period of ten years.

As per the EIA Notification, 2006 and subsequent amendments and OM The proposal falls in the B1 Category (Cluster quarries - 2 proposal and 5 Existing quarries forming Cluster Category {Total Extent of the Cluster is 17.20.50 Ha}- Cluster area calculated as per MoEF & CC Notification S.O. 2269(E) Dated 1st July 2016).

- Proponent applied for Terms of Reference Identification: T023B0108TN5735410N Dated 01.04.2024

Based on the ToR Baseline Monitoring study has been carried out for one season i.e., **March to May 2024** and this EIA/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) 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

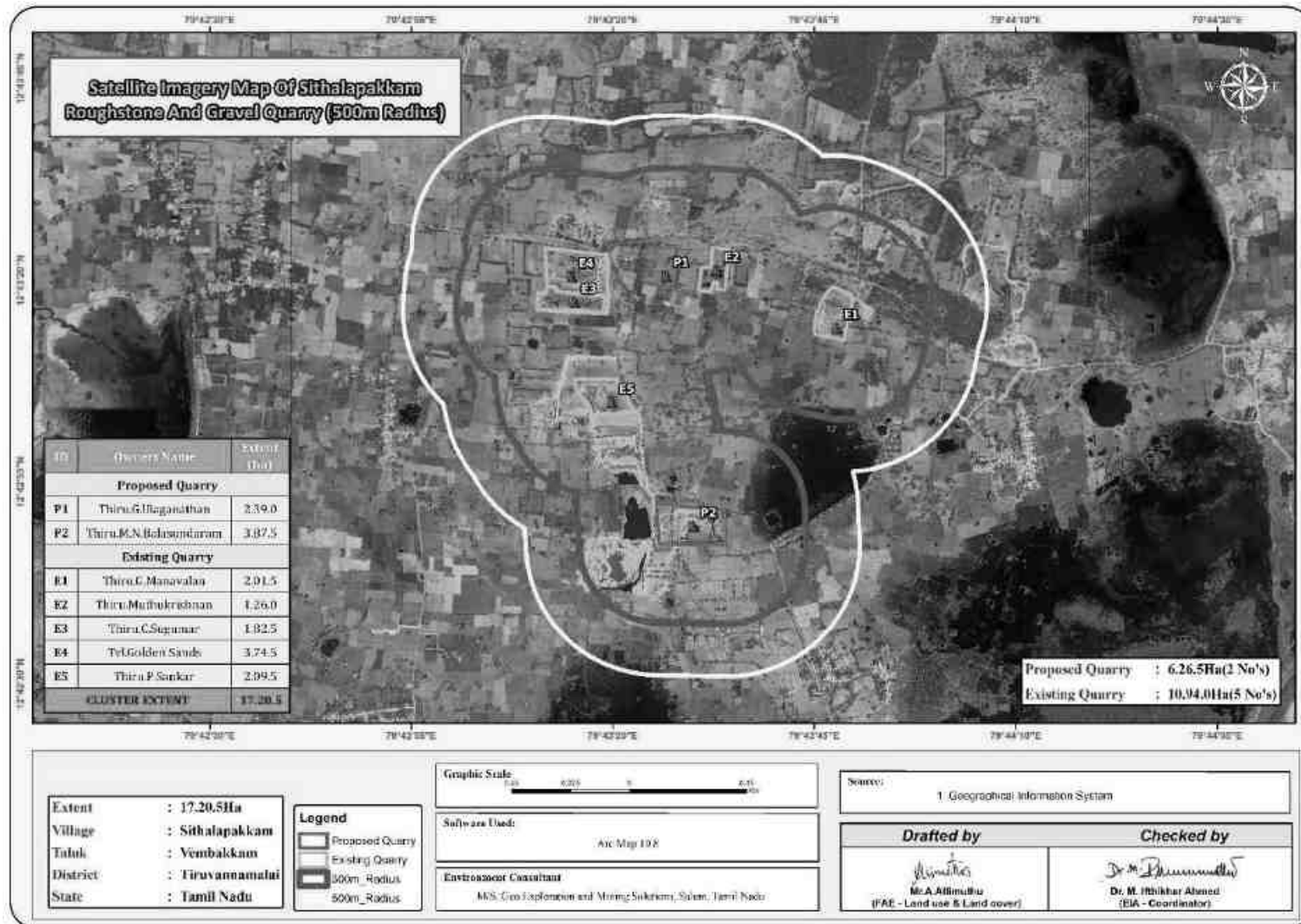
The Ministry of Environment and Forests, Govt. of India, through its EIA notification S.O. 1533(E) of 14th September 2006 and its subsequent amendments as per Gazette Notification S.O. 1889 of 20th April 2022, Mining Projects are classified under two categories i.e. A (> 250 Ha) and B (≤ 250 Ha), and 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 B1 and appraised by SEAC/ SEIAA as well as for cluster situation.

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

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

FIGURE 1.1 SATELLITE IMAGERY CLUSTER QUARRIES



1.2 IDENTIFICATION OF PROJECT AND PROJECT PROPONENTS

1.2.1 Identification of Project Proponent

TABLE 1.1: DETAILS OF PROJECT PROPONENT

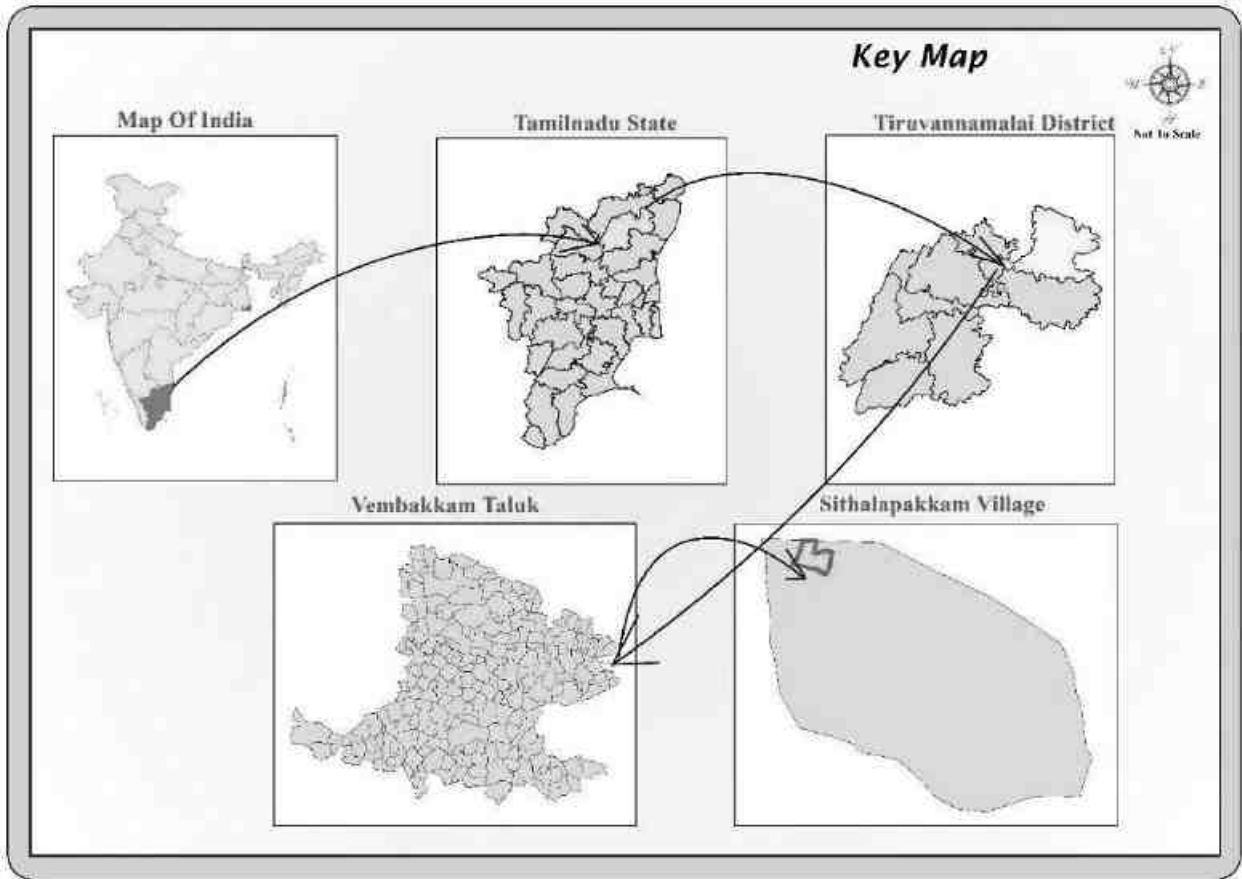
Name of the Project Proponent	Thiru. G.Ulaganathan Rough Stone and Gravel Quarry
Address	S/o. Gomathinayagam, No.15/31, Rajaji Street, Radha Nagar, Chromepet, Kancheepuram-600 044.
Mobile	+91 93609 52091
Email	vanajaulaganathan@gmail.com
Status	Individual

1.2.2 Identification of Project

TABLE 1.2: SALIENT FEATURES OF THE PROPOSED PROJECT

Name of the Project	Thiru. G.Ulaganathan Rough Stone and Gravel Quarry	
S.F. No.	1/2C, 1/3, 1/4, 1/5 & 16/2A	
Extent	2.39.0 ha	
Village, Taluk and District	Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District.	
Land Type	It is a patta lands, registered in the name of the G.Ulaganathan, vide patta No.437	
Toposheet No	57 P/10	
Latitude between	12° 43' 18.0590"N to 12° 43' 24.1463"N	
Longitude between	79° 43' 23.6923"E to 79° 43' 23.6923"E	
Elevation of the area	97m AMSL	
Lease period	10 Years	
Mining Plan period	10 years	
Proposed Depth of Mining	37m bgl (2m Gravel + 35m Rough stone)	
Geological Resources	Rough Stone in m ³	Gravel m ³
	8,36,500	47,800
Mineable Reserves	2,79,180	36,316
Year wise Production for first five years	1,90,015	36,316
Year wise Production for next five years	89,165	-
Peak Production	40,550	19,380
Ultimate Pit Dimension	Pit 1:124m (L) x 75m (W) x 32m(D) bgl Pit 1:102m (L) x 95m (W) x 37m(D) bgl	
Water Level in the region	57 m bgl	
Method of Mining	Opencast Mechanized Mining Method involving drilling and Controlled blasting using Slurry Explosives	
Topography	The lease applied area is plain terrain. The area has gentle sloping towards eastern side and altitude of the area is 97m above from Mean Sea level. The area is covered by 2m thickness of Gravel and followed by Massive Charnockite which is clearly inferred from the surface outcrops & nearby existing quarry pit.	
Machinery proposed	Jack Hammer	5 Nos
	Compressor	2 Nos
	Excavator with Bucket and Rock Breaker	2 Nos
	Tippers	4 Nos

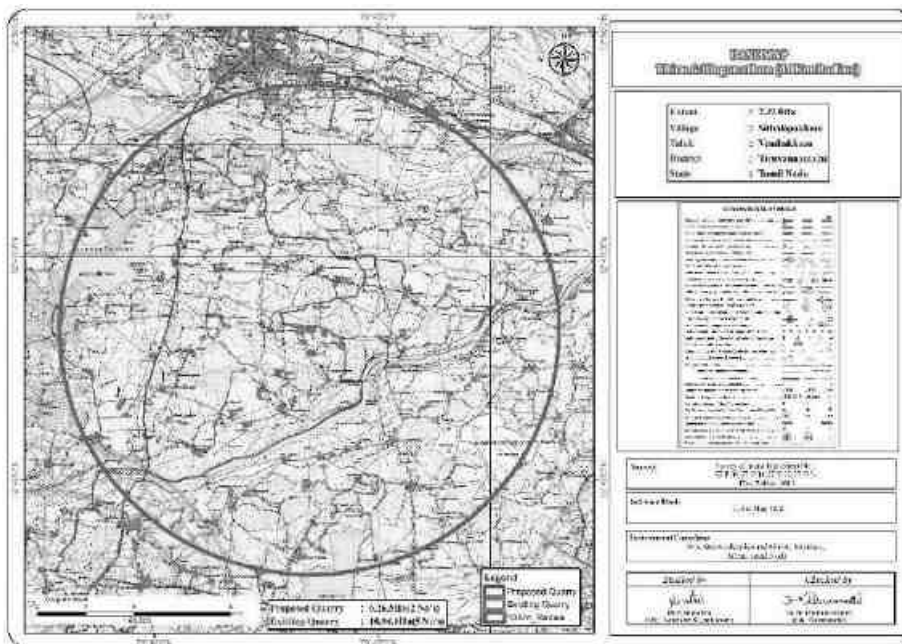
FIGURE 1.2 LOCATION MAP OF THE PROJECT SITE



bb

Source: Survey of India Toposheet 57-P/10 & 16

FIGURE 1.3: 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: -

- Screening,
- Scoping
- Public consultation &
- Appraisal

SCREENING –

- Proponent applied for Rough stone and Gravel quarry lease on 13.09.2022
- Precise area communication letter was issued by the District Collector vide RC. No. 197/Kanimam/2022 Dated 08.09.2023
- The Mining Plan was prepared by Recognized Qualified Person and approved by Assistant Director, Geology and Mining, Tiruvannamalai District, vide RC.No. 197/kanimam/2022 Dated 25.10.2023
- The proposed project falls under “B1” Category 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
- Proponent applied for ToR for Environmental Clearance vide online Proposal No. SIA/TN/MIN/453826/2023. dated: 30.11.2023.

SCOPING:

- The proposal was placed in 441th SEAC meeting held on 31.01.2024 and the committee recommended for issue of ToR.
- The proposal was considered in 698thSEIAA meeting held on 19.02.2024 and issued Terms of Reference Identification: T023B0108TN5735410N Dated 01.04.2024.

PUBLIC CONSULTATION

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

APPRAISAL –

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

1.5 TERMS OF REFERENCE (ToR)

The ToR was issued by the SEIAA vide Terms of Reference Identification: T023B0108TN5735410N Dated 01.04.2024. The Details of the ToR Compliance is given in the Page No. a – n.

1.6 POST ENVIRONMENT CLEARANCE MONITORING

The 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.

1.7 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.

1.8 THE 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 summer season (March to May 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 1.3: ENVIRONMENT ATTRIBUTES

Sl.No.	Attributes	Parameters	Source and Frequency
1	Ambient Air Quality	PM ₁₀ , PM _{2.5} , SO ₂ , NO ₂	Continuous 24-hourly samples twice a week for three months at 7 locations (2 Core & 5 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 6 locations – 2 Surface water and 4 Ground water samples; 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 collected from the Forest department.
5	Noise levels	Noise levels in dB(A)	8 locations – data monitored once for 24 hours during EIA study
6	Soil Characteristics	Physical and Chemical Parameters	Once at 6 locations during study period
7	Land use	Existing land use for different categories	Based on Survey of India topographical sheet and satellite imagery and primary survey.
8	Socio-Economic Aspects	Socio-economic and demographic characteristics, worker characteristics	Based on primary survey and secondary sources data like census of India 2011.

9	Hydrology	Drainage pattern of the area, nature of streams, aquifer characteristics, recharge and discharge areas	Based on data collected from secondary sources as well as hydro-geology study report prepared.
10	Risk assessment and Disaster Management Plan	Identify areas where disaster can occur by fires and explosions and release of toxic substances	Based on the findings of Risk analysis done for the risk associated with mining.

Source: Field Monitoring Data

1.8.1 Regulatory Compliance & Applicable Laws/Regulations for all Proposed Quarries

- 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 has been approved under Rule 41 & 42 as amended of Tamil Nadu Minor Mineral Concession Rules, 1959.
- Terms of Reference Identification: T023B0108TN5735410N Dated 01.04.2024

2. PROJECT DESCRIPTION

2.0 GENERAL

The Proposed Rough Stone Quarries requires Environmental Clearance. There are 2 proposed and 5 existing quarries forming a cluster; calculated as per MoEF & CC Notification S.O. 2269(E) Dated 1st July 2016 and the total extent of cluster is 17.20.50 ha.

As the extent of cluster are more than 5 ha, the proposal falls under B1 Category as per the Order Dated: 04.09.2018 & 13.09.2018 passed by Hon'ble National Green Tribunal, New Delhi in O.A. No. 173 of 2018 & O.A. No, 186 of 2016 and MoEF & CC Office Memorandum F. No. L-11011/175/2018-IA-II (M) Dated: 12.12.2018, and requirement for EIA, EMP and Public Consultation for obtaining Environmental Clearance.

2.1 DESCRIPTION OF THE PROJECT

The proposed project is site specific and there is no additional area required for this project. There is no effluent generation/discharge from this project. Method of mining is opencast mechanized method involving splitting of rock mass of considerable volume from the parent rock mass by jackhammer drilling and blasting, hydraulic excavators are used for loading the Rough Stone from pithead to the needy crushers and rock breakers to avoid secondary blasting.

2.2 LOCATION OF THE PROJECT

90km Northeast of Tiruvannamalai town, 16km Southeast of Vembakkam and lease applied area located along Sithalapakkam Village.

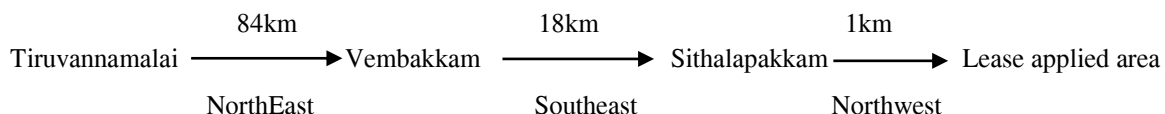


TABLE 2.1: SITE CONNECTIVITY

Nearest Roadway	NH – 132B – Kancheepuram – Chengalpattu -10.0 km -NE SH – 118A – Kancheepuram – Uthiramerur -3.0km-East
Nearest Village	Sithalapakkam– 1.52 Km – North East
Nearest Town	Magaral - 3.0km – SE
Nearest Railway Station	Kancheepuram – 13.0km – NW
Nearest Airport	Chennai - 75.0km – NE
Seaport	Chennai - 75.0km – NE

Source: Survey of India Toposheet

TABLE 2.2: CO-ORDINATES – PROJECT BOUNDARY

Corner Nos.	Latitude	Longitude
1	12 ^o 43'24.0904" N	79 ^o 43'25.4586" E
2	12 ^o 43'24.1463" N	79 ^o 43'28.0306" E
3	12 ^o 43'21.8039" N	79 ^o 43'27.6253" E
4	12 ^o 43'21.7355" N	79 ^o 43'28.0439" E
5	12 ^o 43'22.2201" N	79 ^o 43'29.7371" E
6	12 ^o 43'21.9730" N	79 ^o 43'30.8970" E

7	12°43'19.1097" N	79°43'30.4502" E
8	12°43'18.0590" N	79°43'29.7856" E
9	12°43'18.4341" N	79°43'28.5504" E
10	12°43'18.7578" N	79°43'28.5846" E
11	12°43'19.0152" N	79°43'27.5771" E
12	12°43'19.4200" N	79°43'25.5160" E
13	12°43'19.6687" N	79°43'24.2752" E
14	12°43'19.8855" N	79°43'23.6923" E
15	12°43'20.5625" N	79°43'23.9299" E
16	12°43'20.6633" N	79°43'24.3484" E
17	12°43'22.1877" N	79°43'25.0502" E
18	12°43'22.5777" N	79°43'25.0283" E
19	12°43'22.5963" N	79°43'25.1930" E
Datum: UTM-WGS84, Zone 44 North		

Source: Approved Mining Plan

FIGURE 2.1: TOPOGRAPHICAL VIEW OF PROJECT AREA

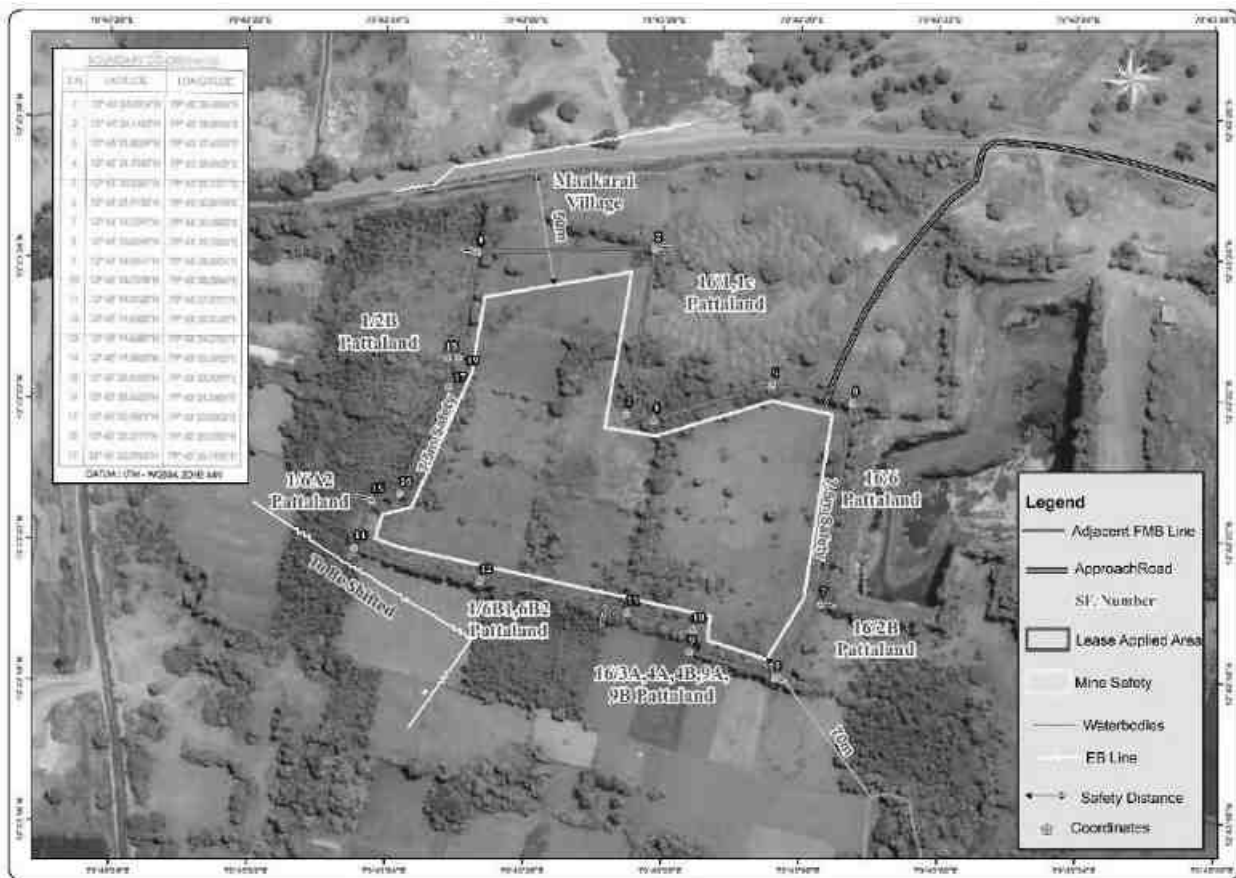


project site Photographs



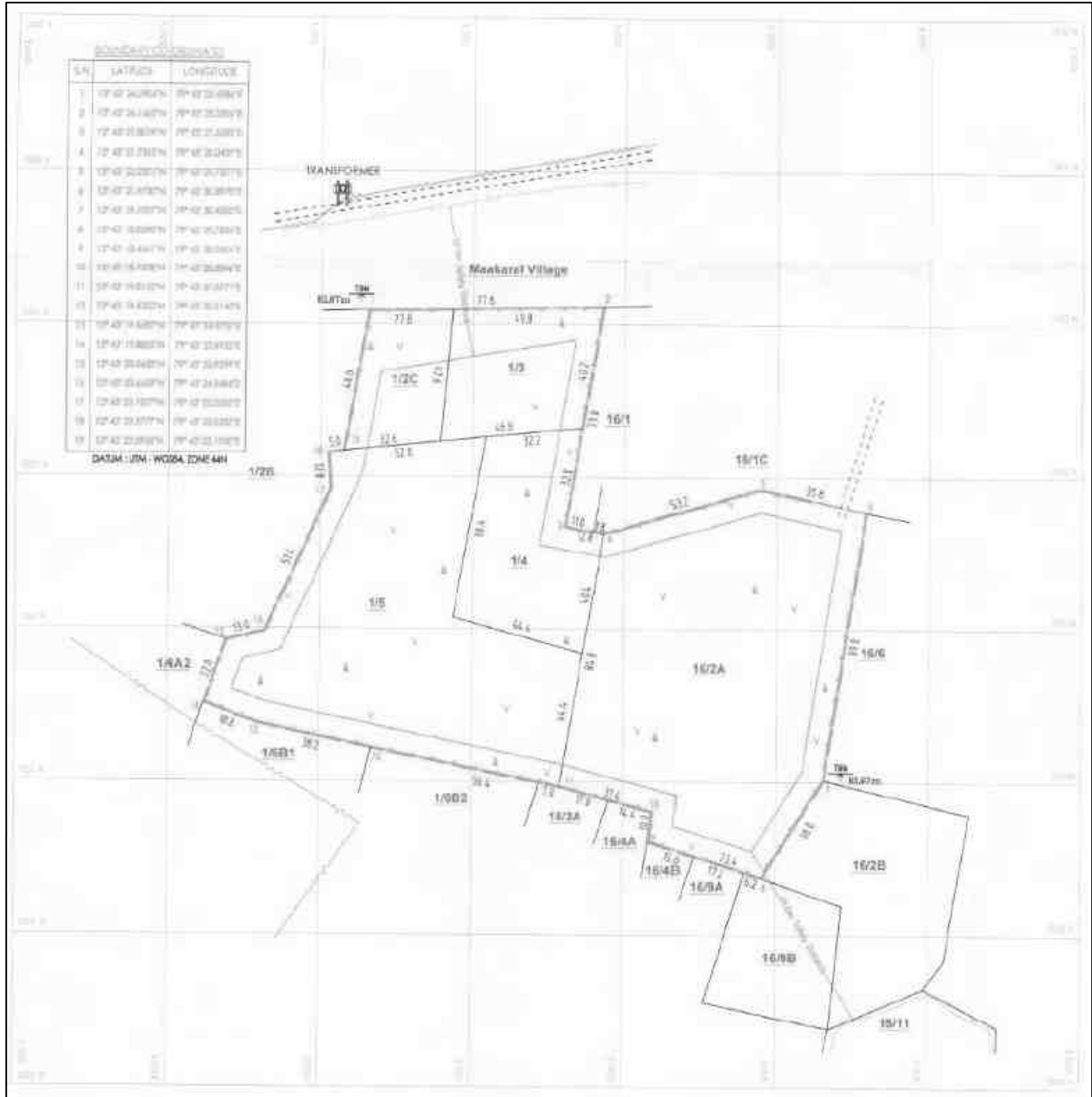
Fencing & Greenbelt at Project site

FIGURE 2.2: GOOGLE IMAGE OF THE PROJECT AREA



Source: Google Earth Imagery

FIGURE 2.3: QUARRY LEASE PLAN / SURFACE PLANN



Source: Approved Mining Plan

FIGURE 2.4: VILLAGE MAP SUPERIMPOSED ON GOOGLE EARTH IMAGE

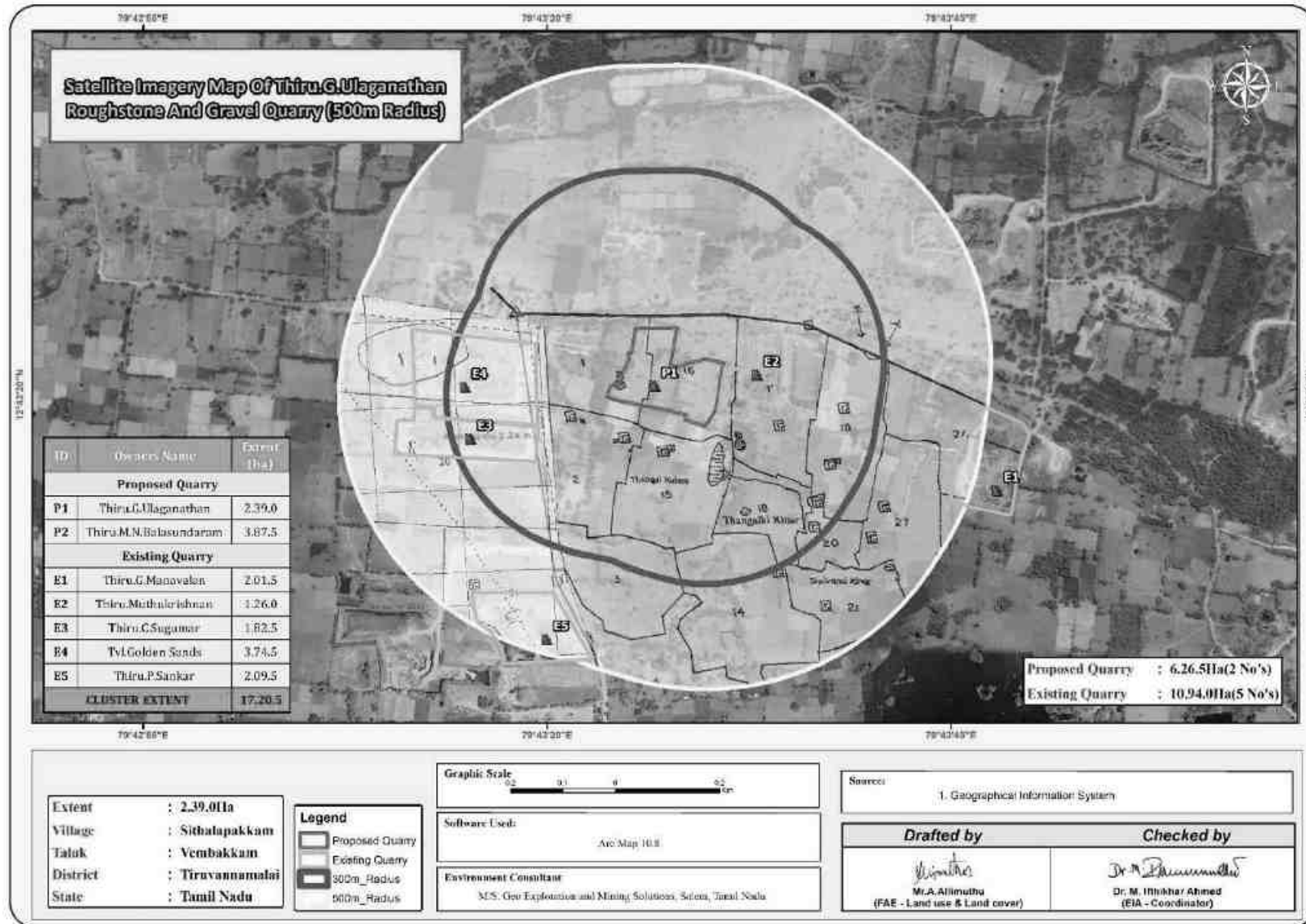


FIGURE 2.5: IMAGE SHOWING SURFACE FEATURES AROUND 10 KM RADIUS

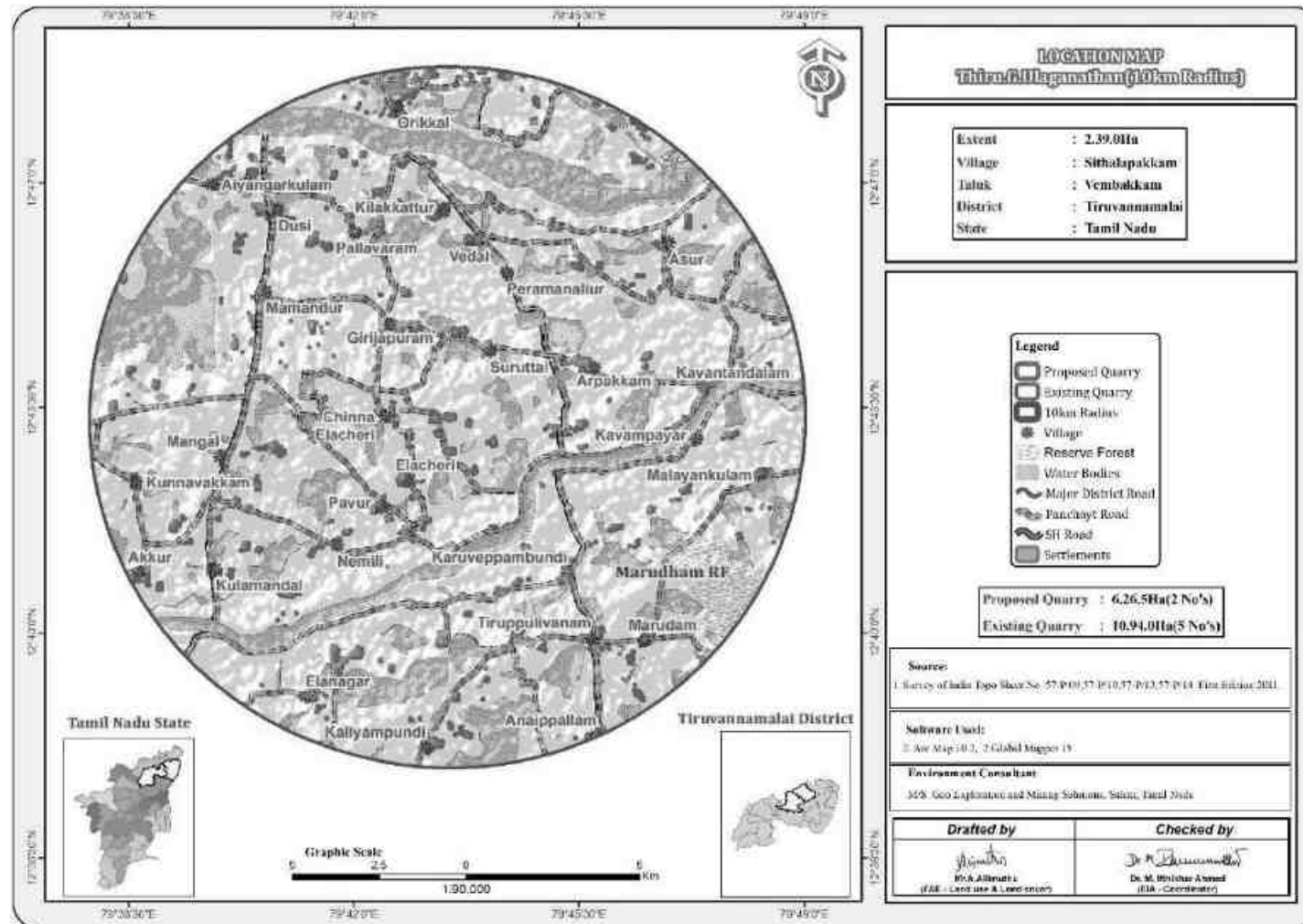
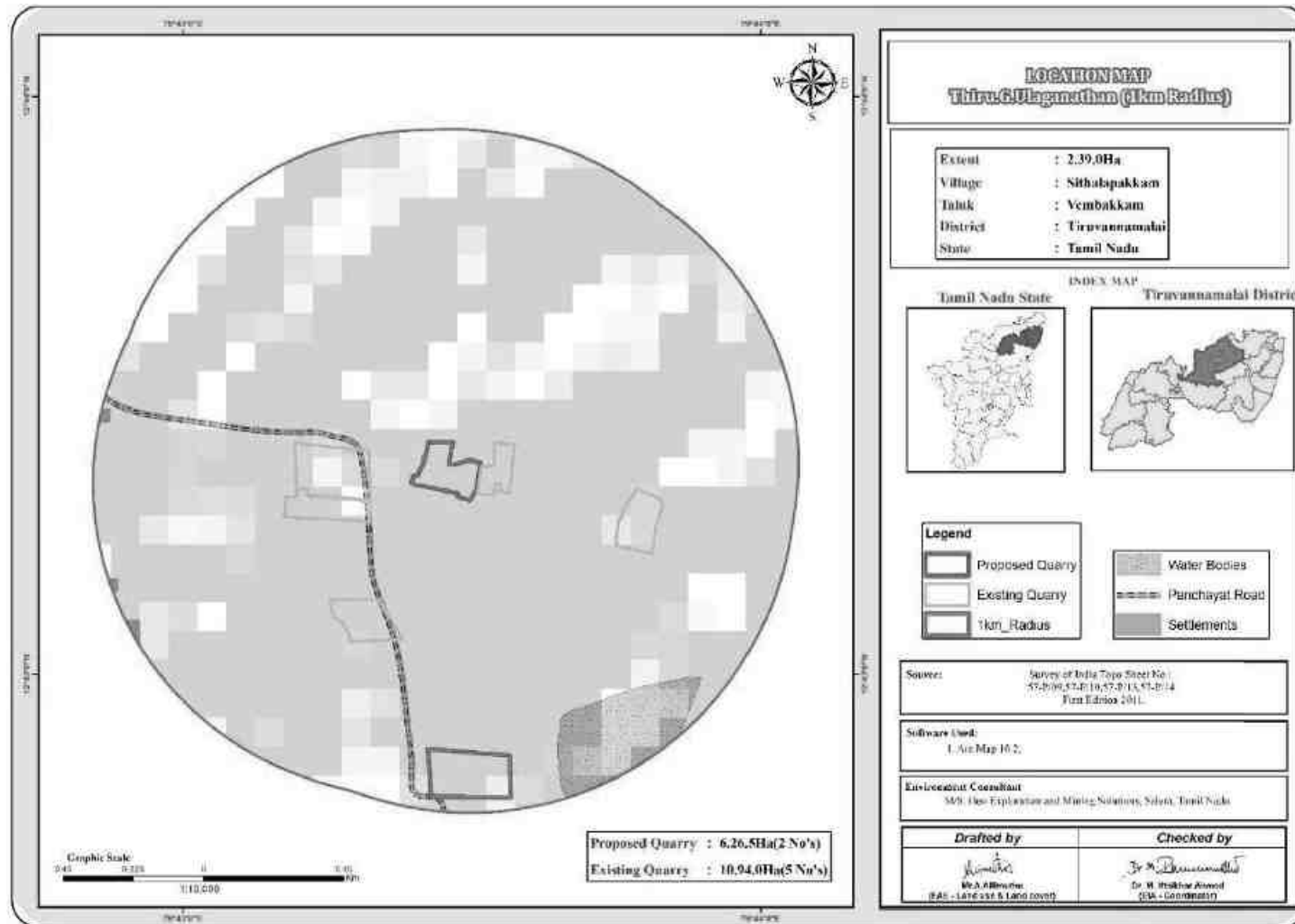


FIGURE 2.6: IMAGE SHOWING SURFACE FEATURES AROUND 1 KM RADIUS



2.2.1 Project Area

- The project is site specific & no beneficiation or processing in the project site.
- There is no forest land involved in the proposed projects and is devoid of major vegetation and trees.

TABLE 2.3: LAND USE PATTERN

Description	Present area (Ha)	Area required during the First five years (Ha)	Area at the end of lease period (Ha)
Area under quarrying	Nil	1.72.0	1.72.0
Infrastructure	Nil	0.01.0	0.01.0
Roads	Nil	0.02.0	0.02.0
Green Belt	Nil	0.20.47	0.42.0
Unutilized Area	2.39.0	0.44.0	0.22.0
Grand Total	2.39.0	2.39.0	2.39.0

Source: Approved Mining

2.2.2 Size or Magnitude of Operation

TABLE 2.4: RESOURCES AND RESERVES

PARTICULARS	DETAILS	
	Rough Stone in m ³	Gravel in m ³
Geological Resources	8,36,500	47,800
Mineable Reserves	2,79,180	36,316
Production for first five-year plan period	1,90,015	36,316
Production for second five-year plan period	89,165	-
Peak Production	40,550	19,380
Mining Plan Period / Lease Applied Period	10 Years	
Number of Working Days	300 Days	
Production per day	126	40
No of Lorry loads (12m ³ per load)	11	3
Total Depth of Mining	37m (2m Gravel +35m Rough stone) below ground level.	

Source: Approved mining plan.

2.3 GEOLOGY

2.3.1 Regional Geology

Tiruvannamalai District mainly comprises of rocks of Archaean age. The type of rocks found in the district are Charnockite, Granitic gneiss, Epidote Hornblende Gneiss, Amphibolite, Pyroxenite, Dunite, Migmatites, Banded Magnetite Quartzite, Shale and Clay. Dolerite dykes (Black Granite) are also noticed cutting across the country rocks.

The hard rock terrain comprises predominantly of Charnockite and Khondalite groups and their migmatitic derivatives, supra-crustal sequences of Sathyamangalam and Kolar groups and Peninsular Gneissic Complex (Bhavani Group), intruded by ultramafic-mafic complexes, basic dykes, granites and syenites. The sedimentary rocks of the coastal belt include fluvial, fluvio-marine and marine sequences, such as Gondwana Supergroup (Carboniferous to Permian and Upper Jurassic to Lower Cretaceous), marine sediments of Cauvery basin (Lower Cretaceous to Paleogene), Cuddalore /Pannambarai Formation (Mio-Pliocene) and sediments of Quaternary and Recent age.

The Charnockite Group comprises pyroxene granulite and charnockite. The pyroxene granulite is dark grey, medium grained granulitic rock with typical salt and pepper texture, seen on the weathered surface. It consists of diopside, hypersthene, plagioclase, hornblende, biotite and quartz. Charnockite is the predominant rock in the area. It

is grey, medium to coarse grained, greasy looking with foliation seen prominently on the weathered surface. It is essentially made of smoky or grey quartz, pale grey microcline and hypersthene as major minerals with plagioclase, hornblende and biotite accessories.

Migmatite Complex is represented by hornblende-biotite gneiss, granitic gneiss and pink migmatite. This Complex is a group of banded felsic rocks of varying mineralogical composition that are formed due to the influx of quartzofeldspathic material into high grade metamorphic rocks. Two types of migmatite are seen in the district, one is grey and the other is pink. Next to charnockite, migmatite gneiss is the second most extensive rock. The migmatite gneiss consists of quartz, k- feldspar, plagioclase, hornblende and biotite in varying proportions.

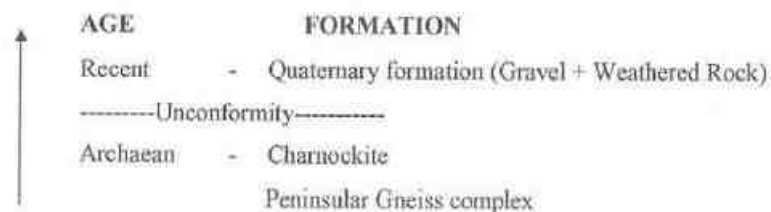
Source: District Survey Report for Minor Minerals Tiruvannamalai District – May 2019.

<https://tiruvannamalai.nic.in/document/district-survey-report-rough-stone/>

Exploration :

No Exploration is required, the Rough stone and Gravel formation is clearly inferred from the existing quarry pit situated on the south side.

The General Geological sequence of the area is given below:



2.3.2 Local Geology: -

The study area follows the regional trend and mainly comprises of Hard Rock Formation as a homogeneous formation / Batholith formation of Charnockite. The project areas are plain terrain, The project areas are covered with Gravel formation of 2m thickness; Massive Charnockite formation is found after 2m Gravel formation which is clearly inferred from the existing quarry pit.

2.3.3 Hydrogeology

Cheyar River which originates from Jawadhu Hills, flows in a southern direction at first, and turns south-east near Chengam after flowing through Polur, Vandavasi and Cheyyartaluku. Palar rising near Nandidurg in Mysore enters Vellore district passing through Gudiyatham, Walajah and Arakonam taluks before entering into Cheyyartaluk of Tiruvannamalai district and there after enters into Kancheepuram district. Pennaiyar and South Pennaiyar originate from Nandidurg of Karnataka. They pass through Dharmapuri district and enter southern part of Chengam taluk before entering in to Viluppuram district. Finally, the river enters into the Bay of Bengal at Cuddalore. The river is dry for the most part of the year. Water flows during the monsoon season when it is fed by the southwest monsoon in catchment area and the northeast monsoon in Tamil Nadu. A dam has been constructed across this river at Sathanur which is a picnic spot in this district. Sathanur Reservoir provides drinking water to Tiruvannamalai town and the water is used for irrigation when the reservoir is filled with surplus water.

The origin, occurrence and movement of groundwater are controlled by geological setup of a terrain. During the study it is inferred that the entire cluster area is a Hard rock terrain and the low resistance encountered at the depth between 57m, hence it is assumed that the possibility of Ground water occurrence will be below this level and it also proved that this hard batholith above 50m will not encounter any subsurface water.

There is a possibility of seepage water from the surface levels i.e., below 30m, this surface water will be collected in the mine pits and later used for dust suppression and afforestation. In the geophysical study it has been clearly inferred that the depth of the quarrying operation will not intersect the ground water table.

2.2.2.3 Aquifer Systems:

Occurrence and storage of groundwater depend upon three factors viz., Geology, Topography and rainfall in the form of precipitation. Apart from Geology, wide variation in topographic profile and intensity of rainfall constitutes the prime factors of groundwater recharge. Aquifers are part of the more complex hydro geological system and the behaviour of the entire system cannot be interpreted easily. In hard rock terrain the occurrence of Ground Water is limited to top weathered, fissured and fractured zone which extends to maximum 30 m on an average it is about 10-15 m in Tiruvannamalai District.

In Sedimentary formations, the presence of primary inter granular porosity enhances the transmitting capacity of groundwater where the yield will be appreciable. The sedimentary area which occupies the eastern part of the district along the coastal tract is more favourable for groundwater recharge. Ground Water occurs both in semi confined and confined conditions. A brief description of occurrence of groundwater in each formation is furnished below.

2.2.2.3 Alluvial Formations

In the river alluvium groundwater occurs under water table condition. The maximum thickness is 37 m and the average thickness of the aquifer is approximately 12 m. These formations are porous and permeable which have good water bearing zones.

Tertiary Cuddalore sandstone

Tertiary formations are represented by Cuddalore Sandstone and characterised as fluvial to brackish marine deposits. Predominantly this formation is divided into Lower and Upper Cuddalore formations. In the Upper Cuddalore formations the groundwater occurs in semi confined conditions, whereas in the Lower Cuddalore the groundwater occurs in confined condition with good groundwater potential.

Cretaceous Formations

Groundwater occurring in the lens shape in the sandy clay lenses and fine sand is underlain by white and black clay beds which constitute phreatic aquifer depth which ranges 10m to 15m below ground level. Phreatic aquifer in Limestone is potential due to the presence of Oolitic Limestone.

Hard Rock Formations

Groundwater occurs under water table conditions but the intensity of weathering, joint, fracture and its development is much less in other type of rocks when compared to gneissic formation. The groundwater potential is low, when compared with the gneissic formations

Granitic Gneiss

Groundwater occurs under water table conditions in weathered, jointed and fractural formations. The pore space developed in the weathered mantle acts as shallow granular aquifers and forms the potential water bearing and yielding zones water table is shallow in canal and tank irrigation regions and it is somewhat deeper in other regions.

Charnockite

Groundwater occurs under water table conditions but the intensity of weathering, joint, fracture and its development is much less when compared to gneissic formations. The groundwater potential is low, when compared with the gneissic formations.

Aquifer Parameters

The transmissivity values of fractured aquifers range from < 1 to $141 \text{ m}^2/\text{day}$ and storativity varies between 2.84×10^{-5} and 8.9×10^{-3} . The transmissivity of sedimentary formation varies from 21 to $748 \text{ m}^2/\text{day}$ and storativity is in the order of 2.75×10^{-3}

.Actual Rainfall in Mm					Normal Rainfall in Mm
2017	2018	2019	2020	2021	
1251.3	799.2	1071.9	1034.5	1592.5	985

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

2.4 RESOURCES AND RESERVES

The Resources and Reserves of Rough Stone and Gravel were calculated based on Cross-Section Method by plotting sections to cover the maximum lease area. Based on the availability of Geological Resources the Mineable Reserves are calculated by considering excavation system of bench formation and leaving essential safety distance of 7.5 m (Safety Barrier all around the applied area) and safety distance as per precise area communication letter and deducting the locked up reserves during bench formation (Also called as Bench Loss) and the Mineable Reserves is calculated considering there is no waste / overburden / side burden (100% Recovery Anticipated).

TABLE 2.5: RESOURCES AND RESERVES

Description	Rough Stone m ³	Gravel m ³
Geological Resource in m ³	8,36,500	47,800
Mineable Resource in m ³	2,79,180	36,316
Year wise production for Ten-year plan period	2,79,180	36,316

Source: Approved Mining Plan

TABLE 2.6: YEAR-WISE PRODUCTION PLAN FIRST FIVE YEARS

YEAR	ROUGH STONE (m ³)	GRAVEL (m ³)
I	38,250	19,380
II	39,380	9,000
III	40,550	7,936
IV	32,705	
V	39,130	
TOTAL	1,90,015	36,316

Source: Approved Mining Plan

TABLE 2.6A: YEAR-WISE PRODUCTION PLAN SECOND- FIVE YEARS

YEAR	ROUGH STONE (m ³)
I	19,155
II	17,080
III	20,455
IV	16,325
V	16,150
TOTAL	89,165

Disposal of Waste

The overburden in the form of Gravel formation is about 36,316m³ up to depth 2m for during this period. the Gravel will be directly loaded into tippers for the filling and levelling of low-lying areas, this will be done only after obtaining permission and paying necessary seigniorage fees to the Government.

FIGURE 2.9: TOPOGRAPHY, GEOLOGICAL, YEAR-WISE DEVELOPMENT PRODUCTION PLAN AND SECTIONS



Source: Approved Mining Plan

Conceptual Mining Plan/ Final Mine Closure Plan

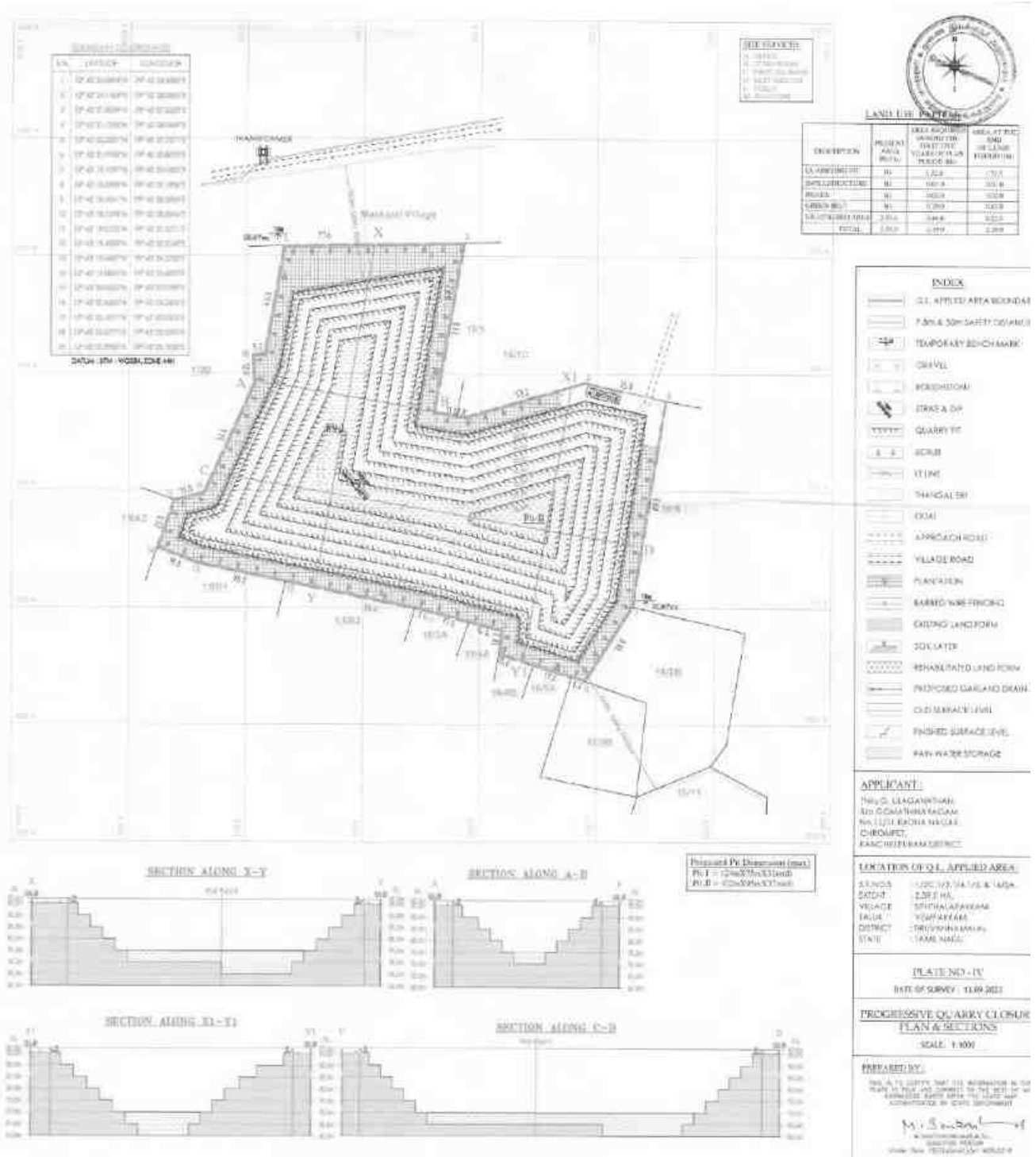
The ultimate pit size is designed based on certain practical parameters such as economical depth of mining, safety zones, permissible area, etc.

TABLE 2.7: ULTIMATE PIT DIMENSION

Pit	Length (Max) (m)	Width (Max) (m)	Depth (Max)
I	124	75	32m bgl
II	102	95	37m bgl

Source: Approved Mining Plan

FIGURE 2.10: CLOSURE PLAN AND SECTIONS

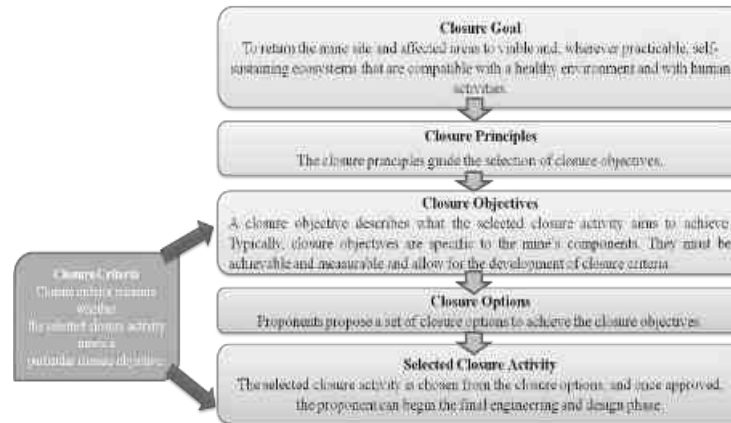


Source: Approved Mining Plan

- At the end of life of mine, the excavated mine pit / void will act as artificial reservoir for collecting rain water and helps to meet out the demand or crises during drought season.
- After mine closure the greenbelt developed along the safety barrier and top benches and temporary water reservoir will enhance the ecosystem

- Mine Closure is a process of returning a disturbed site to its natural state or which prepares it for other productive uses that prevents or minimizes any adverse effects on the environment or threats to human health and safety.
- The principal closure objectives are for rehabilitated mines to be physically safe to humans and animals, geo-technically stable, geo-chemically non-polluting/ non-contaminating, and capable of sustaining an agreed post-mining land use.

Closure Objectives –



- Access to be limited, for the safety of humans and wildlife.
- The open pit mine workings and pit boundary are physically and geo-technically stable.
- Water quality in flooded pits is safe for humans, aquatic life, and wildlife.
- Discharge of contaminated drainage has been minimized and controlled.
- Original or desired new surface drainage patterns have been established.
- For flooded pits, in-pit aquatic habitat has been established where practical and feasible.
- Emergency access and escape routes from flooded pits for humans and wildlife are in place.
- Dust levels are safe for people, vegetation, aquatic life, and wildlife.

Closure Planning & Options Considerations in Mine Design –

- The closure of mine is well planned at the initial stage of planning & design consideration by the internal and external stake holders
- Construction of 2m height bund all along the mine pit boundary and ensure its stability all time & construction of garland drain along the natural slope to avoid sliding and collection of soil to the pit & surface runoff during rainfall
- After complete exploitation of mineral, the lowest bench foot wall side will be maintained as plain surface without any sump pits to avoid any accidents
- All the sharp edges will be dressed to smoother face before the closure of mine and ensure no loose debris on hanging wall side
- The project proponent as a part of social responsibilities assures to supply the stored mine pit water to the nearby villages after effective treatment process as per the standards of TNPCB & TWAD
- Native species will be planted in 3 row patterns on the boundary barriers and 1st bench, a full-time sentry will be appointed at the gate to prevent inherent entry of public & cattle.
- The access road to the quarry will be cut-off immediately after the closure
- The layout design shall be prepared and get approved from Department of Geology and Mining.
- The proponent is instructed to construct as per the layout approved
- Physical and chemical stability of structures left in place at the site, the natural rehabilitation of a biologically diverse, stable environment, the ultimate land use is optimized and is compatible with the surrounding area and the

requirements of the local community, and taking the needs of the local community into account and minimizing the socio-economic impact of closure

- There will be a positive change in the environmental and ecology due to the mine closure

2.5 METHOD OF MINING

Opencast Mechanized Mining Method is proposed by formation of 5.0-meter height bench with a bench width not less than the bench height. Bench slope will be maintained as 60°.

The Rough Stone is a batholith formation and the splitting of rock mass of considerable volume from the parent rock mass will be carried out by deploying jackhammer drilling and Slurry Explosives will be used for blasting. Hydraulic Excavator attached with rock breaker/ bucket with tipper combination will be involved for the excavation/breaking of Rough stone after blasting. Hydraulic excavators attached with bucket unit will be deployed for loading the Rough Stone into the tippers and then the stone is transported from pithead to the nearby crushers.

It is recommended to obtain necessary statutory permission from the Department of Geology and Mining for Using Heavy Earth Moving Machineries, Blasting and appointment of Mines Manager etc.,

2.5.1 Drilling & Blasting Parameters

Drilling will be carried out using Jack hammer and compressor, the depth of the hole will be maximum 1.5m Drilling & Blasting will be carried out as per parameters given below: -

Spacing	–	1.2m
Burden	–	1.0 m
Depth of hole	–	1.5 m
Charge per hole	–	0.50 – 0.75kg
Powder factor	–	6.0 tonnes/kg
Diameter of hole	–	32 mm
Peak production Capacity	=	135m ³ of Rough stone per day
Spacing X Burden X Depth	=	1.2m X 1.0m X 1.5m = 1.8m ³
	=	1.8m ³ X 2.6 (Bulk Density) = 4.6Ts per hole

hence for the peak production of 135m³ (350Ts) = 58 Nos of holes to be drilled per day

Explosives per hole = ½ kg hence 29 kg of Explosives will be utilized maximum considering the peak production

Type of Explosives to be used –

Slurry explosives (An explosive material containing substantial portions of a liquid, oxidizers, and fuel, plus a thickener), NONEL / Electric Detonator & Detonating Fuse.

Storage of Explosives –

No proposal for storage of explosives within the project area, the project proponent will made agreement with authorized explosives agencies for carrying out blasting activities and competent person as per DGMS guidelines will be employed for safety and supervision of overall quarrying activities.

The explosives will be sourced from the blasting agency on daily basis and the blasting will be carried out under the supervision of competent qualified Blaster and it will be ensured that there shall be no balance of explosive stock; any balance stock will be taken back by the supplier.

2.5.2 Extent of Mechanization

TABLE 2.8 PROPOSED MACHINERY DEPLOYMENT

S.NO.	TYPE	NOS	SIZE/CAPACITY	MOTIVE POWER
1	Jack hammers	5	1.2m to 2.0m	Compressed air
2	Compressor	2	400psi	Diesel Drive
3	Excavator with Bucket and Rock Breaker	2	300 HP	Diesel Drive
4	Tipper	4	20 Tonnes	Diesel Drive

Source: Approved Mining Plan

2.6 GENERAL FEATURES

2.6.1 Existing Infrastructures

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

2.6.2 Drainage Pattern

There are no streams, canals or water bodies crossing within the project area. The drainage pattern of the area is dendritic – sub dendritic.

2.6.3 Traffic Density

The traffic survey conducted based on the transportation route of material, the Rough Stone is proposed to be transported mainly through

Traffic density measurements were performed at two locations

1. Bagavandapuram to Magaral Road
2. Kanchipuram To Uthiramerur Road

Traffic density measurement was 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.

TABLE.2.9: TRAFFIC SURVEY LOCATIONS

Station Code	Road Name	Distance and Direction	Type of Road
TS1	Bagavandapuram to Magaral Road	1Km_SE	Panchayat Road
TS2	Kanchipuram To Uthiramerur Road	3Km_E	State Highway

Source: On-site monitoring by GEMS FAE & TM

TABLE 2.10: EXISTING TRAFFIC VOLUME

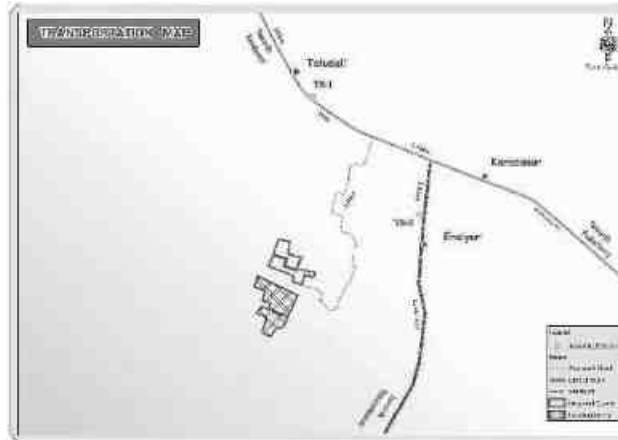
Station code	HMV		LMV		2/3 Wheelers		Total PCU
	No	PCU	No	PCU	No	PCU	
TS1	210	630	120	120	140	70	820
TS2	110	330	60	60	80	40	430

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: ROUGH STONE & GRAVEL HOURLY TRANSPORTATION REQUIREMENT

Transportation of Rough Stone & Gravel per day		
Capacity of trucks	No. of Trips per day	Volume in PCU
20 tonnes	12	36

FIGURE.2.11: MINERAL TRANSPORTATION ROUTE MAP**Proposed Transportation Route:**

1. The Rough stone will be transported to the Crusher which is located 70m East side of the project site.
2. No Major Habitation, Schools in the proposed transportation route.

TABLE 2.12: SUMMARY OF TRAFFIC VOLUME

Route	Existing Traffic volume in PCU	Incremental traffic due to the project	Total traffic volume	Hourly Capacity in PCU as per IRC – 1960 guidelines
Bagavandapuram to Magaral Road	820	42	862	1500
Kanchipuram To Uthiramerur Road	430	42	472	1200

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

- Due to these projects the existing traffic volume will not exceed
- As per the IRC 1960 this existing District road can handle 1,200 PCU in hour and State Highway 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 any of the proposed 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
Dust Suppression	0.7KLD	From the existing pit or from the water vendors
Green Belt	0.5KLD	From the existing pit or from the water vendors
Sanitation & Drinking	0.3KLD	From the existing pit or from the water vendors.
Total	1.5 KLD	

Source: Prefeasibility report

2.7.2 Power and Other Infrastructure Requirement

Power is not required for the mining operation; the mining operation will be carried out using Diesel Generator and Earth moving machineries using diesel. 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 by project proponent.

No workshops are proposed inside the project area hence there will not be any process effluent generation from the project 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

One Excavator will excavate 25m³ of Broken up Rough stone per hour and 60m³ of Gravel per hour.

Peak production of Rough stone = 135m³

Peak production of Gravel = 65m³

Type of machinery	Working hours	Average Diesel consumption/ Hour	Quantity of Diesel in Ltrs
Working hours of Excavator (Aprx)	135m ³ /20 m ³ = 7 Hrs (Rough stone)	18 Ltrs	126
	65/60m ³ = 1Hrs	18 Ltrs	18
Compressor	Working hours per day 3 Hrs	8 Ltrs	24
Tippers, Motor pumps to drain water	Occasionally		20
Total Diesel Consumption			188

The Maximum diesel consumption is around 188 Ltrs per day considering the peak production.

2.7.4 Project Cost

The Environmental Management plan has been prepared considering the mode of working, Safety of the employees and Monitoring periods the total Cost is 55.97 Lakhs.

2.8 EMPLOYMENT REQUIREMENT:

The following manpower's are proposed in the mining plan to carry out the day-to-day quarrying activities, the same employment is maintaining aimed at the proposed production target and also to comply with the statutory provisions of the Metalliferous mine's regulations, 1961.

TABLE 2.14: PROPOSED MANPOWER DEPLOYMENT

Designation	No of persons
Mines Manager/Mines Foreman	1
Mate/Blaster	1
Jack hammer operator	10
Excavator Operator & Tipper Driver	4
Labour & Helper	4
Cleaner & Co-operator	4
Security	1
Total	25

Source: Approved Mining Plan & Pre-Feasibility report.

2.9 PROJECT IMPLEMENTATION SCHEDULE

The mining operation will commence after the grant of Environmental Clearance, Consent to operate (CTO), Execution of Lease Deed and Obtaining permission from the DGMS (Notice of Opening).

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						
3	Execution of Lease deed						
4	Permission from DGMS						
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

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 March to May 2024 with CPCB guidelines for the following attributes –

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

Environmental data has been collected with reference to cluster quarries by Global Lab and Consultancy Services , – An accredited by ISO/IEC 17025:2017 (NABL).

Study Area

An area of 10 km radius (aerial distance) from the periphery of the cluster is considered for EIA study. The study area has been divided into two zones viz **core zone** and **buffer zone**.

- Core zone is considered as cluster area
- Buffer zone taken as 10km radius from the periphery of the Cluster. 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., March to May 2024.

Study Methodology

- The project area was surveyed in detail with the help of Total Station Survey instruments and pillars were marked. 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 in order to assess the impact due to mining activities and to recommend saplings for Greenbelt development.
- Ground water samples were collected from the existing bore wells, Surface water was collected from water bodies in the buffer zone and analysed as per CPCB Guidelines.
- An onsite meteorological station was setup in cluster area, to collect data about wind speed, wind direction, temperature, relative humidity, rainfall and general weather conditions were recorded throughout the study period.
- Air quality Data's were collected by installation of Respiratory Dust Samplers (RDS) for Fugitive dust, PM₁₀ and SO₂, NO_x with gaseous attachments & Fine Dust Samplers (FDS) for PM_{2.5} and other parameters as per NAAQ norms and analysed for primary air pollutants to work out the existing status of air quality.
- The Noise level measurements were also made at various locations in different intervals of time with the help of sound level meter to establish the baseline noise levels in the impact zone.
- Baseline biological studies were carried out to assess the ecology of the study area to study the existing flora and fauna pattern of the area.

- Socio-Economic survey was conducted at village and household level in the study area to understand the present socio-economic conditions and assess the extent of impact due to the proposed mining project. The sampling methodologies for the various environmental parameters required for the study, frequency of sampling, method of samples analysis, etc., are given below Table 3.1.

TABLE 3.1: MONITORING ATTRIBUTES AND FREQUENCY OF MONITORING

Attribute	Parameters	Frequency of Monitoring	No. of Locations	Protocol
Land-use Land cover	Land-use Pattern within 10 km radius of the study area	Data from census handbook 2011 and from the satellite imagery	Study Area	Satellite Imagery Primary Survey
*Soil	Physio-Chemical Characteristics	Once during the study period	6 (1 core & 5 buffer zone)	IS 2720 Agriculture Handbook - Indian Council of Agriculture Research, New Delhi
*Water Quality	Physical, Chemical and Bacteriological Parameters	Once during the study period	6 (2 surface water & 4 ground water)	IS 10500& CPCB Standards
Meteorology	Wind Speed Wind Direction Temperature Cloud cover Dry bulb temperature Rainfall	1 Hourly Continuous Mechanical/Auto matic Weather Station	1	Site specific primary data& Secondary Data from IMD Station
*Ambient Air Quality	PM10 PM2.5 SO2 NOX Fugitive Dust	24 hourly twice a week (March to May 2024)	7 (2 core & 5 buffer)	IS 5182 Part 1-23 National Ambient Air Quality Standards, CPCB
*Noise Levels	Ambient Noise	Hourly observation for 24 Hours per location	8 (2 core & 6 buffer zone)	IS 9989 As per CPCB Guidelines
Ecology	Existing Flora and Fauna	Through field visit during the study period	Study Area	Primary Survey by Quadrate & 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 GLCS in association with GEMS

* All monitoring and testing have 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.

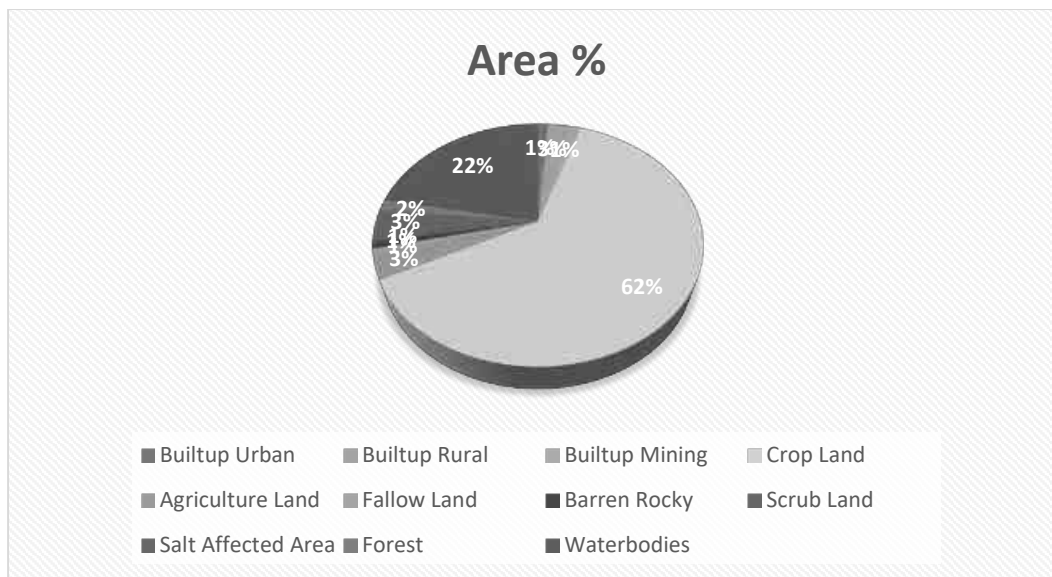
3.1.1 Land Use/ Land Cover

A visual interpretation technique has been adopted for land use classification based on the keys suggested in the chapter – V of the guidelines issued by NNRMS Bangalore & Level III classification with 1:50,000 scale for the preparation of land use mapping. Land use pattern of the area was studied through LISS III imagery of Bhuvan (ISRO). The 10 km radius map of study area was taken for analysis of Land use cover.

TABLE 3.2: LAND USE / LAND COVER TABLE 10 Km RADIUS

S. No	CLASSIFICATION	AREA in HA	AREA in %
BUILTUP			
1	Builtup Urban	362.47	1.13
2	Builtup Rural	825.25	2.57
3	Builtup Mining	456.96	1.43
AGRICULTURAL LAND			
4	Crop Land	19974.36	62.32
5	Agriculture Land	1007.12	3.14
6	Fallow Land	266.64	0.83
BARREN/WASTE LANDS			
7	Barren Rocky	267.36	0.83
8	Scrub Land	278.20	0.87
9	Salt Affected Area	1109.17	3.46
FOREST			
10	Forest	470.06	1.47
WETLANDS/ WATER BODIES			
11	Waterbodies	7033.86	21.95
TOTAL		32051.45	100.00

Source: Survey of India Toposheet and Landsat Satellite Imagery

FIGURE 3.1: PIE DIAGRAM OF LAND USE AND LAND COVER

From the above table, pie diagram and land use map it is inferred that the majority of the land in the study area is Agriculture and fallow land (includes crop land) 66.29% followed by Built-up Lands – 5.13%, Scrub land – 0.87%, and Water bodies 21.95%.

The total mining area within the study area is 456.96 ha i.e., 1.43%. The cluster area of 17.20.0 ha contributes about 3.76% of the total mining area within the study area. This small percentage of Mining Activities shall not have any significant impact on the environment.

3.1.2 Topography

The project area is almost plain terrain having gentle slope towards North-eastern side. The altitude of the area is 97m AMSL. The area is covered by 2m thickness of gravel & followed by massive charnockite which is clearly inferred from the surface outcrops.

3.1.3 Drainage Pattern of the Area

The drainage pattern of the area is dendritic – sub dendritic. Drainage pattern is the pattern formed by the streams, rivers, and lakes in a particular drainage basin. They are governed by the topography of the land, whether a particular region is dominated by hard or soft rocks, and the gradient of the land. There are no streams, canals or water bodies crossing within the project area.

3.1.4 Seismic Sensitivity

The proposed project site falls in the seismic Zone II, 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 Environmental Features in the Study Area

There is no Wildlife Sanctuaries, National Park and Archaeological monuments within project area. No Protected and Reserved Forest area is involved in the project area. Therefore, there will be no need to

acquisition/diversion of forest land. The details related to the environment sensitivity around the proposed mine lease area i.e. 10 km radius, are given in the below Table 3.3.

FIGURE 3.2: PHYSIOGRAPHIC MAP 10KM RADIUS

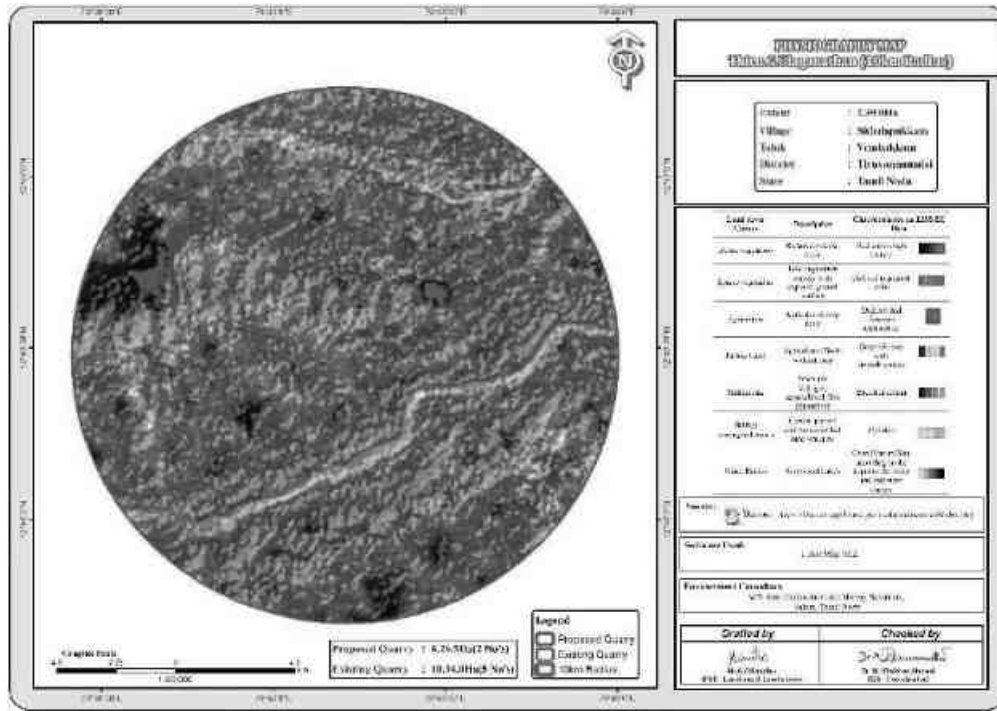


FIGURE 3.3: LAND USE LAND COVER MAP 10KM RADIUS

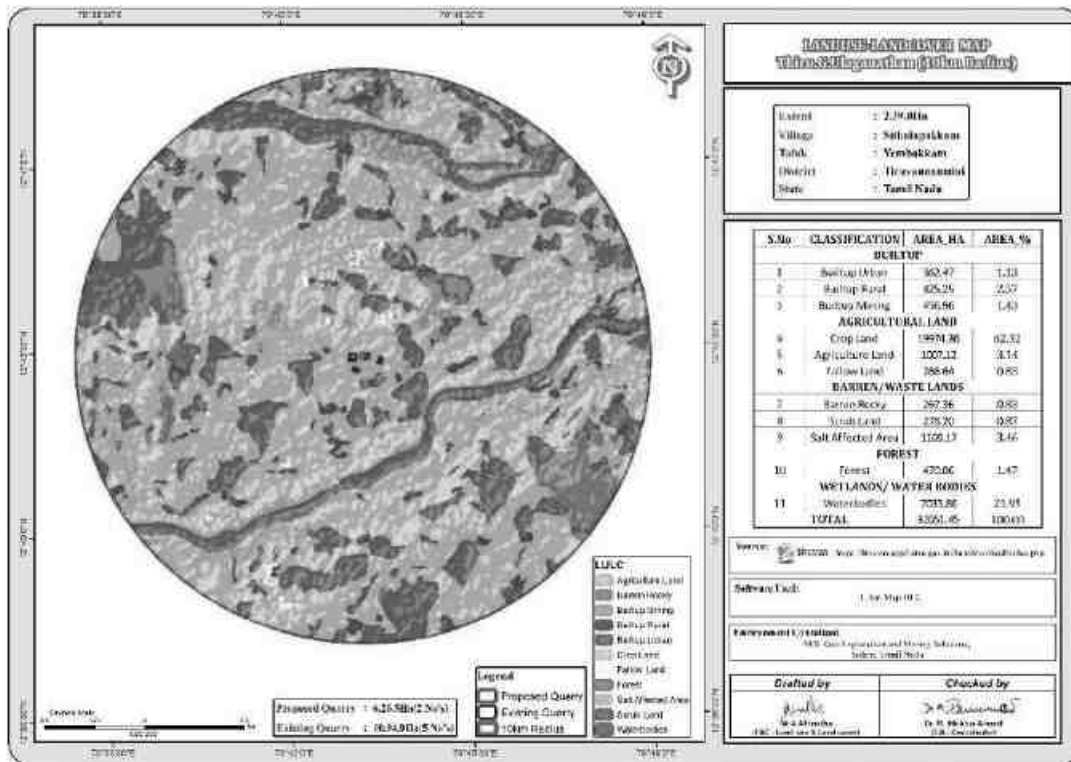


TABLE 3.3: DETAILS OF ENVIRONMENT SENSITIVITY AROUND THE CLUSTER

Sl.No	Sensitive Ecological Features	Name	Arial Distance in km from Cluster
1	National Park / Wild life Sanctuaries	Karikili Birds Sanctuary	18km - SE
2	Reserve Forest	Marudham R.F	7.5 Km - SE (Source - TNGIS)
3	Tiger Reserve/ Elephant Reserve/ Biosphere Reserve	None	Nil within 10Km Radius
4	Critically Polluted Areas	None	Nil within 10km Radius
5	Mangroves	None	Nil within 10km Radius
6	Mountains/Hills	None	Nil within 10km Radius
7	Notified Archaeological Sites	None	Nil within 10km Radius
8	Industries/ Thermal Power Plants	None	Nil within 10km Radius
9	Defence Installation	None	Nil within 10km Radius

Source: Survey of India Toposheet

TABLE 3.4: NEARBY WATER BODIES FROM THE PROPOSED PROJECT SITE

Sl.No	NAME	DISTANCE & DIRECTION
1	Kaalvaai	50m Safety_N
2	Tank	1.5Km_NE
3	Cheyyar River	2.7km_SE
4	Tank	3.5Km_SW
5	canal	3.6Km_N_Canal
6	Palar River	7Km_NE
7	Mamandur Lake	7Km_NW
8	Uthiramerur Lake	8.3km_SE

Source: Village Cadastral Map and Field Survey

3.1.6 Soil Environment

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

The objective of the soil sampling is -

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

TABLE 3.5: SOIL SAMPLING LOCATIONS

S. No	Location Code	Monitoring Locations	Distance & Direction	Coordinates
1	S1	Core Zone	Project Area	12°43'20.49"N 79°43'25.21"E
2	S2	Near Existing Quarry	400m SW	12°43'7.99"N 79°43'20.60"E
3	S3	Manalmedu	5.3km SE	12°41'24.64"N 79°45'39.26"E
4	S4	Nathakollai	5.8km NW	12°46'2.56"N 79°41'41.60"E
5	S5	Arpakkam	4.2km NE	12°44'4.66"N 79°45'38.45"E
6	S6	Mathur	4.8km West	12°42'52.98"N 79°40'53.68"E

Source: On-site monitoring/sampling by GLCS lab in association with GEMS.

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 3.6.

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 GLCS lab 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”. The important properties analysed for soil are bulk density, porosity, infiltration rate, pH and Organic matter, kjeldahi Nitrogen, Phosphorous and Potassium. The standard classifications of soil are presented below in Figure 3.4 and the physico-chemical characteristics of the soil & Test Results in Table 3.7.

FIGURE 3.5: SOIL SAMPLING LOCATIONS AROUND 10 KM RADIUS

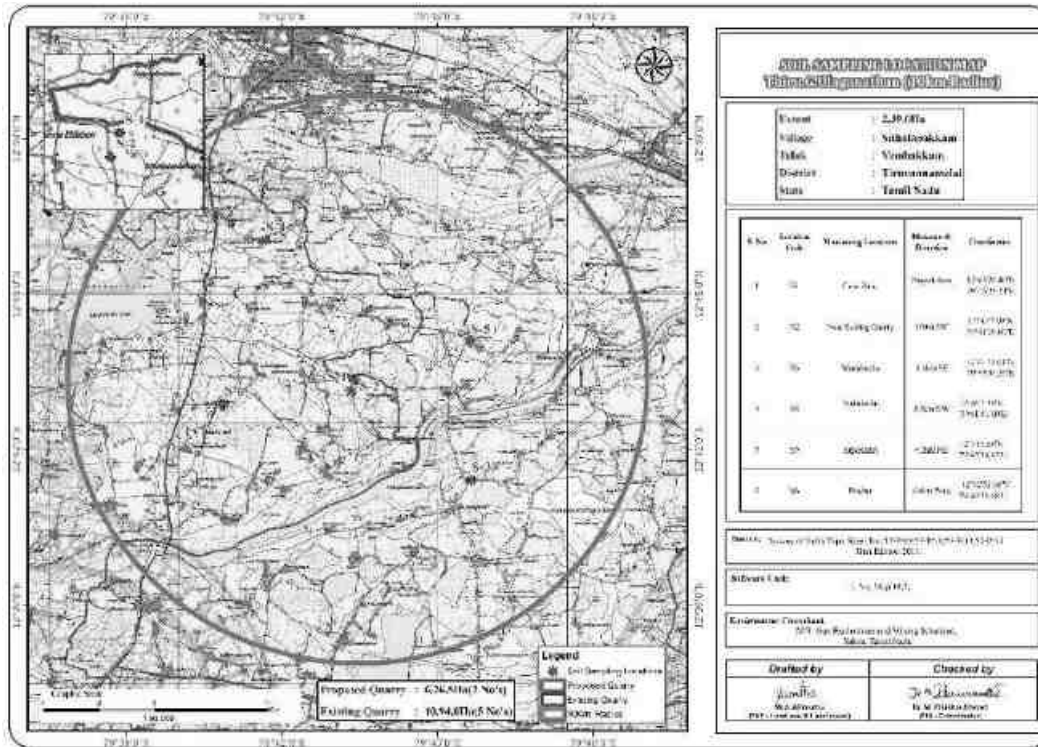


FIGURE 3.6: SOIL MAP

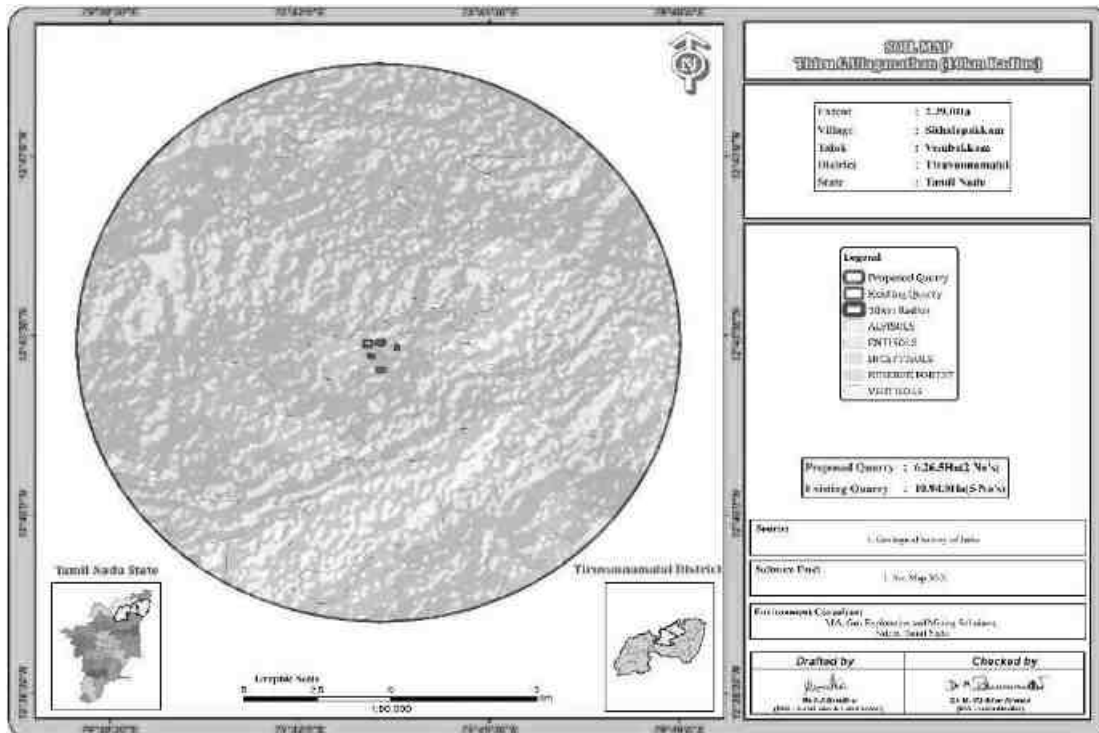


TABLE 3.7: SOIL QUALITY OF THE STUDY AREA

Sl. No	Test Parameters	Test Method	Unit	S1 Core Zone	S2 Near Existing Quarry	S3 Manalmedu	S4 Nathakollai	S5 Arpakkam	S6 Mathur
1	Organic Matter	GLCS/SOP/S/003	%	1.09	1.38	0.86	1.66	1.50	1.15
2	pH	IS 2720	-	8.04	8.56	8.84	8.70	8.68	8.55
3	Specific Electrical Conductivity	IS 14767	µS/cm	495	525	440	550	374	360
4	Available Phosphorous	GLCS/SOP/S/005	mg/kg	19.6	17.8	16.5	15.8	19.5	16.5
5	Available Potassium	GLCS/SOP/S/026	meq/l	1.34	1.15	1.05	1.28	1.00	1.13
6	Exchangeable Calcium (as Ca)	GLCS/SOP/S/020	meq/100g	3.7	2.9	3.0	3.8	3.7	4.1
7	Exchangeable Magnesium (as Mg)	GLCS/SOP/S/021	meq/100g	2.2	1.6	2.6	2.3	2.7	2.6
8	Sulphate as SO4	GLCS/SOP/S/009	mg/100g	1.29	1.44	1.76	1.84	2.78	1.73
9	Cation Exchange Capacity	GLCS/SOP/S/024	meq/100g	19.2	18.3	17.2	18.9	17.4	16.9
10	Bulk Density	GLCS/SOP/S/017	g/cc	1.041	1.025	1.048	1.033	1.01	1.00
11	Texture Sand	GLCS/SOP/S/015	%	33.61	32.08	33.45	30.37	33.69	35.86
12	Texture Silt	GLCS/SOP/S/015	%	42.42	43.29	43.41	46.86	42.30	40.41
13	Texture Clay	GLCS/SOP/S/015	%	23.96	24.64	23.14	22.76	24.01	23.73
14	Water Holding Capacity	GLCS/SOP/S/016	%	50.8	51.8	50.2	50.8	52.2	52.8
15	Available Nitrogen as N	GLCS/SOP/S/029	Kg/ha	464.128	388.864	363.77	526.84	313.6	338.68
16	Chloride as (Cl) in Saturation Extract	GLCS/SOP/S/004	meq/l	3.1	3.5	2.8	3.8	4.4	3.2
17	Permeability	By Permeameter	%	48.5	50.5	49.6	50.3	47.5	46.3
18	Manganese	USEPA Method	mg/kg	16.47	23.84	17.73	12.68	9.01	28.57

19	Zinc	USEPA Method	mg/kg	11.48	16.73	8.74	7.21	8.19	19.91
20	Cadmium as Cd	USEPA Method	mg/kg	3.49	2.93	BDL (DL:0.5)	1.49	2.46	3.03
21	Chromium as Cr	USEPA Method	mg/kg	6.49	5.02	4.25	7.46	2.46	10.82
22	Copper as Cu	USEPA Method	mg/kg	2.00	2.09	1.75	0.75	2.25	7.36
23	Lead as Pb	USEPA Method	mg/kg	0.75	2.51	0.75	1.24	BDL(DL:0.5)	BDL(DL:0.5)
24	Iron as Fe	USEPA Method	mg/kg	11.23	27.60	13.74	11.94	14.54	32.47
25	Organic Carbon	GLCS/SOP/S/003	%	0.63	0.80	0.56	0.96	0.87	0.67
26	Boron as B	USEPA Method	mg/kg	1.0	2.93	1.25	0.75	1.64	0.87

Source: Sampling Results by GLCS lab Private Limited in association with GEMS

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.

WATER SAMPLING PHOTOS



3.2.1 Surface Water Resources:

Cheyyar River is the major surface water body in the study area and 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 drinking water for few months after rainy season.

3.2.2 Ground Water Resources:

Groundwater occurs in all the crystalline formations of oldest Achaeans and Recent Alluvium. The occurrence and behaviour of groundwater are controlled by rainfall, topography, geomorphology, geology, structures etc., The weathering is controlled by the intensity of weathering and fracturing. Dug wells as wells as bore wells are more common ground water abstraction structures in the area. The diameter of the dug well is in the range of 7 to 10 m and depth of dug wells range from 7.2 to 13 m bgl. The dug wells yield up to 1 lps in summer months and few wells remains dry. The yield is adequate for irrigation for one or two crops in monsoon period.

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 3.8: WATER SAMPLING LOCATIONS

S.NO	CODE	LOCATIONS	DISTANCE & DIRECTION	CO-ORDINATES
SURFACE WATER				
1	SW1	Cheyar River	3.5km SE	12°42'42.15"N 79°45'25.46"E
2	SW2	Mamandur Tank	6.8km NW	12°44'10.09"N 79°39'45.76"E
GROUND WATER				
3	WW-1	Near Project Area	130m SE	12°43'14.14"N 79°43'31.51"
4	WW-2	Mathur	4.8km West	12°42'51.70"N 79°40'55.86"E
5	BW-1	Near Crusher	370m NW	12°43'26.02"N 79°43'13.19"E
6	BW-2	Manalmedu	5.3km SE	12°41'24.74"N 79°45'41.63"E

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

FIGURE 3.8: WATER SAMPLING LOCATIONS AROUND 10 KM RADIUS

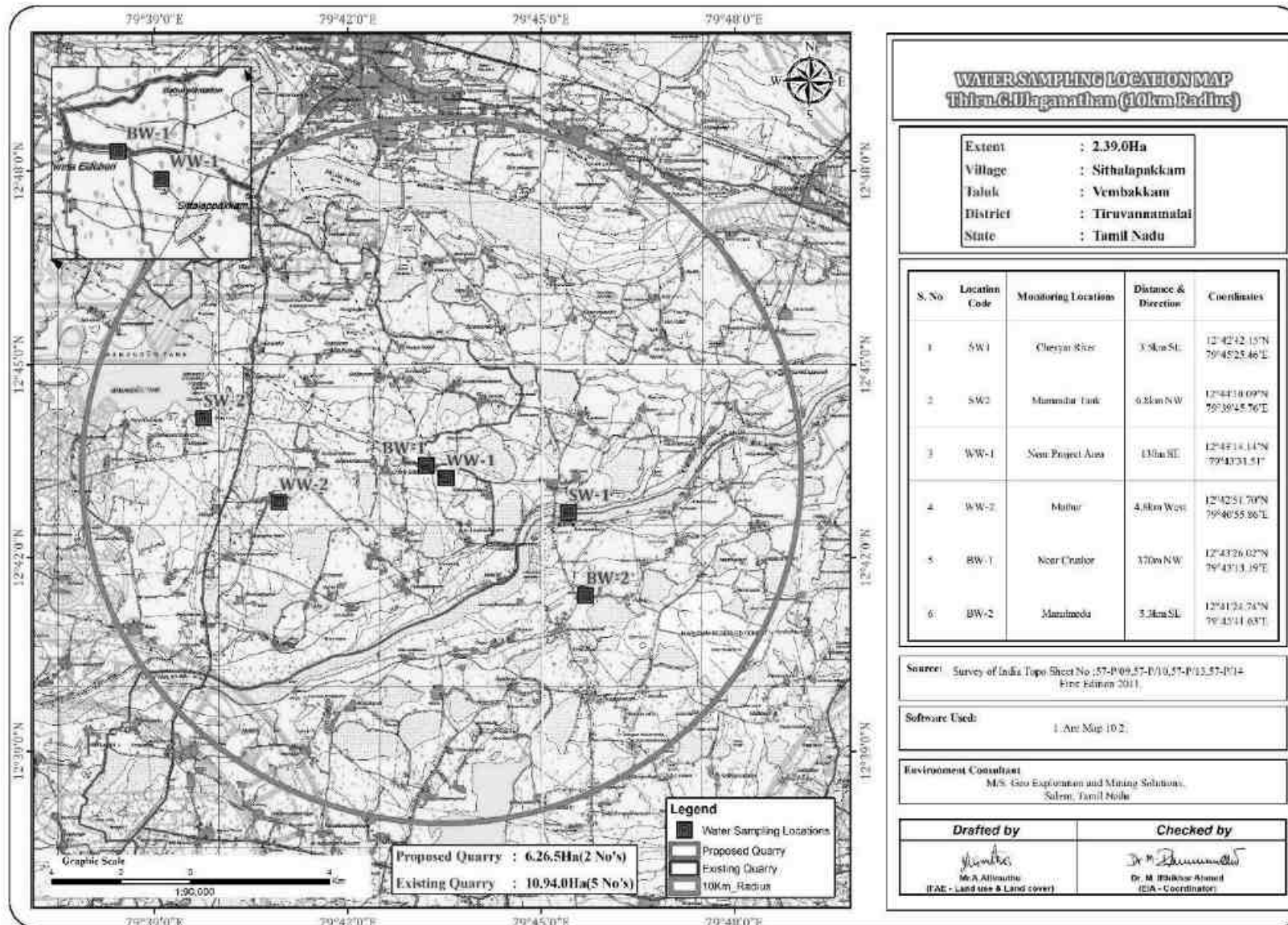


TABLE 3.9: GROUND WATER SAMPLING RESULTS

S.NO	Parameter	BW-1 Near Crusher	BW-2 Manalmedu	WW-1 Near Project Area	WW-2 Mathur
1	Color	5 Hazen	5 Hazen	<5	<5 Hazen
2	Odour	Agreeable	Agreeable	Agreeable	Agreeable
3	pH@ 25°C	7.70	7.91	7.24	7.39
4	Electrical Conductivity @ 25°C	1199 µmhos/cm	1177 µmhos/cm	1283 µmhos/cm	1228 µmhos/cm
5	Turbidity	<1 NTU	<1 NTU	<1 NTU	<1 NTU
6	Total Dissolved Solids	707 mg/l	694 mg/l	758 mg/l	725 mg/l
7	Total Hardness as CaCO ₃	272 mg/l	296 mg/l	288mg/l	280 mg/l
8	Calcium as Ca	59.32 mg/l	65.73 mg/l	56.11 mg/l	62.52 mg/l
9	Magnesium as Mg	30.15 mg/l	32.10 mg/l	35.99 mg/l	30.15 mg/l
10	Total Alkalinity	293.46 mg/l	285.4 mg/l	317.58 mg/l	277.38 mg/l
11	Chloride as Cl ⁻	143.95 mg/l	149.95 mg/l	169.94 mg/l	177.94 mg/l
12	Sulphate as SO ₄ ⁻²	27.55 mg/l	22.75 mg/l	35.11 mg/l	49.42 mg/l
13	Iron as Fe	BDL (DL:0.1 mg/l)	BDL (DL:0.1 mg/l)	0.10 mg/l	0.11 mg/l
14	Free Residual Chlorine	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	0.21 mg/l	0.15 mg/l	0.180 mg/l	0.19 mg/l
16	Nitrates as NO ₃	BDL (DL:2.0)	BDL (DL:2.0)	BDL (DL:2.0)	BDL (DL:2.0)
17	Copper as Cu	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	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	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	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	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	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	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	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	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	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	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 as C ₆ H ₅ OH	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 as	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	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	Absent	Absent	Absent	Absent
32	E-Coli	Absent	Absent	Absent	Absent
33	Barium as Ba	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	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)
35	Sulphide as H ₂ S	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	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 As	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	BDL (DL:1.0 mg/l)	BDL (DL:1.0 mg/l)	BDL (DL:1.0 mg/l)	BDL (DL:1.0 mg/l)

* IS: 10500:2012-Drinking Water Standards; # within the permissible limit as per the WHO Standard. The water can be used for drinking purpose in the absence of alternate sources. Note: SW- Surface water, GW – Ground water

TABLE 3.10: SURFACE WATER SAMPLING RESULTS

Sl. No.	Parameter	Unit	RESULT		CPCB Designated Best Use
			SW1- Cheyyar River	SW2- Mamandur Tank	
1	Colour	Hazen	5	10	300
2	Odour	-	Agreeable	Agreeable	Not specified
3	pH@ 25°C	-	7.51	7.16	6.5 – 8.5
4	Electrical Conductivity @ 25°C	µs/cm	1361	1244	
5	Turbidity	NTU	5.4	7.6	Not specified
6	Total Dissolved Solids	mg/l	803	734	1500
7	Total Hardness as CaCO ₃	mg/l	308	280	Not specified
8	Calcium as Ca	mg/l	75.35	60.92	Not specified
9	Magnesium as Mg	mg/l	29.18	31.163	Not specified
10	Total Alkalinity as CaCO ₃	mg/l	293.46	261.3	Not specified
11	Chloride as Cl ⁻	mg/l	195.93	163.95	600
12	Sulphate as SO ₄ ²⁻	mg/l	51.33	49.52	400
13	Iron as Fe	mg/l	0.19	0.18	50
14	Free Residual Chlorine	mg/l	BDL (DL:0.1 mg/l)	BDL (DL:0.1)	400
15	Fluoride as F	mg/l	0.21	0.19	1.5
16	Nitrates as NO ₃	mg/l	5.74	5.18	50
17	Copper as Cu	mg/l	BDL (DL:0.01)		1.5
18	Manganese as Mn	mg/l	BDL (DL:0.02)		Not specified
19	Mercury as Hg	mg/l	BDL (DL:0.0005)		Not specified
20	Cadmium as Cd	mg/l	BDL (DL:0.001)		0.01
21	Selenium as Se	mg/l	BDL (DL:0.005)		Not specified
22	Aluminium as Al	mg/l	BDL (DL:0.005)		Not specified
23	Lead as Pb	mg/l	BDL (DL:0.005)		0.1
24	Zinc as Zn	mg/l	BDL(DL : 0.05)		15
25	Total Chromium	mg/l	BDL(DL : 0.02)		0.05
26	Boron as B	mg/l	BDL(DL : 0.05)		Not specified
27	Mineral Oil	mg/l	BDL(DL : 0.01)		Not specified
28	Phenolic Compounds as C ₆ H ₅ OH	mg/l	BDL (DL:0.0005)		0.005
29	Anionic Detergents as MBAS	mg/l	BDL (DL:0.01)		Not specified
30	Cyanide as CN	mg/l	BDL (DL:0.01)		0.05
31	Biological Oxygen Demand, 3 days @ 27°C		8.4	15.6	3
32	Chemical Oxygen Demand		40	60	Not specified
33	Dissolved Oxygen		5.7	5.4	4
34	Total Coliform	MPN/ 100ml	300 MPN/100ml	350 MPN/100ml	5000
35	E-Coli		40 MPN/100ml	50 MPN/100ml	Not specified
36	Barium as Ba	mg/l	BDL (DL:0.05)		300
37	Ammonia (as Total Ammonia-N)	mg/l	2.38	1.26	Not specified
38	Sulphide as H ₂ S	mg/l	BDL (DL:0.01)		Not specified
39	Molybdenum as Mo	mg/l	BDL (DL:0.02)		Not specified
40	Total Arsenic as As	mg/l	BDL (DL:0.005)		0.2
41	Total Suspended Solids	mg/l	12.0	18	-

Note : APHA – American Public Health Association, BDL – Below Detection Limit, DL – Detection Limit, MPN – Most Probable Number.

3.2.4 Interpretation & Conclusion

Surface Water

The pH varied from 7.16 to 7.51 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 734 to 803 mg/l, the TDS mainly composed of carbonates, bicarbonates, Chlorides, phosphates and nitrates of calcium, magnesium, sodium and other organic matter.

Other parameters:

Chloride content is 163.95 to 195.93mg/l. Nitrates varied from 5.18 to 5.74 mg/l, while sulphates varied from 49.52 to 51.33 mg/l.

Ground Water

The pH of the water samples collected ranged from 7.24 to 7.91 and within the acceptable limit of 6.5 to 8.5. pH, Sulphates and Chlorides of water samples from all the sources are within the limits as per the Standard. On Turbidity, the water samples meet the requirement. Total Dissolved Solids were found in the range of 694 to 758mg/l in all samples. Total hardness varied between 272 to 296 mg/l for all samples.

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

3.2.5 Hydrology and Hydrogeological studies

The district is underlain by hard rock formation fissured and fractured crystalline rocks constitute the important aquifer systems in the district. Geophysical prospecting was carried out in that area by SSRMP-80 Instrument by qualified Geo physicist with the help of IGIS software and it was inferred that the low resistance encountered at the depth between 57m bgl. The maximum depth proposed out of proposed projects is 37m (2m Gravel + 35m Rough stone) below ground level.

Ground water levels and Flow Direction based on the Bore well and open well Data's

In general the ground water movement is based on the gradient ie., water moves from the highest static ground water elevation to lowest static ground water elevation point. The ground water movement is important aspect to locating the recharge and discharge areas. Therefore the data has been collected in the study area. Water level measured in the seven open well and six borewells.

The average water level in the open well is varies from = 11m to 13m bgl

The water level in the bore well is varies from = 56 to 58.1m bgl

Based on the water level contour map of the open well and bore well the water flow direction in the particular region is towards North side.

The water level in the area is above 57m 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.

TABLE 3.11: SUMMER SEASON WATER LEVEL OF OPEN WELLS 1 KM RADIUS

S.NO	LABEL	LONGITUDE	LATITUDE	Mar 24	Apr-24	May 24
1	OW1	12° 43' 35.76"N	79° 43' 12.22"E	11	11.6	12.2
2	OW2	12° 43' 39.75"N	79° 43' 36.30"E	11.5	12.1	12.7
3	OW3	12° 43' 39.14"N	79° 43' 50.90"E	11.2	11.8	12.4
4	OW4	12° 43' 19.87"N	79° 43' 43.90"E	11.3	11.9	12.5
5	OW5	12° 42' 59.21"N	79° 43' 31.17"E	11.8	12.4	13
6	OW6	12° 42' 58.73"N	79° 43' 00.34"E	11.6	12.2	12.8
7	OW7	12° 43' 10.46"N	79° 42' 55.57"E	11.7	12.3	12.9
8	OW8	12° 43' 30.57"N	79° 42' 54.15"E	11.1	11.7	12.3

Source: Onsite monitoring data

FIGURE 3.9: OPEN WELL CONTOUR MAP March 2024- May 2024

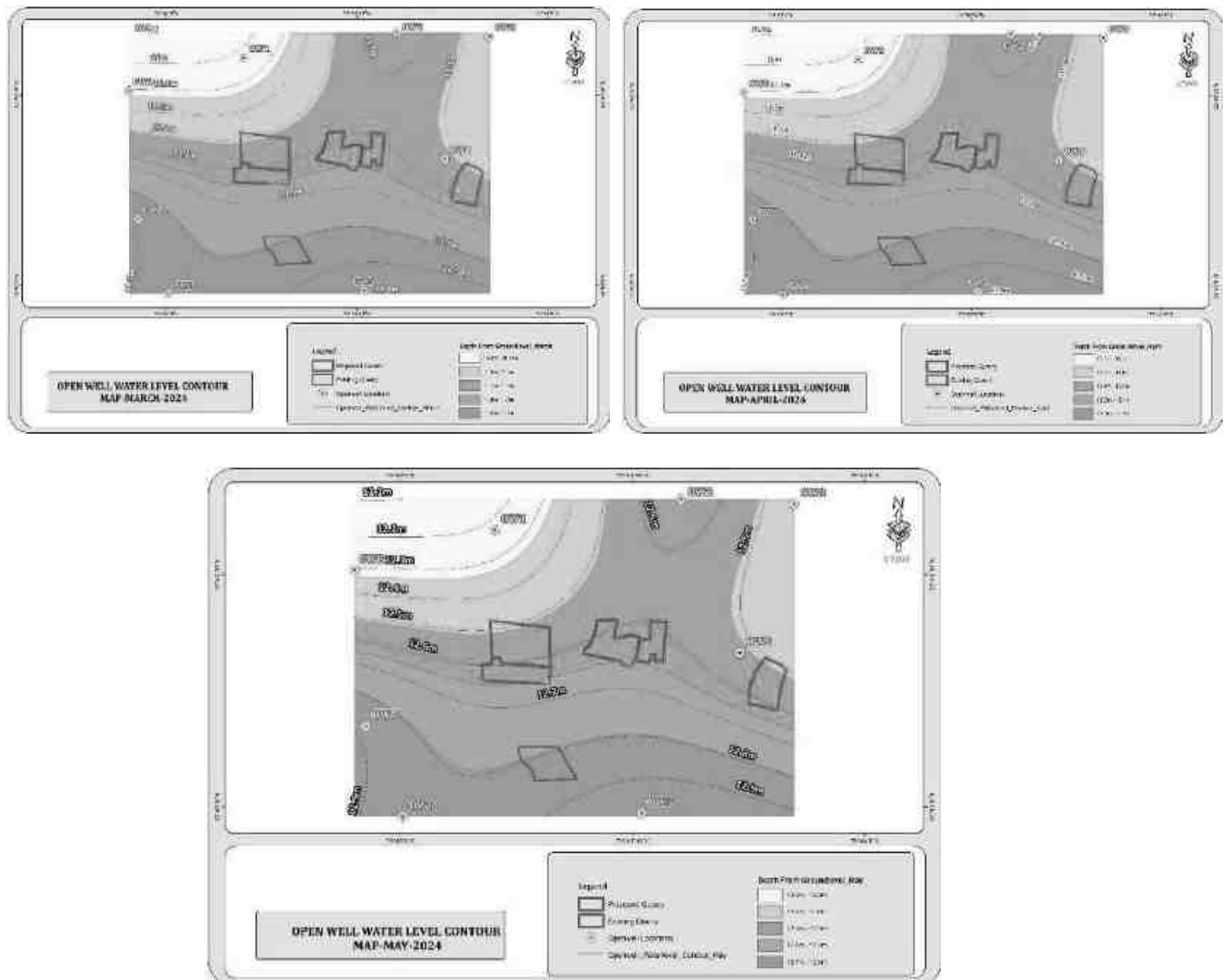


TABLE 3.12: WINTER SEASON WATER LEVEL OF BOREWELLS 1 KM RADIUS

S.NO	LABEL	LONGITUDE	LATITUDE	Mar-24	Apr-24	May-24
1	BW1	12° 43' 01.18"N	79° 42' 54.92"E	56	56.6	57.2
2	BW2	12° 43' 42.54"N	79° 42' 47.65"E	56.2	56.8	57.4
3	BW3	12° 43' 52.61"N	79° 43' 22.85"E	56.4	57	57.6
4	BW4	12° 43' 31.29"N	79° 43' 50.11"E	56.1	56.7	57.3
5	BW5	12° 42' 56.63"N	79° 44' 04.83"E	56.3	56.9	57.5
6	BW6	12° 42' 32.30"N	79° 43' 53.25"E	56.8	57.4	58
7	BW7	12° 42' 29.58"N	79° 43' 30.12"E	56.6	57.2	57.8
8	BW8	12° 42' 34.05"N	79° 42' 58.61"E	56.9	57.5	58.1

Source: Onsite monitoring data

FIGURE 3.10: BOREWELL CONTOUR MAP – March 2024 to May 2024

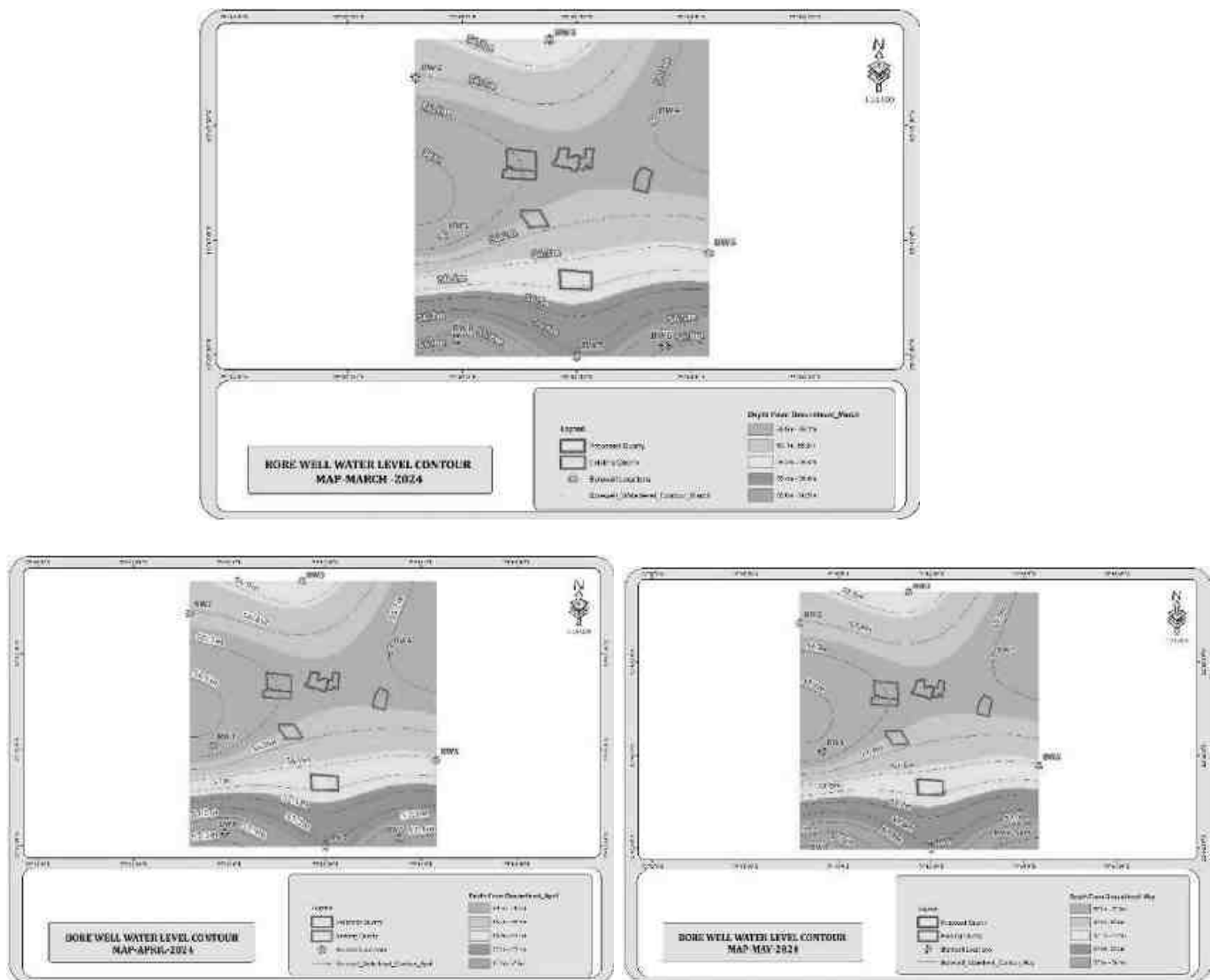
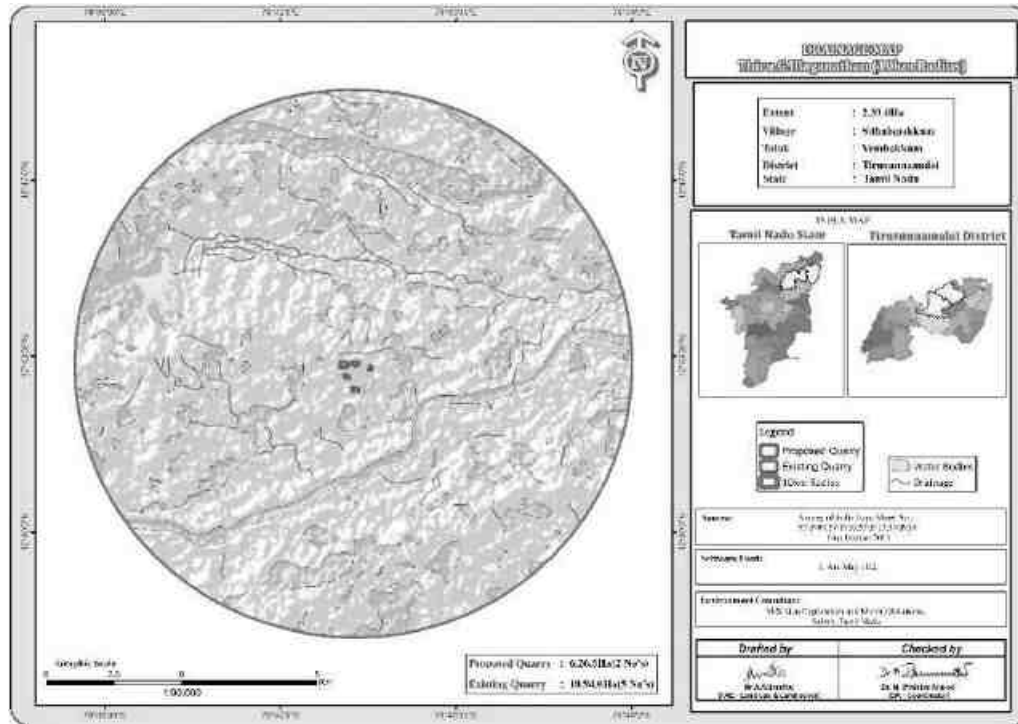
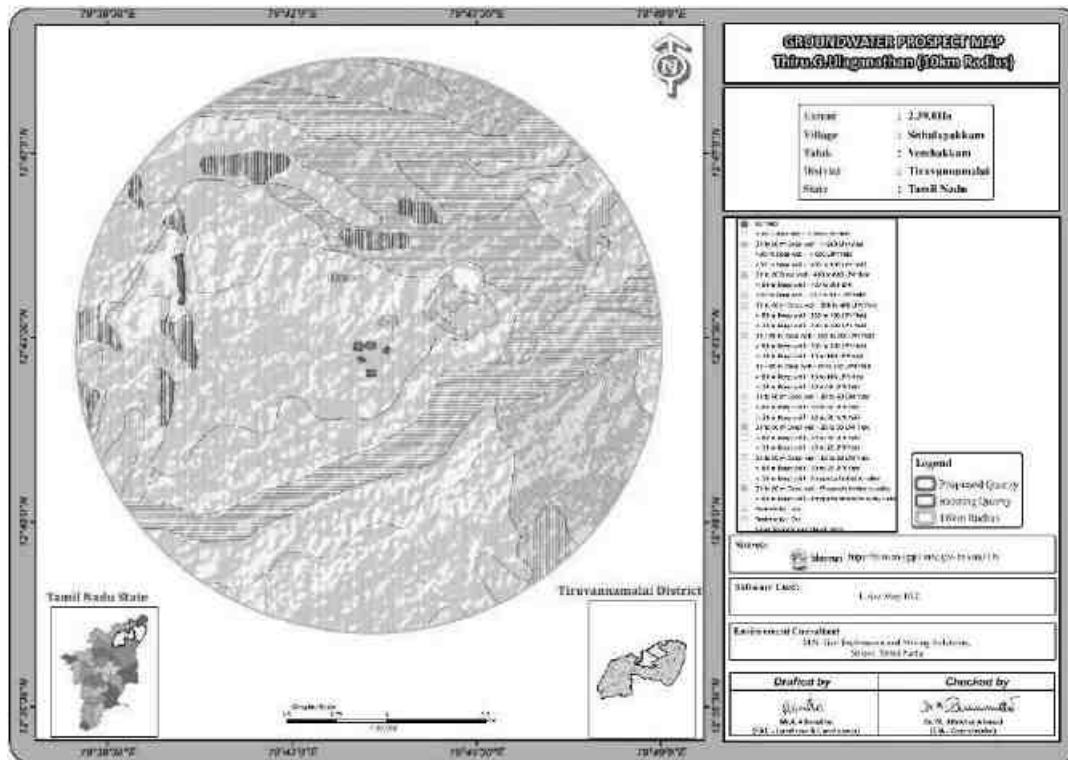


FIGURE 3.11: DRAINAGE MAP AROUND 10 KM RADIUS FROM PROJECT SITE



Remarks: it is inferred that the area is dendritic to sub dendritic pattern

FIGURE 3.12: GROUND WATER PROSPECT MAP



Remarks: Water table in the area is 30-80m as per the Bhuvan Data

Geophysical Resistivity Survey

3.2.5.1 Methodology and Data Acquisition

The Geophysical Electrical Resistivity survey conducted in the area Schlumberger configuration, Vertical Electrical Sounding (VES) method. Schlumberger electrode set up was employed for making sounding measurements. Since it is least influenced by lateral in homogeneities and is capable of providing higher depth of investigation. This is four electrodes collinear set up where in the outer electrodes send current into the ground and the inner electrodes measure the potential difference.

The present study utilizes maximum current electrode separation $AB/2$. The data from this survey are commonly arranged and contoured in the form of Pseudo-section that gives an approximate of the subsurface resistivity. This technique is used for the inversion of Schlumberger VES data to predict the layer parameter namely layer resistivity and Geo electric layer thickness. The main goal of the present study is to search the vertical in homogeneities that is consistent with the measured data.

For a Schlumberger among the Apparent resistivity can be calculated as follows.

$$\rho_a = \frac{G\Delta V}{I}$$

ΔV = potential difference between receiving electrodes

G = Geometric Factor.

Rocks show wide variation in resistivity ranging from 10⁻⁸ more than 10⁺¹⁴ ohmmeter. On a broad classification, one can group the rocks falling in the range of 10⁻⁸ to 1 ohmmeter as good conductors. 1 to 10⁶ ohmmeter as intermediate conductors and 10⁶ to 10¹² ohmmeter as more as poor conductor. The resistivity of rocks and subsurface lithology, which is mostly dependent on its porosity and the pore fluid resistivity is defined by Archie's Law,

$$\rho_r = F\rho_w = a \emptyset^m \rho_w$$

ρ_r = Resistivity of Rocks

ρ_w = Resistivity of water in pores of rock

F = Formation Factor

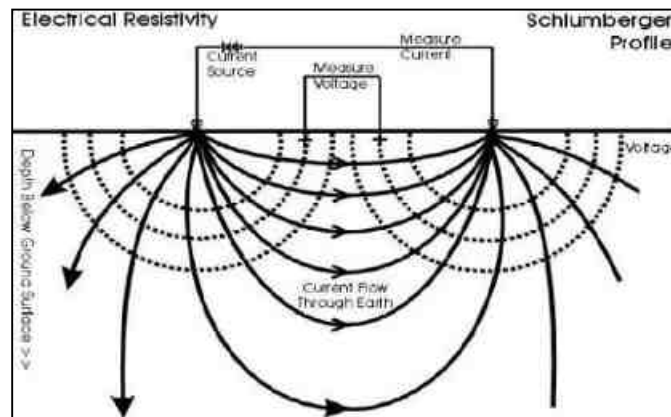
\emptyset = Fractional pore volume

a = Constants with values ranging from 0.5 to 2.5

3.2.5.2 Survey Layout

The field equipment deployed for the study is in a deep resistivity meter with a model of SSR – MP – AT. This Signal stacking Resistivity meter is a high-quality data acquisition system incorporating several innovation features for Earth resistivity. In the presence of random earth Noises the signal to noise ration can be enhanced by \sqrt{N} where N is the number of stacked readings. This SSR meter in which running averages of measurements $[1, (1+2)/2, (1+2+3)/3 \dots (1+2\dots+16/16)]$ up to the chosen stacks are displayed and the final average is stored automatically, in memory utilizing the principles of stacking to achieve the benefit of high signals to noise ratio. Based on these above significations the signal stacking resistivity meter was used for (VES) Vertical Electric Resistivity Sounding.

RESISTIVITY SURVEY PROFILE



Measurements of ground Resistivity is essentially done by sending a current through two electrodes called current electrodes (C_1 & C_2) and measuring the resulting potential by two other electrodes called potential electrode (P_1 & P_2). The amount of current required to be sent into the ground depends on the contact resistance at the current electrode, the ground resistivity and the depth of interest.

3.2.5.3 Data Presentation

It was inferred that the low resistance encountered at the depth between 57m. The maximum depth proposed out of proposed projects 37m BGL. 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.

3.2.5.4 Geophysical Data Interpretation

The geophysical data was obtained to study the lateral variations, vertical in homogeneities in the sub – surface with respect to the availability of groundwater. From the interpreted data, it has inferred that the area has moderate groundwater potential in the investigated area. This small quarrying operation will not have any significant impact on the natural water bodies.

It is inferred that the existing quarries in the surrounding area reaches maximum of 45m and the water table is not intersected, only the seepage water during rainy season encountered from the upper layer and it will be used for the Greenbelt development, Dust suppression and quarrying operation.

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 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.

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 climatic conditions of Tiruvannamalai are characterized by a tropical climate. In Tiruvannamalai, the quantity of rainfall during summers surpasses that of winters. This location is classified as Aw by Köppen and Geiger. The average annual temperature is 27.4 °C | 81.3 °F in Tiruvannamalai. The rainfall here is around 811 mm | 31.9 inch per year.
- Tiruvannamalai are in the middle of our planet and the summers are not easy to define. The optimal period to plan a visit would be during the months of January, February, March, September, December.
- In terms of precipitation, the month with the lowest amount of rainfall is February, recording a mere 7 mm | 0.3 inch in its entirety. This denotes an exceptionally dry period within that particular time frame. On average, the highest amount of rainfall occurs during October with a mean value of 154 mm | 6.1 inch.
- The month that experiences the highest temperatures throughout the year is referred to as May, where an average temperature of 31.3 °C | 88.4 °F prevails. On average, the month of January is considered to be the coldest time of year with temperatures averaging at around 23.3 °C | 73.9 °F.

<https://en.climate-data.org/asia/india/tamil-nadu/tiruvannamalai-24067/>

Rainfall

TABLE 3.13: RAINFALL DATA

Actual Rainfall in mm					Normal Rainfall in mm
2017	2018	2019	2020	2021	
1251.3	799.2	1071.9	1034.5	1592.5	985

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

TABLE 3.14: METEOROLOGICAL DATA RECORDED AT SITE

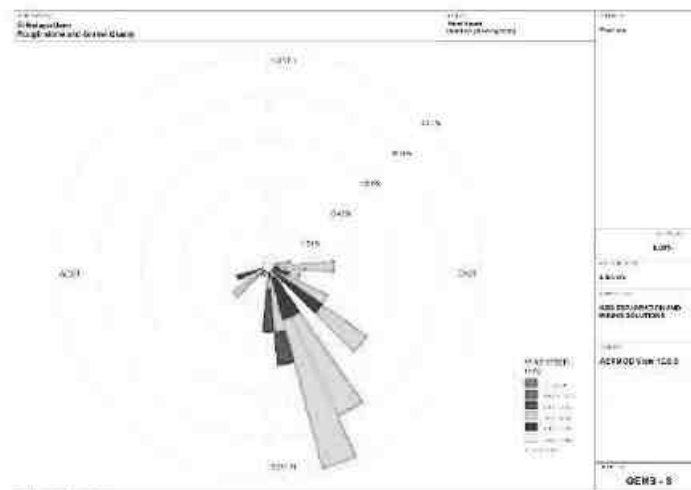
S. No	Parameters		Mar-2024	Apr-2024	May 2024
1	Temperature (°C)	Max	30.05	32.14	33.21
		Min	27.9	30.31	28.74
		Avg.	28.97	31.22	30.97
2	Relative Humidity (%)	Avg.	64.37	66.59	72.88
3	Wind Speed (m/s)	Max	4.9	5.84	6.3
		Min	2.84	3.28	1.72
		Avg.	3.87	4.56	4.01
4	Cloud Cover (OKTAS)		0-8	0-8	0-8
5	Wind direction		NE, NNE	NE, ENE	ENE, NE

Source: On-site monitoring/sampling by GLCS lab in association with GEMS

Correlation between Secondary and Primary Data

The average rain fall over the period of five years is 985mm. The meteorological data collected at the site is almost similar to that of secondary data collected from IMD Villupuram. A comparison of site data generated during the three months with that of IMD, Villupuram. Wind rose diagram of the study site is depicted in Figure. 3.13 Predominant downwind direction of the area during study season is -South East to North East.

FIGURE 3.13: WINDROSE DIAGRAM



In the abstract of collected data wind rose were drawn on presented in figure No.3.14 during the monitoring period in the study area

1. Predominant winds were from SE, E, SSE, W
2. Wind velocity readings were recorded between 1.72 to 6.3m/s
3. Calm conditions prevail of about 0 % of the monitoring period
4. Temperature readings ranging from 27.9 to 33.21 °C
5. Relative humidity ranging from 64.37 to 72.88 %
6. The monitoring was carried out continuously for three months.

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

TABLE 3.15: METHODOLOGY AND INSTRUMENT USED FOR AAQ ANALYSIS

Parameter	Method	Instrument
PM2.5	Gravimetric Method Beta attenuation Method	Fine Particulate Sampler Make – Thermo Environmental Instruments – TEI 121
PM10	Gravimetric Method Beta attenuation Method	Respirable Dust Sampler Make –Thermo Environmental Instruments – TEI 108
SO2	IS-5182 Part II (Improved West & Gaeke method)	Respirable Dust Sampler with gaseous attachment
NOx	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 GLCS lab & 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 80.0	20.0 80.0
2	Nitrogen Dioxide ($\mu\text{g}/\text{m}^3$)	Annual Avg. 24 hours	40.0 80.0	30.0 80.0
3	Particulate matter (size less than $10\mu\text{m}$) PM10 ($\mu\text{g}/\text{m}^3$)	Annual Avg. 24 hours	60.0 100.0	60.0 100.0
4	Particulate matter (size less than $2.5\mu\text{m}$) PM2.5 ($\mu\text{g}/\text{m}^3$)	Annual Avg. 24 hours	40.0 60.0	40.0 60.0

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

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

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

3.3.4 Frequency & Parameters for Sampling

Ambient air quality monitoring has been carried out with a frequency of two samples per week at Seven (7) locations, adopting a continuous 24 hourly (3 shift of 8-hour) schedule for the period Mar 2024 – May 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.

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	AAQ-1	Core Zone	Project Area SE Corner	12°43'18.52"N 79°43'29.41"E
2	AAQ-2	Core Zone	Project Area NW Corner	12°43'23.75"N 79°43'25.69"E
3	AAQ-3	Near Existing Quarry	400m SW	12°43'7.44"N 79°43'20.72"E
4	AAQ-4	Manalmedu	5.3km SE	12°41'25.00"N 79°45'41.25"E
5	AAQ-5	Nathakollai Near School	5.8km NW	12°46'1.12"N 79°41'37.89"E
6	AAQ-6	Arpakkam	4.2km NE	12°44'5.00"N 79°45'37.81"E
7	AAQ-7	Mathur	4.8km West	12°42'52.85"N 79°40'52.40"E

Source: On-site monitoring/sampling by GLCS lab in association with GEMS.

FIGURE 3.15: AMBIENT AIR QUALITY LOCATIONS AROUND 10 KM RADIUS

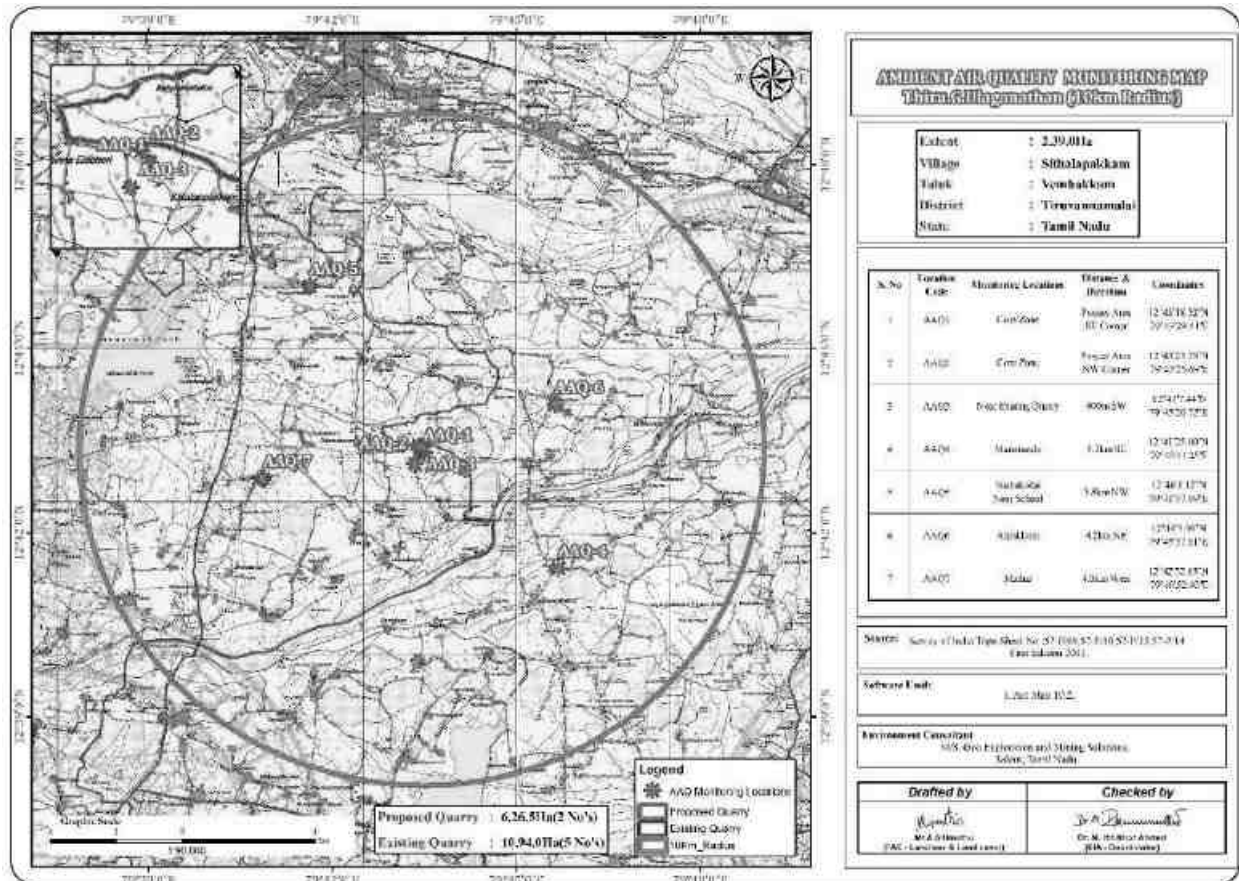


TABLE 3.18: SUMMARY OF AAQ 1 to AAQ 8

PM10	AAQ1 Core zone	AAQ2 Core Zone	AAQ3 Near Existing quarry	AAQ4 Manalmedu	AAQ5 Nathakollai	AAQ6 Arpakkam	AAQ7 Mathur
Arithmetic Mean	44.7	44.3	44.1	44.0	44.7	44.2	44.2
Minimum	42.1	42.0	42.5	41.7	41.9	42.0	42.3
Maximum	47.1	46.7	45.8	46.7	46.7	46.1	46.0
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	20.5	20.0	19.5	19.7	20.1	19.7	19.8
Minimum	18.7	18.7	18.3	0.0	18.3	18.3	18.7
Maximum	22.0	21.6	20.8	0.0	22.9	22.0	21.2
NAAQ Norms	60.0	60.0	60.0	60.0	60.0	60.0	60.0
SO2	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7
Arithmetic Mean	6.3	5.7	5.3	5.5	5.8	5.7	5.8
Minimum	4.2	4.0	4.1	4.0	4.0	4.1	4.1
Maximum	9.4	8.8	7.7	8.0	9.2	8.3	9.1
NAAQ Norms	6.3	5.7	5.3	5.5	5.8	5.7	5.8
NO2	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7
Arithmetic Mean	21.3	21.4	20.8	20.6	21.0	21.2	21.8
Minimum	18.1	18.3	17.8	16.9	19.6	18.9	19.7
Maximum	24.3	24.6	23.5	23.9	23.3	23.7	24.8
NAAQ Norms	80.0	80.0	80.0	80.0	80.0	80.0	80.0

TABLE 3.19: ABSTRACT OF AMBIENT AIR QUALITY DATA

1	Parameter	PM10	PM2.5	SO ₂	NO ₂
2	No. of Observations	260	260	260	260
3	98 th Percentile Value	46.7	22.0	9.1	24.5
4	Arithmetic Mean	44.7	20.1	6.2	21.7
5	Geometric Mean	44.7	20.1	6.0	21.6
6	Standard Deviation	1.3	1.1	1.6	1.6
7	Minimum	42.5	18.7	4.2	19.4
8	Maximum	46.7	22.0	9.1	24.5
9	NAAQ Norms*	100.0	60.0	80.0	80.0
	% Values exceeding Norms*	0.0	0.0	0.0	0.0

FIGURE 3.16: BAR DIAGRAM OF SUMMARY OF AAQ 1 – AAQ7

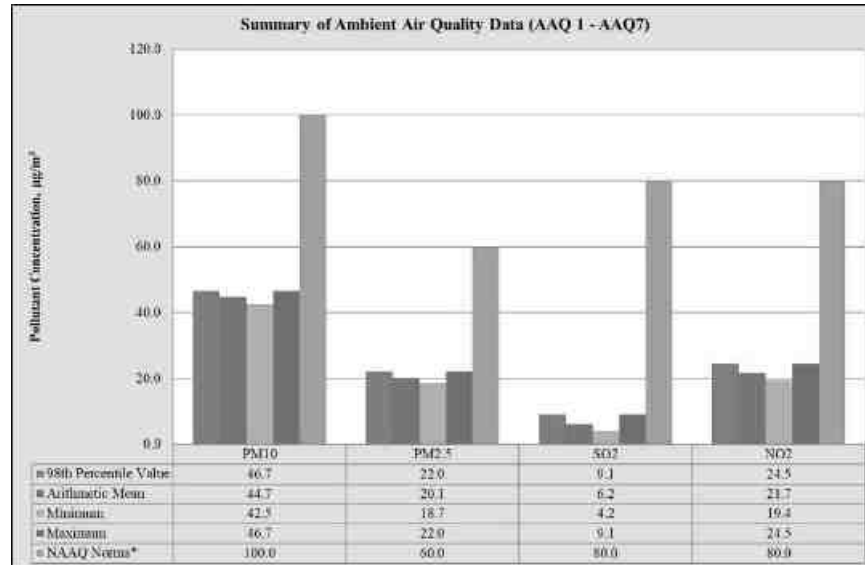


FIGURE 3.17: BAR DIAGRAM OF PARTICULATE MATTER PM₁₀

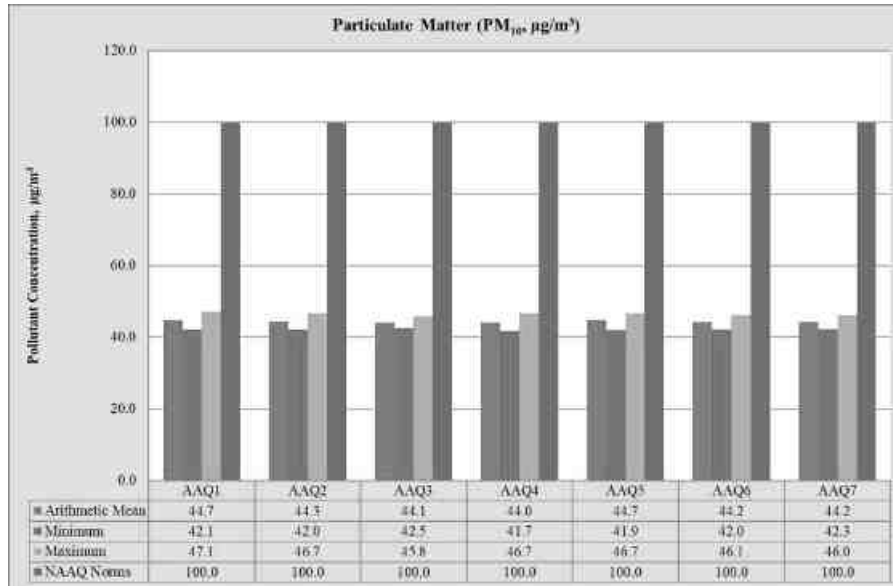


FIGURE 3.18: BAR DIAGRAM OF PARTICULATE MATTER PM_{2.5}

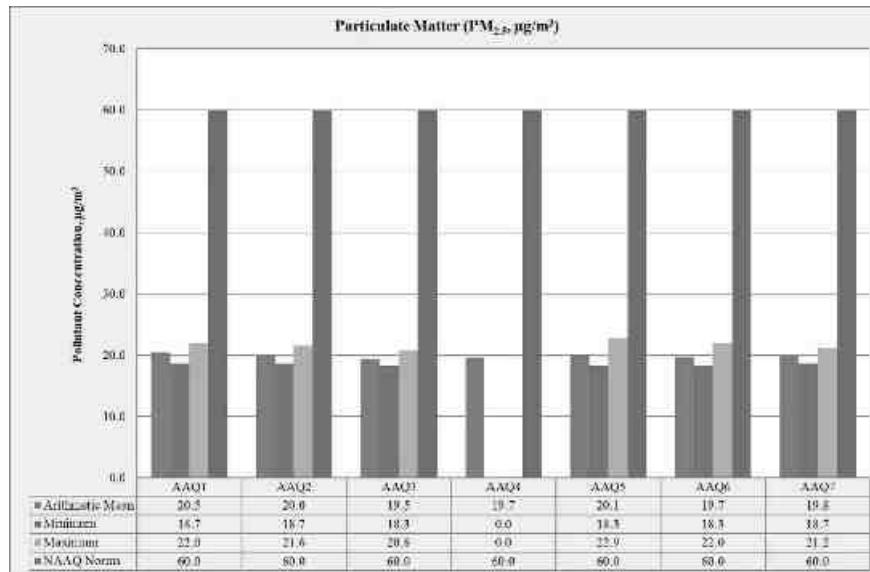


FIGURE 3.19: BAR DIAGRAM OF GASEOUS POLLUTANT SO₂

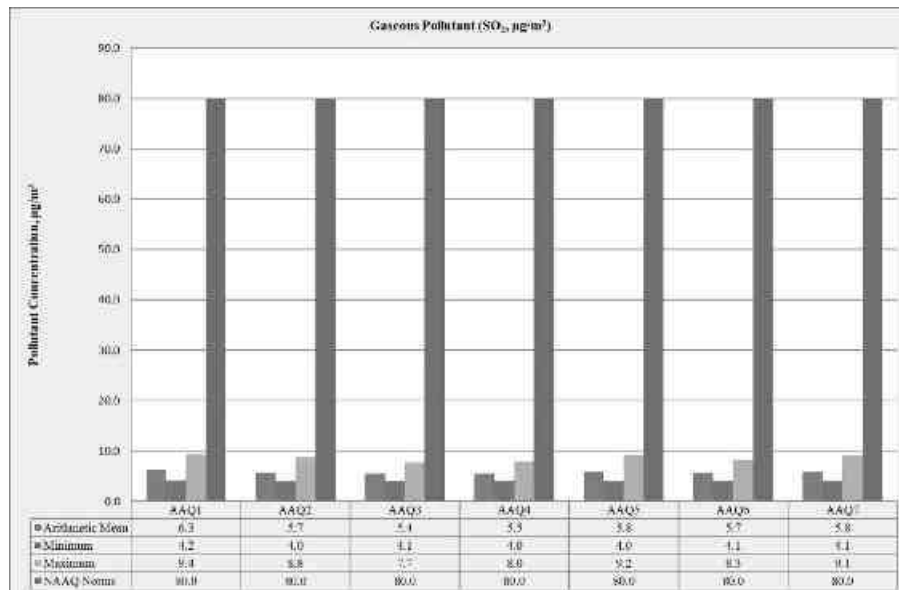
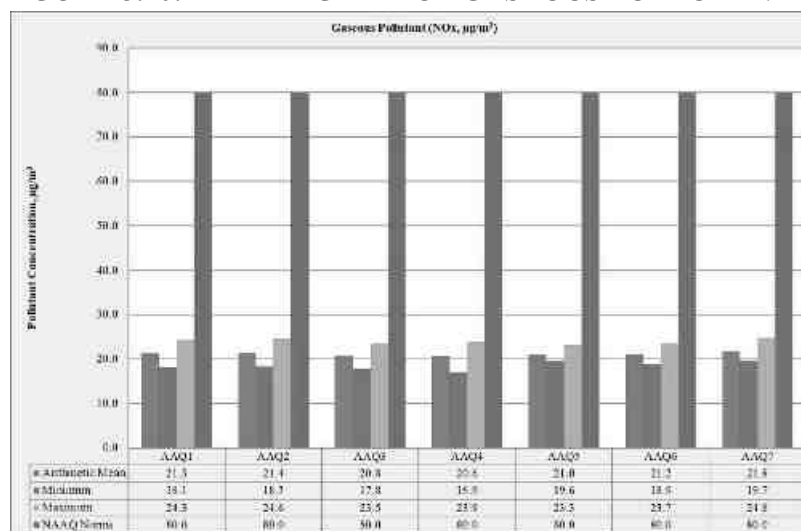


FIGURE 3.20: BAR DIAGRAM OF GASEOUS POLLUTANT NO_x



3.3.6 Interpretations & Conclusion

As per monitoring data, PM₁₀ ranges from 42.5 µg/m³ to 46.7 µg/m³, PM_{2.5} data ranges from 18.7 µg/m³ to 22.0 µg/m³, SO₂ ranges from 4.2µg/m³ to 9.1 µg/m³ and NO₂ data ranges from 18.4 µg/m³ to 24.5 µg/m³. The concentration levels of the above criteria pollutants were observed to be well within the limits of NAAQS prescribed by CPCB.

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 Seven (7) locations. The noise level measurement was carried out at each ambient air quality station. The main aim of the noise level monitoring is

- To assess the ambient Noise level in the study area
- Type of noise pollution generated in the core zone
- To predict the temporal changes in the ambient noise level in the area

The noise level monitoring locations were carried out by covering commercial, residential, rural areas within the radius of 10km. A noise monitoring methodology was chosen such that it best suited the purpose and objectives of the study.

TABLE 3.21: DETAILS OF SURFACE NOISE MONITORING LOCATIONS

S. No	Location Code	Monitoring Locations	Distance & Direction	Coordinates
1	N1	Core Zone	Project Area SE Corner	12°43'19.17"N 79°43'30.07"E
2	N2	Core Zone	Project Area NW Corner	12°43'23.70"N 79°43'26.25"E
3	N3	Near Existing Quarry	400m SW	12°43'7.41"N 79°43'20.11"E
4	N4	Manalmedu	5.3km SE	12°41'24.67"N 79°45'39.41"E
5	N5	Nathakollai Near School	5.8km NW	12°46'1.49"N 79°41'37.74"E
6	N6	Arpakkam	4.2km NE	12°44'4.57"N 79°45'38.23"E
7	N7	Mathur	4.8km West	12°42'53.23"N 79°40'52.72"E
8	N8	Pudupalayam	3.5km SW	12°41'27.52"N 79°43'1.30"E

Source: On-site monitoring/sampling by GLCS lab in association with GEMS.

3.4.2 Method of Monitoring

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

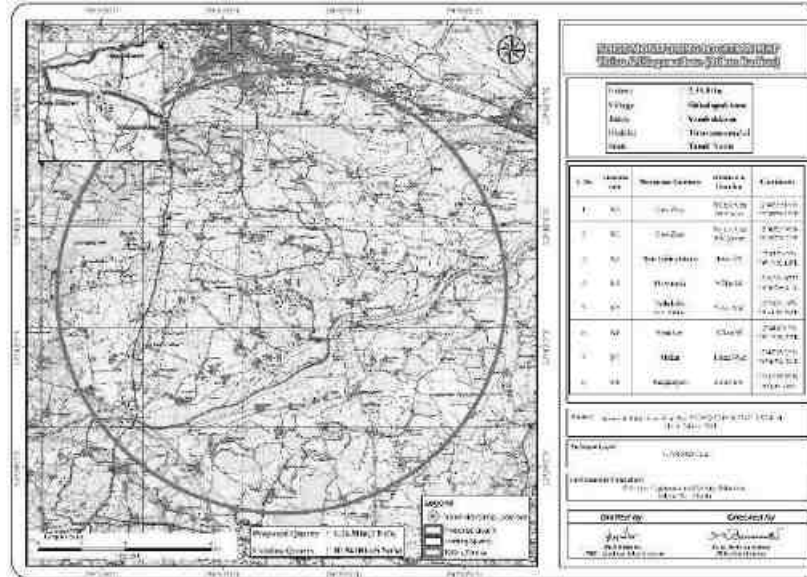
$$Leq = 10 \log L / T \sum (10L_n/10)$$

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

T = Time interval of observation

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 60minutes are computed for equivalent noise levels. Equivalent noise level is a single number descriptor for describing time varying noise levels.

FIGURE 3.23: NOISE MONITORING STATIONS AROUND 10 KM RADIUS



3.4.3 Analysis of Ambient Noise Level in the Study Area

The Digital Sound pressure level has 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 3.32.

Day time: 6:00 hours to 22.00 hours.

Night time: 22:00 hours to 6.00 hours.

TABLE 3.22: AMBIENT NOISE QUALITY RESULT

S. No	Locations	Noise level (dB (A) Leq)		Ambient Noise Standards
		Day Time	Night Time	
1	Core Zone	43.1	37.6	Industrial Day Time- 75 dB (A) Night Time- 70 dB (A)
2	Core Zone	44.4	36.0	
3	Near Existing Quarry	49.3	38.8	Residential Day Time- 55 dB (A) Night Time- 45 dB (A)
4	Manalmedu	45.7	38.3	
5	Nathakollai Near School	48.7	37.7	
6	Arpakkam	49.4	39.0	
7	Mathur	50.4	38.4	
8	Pudupalayam	50.6	38.7	

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

FIGURE 3.24: DAY TIME NOISE LEVELS IN CORE AND BUFFER ZONE

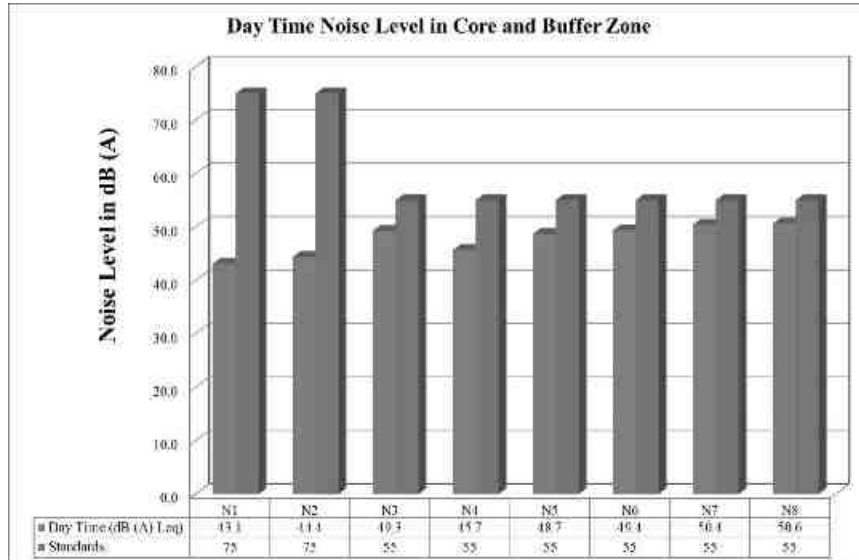
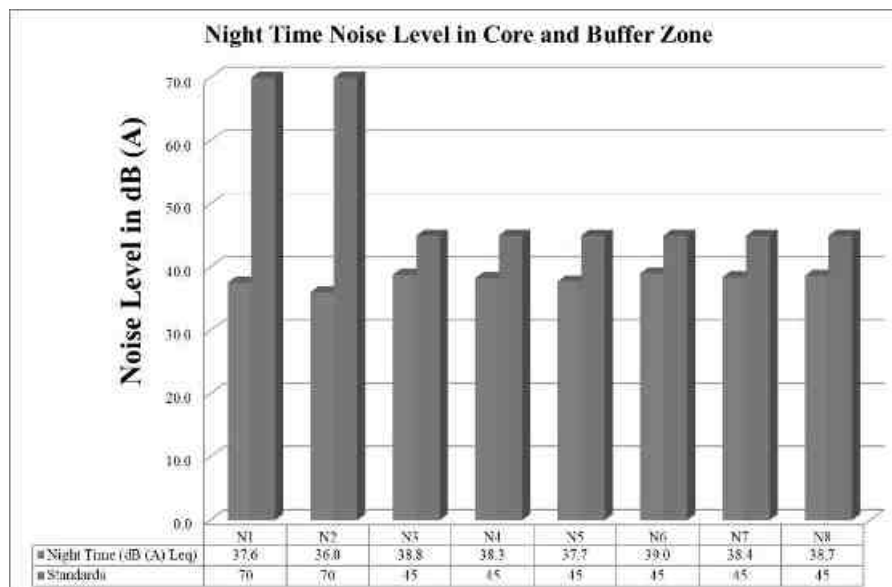


FIGURE 3.25: NIGHT TIME NOISE LEVELS IN CORE AND BUFFER ZONE



3.4.4 Interpretation & Conclusion:

Ambient noise levels were measured at 8 (Eight) locations around the proposed project area. Noise levels recorded in core zone during day time were from 43.1- 44.4 dB (A) Leq and during night time were from 36.0-37.6 dB (A) Leq. Noise levels recorded in buffer zone during day time were from 45.7 to 50.6 dB (A) Leq and during night time were from 37.7 to 39.0 dB (A) Leq. Thus, the noise level for Industrial and Residential area meets the requirements of CPCB.

3.5. Biological Environment

3.5.1. Study area Ecology

Ecology is a branch of science that dealing the relations and interactions between organisms and their environment. An ecological survey of the study area was conducted, particularly with reference to the listing of species and assessment of the existing baseline ecological conditions in the study area. The main objective of the biological study is to collect the baseline data regarding flora and fauna in the study area. Data has been collected through extensive surveys of the area with reference to flora and fauna. Information is also collected from different sources i.e. government departments such as the District Forest Office, Government of Tamil Nadu.

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.
- 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.
- 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

Primary survey was conducted with established and accepted ecological methods in different habitats of study area. The field data collection mainly included biodiversity status assessment of different life forms habit of flora elements such as Trees, Shrubs, Climbers Herbs and Grass. Faunal diversity was assessed by inventorying the taxonomical groups like Mammals, Herpetofauna, birds and butterflies.

Nocturnal faunal species were searched by locating their calls during night time and by searching along the forest shrubs areas, dense dry bushes, below the stones, water bodies. During the study, to know more about

the seasonal presence of flora and faunal species, information was obtained from local people and forest department.

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.

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 compiled 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 were 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

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

3.5.4.2. Modified Pollard Walk – for Butterflies

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

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

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

3.5.4.4. Observational methods- Mammals

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

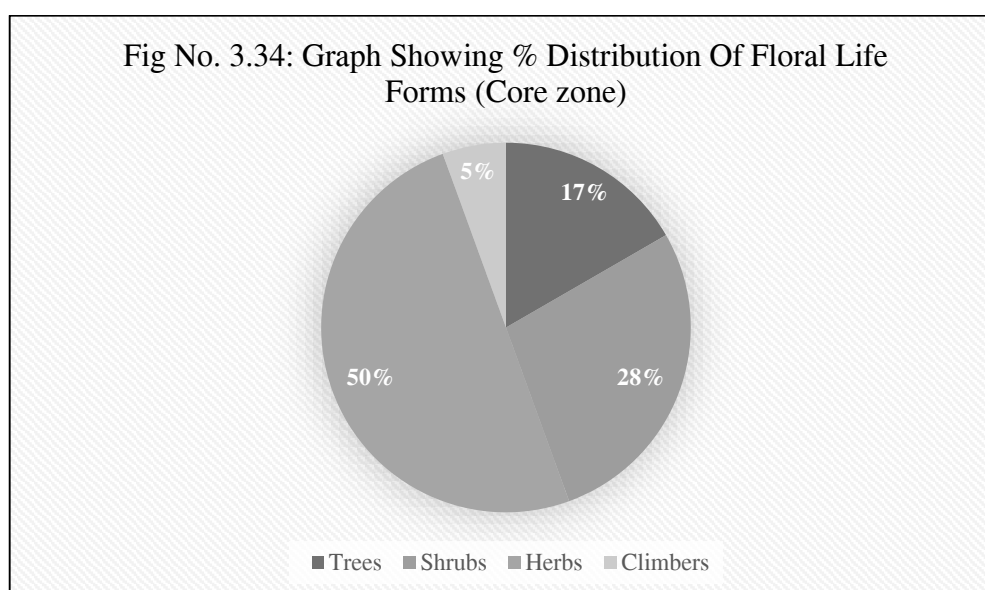
3.5.5. Flora Composition in the Core Zone (Primary Survey)

Core zone flora sampling was conducted between 8.00 am to 10.00 am in three locations. The proposed applied area exhibiting plain terrain, so we used quadrat sampling methods. Taxonomically a total of 18 species belonging to 12 families have been recorded from the core mining lease area. Based on the habitat classification of the enumerated plants the majority of species were Herbs 9 followed by Shrubs 5, Trees 3, and Climbers 1. Details of flora with the scientific name were mentioned in Table No. 3.53. The result of the core zone of flora studies shows that Fabaceae and Arecaceae are the main dominating species in the study area mentioned in Table No.3.53. No species found as threatened category.

Table No: 3.53. Flora in the Core zone of Sithalapakkam Village, Rough stone and gravel quarry (Primary data)

Sl. No	English Name	Vernacular Name	Scientific Name	Family Name
Trees				
1.	Mesquite	Mullu maram	Prosopis juliflora	Fabaceae
2.	Asian Palmyra palm	Panai maram	Borassus flabellifer	Arecaceae
3.	Neem	Vembu	Azadirachta indica	Meliaceae
Shrubs				
1.	Lantana	Unni chedi	Lantana camara	Verbenaceae
2.	Milk Weed	Erukku	Calotropis gigantea	Apocynaceae
3.	Coromandel Boxwood	Kaarai	Canthium coromandelicum	Rubiaceae
4.	Wild date palm	Eacham	Phoenix pusilla	Arecaceae
5.	Indian fig opuntia	Sapathikalli	Opuntia ficus-indica	Cactaceae
Herbs				
1.	Coat buttons	Thatha poo	Tridax procumbens	Asteraceae
2.	Shrimp plant	Thavasi murunga	Justicia tranquebariensis	Acanthaceae
3.	Pignut	Nattapoochedi	Hyptis suaveolens	Lamiaceae
4.	Flannel Weed	Sida mutti	Sida cordifolia	Malvaceae
5.	Carrot grass	Parttiniyam	Parthenium hysterophorus	Asteraceae
6.	Bindii	Nerunji mullu	Tribulus terrestris	Zygophyllaceae
7.	Chrismas Bush	Poom pul	Chromolaena odorata	Asteraceae
8.	Holy basil	Thulasi	Ocimum tenuiflorum	Lamiaceae
9.	Prickly chaff flower	Nayuruv	Achyranthes aspera	Amaranthaceae
Climbers				
10.	Stemmed vine	Perandai	Cissus quadrangularis	Vitaceae

(Sources: Species observation in the field study)



The trees surveys were conducted around 300m radius from the proposed project site.

The trees surveys were conducted around 300m radius from the proposed project site. This is the standard scientific method followed by various workers in respect of phytosociological studies (Cotton 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 1.37m 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 Borassus flabellifer, Prosopis juliflora, etc. Please refer the Table No.3.54.

Table No: 3.54. Tree survey around 300m radius from the proposed project site.

S.No	English Name	Vernacular Name	Scientific Name	No of trees
Trees				
1.	Acacia Nilotica	Karuvamelam maram	Vachellianilotica	9
2.	Coconut	Thennai maram	Cocos nucifera	6
3.	Mesquite	Mullumaram	Prosopis juliflora	38
4.	Neem	Vembu	Azadirachta indica	20
5.	Asian Palmyra palm	Panai maram	Borassus flabellifer	46

(Sources: Species observation in the field study)

Table No: 3.55. Flora in Buffer Zone of Eraiyur Village, Rough stone and gravel quarry Villupuram District, Tamil Nadu (Primary data & Secondary data)

S.No.	English Name	Vernacular Name	Scientific Name	Family Name
Trees				
1.	White Bark Acacia	Vela maram	Vachellia leucophloea	Fabaceae
2.	Wild Date Palm	Icham	Phoenix sylvestris	Arecaceae
3.	Indian siris	Vaaga	Albizia lebbek (L.) Willd	Fabaceae
4.	Blue gum	Thayala maram	Eucalyptus	Myrtaceae
5.	Alangium salviifolium	Azhinja maram	Alangium salviifolium	Cornaceae
6.	Banana tree	Vazhaimaram	Musa acuminata	Musaceae
7.	Neem	Vembu	Azadirachta indica	Meliaceae
8.	Tamarind	Puliyamaram	Tamarindus indica	Legumes
9.	Mesquite	Mullu maram	Prosopis juliflora	Fabaceae
10.	Coral Tree	Kalyana murungai	Erythrina variegata	Papilionoide
11.	Bamboo	Moonghil	Bambusa bambo	Poaceae
12.	Yellow flame tree	Perunkondrai	Peltophorum pterocarpum	Fabaceae
13.	Indian ash tree	Odhiya maram	Lannea coromandelica	Anacardiaceae
14.	Indian almond	Padam maram	Terminalia catappa	Combretaceae
15.	Asian Palmyra palm	Panai maram	Borassus flabellifer	Arecaceae
16.	Indian ash tree	Odiya maram	Lannea coromandelica	Anacardiaceae
17.	Lemon	Ezhumuchaipalam	Citrus lemon	Rutaceae
18.	Bidi leaf tree	Thiruvathi Plant	Bauhinia racemosa	Fabaceae
19.	Rusty Acacia	Parambai	Acacia ferruginea	Mimosaceae
20.	Mango	Manga	Mangifera indica	Anacardiaceae
21.	Peepal	Arasanmaram	Ficus religiosa	Moraceae
22.	Custard apple	Seethapazham	Annona reticulata	Annonaceae
23.	Chinaberry	Malai vembu	Melia azedarach L.	Meliaceae
24.	Monkey pod tree	Thungumoonchi	Samanea saman	Fabaceae
25.	Teak	Thekku	Tectona grandis	Verbenaceae
26.	Indian gooseberry	Nelli	Emblica officinalis	Phyllanthaceae
27.	Henna	Marudaani	Lawsonia inermis	Lythraceae
28.	Madras thorn	Kudukapuli	Pithecellobium dulce	Fabaceae
29.	Malayan Cherry	Ten Pazham	Muntingia calabura	Muntingiaceae
30.	Pomegranate	Mathulai	Punica granatum	Lythraceae
31.	Jamun Fruit Plant	Naval maram	Syzygium cumini	Myrtaceae
32.	Banyan tree	Alamaram	Ficus benghalensis	Moraceae
33.	Chinese chaste tree	Nochi	Vitex negundo	Verbenaceae
34.	Indian Jujube	Ilanthai	Ziziphus jujuba	Rhamnaceae

35.	Millettia pinnata	Pongam oiltree	Pongamia pinnata	Fabaceae
36.	Coconut	Thennai maram	Cocos nucifera	Arecaceae
37.	Guava	Koyya	Psidium guajava	Myrtaceae
38.	Pala indigo	Pala maram	Wrightia tinctoria	Apocynaceae
39.	Portia tree	Poovarasam	Thespesia populnea	Malvaceae
40.	Drumstick tree	Murunga maram	Moringa oleifera	Moringaceae
41.	Papaya	Pappali maram	Carica papaya L	Caricaceae
42.	Jackfruit	Palamaram	Artocarpus heterophyllus	Moraceae
Shrubs				
1.	Tanner's cassia	Avaram	Senna auriculata	Fabaceae
2.	Hopbush	Virali	Dodonaea viscosa	Sapindaceae
3.	Castor oil plant	Amanakku	Ricinus communis	Euphorbiaceae
4.	Milk Weed	Erukku	Calotropis gigantea	Apocynaceae
5.	Indian Oleander	Arali	Nerium indicum	Apocynaceae
6.	Coromandel Boxwood	Kaarai	Canthium coromandelicum	Rubiaceae
7.	Triangular spruge	Chaturakalli	Euphorbia antiquorum	Euphorbiaceae
8.	Night shade plan	Sundaika	Solanum torvum	Solanaceae
9.	-	Odankodi	Hippocratea indica	Odankodi
10.	Wild karanda	Kilaa	Carissa spinarum	Apocynaceae
11.	Broom creeper	Kattukodi	Cocculus hirsutus	Menispermaceae
12.	Solanum pubescens	Malaisundai	Solanum pubescens Willd	Solanaceae
13.	Thorn apple	Oomathai	Datura stramonium	Solanaceae
14.	Shoe flower	Chemparuthi	Hibiscu rosa-sinensis	Malvaceae
15.	Puriging nut	Kattamanakku	Jatropha curcas	Euphorbiaceae
16.	Touch-me-not	Thottalchinungi	Mimosa pudica	Mimosaceae
17.	Chinese chastetree	Nalla nochi	Vitex negundo L	Verbinaceae
18.	Jackal jujube	Suraimullu	Ziziphus oenoplia	Rhamnaceae
19.	Malabar catmint	Pei veratti	Anisomeles malabarica	Lamiaceae
20.	Indian mallow	Thuthi	Abutilon indicum	Meliaceae
21.	Bush Morning Glory	Neiveli Kattamani	Ipomoea carnea	Convolvulaceae
22.	Carray Cheddle	Kaarai	Canthiumparviflorum	Rubiaceae
23.	Lantana	Unni chedi	Lantana camara	Verbenaceae
24.	Flame of the Woods	Idlipoo	Xoracoc cinea	Rubiaceae
25.	Triangular spruge	Chaturakalli	Euphorbia antiquorum	Euphorbiaceae
Herbs				
1.	Coat buttons	Thatha poo	Tridax procumbens	Asteraceae
2.	Malabar catmint	Peimiratti	Anisomeles malabarica	Lamiaceae
3.	Eggplant	Kathrikkai	Solanum melongena	Solanaceae
4.	Christsmas Bush	Poom pul	Chromolaena odorata	Asteraceae
5.	Aloe barbadensis	Katrazhai	Aloe vera	Asphodelaceae
6.	-	Kariyaan poondu	Lepidagathis cristat	Acanthaceae
7.	Mountain knotgrass	Thengaipoo kirai	Aerva lanata	Amaranthaceae
8.	Prickly chaff flower	Nayuruv	Achyranthes aspera	Amaranthaceae
9.	Bindii	Nerunchi	Tribulus terrestris	Zygophyllaceae
10.	Fish poison	Kolinchi	Tephrosia purpurea	Fabaceae
11.	Black creeper	-	Justicia prostrata	Acanthaceae
12.	Ban Tulsi	Melakai poondu	Croton bonplandianus	Euphorbiaceae

13.	Commelina benghalensis	Kanavazha	Commelina benghalensis	Commelinaceae
14.	Asthma-plant	Amman pacharisi	Euphorbia hirta	Euphorbiaceae
15.	Indian doab	Arugampul	Cynodon dactylon	Poaceae
16.	Spiny amaranth	Mullu keerai	Amaranthus spinosus	Amaranthaceae
17.	Chilli	Milakai	Capsicum annuum	Solanaceae
18.	Flannel Weed	Sida mutti	Sida cordifolia	Malvaceae
19.	Indian Copperleaf	Kuppaimeni	Acalypha indica	Euphorbiaceae
20.	Madagascar Periwinkle	Nithykalyani Podi	Catharanthus roseus	Apocynaceae
21.	Marsh barbel	Neermulli	Hygrophila auriculata	Acanthaceae
22.	Yellow-fruit nightshade	Kandakathirika	Solanum surattense	Solanales
23.	Asian spiderflower	Naaikaduku	Cleome viscosa L	Cleomaceae
24.	Tomato	Thakkali	Solanum lycopersicum	Solanaceae
25.	White dammar	Mookutipoondu	Vicoa indica	Asteraceae
26.	Cleome viscosa	Nai kadugu	Celome viscosa	Capparidaceae
27.	Bindii	Nerunji mullu	Tribulus terrestris	Zygophyllaceae
28.	Bara Gokhru	Yanainerunjil	Pedaliium murex	Pedaliaceae
29.	Digeria muricata	Thoiya keerai	Digeria muricata	Amaranthaceae
30.	False daisy	Karisalankanni	Eclipta alba	Asteraceae
31.	Sessile Joyweed	Ponnakanni	Alternanthera sessilis	Amaranthaceae
32.	Pignut	Nattapoochedi	Hyptis suaveolens	Lamiaceae
33.	Field beans	Avarai	Hyacinth Beans	Fabaceae
34.	Common leucas	Thumbai	Leucas aspera	Lamiaceae
35.	Holy basil	Thulasi	Ocimum tenuiflorum	Lamiaceae
36.	Coat buttons	Thatha poo	Tridax procumbens	Asteraceae
37.	Indian mint	Karpura valli	Coleus amboinicus	Lamiaceae
38.	Europeanblack nightshade	Manathakkali	Solanumnigrum	Solanaceae
39.	Bright eyes	Nithiyakalyani	Catharanthus roseus	Apocynaceae
40.	Carrot grass	Partiniyam	Parthenium hysterophorus	Asteraceae
41.	Red Spiderling	Mukirattai	Boerhavia diffusa	Nyctaginaceae
Climbers/ Creepers				
1.	Stemmed vine	Perandai	Cissus quadrangularis	Vitaceae
2.	Indian sarsaparilla	Nannaari	Hemidesmus indicus	Apocynaceae
3.	Rosary Pea	Gundumani	Abrus precatorius	Fabaceae
4.	Ivy gourd	Kovai	Coccinia grandis	Cucurbitaceae
5.	Balloon plant	Mudakrttan	Cardiospermum halicacabum	Sapindaceae
6.	Bitter apple	Peikkumatti	Citrullus colocynthis	Cucurbitaceae
7.	Butterfly pea	Sangu poo	Clitoria ternatea	Fabaceae
8.	Betel	Vetrlai	Piper betle	Piperaceae
9.	Pointed gourd	Kovakkai	Trichosanthes dioica	Cucurbitaceae
10.	Wild bitter	Pavarkai	Momordica charantia	Cucurbitaceae
11.	Bottle Guard	Sorakkai	Lagenaria siceraria	Cucurbitaceae
12.	White pumpkin	Poosanaikkaai	Cucurbitaceae	Cucurbitaceae
13.	Wild jasmine	Malli	Jasminum augustifolium	Oleaceae
14.	Nut grass	Korai	Cyperus rotandus	Poaceae
15.	Cucumis maderaspatanus	Musumusukkai	Mukia maderaspatana	Cucurbitaceae

Grasses				
1.	Windmill grass	Chevvarakupul	Chloris barbata	Poaceae
2.	Jungle rice	Kuthirai vaalKattu arusi	Echinochloa colona	Poaceae
3.	Swollen Windmill Grass	Kondai Pul	Chloris barbata	Poaceae
4.	Needle Grass	Thodappam	Aristida adscensionis	Poaceae
5.	Eragrostis	Pullu	Eragrostis ferruginea	Poaceae
6.	Needle Grass	-	Aristida funiculata	Poaceae
7.	Mauritian Grass	Moongil pul	Apluda mutica	Amaranthaceae

(Sources: Species observation in the field study

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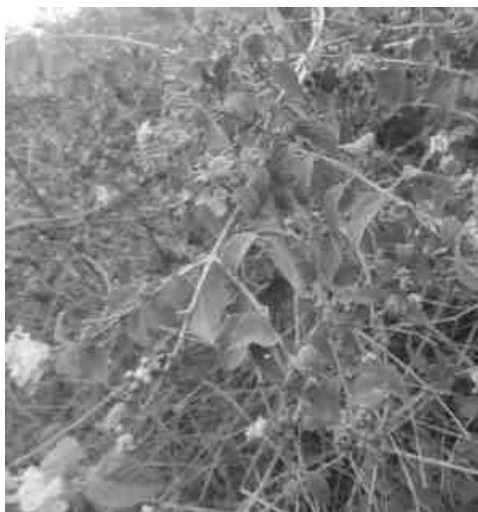
medicinal plant diversity in tiruvannamalai hill, tiruvannamalai, Tamil Nadu

Ethnobotanical study of medicinal plants used by traditional users in Villupuram district of Tamil Nadu, India

<https://identify.plantnet.org/>



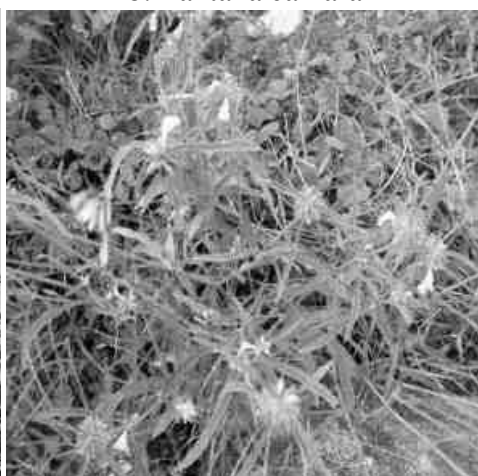
a. *Ziziphus mauritiana*



b. *Lantana camara*



c. *Azadirachta indica*



d. *Leucas aspera*

e. *Prosopis juliflora*f. *Cissus quadrangularis***Fig No: 3.35. Flora species observation in the Buffer zone area**

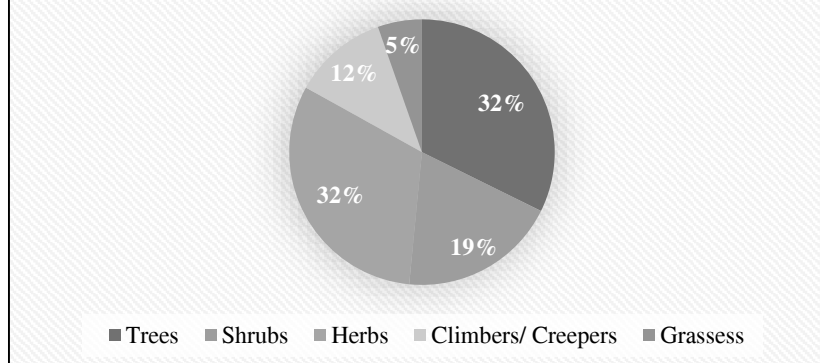
3.6. Flora Composition in the Buffer Zone

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 methods. The study area was divided according to habitat types followed the random sampling methods in the selected area. The area exhibiting plain terrain. so we used quadrat sampling methods. Similar habitats may be found in the buffer area as well, although there is a wider variety of plants there than in the core zone area. 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 and there are 130 species in the buffer zone study area in total, based on records. The floral (130) varieties among them Trees 42, Herbs 41, Shrubs 25, Climbers/Creepers 15, and Grasses 7 were identified. The result of the buffer zone of flora studies shows that Fabaceae and Cucurbitaceae, Euphorbiaceae is the main dominating species in the study area mentioned in Table No.3.56. There are no impacts due to this mining activity. There are no Rare, Endangered, and Threatened Flora species in the mining area and their surrounding study area. Apart from the proposed project area, there is agricultural land. Horticulture and agricultural land are untouched. There are no Rare, Endangered, and Threatened Flora species in the mining area and their surrounding study area. A list of floral species has been prepared based on primary survey (site observations) and discussion with local people. The total number of different plant life forms under trees, shrubs, herbs, and climbers is shown in Table no 3.56 and their % distribution is shown in Figure no 3.36..

Table 3.56: Number of floral life forms in the Study Area

S. No	Plant Life Form	Number of Species
1	Trees	42
2	Shrubs	25
3	Herbs	41
4	Climber/Creepers	15
6	Grasses	7
Total No. of Species		130

Fig No. 3.36: Graph Showing % Distribution Of Floral Life Forms (Buffer Zone)



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

There are no National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar sites, Tiger/Elephant Reserves/ (existing as well as proposed) within 10 km of the mine lease area. There are no protected forests within the project area. Hence submission of clearance from the National Board of Wildlife does not arise. No Wildlife Sanctuary in the study area. In addition, No Biosphere Reserves, Wildlife corridors, or, Tiger / Elephant reserves within 10 km of the project area. No protected (PF) forests either in the mine lease area or in the buffer zone. Thus, no forest land is involved in any manner.

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

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

3.6. Fauna

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

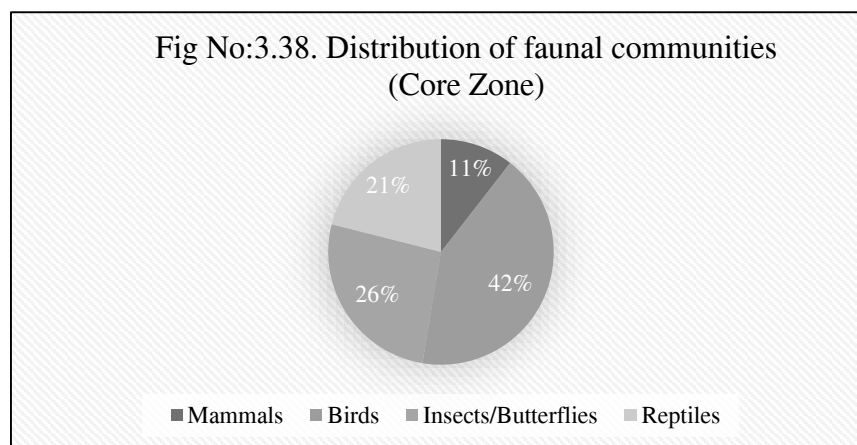
3.6.1. Fauna Composition in the Core Zone

Core zone fauna samplings were conducted between 6.00 am to 8.00 am in three locations. A total of 10 varieties of species were observed in the Core zone of Sithalapakkam Village, Rough stone and gravel quarry (Table No.3.58) among them numbers of Insects/ Butterflies 5, Reptiles 4, Mammals 2, and Avian 8. A total of 19 species have been recorded from the core mining lease area. None of these species are threatened or endemic in the study area and surroundings. There is no Schedule I species and 13 species are under Schedule IV according to the Indian Wildlife Act 1972. A total of 8 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. 3.58.

Table No: 3.57. Fauna in the Core zone of Sithalapakkam Village, Rough stone and gravel quarry (Primary data)

SI. No	Common Name	Family Name	Scientific Name	Schedule WPA1972
Insects/Butterflies				
1.	Striped tiger	Nymphalidae	<i>Danaus plexippus</i>	Schedule IV
2.	Common Tiger	Nymphalidae	<i>Danaus genutia</i>	Schedule IV
3.	Grasshopper	Acrididae	<i>Hieroglyphus sp</i>	NL
4.	Common Tiger	Nymphalidae	<i>Danaus genutia</i>	NL
5.	Termite	Blattodea	<i>Hamitermes silvestri</i>	NE
Reptiles				
1.	Garden lizard	Agamidae	<i>Calotes versicolor</i>	NL
2.	Common skink	Scincidae	<i>Mabuya carinatus</i>	NL
3.	Rat snake	Colubridae	<i>Ptyas mucosa</i>	Sch II (Part II)
4.	Green vine snake	Colubridae	<i>Ahaetulla nasuta</i>	Schedule IV
Mammals				
1.	Indian Field Mouse	Muridae	<i>Mus booduga</i>	Schedule IV
2.	Common rat	Muridae	<i>Rattus rattus</i>	Schedule IV
Aves				
1.	Black drongo	Dicruridae	<i>Dicrurus macrocercus</i>	Schedule IV
2.	Common myna	Sturnidae	<i>Acridotheres tristis</i>	Schedule IV
3.	Sunbird	Nectariniidae	<i>Cinnyris asiaticus</i>	Schedule IV
4.	Shikra	Laniidae	<i>Lanius excubitor</i>	Schedule IV
5.	House crow	Corvidae	<i>Corvus splendens</i>	Schedule V
6.	Koel	Cuculidae	<i>Eudynamis</i>	Schedule IV
7.	Cattle egret	Ardeidae	<i>Bubulcus ibis</i>	Schedule IV
8.	Rose-ringed parakeet	Psittaculidae	<i>Psittacula krameri</i>	Schedule IV

(Sources: Species observation in the field study)



3.6.2. 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 no reserve forest present in the project site. 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.3.59. The list of bird species recorded during the field survey and literature from the study area are given in Table 3.60. The list of reptilian species recorded during the field survey and literature from the study area is given in Table 3.61. The list of insect species recorded during the field survey and literature from the study area are given in Table 3.62. The list of Butterflies species recorded during the field survey and literature from the study area are given in Table 3.63. 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 67 species recorded were from the buffer zone area. Based on habitat classification the majority of species were birds 25, followed by Butterflies 15, Reptiles 10, Insects 5, Mammals 8, and Amphibians 4. There are four 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 25 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 amphibians 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 3.58. List of Fauna & Their Conservation Status, Mammals: (*directly sighted animals & Secondary data)

SI. 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 3.59. Listed birds (*directly sighted animals & 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>Corvus splendens</i>	House crow	Schedule V
4.	<i>Dicrurus macrocercus</i>	Black Drongo	Schedule IV
5.	<i>Halcyon smyrnensis</i>	White-breasted kingfisher	Schedule IV
6.	<i>Bubulcus ibis</i>	Cattle Egret	Schedule IV
7.	<i>Hypsipetes madagascariensis</i>	Black bulbul	Schedule IV
8.	<i>Columba livia</i>	Rock pigeon	Schedule IV
9.	<i>Acridotheres tristis</i>	Common myna	Schedule IV
10.	<i>Psittacula krameri</i>	Rose ringed parakeet	Schedule IV
11.	<i>Coturnix coturnix</i>	Grey quail	Schedule IV
12.	<i>Passer domesticus</i>	House Sparrow	Schedule IV
13.	<i>Pycnonotus cafer</i>	Red vented Bulbul	Schedule IV
14.	<i>Accipiter badius</i>	Shikra	Schedule IV
15.	<i>Cuculus canorus</i>	Cuckoo	Schedule IV
16.	<i>Merops orientalis</i>	Small green bee eater	Schedule IV

17.	<i>Nectarinia minima</i>	Small sunbird	Schedule IV
18.	<i>Ardeola grayii</i>	Pond Heron	Schedule IV
19.	<i>Spilopelia chinensis</i>	Spotted dove	Schedule IV
20.	<i>Egretta garzetta</i>	Little Egret	Schedule IV
21.	<i>Apus apus</i>	Common swift	Schedule IV
22.	<i>Ardea cinerea</i>	Grey heron	Schedule IV
23.	<i>Megalaima zeylanica</i>	Brown-headed barbet	Schedule IV
24.	<i>Eudynamys scolopacea</i>	Koel	Schedule IV
25.	<i>Coracias benghalensis</i>	Indian roller	Schedule IV

Table 3.60. List of Reptiles either spotted or reported from the study area (Primary and 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>Vipera russeli</i>	Russell's viper	Sch II (Part II)
9.	<i>Nerodia piscator</i>	Fresh water snake	Sch III (Part II)
10.	<i>Groemyda bijuga</i>	Fresh water tortoise	Sch III (Part II)

Table 3.61. List of insects either spotted or reported from the study area

SI. No	Scientific Name	Common Name	IUCN Conservation Status
1.	<i>Apis cerana</i>	Indian honey bee	-
2.	<i>Hamitermes silvestri</i>	Termite	NE
3.	<i>Hieroglyphus sp</i>	Grasshopper	NL
4.	<i>Camponotus Vicinus</i>	Ant	NL
5.	<i>Ceratogomphus pictus</i>	Dragonfly	-

Table.3.62. List of Butterflies identified from the project site and their conservation status (Primary 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	-
15.	<i>Neptis hylas</i>	Neptis hylas	-



a. *Calotes versicolor*



b. *Corvus splendens*



c. *Zizina Otis indica*



d. *Ceratogomphus pictus*



e. *Sympetrum fonscolombii*



f. *Dicrurus macrocerus*



g. *Danainae*



h. *Alcedo atthis*



i. Picidae



j. *Psittacula krameri*

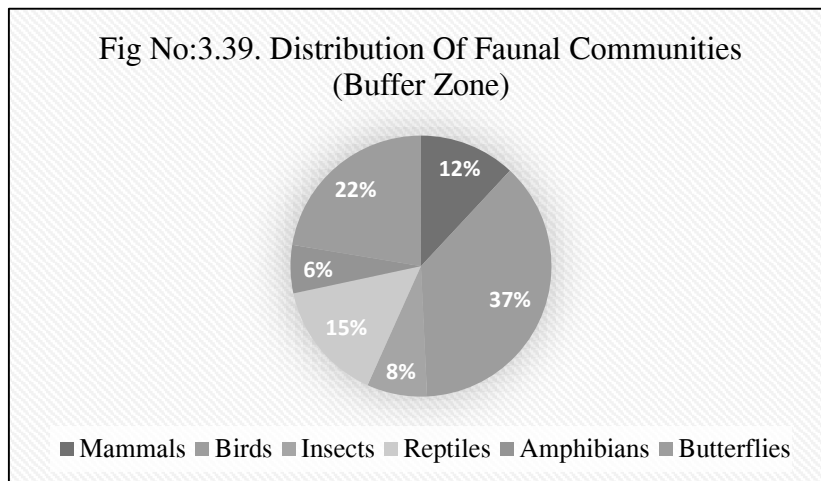


k. *Merops orientalis*



l. *Acridotheres tristis*

Fig No: 3.38. Flora species observation in the Buffer zone area

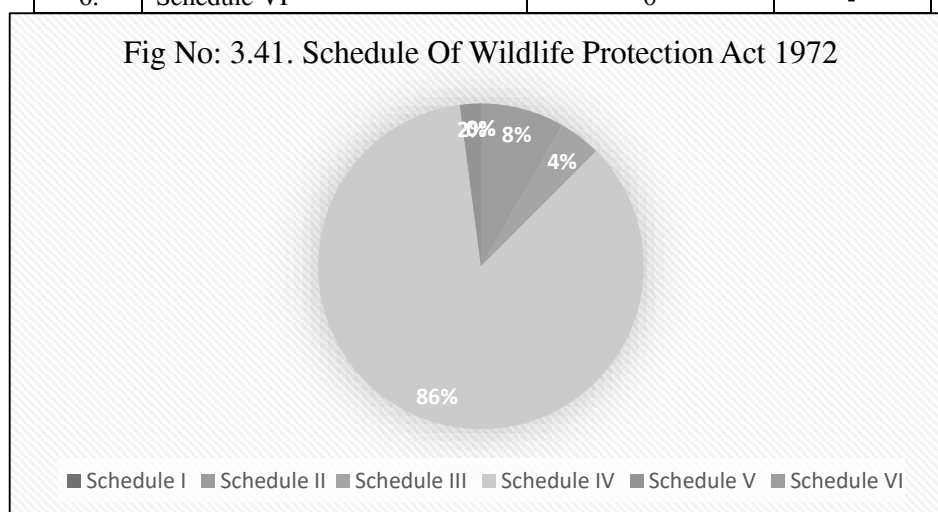


Livestock like cattle, buffalo, goat, poultry, duck and pig are reared for dairy products, meat, and egg and for agriculture purpose. Majority of cattle and buffalo are of local variety. Backyard poultry farms are mostly common in this area; however, some commercial poultry farms are also recorded in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

The study area is marked with moderate population of flora and fauna. With reference to the Wildlife Protection Act 1972 total number of wildlife tabulated in this study can be characterized as given in the Table 3.63.

Table No: 3.63 Characterization of Fauna in the Study Area (As Per W.P Act, 1972)

S.No	Schedule of Wildlife Protection Act 1972	No. of species	Remark
1.	Schedule I	0	-
2.	Schedule II	4	-
3.	Schedule III	2	-
4.	Schedule IV	39	-
5.	Schedule V	1	-
6.	Schedule VI	0	-

Fig No: 3.41. Schedule Of Wildlife Protection Act 1972**Table 3.64: 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 3.64 are the species recorded/reported from the study area, out of which 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. Aquatic Ecology

Mining activities will not have an impact on aquatic ecosystems because no effluent discharge from the Rough stone and gravel quarry is planned. There are no natural perennial surface water bodies, such as marshes, rivers, streams, lakes, or agricultural sites, inside the mining lease area. The study region contains a few seasonal bodies of water. There is no aquatic flora and, aquatic fauna. Hence, it does not harbour any significant aquatic life. Therefore, the project is not likely to affect the aquatic ecology. 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.

3.7.1. Objectives of Aquatic Studies

- ❖ Generating data through actual field collection in these locations over the study period;
- ❖ Impacts on aquatic fauna/flora
- ❖ Consulted with locals to obtain knowledge about aquatic flora and animals.

3.7.2. Macrophytes

The macrophytes observed within the study area are tabulated in Table 3.65

Table No.3.65 Description of Macrophytes

Sl. No	Scientific name	Common Name	Vernacular Name (Tamil)	IUCN Red List of Threatened Species
1.	Eichornia crassipe	Water hyacinth	Agayatamarai	NA
2.	Aponogeton natans	Floating lace plant	Kottikizhnagu	NA
3.	Nymphaea nouchali	Blue water lily	Nellambal	LC
4.	Typha angustifolia	Sambu	Narrowleaf cattail	LC
5.	Carex cruciata	Cross Grass	Koraipullu	NA
6.	Cyperus exultates	Tall Flat Sedge	Koraikizhangu	LC

Sources: Species observation in the field study

3.7.3. 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 3.66. List of Amphibians either spotted or reported from the study area

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

3.5.1. Fishes

Fish is commonly found in all types of natural water bodies and very common source of food in Eastern South India. The local fishermen were enquired and also the secondary resources were reviewed to collect information on the fishes found in the study area. Few common species are; Catla, Mrigal, Ticto barb, Greenstripe barb, Roho and Pool barb etc., Species of fish reported in the study area are given in table 3.67. During the field investigation, all of the lakes were quite dry. Only the lakes gather fish data.

Table 3.67. Based on Actual Sighting, based on inputs from locals and Perused from Secondary Data

S. No	Common name	Scientific name	Family
-------	-------------	-----------------	--------

1.	Ticto barb	Pethia ticto	Cyprinidae
2.	Mrigal	Cirrhinus mrigala	Chordata
3.	Rohu	Labeo rohita	Cyprinidae
4.	Catfish	Siluriformes	Diplomystidae
5.	Greenstripe barb	Puntius vittatus	Cyprininae
6.	Pool barb	Puntius sophore	Cyprinidae

Sources:

Invasive Alien Species | IUCN

Ali, S. (2002). The Book of Indian Birds (13th revised edition). Oxford University Press, New Delhi. 326pp.

Ali, S and Ripley, S.D. 1969. Handbook of the Birds of India and Pakistan together with those of Nepal, Sikkim, Bhutan and Ceylon.3. Stone Curlews to Owls. Oxford University Press, Bombay, 327pp.

Bird Life International 2012. In: IUCN 2012. IUCN Red List of Threatened Species. Version 2012.

<http://www.indiaenvironmentportal.org.in/files/file/wildlife%20protection%20amendment%20act%202022.pdf>

3.10. Findings/Results

The assessment was carried out during the Summer 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	Nil
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.

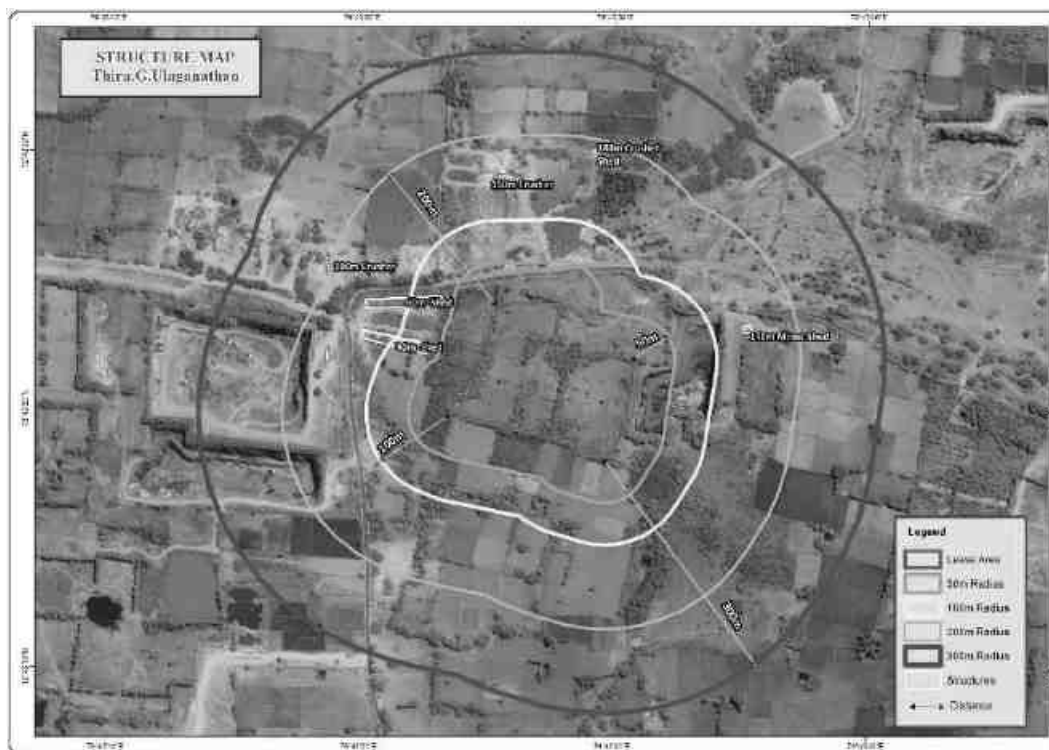
3.6 SOCIO ECONOMIC ENVIRONMENT

Socio-economic study is an essential part of environmental study. It includes demographic structure of the area, provision of basic amenities viz., housing, education, health and medical services, occupation, water supply, sanitation, communication, transportation, prevailing diseases pattern as well as feature like temples, historical monuments etc., at the baseline level. This will help in visualizing and predicting the possible impact depending upon the nature and magnitude of the project. It is expected that the Socio-Economic Status of the area will substantially improve because of this proposed project. As the proposed project will provide direct and indirect employment and improve the infrastructural facilities in that area and, thus, improve their standard of living.

STRUCTURE STUDY IN 300m RADIUS

There are no structures within the radius of 300m from the project site.

FIGURE 3.29: STRUCTURE MAP 300m RADIUS



Enumeration of Structures from 0 - 300m Radius						
Structure Numbers	Distance & Direction from the project site	Structure Details and Usage Purpose	Type of Structure Structures (Kutcha/ Brick/ Cement/ RCC/ Framed Structures)	No.of Occupants	Structure belongs to owner (Yes/No)	Remarks
1	60m – West	Shed	Sheet Structure	Nil	No	Used to Agriculture storage only – No Stay

2	80m – West	Shed	Sheet Structure	Nil	No	Used to Agriculture storage only – No Stay
3	140m-East	Mines Shed	Sheet Structure	Nil	No	Used to store mine equipment's– No Stay
4	150m – North	Crusher	Frames Structure	Nil	No	Used to make M-Sand, P-Sand & Jelly
5	180m – North	Crusher Shed	Sheet Structure	Nil	No	Used to store Crusher Materials – No Stay
6	200m – NW	Crusher	Frames Structure	Nil	No	Used to make M-Sand, P-Sand & Jelly

3.6.1 Objectives of the Study

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

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

3.6.2 Scope of Work

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

3.6.3 District Profile

Tiruvannamalai district is divided into 12 taluks. The taluks are further divided into 18 blocks, which further divided into 860 villages. In 2011, Tiruvannamalai had population of 24,64,875 of which male and female were 12,35,889 and 12,28,986 respectively. In 2001 census, Tiruvannamalai had a population of 21,86,125 of which males were 10,95,859 and remaining 10,90,266 were females. Tiruvannamalai District population constituted 3.42 % of total Maharashtra population. In 2001 census, this figure for Tiruvannamalai District was at 3.50 % of Maharashtra population.

There was change of 12.75 % in the population compared to population as per 2001. In the previous census of India 2001, Tiruvannamalai District recorded increase of 7.01 % to its population compared to 1991.

3.6.4 Study area:

SITHALAPAKAM VILLAGE

Sithalapakam village is situated in Teshil Cheyyar, District Tiruvannamalai and in State of Tamil Nadu India. Village has population of 589 as per census data of 2011, in which male population is 284 and female population is 305. Total geographical area of Sithalapakam village is 182.72 Hectares. Population density of Sithalapakam is 3 persons per Hectares. Total number of house hold in village is 145.

Gram Panchayat name of the Sithalapakam village is Arasanipalai. CD Block name is Vembakkam and Teshil/Taluk or sub-district is Cheyyar. Data Reference year is 2009 of Census 2011. Sub District HQ Name is

TIRUVETHIPURAM and Sub District HQ Distance is 35 Km from the village. District Head Quarter name is TIRUVANNAMALAI and it's distance from the village is 130KM. Nearest Town of the Sithalapakam village is UTHIRAMERUR and nearest town distance is 17 km. Pincode of Sithalapakam village is 631702. As per census 2011 village code of village Sithalapakam is 631298.

Sex Ratio of Sithalapakam Village -Census 2011

As per the Census Data 2011 there are 1074 Femals per 1000 males out of 589 total population of village. There are 1200 girls per 1000 boys under 6 years of age in the village

Literacy of Sithalapakam Village

Out of total population total 298 people in Sithalapakam Village are literate, among them 170 are male and 128 are female in the village. Total literacy rate of of Sithalapakam is 58.2%, for male literacy is 68.27% and for female literacy rate is 48.67%..

Worker's profile of Sithalapakam Village

Total working population of Sithalapakam is 277 which are either main or marginal workers. Total workers in the village are 277 out of which 160 are male and 117 are female. Total main workers are 138 out of which female main workers are 108 and male main workers are 30. Total marginal workers of village are 139.

TABLE 3.32: SITHALAPAKAM VILLAGE CENSUS 2011 DATA

Description	Census 2011 Data
Village Name	Sithalapakam
Teshil Name	Vembakkam
District Name	Tiruvannamalai
State Name	Tamil Nadu
Total Population	589
Total Area	183(Hectares)
Total No of House Holds	145
Total Male Population	284
Total Female Population	305
0-6 Age group Total Population	77
0-6 Age group Male Population	35
0-6 Age group Female Population	42
Total Person Literates	298
Total Male Literates	170
Total Female Literates	128
Total Person Illiterates	291
Total Male Illiterates	114
Total Female Illiterates	177
Scheduled Cast Persons	9
Scheduled Cast Males	3
Scheduled Cast Females	6
Scheduled Tribe Persons	0
Scheduled Tribe Males	0
Scheduled Tribe Females	0

Source:<https://etrace.in/census/village/sithalapakam-cheyyar-district-tiruvannamalai-tamil-nadu-31298>

TABLE 3.33 SITHALAIPAKAM WORKING POPULATION ---CENSUS 2011

	Total	Male	Female
Total Workers	277	160	117
Main Workers	138	108	30
Main Workers Cultivators	36	27	9
Agriculture Labourer	37	21	16
Household Industries	8	7	1
Other Workers	57	53	4
Marginal Workers	139	52	87
Non-Working Persons	312	124	188

Source: <https://etrace.in/census/village/sithalapakam-cheyyar-district-tiruvannamalai-tamil-nadu-631298>

TABLE 3.34: POPULATION DATA OF STUDY AREA

Sl.No.	Village Name	No of House Holds	Total Population	Male	Female	Total Literate Population	Male Literate	Female Literate	Total Illiterate Population	Male Illiterate	Female Illiterate
1	Adavapakkam	185	765	396	369	499	258	241	8	6	2
2	Arasanipalai	287	1155	581	574	418	208	210	0	0	0
3	Arpakkam	731	2937	1475	1462	1626	808	818	320	171	149
4	Bagavanthapuram	182	777	386	391	0	0	0	7	3	4
5	Dharmacheri	32	103	55	48	0	0	0	0	0	0
6	Ezhacheri	491	2080	1065	1015	770	399	371	25	15	10
7	Girijapuram	61	243	122	121	0	0	0	0	0	0
8	Kalakattur	664	2539	1288	1251	59	25	34	172	89	83
9	Kannikulam	172	727	372	355	421	214	207	23	12	11
10	Karuveppampoondi	436	1652	846	806	844	434	410	19	12	7
11	Kizhnaickanpalayam	141	544	264	280	283	133	150	0	0	0
12	Kundiyanthandalam	170	703	351	352	381	182	199	0	0	0
13	Magaral	709	2834	1399	1435	1777	895	882	36	16	20
14	Mathur	392	1628	817	811	1022	494	528	0	0	0
15	Menallur	363	1444	711	733	650	322	328	0	0	0
16	Nemili	617	2788	1408	1380	958	485	473	38	20	18
17	Ozhugarai	322	1240	613	627	488	249	239	0	0	0
18	Pallavaram	423	1743	865	878	384	200	184	25	14	11
19	Pavoor	308	1370	688	682	1050	530	520	0	0	0
20	Perumanallur	117	438	203	235	12	5	7	18	7	11
21	Poonathangal	80	277	132	145	0	0	0	0	0	0
22	Pudupalayam	214	853	407	446	474	228	246	0	0	0
23	Punnai	194	707	338	369	264	128	136	14	7	7
24	Seniyanallur	91	373	183	190	0	0	0	0	0	0
25	Silambakkam	114	461	244	217	0	0	0	11	5	6
26	Sirunallur	550	2163	1079	1084	791	394	397	10	5	5
27	Sothiyampakkam	288	1185	599	586	375	189	186	0	0	0
28	Suruttal	304	1266	659	607	7	5	2	2	0	2
29	Vadakalpakkam	291	1222	628	594	605	310	295	46	28	18
30	Vayalathur	117	505	257	248	313	158	155	7	3	4
31	Vazhavandal	115	444	229	215	68	40	28	104	58	46
32	Vedal	217	906	463	443	7	3	4	13	7	6
33	Vengacheri	195	753	379	374	1	1	0	45	20	25
34	Vengaram	48	176	89	87	86	42	44	0	0	0

Source: www.censusindia.gov.in - Tamilnadu Census of India – 2011

TABLE 3.35: WORKERS PROFILE OF STUDY AREA

Sl.No.	Village Name	Total Workers Population	Male Workers	Female Workers	Total Main Workers	Main Workers Male	Main Workers Female	Main Cultivation Workers	Main Agriculture Workers	Main Other Workers	Non-Worker Population
1	Adavakkam	441	247	194	432	241	191	20	266	141	324
2	Arasanipalai	466	305	161	367	261	106	82	200	78	689
3	Arpakkam	1269	819	450	1117	782	335	129	436	529	1668
4	Bagavanthapuram	345	237	108	341	236	105	116	97	125	432
5	Dharmacheri	78	38	40	77	37	40	6	57	13	25
6	Ezhacheri	1134	655	479	1130	654	476	259	584	276	946
7	Girijapuram	156	75	81	148	73	75	45	48	38	87
8	Kalakattur	1625	897	728	1321	771	550	268	343	463	914
9	Kannikulam	265	232	33	264	232	32	66	128	64	462
10	Karuveppampondi	787	467	320	782	464	318	41	588	147	865
11	Kizhnaickanpalayam	391	198	193	101	62	39	11	36	43	153
12	Kundiyanthandalam	254	200	54	97	76	21	4	2	90	449
13	Magaral	1501	821	680	427	287	140	53	182	189	1333
14	Mathur	837	528	309	625	403	222	31	21	565	791
15	Menallur	584	418	166	458	323	135	67	170	180	860
16	Nemili	1022	693	329	998	681	317	7	31	927	1766
17	Ozhugarai	544	355	189	392	273	119	114	140	137	696
18	Pallavaram	863	561	302	648	472	176	172	187	259	880
19	Pavoor	607	413	194	601	410	191	85	265	245	763
20	Perumanallur	319	165	154	216	113	103	25	83	105	119
21	Poonaitthangal	108	89	19	99	82	17	13	44	39	169
22	Pudupalayam	456	264	192	454	263	191	44	246	150	397
23	Punnai	496	244	252	464	224	240	18	327	115	211
24	Seniyanallur	234	120	114	125	100	25	59	13	47	139
25	Silambakkam	197	144	53	194	142	52	156	25	13	264
26	Sirunallur	1317	696	621	416	251	165	23	278	107	846
27	Sothiyampakkam	711	377	334	704	374	330	171	281	250	474
28	Suruttal	762	437	325	599	411	188	104	309	182	504
29	Vadakalpakkam	736	388	348	508	295	213	10	285	204	486
30	Vayalathur	210	140	70	209	140	69	24	121	64	295
31	Vazhavandal	232	128	104	48	33	15	6	13	28	212
32	Vedal	534	285	249	510	281	229	23	162	320	372
33	Vengacheri	355	217	138	177	151	26	46	13	118	398
34	Vengaram	62	52	10	62	52	10	36	18	6	114

Source: www.censusindia.gov.in – Tamil Nadu Census of India – 2011

TABLE 3.36: EDUCATIONAL FACILITIES IN THE STUDY AREA

SI	Village Name	PPS		PS		MS		SS		SSS		DC		EC		MC		MI		PT		VTS		SSD	
		G	P	G	P	G	P	G	P	G	P	G	P	G	P	G	P	G	P	G	P	G	P	G	P
1	Adavakkam	1	1	1	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
2	Arasanipalai	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
3	Arpakkam	1	1	1	2	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
4	Bagavanthapuram	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
5	Dharmacheri	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
6	Ezhacheri	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
7	Girijapuram	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
8	Kalakattur	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
9	Kannikulam	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2
10	Karuveppampondi	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
11	Kizhnaickanpalayam	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
12	Kundiyanthandalam	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
13	Magaral	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
14	Mathur	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1
15	Menallur	1	2	1	2	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
16	Nemili	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
17	Ozhugarai	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
18	Pallavaram	1	2	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
19	Pavoor	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
20	Peumanallur	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
21	Poonaitthangal	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
22	Pudupalayam	1	2	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
23	Punnai	1	2	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
24	Seniyallur	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
25	Silambakkam	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
26	Sirunallur	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
27	Sothiyampakkam	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
28	Suruttal	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
29	Vadakalpakkam	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
30	Vayalathur	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
31	Vazhavandal	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
32	Vedal	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
33	Vengacheri	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
34	Vengaram	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2

Abbreviations: PPS-Pre Primary School; SSS-Senior Secondary School; DC-Degree School; PT-Polytechnic; PS-Primary School; G-Government; EC-Engineering College; VTS-Vocational School /ITI; MS-Middle School; P-Private; MC-Medical College; SSD-Special School For Disabled; SS-Secondary School; MI-Management College/Institute;

Note – 1 - Available within the village; 2 - Not available

TABLE 3.37: MEDICAL FACILITIES IN THE STUDY AREA

Sl. No.	Village Name	CHC	PHC	PHSC	MCW	TBC	HA	HAM	D	VH	MHC	FWC	NGM-I/O
1	Adavapakkam	0	0	1	0	0	0	0	0	0	0	0	13
2	Arasanipalai	0	0	0	0	0	0	0	0	0	0	0	4
3	Arpakkam	0	0	1	0	0	0	0	0	0	0	0	7
4	Bagavanthapuram	0	0	0	0	0	0	0	0	0	0	0	2
5	Dharmacheri	0	0	0	0	0	0	0	0	0	0	0	5
6	Ezhacheri	0	1	1	1	1	0	0	1	1	0	1	0
7	Girijapuram	0	0	0	0	0	0	0	0	0	0	0	4
8	Kalakattur	0	0	1	0	0	0	0	0	1	0	0	10
9	Kannikulam	0	0	0	0	0	0	0	0	0	0	0	10
10	Karuveppampoondi	0	0	1	0	0	0	0	0	0	0	0	7
11	Kizhnaickanpalayam	0	0	0	0	0	0	0	0	0	0	0	4
12	Kundiyanthandalam	0	0	0	0	0	0	0	0	0	0	0	3
13	Magaral	0	0	1	0	0	0	0	0	1	0	0	7
14	Mathur	0	0	0	0	0	0	0	0	0	0	0	3
15	Menallur	0	0	0	0	0	0	0	0	0	0	0	3
16	Nemili	0	0	0	0	0	0	0	0	0	0	0	7
17	Ozhugarai	0	0	0	0	0	0	0	0	0	0	0	8
18	Pallavaram	0	0	0	0	0	0	0	0	0	0	0	8
19	Pavoor	0	0	0	0	0	0	0	0	0	0	0	2
20	Perumanallur	0	0	0	0	0	0	0	0	0	0	0	8
21	Poonathangal	0	0	0	0	0	0	0	0	0	0	0	3
22	Pudupalayam	0	0	1	1	0	0	0	0	0	0	0	5
23	Punnai	0	0	0	0	0	0	0	0	0	0	0	3
24	Seniyanallur	0	0	0	0	0	0	0	0	0	0	0	3
25	Silambakkam	0	0	0	0	0	0	0	0	0	0	0	5
26	Sirunallur	0	0	0	0	0	0	0	0	0	0	0	5
27	Sothiyampakkam	0	0	0	0	0	0	0	0	0	0	0	3
28	Suruttal	0	0	1	1	0	0	0	0	0	0	0	5
29	Vadakalpakkam	0	0	1	0	0	0	0	0	0	0	0	6
30	Vayalathur	0	0	0	0	0	0	0	0	0	0	0	6
31	Vazhavandal	0	0	0	0	0	0	0	0	0	0	0	6
32	Vedal	0	0	0	0	0	0	0	0	0	0	0	3
33	Vengacheri	0	0	0	0	0	0	0	0	0	0	0	8
34	Vengaram	0	0	0	0	0	0	0	0	0	0	0	8

Abbreviations: CHC-Community Health Centre; TBC-TB Clinic; VH- Vetrinity Hospital; PHC-Primary Health Centre; HA-Aallopathic Hospital; FWC-Family Welfare Centre; PHSC-Primary Health Sub Centre; HAM-Alternative Medicine Hospital; MH-Mobile Health Clinic; MCW-Maternity and Child Welfare Centre; D-Dispensary; NGM-I/O-Non Government Medical Facilities In & Out Patient

Note – 1 - Available within the village; 2 - Not available a-facility available at <5kms b-facility available at>10kms

Source: www.censusindia.gov.in - Tamilnadu Census of India – 2011

3.6.6 Recommendation and Suggestion

- The main activities in the area are agriculture, quarry operation and Crushing units there are 6 Numbers of quarries operated in the region and now only 5 quarry is operating at present which is expired lease period in 2023 October. Hence starting up of new mine in this region is necessary at current scenario
- 5 number of Crushers operating within 1km and the demand of Rough stone is high to the crushing units 100 Nos of people depending upon the Crushing units in the area and crushers are meeting scarcity due to supply demand in the region.
- Due to the project about 20 Nos of people will benefitted directly due to employment and more than 50 Nos of people and Crushers will benefitted through this project
- As part of CER activities proponent intends to spend Rs 5 Laksh for the improvement of School sanitation facilities, Greenbelt development and other needs.
- At the end of the life of the mine the mined-out pit will act as temporary reservoir, the collected rain water in the mine pit may utilized for the nearby agriculture lands.

Apart from the following general activities will be conducted

- Awareness program to be conducted to make the population aware to get education and a better livelihood.
- Vocational training programme can be organized to make the people self - employed, particularly for women and unemployed youth.
- On the basis of qualification and skills local community may be preferred. Long term and short-term employments can be generated.
- While developing an Action Plan, it is very important to identify the population who falls under the marginalized and vulnerable groups. So that special attention can be given to these groups with special provisions while making action plans.

3.6.7 Summary & Conclusion

The socio-economic study of surveyed villages gives a clear picture of its population, average household size, literacy rate and sex ratio etc. It is also found that a part of population is suffering from lack of permanent job to run their day-to-day life. Their expectation is to earn some income for their sustainability on a long-term basis. The proposed project will aim to provide preferential employment to the local people there by improving the employment opportunity in the area and in turn the social standards will improve.

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.

Several scientific techniques and methodologies are available to predict impacts of physical environment. Mathematical models are the best tools to quantitatively describe the cause-and-effect relationships between sources of pollution and different components of environment. In cases where it is not possible to identify and validate a model for a particular situation, predictions have been arrived at based on logical reasoning / consultation / extrapolation.

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:

4.1.2 Anticipated Impact

- 1.72.0 Ha of the land will be under mining since the Permanent or temporary change on land use and land cover will occur
- Movement of heavy vehicles sometimes cause problems to agricultural land, human habitations due to dust, noise and it also causes traffic hazards.
- Due to degradation of land by pitting the aesthetic environment of the core zone may be affected.
- Earthworks during the rainy season increase the potential for soil erosion and sediment laden water entering the water ways.

If no due care is taken wash off from the exposed working area may choke the water course & can also causes the siltation of water course

4.1.2 Mitigation Measures

- The 1.72.0 Ha of the land will be converted into temporary reservoir which will full fill the water scarcity in the drought season and the nearby agriculture land will benefitted by the supply of water
- About 1200 Nos of trees will be planted in the lease area and approach road will retain the eco system
- The mining activity will be gradual confined in blocks and excavation will be undertaken progressively along with other mitigative measures like phase wise development in the production
- Construction of garland drains all around the quarry pits and construction of silt trap at strategic location in lower elevations to prevent erosion due to surface runoff during rainfall and also to collect the storm water for various uses within the proposed area.
- Green belt development along the boundary within safety zone. The small quantity of water stored in the mined-out pit will be used for greenbelt.
- Thick plantation will be carried out on unutilized area, top benches of mined out pits, on safety barrier, etc.,
- Fencing will be constructed before starting the mining operation and it will be maintained in the conceptual stage Security will be posted round the clock, to prevent inherent entry of the public and cattle.

4.1.3 Soil Environment

4.1.4 Impact on Soil Environment

- Removal of vegetation cover
- Soil Erosion in the project site during rainy season due to quarry operation

4.1.5 Mitigation Measures

- Garland drains will be constructed all around the project boundary to prevent surface flows from entering the quarry. And will be discharged into vegetated natural drainage lines, or as distributed flow across an area stabilised against erosion.
- Sedimentation ponds - Run-off from working areas will be routed towards sedimentation ponds (Silt pond). These trap sediment and reduce suspended sediment loads before runoff is discharged from the quarry site. Sedimentation ponds should be designed based on runoff, retention times, and soil characteristics. There may be a need to provide a series of sedimentation ponds to achieve the desired outcome.
- Retain vegetation – Retain existing or re-plant the vegetation at the site wherever possible.
- Monitoring and maintenance – Weekly monitoring and daily maintenance of erosion control systems so that they perform as specified specially during rainy season.

4.1.6 Waste Dump Management

There is no waste anticipated in this Rough Stone and gravel quarrying operation. The entire quarried out materials will be utilized (100%).

4.2 WATER ENVIRONMENT

4.2.1 Anticipated Impact

- The major sources of water pollution normally associated due to mining and allied operations are:
 - Generation of waste water from vehicle washing.
 - Washouts from surface exposure or working areas
 - Domestic sewage
 - Disturbance to drainage course in the project area
 - Mine Pit water discharge
 - Increase in sediment load during monsoon in downstream of lease area
 - This being a mining project, there will be no process effluent. Waste from washing of machinery may result in discharge of Oil & grease, suspended solids.
-
-

-
- The sewage from soak pit may percolate to the ground water table and contaminate it.
 - Surface drainage may be affected due to Mining
 - Abstraction of water may lead to depletion of water table
 - 1.5 KLD water will be utilized for the quarrying operation

4.2.2 Mitigation Measures

- Water for the quarrying operation such as sprinkling on haul roads, Greenbelt development will be sourced from the lower part of the mine pit which is specifically allotted to collect the rain water.
- Garland drain, settling tank will be constructed along the proposed mining lease area. The Garland drain will be connected to settling tank and sediments will be trapped in the settling traps and only clear water will be discharged out to the natural drainage
- Rainwater will be collected in sump in the mining pits 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 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 system.
- Periodic (every 6 month once) 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.
- Waste water 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.

4.3 AIR ENVIRONMENT

4.3.1. Anticipated Impact

- During mining, at various stages activities such as excavation, drilling, blasting, and transportation of materials, particular matter (PM), gases such as Sulphur dioxide, oxides of Nitrogen from vehicular exhaust are the main air pollutants.
- Emissions of noxious gases due to incomplete detonation of explosive may sometimes pollute the air.
- The fugitive dust released from the mining operations may cause effect on the mine workers who are directly exposed to the fugitive dust.
- Simultaneously, the air-borne dust may travel to longer distances and settle in the villages located near the mine lease area.

4.3.1.1. Modelling of Incremental Concentration from all Proposed Projects

Wind erosion of the exposed areas and the air borne particulate matter generated by quarrying operation, and transportation are mainly PM₁₀ & PM_{2.5} and emissions of Sulphur dioxide (SO₂) & Oxides of Nitrogen (NO_x) due to excavation/loading equipment and vehicles plying on haul roads are the cause of air pollution in the project area.

Similarly, loading - unloading and transportation of Rough Stone, wind erosion of the exposed area and movement of light vehicles causes of pollution. This leads to an impact on the ambient air environment around the project area.

Anticipated incremental concentration due to this quarrying activity and net increase in emissions due to quarrying activities within 500 meters around the project area is predicted by Open Pit Source modelling using

AERMOD Software.

Prediction of impacts on air environment has been carried out taking into consideration cumulative production all the quarries fall in the Cluster. Air environment and net increase in emissions by Open pit source modelling in AERMOD Software AERMOD 9.61.

4.3.2.1 Emission Estimation

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 Rough Stone. 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.

4.3.2 Frame work of Computation & Model details

Suspended Particulate Matter (SPM) is the major pollutant occurred during quarrying activities. The prediction included the impact of Excavation, Drilling, Blasting (Occasionally), loading and movement of vehicles during transportation and meteorological parameters such as wind speed, wind direction, temperature, rainfall, humidity and Cloud cover.

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

TABLE 4.1: ESTIMATED EMISSION RATE

PM ₁₀			
Activity	Source type	Value	Unit
Drilling	Point Source	0.078815466	g/s
Blasting	Point Source	0.000735651	g/s
Mineral Loading	Point Source	0.042169729	g/s
Haul Road	Line Source	0.00249146	g/s/m
Overall Mine	Area Source	0.055785960	g/s
SO ₂			
Activity	Source type	Value	Unit
Overall Mine	Area Source	0.000618734	g/s
NO _x			
Overall Mine	Area Source	0.000032978	g/s

FIGURE 4.1: AERMOD TERRAIN MAP

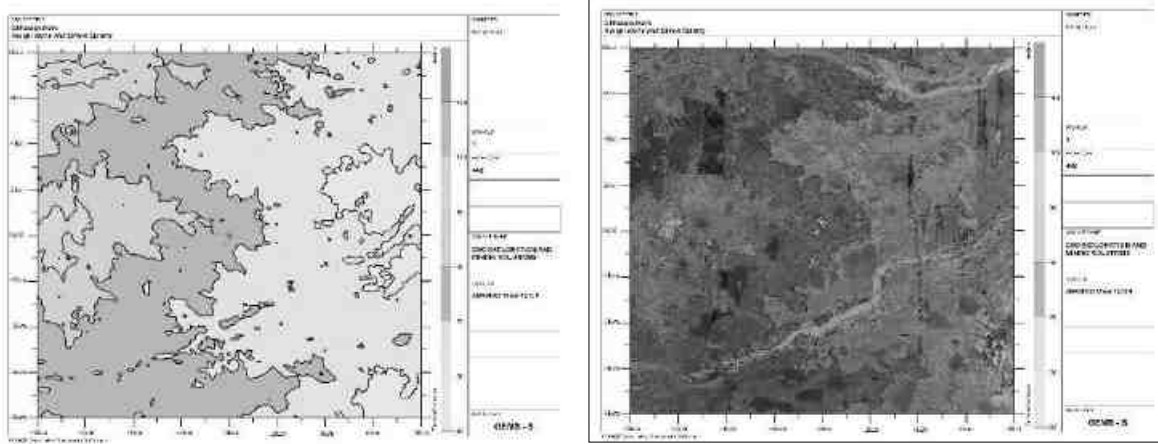


FIGURE 4.2: PREDICTED INCREMENTAL CONCENTRATION OF PM₁₀

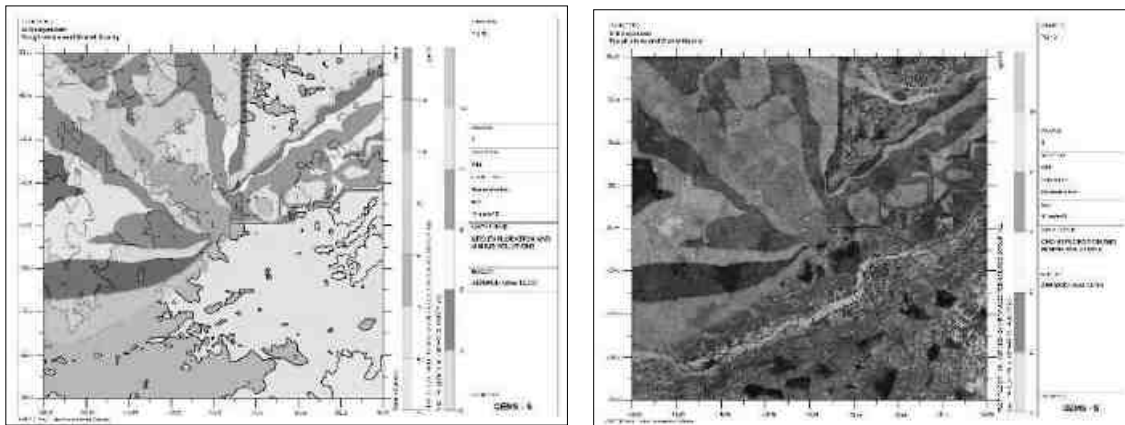


FIGURE 4.3: PREDICTED INCREMENTAL CONCENTRATION OF PM_{2.5}

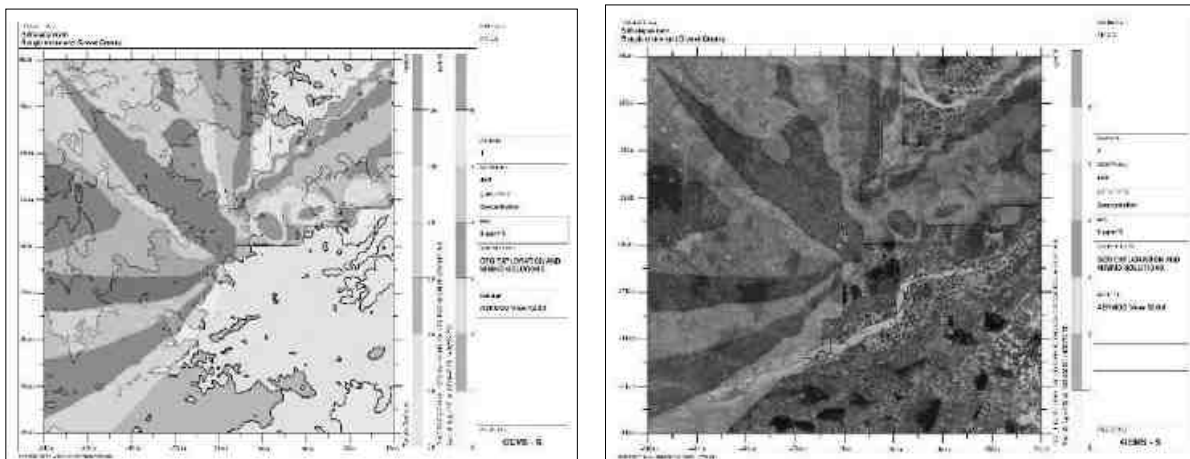


FIGURE 4.4: PREDICTED INCREMENTAL CONCENTRATION OF NO_x

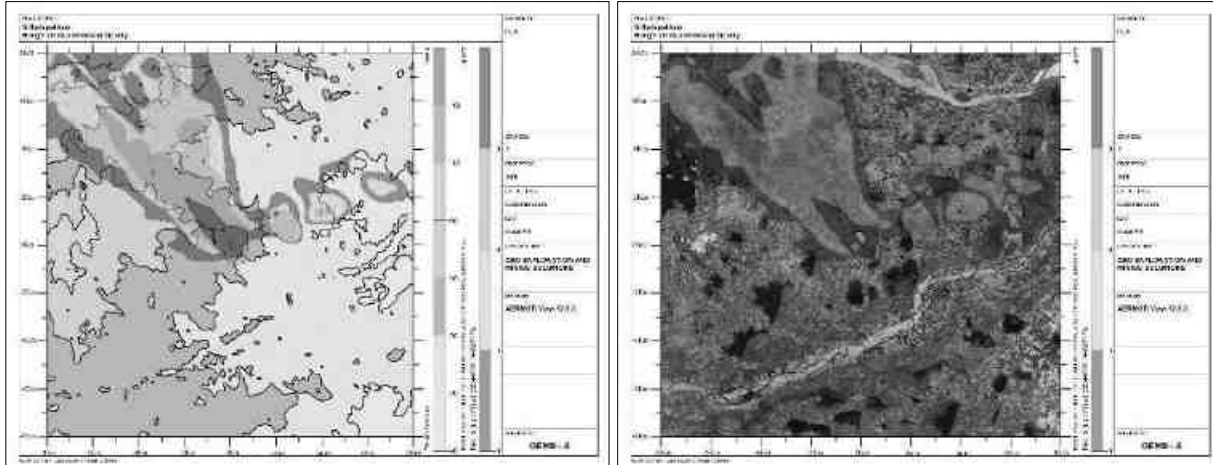


FIGURE 4.5: PREDICTED INCREMENTAL CONCENTRATION OF SO₂

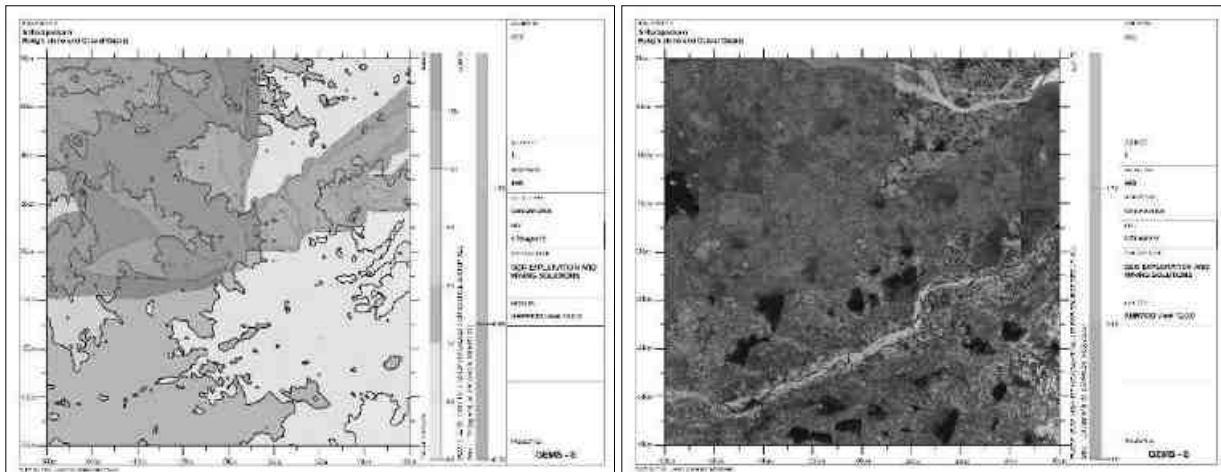
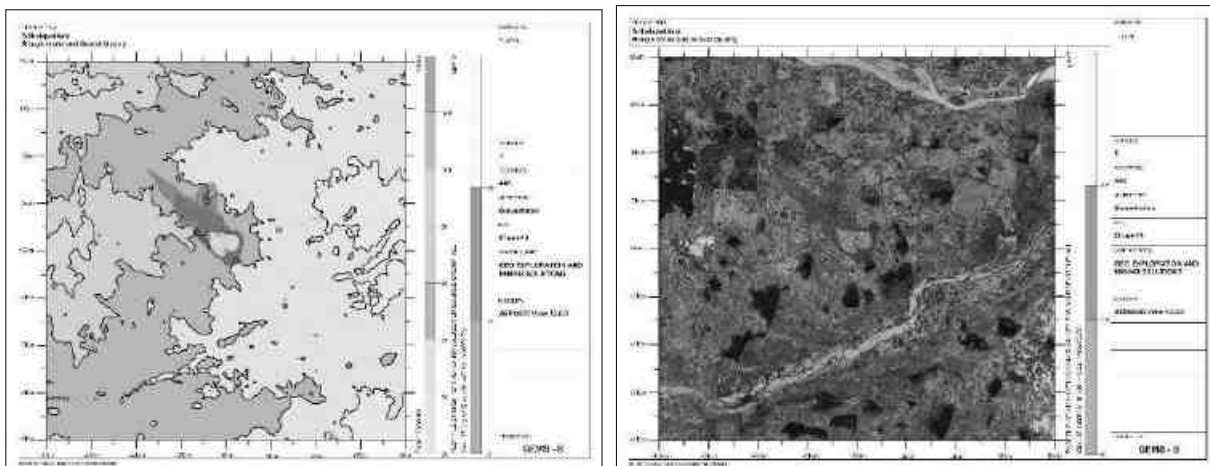


FIGURE 4.6: PREDICTED INCREMENTAL CONCENTRATION OF FUGITIVE DUST



4.3.2.1 Model Results

The post project Resultant Concentrations of PM₁₀, PM_{2.5}, SO₂ & NO_x (GLC) is given in Table below:

TABLE 4.2: INCREMENTAL & RESULTANT GLC OF PM₁₀

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline PM ₁₀ (µg/m ³)	Incremental value of PM ₁₀ due to mining (µg/m ³)	Total PM ₁₀ (µg/m ³)
AAQ1	12°43'18.52"N 79°43'29.41"E	55	-67	44.7	14.82	59.52
AAQ2	12°43'23.75"N 79°43'25.69"E	-59	92	44.3	14.39	58.69
AAQ3	12°43'7.44"N 79°43'20.72"E	-209	-410	44.1	10.51	54.61
AAQ4	12°41'25.00"N 79°45'41.25"E	4048	-3569	44.0	0	44
AAQ5	12°46'1.12"N 79°41'37.89"E	-3324	4949	44.7	12.00	56.7
AAQ6	12°44'5.00"N 79°45'37.81"E	3941	1364	44.2	13.60	57.8
AAQ7	12°42'52.85"N 79°40'52.40"E	-4700	-863	44.2	7.77	51.97

TABLE 4.3: INCREMENTAL & RESULTANT GLC OF PM_{2.5}

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline PM _{2.5} (µg/m ³)	Incremental value of PM _{2.5} due to mining (µg/m ³)	Total PM _{2.5} (µg/m ³)
AAQ1	12°43'18.52"N 79°43'29.41"E	55	-67	20.5	6.90	27.4
AAQ2	12°43'23.75"N 79°43'25.69"E	-59	92	20.0	6.55	26.55
AAQ3	12°43'7.44"N 79°43'20.72"E	-209	-410	19.5	5.13	24.63
AAQ4	12°41'25.00"N 79°45'41.25"E	4048	-3569	19.7	0	19.7
AAQ5	12°46'1.12"N 79°41'37.89"E	-3324	4949	20.1	5.67	25.77
AAQ6	12°44'5.00"N 79°45'37.81"E	3941	1364	19.7	6.18	25.88
AAQ7	12°42'52.85"N 79°40'52.40"E	-4700	-863	19.8	4.36	24.16

TABLE 4.4: INCREMENTAL & RESULTANT GLC OF SO₂

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline SO ₂ (µg/m ³)	Incremental value due to mining (µg/m ³)	Total SO ₂ (µg/m ³)
AAQ1	12°43'18.52"N 79°43'29.41"E	55	-67	6.3	1.79	8.09
AAQ2	12°43'23.75"N 79°43'25.69"E	-59	92	5.7	1.76	7.46
AAQ3	12°43'7.44"N 79°43'20.72"E	-209	-410	5.4	1.53	6.93
AAQ4	12°41'25.00"N 79°45'41.25"E	4048	-3569	5.5	0	5.5
AAQ5	12°46'1.12"N 79°41'37.89"E	-3324	4949	5.8	1.70	7.5
AAQ6	12°44'5.00"N 79°45'37.81"E	3941	1364	5.7	1.73	7.43
AAQ7	12°42'52.85"N 79°40'52.40"E	-4700	-863	5.8	1.00	6.8

TABLE 4.5: INCREMENTAL & RESULTANT GLC OF NOX

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline NOx ($\mu\text{g}/\text{m}^3$)	Incremental value due to mining ($\mu\text{g}/\text{m}^3$)	Total NOx ($\mu\text{g}/\text{m}^3$)
AAQ1	12°43'18.52"N 79°43'29.41"E	55	-67	21.3	9.85	31.15
AAQ2	12°43'23.75"N 79°43'25.69"E	-59	92	21.4	9.30	30.7
AAQ3	12°43'7.44"N 79°43'20.72"E	-209	-410	20.8	2.75	23.55
AAQ4	12°41'25.00"N 79°45'41.25"E	4048	-3569	20.6	0	20.6
AAQ5	12°46'1.12"N 79°41'37.89"E	-3324	4949	21.0	5.00	26
AAQ6	12°44'5.00"N 79°45'37.81"E	3941	1364	21.2	8.00	29.2
AAQ7	12°42'52.85"N 79°40'52.40"E	-4700	-863	21.8	0	21.8

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, 80 & 80 $\mu\text{g}/\text{m}^3$ for PM10, SO₂ & NO_x respectively. By adopting suitable mitigation measures, the pollutant levels in the atmosphere can be further being controlled.

4.3.4. 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 –

- Establish time of blasting to suit the local conditions and water sprinkling on blasting face
- Avoid blasting i.e., when temperature inversion is likely to occur and strong wind blows towards residential areas
- 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
- Before loading of material water will be sprayed on blasted material
- Dust mask will be provided to the workers and their use will be strictly monitored

Haul Road & Transportation –

- Water will be sprinkled on haul roads 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.
- Water sprinkling on haul roads & loading points will be carried out twice a day
- 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 –

- 1200 Nos of trees will be planted through this project in the lease area and village roads (Approach Road) to prevent the generation of dust due to movement of dumpers/trucks
- Green belt of adequate width will be developed around the project areas

Occupational Health –

- Dust mask will be provided to the workers and their use will be strictly monitored
- Annual medical checkups, 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 and plying of trucks & HEMM. These activities will not cause any problem to the inhabitants of this area because there is no human settlement within 300m radius from the project site. 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 modelling has been carried out to assess the impact on surrounding ambient noise levels.

Basic phenomenon of the model is the geometric attenuation of sound. 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.

$$Lp_{total} = 10 \log \{ 10^{(Lp1/10)} + 10^{(Lp2/10)} + 10^{(Lp3/10)} + \dots \}$$

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 taking into account of all the machinery and activities used in the mining process. Same has been listed in Table 4-8.

TABLE 4.7: ACTIVITY AND NOISE LEVEL PRODUCED BY MACHINERY

Sl.No.	Machinery / Activity	Impact on Environment?	Noise Produced in dB(A) at 50 ft from source*
1	Blasting	Yes	94
2	Jack Hammer	Yes	88
3	Compressor	No	81
4	Excavator	No	85
5	Tipper	No	84
Total Noise Produced			95.8

Source: U.S. Department of Transportation (Federal Highway Administration) – Construction Noise Handbook

The total noise to be produced by mining machineries 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 4.8: PREDICTED NOISE INCREMENTAL VALUES

Location ID	N1	N2	N3	N4	N5	N6	N7	N8
Maximum Monitored Value (Day) dB(A)	41.6	40.7	45.5	41.5	41.1	46.3	43.1	43.9
Incremental Value dB(A)	60.1	60.1	46.3	25.6	24.6	27.5	26.7	29.1
Total Predicted Noise level dB(A)	60.2	60.1	48.9	41.6	41.2	46.4	43.2	44.0

The incremental noise level is found within the range of 60.1 - 60.2 dB (A) in Core Zone and 41.2 – 48.9 dB (A) in Buffer 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 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

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 will be used for breaking boulders;
- Controlled blasting with proper spacing, burden, stemming and optimum charge/delay will be maintained;
- 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/Plantation will be developed around the project area 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 the proposed mining activities 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 quarry is blasting. The major impact of the ground vibrations is observed on the domestic houses located in the villages nearby the mine lease area. The kuchha houses are more prone to cracks and damage due to the vibrations induced by blasting whereas RCC framed structures can withstand more ground vibrations. Apart from this, the ground vibrations may develop a fear factor in the nearby settlements.

Another impact due to blasting activities is fly rocks. These may fall on the houses or agricultural fields nearby the mining lease area and may cause injury to persons or damage to the structures. Nearest habitation from the proposed project areas is listed in below table. The ground vibrations due to the blasting in the quarry are calculated using the empirical equation.

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

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

Where –

V = peak particle velocity (mm/s)

K = site and rock factor constant

Q = maximum instantaneous charge (kg)

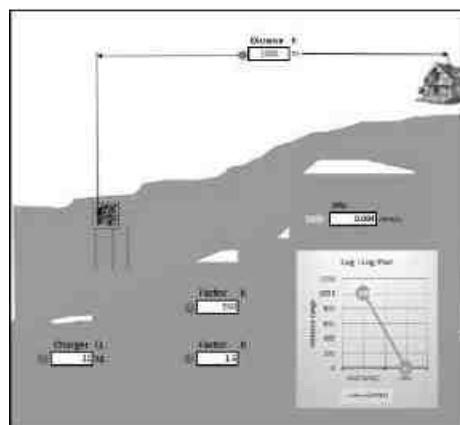
B = constant related to the rock and site (usually 1.6)

R = distance from charge (m)

TABLE 4.9: PREDICTED PPV VALUES DUE TO BLASTING

Location ID	Maximum Charge in kgs	Nearest Habitation in m	PPV in m/ms
P1	58(3 rounds)	990-SW	0.207

FIGURE 4.6: GROUND VIBRATION PREDICTION



From the above graph, the charge per blast of 58 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. But the all the project proponents ensure that the charge per blast shall be less than 20kg and carry out blasting twice or thrice a day

based on the onsite conditions under the supervision of competent person employed. 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

- It is proposed to carry out blasting operation 20kg per round so that the vibration will be minimal
- The mining operation will be carried out without deep hole drilling, 25mm small dia cartridge will be utilized for the blasting
- The blasting operations in the project site without deep hole drilling and blasting using delay detonators, which reduces the ground vibrations;
- Proper quantity of explosive, suitable stemming materials and appropriate delay system will be adopted to avoid overcharging and for safe blasting;
- Adequate safe distance from blasting will 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 will 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.
- A set of shot firing rules will be drawn up and blasting shall commence outlining the detailed operating procedures that will be followed to ensure that shot firing operations on site take place without endangering the workforce or public.
- The detonators will be connected in a predetermined sequence to ensure that only one charge is detonated at any one time and a NONEL or similar type initiation system will be used.
- The detonation delay sequence shall be designed so as to ensure that firing of the holes is in the direction of free faces so as to minimise vibration effects.
- Appropriate blasting techniques shall be adopted such that the predicted peak particle velocity shall not exceed 8 mm/s.
- Vibration monitoring will be carried out every 6 months to check the efficacy of blasting practices

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 100m on the 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.

4.5.3.2. Proposed Green Belt

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

4.5.3.3. 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 4.1. 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	Borassus flabellifer	Panai-maram
10	Madhuca longifolia	Illupai maram

(*Source: Term of Reference-ToR)

Table No 4.2.Species suitable for abatement of noise and dust pollution

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

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

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

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

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

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. 4.3. Overall Ecological impact assessments of Eraiyur Village, Rough stone Quarry, Vanur Taluk, Villupuram District and 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	Nil
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)

TABLE 4.12: RECOMMENDED SPECIES FOR GREENBELT DEVELOPMENT PLAN

Sl.No	Name of the plant (Botanical)	Family Name	Common Name	Habit
1	<i>Azadirachta indica</i>	Meliaceae	Neem, Vembu	Tree
2	<i>Albiziafalcataria</i>	Fabaceae	Tamarind, Puliymaram	Tree
3	<i>Polyalthialongifolia</i>	Annonaceae	Kattumaram	Tree
4	<i>Borassus Flabellifer</i>	Arecaceae	Palmyra Palm	Tree

The 7.5m 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 will be planted along the Lease boundary and avenue plantation will be carried out in the project site. The rate of survival expected to be 80% in this area. Greenbelt development Plan is given in

TABLE 4.13: GREENBELT DEVELOPMENT PLAN

Year	No. of trees proposed to be planted	Area to be covered in m ²	Name of the species
I	1200	The safety zone along the boundary barrier has been identified to be utilized for Greenbelt development and along village roads.	Neem, Pongamia, vilvam etc.,

4.6 SOCIO ECONOMIC

4.6.1 Anticipated Impact

- Dust generation from mining activity can have negative impact on the health of the workers and people in the nearby area.
- Approach roads can be damaged by the movement of tippers
- Increase in Employment opportunities both direct and indirect thereby increasing economic status of people of the region

4.6.2 Mitigation Measures

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

4.7 OCCUPATIONAL HEALTH AND SAFETY

Occupational health and safety hazards 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

- 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
- 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)

- 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 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.

4.8 MINE WASTE MANAGEMENT

No waste is anticipated, the entire mined out material will be sold to needy crushers and customers.

4.9 MINE CLOSURE

The ultimate depth of the mine is 37m bgl and the life of the mine is 10 years, after completion of mining operation the following action will be taken in the project site as a part of Mine closure plan

- The total Mined out land would be around 1.72.0 Ha this land will be converted into temporary water reservoir which will facilitate to collect the rain water
- The stagnant water will be supplied to the nearby agriculture land during drought seasons
- Fencing will be re constructed around the pit after closure, the warning/ danger display board will be placed on all the sides of the project site
- The un utilized area and haul roads will be converted as plantation area, fruit bearing trees will be planted to retain the eco system of the area
- Final Mine closure plan will be prepared and submitted to the concerned authority

Mine closure plan is the most important environmental requirement in mining project. 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.

As progressive mine closure is a continuous series of activities, it is obvious that the proposals of scientific mining have included most of the activities to be included in the closure plan. While formulating the closure objectives for the site, it is important to consider the existing or the pre-mining land use of the site; and how the operation will affect this activity.

The primary aim is to ensure that the following broad objectives along with the abandonment of the mine can be successfully achieved:

-
- 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.

4.9.1 Mine Closure Criteria

The criteria involved in mine closure are discussed below:

4.9.1.1 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.,

4.9.1.2 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.

4.9.1.3 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.

5. ANALYSIS OF ALTERNATIVES (TECHNOLOGY AND SITE)

5.0 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.

5.1 FACTORS BEHIND THE SELECTION OF PROJECT SITE

The surrounding areas already undergone quarrying operation, there are 4 Crushers within the radius of 1km. Most of the quarries in the regions are abandoned and lease expired quarries. Hence this quarry will feed the Rough stone material to the crushing units.

The Rough Stone and Gravel Quarry Project for excavation of Rough Stone, which is site specific. The proposed mining lease areas have following advantages: -

- The mineral deposit occurs in a non-forest area.
- There is no habitation within the project area; hence no R & R issues exist.
- There is no river, stream, nallah and water bodies in the applied mine lease areas.
- Availability of skilled, semi-skilled and unskilled workers in this region.
- All the basic amenities such as medical, firefighting, education, transportation, communication and infrastructural facilities are well connected and accessible.
- The mining operations will not intersect the ground water level. Hence, no impact on ground water environment.
- Study area falls in seismic zone – II, there is no major history of landslides, earthquake, subsidence etc., recorded in the past history.

5.2 ANALYSIS OF ALTERNATIVE SITE

No alternatives are suggested as all the mine sites are mineral specific

5.3 FACTORS BEHIND SELECTION OF PROPOSED TECHNOLOGY

The existing quarries in the area operated by Opencast Mechanised Mining operation with drilling and blasting method will be used to extract Rough Stone in the area. All the applied mining lease areas have following advantages –

- As the mineral deposition is homogeneous and batholith formation, therefore opencast method of working is preferred over underground method
- The material will be loaded with the help of excavators into dumpers / trippers and transported to the needy customers.
- Blasting and availability of drills along with controlled blasting technology gives desired fragmentation so that the mineral is handled safely and used without secondary blasting.
- Semi-skilled labours fit for quarrying operations are easily available around the nearby villages.

5.4 ANALYSIS OF ALTERNATIVE TECHNOLOGY

Open cast mechanized method has been selected for this project. This technology is having least gestation period, economically viable, safest and less labour intensive. The method has inbuilt flexibility for increasing or decreasing the production as per market condition.

6. ENVIRONMENTAL MONITORING PROGRAMME

6.0 GENERAL

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 the project proponent. A comprehensive monitoring mechanism has been devised for monitoring of impacts due to this 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 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 to their Mine Management.

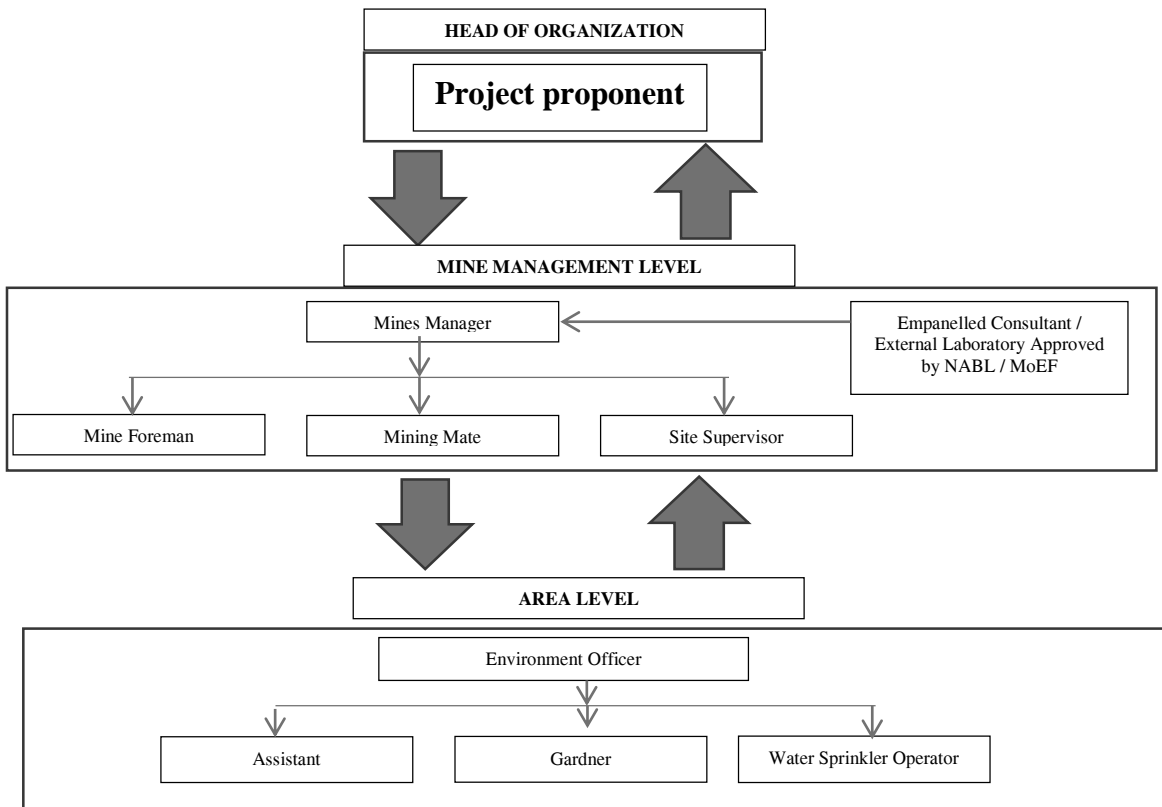
An Environment monitoring cell (EMC) will be constituted to monitor the implementation of EMP and other environmental protection measures in all the proposed quarries.

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 by each proposed project proponent. 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).

FIGURE 6.1: PROPOSED ENVIRONMENTAL MONITORING CELL

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

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

6.3 MONITORING SCHEDULE AND FREQUENCY

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: PROPOSED MONITORING SCHEDULE POST EC FOR P1

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, PM _{2.5} , PM ₁₀ , SO ₂ and NO _x .
2	Meteorology	At mine site before start of Air Quality Monitoring & IMD Secondary Data	Hourly / Daily	Continuous online monitoring	Wind speed, Wind direction, Temperature, Relative humidity and Rainfall
3	Water Quality Monitoring	2 Locations (1SW & 1 GW)	-	Once in 6 months	Parameters specified under IS:10500, 1993 & CPCB Norms
4	Hydrology	Water level in open wells in buffer zone around 1 km at specific wells	-	Once in 6 months	Depth in bgl
5	Noise	2 Locations (1 Core & 1 Buffer)	Hourly – 1 Day	Once in 6 months	Leq, Lmax, Lmin, Leq Day & Leq Night
6	Vibration	At the nearest habitation (in case of reporting)	-	During blasting Operation	Peak Particle Velocity
7	Soil	2 Locations (1 Core & 1 Buffer)	-	Once in six months	Physical and Chemical Characteristics
8	Greenbelt	Within the Project Area	Daily	Monthly	Maintenance

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

6.4 BUDGETARY PROVISION FOR EMP

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

The proposed capital cost for Environmental Monitoring Programme is Rs 76,000/- and the recurring cost is Rs 76,000 per annum for each Proposed Project.

TABLE 6.3 ENVIRONMENT MONITORING PROGRAM BUDGET

S.No.	Parameter	Capital Cost	Recurring Cost per annum
1	Air Quality	Rs. 76,000/-	Rs. 76,000/-
2	Meteorology		
3	Water Quality		
4	Hydrology		

5	Soil Quality		
6	Noise Quality		
7	Vibration Study		
Total		Rs 76,000/-	Rs 76,000/-

Source: Approved Mining Plan

6.5 REPORTING SCHEDULES OF MONITORED DATA

The monitored data on air quality, water quality, noise levels and other environmental attributes will be periodically examined by the Cluster Mine Management Coordinator and Respective 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 of respective project will submit the periodical reports to –

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

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 will be incorporated after Public Hearing.

- Public Consultation
- Risk Assessment
- Disaster Management Plan
- Cumulative Impact Study
- Plastic Waste Management

7.1. PUBLIC CONSULTATION

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

7.2 RISK ASSESSMENT

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

The whole quarry operation will be carried out under the direction of a Qualified Competent Mine Manager holding certificate of competency to manage a metalliferous mine granted by the DGMS, Dhanbad for all proposed projects. 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 these proposed mining & allied activities with detailed analysis of causes and control measures for the mine is given in below Table 7.1.

TABLE 7.1 RISK ASSESSMENT& CONTROL MEASURES

S. No	Risk factors	Causes of risk	Control measures
1	Accidents due to explosives and heavy mining machineries	Improper handling and unsafe working practice	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; Workers will be sent to the Training in the nearby Group Vocational Training Centre Entry of unauthorized persons will be prohibited; Fire-fighting 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

			<p>Working of quarry, as per approved plans and regularly updating the mine plans;</p> <p>Cleaning of mine faces on daily basis shall be daily done in order to avoid any overhang or undercut;</p> <p>Handling of explosives, charging and firing shall be carried out by competent persons only under the supervision of a Mine Manager;</p> <p>Maintenance and testing of all mining equipment as per manufacturer 's guidelines.</p>
2	Drilling	<p>Improper and unsafe practices</p> <p>Due to high pressure of compressed air, hoses may burst</p> <p>Drill Rod may break</p>	<p>Safe operating procedure established for drilling (SOP) will be strictly followed.</p> <p>Only trained operators will be deployed.</p> <p>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,</p> <p>Drilling shall not be carried on simultaneously on the benches at places directly one above the other.</p> <p>Periodical preventive maintenance and replacement of worn-out accessories in the compressor and drill equipment as per operator manual.</p> <p>All drills unit shall be provided with wet drilling shall be maintained in efficient working in condition.</p> <p>Operator shall regularly use all the personal protective equipment.</p>
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>	<p>Restrict maximum charge per delay as per regulations and by optimum blast hole pattern, vibrations will be controlled within the permissible limit and blasting can be conducted safely.</p> <p>SOP for Charging, Stemming & Blasting/Firing of Blast Holes will be followed by blasting crew during initial stage of operation</p> <p>Shots are fired during daytime only.</p> <p>All holes charged on any one day shall be fired on the same day.</p> <p>The danger zone will be distinctly demarcated (by means of red flags)</p>
5	Transportation	<p>Potential hazards and unsafe workings contributing to accident and injuries</p> <p>Overloading of material</p> <p>While reversal & overtaking of vehicle</p>	<p>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.</p> <p>Not allow any unauthorized person to ride on the vehicle nor allow any unauthorized person to operate the vehicle.</p> <p>Concave mirrors should be kept at all corners</p> <p>All vehicles should be fitted with reverse horn with one spotter at every tipping point</p> <p>Loading according to the vehicle capacity</p> <p>Periodical maintenance of vehicles as per operator manual</p>

		Operator of truck leaving his cabin when it is loaded.	
6	Natural calamities	Unexpected happenings	Escape Routes will be provided to prevent inundation of storm water Fire Extinguishers & Sand Buckets
7	Failure of Mine Benches and Pit Slope	Slope geometry, Geological structure	Ultimate or over all pit slope shall be below 60° and each bench height shall be 5m height.

Source: Analysed and Proposed by FAE & EC

7.3 DISASTER MANAGEMENT PLAN

Natural disasters like Earthquake, Landslides have not been recorded in the past history as the terrain is categorized under seismic zone II. The area is far away from the sea hence the disaster due to heavy floods and tsunamis are not anticipated

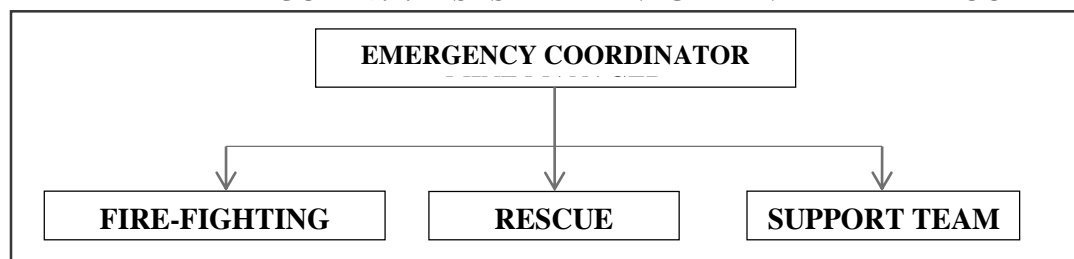
The Disaster Management Plan is aimed to ensure safety of life, protection of environment, protection of installation, restoration of production and salvage operations in this same order of priorities.

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:

- 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.

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 in Fig 7.1.

FIGURE 7.1: DISASTER MANAGEMENT TEAM LAYOUT



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 7.2.

TABLE 7.2: PROPOSED TEAMS TO DEAL WITH EMERGENCY SITUATION

DESIGNATION	QUALIFICATION
FIRE-FIGHTING TEAM	
Team Leader/ Emergency Coordinator (EC)	Mines Manager
Team Member	Mines Foreman
Team Member	Mining Mate
RESCUE TEAM	
Team Leader/ Emergency Coordinator (EC)	Mines Manager
Team Member/ Incident Controller (IC)	Environment Officer
Team Member	Mining Foreman
SUPPORT TEAM	
Team Leader/ Emergency Coordinator (EC)	Mines Manager
Assistant Team Leader	Environment Officer
Team Member	Mining Mate
Security Team Leader/ Emergency Security Controller	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 Roll Call 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 7.3: PROPOSED FIRE EXTINGUISHERS AT DIFFERENT LOCATIONS

LOCATION	TYPE OF FIRE EXTINGUISHERS
Electrical Equipment's	CO ₂ type, foam type, dry chemical powder type
Fuel Storage Area	CO ₂ type, foam type, dry chemical powder type, Sand bucket
Office Area	Dry chemical type, foam type

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.

7.4 CUMULATIVE IMPACT STUDY

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

TABLE 7.4: LIST OF QUARRIES WITHIN 500 METER RADIUS

PROPOSED QUARRIES					
CODE	Name of the Owner	Village	S.F. Nos	Extent in Ha	Status
P1	Thiru.G. Ulaganathan, S/o,Gomathimayagam, No.15/31, Rajaji street, Radha Nagar, Chrompet, Kancheepuram District	Sithalapakkam	1/2C, 1/3, 1/4, 1/5 & 16/2A	2.39.0	ToR Identification: T023B0108TN5735410 N Dated: 01/04/2024.
P2	Thiru.M.N.Balasundara, S/o,Subramaniyan, No.72, main road, Mankadu,Kundrathur Taluk, Kancheepuram.	Sithalapakkam	8/1A,8/1B,8/1C,8/1D, etc.	3.87.5	-
TOTAL EXTENT				6.26.50	
EXISTING QUARRIES					
CODE	Name of the Owner	Village	S.F. Nos	Extent in Ha	Status
E-1	Thiru G.Manavaian, S/o, Govindhanaidu, No.294 perumal koil street, Thenagkulam village, Valajapath Taluk, Kancheepuram	Sithalapakkam	28/12 & 28/13	2.01.5	17.11.2021 to 16.11.2031
E-2	Thiru Muthukrishnan, No.221, Chenjamman Koil street, Chithapakkam village, Vempakkam Taluk, Kancheepuram.	Sithalapakkam	16/6,16/7 & 17/1	1.26.0	22.11.2018 to 21.11.2023
E-3	Thiru C.Sugumar, S/o, Chandrababu, No-18A, V.V. Kovil street, walajabad taluk, kancheepuram	Ezhacheri	20/1H,20/11, 20/3B,20/3C & 20/3D	1.82.5	16.11.2018 to 15.11.2023
E-4	Tvl.Golden Sands, No.15,4 th street, East coast road, Chennai-115	Ezhacheri	1/2c,1/2B2B ,1/2D,1/7,1/8,1/9,20/3A	3.74.5	07.11.2018 to 06.11.2023
E-5	Thiru P.Sankar,S/o Ponnapan,No.1/63, pillaiyar koil street,Erumaiyur village, Thirumudivakkam, Chennai-600 044	Ezhacheri	21/2F,2G,2H ,2I,2J & 2k	2.09.5	02.11.2021 to 01.11.2026
TOTAL EXTENT				10.94.0	
ABANDONED QUARRY					
A-1	Thiru M.R.Azhagiri,S/o, M.P.Rajalingam, No.120, Shanmuganandhar,Kovil	Sithalapakkam	8/1A,8/1B, 1C etc..	3.87.5	17.10.2018 to 16.10.2023

street, Mangadu, sriperumbuthur Taluk, Kancheepuram district.				
TOTAL CLUSTER EXTENT			17.20.50	

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

TABLE 7.5: SALIENT FEATURES OF PROPOSAL “P1”

Name of the Project	Thiru. G.Ulaganathan Rough Stone and Gravel Quarry		
S.F. No.	1/2C, 1/3, 1/4, 1/5 & 16/2A		
Extent	2.39.0 ha		
Village, Taluk and District	Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District.		
Land Type	It is a patta lands, registered in the name of the G.Ulaganathan, vide patta No.437		
Toposheet No	57 P/10		
Latitude between	12° 43' 18.0590"N to 12° 43' 24.1463"N		
Longitude between	79° 43' 23.6923"E to 79° 43' 23.6923"E		
Elevation of the area	97m AMSL		
Lease period	10 Years		
Mining Plan period	10 years		
Proposed Depth of Mining	37m bgl (2m Gravel + 35m Rough stone)		
Geological Resources	Rough Stone in m ³	Gravel m ³	
	8,36,500	47,800	
Mineable Reserves	2,79,180	36,316	
Year wise Production for first five years	1,90,015	36,316	
Year wise Production for next five years	89,165	-	
Peak Production	40,550	19,380	
Ultimate Pit Dimension	Pit 1:124m (L) x 75m (W) x 32m(D) bgl Pit 1:102m (L) x 95m (W) x 37m(D) bgl		
Water Level in the region	57 m bgl		
Method of Mining	Opencast Mechanized Mining Method involving drilling and Controlled blasting using Slurry Explosives		
Topography	The lease applied area is plain terrain. The area has gentle sloping towards eastern side and altitude of the area is 97m above from Mean Sea level. The area is covered by 2m thickness of Gravel and followed by Massive Charnockite which is clearly inferred from the surface outcrops & nearby existing quarry pit.		
Machinery proposed	Jack Hammer	5 Nos	
	Compressor	2 Nos	
	Excavator with Bucket and Rock Breaker	2 Nos	
	Tipper	4 Nos	
Blasting Method	Controlled Blasting Method by shot hole drilling and small dia of 25mm slurry explosive are proposed to be used for shattering and heaving effect for removal and winning of Rough Stone. No deep hole drilling is proposed.		
Proposed Manpower Deployment	25 Nos		
Project Cost	Rs. 52,17,000/-		

EMP Cost	Rs. 3,80,000/-	
Total Project cost	Rs. 55,97,000/-	
CER Cost	Rs. 5,00,000/-	
Nearby Water Bodies	Kaalvaai	50m Safety_N
	Tank	1.5Km_NE
	Cheyyar River	2.7km_SE
	Tank	3.5Km_SW
	canal	3.6Km_N_Canal
	Palar River	7Km_NE
	Mamandur Lake	7Km_NW
	Uthiramerur Lake	8.3km_SE
Greenbelt Development Plan	Proposed to plant 1200 Nos of trees considering 500 Nos of trees/ Ha criteria The plantation will be developed around the project site and nearby village roads	
Proposed Water Requirement	1.5 KLD	
Nearest Habitation	990m – South west	
Nearest Reserve Forest	Marudham R.F – 7.5 Km – SE (Source - TNGIS)	
Nearest Wild Life Sanctuary	Karikili Birds Sanctuary – 18 Km – SE Karikili Birds Sanctuary + 5km Safety distance – 13km - SE	

Source: Approved Mining Plan

TABLE 7.7: SALIENT FEATURES OF PROPOSAL “E1”

Name of the Quarry	Thiru. G.Manavalan Rough Stone & Gravel Quarry	
S.F.No.	28/12 & 28/13	
Toposheet No	57 P/10	
Mining Period	5 years	
Latitude between	12°43'12.55"N to 12°43'19.24"N	
Longitude between	79°43'44.98"E to 79°43'49.88"E	
Year-wise production	Rough Stone in m ³	Gravel m ³
	2,71,880	47,979
Depth of Mining	38m	
Method of Mining	Opencast Mechanized Mining Method involving drilling and blasting	
Proposed Manpower Deployment	30	
Project Cost	49.61 lakhs	
CER Cost @ 2% of Project Cost	Rs.1,00,000/-	

Source: Approved Mining Plan

TABLE 7.8: SALIENT FEATURES OF PROPOSAL “E2”

Name of the Quarry	Thiru. E. Muthukrishnan Rough Stone & Gravel Quarry	
Toposheet No	57- P/10	
Latitude between	12°43'18.67"N to 12°43'24.09"N	
Longitude between	79°43'30.36"E to 79°43'34.30"E	
Geological Resources	Rough Stone in m ³	Gravel m ³
	4,41,000	37,800
Mineable Reserves	Rough Stone in m ³	Gravel m ³
	79,450	22,614
Year-wise production	Rough Stone in m ³	Gravel m ³
	79,450	22,614

Ultimate Pit Dimension	127 (L) * 81 (W) * 38 (D)	
Method of Mining	Opencast Mechanized Mining Method involving drilling and blasting	
Machinery proposed	Jack Hammer	2 Nos
	Compressor	1 No
	Hydraulic Excavator	1 No
	Tippers	1No
Proposed Manpower Deployment	11	
Project Cost	55.02 lakhs	
CER Cost @ 2% of Project Cost	Rs.1,37,000/-	

Source: Approved Mining Plan

TABLE 7.7: SALIENT FEATURES OF PROPOSAL “E3”

Name of the Quarry	Thiru C.Sugumar,Rough Stone & Gravel Quarry	
S.F.No.	201H,20/1I,20/3B,20/3C & 20/3D	
Toposheet No	57 P/10	
Mining Period	5 years	
Latitude between	12°43'12.55"N to 12°43'19.24"N	
Longitude between	79°43'44.98"E to 79°43'49.88"E	
Year-wise production	Rough Stone in m ³	Gravel m ³
	-	-
Depth of Mining	-	
Method of Mining	Opencast Mechanized Mining Method involving drilling and blasting	
Proposed Manpower Deployment	18	
Project Cost	-	
CER Cost @ 2% of Project Cost	-	

Source: Approved Mining Plan

TABLE 7.8: SALIENT FEATURES OF PROPOSAL “E4”

Name of the Quarry	Tvl. Golden Sands Rough Stone & Gravel Quarry	
Toposheet No	57- P/10	
Latitude between	12°43'18.09"N to 12°43'24.02"N	
Longitude between	79°43'19.41"E to 79°43'11.43"E	
Geological Resources	Rough Stone in m ³	Gravel m ³
	13,10,610	74,892
Mineable Reserves	Rough Stone in m ³	Gravel m ³
	4,18,040	39,600
Year-wise production	Rough Stone in m ³	Gravel m ³
	4,18,040	39,600
Ultimate Pit Dimension	180 (L) * 110 (W) * 37 (D)	
Method of Mining	Opencast Mechanized Mining Method involving drilling and blasting	
Machinery proposed	Jack Hammer	6 Nos
	Compressor	3 No
	Hydraulic Excavator	1 No
	Tippers	3 Nos
Proposed Manpower Deployment	18	
Project Cost	74 lakhs	
CER Cost @ 2% of Project Cost	Rs.1,74,000/-	

Source: Approved Mining Plan

TABLE 7.7: SALIENT FEATURES OF PROPOSAL “E5”

Name of the Quarry	Thiru. P.Sankar Rough Stone & Gravel Quarry		
S.F.No.	21/2F,H,G,I,J & K		
Toposheet No	57 P/10		
Mining Period	5 years		
Extent	2.09.5 ha		
Latitude between	12°43'03"N to 12°43'07"N		
Longitude between	79°43'15"E to 79°43'22"E		
Year-wise production	Rough Stone in m ³	Weathered Rock m ³	Gravel m ³
	2,89,685	31,122	16,320
Depth of Mining	32m		
Method of Mining	Opencast Mechanized Mining Method involving drilling and blasting		
Proposed Manpower Deployment	22		
Project Cost	83.88 lakhs		
CER Cost @ 2% of Project Cost	Rs.1,76,000/-		

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 and Ground Vibrations due to blasting.

Air Environment –

Calculating the Cumulative Load of Mining within the cluster is as shown in table 7.16 & 7.17.

TABLE 7.11: CUMULATIVE PRODUCTION LOAD OF ROUGH STONE

Quarry	Production for five-year plan period	Per Year Production in m ³	Per Day Production in m ³	Number of Lorry Load Per Day
P1	1,90,015	38,003	127	11
Total	1,90,015	38,003	127	11
E1	2,71,880	54,376	182	15
E2	79,450	15,890	53	5
E3	-	-	-	-
E4	4,18,040	83,608	278	24
E5	2,86,685	57,337	191	16
Total	10,56,055	2,11,211	704	60
Grand Total	12,46,070	2,49,214	831	71

TABLE 7.12: CUMULATIVE PRODUCTION LOAD OF GRAVEL

Quarry	Production for five-year plan period	Per Year Production in m ³	Per Day Production in m ³	Number of Lorry Load Per Day
P1	36,316	12,105	41	4
Total	36,316	12,105	41	4
PROPOSED PRODUCTION OF GRAVEL				
E1	47,979	15,993	54	5
E2	22,614	7,538	25	2
E3	-	-	-	-
E4	39,600	13,200	44	4
E5	16,320	5,440	18	2
Total	1,26,513	42,171	141	13
Grand Total	1,62,829	54,276	182	17

On a cumulative basis considering the proposed quarries, it can be seen that the overall production of Rough Stone is 831m³ per day and overall production of Gravel is 182m³ per day with a capacity of 71trips of Rough Stone per day and 17 Trips per day of Gravel from the cluster.

Note: Per day production of Rough Stone is calculated for 5 Years Lease Period and for Gravel production with 3 years production period. And the load of existing quarries is covered under existing environment of the cluster.

Based on the above production quantities the emissions due to various activities in all the 3 mines includes various activities like ground preparation, excavation, handling and transport of ore. These activities have been analysed systematically basing on USEPA-Emission Estimation Technique Manual, for Mining AP-42, to arrive at possible emissions to the atmosphere and estimated emissions are given in Table 7.18.

TABLE 7.14: EMISSION ESTIMATION FROM QUARRIES WITHIN 500 METER RADIUS

EMISSION ESTIMATION FOR QUARRY "P1"				
	Activity	Source type	Value	Unit
Estimated Emission Rate for PM ₁₀	Drilling	Point Source	0.078815466	g/s
	Blasting	Point Source	0.000735651	g/s
	Mineral Loading	Point Source	0.042169729	g/s
	Haul Road	Line Source	0.00249146	g/s/m
	Overall Mine	Area Source	0.055785960	g/s
Estimated Emission Rate for SO ₂	Overall Mine	Area Source	0.000618734	g/s
Estimated Emission Rate for NO _x	Overall Mine	Area Source	0.000032978	g/s
EMISSION ESTIMATION FOR QUARRY "E1"				
	Activity	Source type	Value	Unit
Estimated Emission Rate for PM ₁₀	Drilling	Point Source	0.086066941	g/s
	Blasting	Point Source	0.001142342	g/s
	Mineral Loading	Point Source	0.042852338	g/s
	Haul Road	Line Source	0.00249308	g/s/m
	Overall Mine	Area Source	0.052402218	g/s
Estimated Emission Rate for SO ₂	Overall Mine	Area Source	0.000725525	g/s
Estimated Emission Rate for NO _x	Overall Mine	Area Source	0.000033235	g/s
EMISSION ESTIMATION FOR QUARRY "E2"				
	Activity	Source type	Value	Unit
Estimated Emission Rate for PM ₁₀	Drilling	Point Source	0.059504712	g/s
	Blasting	Point Source	0.000180456	g/s
	Mineral Loading	Point Source	0.038389275	g/s
	Haul Road	Line Source	0.002485795	g/s/m
	Overall Mine	Area Source	0.042293051	g/s
Estimated Emission Rate for SO ₂	Overall Mine	Area Source	0.000230059	g/s
Estimated Emission Rate for NO _x	Overall Mine	Area Source	0.000006799	g/s
EMISSION ESTIMATION FOR QUARRY "E3"				
	Activity	Source type	Value	Unit
Estimated Emission Rate for PM ₁₀	Drilling	Point Source	0.059504712	g/s
	Blasting	Point Source	0.001142342	g/s
	Mineral Loading	Point Source	0.042852338	g/s
	Haul Road	Line Source	0.00249308	g/s/m
	Overall Mine	Area Source	0.002497184	g/s
Estimated Emission Rate for SO ₂	Overall Mine	Area Source	0.065517489	g/s

Estimated Emission Rate for NO _x	Overall Mine	Area Source	0.00105998	g/s
EMISSION ESTIMATION FOR QUARRY "E4"				
Estimated Emission Rate for PM ₁₀	Activity	Source type	Value	Unit
	Drilling	Point Source	0.097923864	g/s
	Blasting	Point Source	0.002177996	g/s
	Mineral Loading	Point Source	0.044241262	g/s
	Haul Road	Line Source	0.002497184	g/s/m
	Overall Mine	Area Source	0.065517489	g/s
Estimated Emission Rate for SO ₂	Overall Mine	Area Source	0.00105998	g/s
Estimated Emission Rate for NO _x	Overall Mine	Area Source	0.000078234	g/s
EMISSION ESTIMATION FOR QUARRY "E5"				
Estimated Emission Rate for PM ₁₀	Activity	Source type	Value	Unit
	Drilling	Point Source	0.087446953	g/s
	Blasting	Point Source	0.001236909	g/s
	Mineral Loading	Point Source	0.042365900	g/s
	Haul Road	Line Source	0.002491902	g/s/m
	Overall Mine	Area Source	0.053051726	g/s
Estimated Emission Rate for SO ₂	Overall Mine	Area Source	0.00067037	g/s
Estimated Emission Rate for NO _x	Overall Mine	Area Source	0.000031737	g/s

Source: Emission Calculation

TABLE 7.15: INCREMENTAL & RESULTANT GLC WITHIN CLUSTER

PM₁₀ in µg/m³	
Background	44.7
Incremental	14.82
Resultant	59.52
NAAQ Norms	100 µg/m³
PM_{2.5} in µg/m³	
Background	20.5
Incremental	6.90
Resultant	27.4
NAAQ Norms	60 µg/ m³
So₂ in µg/m³	
Background	6.3
Incremental	1.79
Resultant	8.09
NAAQ Norms	80 µg/ m³
No₂ in µg/m³	
Background	21.3
Incremental	9.85
Resultant	31.15
NAAQ Norms	80 µg/ m³

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.

$$Lp_{total} = 10 \log \{10^{(Lp1/10)} + 10^{(Lp2/10)} + 10^{(Lp3/10)} + \dots\}$$

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 taking into account of all the machinery and activities used in the mining process.

TABLE 7.16: PREDICTED NOISE INCREMENTAL VALUES FROM CLUSTER

Location ID	Background Value (Day) dB(A)	Incremental Value dB(A)	Total Predicted dB(A)	Residential Area Standards dB(A)
Habitation Near P1	48.2	47.3	46.3	55
Habitation Near E1	36.5	48.1	48.4	
Habitation Near E2	37.5	48.2	48.3	
Habitation Near E3	36.8	49.2	49.1	
Habitation Near E4	37.4	48.5	48.6	
Habitation Near E5	35.4	47.4	47.7	

Source: Lab Monitoring Data

The incremental noise level is found within the range of 48.1 – 47.3 dB (A) in Buffer 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).

Ground Vibrations

Ground vibrations due to mining activities in the all the 4 Mines within cluster are anticipated due to operation of Mining Machines like Excavators, drilling and blasting, transportation vehicles, etc. However, the major source of ground vibration from the all the 4 mines is blasting. The major impact of the ground vibrations is observed on the domestic houses located in the villages nearby the mine lease area. The kuchha houses are more prone to cracks and damage due to the vibrations induced by blasting whereas RCC framed structures can withstand more ground vibrations. Apart from this, the ground vibrations may develop a fear factor in the nearby settlements nearby the mining areas and may cause injury to persons or damage to the structures. Nearest Habitations from 4 mines respectively are as in below Table 7.21.

TABLE 7.17: NEAREST HABITATION FROM EACH MINE

Location ID	Distance & Direction
Habitation Near P1	1km- South East
Habitation Near E1	1.1 km East

Habitation Near E2	1.19 Km - SW
Habitation Near E3	-
Habitation Near E4	630m - SW
Habitation Near E5	1.1km East

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

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

Where –

V = peak particle velocity (mm/s)

K = site and rock factor constant

Q = maximum instantaneous charge (kg)

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

R = distance from charge (m)

TABLE 7.18: GROUND VIBRATIONS AT 6 MINES

Location ID	Maximum Charge in kgs	Nearest Habitation in m	PPV in m/ms
P1	23	1km-SE	0.094
E1	58	1.1km East	0.175
E2	45	1.19Km - SW	0.126
E3	-	-	-
E4	60	630m - SW	0.439
E5	55	1.1km East	0.168

Source: Blasting Calculations

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

Socio Economic Environment –

The 6 mines shall contribute towards CER and the community shall develop.

TABLE 7.19: SOCIO ECONOMIC BENEFITS FROM 6 MINES

Location ID	Project Cost	CER
P1	Rs.66,16,000	Rs.5,00,000
E1	Rs.67,31,000/-	Rs.1,34,000
E2	Rs.56,39,000/-	Rs.1,13,000
E3	-	-
E4	Rs.66,50,000/-	Rs.1,33,000
E5	Rs.50,17,500/-	Rs.1,00,000
Total	Rs3,06,53,500/-	Rs.9,80,000

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

- Proposed Projects shall fund towards CER – Rs 5,00,000/-
-

TABLE 7.20: EMPLOYMENT BENEFITS FROM 6 MINES

Description	Employment

P1	20
Total	20
E1	28
E2	24
E3	-
E4	18
E5	22
Total	52
Grand Total	72

A total of 72 people will get employment due to 1 proposed mines in cluster and 52 people are already employed at existing mines.

TABLE 7.21: GREENBELT DEVELOPMENT BENEFITS FROM 6 MINES

CODE	No of Trees proposed to be planted	Survival %	Area Covered Sq.m	Name of the Species
P1	1200	80% Xc	The safety zone along the boundary barrier has been identified to be utilized for Greenbelt development	Neem, Pinnata, Pongamia, Ashoka etc.,
Total	1200			
E1	1000			
E2	630			
E3	910			
E4	1870			
E5	1000			
Total	5,410			
G.Total	6,610			

Based on the Proposed Mining Plans it's anticipated that there shall growth of native species of Neem, Pinnata et., in the Cluster at a rate of 1200 Trees Planted over a period of 5 Years with Survival Rate of 80% by proposed quarry.

7.5 PLASTIC WASTE MANAGEMENT PLAN

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

Objective –

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

TABLE 7.22: ACTION PLAN TO MANAGE PLASTIC WASTE

Sl.No.	Activity	Responsibility
1	Framing of Layout Design by incorporating provision of the Rules, user fee to be charged from waste generators for plastic waste management, penalties/fines for littering, burning plastic waste or committing any other acts of public nuisance	Mines Manager
2	Enforcing waste generators to practice segregation of bio-degradable, recyclable and domestic hazardous waste	Mines Manager
3	Collection of plastic waste	Mines Foreman

4	Setting up of Material Recovery Facilities	Mines Manager
5	Segregation of Recyclable and Non-Recyclable plastic waste at Material Recovery Facilities	Mines Foreman
6	Channelization of Recyclable Plastic Waste to registered recyclers	Mines Foreman
7	Channelization of Non-Recyclable Plastic Waste for use either in Cement kilns, in Road Construction	Mines Foreman
8	Creating awareness among all the stakeholders about their responsibility	Mines Manager
9	Surprise checking's of littering, open burning of plastic waste or committing any other acts of public nuisance	Mine Owner

Source: Proposed by FAE's and EC

8.PROJECT BENEFITS

8.0 GENERAL

The Proposed Project for Quarrying Rough Stone and Gravel at Sithalapakkam Village aims to produce 2,79,180m³ Rough Stone over a period of 10 Years and Gravel 36,316 m³ for period of 3 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

8.1 EMPLOYMENT POTENTIAL

It is proposed to provide employment to about 25 persons for carrying out mining operations and give preference to the local people in providing employment in the three proposed quarries in the cluster. 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 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 quarries are located in Sithalapakkam Village, Vembakkam Taluk and Tiruvannamalai 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.,

CORPORATE SOCIAL RESPONSIBILITY

The Project Proponent 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.

CSR Cost Estimation

- CSR activities will be taken up in the Sithalapakkam 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.

CORPORATE ENVIRONMENT RESPONSIBILITY

For the existing 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.

Proponent intends to spent Rs 5,00,000/- towards CER for the Government School near the project site the details are given below:

TABLE 8.1 CER – ACTION PLAN

Activity	CER
<ul style="list-style-type: none"> • Renovation/ Construction of Existing Toilet • Providing Environmental Related books to the school Library • Carrying out plantation and maintenance in the school Ground • Any other requirements in consultation with the school Head master 	Rs 5,00,000/-

9. ENVIRONMENTAL COST BENEFIT ANALYSIS

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

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

The Proponent Thiru G.Ulaganathan will –

- 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.
- Allocate necessary resources to ensure the implementation of the environmental policy.
- 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.

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 each Proposed Quarry.

The said team will be responsible for:

- Monitoring of the water/ waste water quality, air quality and solid waste generated
- Analysis of the water and air samples collected through external laboratory
- 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. 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
Design vehicle wash-down areas so that all runoff water is captured and passed through oil water separators and sediment catchment devices.	Mines Manager
Refueling to be undertaken in a safe location, away from vehicle movement pathways & 100 m away of any watercourse Refueling activity to be under visual observation at all times. Drainage of refueling areas to sumps with oil/water separation	Mine Foreman & Mining Mate
Soil and groundwater testing as required following up a particular incident of contamination.	Mines Manager
At conceptual stage, the mining pits will be converted into Rain Water Harvesting. Remaining area will be converted into greenbelt area	Mines Manager
No external dumping i.e., outside the project area	Mine Foreman
Garland drains with catch pits / settlement traps to be provided all around the project area to prevent run off affecting the surrounding lands.	Mines Manager
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

Source: Proposed by FAE's & EIA Coordinator

10.3. SOIL MANAGEMENT

There overburden in the form of Gravel which will directly loaded into tippers for the filling and levelling of low-lying areas.

TABLE 10.2. PROPOSED CONTROLS FOR SOIL MANAGEMENT

CONTROL	RESPONSIBILITY
Surface run-off from the project boundary via garland drains will be diverted to the mine pits	Mine Foreman & Mining Mate
Design haul roads and other access roads with drainage systems to minimize concentration of flow and erosion risk	Mines Manager
Empty sediment from sediment traps Maintain, repair or upgrade garland drain system	Mines Manager
Test soils for pH, EC, chloride, size & water holding capacity	Manager Mines

Source: Proposed by FAE's & EIA Coordinator

10.4. WATER MANAGEMENT

In the proposed quarrying project, no process is involved for the effluent generation, only oil & grease from the machinery wash is anticipated and domestic sewage from mines office. The quarrying operation is proposed upto a depth of 37 m BGL, the water table in the area is 57 m below ground level, hence the proposed project will not intersect the Ground water table during entire quarry period.

TABLE 10.3. PROPOSED CONTROLS FOR WATER ENVIRONMENT

CONTROL	RESPONSIBILITY
To maximize the reuse of pit water for water supply	Mines Foreman
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	Mines Manager
Natural drains/nallahs/brooklets outside the project area should not be disturbed at any point of mining operations	Mines Manager
Ensure there is no process effluent generation or discharge from the project area into water bodies	Mines Foreman
Domestic sewage generated from the project area will be disposed in septic tank and soak pit system	Mines Foreman
Monthly or after rainfall, inspection for performance of water management structures and systems	Mines Manager
Conduct ground water and surface water monitoring for parameters specified by CPCB	Manager Mines

Source: Proposed by FAE's & EIA Coordinator

10.5. AIR QUALITY MANAGEMENT

The proposed quarrying 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 daily (twice) water sprinkling on working face and daily (twice) water sprinkling on haul road	Mines Manager
Wet drilling procedure /drills with dust extractor system to control dust generation during drilling at source itself is implemented	Mines Manager
Maintenance as per operator manual of the equipment and machinery in the mines to minimizing air pollution	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	Mines Manager
Provision of Dust Mask to all workers	Mines Manager
Greenbelt development all along the periphery of the project area	Mines Manager

Source: Proposed by FAE's & EIA Coordinator

10.6. NOISE POLLUTION CONTROL

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
Development of thick greenbelt all along the Buffer Zone (7.5 Meters) of the project area to attenuate the noise and the same will be maintained	Mines Manager
Preventive maintenance of mining machinery and replacement of worn-out accessories to control noise generation	Mines Foreman
Deployment of mining equipment with an inbuilt mechanism to reduce noise	Mines Manager
Provision of earmuff / ear plugs to workers working in noise prone zones in the mines	Mining Mate
Provision of effective silencers for mining machinery and transport vehicles	Mines Manager
Provision of sound proof AC operator cabins to HEMM	Mines Manager
Sharp drill bits are used to minimize noise from drilling	Mines Foreman
Controlled blasting technologies are adopted by using delay detonators to minimize noise from blasting	Mines Manager
Annual ambient noise level monitoring are carried out in the project area and in surrounding villages to assess the impact due to the mining activities and the efficacy of the adopted noise control measures. Additional noise control measures will be adopted if required as per the observations during monitoring	Mines Manager
Reduce maximum instantaneous charge using delays while blasting	Mining Mate
Change the burden and spacing by altering the drilling pattern and/or delay layout, or altering the hole inclination	Mines Manager
Undertake noise or vibration monitoring	Mines Manager

Source: Proposed by FAE's & EIA Coordinator

10.7. GROUND VIBRATION AND FLY ROCK CONTROL

The Rough stone quarry operation creates vibration due to the blasting and movement of Heavy Earth moving machineries, fly rocks due to the blasting.

TABLE 10.6.: PROPOSED CONTROLS FOR GROUND VIBRATIONS & FLY ROCK – P1

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 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
Suitable spacing and burden will be maintained to avoid misfire / fly rocks	Manager Mines
Number of blast holes will be restricted to control ground vibrations	Manager Mines
Blasting will be carried out only during noon time	Mining Mate
Undertake noise or vibration monitoring	Mines Manager
ensure blast holes are adequately stemmed for the depth of the hole and stemmed with suitable angular material	Mines Foreman

Source: Proposed by FAE's & EIA Coordinator

10.8. BIOLOGICAL ENVIRONMENT MANAGEMENT

The proponent 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 quarried out area etc.,

Following control measures are proposed for its management and will be the responsibility of the Mines Manager.

- Greenbelt development all along the safety barrier of the project area

- It is also proposed to implement the greenbelt development programme and post plantation status will be regularly checked for every season.
- 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 installing a sprinkler unit near the newly planted area.
- Year wise greenbelt development will 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.

10.8.1. Green Belt Development Plan

About 1200 nos. of saplings is proposed to be planted for the Mining plan period in safety barrier of applied mine lease area with survival rate 80%. The greenbelt development plan has been prepared keeping in view the land use changes that will occur due to mining operation in the area.

TABLE 10.7: PROPOSED GREENBELT ACTIVITIES

Year	No. of tress proposed to be planted	Area to be covered	Name of the species
I	1200	The plantation is along the safety distance, village road etc..	Neem, Pongamia, Vilvam, Ashoka etc.,

Source: Approved Mining plan

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.

10.8.2. 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 10.8. RECOMMENDED SPECIES FOR THE PLANTSATION

S.No	Botanical Name	Local Name	Importance
1	Azadirachta indica	Neem, Vembu	Neem oil & neem products
2	Tamarindus indica	Tamarind	Edible & Medicinal and other Uses
3	Polyalthia longifolia	Nettilinkam	Tall and evergreen tree
4	Borassus Flabellifer	Palmyra Palm	Tall Wind breaker tree and its fruits are edible

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 impact in quarries are fugitive dust and noise. Safety of employees during quarrying 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 –

The health status of workers in the mine will be regularly monitored under an occupational surveillance program. Under this program, all the employees are subjected to a detailed 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 below tests keep upgrading the database of medical history of the employees.

TABLE 10.9. MEDICAL EXAMINATION SCHEDULE

Sl.No	Activities	1 st Year	2 nd Year	3 rd Year	4 th Year	5 th Year
1	Initial Medical Examination (Mine Workers)					
A	Physical Check-up					
B	Psychological Test					
C	Audiometric Test					
D	Respiratory Test					
2	Periodical Medical Examination (Mine Workers)					
A	Physical Check – up					
B	Audiometric Test					
C	Eye Check – up					
D	Respiratory Test					
3	Medical Camp (Mine Workers & Nearby Villagers)					
4	Training (Mine Workers)					

10.9.2 Proposed Occupational Health and Safety Measures –

- The mine site will have adequate drinking water supply so that workers do not get dehydrated.
- Lightweight and loose-fitting clothes having light colours will be preferred to wear.

- Noise exposure measurements will be taken to determine the need for noise control strategies.
- The personal protective equipment will be provided for mine workers.
- At noisy working activity, exposure time will be minimized.
- Dust generating sources will be identified and proper control measure will be adopted.
- Periodic medical examinations will be provided for all workers.
- In respect of contract work, safety code for contractors and workers will be implemented. They will be allowed to work under strict supervision of statutory person/officials only after they will impart training at vocational training centres. All personal protective equipment's will be provided to them.
- A safety committee meeting every month will be organized to discuss the safety of the mines and the persons employed.
- Celebration of annual mines safety week and environmental week in order to develop safety awareness and harmony amongst employees and co quarry owners.

FIGURE 10.1.: PERSONAL PROTECTIVE EQUIPMENT TO THE MINE WORKERS



10.9.3: Health and Safety Training Programme

The Proponent will 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 Environmental Consultants to provide periodical training to all the employees to carry out the mining operation in an eco-friendly manner as per Metalliferous Mines Regulation, 1961.

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 10.10: EMP BUDGET FOR PROPOSED PROJECT

Activites	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	23900	23900
	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 -5 Units	125000	12500
	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 - 4 Units	20000	1000
	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	47800
	Installing wheel wash system near gate of quarry	Installation + Maintenance + Supervision	50000	20000
Noise Environment	Source of noise will be during operation of transportation vehicles, HEMM for this proper maintenance will be done at regular intervals.	Provision made in Operating Cost	0	0
	Oiling & greasing of Transport vehicles and HEMM at regular interval will be done	Provision made in Operating Cost	0	0

	Adequate silencers will be provided in all the diesel engines of vehicles.	Provision made in Operating Cost	0	0
	It will be ensured that all transportation vehicles carry a fitness certificate.	Provision made in Operating Cost	0	0
	Safety tools and implements that are required will be kept adequately near blasting site at the time of charging.	Provision made in OHS part	0	0
	Line Drilling all along the boundary to reduce the PPV from blasting activity and implementing controlled blasting.	Provision made in Operating Cost	0	0
	Proper warning system before blasting will be adopted and clearance of the area before blasting will be ensured.	Blowing Whistle by Mining Mate / Blaster / Competent Person	0	0
	Provision for Portable blaster shed	Installation of Portable blasting shelter	50000	2000
	NONEL Blasting will be practiced to control Ground vibration and fly rocks	Rs. 30/- per 6 Tonnes of Blasted Material	0	725868
Waste Management	Waste management (Spent Oil, Grease etc.,)	Provision for domestic waste collection and disposal through authorized agency	5000	20000
		Installation of dust bins	5000	2000
	Bio toilets will be made available outside mine lease on the land of owner itself	Provision made in Operating Cost	0	0
Mine Closure	1. Progressive Closure Activity - Surface Runoff managment	Provision for garland drain @ Rs. 10,000/- per Hectare with maintenance of Rs. 5,000/- per annum	23900	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	478000	10000

	3. Progressive Closure Activity Green belt development - 500 trees per one hectare - Proposal for 500 Trees - (720 Inside Lease Area & 480 Outside Lease Area)	Site clearance, preparation of land, digging of pits / trenches, soil amendments, transplantation of saplings @ 200 per plant (capital) for plantation inside the lease area and @ 30 per plant maintenance (recurring)	144000	21600
		Avenue Plantation @ 300 per plant (capital) for plantation outside the lease area and @ 30 per plant maintenance (recurring)	144000	14400
	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	89400	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 Budget and not necessarily implemented in the Project Site	2512620
	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
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) - 25 Employees	100000	25000
Health check-up for workers will be provisioned		IME & PME Health check-up @ Rs. 1000/- per employee	0	25000
First aid facility will be provided		Provision of 2 Kits per Hectare @ Rs. 2000/-	0	4780

	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	119500	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			2638300	1883848

*Marked cost is already discussed in the mining plan hence that is not included in the total Environmental Management plan cost Total Cost for the five years.

Year	Total Cost	Year	Total Cost
1 st	₹ 45,22,148	6 th	₹ 37,23,470
2 nd	₹ 19,78,040	7 th	₹ 25,90,494
3 rd	₹ 20,76,942	8 th	₹ 27,20,019
4 th	₹ 21,80,790	9 th	₹ 28,56,020
5 th	₹ 22,89,829	10 th	₹ 30,88,221

Total Cost for 10 years – Rs.280 Lakhs

Cost inflation 5% per annum

Note: This Environmental Management plan cost will vary according to the public consultation comments

10.10.: CONCLUSION –

Various aspects of mining activities were considered and related impacts were evaluated. Considering all the possible ways to mitigate the environmental concerns Environmental Management Plan was prepared and fund has been allocated for the same. The EMP is dynamic, flexible and subjected to periodic review. For project where the major environmental impacts are associated, EMP will be under regular review. Senior Management responsible for the project will conduct a 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.

11. SUMMARY AND CONCLUSION

This EIA & EMP report prepared for the proposed Rough Stone and Gravel Quarry project located in S.F. No 1/2C, 1/3, 1/4, 1/5 & 16/2A, Sithalapakkam Village, Vembakkam Taluk and Tiruvannamalai District belongs to Thiru.G.Ulaganathan the Project falls in the Cluster category consist of 2 Proposed, 5 Existing Quarries 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.

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

Environmental monitoring and audit mechanism have been recommended before and after commencement of the project, where necessary, to verify the accuracy of the EIA predictions and the effectiveness of recommended mitigation measures.

The main scope of the EIA study is to quantify the cumulative impact in the study area due to cluster quarries and formulate the effective mitigation measures for each individual leases. A detailed account of the emission sources, emissions control equipment, background Air quality levels, Meteorological measurements, Dispersion model and all other aspects of pollution like effluent discharge, Dust generation etc., have been discussed in this report. The baseline monitoring study has been carried out during the months March to May 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 Rough Stone as per market demand. Sustainable and modern mining leads us to see positive impact of mining operation and providing consistent employment for nearly 25 people directly in the proposed projects 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 Thiru G.Ulaganathan Rough Stone and Gravel Quarry (Extent – 2.39.0 ha).

12. DISCLOSURE OF CONSULTANT

Thiru G.Ulaganathan have engaged with 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 for the proposed project.

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	EB	Ecology and bio-diversity
AEC	Associate EIA Coordinator	NV	Noise and vibration
FAE	Functional Area Expert	SE	Socio economics
FAA	Functional Area Associates	HG	Hydrology, ground water and water conservation
TM	Team Member	SC	Soil conservation
GEO	Geology	RH	Risk assessment and hazard management
WP	Water pollution monitoring, prevention and control	SHW	Solid and hazardous wastes
AP	Air pollution monitoring, prevention and control	MSW	Municipal Solid Wastes
LU	Land Use	ISW	Industrial Solid Wastes
AQ	Meteorology, air quality modeling, and prediction	HW	Hazardous Wastes

DECLARATION BY EXPERTS CONTRIBUTING TO THE EIA/EMP

This EIA/EMP for Thiru G.Ulaganathan Rough Stone & Gravel Quarry over an Extent of 2.39.0 ha in Sithalapakkam Village of Vembakkam Taluk, Tiruvannamalai District of Tamil Nadu is prepared as per the Generic Structure of EIA Guidelines manual. It is also certified that information furnished in the above EIA study are true and correct to the best of our knowledge.

I, hereby, certify that I was a part of the EIA team in the following capacity that developed the EIA/EMP Report.

Name: **Dr. M. Ifthikhar Ahmed**

Designation: **EIA Coordinator**

Date & Signature:




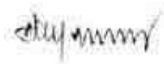

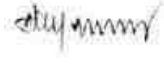






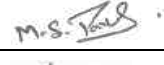

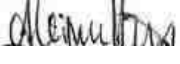





Period of Involvement: **January 2019 to till date**

Associated Team Member with EIA Coordinator:


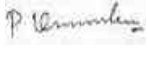

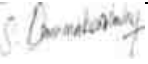
1. Mr.P. Viswanathan
2. Mr. M. Santhoshkumar
3. Mr. S. Ilavarasan

FUNCTIONAL AREA EXPERTS ENGAGED IN THE PROJECT

Sl. No	Functional Area	Involvement	Name of the Expert/s	Signature
1	AP	<ul style="list-style-type: none"> ▪ Identification of different sources of air pollution due to the proposed mine activity ▪ Prediction of air pollution and propose mitigation measures / control measures 	Mr. A. Jagannathan	
2	WP	<ul style="list-style-type: none"> ▪ Suggesting water treatment systems, drainage facilities ▪ Evaluating probable impacts of effluent/waste water discharges into the receiving environment/water bodies and suggesting control measures. 	Dr. M. Ifthikhar Ahmed	
			Mr. N. Senthilkumar	
3	HG	<ul style="list-style-type: none"> ▪ Interpretation of ground water table and predict impact and propose mitigation measures. ▪ Analysis and description of aquifer Characteristics 	Dr. P. Thangaraju	
4	GEO	<ul style="list-style-type: none"> ▪ Field Survey for assessing the regional and local geology of the area. ▪ Preparation of mineral and geological maps. ▪ Geology and Geo morphological analysis/description and Stratigraphy/Lithology. 	Dr. M. Ifthikhar Ahmed	
			Dr. P. Thangaraju	
5	SE	<ul style="list-style-type: none"> ▪ Revision in secondary data as per Census of India, 2011. ▪ Impact Assessment & Preventive Management Plan ▪ Corporate Environment Responsibility. 	Mrs. K. Anitha	
6	EB	<ul style="list-style-type: none"> ▪ Collection of Baseline data of Flora and Fauna. ▪ Identification of species labelled as Rare, Endangered and threatened as per IUCN list. 	Mrs. Amirtham	

		<ul style="list-style-type: none"> 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. Iftikhah 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. Viswathanan	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 	<i>A. Allimuthu</i>
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 	<i>S. Ilavarasan</i>
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 	<i>E. Vadivel</i>
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 	<i>D. Dinesh</i>
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 	<i>P. Panneer Selvam</i>
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 	<i>T. Annappan</i>

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 Cluster EIA/EMP for Thiru G.Ulaganathan Rough Stone & Gravel Quarry over an Extent of 2.39.0ha in Sithalapakkam Village of Vembakkam Taluk, Tiruvannamalai 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/RA 0276 Dated: 20-2-2023

Validity:

Valid till 06.08.2025

ANNEXURE

THIRU G. ULAGANATHAN ROUGH STONE AND GRAVEL QUARRY

S.F. Nos: 1/2C, 1/3, 1/4, 1/5 & 16/2A

Sithalapakkam Village,

Vembakkam Taluk,

Tiruvanamalai District

EXTENT = 2.39.0 Ha

ToR obtained

ToR Identification: T023B0108TN5735410N Dated: 01/04/2024

Project Proponent

Thiru. G. Ulaganathan,

S/o. Gomathinayagam

No.15/31, Rajaji Street, Radha Nagar,

Chromepet Taluk,

Kancheepuram District– 600 044

LIST OF ANNEXURES

ANNEXURES	DESCRIPTION	PAGE NOS
P1- THIRU. G. ULAGANATHAN,	COPY OF TERMS OF REFERENCE	1A - 15A
	COPY OF 500M RADIUS QUARRIES DETAILS LETTER	16A – 17A
	COPY OF MINING PLAN APPROVED LETTER	18A – 20A
	COPY OF APPROVED MINING PLAN WITH PLATES	21A - 89A
	COPY OF HYDROGEOLOGICAL REPORT	90A - 98A
	COPY OF INSPECTION LETTER	99A – 124A
	COPY OF EXPLOSIVE LETTER	125A – 129A
	COPY OF 300m & VAO ATTESTATION LETTER	130A – 131A
E1- THIRU G. MANAVALAN	COPY OF ENVIRONMENTAL CLEARANCE	132A – 149A
E2- THIRU MUTHUKRISHNAN,	COPY OF PRECISE AREA COMMUNICATION LETER	150A - 151A
E4- TVL.GOLDEN SANDS,	COPY OF ENVIRONMENTAL CLEARANCE	152A – 164A
E5 – THIRU P. SANKAR	COPY OF ENVIRONMENTAL CLEARANCE	165A – 183A
	COPY OF BASE LINE MONITORING DATA	184A – 256A
	COPY OF CONSULTANT ACCREDITATION CERTIFICATE	257A



सत्यमेव जयते

File No: 10600
Government of India
Ministry of Environment, Forest and Climate Change
(Issued by the State Environment Impact Assessment
Authority(SEIAA), TAMIL NADU)



Dated **01/04/2024**



To,

ULAGANATHAN GOMATHINAYAGAM
ULAGANATHAN GOMATHINAYAGAM
No.15/31, Rajaji Street, Radha Nafgar, Chrompet, Kancheepuram, Tamilnadu , Kanchipuram ,
KANCHIPURAM, TAMIL NADU, 600044
ulaganathan350@gmail.com

Subject: Grant of Terms of Reference under the provision of the EIA Notification 2006-regarding.

Sir/Madam,

This is in reference to your application for Grant of Terms of Reference under the provision of the EIA Notification 2006-regarding in respect of project G.Ulaganathan, Rough Stone and Gravel Quarry, Extent: 2.39.0ha S.F.Nos: 1/2C, 1/3, 1/4, 1/5 & 16/2A of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District. submitted to Ministry vide proposal number SIA/TN/MIN/453826/2023 dated 30.11.2023.

Ref:

1. Online proposal No. SIA/TN/MIN/453826/2023 dated 30.11.2023.
2. Your application submitted for Terms of Reference dated:18.12.2023.

2. The particulars of the proposal are as below :

(i) TOR Identification No.	TO23B0108TN5735410N
(ii) File No.	10600
(iii) Clearance Type	TOR
(iv) Category	B1
(v) Project/Activity Included Schedule No.	1(a) Mining of minerals G.Ulaganathan, Rough Stone and Gravel Quarry, Extent: 2.39.0ha S.F.Nos: 1/2C, 1/3, 1/4, 1/5 & 16/2A of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District.
(vii) Name of Project	

(viii) Name of Company/Organization	ULAGANATHAN GOMATHINAYAGAM
(ix) Location of Project (District, State)	TIRUVANNAMALAI, TAMIL NADU
(x) Issuing Authority	SEIAA
(xii) Applicability of General Conditions	no
(xiii) Applicability of Specific Conditions	no

- In view of the particulars given in the Para 1 above, the project proposal interalia including Form-1(Part A and B) were submitted to the Ministry for an appraisal by the State Environment Impact Assessment Authority(SEIAA) Appraisal Committee (SEIAA) in the Ministry under the provision of EIA notification 2006 and its subsequent amendments.
- The above-mentioned proposal has been considered by State Environment Impact Assessment Authority(SEIAA) Appraisal Committee of SEIAA in the meeting held on 18/03/2024. The minutes of the meeting and all the Application and documents submitted [(viz. Form-1 Part A, Part B, Part C EIA, EMP)] are available on PARIVESH portal which can be accessed by scanning the QR Code above.
- The State Expert Appraisal Committee (SEAC), based on the information & clarifications provided by the project proponent and after detailed deliberations recommended the proposal for grant of Terms of Reference under the provision of EIA Notification, 2006 and as amended thereof subject to the stipulation of specific and general conditions as detailed in Annexure (1).
- The SEIAA has examined the proposal in accordance with the Environment Impact Assessment (EIA) Notification, 2006 & further amendments thereto and after accepting the recommendations of the State Environment Impact Assessment Authority(SEIAA) Appraisal Committee hereby decided to grant Terms of Reference for instant proposal of M/s. ULAGANATHAN GOMATHINAYAGAM under the provisions of EIA Notification, 2006 and as amended thereof.
- The Ministry/SEIAA-TN reserves the right to stipulate additional conditions, if found necessary.
- The Terms of Reference to the aforementioned project is under provisions of EIA Notification, 2006. It does not tantamount to approvals/consent/permissions etc. required to be obtained under any other Act/Rule/regulation. The Project Proponent is under obligation to obtain approvals /clearances under any other Acts/ Regulations or Statutes, as applicable, to the project.
- This issues with the approval of the Competent Authority.
- 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.

Copy To

- The Additional Chief Secretary to Government, Environment & Forests Department, Govt. of Tamil Nadu, Fort St. George, Chennai - 9
- The Chairman, Central Pollution Control Board, Parivesh Bhavan, CBD Cum-Office Complex, East Arjun Nagar, New Delhi 110032.
- The Member Secretary, Tamil Nadu Pollution Control Board,76, Mount Salai, Guindy, Chennai-600 032.
- Monitoring Cell, IA Division, Ministry of Environment, Forests &CC, Paryavaran Bhavan, CGO Complex, New Delhi 110003
- The District Collector, Tiruvannamalai District.
- The Assistant Director, Department of Geology & Mining, Tiruvannamalai District.
- Stock File.

Annexure 1

Specific Terms of Reference for (Mining Of Minerals)

1. Seiaa Standard Conditions

S. No	Terms of Reference
1.1	<p><u>Cluster Management Committee</u></p> <ol style="list-style-type: none"> 1. Cluster Management Committee shall be framed which must include all the proponents in the cluster as members including the existing as well as proposed quarry. 2. The members must coordinate among themselves for the effective implementation of EMP as committed including Green Belt Development, Water sprinkling, tree plantation, blasting etc., 3. The List of members of the committee formed shall be submitted to AD/Mines before the execution of mining lease and the same shall be updated every year to the AD/Mines. 4. Detailed Operational Plan must be submitted which must include the blasting frequency with respect to the nearby quarry situated in the cluster, the usage of haul roads by the individual quarry in the form of route map and network. 5. The committee shall deliberate on risk management plan pertaining to the cluster in a holistic manner especially during natural calamities like intense rain and the mitigation measures considering the inundation of the cluster and evacuation plan. 6. The Cluster Management Committee shall form Environmental Policy to practice sustainable mining in a scientific and systematic manner in accordance with the law. The role played by the committee in implementing the environmental policy devised shall be given in detail. 7. The committee shall furnish action plan regarding the restoration strategy with respect to the individual quarry falling under the cluster in a holistic manner. 8. The committee shall furnish the Emergency Management plan within the cluster. 9. The committee shall deliberate on the health of the workers/staff involved in the mining as well as the health of the public. 10. The committee shall furnish an action plan to achieve sustainable development goals with reference to water, sanitation & safety. 11. The committee shall furnish the fire safety and evacuation plan in the case of fire accidents. <p><u>Impact study of mining</u></p> <ol style="list-style-type: none"> 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 <ol style="list-style-type: none"> a) Soil health & soil biological, physical land chemical features . b) Climate change leading to Droughts, Floods etc. c) Pollution leading to release of Greenhouse gases (GHG), rise in Temperature, & Livelihood of the local people. d) Possibilities of water contamination and impact on aquatic ecosystem health. e) Agriculture, Forestry & Traditional practices. f) Hydrothermal/Geothermal effect due to destruction in the Environment. g) Bio-geochemical processes and its foot prints including environmental stress. h) Sediment geochemistry in the surface streams. <p><u>Agriculture & Agro-Biodiversity</u></p> <ol style="list-style-type: none"> 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.

S. No	Terms of Reference
	<p><u>Forests</u></p> <p>19. The project proponent shall detailed study on impact of mining on Reserve forests free ranging wildlife.</p> <p>20. The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.</p> <p>21. The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection.</p> <p>22. The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site.</p> <p><u>Water Environment</u></p> <p>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.</p> <p>24. Erosion Control measures.</p> <p>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.</p> <p>26. The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir.</p> <p>27. The project proponent shall study and furnish the details on potential fragmentation impact on natural environment, by the activities.</p> <p>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.</p> <p>29. The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components.</p> <p>30. The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites.</p> <p><u>Energy</u></p> <p><u>Climate Change</u></p> <p>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.</p> <p>33. The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock.</p> <p><u>Mine Closure Plan</u></p> <p><u>EMP</u></p> <p>35. Detailed Environment Management Plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued.</p> <p>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.</p> <p><u>Risk Assessment</u></p> <p><u>Disaster Management Plan</u></p> <p><u>Others</u></p> <p>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.</p> <p>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.</p>

S. No	Terms of Reference
	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.

2. Mining Conditions - Site Specific

S. No	Terms of Reference
2.1	<p>1. The Project Proponent shall furnish the revised EMP based on the study carried out on impact of the dust & other environmental impacts due to proposed quarrying operations on the nearby agricultural lands for remaining life of the mine in the format prescribed by the SEAC considering the cluster situation.</p> <p>2. The PP shall undertake a detailed Hydrogeology study considering nearby existing wells, Aquifers, Ground water & surface water levels etc within the radius of 1km.</p>

3. Seac Standard Conditions

S. No	Terms of Reference
3.1	<p>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:</p> <ul style="list-style-type: none"> (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. <p>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.</p> <p>3. 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.</p> <p>4. The Proponent shall carry out Bio diversity study through reputed Institution and the same shall be included in EIA Report.</p> <p>5. 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.</p> <p>6. 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.</p>

S. No	Terms of Reference
	<p>7. 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.</p> <p>8. 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.</p> <p>9. 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.</p> <p>10. 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.</p> <p>11. 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,</p> <p>12. What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?</p> <p>13. Quantity of minerals mined out.</p> <ul style="list-style-type: none"> ● 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. <p>14. All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/Topo sheet, topographic sheet, geomorphology, lithology and geology of the mining lease area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).</p> <p>15. The PP shall carry out Drone video survey covering the cluster, green belt, fencing, etc.,</p> <p>16. The proponent shall furnish photographs of adequate fencing, green belt along the periphery including replantation of existing trees & safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan.</p> <p>17. The Project Proponent shall provide the details of mineral reserves and mineable reserves, planned production capacity, proposed working methodology with justifications, the anticipated impacts of the mining operations on the surrounding environment, and the remedial measures for the same.</p> <p>18. The Project Proponent shall provide the Organization chart indicating the appointment of various statutory officials and other competent persons to be appointed as per the provisions of the Mines Act'1952 and the MMR, 1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment.</p> <p>19. 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.</p> <p>20. 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.</p> <p>21. The Proponent shall carry out the Cumulative impact study due to mining operations carried out</p>

S. No	Terms of Reference
	<p>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.</p> <p>22. Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.</p> <p>23. 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.</p> <p>24. 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.</p> <p>25. 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.</p> <p>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.</p> <p>27. Impact on local transport infrastructure due to the Project should be indicated.</p> <p>28. 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.</p> <p>29. A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.</p> <p>30. 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.</p> <p>31. 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.</p> <p>32. 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</p> <p>33. 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.</p> <p>34. 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.</p> <p>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.</p> <p>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.</p>

S. No	Terms of Reference
	<p>37. 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.</p> <p>38. Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.</p> <p>39. 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.</p> <p>40. 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.</p> <p>41. 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.</p> <p>42. 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.</p>

Standard Terms of Reference for (Mining of minerals)

1.

S. No	Terms of Reference
1.1	An EIA-EMP Report shall be prepared for peak capacity (.....MTPA)operation in an ML/project area of.....ha based on the generic structure specified in Appendix III of the EIA Notification, 2006.
1.2	An EIA-EMP Report would be prepared for peak capacity operation to cover the impacts and environment management plan for the project specific activities on the environment of the region, and the environmental quality encompassing air, water, land, biotic community, etc. through collection of data and information, generation of data on impacts including prediction modeling for..... MTPA of mineral production based on approved project/Mining Plan for.....MTPA. Baseline data collection can be for any season (three months) except monsoon.
1.3	Proper KML file with pin drop and coordinate of mine at 500-1000 m interval be provided
1.4	A Study area map of the core zone (project area) and 10 km area of the buffer zone (1: 50,000 scale) clearly delineating the major topographical features such as the land use, surface drainage pattern including rivers/streams/nullahs/canals, locations of human habitations, major constructions including railways, roads, pipelines, major industries, mines, and other polluting sources. In case of ecologically sensitive areas such as Biosphere Reserves/National Parks/WL Sanctuaries/ Elephant Reserves, forests (Reserved/Protected), migratory corridors of fauna, and areas where endangered fauna and plants of medicinal and economic importance found in the 15 km study area should be given. The above details to be furnished in tabular form also
1.5	Map showing the core zone delineating the agricultural land (irrigated and un-irrigated, uncultivable land as defined in the revenue records, forest areas (as per records), along with other physical features such as water bodies, etc should be furnished.
1.6	A contour map showing the area drainage of the core zone and 25 km of the study area (where the

S. No	Terms of Reference																																				
	water courses of the core zone ultimately join the major rivers/streams outside the lease/project area) should also be clearly indicated in the separate map.																																				
1.7	Catchment area with its drainage map of 25 km area within and outside the mine shall be provided with names, details of rivers/ riverlet system and its respective order. The map should clearly indicate drainage pattern of the catchment area with basin of major rivers. Diversion of drains/ river need elaboration in form of length, quantity and quality of water to be diverted																																				
1.8	(Details of mineral reserves, geological status of the study area and the seams to be worked, ultimate working depth and progressive stage-wise working scheme until the end of mine life should be provided on the basis of the approved rated capacity and calendar plans of production from the approved Mining Plan. Geological maps and sections should be included. The Progressive mine development and Conceptual Final Mine Closure Plan should also be shown in figures. Details of mine plan and mine closure plan approval of Competent Authority should be furnished for green field and expansion projects.																																				
1.9	Details of mining methods, technology, equipment to be used, etc., rationale for selection of specified technology and equipment proposed to be used vis-à-vis the potential impacts should be provided.																																				
1.10	Impact of mining on hydrology, modification of natural drainage, diversion and channeling of the existing rivers/water courses flowing through the ML and adjoining the lease/project and the impact on the existing users and impacts of mining operations thereon.																																				
1.11	A detailed Site plan of the mine showing the proposed break-up of the land for mining operations such as the quarry area, OB dumps, green belt, safety zone, buildings, infrastructure, Stockyard, township/colony (within and adjacent to the ML), undisturbed area -if any, and landscape features such as existing roads, drains/natural water bodies to be left undisturbed along with any natural drainage adjoining the lease /project areas, and modification of thereof in terms of construction of embankments/bunds, proposed diversion/re-channelling of the water courses, etc., approach roads, major haul roads, etc should be indicated.																																				
1.12	<p>Original land use (agricultural land/forestland/grazing land/wasteland/water bodies) of the area should be provided as per the tables given below. Impacts of project, if any on the land use, in particular, agricultural land/forestland/grazing land/water bodies falling within the lease/project and acquired for mining operations should be analyzed. Extent of area under surface rights and under mining rights should be specified. Area under Surface Rights</p> <table border="1" data-bbox="336 1579 1473 1653"> <thead> <tr> <th>S.N</th> <th>ML/Project Land use</th> <th>Area under Surface Rights(ha)</th> <th>Area Under Mining Rights(ha)</th> <th>Area under Both (ha)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Agricultural land</td> <td></td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>Forest Land</td> <td></td> <td></td> <td></td> </tr> <tr> <td>3</td> <td>Grazing Land</td> <td></td> <td></td> <td></td> </tr> <tr> <td>4</td> <td>Settlements</td> <td></td> <td></td> <td></td> </tr> <tr> <td>5</td> <td>Others (specify)</td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <table border="1" data-bbox="336 1921 1222 1995"> <thead> <tr> <th>S.N.</th> <th>Details</th> <th>Area (ha)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Buildings</td> <td></td> </tr> </tbody> </table>	S.N	ML/Project Land use	Area under Surface Rights(ha)	Area Under Mining Rights(ha)	Area under Both (ha)	1	Agricultural land				2	Forest Land				3	Grazing Land				4	Settlements				5	Others (specify)				S.N.	Details	Area (ha)	1	Buildings	
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S. No	Terms of Reference
	2 Infrastructure 3 Roads 4 Others (specify) Total
1.13	<p>Study on the existing flora and fauna in the study area (10km) should be carried out by an institution of relevant discipline. The list of flora and fauna duly authenticated separately for the core and study area and a statement clearly specifying whether the study area forms a part of the migratory corridor of any endangered fauna should be given. If the study area has endangered flora and fauna, or if the area is occasionally visited or used as a habitat by Schedule-I species, or if the project falls within 15 km of an ecologically sensitive area, or used as a migratory corridor then a Comprehensive Conservation Plan along with the appropriate budgetary provision should be prepared and submitted with EIA-EMP Report; and comments/observation from the CWLW of the State Govt. should also be obtained and furnished.</p>
1.14	<p>One-season (other than monsoon) primary baseline data on environmental quality - air (PM10, PM2.5, SO_x, NO_x and heavy metals such as Hg, Pb, Cr, As, etc), noise, water (surface and groundwater), soil - along with one-season met data coinciding with the same season for AAQ collection period should be provided. The detail of NABL/ MoEF&CC certification of the respective laboratory and NABET accreditation of the consultant to be provided.</p>
1.15	<p>Map (1: 50, 000 scale) of the study area (core and buffer zone) showing the location of various sampling stations superimposed with location of habitats, other industries/mines, polluting sources, should be provided. The number and location of the sampling stations in both core and buffer zones should be selected on the basis of size of lease/project area, the proposed impacts in the downwind (air)/downstream (surface water)/groundwater regime (based on flow). One station should be in the upwind/upstream/non-impact/non-polluting area as a control station. The monitoring should be as per CPCB guidelines and parameters for water testing for both ground water and surface water as per ISI standards and CPCB classification wherever applicable. Observed values should be provided along with the specified standards.</p>
1.16	<p>For proper baseline air quality assessment, Wind rose pattern in the area should be reviewed and accordingly location of AAMSQ shall be planned by the collection of air quality data by adequate monitoring stations in the downwind areas. Monitoring location for collecting baseline data should cover overall the 10 km buffer zone i.e. dispersed in 10 km buffer area. In case of expansion, the displayed data of CAAQMS and its comparison with the monitoring data to be provided</p>
1.17	<p>A detailed traffic study along with presence of habitation in 100 mts distance from both side of road, the impact on the air quality with its proper measures and plan of action with timeline for widening of road. The project will increase the no. of vehicle along the road which will indirectly contribute to carbon emission so what will be the compensatory action plan should be clearly spell out in EIA/ EMP report.</p>
1.18	<p>The socio-economic study to conducted with actual survey report and a comparative assessment to be provided from the census data should be provided in EIA/ EMP report also occupational status & economic status of the study area and what economically project will contribute should be clearly mention. The study should also include the status of infrastructural facilities and amenities present in the study area and a comparative assessment with census data to be provided and to link it with</p>

S. No	Terms of Reference
	the initialization and quantification of need based survey for CSR activities to be followed.
1.19	The Ecology and biodiversity study should also indicate the likely impact of change in forest area for surface infrastructural development or mining activity in relation to the climate change of that area and what will be the compensatory measure to be adopted by PP to minimize the impact of forest diversion.
1.20	Baseline data on the health of the population in the impact zone and measures for occupational health and safety of the personnel and manpower for the mine should be submitted.
1.21	Impact of proposed project/activity on hydrological regime of the area shall be assessed and report be submitted. Hydrological studies as per GEC 2015 guidelines to be prepared and submitted
1.22	Impact of mining and water abstraction from the mine on the hydrogeology and groundwater regime within the core zone and 10 km buffer zone including long-term monitoring measures should be provided. Details of rainwater harvesting and measures for recharge of groundwater should be reflected in case there is a declining trend of groundwater availability and/or if the area falls within dark/grey zone.
1.23	Study on land subsidence including modeling for prediction, mitigation/prevention of subsidence, continuous monitoring measures, and safety issues should be carried out.
1.24	Detailed water balance should be provided. The break up of water requirement as per different activities in the mining operations, including use of water for sand stowing should be given separately. Source of water for use in mine, sanction of the Competent Authority in the State Govt. and impacts vis-à-vis the competing users should be provided.
1.25	PP shall submit design details of all Air Pollution control equipment (APCEs) to be implemented as part of Environment Management Plan vis-à-vis reduction in concentration of emission for each APCEs
1.26	PP shall propose to use LNG/CNG based mining machineries and trucks for mining operation and transportation of mineral. The measures adopted to conserve energy or use of renewable sources shall be explored.
1.27	PP to evaluate the green house emission gases from the mine operation and corresponding carbon absorption plan.
1.28	Site specific Impact assessment with its mitigation measures, Risk Assessment and Disaster Preparedness and Management Plan should be provided.
1.29	Impact of choice of mining method, technology, selected use of machinery and impact on air quality, mineral transportation, mineral handling & storage/stockyard, etc, Impact of blasting, noise and vibrations should be provided.
1.30	Impacts of mineral transportation within the mining area and outside the lease/project along with flow-chart indicating the specific areas generating fugitive emissions should be provided. Impacts of transportation, handling, transfer of mineral and waste on air quality, generation of effluents from workshop etc, management plan for maintenance of HEMM and other machinery/equipment should be given. Details of various facilities such as rest areas and canteen for workers and

S. No	Terms of Reference
	effluents/pollution load emanating from these activities should also be provided.
1.31	Details of various facilities to be provided to the workers in terms of parking, rest areas and canteen, and effluents/pollution load resulting from these activities should also be given.
1.32	The number and efficiency of mobile/static water jet, Fog cannon sprinkling system along the main mineral transportation road inside the mine, approach roads to the mine/stockyard/siding, and also the frequency of their use in impacting air quality should be provided.
1.33	Conceptual Final Mine Closure Plan and post mining land use and restoration of land/habitat to the pre- mining status should be provided. A Plan for the ecological restoration of the mined out area and post mining land use should be prepared with detailed cost provisions. Impact and management of wastes and issues of re-handling (wherever applicable) and backfilling and progressive mine closure and reclamation should be furnished.
1.34	Adequate greenbelt nearby areas, mineral stock yard and transportation area of mineral shall be provided with details of species selected and survival rate Greenbelt development should be undertaken particularly around the transport route.
1.35	Cost of EMP (capital and recurring) should be included in the project cost and for progressive and final mine closure plan.
1.36	Details of R&R. Detailed project specific R&R Plan with data on the existing socio- economic status of the population (including tribals, SC/ST, BPL families) found in the study area and broad plan for resettlement of the displaced population, site for the resettlement colony, alternate livelihood concerns/employment for the displaced people, civic and housing amenities being offered, etc and costs along with the schedule of the implementation of the R&R Plan should be given.
1.37	CSR Plan along with details of villages and specific budgetary provisions (capital and recurring) for specific activities over the life of the project should be given.
1.38	Corporate Environment Responsibility:
1.39	a) The Company must have a well laid down Environment Policy approved by the Board of Directors.
1.40	b) The Environment Policy must prescribe for standard operating process/procedures to bring into focus any infringements/deviation/violation of the environmental or forest norms/conditions.
1.41	c) The hierarchical system or Administrative Order of the company to deal with environmental issues and for ensuring compliance with the environmental clearance conditions must be furnished.
1.42	d) To have proper checks and balances, the company should have a well laid down 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.
1.43	e) Environment Management Cell and its responsibilities to be clearly spelled out in EIA/ EMP report

S. No	Terms of Reference						
1.44	f) In built mechanism of self-monitoring of compliance of environmental regulations should be indicated.						
1.45	Status of any litigations/ court cases filed/pending on the project should be provided.						
1.46	PP shall submit clarification from DFO that mine does not falls under corridors of any National Park and Wildlife Sanctuary with certified map showing distance of nearest sanctuary.						
1.47	Copy of clearances/approvals such as Forestry clearances, Mining Plan Approval, mine closer plan approval. NOC from Flood and Irrigation Dept. (if req.), etc. wherever applicable.						
1.48	<p>Details on the Forest Clearance should be given as per the format given:</p> <table border="0" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%; vertical-align: top;">Total Project Area (ha)</td> <td style="width: 15%; vertical-align: top;">ML Forest land (ha)</td> <td style="width: 15%; vertical-align: top;">Total Date of FC</td> <td style="width: 15%; vertical-align: top;">Extent of Forest Land</td> <td style="width: 15%; vertical-align: top;">Balance area for which FC is yet to be obtained</td> <td style="width: 15%; vertical-align: top;">Status of appl For diversion of forest land</td> </tr> </table> <p style="text-align: center;">If more than one provide details of each FC</p>	Total Project Area (ha)	ML Forest land (ha)	Total Date of FC	Extent of Forest Land	Balance area for which FC is yet to be obtained	Status of appl For diversion of forest land
Total Project Area (ha)	ML Forest land (ha)	Total Date of FC	Extent of Forest Land	Balance area for which FC is yet to be obtained	Status of appl For diversion of forest land		
1.49	In case of expansion of the proposal, the status of the work done as per mining plan and approved mine closure plan shall be detailed in EIA/ EMP report						
1.50	Details on Public Hearing should cover the information relating to notices issued in the newspaper, proceedings/minutes of Public Hearing, the points raised by the general public and commitments made by the proponent and the time bound action proposed with budgets in suitable time frame. These details should be presented in a tabular form. If the Public Hearing is in the regional language, an authenticated English Translation of the same should be provided.						
1.51	PP shall carry out survey through drone highlighting the ground reality for atleast 10 minutes						
1.52	Detailed Chronology of the project starting from the first lease deed allotted/Block allotment/ Land acquired to its No. of renewals, CTO /CTE with details of no. renewals, previous EC(s) granted details and its compliance details, NOC details from various Govt bodies like Forest NOC(s), CGWA permissions, Power permissions, etc as per the requisites respectively to be furnished in tabular form.						
1.53	The first page of the EIA/ EMP report must mention the peak capacity production, area, detail of PP, Consultant (NABET accreditation) and Laboratory (NABL / MoEF & CC certification)						
1.54	The compliances of ToR must be properly cited with respective chapter section and page no in tabular form and also mention sequence of the respective ToR complied within the EIA-EMP report in all the chapter,s section.						

Additional Terms of Reference

N/A

Appendix -I
List of Native Trees Suggested for Planting

No	Scientific Name	Tamil Name	Tamil Name
1	<i>Aegle marmelos</i>	Vilvam	வில்வம்
2	<i>Adenaanthera pavonina</i>	Manjadi	மஞ்சாடி, ஆனைக்குன்றிமணி
3	<i>Albizia lebbek</i>	Vaagai	வாகை
4	<i>Albizia amara</i>	Usil	உசில்
5	<i>Bauhinia purpurea</i>	Mantharai	மந்தாரை
6	<i>Bauhinia racemosa</i>	Aathi	ஆத்தி
7	<i>Bauhinia tomentos</i>	Iruvathi	இருவாத்தி
8	<i>Buchanania axillaris</i>	Kattuna	காட்டுமா
9	<i>Borassus flabellifer</i>	Panai	பனை
10	<i>Butea monosperma</i>	Murukkamaram	முருக்கமரம்
11	<i>Bobax ceiba</i>	Ilavu, Sevvilavu	இலவு
12	<i>Calophyllum inophyllum</i>	Punnai	புன்னை
13	<i>Cassia fistula</i>	Sarakondrai	சரக்கொன்றை
14	<i>Cassia roxburghii</i>	Sengondrai	செங்கொன்றை
15	<i>Chloroxylon sweitenia</i>	Purasamaram	புரசு மரம்
16	<i>Cochlospermum religiosum</i>	Kongu, Manjallavu	கோங்கு, மஞ்சள் இலவு
17	<i>Cordia dichotoma</i>	Naruvuli	நருவுளி.
18	<i>Creteva adansoni</i>	Mavalingum	மாவிலங்கம்
19	<i>Dillenia indica</i>	Uva, Uzha	உசா
20	<i>Dillenia pentagyna</i>	SiruUva, Sitruzha	சிறு உசா
21	<i>Diospyro sebenum</i>	Karungali	கருங்காலி
22	<i>Diospyro schloroxylon</i>	Vaganai	வாகனை
23	<i>Ficus amplissima</i>	Kalltchi	கல் இச்சி
24	<i>Hibiscus tiliaceou</i>	Aatrupoovarasu	ஆற்றுப்புவரசு
25	<i>Hardwickia binata</i>	Aacha	ஆச்சா
26	<i>Holoptelia integrifolia</i>	Aayili	ஆயா மரம், ஆயிலி
27	<i>Lannea coromandelica</i>	Odhiam	ஒதியம்
28	<i>Lagerstroemia speciosa</i>	Poo Marudhu	பூ மருது
29	<i>Lepisanthus tetraphylla</i>	Neikottaimaram	நெய் கொட்டை மரம்
30	<i>Limonia acidissima</i>	Vila maram	விலா மரம்
31	<i>Litsea glutinos</i>	Pisinpattai	அரம்பா. பிசின்பட்டை
32	<i>Madhuca longifolia</i>	Illuppai	இலுப்பை
33	<i>Manilkara hexandra</i>	UlakkaiPaalai	உலக்கை பாலை
34	<i>Mimusops elengi</i>	Magizhamaram	மகிழ்மரம்
35	<i>Mitragyna parvifolia</i>	Kadambu	கடம்பு
36	<i>Morinda pubescens</i>	Nuna	நுணா
37	<i>Morinda citrifolia</i>	Vellai Nuna	வெள்ளை நுணா
38	<i>Phoenix sylvestre</i>	Eachai	ஈச்சமரம்
39	<i>Pongamia pinnat</i>	Pungam	புங்கம்

40	<i>Premna mollissima</i>	Munnai	முன்னை
41	<i>Premna serratifolia</i>	Narumunnai	நறு முன்னை
42	<i>Premna tomentosa</i>	Malaipoovarasu	மலை பூவரசு
43	<i>Prosopis cinerea</i>	Vauni maram	வன்னி மரம்
44	<i>Pterocarpus marsupium</i>	Vengai	வேங்கை
45	<i>Pterospermum canescens</i>	Vennangu, Tada	வெண்ணாங்கு
46	<i>Pterospermum xylocarpum</i>	Polavu	புலவு
47	<i>Puthranjiva roxburghii</i>	Karipala	கறிபாலா
48	<i>Salvadora persica</i>	Ugaa Maram	ஊகா மரம்
49	<i>Sapindus emarginatus</i>	Manipungan, Soapukai	மணிப்புங்கன் சோப்புக்காய்
50	<i>Saraca asoca</i>	Asoca	அசோகா
51	<i>Streblus asper</i>	Piray maram	பிராய் மரம்
52	<i>Strychnos nuxvomica</i>	Yetti	எட்டி
53	<i>Strychnos potatorum</i>	Therthang Kottai	தேத்தான் கொட்டை
54	<i>Syzygium cumini</i>	Naval	நாவல்
55	<i>Terminalia belleric</i>	Thandri	தான்றி
56	<i>Terminalia arjuna</i>	Ven marudhu	வெண் மருது
57	<i>Toona ciliata</i>	Sandhana vembu	சந்தன வேம்பு
58	<i>Thespesia populnea</i>	Puvarasu	பூவரசு
59	<i>Walsuratrifoliata</i>	valsura	வால்கரா
60	<i>Wrightia tinctoria</i>	Veppalai	வெப்பாலை
61	<i>Pithecellobium dulce</i>	Kodukkapuli	கொடுக்காப்புளி



Signature Not Verified

Digitally Signed by : A R Rahul Nadh IAS
Member Secretary, SEIAA

Date: 02/04/2024

From

Thiru.A.Perumal, M.sc., M.phil.,
Deputy Director,
Geology and Mining,
Tiruvannamalai District.

To

Thiru.G.Ulaganathan,
S/o.Gomathimayagam,
No.15/31 Rajaji Street,
Radha Nagar, Chromepet,
Kancheepuram District.

Sir,

Rc.No. 197/Kanimam/2022, dated:25.10.2023

Sub: Quarries and Minerals - Minor Mineral Rough Stone -
Tiruvannamalai District - Vembakkam Taluk -
Sithalapakkam village - Patta S.F.Nos.1/2C & etc., over an
extent 2.39.0 hecsts., - Application preferred by
Thiru.G.Ulaganathan S/o.Gomathinayagam - Precise
area communicated - Submission of Mining Plan for
approval - Approved - Regarding.

Ref: Thiru.G.Ulaganathan S/o.Gomathinayagam, No.15/31
Rajaji Street, Radha Nagar, Chromepet, Kancheepuram
letter dated.25.10.2023.

In the reference cited, applicant Thiru.G.Ulaganathan
S/o.Gomathinayagam, the applicant of proposed Rough Stone quarry lease
in SF.Nos.1/2C (0.13.5), 1/3 (0.20.0), 1/4 (0.26.0), 1/5 (0.81.0) & 16/2A
(0.98.5) over an extent 2.39.0 hecsts., of Sithalapakkam village,
Vembakkam Taluk, Tiruvannamalai District has requested to furnish the
details of quarries located within 500 meters radius from his proposed
quarry.

In this regard, the followings are furnished.

i). Existing quarries

Sl. No.	Name of the Owner (Tvl.)	Village & S.F. Nos.	Extent in Hect.	Lease Period	Remarks
1.	Thiru.G.Manavalan, S/o.Govindhanaidu, No.294 Perumal Koil street, Thenagkulam village, Valajapath Taluk, Kancheepuram.	Sithalapakkam 28/12 & 13	2.01.5	17.11.2021 to 16.11.2031	Existing quarry
2.	Thiru.Muthukrishnan, No.221,Chenjamman Koil st, Chithalappakkam Village, Vempakkam Taluk, Tiruvannamalai District.	Sithalapakkam 16/6, 16/7 & 17/1	1.26.0	22.11.2018 to 21.11.2023	
3	Thiru.C.Sugumar, S/o. Chandrababu, No.18-A, V.V.Kovil Street, Walajabad Taluk, Kancheepuram District.	Ezhacheri 20/1H, 20/1I, 20/3B, 20/3C & 20/3D	1.82.5	16.11.2018 to 15.11.2023	
4	Tvl.Golden Sands, No.15, 4th Street, East coast Road,Chennai-115.	Ezhacheri 1/2C, 1/2B2B, 1/2D, 1/7, 1/8,1/9, 20/3A	3.74.5	07.11.2018 to 06.11.2023	
5	Thiru.P.Sankar S/o. Ponnappan, No 1/63 Pillaivar koil street	Ezhacheri 21/2F, 21/2G, 21/2H, 21/2I, 21/2J	2.09.5	02.11.2021 to .. to	

ii). Abandoned quarries

Sl. No.	Name of the Owner (Tvl.)	Village & S.F. Nos.	Extent in Hect.	Lease Period	Remarks
1.	Thiru.M.R.Azhagiri, S/o. M.P.Rajalingam, No.120, Shanmuganandhar Kovil Street, Mangadu, Sriperumbuthur Talu Kancheepuram District	Sithalapakkam 8/1A, 1B 1C, 1D, 1E, 1F 1G, 1H, 1I, 1J 1K, 1L, 1M, 3A 3B	3.87.5	17.10.2018 to 16.10.2023	Expired quarry

iii). Present Proposed quarries

Sl. No	Name of the Owner (Tvl)	Village & S.F. Nos.	Extent in Hect.
1	Thiru.G.Ulaganathan, S/o.Gomathimayagam, No.15/31 Rajaji Street, Radha Nagar, Chromepet, Kancheepuram District.	Sithalapakkam 1/2C, 1/3, 1/4, 1/5 & 16/2A	2.39.0

iv). Future Proposed quarries

Sl. No	Name of the Owner (Tvl)	Village & S.F. Nos.	Extent in Hect.
1	M.N.Balasundaram, S/o.Subramaniyan, No.72, Main Road, Mankadu, Kundrathur Taluk, Kancheepuram District.	Sithalapakkam 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A, 8/3B	3.87.5

Deputy Director,
Geology and Mining,
Tiruvannamalai.

25/10/23

From
Thiru.A.Perumal, M.Sc., M.Phil.,
Deputy Director,
Geology and Mining,
Tiruvannamalai - 4.

To
Thiru.G.Ulaganathan,
S/o.Gomathimayagam,
No.15/31 Rajaji Street,
Radha Nagar, Chromepet,
Kancheepuram District.

Rc.No. 197/Kanimam/2022, dated:25.10.2023

Sir,

Sub: Quarries and Minerals - Minor Mineral Rough Stone - Tiruvannamalai District - Vembakkam Taluk - Sithalapakkam village - Patta S.F.Nos.1/2C & etc., over an extent 2.39.0 hecsts., - Application preferred by **Thiru.G.Ulaganathan S/o.Gomathinayagam** - Precise area communicated - Submission of Mining Plan for approval - Approved - Regarding.

- Ref: 1. Application from Thiru.G.Ulaganathan S/o.Gomathinayagam, No.15/31 Rajaji Street, Radha Nagar, Chromepet, Kancheepuram dated.13.09.2023.
2. Precise Area Communication Notice Rc.No.197/Kanimam/2022, dated.08.09.2023.
3. Mining Plan submitted by Thiru.G.Ulaganathan S/o.Gomathinayagam, No.15/31 Rajaji Street, Radha Nagar, Chromepet, Kancheepuram dated.25.10.2023.

In the reference 2nd cited, the Deputy Director, Geology and Mining Tiruvannamalai has communicated the SF.Nos.1/2C (0.13.5), 1/3 (0.20.0), 1/4 (0.26.0), 1/5 (0.81.0) & 16/2A (0.98.5) over an extent 2.39.0 hecsts., of Sithalapakkam village, Vembakkam Taluk, as precise area to the applicant **Thiru.G.Ulaganathan S/o.Gomathinayagam**, for grant of quarry lease for quarrying Rough Stone and Gravel for a period of 10 years with a direction to produce an approved mining plan in respect of the precise area as per Rule 41 of Tamil Nadu Minor Mineral Concession Rules, 1959 by incorporating the conditions stipulated in the Deputy Director, Geology and Mining Tiruvannamalai letter dated 08.09.2023.

2. In response to the precise area communication letter issued by the Deputy Director, Geology and Mining, Tiruvannamalai the applicant has prepared the draft Mining Plan through the Recognized Qualified Person for the first 5 years though the precise area been granted for 10 years and submitted for approval vide reference 3rd cited.

3. The draft mining plan submitted in respect of the precise area communication has been examined with reference to the provisions of Rule 41 of Tamil Nadu Minor Mineral Concession Rules, 1959 and the followings are observed.

- i) The boundary Co-ordinates (GPS readings) for the entire boundary pillars of the area have been incorporated and shown in the mining plan.
- ii) All the conditions stipulated in the Deputy Director, Geology and Mining Letter Rc.No.197/Kanimam/2022 dated: 08.09.2023 have been incorporated in the mining plan.
- iii) The available geological and mineable resources in the precise area restricted to a depth of 37m below ground level for period of 10 years is as follows.

Depth in Mts.	Geological reserves in Cu.m	Mineable Reserves in Cu.m
37m (2m Gravel + 35m Rough Stone)	Rough Stone : 8,36,500 Gravel : 47,800	Rough Stone : 2,79,180 Gravel : 36,316

- iv) The recoverable reserves estimated for the first & second 5 years in the mining plan for quarrying Rough Stone and Gravel to a depth of 37m below the ground level is as follows.

Period	Depth in Mts.	Mineable Reserves in Cu.m
First Five Years	37m (2m Gravel+ 35m Rough Stone) BGL	Rough Stone : 1,90,015 Gravel : 36,316
Second Five Years	(37m Rough Stone) BGL	Rough Stone : 89,165

4. In the light of the above, in exercise of the powers conferred under Rule 41 (7) of Tamil Nadu Minor Mineral Concession Rules, 1959 the mining plan in respect of Rough Stone quarry of Thiru.G.Ulaganathan S/o.Gomathinayagam, is approved subject to the following conditions.

i) 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.

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, 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) The mining Plan is approved without prejudice to any other order or direction from any court of competent jurisdiction.

iv) Quarrying operations and production shall be carried out as per the approved Mining Plan and the applicant shall be liable to pay the cost of mineral if there is any deviation in the quantum indicated in the approved year wise quantum of production and any such cases as on date are to be dealt with as per Court direction.

Encl: 2 Copies of Approved Mining Plan.

Shini
25/10/23
Deputy Director,
Geology and Mining,
Tiruvannamalai.

Copy submitted to:

1. The Chairman, SEIAA,
Tamil Nadu, 3rd Floor, Panagal Maaligai,
No.1, Jeenias Road, Saldapet, Chennai-15.
2. The Commissioner of Geology and Mining, Chennai-32.
3. The District Collector, Tiruvannamalai.

25/10/23



**MINING PLAN AND PROGRESSIVE QUARRY
CLOSURE PLAN FOR SITHALAPAKKAM
ROUGH STONE AND GRAVEL QUARRY**

(PREPARED UNDER RULES 41 & 42 AS AMENDED IN TAMILNADU MINOR MINERAL CONCESSION RULES, 1959)

Patta Land / Mining Plan Period = Ten Years

IN

LOCATION OF THE QUARRY LEASE APPLIED AREA

EXTENT : 2.39.0 Ha
S.F.NOS : 1/2C, 1/3, 1/4, 1/5 & 16/2A
VILLAGE : SITHALAPAKKAM
TALUK : VEMBAKKAM
DISTRICT : TIRUVANNAMALAI
STATE : TAMIL NADU

FOR

APPLICANT

Thiru. G.Ulaganathan,

S/o. Gomathinayagam,
No.15/31, Rajaji Street,
Radha Nagar, Chromepet,
Kancheepuram,
Tamil Nadu State – 600 044.

PREPARED BY

M.Santhoshkumar, M.Sc.,

Qualified Person

(As per Rule 15(I)(a) and (I)(b) of MCR, 2016)

Regd. Off. No.17, Advaita Ashram Road,
Alagapuram, Salem District – 636 004.
Cell: +91 94422 78601 & 94433 56539
E-mail: infogeoexploration@gmail.com

G. Ulaganathan,
S/o. Gomathinayagam,
No.15/31, Rajaji Street,
Radha Nagar, Chromepet,
Kancheepuram, Tamil Nadu State – 600 044.



CONSENT LETTER FROM APPLICANT

The Mining Plan and Progressive Quarry Closure Plan in Respect of Sithalapakkam Rough stone and Gravel Quarry in S.F.Nos. 1/2C, 1/3, 1/4, 1/5 and 16/2A over an extent of 2.39.0 Ha of Patta land in Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District, Tamil Nadu State has been prepared by

M.Santhoshkumar, M.Sc.,

Qualified Person

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

M.Santhoshkumar, M.Sc.,

Regd. Off. No. 17, Advaita Ashram Road,

Alagapuram, Salem District – 636 004.

Cell: +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

G.Ulaganathan

Place: Kancheepuram

Date: 11.09.2023

G. Ulaganathan,
S/o. Gomathinayagam,
No.15/31, Rajaji Street,
Radha Nagar, Chromepet,
Kancheepuram, Tamil Nadu State – 600 044.



DECLARATION OF THE APPLICANT

The Mining Plan and Progressive Quarry Closure Plan in Respect of Sithalapakkam Rough stone and Gravel Quarry in S.F.Nos.1/2C, 1/3, 1/4, 1/5 and 16/2A over an extent of 2.39.0 Ha of Patta land in Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District, Tamil Nadu State has been prepared in full consultation with me.

I have understood its contents and agree to implement the same in accordance with Laws, Rules and Act applicable to Quarry.

Signature of the Applicant

G.Ulaganathan

Place: Kancheepuram

Date: 11.09.2023



CERTIFICATE

Certified that I am, **M.Santhoshkumar, M.Sc.**, having an office at Regd. Office No.17, Advaitha Ashram Road, Alagapuram, Salem – 636 004, holding a Post Graduate Degree in Geology (M.Sc., Applied Geology) from Annamalai University, Chidambaram and I worked in the field of Mining in a role of Geologist.

Rule 15(I)(a) and (b) of Minerals (Other than Atomic and 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 am preparing this Mining Plan and Progressive Quarry Closure Plan in Respect of Sithalapakkam Rough stone and Gravel Quarry in S.F.Nos.1/2C, 1/3, 1/4, 1/5 and 16/2A over an extent of 2.39.0 Ha of Patta land in Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District, Tamil Nadu State for **Thiru. G. Ulaganathan**, S/o. Gomathinayagam, residing at No.15/31, Rajaji Street, Radha Nagar, Chromepet, Kancheepuram, Tamil Nadu State – 600 044. Since the Mining Plan is prepared as per the provisions contained in Rule 15(I)(a) and (I)(b) of Minerals (Other than Atomic and Hydro Carbons Energy Minerals) Concession Rules, 2016.

Signature of the Qualified Person

M. Santhoshkumar
M.Santhoshkumar, M.Sc.,

Place: Salem

Date: 03.10.2023

M.Santhoshkumar, M.Sc.,

Regd. Off. No. 17, Advaita Ashram Road,

Alagapuram, Salem District – 636 004.

Cell: +91 94422 78601 & 94433 56539



CERTIFICATE FROM THE QUALIFIED PERSON

This is to certify that the Provisions of under Rules 41 & 42 as per the Amended under Tamil Nadu Minor Mineral Concession Rules, 1959 have been observed in the preparation of Mining Plan and Progressive Quarry Closure Plan for Sithalapakkam Rough stone and Gravel Quarry in S.F.Nos.1/2C, 1/3, 1/4, 1/5 and 16/2A over an extent of 2.39.0 Ha of Patta land in Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District, Tamil Nadu State has been prepared for

Thiru. G. Ulaganathan,

S/o. Gomathinayagam,

No.15/31, Rajaji Street,

Radha Nagar, Chromepet,

Kancheepuram, Tamil Nadu State – 600 044.

Whenever specific permissions / exemptions / relaxations and approvals are required, the Applicant will approach the concerned authorities of the Deputy Director, Department of Geology and Mining, Tiruvannamalai District, Tamil Nadu State 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

M. Santhosh Kumar
M.Santhoshkumar, M.Sc.,

Place: Salem

Date: 03.10.2023

M.Santhoshkumar, M.Sc.,

Regd. Off. No. 17, Advaita Ashram Road,

Alagapuram, Salem District – 636 004.

Cell: +91 94422 78601 & 94433 56539



CERTIFICATE FROM THE QUALIFIED PERSON

Certified that the Provisions of Mines Act, Rules and Regulations and Orders made there under have been observed in the preparation of Mining Plan and Progressive Quarry Closure Plan for Sithalapakkam Rough stone and Gravel Quarry in S.F.Nos.1/2C, 1/3, 1/4, 1/5 and 16/2A over an extent of 2.39.0 Ha of Patta land in Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District, Tamil Nadu State has been prepared for

Thiru. G. Ulaganathan,

S/o. Gomathinayagam,

No.15/31, Rajaji Street,

Radha Nagar, Chromepet,

Kancheepuram, Tamil Nadu State – 600 044.

Whenever specific permissions / exemptions / relaxations and approvals are required, the Applicant will approach the concerned authorities of Director General of Mines Safety (DGMS), No.5, II Street, Block-AA, Anna Nagar, Chennai-40, Tamil Nadu State for such permissions / exemptions / relaxations and approvals.

It is also certified that information furnished in the Mining Plan are true and correct to the best of my knowledge.

Signature of the Qualified Person

M. Santhosh Kumar
M.Santhoshkumar, M.Sc.,

Place: Salem

Date: 03.10.2023

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MINING PLAN ALONG WITH PROGRESSIVE QUARRY CLOSURE PLAN FOR SITHALAPAKKAM ROUGH STONE AND GRAVEL

(PREPARED UNDER RULES 41 & 42 AS PER THE AMENDED UNDER TAMIL NADU MINOR MINERAL
CONCESSION RULES, 1959)



1.0 INTRODUCTION AND EXECUTIVE SUMMARY

This Mining Plan and Environment Management Plan are prepared for **Thiru.G.Ulaganathan**, S/o. Gomathinayagam, residing at No.15/31, Rajaji Street, Radha Nagar, Chromepet, Kancheepuram, Tamil Nadu State – 600 044.

The applicant applied for Sithalapakkam Rough stone and Gravel Quarry in S.F.Nos.1/2C, 1/3, 1/4, 1/5 and 16/2A over an extent of 2.39.0ha of Patta land in Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District, Tamil Nadu State under Rules 19(1) & 20 of Tamil Nadu Minor Mineral Concession Rules, 1959.

The application was processed by the Deputy Director, Department of Geology and Mining, Tiruvannamalai District and passed a Precise Area Communication letter vide **Rc.No.197/Mines/2022, Dated: 08.09.2023** to submit Mining Plan for the approval in Department of Geology and Mining, Tiruvannamalai District and obtain Environmental Clearance from the State Level Impact Assessment Authority, Chennai Tamil Nadu State with the conditions to provide (Please refer Annexure No. I):

In order to ensure compliance of the order of the Honourable Supreme Court Dated: 27.02.2012 in I.A.No.12.13.2011 in Special Leave Petition SLP (C) No 19628-19629/2009, it has been now decided that all mining projects of minor minerals including their renewal irrespective of sizes of the lease would hence forth require prior environmental clearance mining project within the lease applied area up to less than 100ha including projects or minor mineral with lease applied area less then 5ha would be treated as category B as defined in the EIA notification 2006 and will be considered by the state notified by MoEF as prescribed procedure under EIA notification 2006.

In the above circumstances the applicant through his consultant is hereby preparing the Mining Plan, Environmental Management Plan and Progressive Quarry Closure Plan for approval and subsequent submission of Form-I, Form-IM and Pre-feasibility report to obtain environmental clearance from the State Level Impact Assessment Authority, Tamil Nadu State, Rough Stone and Gravel quarry. This mining plan is prepared by considering the Rules 41 & 42 as Amended in Tamil Nadu Minor Mineral Concession Rules, 1959 and as per the EIA Notification 2006 and its subsequent Amendment and judgments till 2023.

**Short Notes of Mining Plan:**

- a. Village Panchayat - Sithalapakkam
- b. Panchayat Union - Sithalapakkam
- c. The Geological Resources are **8,36,500m³** of Rough Stone, and **47,800m³** of Gravel formation in the entire area.
- d. The Total Mineable Reserves are **2,79,180m³** of Rough Stone, and **36,316m³** of Gravel in the entire area.
- e. The proposed quantity of reserves/ (level of production) to be mined are **2,79,180m³** of Rough stone (1,90,015m³ for first five years and 89,165m³ for second five years period) for **ten years** and **36,316m³** of Gravel for first three years in the entire area.
- f. Total extent of the lease applied area is about 2.39.0 Ha.
- g. Topography of the area = The area is exhibiting plain terrain
- h. Proposed Depth of mining = 37m below ground level for first five years and Ten Years.
- i. Lease Period = Ten years
- j. It is a fresh lease application.
- k. Method of mining / level of mechanization.
Opencast mechanized method, the quarry operation involves Hand Jack hammer drilling, Mild blasting.
- l. Type of machineries proposed in the quarrying operation is given below:
Excavators attached with rock breaker (Rental Basis).
Jack hammer, Compressor (Diesel drive) (4 Jack hammer capacity) (Rental Basis).
- m. No trees will be uprooted due to this quarrying operation.
- n. The approach road from the main road to quarry is will be constructed and maintained in a good condition for the haulage of quarry materials and machineries.
- o. There is No Export of this Rough Stone and Gravel.
- p. Topo sketch covering 10km and 1km radius around the proposed area with markings of habitations, water bodies including streams, rivers, roads, major structure like bridges, wells, archaeological importance, places of worships are marked and enclosed as Plate Nos.IA & IB.
- q. The lease applied area is about 2.39.0 Ha bounded by nineteen corners; the corners are designated as 1-19 Clockwise from the Northwestern corner the Co – ordinates for the all the corners are clearly marked in the Quarry Lease and Surface Plan enclosed as Plate No.II.
- r. The plans of proposed quarrying area showing the dimensions of the pit, their proposed depth and maximum area of proposed quarrying are enclosed as Plate Nos. III and IV.

- s. General conditions will not be applicable for the proposed area. The area applied for lease is 10Km away from the,
- Interstate Boundary,*
 - Protected area under wild life protection ACT, 1972,*
 - Critically polluted areas as identified by CPCB,*
 - Notified Eco sensitive areas.*
- t. There is no waste anticipated during this quarry operation, hence waste dump is not proposed in the lease applied area.
- u. Around 35 employees are deploying in the quarrying operation.
- v. Total Cost of the project is about **Rs.57,09,000/-**.
- w. Infrastructures around the lease applied area given below in the table:

TABLE-1

Particulars	Location	Approximate aerial distance and direction from lease applied area
Nearest Post Office	Magaral	3km – SE
Nearest School	Arasanipalai	2km – SE
Nearest Dispensary	Magaral	3km – SE
Nearest Town	Magaral	3km – SE
Nearest Police Station	Magaral	3km – SE
Nearest Govt. Hospital	Lakshmipuram	6km – SW
Nearest D.S.P. Office	Kancheepuram	13km – NW
Nearest Railway Station	Kancheepuram	13km – NW
Nearest Airport	Chennai	75km – NE
Nearest Seaport	Chennai	75km – NE
District Head quarters	Tiruvannamalai	90km – SW

2.9 GENERAL INFORMATION

- 2.1 a) Name of the Applicant :** **Thiru. G. Ulaganathan,**
S/o. Gomathinayagam,
- b) Address of the Applicant (With Phone No and Aadhaar No)**
- Address : No.15/31, Rajaji Street,
Radha Nagar, Chromepet,
Kancheepuram, Tamil Nadu State.
- Pin Code : 600 044.
- Mobile No : +91 93609 52091
- Aadhaar No : 4623 3443 9010
- Email ID : vanajaulaganathan@gmail.com

c) Status of the Applicant (Individual / Company / Firm):

The applicant is an Individual.

2.2 a) Mineral which the Applicant intends to mine:

The Applicant intends to quarry Rough Stone and Gravel only.

b) Precise area communication letter details received from the Competent Authority of the Government:

The precise area communication letter was received from the Deputy Director, Department of Geology and Mining, Tiruvannamalai District vide Rc.No.197/Mines/2022, Dated: 08.09.2023.

c) Period of permission / lease to be granted:

Ten Years.

d) Name and address of the Qualified Person who preparing the Mining Plan:

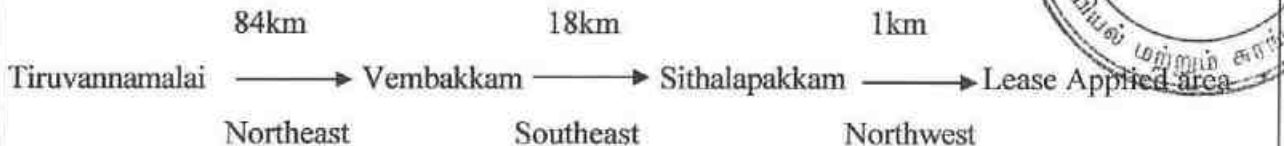
- Name : **M.Santhoshkumar, M.Sc.,**
Qualified Person
(As per Rule 15(I)(a) and (I)(b) of MCR, 2016)
- Address : Reg. No.17, Advaita Ashram Road,
Alagapuram, Salem District – 636 004.
- Telephone : 0427- 2431989 (Office)
- Cell No : +91 94422 78601 & 94433 56539
- Email : infogeoexploration@gmail.com



3.0 LOCATION

a) Details of the area with location map:

The lease applied area is about 90km Northeast side of Tiruvannamalai town and 16km Southeast side of Vembakkam Taluk, the lease applied area located along Sithalapakkam Village at a distance of 1km Northwest side.



Location Map of the Lease Applied Area

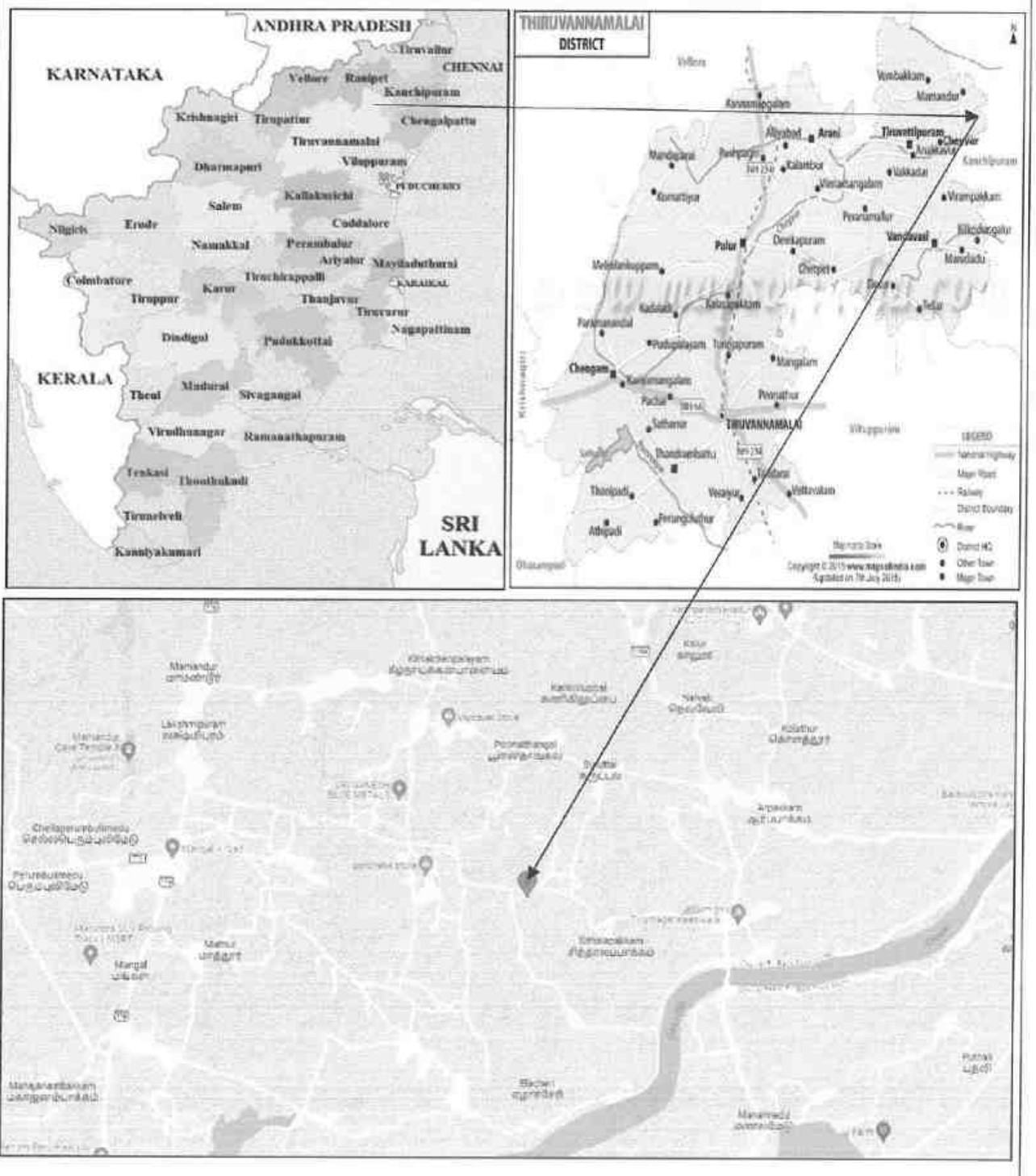


TABLE-2

District	Taluk	Village	S.F. Nos.	Lease Applied Area in ha.	Patta No.
Tiruvannamalai	Vembakkam	Sithalapakkam	1/2C	0.13.5	
			1/3	0.20.0	
			1/4	0.26.0	
			1/5	0.81.0	
			16/2A	0.98.5	
Total Extent				2.39.0 Ha	

b) Classification of the area (Ryotwari/ Poramboke / others):

It is a Patta land classified as Punjai (Barren land) which is not fit for vegetation/ Cultivation.

c) Ownership / Occupancy of the applied area (surface right):

It is a Patta land. Registered in the name of the applicant (**Thiru. G. Ulaganathan**), vide Patta No. 437. Refer Annexure No. IV.

d) Topo sheet No. with latitude and longitude:

The lease applied area falls in the Topo sheet No: **57 – P/10** Latitude between: **12°43'18.0590"N to 12°43'24.1463"N** and Longitude between: **79°43'23.6923"E to 79°43'30.8970"E** on WGS datum-1984. Please refer the Plate Nos. I to II.

e) Existence of public road / Railway line, if any nearby and approximate distance:

The approach (metal) road is situated on the Northeastern side which connects the Elacheri to Sithalapakkam Village Road at a distance of 135m on the Northeastern side from the lease applied area.

Multiple road access is available from the quarry to state highways and National Highway, no villages are enrooted hence the traffic density is not much more due to the transportation of Rough Stone.

The approach road from the main road to quarry is will be constructed and maintained during the entire lease period, tree sapling will be planted on the either side of the road to prevent dust and noise propagation to the nearby areas.

The Nearest Railway line is Arakkonam to Chengalpattu which is about 11.6km on the Northeastern side of the lease applied area.

PART – A**4.0 GEOLOGY AND MINERAL RESERVES****4.1 Brief description of the Topography and general Geology of the area (with plans)**

The lease applied area is exhibiting plain terrain. The area has gentle sloping towards Eastern side and altitude of the area is 97m (max) above from Mean Sea Level. The area is covered by 2m thickness of Gravel followed by Massive Charnockite which is clearly inferred from the outcrops and nearby existing quarry pits.

The Water level in the surrounding area is 57m below general ground profile which is observed from the nearby bore wells. Average annual rainfall is about 985mm.

Topographical View of lease applied area

Peninsular gneiss forms the oldest rock formations, in which the massive formation of Charnockite lies over with rich accumulation of recent quaternary formation. On regional scale of the Charnockite body is $N40^{\circ}W - S40^{\circ}E$ with dipping towards $NE60^{\circ}$.

The general geological sequences of the rocks in this area are given below:

AGE	FORMATION
Recent	- Quaternary Formation (Gravel)
-----Unconformity-----	
Archaean	- Charnockite Peninsular Gneiss complex

4.2 Details of exploration already carried out if any:

State Geology and Mining Dept, Govt. of Tamil Nadu, has carried out the Regional prospecting and exploration in these areas during 1992 to 1993.

Geological Survey of India has carried out detailed mapping in Tiruvannamalai District. Besides, the Qualified Person and his team members made a detailed geological study of the proposed area. The Rough Stone formation is clearly inferred from the outcrops and nearby existing quarry pits.

4.3 Estimation of Reserves:

a) Geological reserves with geological sections on a scale of 1:1000 / 1:2000

As far as Rough Stone (Charnockite) is concerned, the only practical method is the systematic geological mapping and delineation of Rough Stone within the field and careful evaluation of body luster, physical properties, engineering properties and commercial aspects etc.,

Totally four sections have been drawn, two sections are drawn Length wise as (X-Y and X1-Y1) and other two sections are drawn Width wise as (A-B and E-F) to cover the maximum area considered for lease.

The Topographical, Geological plan and sections demarcated the commercial marketable Rough Stone (Charnockite) deposit has been prepared in 1:1000 scale (please refer the Geological Plan and Sections Plate No. III). As the sale of Rough Stone is in terms of cubic meters (Volume) only and not in terms of tonnage.

Estimation of Geological Resources (Plate No. III):

The Geological Resources of Rough Stone and Gravel are calculated up to a maximum depth of 37m (2m Gravel + 35m Rough Stone) below ground level. The total Geological resources are calculated by area method. The total available geological resources are given below:

Total Extent of the area	=	2.39.0 Ha
Area in square meter	=	2.39.0 X 10,000 = 23,900sq.m
Gravel Formation	=	2m below ground level
	=	23,900sq.m X 2m Depth
	=	47,800m³ of Gravel Formation
Rough Stone Formation	=	35m below ground level
	=	23,900sq.m X 35m Depth
	=	8,36,500m³ of Rough Stone
Total Geological Resources of Gravel Formation	:	47,800m³
Total Geological Resources of Rough Stone	:	8,36,500m³

Estimation of Mineable Reserves:

The Mineable reserves are calculated after leaving the safety distance and bench loss to a maximum depth of 37m below ground level.

TABLE-3

MINEABLE RESERVES						
Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Mineable Reserves of Rough stone in (m³) 100%	Gravel (m³)
XY-AB	I	64	62	2	-	7936
	II	61	56	5	17080	-
	III	56	43	5	12040	-
	IV	51	33	5	8415	-
	V	45	23	5	5175	-
	VI	40	13	5	2600	-
	Total					45310
XY-CD	I	60	75	2	-	9000
	II	57	72	5	20520	-
	III	51	67	5	17085	-
	IV	46	62	5	14260	-
	V	40	57	5	11400	-
	VI	35	52	5	9100	-
	VII	30	47	5	7050	-
	Total					79415
XIYI-CD	I	102	95	2	-	19380
	II	95	92	5	43700	-
	III	78	87	5	33930	-
	IV	65	82	5	26650	-
	V	53	77	5	20405	-
	VI	43	72	5	15480	-
	VII	32	67	5	10720	-
	VIII	21	34	5	3570	-
	Total					154455
Grand Total					279180	36316

Total Mineable Reserves of Gravel : 36,316m³

Total Mineable Recoverable Reserves of Rough stone @ 100% : 2,79,180m³

The mineable reserves have been computed as 2,79,180m³ of Rough Stone at the rate of 100% recovery and 36,316m³ of Gravel for a period of ten years upto a depth of 37m below ground level.



5.0 MINING

5.1 Method of mining (opencast / underground):

Open cast Mechanized Mining is being carried out with 5.0 meter vertical bench with a bench width is not less than the bench height.

However, as far as the quarrying of Rough Stone is 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. The relaxation will be applied and obtained after the execution of lease deed / commencement of quarry operation.

5.2 Mode of working (mechanized, semi mechanized, manual):

The Rough Stone is proposed to quarry at 5m bench height & width with conventional Opencast Mechanized Method.

The quarry operation involves hand Jack hammer drilling, mild explosives in blasting, excavation, loading and transportation of Rough Stone to the needy crusher.

The production of Rough Stone in this quarry involves the following method which is typical for Rough Stone quarrying in contrast to other major mineral mining.

Splitting of rock mass of considerable volume from the parent rock mass by jackhammer drilling and mild explosives blasting, hydraulic excavators are used for loading the Rough Stone from pithead to the needy crushers.

Occasionally hydraulic excavators are attached with rock breakers for fragmentation to avoid secondary blasting. The primary boulders thus splitted are removed from the pits by excavators and further made to smaller sizes by rock breakers attached in excavators. It is a conventional opencast mechanized method of mining.

5.3 Proposed Bench Height and Width:

The Charnockite is hard and compact rock, the bench height is proposed 5.0-meter vertical bench the width of the bench is not less than the Height.

5.4 Indicate the overburden / mineral production expected pit wise as detailed below (composite plan and section showing pit layout, dumps, disposal of waste if any etc.):

The overburden in the form of Gravel, the Gravel will be directly loaded into Tippers for the filling and levelling of low-lying areas, this will be done only after obtaining permission and paying necessary seigniorage fees to the Government. The excavated Rough stone will be directly loaded into Tippers to the needy customers. The Composite year wise Development and production plan and sections indicating the Pit lay out, Greenbelt development are shown in Plate No. III.

Year wise development and Production

TABLE-4

YEARWISE PRODUCTION FOR FIRST FIVE YEARS

Section	Year	Bench	Length in (m)	Width in (m)	Depth in (m)	Recoverable Reserve of Rough stone in (m ³)100%	Gravel (m ³)	
X1Y1-CD	I	I	102	95	2	-	19380	
		II	51	92	5	23460	-	
		III	34	87	5	14790	-	
	Total					38250	19380	
	II	II	44	92	5	20240	-	
III		44	87	5	19140	-		
I		60	75	2	-	9000		
XY-CD	Total					39380	9000	
	III	II	43	72	5	15480	-	
III		32	67	5	10720	-		
XY-AB		I	64	62	2	-	7936	
X1Y1-CD	IV	IV	35	82	5	14350	-	
		Total					40550	7936
		IV	30	82	5	12300	-	
	V	V	53	77	5	20405	-	
		Total					32705	-
VI		43	72	5	15480	-		
XY-CD	V	VII	32	67	5	10720	-	
		VIII	21	34	5	3570	-	
		IV	21	62	5	6510	-	
	V	10	57	5	2850	-		
Total					39130	-		
Grand Total						190015	36316	

The Recoverable reserves have been computed as **1,90,015m³** of Rough stone at 100% recovery for first five years and **36,316m³** of Gravel for first three years upto a depth of 37m below ground level.

TABLE - 4A

YEARWISE PRODUCTION FOR SECOND FIVE YEARS						
Section	Year	Bench	Length in (m)	Width in (m)	Depth in (m)	Recoverable Reserve of Rough stone in (m ³) 100%
XY-CD	VI	II	14	72	5	5040
		III	19	67	5	6365
		IV	25	62	5	7750
		Total				19155
XY-AB	VII	II	61	56	5	17080
		Total				17080
	VIII	III	56	43	5	12040
		IV	51	33	5	8415
		Total				20455
	IX	V	45	23	5	5175
		VI	40	13	5	2600
V		30	57	5	8550	
Total				16325		
XY-CD	X	VI	35	52	5	9100
		VII	30	47	5	7050
		Total				16150
Grand Total						89165

The Recoverable reserves have been computed as 89,165m³ of Rough Stone only at the rate of 100% recovery for remaining five years upto depth of 37m below ground level.

The applicant ensures the total quantity proposed in the benches will not exceed during the quarrying operation. Besides the Rough Stone locked up in benches will be exploited after obtaining necessary permission from the office of **Director of Mine Safety, Chennai** region by submitting relevant documents, appropriate safety plans and its Mitigation measures.

One lorry load	=	6m ³ (approx.)
Total No of Working days	=	300 Days per year
Total quantity to be removed in this five years plan period	=	2,79,180m ³
Hence total lorry loads per day	=	2,79,180m ³ /6m ³
	=	46,530 lorry loads
	=	46,530/5 years
	=	9,306/300 Days
Rough Stone	=	31 lorry loads per day

Total Gravel to be removed during first three years	=	36,316m ³
Hence total lorry loads per day	=	36,316m ³ /6m ³
	=	6,053 lorry loads
	=	6,053 /3 years
	=	2,018/300 Days
Gravel	=	6 – 7 lorry loads per day

Working hours = 8.30 am to 5.30 pm (with 12.30-1.30 pm lunch break)



5.5 Machineries to be used:

For Mining:

The following machineries are utilized on rental basis for the development and production work at this quarry.

TABLE-5

I. DRILLING MACHINE:

S. No.	Type	Nos	Dia Hole mm	Size Capacity	Motive power
1	Hand Jack hammer	5	30-35	1.2m to 2.0m	Compressed air
2	Compressor	2	-	400 psi	Diesel Drive

II. EXCAVATION & LOADING EQUIPMENT:

S. No.	Type	Nos	Capacity	Motive Power
1	Excavator with Bucket and Rock Breaker	2	300	Diesel Drive

III. HAULAGE WITHIN THE MINE & TRANSPORT EQUIPMENT:

S. No.	Type	Nos	Capacity	Motive Power
1	Tippers	4	20 tonnes	Diesel Drive

5.6 Disposal of Overburden/Waste:

The overburden in the form of Gravel, the Gravel will be directly loaded into Tippers for the filling and levelling of low lying areas. The excavated Rough Stone (100%) will be directly loaded into Tippers to the needy customers. There is no Waste anticipated during this plan period hence, disposal of waste does not arise.

5.7 Brief note on conceptual mining plan for the entire lease period based on the geological, mining and Environment considerations:

Conceptual mining plan is prepared with an object of long term systematic development of benches, layouts, selection of permanent structures, depth of quarrying and ultimate pit dimensions, selection of sites for construction of infrastructure, etc.,

The ultimate pit size is designed based on certain practical parameters such as economical depth of mining, safety zones, permissible area, etc.,

As the applicant has applied quarry lease for five years, the ultimate pit limit (dimension) at the end of this mining plan period is given below:

TABLE-6

Pit	Length (m) (max)	Width (m) (max)	Depth (m) (max)
I	124	75	32m below ground level
II	102	95	37m below ground level

Greenbelt has proposed on the safety zone and Panchayat roads by planting Kadambu, Eachai, Pungam trees of native species. All the base line information studies like Air quality monitoring, Noise and vibration monitoring, Water analysis studies will be carried out every year as per the MoEF&CC Norms. (Please refer Plate Nos. III & IV).

It is proposed to engage any local institution to monitor the EIA and EMP during the course of quarrying operation after the grant of quarry lease.

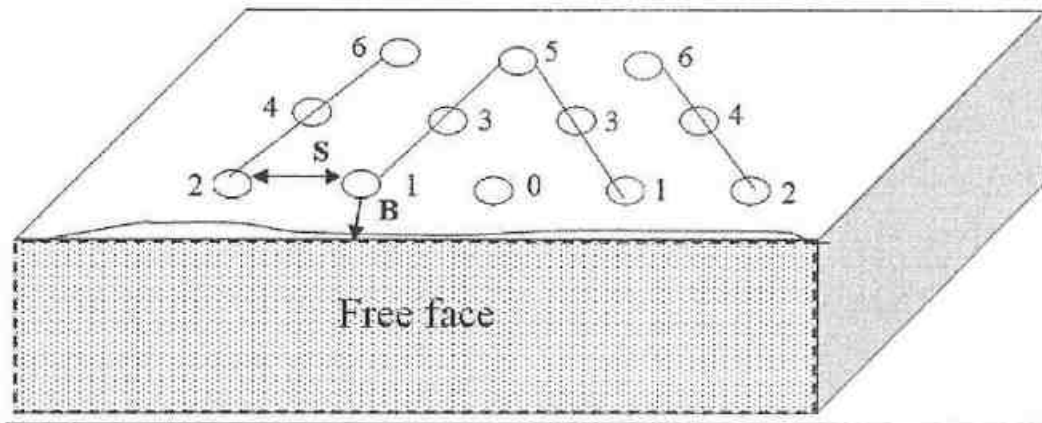
There is no waste anticipated during the entire life of quarry. Hence, backfilling is not possible in this quarry. After completion of quarry operation the quarried out pit will be allowed to collect the seepage and rainwater, the water storage will be kept as temporary reservoir for charging the nearby wells and to be utilize for green belt development. The Conceptual Mining is based upon the entire ROM proposed for the life of the Mine. The quarry area already fenced with barbed wire fencing and safety bund will be constructed around the quarry to prevent inadvertent entry of public and cattle (Refer Plate No. IV).

6.0 BLASTING**6.1 Blasting pattern:**

The quarrying operation is proposed to be carried out by Mechanized Open cast Method in conjunction with conventional method of mining using Jack hammer drilling and Mild blasting of shattering effect for loosen the Rough Stone.

Drilling and blasting parameters are as follows:

Depth of Each hole	:	1.5m
Diameter of hole	:	30-32mm
Spacing between holes	:	1.2m
Burden for hole	:	1.0m
Pattern of hole	:	Zigzag – Multi-rows
Inclination of holes	:	80° from horizontal
Use of delay detonators	:	25millisecond relays
Detonating fuse	:	“Detonating” Cord

BLASTING PATTERN DRAWING**Staggered “V” Pattern of Blasting Design**

Spacing	=	1.2m
Burden	=	1.0m
Depth of the hole	=	1.5m
No of holes proposed per day	=	82 Holes

6.2 Type of explosives to be used:

Small Dia. 25mm mild explosives are proposed to be used for shattering and heaving effect for removal and winning of Rough Stone. No deep hole drilling or primary blasting is proposed.

6.3 Measures proposed to minimize ground vibration due to blasting:

The quarry is situated more than 300m from the nearby villages, Controlled blasting measures is being adopt for minimizing ground vibration and fly rock.

Hand jackhammer drilling & blasting is proposed to be carried out with minimum use of explosive mainly to give hearing effect in Rough Stone for easy excavation and to control fly rock.

Delay detonators:

Delay blasting (millisecond delays) permits to divide the shot in to smaller charges, which are detonated in a predetermined millisecond sequence at specific time intervals.

The major advantages of delay blasting are:

- Reduction of ground vibration.
- Reduction in air blast.
- Reduction in over break.
- Improved fragmentation.
- Better control of fly-rock.

Blasting program for the production per day:

No of Holes	= 82 Holes
Yield	= 246 Tons
Powder factor	= 6 Tons/Kg of explosives
Total explosive required	= 41 Kg- Mild explosives
Charge/ hole	= 0.5 Kg
Blasting at day time only	= 12.00 – 12.30p.m (whenever required)

6.4 Storage and safety measures to be taken while blasting:

The applicant will engage authorized explosive agency to carry out the small amount of blasting and it will be supervised by competent and statutory foreman/Permit Mines Manager. The explosives agencies should be having the valid Blaster certificate. He will blast holes in the quarry site. After the completion of Blasting the explosives Agencies will take it out back the remaining quantity of Explosives. The Competent Qualified Statutory personnels of the Company will maintain the records of Explosives as per the Indian Explosives Act.

7.0 MINE DRAINAGE**7.1 Depth of water table (based on nearby wells and water bodies):**

The water table in the area is about 57m which is observed from the existing private boreholes. The lease area is fully covered by Massive Charnockite formation. The quarry operation confined to well above the water table hence, the Ground Water problem will not arise. If water seepage may occur due to the fracture, the same will be used for Greenbelt. Anyhow, Garland drain will be constructed all along the boundary to prevent surface run-off water entering into the quarry.

TABLE-7

Type	Distance & Direction	Location
Bore Well	380m Western side	12°43'25.52"N 79°43'12.87"E

7.2 Arrangements and places where the mine water is finally proposed to be discharged:

The quarry operations are confined to well above the water table during the entire lease period. If water is encountered at quarry due to rain water and seepage, the same will be pumped out by 5HP water pump and discharge to the Green belt development areas. Besides, the water will also be used for dust suppression on haul roads during Haulage of machineries.

8.0 OTHER PERMANENT STRUCTURES (also shown in the map)

S. No.	Salient Features Present around site	Prescribed safety distance	If any present within Prescribed distance it's actual distance and direction from the area
8.1	Railways, Highways	50m	<p>None of the above situated within 50m radius.</p> <p>Nearest National Highway is Kancheepuram – Chengalpattu (NH-132B) – 10km – NE.</p> <p>Nearest State Highway is Kancheepuram – Uthiramerur (SH-118A) – 3km – East.</p> <p>Nearest Railway line is Arakkonam – Chengalpattu – 12km – NE.</p>
8.2	Water Bodies (River, Pond, Lake, Odai, Canal)	50m	<ul style="list-style-type: none"> Thangal Tank is located in S.F.No. 15/11 situated on the Southeastern side, a safety distance of 50m has been provided to the tank. Odai is passing on the Northern side, a safety distance of 50m has been provided to the Odai. There is no other water bodies located within 50m radius of the area (Refer Plate No. IB and II).
8.3	Village Road	10m	<p>The Village passing on the Northern side of the lease applied area, a safety distance of 10m has been provided to this Village Road.</p> <p>There is No other village road is passing within 10m radius on the lease applied area.</p>

8.4	Habitation/ Village/ Public building/ Archaeological or historical monument/ Places of worships	300m	None of the above situated within 300m radius from the lease applied area (Refer Plate No I-B).																				
8.5	Housing area, EB line (HT & LT Line)	50m	<ul style="list-style-type: none"> • EB (LT) line passing on the Northern side of the lease applied area, a safety distance of 50m has been provided to this EB (LT) line. • Another One EB (LT) line passing on the southern side of the lease applied area. the applicant ensures to shift the power line more than 50 meters away from the applied area before grant of quarry lease. Affidavit submitted to Department of Geology and Mining, Tiruvannamalai. (Refer Annexure No.VII). • There is no EB line (HT & LT Line) or Housing area located within 50m radius from the lease applied area. 																				
8.6	Adjacent Patta lands / Govt. Land	7.5m/10m	<table border="1" data-bbox="821 1193 1441 1619"> <thead> <tr> <th>Direction</th> <th>S.F.No.</th> <th>Classification</th> <th>Safety Distance</th> </tr> </thead> <tbody> <tr> <td>North</td> <td>Maakaral Village</td> <td>Odai \ EB line</td> <td>50m</td> </tr> <tr> <td>East</td> <td>16/1, 16/1C, 16/6 & 16/2B</td> <td>Patta land</td> <td>7.5m</td> </tr> <tr> <td>South</td> <td>16/9B, 9A, 4B, 4A, 3A, 1/6B2 & 1/6B1</td> <td>Patta land</td> <td>7.5m</td> </tr> <tr> <td>West</td> <td>1/6A2 & 1/2B</td> <td>Patta land</td> <td>7.5m</td> </tr> </tbody> </table> <p>(Refer Plate No. II).</p>	Direction	S.F.No.	Classification	Safety Distance	North	Maakaral Village	Odai \ EB line	50m	East	16/1, 16/1C, 16/6 & 16/2B	Patta land	7.5m	South	16/9B, 9A, 4B, 4A, 3A, 1/6B2 & 1/6B1	Patta land	7.5m	West	1/6A2 & 1/2B	Patta land	7.5m
Direction	S.F.No.	Classification	Safety Distance																				
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South	16/9B, 9A, 4B, 4A, 3A, 1/6B2 & 1/6B1	Patta land	7.5m																				
West	1/6A2 & 1/2B	Patta land	7.5m																				
8.7	Boundaries of the permitted area	7.5m/10m	<p>The boundaries of the permitted areas are as follows (Refer Plate No. II):</p> <p>North - No.211 Maakaral Village</p> <p>East - S.F.Nos. 16/1, 16/1C, 16/6 & 16/2B</p> <p>South - S.F.Nos. 16/9B, 16/9A, 16/4B, 16/4A, 16/3A, 1/6B2 & 1/6B1</p> <p>West - S.F.Nos. 1/6A2 & 1/2B.</p>																				

8.8	Reserve forest	60m	There is no reserve forest situated within 60m radius of the lease applied area (Refer Plate No. IA).
8.9	Protected area / ECO sensitive area/ Wild Life Sanctuary	10km	There is no Wild Life Sanctuary/ ECO sensitive Zone/ Critically Polluted Area/ HACA/ CRZ located within 10km radius of the area (Refer Plate No. IA).

9.0 EMPLOYMENT POTENTIAL & WELFARE MEASURES

9.1 Employment potential (skilled, semi-skilled, un skilled):

The following manpower's are proposed in the mining plan to carry out the day-to-day quarrying activities, the same employment is maintaining aimed at the proposed production target and also to comply with the statutory provisions of the Metalliferous Mines Regulations, 1961.

a. Skilled labour:

Mine Foreman	:	1
Blaster/mate	:	1
Excavator – Operator	:	2
Tipper Drivers	:	2
Jack hammer operator	:	10

b. Semi-skilled:

Security	:	1
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c. Unskilled:

Labour & Helper	:	4
Co-operator and Cleaner	:	4
Total	:	35

The above manpower is adequate to meet out the production schedule and the machinery strength envisaged in the mining plan and to comply with the statutory provisions of the Mines Safety Regulations. It is been ensured that the labour will not be employed less than 18 years, **No child labour** will engaged or entertained for any kind of quarrying operations. All the labours engaged for quarrying operations will be insured during the quarry lease period.

9.2 Welfare Measures:

a. **Drinking Water:**

Packaged drinking water is available from the nearby approved water vendors in Sithalapakkam which is about 1km on the Southeastern side of the lease applied area.

b. Sanitary Facilities:

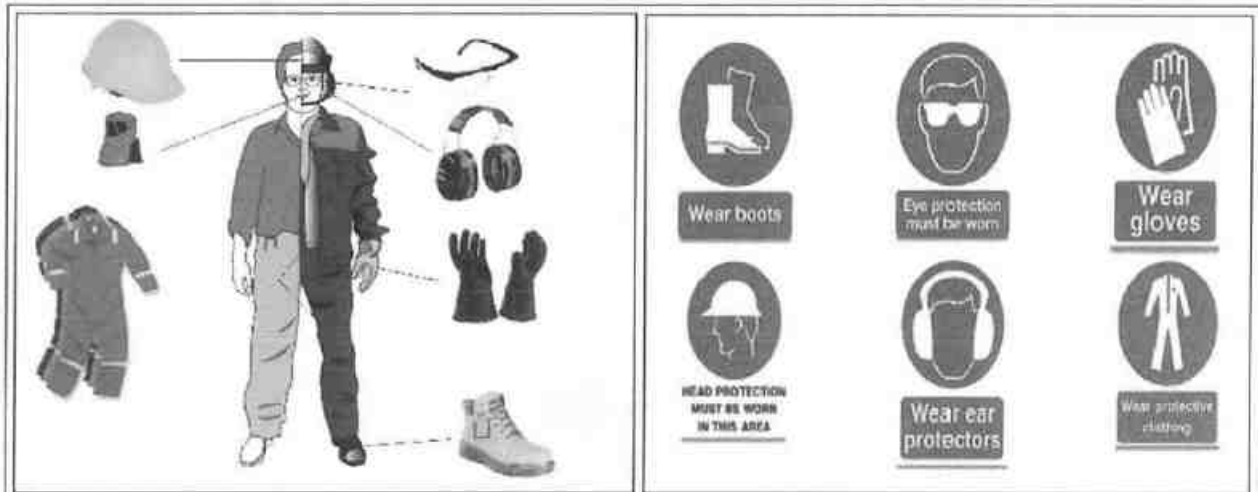
Hygienic modern Sanitary Facilities will be constructed as semi-permanent structure and it will be maintained periodically as hygienic.

c. First aid facility:

First aid kits are kept in Mines office room, in case of such eventuality the victim will be given first aid immediately at the site by the competent and statutory foreman/permit manager/mate will be in charge of first aid and injured person will be taken to the hospital by the applicant vehicle. Hospital is available in Lakshmipuram located at a distance of 6km on the Northwestern side.

d. Labour Health:

Periodically medical check-up related to occupational health safety will be conducted to all the workers in applicant own cost.

e. Precautionary safety measures to the labourers:

- Helmets,
- Mine Goggles,
- Ear plugs,
- Ear muffs,
- Dust mask,
- Reflector jackets,
- Safety Shoes

All personnel protective devices will be provided as per the specification approved by Director of mines safety. Periodically medical check-up will be conducted for all workers for any mine health related problems. Proper training and vocational education will be given by qualified and experienced safety officer to all the employees about the safety and systematic Rough stone quarrying operations. The drillers and workers will be sent for vocational training periodically, to carry out the quarrying operations scientifically and to safe guard the men and machinery and to create awareness about conventional opencast quarrying operations.

PART – B**10.0 ENVIRONMENT MANAGEMENT PLAN****10.1 Existing Land use pattern:**

The quarry lease applied area is exhibiting plain terrain. The area is a dry barren land devoid of Agriculture. Hence, the area did not utilized any other purpose in earlier.

LAND USE TABLE-8

Description	Present area in (ha)
Area under Quarrying	Nil
Infrastructure	Nil
Roads	Nil
Green Belt	Nil
Unutilized Area	2.39.0
Grand Total	2.39.0

10.2 Water Regime:





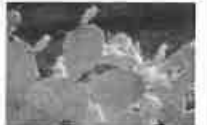
It is a simple opencast quarry operation. The quality of water will not be affected due to this quarrying operation. During rainy season the water table in the adjacent area may raise up. The subject area is a hard batholithic formation hence, the water table will not encounter from adjacent lands. However, mitigation measures will be carried out like Garland drains constructed on all sides of quarry pit to avoid surface run-off rain water entering into the pit.

The waste water discharged to water bodies will be met the standard prescribed under the Environment (Protection) Act – 1986 by The Ministry of Environment, Forest and Climate change.







10.3 Flora and Fauna:

TABLE-9

List of Flora

S. No.	Name of the plant (Scientific)	Family Name	Common Name	Habit	Picture
1.	<i>Borassus flabellifer</i>	Arecaceae	Panai	Tree	
2.	<i>Azadirachta indica</i>	Meliaceae	Neem, Vembu	Tree	
3.	<i>Casuarina equisetifolia</i>	Casuarinaceae	Savukku	Tree	
4.	<i>Prosopis juliflora</i>	Fabaceae	Seemai Karuvelam	Tree	
5.	<i>Opuntia vulgaris</i>	Cactaceae	Sappattukkalli	Shurb	

List of Fauna

S. No.	Scientific Name	Common Name	Picture
1.	<i>Capra hircus</i>	Goat	
2.	<i>Boigaspp</i>	Cat snake	
3.	<i>Athene brama</i>	Spotted owlet	
4.	<i>Passer domesticus</i>	House sparrow	
5.	<i>Precis hierta</i>	Yellow pansy	
6.	<i>Funambuluspalmarum</i>	Indian palm squirrel	

10.4 Climatic Conditions:

The area receives rainfall of about 985mm/annum and the rainy season is mainly from Oct - Dec during monsoon. The summer is hot with maximum temperature of 42°C and encounters a minimum temperature of 20°C.

10.5 Human settlement:

There are few villages located in this area within 5km radius; the approximate distance and population are given below:

TABLE-10

S. No	Name of the Village	Approximate distance & Direction from lease applied area	Approximate population
1.	Suruttal	2km - NE	1,300
2.	Sithalapakkam	1km - SE	600
3.	Elacheri	1km - SW	2,100
4.	Bagavandapuram	2km - NW	800

Basic human welfare Amenities such as Health Centre, Schools, Communication Facilities, and Commercial Centres etc., are available at Lakshmpuram located at a distance of 6km on the Northwestern side of the area.

10.6 Plan for air, dust suppression:

The air quality will be affected by the Suspended Particulate Matter (SPM) generated by the mild blasting, Jack hammer drilling, loading and unloading during the Rough Stone quarry operation.

The following Mitigations measures will be carried out:

- Compaction, gradation and drainage on both sides for haulage road.
- Fixed water sprinkling arrangements by own water tankers.
- Muffle blasting on overburden an waste to control fly rocks during blasting.
- Enforcing speed limits of 20km/hr within quarry area.
- Regular monitoring of exhaust fumes as per RTO norms.
- All personnel protective equipment like Nose-mask, earplug/ muffs will be provided to the Workers.
- Vegetations will be formed on the non-quarrying area.

Air quality will be monitored periodically as per Norms and Mitigative measures carried out to prevent dust and Air propagation in to air. The estimated budget for dust suppression would be around **Rs.52,000/year**.

10.7 Plan for Noise level control:

The noise level increased due to the Drilling, Blasting, Excavation and transportation.

Engineering Noise control:

Noise will be created due to the usage of Machineries and Vehicles. The following Care and techniques will be proposed to control the Noise and Vibration.

- Selection of new low – noise equipments for the Rough stone quarry operation.
- Proper maintenance done with regular interval by the Oiling and greasing for the machineries and vehicles to control the Source of noise during operation and transportation.
- Modifications of older equipment.
- NONEL blasting will be practiced to control Noise, ground vibration and fly rocks.
- Developing Green belts which act as Acoustic barrier, pollution absorbent and noise controller.
- Transporting vehicles are enforcing the speed limits of 20km/hour within quarry area and not exceed 40km per hour from despatch to destination to reduce Noise level.
- Sentries with flags & whistle will posted in village road junction and populated area to control and regulate traffic.

Shallow holes of 32mm diameter and maximum depth of 1.5m will be drilled and conventional low power explosives such as mild explosives, ordinary safety fuse will be used for Rough Stone. Hence, ground vibration and noise pollution i.e., minimal and restricted within the quarry working area.

Noise level monitoring and other Mitigation measures will be carried out to reduce Noise and Vibration. The estimated budget for Noise level monitoring would be around Rs.2,000/Year.

10.8 Environment impact assessment statement describing impact of mining on the next five years:

In the mining plan proposed for a production of Rough Stone does not involve deep hole drilling and blasting. Such limited mining activity is not likely to cause any impact adversely on the environment. As far as pollution of air, water and noise concerned, the Environment impact studies will be conducted as per EIA notification issued by MoEF&CC. It is B2 Category mine. The estimated budget would be around Rs.3,80,000/-.

10.9 Proposal for waste management:

There is no waste anticipated in this Rough Stone and Gravel quarrying operation. The entire quarried out materials will be utilized (100%).



10.10 Proposal for reclamation of land affected during mining activities and at the end of mining (refilling / fencing etc.):

In the mining plan only to a maximum depth of 37m below ground level has been envisaged as workable depth for safe & economic quarrying operation during entire lease application. There is no waste generated hence, backfilling is not possible. After completion of quarry operation the quarried out pit will be allowed to collect the seepage and rainwater and the water storage will be kept as temporary reservoir for charging the nearby wells and the water will be utilized for Green belt development purpose. The quarry area already fenced with Barbed wire fencing and safety bund will be constructed around the quarry to prevent inadvertent entry of public and cattle. The barbed wire fencing cost would be around **Rs.2,13,000/-**.

10.11 Programme of Greenbelt development (indicate extend, number, name of species to be afforested):

The safety zone along the boundary barrier has been identified to be utilized for Greenbelt development. Around 2,000m² area will be utilized for first five years on the Southeastern side and 2,200m² area for second five years in the remaining safety zone by planting 500 Numbers with 2m height tree saplings during this lease period with an anticipated survival rate of 80% (Please refer Plate No. III). Appropriate native species of trees will be planted in a phased manner as described below.

TABLE-11

Years	No. of trees proposed to be planted	Area to be covered (m ²)	Name of the species	Survival %	No. of trees expected to be grown
I	50	420	Neem, Pongamia Pinnata, Casuarina, etc.,	80	40
II	50	420		80	40
III	50	420		80	40
IV	50	420		80	40
V	50	420		80	40
VI	50	420		80	40
VII	50	420		80	40
VIII	50	420		80	40
IX	50	420		80	40
X	50	420		80	40

Totally 4,200m² area is proposed to for Greenbelt by planting 500 Numbers of tree saplings during lease period with an anticipated survival rate of 80% (Please refer Plate No. III). The estimated budget for plantation and maintenance of green belt development would be around **Rs.1,00,000/-** for the period of ten years.

The Greenbelt Development will be formed in the quarried out top benches with 300 tree saplings and 200 tree saplings in approach road. The cost would be around **Rs.1,00,000/-**.

10.12 Proposed financial estimate / budget for (EMP) environment management:

Budget Provision for the entire quarrying period:

TABLE-12

S. No.	Monitory and Analysis Description	Rate per location	No. of location	Total Charges/ six months	Total Charges/ year
1	Ambient air quality monitoring	6500	4	26000	52000
2	Noise level monitoring	250	4	1000	2000
3	Ground vibration monitoring	1000	2	2000	4000
4	Water sampling and analysis	9000	1	9000	18000
Total EMP Cost/ year					76,000

The EMP cost would be around **Rs.3,80,000/-** for the period of five years.**A. Project / investment / Operational cost**

i) Land cost	The Land value as per the Government Guideline land cost is about, Rs.5,19,000/ha, hence the total land cost is calculated about 2.39.0ha X Rs.5,91,500/- = Rs.12,40,410/- i.e., Rs.12,41,000/- (Source: https://tnreginet.gov.in/portal/)	Rs.12,41,000/-
ii) Machinery to be used	The following machineries are proposed to meet out the productions. Excavator attached with rock breaker, Tippers, Tractor mounted compressor with Jack hammer and loose tools (Rental Basis)	Rs.25,00,000/-
iii) Refilling/ Fencing	Fencing already constructed around the quarry pit to prevent the inadvertent entry of public and cattles cost would be around	Rs.2,13,000/-
iv) Labourers shed	Labour sheds will be constructed as semi-permanent structure. The cost would be around	Rs.3,00,000/-
v) Sanitary facility	Adequate latrine and urinal accommodation shall be provided at conveniently accessible places the cost would be around	Rs.80,000/-
vi) Others items	First aid room & accessories	Rs.60,000/-
vii) Drinking water facility for the labourers	Packaged drinking water will be provided for all the Labours. Drinking water will be readily available at conveniently accessible points during the whole of the working shift the cost would be around	Rs.1,50,000/-

viii) Sanitary arrangement	The latrine and urinal will keep clean and sanitary condition. The maintenance cost would be around	Rs.60,000/-
ix) Safety kit	All the Safety kit such as Helmet, Earmuffs, Goggles, Reflector Jackets, Safety shoes etc., will be provided to the workers by the applicant own cost which would be around	Rs.80,000/-
x) Water sprinkling	Water will be sprinkled in the haul roads by water sprinklers the cost would be around	Rs.1,50,000/-
xi) Garland drains Construction	Construction of garland drains to divert surface runoff from virgin area away from mining area	Rs.1,83,000/-
xii) Greenbelt etc.	Green belt development under safety zone during this Plan period (500 sapling x Rs. 200/- per sapling)	Rs.1,00,000/-
	Green belt development on around the quarried out top benches during this plan period (300 sapling x Rs. 200/- per sapling)	Rs. 60,000/-
	Approach road and nearby village road during this mining plan period (200 sapling x Rs. 200/- per sapling)	Rs. 40,000/-
	Total Operational Cost	Rs.52,17,000/-
B. EMP Cost: (Per year)		
	Air Quality monitoring	Rs.52,000/-
	Water Quality Sampling	Rs.18,000/-
	Noise Monitoring	Rs. 2,000/-
	Ground Vibration test	Rs. 4,000/-
	Total Cost	Rs.76,000/-
Total EMP Cost for the five years period is Rs.3,80,000/-		
	Description	Amount (Rs.)
	A. Operational Cost	Rs. 52,17,000/-
	B. EMP Cost	Rs.3,80,000/-
	Total Project Cost (A+ B)	Rs.55,97,000/-
	The applicant indents to involve corporate environment responsibilities (CER) activity like Books to the library, Water Purifier, plantation and Sanitary Facilities to the nearby Govt. School at 2.0% from the total project cost. The Cost would be around Rs. 1,12,000/- .	Rs.1,12,000/-
	Total Cost	Rs.57,09,000/-
The Total cost would be around fifty seven lakhs and nine thousand only.		



11.0 PROGRESSIVE QUARRY CLOSURE PLAN

11.1 Introduction:

The Progressive Quarry Closure Plan for Rough Stone and Gravel quarry over an extent of 2.39.0 Ha of Patta land in S.F.Nos. 1/2C, 1/3, 1/4, 1/5 and 16/2A of Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District, Tamil Nadu State has been prepared for **Thiru. G. Ulaganathan**, S/o. Gomathinayagam, residing at No.15/31, Rajaji Street, Radha Nagar, Chromepet, Kancheepuram, Tamil Nadu State – 600 044.

11.2 Present Land use pattern:

LAND USE TABLE-13

Description	Present area in (ha)
Area under Quarrying	Nil
Infrastructure	Nil
Roads	Nil
Green Belt	Nil
Unutilized Area	2.39.0
Grand Total	2.39.0

11.3 Method of Mining:

Open cast Mechanized Mining is being carried out with 5.0 meter vertical bench with a bench width is not less than the bench height for Rough Stone.

However, as far as the quarrying of Rough Stone is concerned, observance of the provisions of Regulation 106 (2) (b) is available with Director of Mines Safety. If the applicant/lessee 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. The relaxation will be applied and obtained after the execution of lease deed / commencement of quarry operation.

11.4 Mineral Processing Operations:

The quarried out Rough Stone will be transported by the 20tons capacity Tippers to the needy crushers. Splitting of rock mass of considerable volume from the parent rock mass by Jack hammer drilling and blasting, hydraulic excavators are used for loading the Rough Stone from pithead to the needy crushers.

11.5 Reasons for closure:

As the mineral is not going to be exhausted during the proposed plan period no immediate closure is planned and sufficient reserves are available to carry on the activities. The reason for closure will be discussed in the ensuing mining plan.

**11.6 Statutory obligations:**

The applicant ensures to comply all the conditions were imposed while granting the precise area communication letter before the execution of lease deed and during the course of quarry operations.

11.7 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.

Name : **M.Santhoshkumar, M.Sc.,**
 Qualified Person
 (As per Rule 15(I)(a) and (I)(b) of MCR, 2016)

Address : Reg. No.17, Advaita Ashram Road,
 Alagapuram, Salem District – 636 004.

Telephone : 0427- 2431989 (Office)

Cell No : +91 94422 78601 & 94433 56539

Applicant will himself implement the closure plan; no outside agency will be involved.

11.8 Review of Implementation of Mining Plan including Progressive Closure Plan upto the Final Closure Plan:

Mining Plan and Progressive quarry closure plan are being submitted for the first time. It will be reviewed after ten years and review of implementation will be given in ensuing scheme of mining or Final Mine Closure Plan.

11.9 Closure Plan:**(i) Mined Out Land:**

At the end of mining plan period, about 1.72.0 Ha of area will be mined out. Land use at various stages is given in the table below:

LAND USE TABLE-14

Description	Present area (Ha)	Area required during the first five year (Ha)	Area at the end of lease period (Ha)
Quarrying Pit	Nil	1.72.0	1.72.0
Infrastructure	Nil	0.01.0	0.01.0
Roads	Nil	0.02.0	0.02.0
Green Belt	Nil	0.20.0	0.42.0
Unutilized Area	2.39.0	0.44.0	0.22.0
Grand Total	2.39.0	2.39.0	2.39.0

The Greenbelt Development will be formed in around the quarried out top benches, approach road and nearby panchayat road from the lease applied area.

**(ii) Water quality management:**

Following control measures will be adopted for controlling water pollution:

- Construction of garland drains to divert surface run-off from virgin area away from mining area.
- 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.
- The quarried-out pit will be allowed to collect rain and seepage water which will act as a reservoir for storage. This water storage will enhance the static level and ground water recharge of nearby wells and it will be used for agriculture purpose to the nearby agriculture lands.
- 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. Workers will be provided with personnel protective equipment like face-mask, earplug/ muffs.

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 no topsoil or waste generated during the proposed plan period. The entire quarried out Rough Stone and Gravel is utilized (100%). Hence, waste management does not arise.

(v) Disposal of mining machinery:

All the machineries will be engaged on rental basis. 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 work persons.
- Notices giving warning to prevent inadvertent entry of persons shall be displayed at all conspicuous places and in particular near mine entries.
- Danger signs shall be displayed near the excavations and proper signal by siren alarm will be given to the public before blasting to prevent accident.
- Security guards will be posted.
- In the event of temporary closer, approaches will be fenced off and notice displayed.
- Installation of CCTV camaras in the quarry and entrance of the 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, flying stones due to blasting etc.
- The complete quarrying 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.
- The Greenbelt Development will be formed in around the quarried out top benches, approach road and nearby panchayat road from the lease applied area.

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 lessee 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:
 - Quarry roads and approach roads,
 - Fencing on approach roads,
 - Checking and maintenance of machines and equipment,
 - Drinking water arrangements,
 - Quarry 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 and IBM 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, quarrying 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 ten 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 the 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:

LAND USE TABLE-15

ACTIVITY		YEARS										RATE	COST (Rs./-)
		I	II	III	IV	V	VI	VII	VIII	IX	X		
Plantation under safety zone	Nos	50	50	50	50	50	50	50	50	50	50		1,00,000
	Cost	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000		
Plantation in quarried out top benches	Nos	100	100	100	-	-	-	-	-	-	-	@200 Rs Per sapling	60000
	Cost	20000	20000	20000	-	-	-	-	-	-	-		
Plantation in approach road	Nos	-	-	-	100	100	-	-	-	-	-		40000
	Cost	-	-	-	20000	20000	-	-	-	-	-		
Barbed Wire Fencing (In Mtrs) 710 Mtrs		2,13,000	-	-	-	-	-	-	-	-	-	@300 Rs Per Meter	2,13,000
Garland Drain (In Mtrs) 610 Mtrs		1,83,000	-	-	-	-	-	-	-	-	-	@300 Rs Per Meter	1,83,000
TOTAL													596000

12.0 ANY OTHER DETAILS INTEND TO FURNISH BY THE APPLICANT

This Mining Plan for Rough Stone (Charnockite) and Gravel are under Rules 41 & 42 as per the Amended under Tamil Nadu Minor Mineral Concession Rules, 1959. The provisions of the Mines Act, Rules and Regulations and orders made there under shall be complied within the quarrying operation, 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. 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.

Prepared by

M. Santhosh Kumar
M.Santhoshkumar, M.Sc.,

Qualified Person

(As per Rule 15(I)(a) and (I)(b) of MCR, 2016)

Place: Salem

Date: 03.10.2023

DONATE RED

SPREAD GREEN

SAVE BLUE

This Mining Plan Is Approved
Subject to the Conditions/Stipulation
Indicated In The Mining Plan Approval
Letter No. 197 /mines/2022 Dt: 25-10-2023
Office Of The Deputy Director Of
Geology And Mining, Tiruvannamalai.

This Mining Plan is approved based on incorporation of the particulars specified in the letter of the Commissioner of Geology and Mining, Chennai Lr.No: 3888/LC/2012, Dated: 19-11-2012 and subject to further fulfillment of the conditions laid down under Tamil Nadu Minor Mineral Concession Rules 1959.

[Signature]
Deputy Director
Dept. of Geology and Mining
Tiruvannamalai.

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25/10/23

ந.க.எண்:197/கனிமம்/2022

ANNEXURE

தூண இயக்குநர் அலுவலகம்
புவியியல் மற்றும் கரங்கத்தள
திருவண்ணாமலை
நாள்:08.09.2023



அறிவிக்கை

பொருள்: கனிமங்களும் குவாரிகளும் - சிறுகனிமம் - திருவண்ணாமலை மாவட்டம், வெம்பாக்கம் வட்டம் - சித்தலப்பாக்கம் கிராம பட்டா புல எண்கள் 1/2C மற்றும் சிலவற்றின் மொத்தப் பரப்பு 2.39.0 ஹெக்டேர் பரப்பில் சாதாரணகல் மற்றும் கிராவல் வெட்டியெடுக்க - குவாரி குத்தகை உரிமம் வழங்கக்கோரி திரு.க.உலகநாதன் த/பெ. கோமதிநாயகம் என்பவர் விண்ணப்பம் செய்தது - பரிந்துரை அறிக்கை வரப்பெற்றது - கரங்கத் திட்டம் (Mining Plan) தயார் செய்து சமர்ப்பிக்க கோருவது - தொடர்பாக

- பார்வை:
1. திரு.க.உலகநாதன் த/பெ. கோமதிநாயகம் நெ.15/31, சாதாரண, குரோம்பேட்டை, காஞ்சிபுரம் என்பவரின் விண்ணப்பம், நாள்.13.09.2022
 2. இவ்வலுவலக கடிதம் ந.க.எண்.197/கனிமம்/2022, நாள்.13.09.2022
 3. சர் ஆட்சியர் செய்யார் அவர்களின் கடிதம் ந.க.அந்/4864/2022 நாள்.01.09.2023
 4. உதவி புவியியலாளர் மற்றும் தனி வருவாய் ஆய்லாளர் புவியியல் மற்றும் கரங்கத்தள, திருவண்ணாமலை அவர்களின் பலத்தளிக்கை அறிக்கை நாள்.07.09.2023
 5. அரசாணை (MS)எண்.169 தொழில்துறை எம்.எம்.சி11 துறை நாள்.04.08.2020
 6. அரசாணை (MS)எண்.208 தொழில்துறை எம்.எம்.சி11 துறை நாள்.21.09.2020
 7. தொடர்புடைய ஆலோசனைகள்.

திருவண்ணாமலை மாவட்டம், வெம்பாக்கம் வட்டம், சித்தலப்பாக்கம் கிராம பட்டா புல எண்கள் 1/2C (0.13.5), 1/3 (0.20.0), 1/4 (0.26.0), 1/5 (0.81.0) & 16/2A (0.98.5) ஆகியவற்றில் மொத்தம் 2.39.0 ஹெக்டேரில் சாதாரணகல் மற்றும் கிராவல் வெட்டியெடுக்க 10 ஆண்டுகளுக்கு குவாரிக்குத்தகை உரிமம் வழங்கக்கோரி திரு.க.உலகநாதன் த/பெ. கோமதிநாயகம் என்பவர் அளித்த பார்வை (I)-ல் கண்ட விண்ணப்பத்தின் மீது பார்வை 2-ல் காணும் இவ்வலுவலக கடிதம் மூலம் சர் ஆட்சியர் அவர்களை அறிக்கை அனுப்பி வைக்க கோரப்பட்டது.

2. அதனைத்தொடர்ந்து (I)-ல் கண்ட சர் ஆட்சியர் செய்யார் மற்றும் பார்வை 4-ல் காணும் திருவண்ணாமலை மாவட்ட புவியியல் மற்றும் கரங்கத்தள, தூண இயக்குநர் அலுவலக உதவி புவியியலாளர் மற்றும் தனி வருவாய் ஆய்லாளர் ஆகியோர் அளித்த பரிந்துரை அறிக்கைகள் பரிசீலிக்கப்பட்டது.

3. திரு.க.உலகநாதன் த/பெ. கோமதிநாயகம் என்பவர் சாதாரணக்கற்கள் மற்றும் கிராவல் வெட்டியெடுக்க 10 ஆண்டுகளுக்கு குவாரிக்குத்தகை உரிமம் வழங்கக்கோரி விண்ணப்பித்ததில் திருவண்ணாமலை மாவட்டம், வெம்பாக்கம் வட்டம், சித்தலப்பாக்கம் கிராம பட்டா புல எண்கள் 1/2C (0.13.5), 1/3 (0.20.0), 1/4 (0.26.0), 1/5 (0.81.0) & 16/2A (0.98.5) ஆகியவற்றில் மொத்தம் 2.39.0 ஹெக்டேர் நிலப்பரப்பில் எவ்வித தடையும் இன்றி குவாரிப்பணி செய்ய வாய்ப்பு உள்ளதால் மேற்படி விண்ணப்பதாரர் திரு.க.உலகநாதன் த/பெ. கோமதிநாயகம் என்பவருக்கு சாதாரணக்கற்கள் மற்றும் கிராவல் மண் வெட்டி எடுக்க குவாரி

குத்தகை உரிமம் வழங்க பரிந்துரை செய்யப்பட்ட 2.39.0 ஹெக்டேர் பரப்பில் கற்குவாரி செய்ய உகந்த புலம் (Precise Area) என தீர்மானித்து கீழ்கண்ட நிபந்தனைகளுக்கு உட்பட்டு அறிவிப்பு செய்யப்படுகிறது.



நிபந்தனைகள்

- 1) விண்ணப்ப புலத்தின் அருகில் வடக்கில் மேற்கு - கிழக்காக செல்லும் கால்வாய் புறம்போக்கு மற்றும் மேற்கு - கிழக்காக செல்லும் தாழ்வழுத்த மின்சாரப் பணம் 300' தொலைவில் உள்ள மின்மாற்றி ஆகியவற்றிற்கு தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 1959 விதி 36(1)-ன்படி 500' பாதுகாப்பு இடைவெளி விட வேண்டும்.
- 2) விண்ணப்ப புலத்தின் அருகில் வடக்கில் உள்ள கால்வாய் புறம்போக்கிற்கு சம்மந்தப்பட்ட துறையிடம் தடையின்மீது சான்று பெற்று குத்தகை உரிமம் வழங்கும் முன் சம்பிக்கப்பட வேண்டும்.
- 3) பிரஸ்தாப புலத்திற்கு வடக்கு பகுதியின் அருகில் செல்லும் கிராம சாலைக்கு 100' பாதுகாப்பு இடைவெளி விடவேண்டும்.
- 4) விண்ணப்ப புலத்தின் அருகில் தெற்கில் தென்மேற்காக செல்லும் தாழ்வழுத்த கம்பிக்கு 500' பாதுகாப்பு இடைவெளி விடவேண்டும்.
- 5) விண்ணப்ப புலத்திற்கு தெற்கில் புல எண்.15/11-ல் உள்ள தாங்கல் ஏரிக்கு 500' பாதுகாப்பு இடைவெளி விட வேண்டும்.
- 6) அருகில் உள்ள பட்டா நிலங்களுக்கு 750' பாதுகாப்பு இடைவெளி விடவேண்டும்.
- 7) பொதுமக்களுக்கும் அருகிலுள்ள நிலங்களுக்கும் எல்வித பாதிப்பும் ஏற்படுத்தக்கூடாது.
- 8) குவாரிப்பணி தொடங்குவதற்கு முன்பாக குவாரியை சுற்றி முள் கம்பிவேலி அமைத்து குவாரிப்பணி தொடங்க வேண்டும்.
- 9) முளறப்படியும், விஞ்ஞானபூர்வமாகவும் குவாரிப்பணி செய்யவேண்டும்.
- 10) சான்றிதழ் பெறப்பட்ட போர்மேன் வெடிப்பாளர் மற்றும் கரங்க மெலாள் மூலம் முளறியே குவாரிப்பணி செய்யப்பட வேண்டும்.
- 11) குவாரிப்பணி தொடங்குவதற்கு முன் கரங்க பாதுகாப்பு இயக்குநர், சென்னை அவர்களுக்கு தகவல் தெரிவிக்கப்பட வேண்டும்.
- 12) பாறைகளைத் தக்கக் கைத்துறைப்பான்களை கொண்டு பாறைகளை தளையிட்டு குறைவான வெடிபொருட்கள் பயன்படுத்த வேண்டும்.

4. தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 1959 விதிகள் 41 மற்றும் 42-ன்படி கல் மற்றும் இதர சிறு கனிமங்களுக்கு குவாரி குத்தகை உரிமம் வழங்கும் முன்பு ஒப்புதல் பெறப்பட்ட கரங்கத்திட்ட அறிக்கை மற்றும் சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணைய தடையின்மீது சான்று பெறப்பட வேண்டும் என வரையறுக்கப்பட்டுள்ளது.

5. எனவே, திரு. G. உலகநாதன் த.பெ. கோமதிநாயகம், என்பவர் ஒப்புதல் பெறப்பட்ட கரங்கத்திட்ட அறிக்கை மற்றும் சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணைய தடையின்மீது சான்றினை பெற்று சம்பிக்கும் பட்சத்தில் திருவள்ளூர் மாவட்டம், வெம்பாக்கம் வட்டம், சித்தலயப்பாக்கம் கிராம பட்டா புல எண்கள் 1/2C (0.13.5), 1/3 (0.20.0), 1/4 (0.26.0), 1/5 (0.81.0) & 16/2A (0.98.5) ஆகியவற்றில் மொத்தம் 2.39.0 ஹெக்டேர் பரப்பில் கற்குவாரி செய்ய தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 1959 விதி எண்(191) மற்றும் 20-என்படி 10 ஆண்டுகளுக்கு குத்தகை உரிமம் வழங்க உரிய நடவடிக்கை மேற்கொள்ளப்படும் என்ற விவரம் தெரிவிக்கப்படுகிறது.

6. மேலும், இல்லறிலிப்பு கிடைக்கப்பெற்ற 90 நாட்களுக்குள் மேற்கொள்ள நிபந்தனைகளையும் குறிக்கும் வகையில் வரைவு கரங்கத்திட்ட அறிக்கை தயார் செய்து துணை இயக்குநர், புலியியல் மற்றும் கரங்கத்துறை திருவள்ளூர் மாவட்ட அலுவலகம், பெற சம்பிக்கமுற அறிவுறுத்தப்படுகிறது.

2/2
துணை இயக்குநர்
புலியியல் மற்றும் கரங்கத்துறை,
திருவள்ளூர் மாவட்டம்.

பெற்ற:
திரு. G. உலகநாதன்
த.பெ. கோமதிநாயகம்
நெ. 15/31, ராதாநகர்,
குரோம்பேட்டை.

15/3/23



சட்டமன்ற உறுப்பினர்

வ.ம. சாதுய்யார்
மதுரை. 1

பரப்பு இலாகா

சீ. எண்: 11 மாடுபேட்டை.

சென். மாநில உட்காரை



Lease Applied Area-

B	15	22.2	152.6	206.8
11	27.6	79.0	107.6	3.4 14
11	27.8	76.0	101.0	13.6 13
10	25.0	70.8	124.6	68.2
C			B	90.6
D			C	90.8 14.2
285.2			D	49.4 6.6
244.2	35.8	19	11	2.8 181.0
18	5.0	235.4	10	50.1 111.0
17	30.8	181.8	9	27.4 88.4
16	17.8	164.6	8	5.6 88.4
		x		D

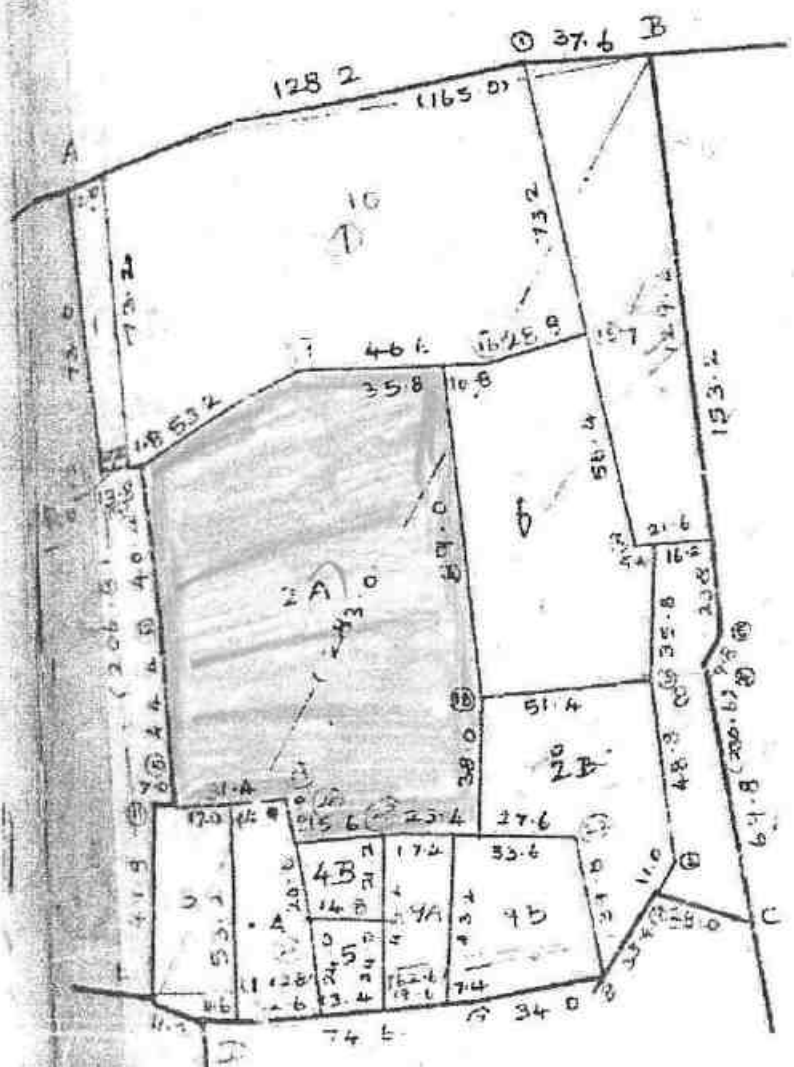
சீ. எண்: 11 மாடுபேட்டை, சென். மாநில உட்காரை, சென். மாநில உட்காரை, சென். மாநில உட்காரை.

பெரியபாளையம்
பகுதி எண் 11

கிராமம் {
பெரியபாளையம்
பகுதி எண் 3



அ) எண் : 211 மாசுதல்
செங்கல்பட்டு மாவட்டம்



Lease Applied Area-

[Faint handwritten notes and signatures in the bottom left corner.]

கிராம நிர்வாக அலுவலர்,
89, சித்தாராயக்கல் கிராமம்,
செங்கல்பட்டு வட்டம்,
திருவள்ளூர் மாவட்டம்.

பொதுமுகம் : சிவசுப்பிரமணியன்
 உயிர்ப்பு : உயிர்ப்பு

புகார்ப்பு : 1, 15 கி.மீ. அகலம்

புகார்ப்பு : 125
 உயிர்ப்பு : சிவசுப்பிரமணியன்

புகார்ப்பு
 1/24 : 0.13.5
 1/3 : 0.25.0
 1/4 : 0.26.0
 1/5 : 0.81.0
 16/24 : 0.98.5
 3.37.0



புகார்ப்பு : 1, 15 கி.மீ. அகலம்



சுப்பிரமணியன்
 உயிர்ப்பு : 125
 சிவசுப்பிரமணியன்

Lease Applied Area-



தமிழக அரசு

வருவாய்த் துறை

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

வட்டம் : வெம்பாக்கம்

பட்டா எண் : 437

மாவட்டம் : திருவண்ணாமலை

வருவாய் கிராமம் : சித்தலப்பாக்கம்

உரிமையாளர்கள் பெயர்

மகன் உலகநாதன்

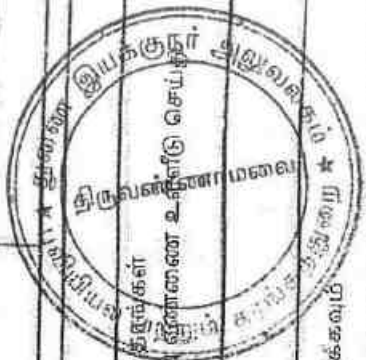
1. கோமதிநாயகம்

புல எண்	உட்பிரிவு	புன்செய்		நன்செய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
1	2C	பரப்பு ஹெக் - ஏர் 0 - 13.50	தீர்வை ரூ - பை 0.52	பரப்பு ஹெக் - ஏர் --	தீர்வை ரூ - பை --	பரப்பு ஹெக் - ஏர் --	தீர்வை ரூ - பை --	2022/0103/06/298282- -- -- 22-08-2022
1	3	பரப்பு ஹெக் - ஏர் 0 - 20.00	தீர்வை 0.78	பரப்பு --	தீர்வை --	பரப்பு --	தீர்வை --	2022/0103/06/298282- -- -- 22-08-2022
1	4	பரப்பு ஹெக் - ஏர் 0 - 26.00	தீர்வை 1.00	பரப்பு --	தீர்வை --	பரப்பு --	தீர்வை --	2022/0103/06/298282- -- -- 22-08-2022
1	5	பரப்பு ஹெக் - ஏர் 0 - 81.00	தீர்வை 3.12	பரப்பு --	தீர்வை --	பரப்பு --	தீர்வை --	2022/0103/06/298282- -- -- 22-08-2022
16	2A	பரப்பு ஹெக் - ஏர் 0 - 98.50	தீர்வை 3.76	பரப்பு --	தீர்வை --	பரப்பு --	தீர்வை --	2022/0103/06/298282- -- -- 22-08-2022
		பரப்பு ஹெக் - ஏர் 2 - 39.00	தீர்வை 9.18	பரப்பு --	தீர்வை --	பரப்பு --	தீர்வை --	2022/0103/06/298282- -- -- 22-08-2022

குறிப்பு 2:



- மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றைத் தரும் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 06/10/125/00437/100574 என்ற குறிப்பு எண்ணை உறுதி செய்துகொள்ளவும்.
- இத் தகவல்கள் 24-08-2022 அன்று 10:19:01 AM நேரத்தில் அச்சடிக்கப்பட்டது.
- கைப்பிடி கோமாளின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்.





பணம் 2
விநாயகத்தில் வருடவாரி பரவாரி கள்வற்று எஞ்சிய அட்டவணம் கணக்கு

பணம் வகை	இரண்டாம் பணம்					மொத்தம்
	(அ)	(ஆ)	(இ)	(ஈ)	(உ)	
	புறநாடு அட்டவணம்	புறநாடு அட்டவணம் / மொத்தம்	உட்கட்டி	உட்கட்டி	உட்கட்டி	
	புறநாடு அட்டவணம்	புறநாடு அட்டவணம் / மொத்தம்	உட்கட்டி	உட்கட்டி	உட்கட்டி	
	புறநாடு அட்டவணம்	புறநாடு அட்டவணம் / மொத்தம்	உட்கட்டி	உட்கட்டி	உட்கட்டி	
1	20	0.52	1.37			
2	0	0	0			
3	4	0	1.00			
4	5	0	3.12			
5	3.8	0	3.76			

பணம் 3
புறநாடு அட்டவணம் கணக்கு

பணம் வகை	முதல் பணம்					மொத்தம்
	(அ)	(ஆ)	(இ)	(ஈ)	(உ)	
	புறநாடு அட்டவணம்	புறநாடு அட்டவணம் / மொத்தம்	உட்கட்டி	உட்கட்டி	உட்கட்டி	
	புறநாடு அட்டவணம்	புறநாடு அட்டவணம் / மொத்தம்	உட்கட்டி	உட்கட்டி	உட்கட்டி	
	புறநாடு அட்டவணம்	புறநாடு அட்டவணம் / மொத்தம்	உட்கட்டி	உட்கட்டி	உட்கட்டி	
1	20	0.52	1.37			
2	0	0	0			
3	4	0	1.00			
4	5	0	3.12			
5	3.8	0	3.76			

அவலக இணைய சேவை - அ-பதி...

<https://eservices.tn.gov.in/eservicesnew/land/aregExtract.do.html?lan=e>

அ-பதிவேடு விலரங்கள்



மாவட்டம் : திருவண்ணாமலை

வட்டம் : வெம்பாக்கம்

கிராமம் : சித்தலப்பாக்கம்

1. புல எண்	1	9. மண் வயனமும் ரகமும்	7 - 3
2. உட்பிரிவு எண்	2C	10. மண் தரம்	4
3. பழைய புல உட்பிரிவு எண்	1-2	11. தீர்வை (ரூ - ஹெ)	3.85
4. பகுதி	P	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 13.50
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	0.52
6. நிலத்தின் வகை	புஞ்சை	14. பட்டா எண்	437
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	-	16. பெயர்	1.உலகநாதன்

குறிப்பு 1:



1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விலரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 70574 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

அ-பதிவேடு விவரங்கள்



மாவட்டம் : திருவண்ணாமலை

வட்டம் : வெம்பாக்கம்

கிராமம் : சித்தலப்பாக்கம்

1. புல எண்	16	9. மண் வயனமும் ரகமும்	7 - 3
2. உட்பிரிவு எண்	2A	10. மண் தரம்	4
3. பழைய புல உட்பிரிவு எண்	16-2	11. தீர்வை (ரூ - ஹெ)	3.85
4. பகுதி	P	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 98.50
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	3.76
6. நிலத்தின் வகை	புஞ்சை	14. பட்டா எண்	437
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இடு போகமா	-	16. பெயர்	1.உலகநாதன்

குறிப்பு 1:



1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 70574 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.



அ-பதிவேடு விவரங்கள்

மாவட்டம் : திருவண்ணாமலை

வட்டம் : வெம்பாக்கம்

கிராமம் : சித்தலப்பாக்கம்

1. புல எண்	1	9. மண் வயனமும் ரகமும்	7 - 3
2. உட்பிரிவு எண்	4	10. மண் தரம்	4
3. பழைய புல உட்பிரிவு எண்	1-4	11. தீர்வை (ரூ - ஹெ)	3.85
4. பகுதி	-	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 26.00
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	1.00
6. நிலத்தின் வகை	புஞ்சை	14. பட்டா எண்	437
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	-	16. பெயர்	1.உலகநாதன்

குறிப்பு 1:



1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை, இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 70574 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

அ-பதிவேடு விவரங்கள்



மாவட்டம் : திருவண்ணாமலை

வட்டம் : வெம்பாக்கம்

கிராமம் : சித்தலப்பாக்கம்

1. புல எண்	1	9. மண் வயனமும் ரகமும்	7 - 3
2. உட்பிரிவு எண்	2C	10. மண் தரம்	4
3. பழைய புல உட்பிரிவு எண்	1-2	11. தீர்வை (ரூ - ஹெ) ஏர்)	3.85
4. பகுதி	P	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 13.50
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	0.52
6. நிலத்தின் வகை	புஞ்சை	14. பட்டா எண்	437
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	-	16. பெயர்	1.உலகநாதன்

குறிப்பு 1:



1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 70574 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.



அ-பதிவேடு விவரங்கள்

மாவட்டம் : திருவண்ணாமலை

வட்டம் : வெம்பாக்கம்

கிராமம் : சித்தலப்பாக்கம்

1. புல எண்	1	9. மண் வயனமும் ரகமும்	7 - 3
2. உட்பிரிவு எண்	5	10. மண் தரம்	4
3. பழைய புல உட்பிரிவு எண்	1-5	11. தீர்வை (ரூ - ஹெ)	3.85
4. பகுதி	-	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 81.00
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - டை)	3.12
6. நிலத்தின் வகை	புஞ்சை	14. பட்டா எண்	437
7. பாசன ஆதாரம்	-	15. குறிப்பு	WELL
8. இரு போகமா	-	16. பெயர்	1.உலகநாதன்

குறிப்பு 1:



1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 70574 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.



தமிழ்நாடு தமில்நாடு TAMILNADU

05/9/2023

CX 362166

G. V. Loganathan
C.V.

S. KRISHNAN
STAMP VENDOR
Chennai Collector's Office Campus
CHENNAI-600 001
Licence No: A2/36488/73

விநியோகம்:

திரு.பி.உலகநாதன்
த/பெ. கோமதி நாயகம்
15/31, ராஜாஜி தெரு, ராதா நகர், குரோம்பேட்டை,
சென்னை - 600 044.

பெறுநர்:

உயர்திரு. துணை இயக்குநர் அவர்கள்,
துணை இயக்குநர் அலுவலகம்,
புவியியல் மற்றும் கிரங்கத்தூறை,
திருவண்ணாமலை.

பார்வை:-

1. திரு.பி.உலகநாதன் த/பெ. கோமதி நாயகம், 15/31, ராஜாஜி தெரு, ராதா நகர், குரோம்பேட்டை,
சென்னை - 600 044 என்பவரின் விண்ணப்பம் நாள். 13.09.2022

STAMP VENDOR, Chennai, India
S. KRISHNAN
No. 15/31, Rajaaji Street,
Korampalai, Chennai-600 001.

2. துவண இயக்குநர் புவியியல் மற்றும் சுரங்கத்துறை அலுவலகம், ந.க.அ/197/கனிமம்/2022, நாள். 13.09.2022

197/கனிமம்/2022, நாள். 13.09.2022

3. சார் ஆட்சியர் செய்யார் அலுவலகம், ந.க.அ/5/4864/2022, நாள். 07.09.2023

4. உதவி புவியியலாளர் மற்றும் தனி வருவாய் ஆய்வாளர் புவியியல் மற்றும் சுரங்கத்துறை

திருவண்ணாமலை அலுவலகம், புலத்தணிக்கை அறிக்கை நாள், 07.09.2023

திருவண்ணாமலை மாவட்டம், வெம்பாக்கம் வட்டம், சித்தாலப்பாக்கம் கிராமம், பட்டா புல எண்கள் 1/2C, 1/3, 1/4, 1/5 மற்றும் 16/2A - இவைகளின் மொத்த 2.39.0 ஹெக்டேரில் சாதாரணகல் மற்றும் கிராவல் வெட்டியெடுக்க 10 ஆண்டுகளுக்கு குவாரிக்குத்தகை உரிமம் வழங்கக்கோரி திரு. G.உலகநாதன் த/பெ. கோமதி நாயகம் என்பவர் அளித்த விண்ணப்பத்தின் மீது பார்வை 2 - ன் மூலம் சார் ஆட்சியர் அவர்களை அறிக்கை அனுப்பி வைக்க கோரப்பட்டது.

திரு. G.உலகநாதன் த/பெ. கோமதி நாயகம் என்கின்ற நான் சாதாரணகல் மற்றும் கிராவல் வெட்டியெடுக்க 10 ஆண்டுகளுக்கு குவாரிக்குத்தகை உரிமம் வழங்கக்கோரி விண்ணப்பித்துள்ள திருவண்ணாமலை மாவட்டம், வெம்பாக்கம் வட்டம், சித்தாலப்பாக்கம் கிராமம், பட்டா புல எண்கள் 1/2C, 1/3, 1/4, 1/5 மற்றும் 16/2A - இவைகளின் மொத்த 2.39.0 ஹெக்டேர் நிலப்பரப்பில் எவ்வித தடையும் இன்றி குவாரிப்பணி செய்ய விண்ணப்பித்து இருந்தேன். எனது விண்ணப்பத்தின் அடிப்படையில் சாதாரணக்கற்கள் மற்றும் கிராவல் மண் வெட்டி எடுக்க குவாரி குத்தகை உரிமம் வழங்க பரிந்துரை செய்யப்பட்ட 2.39.0 ஹெக்டேர் பரப்பளவில் கற்குவாரி செய்ய உகந்த புலம் (Precise Area) என தீர்மானித்து கீழ்கண்ட நிபந்தனைகளுக்கு உட்பட்டு அறிவிப்பு செய்யப்படுகிறது.

விண்ணப்ப புலத்தின் அருகில் தெற்கில் தென்மேற்காக செல்லும் தாழ்வழுத்த கம்பிக்கு 50 மீ பாதுகாப்பு இடைவெளி விடவேண்டும் என்று விதி உள்ளது.

மேற்படி புலத்தின் எல்லையில் இருந்து தாழ்வழுத்த கம்பியானது 50 மீட்டருக்கும் குறைவாக இருப்பதால் மேற்படி தாழ்வழுத்தக் கம்பியை எல்லையிலிருந்து மின் சார்த்துறை மூலமாக 50 மீட்டருக்கோ அல்லது அதற்கு மேலாகவோ இடைவெளி விட்டு அமைப்பதற்கு உறுதி அளிக்கின்றேன்.

நாள். 07.09.2023

இடம்.

சாட்சிகள்

சுமார்புத்து

R. SAMPATH, B.Com., B.L.,
ADVOCATE / NOTARY
Roll No: MS.713/2002
No. 6-217, Subash Chandra Bose Street,
PALLAVAN BAGAR,
KANCHIPURAM - 631 501.
Cell: 9842313159.



 <p>இந்திய அரசாங்கம் Government of India</p> <p>உலகநாதன் கோமதிநாயகம் Ulaganathan Gomathinayagam</p> <p>பிறந்த நாள் / DOB : 15/03/1965 ஆண்பால் / Male</p> 	 <p>தமிழ்நாடு அரசாங்கம் Tamil Nadu Government</p> <p>தமிழ்நாடு அரசாங்கம் Tamil Nadu Government</p> <p>Unique Identification Authority of India திருவண்ணாமலை</p> <p>முகவரி C/O கோமதிநாயகம், 15/31, ராஜாஜி தெரு, ராஜா நகர், குரோம்பேட்டை, குரோம்பேட்டை, கரகச்சேரம், தமிழ்நாடு 600044 Address: C/O Gomathinayagam, 15/31, RAJAJI STREET, RADHA NAGAR, Chromepet, Chromepet, Kancheepuram, Tamil Nadu, 600044</p> 
<p>4623 3443 9010</p> <p>எனது ஆதார், எனது அடையாளம்</p>	<p>4623 3443 9010</p> <p>1947   </p> <p>help@uidai.gov.in www.uidai.gov.in</p>

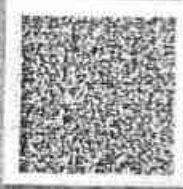
आयकर विभाग
INCOME TAX DEPARTMENT



भारत सरकार
GOVT. OF INDIA



स्थायी लेखा संख्या कार्ड
Permanent Account Number Card
AARPU1220D



नाम / Name
ULAGANATHAN

पिता का नाम / Father's Name
GOMATHINAYAGAM

कार्ड का जारीतारी (Date of Issue)
15/03/1985

हस्ताक्षर / Signature

14396

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

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

इस कार्ड को खोने/पाने पर कृपया सूचित करें/सौंपें :
आयकर सेवक इकाई, UTHITSL,
प्लॉट नं: 3, सेक्टर 11, सी.बी.डी. बेलपुर,
नवी मुंबई-400 614.

Anykar Sampark Kendras
For Income Tax Related
Queries call Toll Free No. 1441
or
13001801401



அண்ணாமலைப்

ANNAMALAI



ANNEXURE 1x
பல்கலைக்கழகம்

UNIVERSITY



அறிவியற்புலம்
FACULTY OF SCIENCE,

மே, 2010 இல்

பயன்பாட்டு நிலத்தியல்

பிரிவில்

நடத்திய தேர்வுகளில்

சந்தோஷ்குமார் ம/

சுருதல்

மதிப்பிடுபுள்ளிகள் 10.00 க்கு சராசரியாக 7.04 பெற்று

முதல் வகுப்பில்

தேர்ச்சியடைந்து முறையாக அமைக்கப்பெற்ற தேர்வுக்குழுவினர் சான்றளித்தபடி,

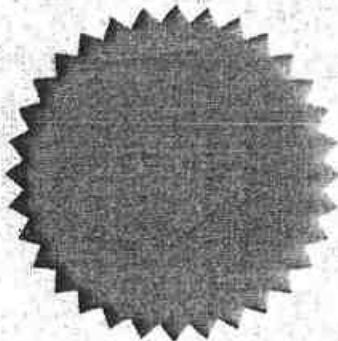
அறிவியல் நிறைஞர் பட்டம் பெறுவதற்கு உரியவர் ஆகின்றார்

என அண்ணாமலைப் பல்கலைக்கழக ஆளவை இதன்வழி அறிவிக்கின்றது.

The Senate of the ANNAMALAI UNIVERSITY hereby makes known that **SANTHOSHKUMAR M/** has been admitted to the Degree of **MASTER OF SCIENCE in APPLIED GEOLOGY,** he/she having secured **OGPA of 7.04/** out of **10.00** been certified by duly appointed Examiners at the Examination held in **MAY,2010/** to be qualified to receive the same and that he/she was placed in **FIRST CLASS.**

பல்கலைக்கழக முத்திரை பெறுகின்றது

Given under the seal of the University



அண்ணாமலைநகர்
Annamalainagar

நாள்:

Dated: 06/10/2010

Senthilvel

துணை தேர்வாணையர் (கல்விசார்ந்த)
Dy. Controller of Examinations (Academic)

Dr. M. Rathinasabapathi

Dr. M. Rathinasabapathi

பதிவாளர்
Registrar

Dr. M. Ramanathan

Dr. M. Ramanathan

துணை வேந்தர்
Vice-Chancellor

ANNEXURE X

GOVERNMENT OF INDIA
MINISTRY OF LABOUR AND EMPLOYMENT DIRECTORATE GENERAL OF
MINES SAFETY



Certificate of Practical Experience granted by the Manager to a Candidate for a Manager's/ Surveyor's/ Mining foreman/ Mining Mate/ Blasters certificate of competency examination under Metalliferous Mines Regulation, 1961.

I, M.S.Pavel being the Manager of K.Pitchampatti Multicolor Granite Mine belong to M/s. Anupkumar Lohia do hereby certify that **Thiru. M.santhoshkumar** son of **Thiru. R.Mathiyazhagan** (whose signature is appended) worked in the above mine from 10.07.2012 to 31.07.2018. During his term of work aforesaid, he has obtained practical experience as detailed overleaf. The duties connected with his work have involved continuous attendance at the mine and have been efficiently performed by him.

I believe him to be of good character and a fit and proper candidate to be examined for certificate of competency.

M.S.Pavel

(Signature with date and official seal)

(Mines Manager 1st class)
MANAGER (MINES)
MULTICOLOUR GRANITE MINE
K. PITCHAMPATTI,
KARUR - TALUK & DIST.

M. Santosh Kumar
(Signature of Candidate)

State the name of the mineral works: Multi Colour Granite

S. No.	Particulars of Practical experience (a)	Place of Experience (b) Opencast	Period of Practical experience (c)		Total Experience (e)		
			From	To	Yrs.	Months	Days
1.	As a trainee in drilling operation	Open cast	10.07.2012	24.10.2013	01	03	16
2.	As a trainee in deep hole blasting operation	Open cast	25.10.2013	31.12.2014	01	02	07
3.	Production incharge quality control and Supervisor of Earth moving Mining Machinery	Open cast	01.01.2015	31.07.2018	03	07	00
GRAND TOTAL					06	00	23
In words : Six years twenty three days							

In below ground working	In open cast working	In all
Nil	Average monthly output 250m ³	250m ³
Nil	Average daily employment 25Nos	25Nos

Note: The average employment is less because this is mechanized mines having deep hole drilling, blasting and Heavy Earth Moving Machinerries operation.

M. S. Senthil
(Signature of Candidate)

M. S. Senthil
(Signature with date and official seal)

(Mines Manager 1st class)
MANAGER (MINES)
MULTICOLOUR GRANITE MINE
K. PITCHAMPATTI,
KARUR - TALUK & DIST.

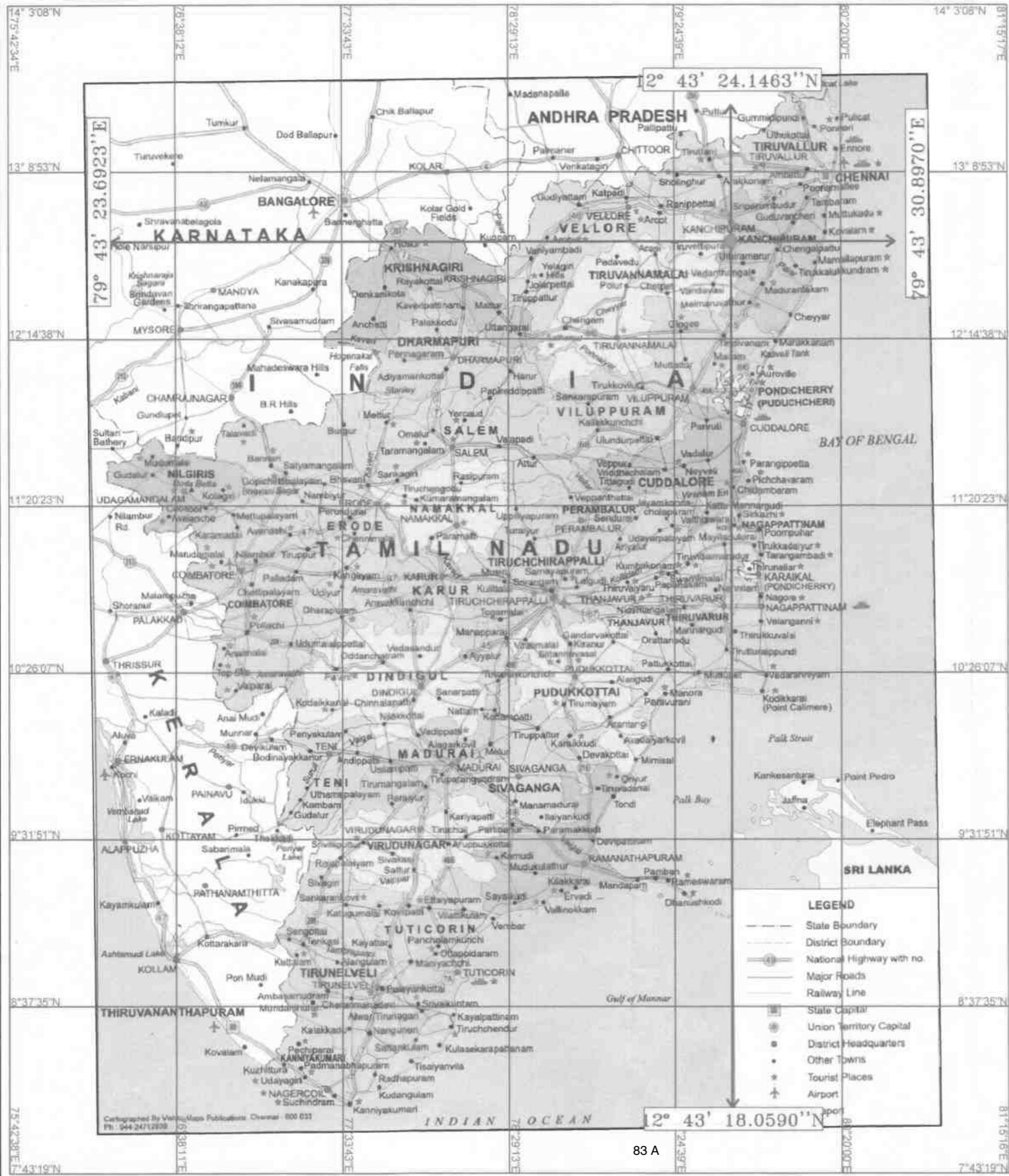


PLATE NO: I

DATE OF SURVEY : 13.09.2023

APPLICANT:

THIRU.G.ULAGANATHAN,
S/O.GOMATHINAYAGAM,
No.15/31,RADHA NAGAR,
CHROMPET,
KANCHEEPURAM DISTRICT.

LOCATION OF QUARRY

LEASE APPLIED AREA:

S.F.NO.S : 1/2C,1/3,1/4,1/5, & 16/2A,
EXTENT : 2.39.0 HA.
VILLAGE : SITHTHALAPAKKAM,
TALUK : VEMPAKKAM,
DISTRICT : TIRUVANNAMALAI,
STATE : TAMIL NADU.

INDEX

Q. L.A. AREA : ●

TOPO SHEET NO. : 57 P/10

LATITUDE : 12° 43' 18.0590"N to 12° 43' 24.1463"N

LONGITUDE : 79° 43' 23.6923"E to 79° 43' 30.8970"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

M. Santhosh Kumar
M.SANTHOSHKUMAR, M.Sc.,
QUALIFIED PERSON

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



12° 48' 49.61"N



79° 37' 52.16"E

79° 49' 02.43"E

12° 37' 52.59"N

TOPO SHEET NO. : 57 P/10

LATITUDE :12° 43' 18.0590"N to 12° 43' 24.1463"N

LONGITUDE :79° 43' 23.6923"E to 79° 43' 30.8970"E

10KM RADIUS :

Q.L.APPLIED AREA :



APPLICANT:
THIRU.G.ULAGANATHAN,
S/O.GOMATHINAYAGAM,
No.15/31,RADHA NAGAR,
CHROMPET,
KANCHEEPURAM DISTRICT.



LOCATION OF QUARRY
LEASE APPLIED AREA:

S.F.NO.S : 1/2C,1/3,1/4,1/5, & 16/2A
EXTENT : 2.39.0 HA.
VILLAGE : SITHTHALAPAKKAM,
TALUK : VEMPAKKAM,
DISTRICT : TIRUVANNAMALAI,
STATE : TAMIL NADU.

INDEX

Express highway with toll with bridge with distance stone	
Road with level according to contour	
Road with contour according to importance	
Unsurfaced road Cart track Path track with post Footpath	
Stream with fall in bed unshaded Canal	
Dune masonry or rock-lined with rock Vane	
Water way with water channel with level & mile 1/4 mile	
Submerged rocks Small Shallow Rocks	
Wells (well covered) Tube-well (sandy) Tanks (covered) by	
Embankment road or rail bank Broken ground	
Railway broad gauge double single with station code/terminal	
Railway other gauges double single with distance stone (in	
Shaded line or boundary with cutting with level	
Contours with 5m features Rocky slopes Cliffs	
Small features (Wells) (Shaded) (Shaded) (Shaded) (Shaded)	
Towers or Village (shaded) (shaded) (shaded)	
High prominent (shaded) Tower (shaded)	
Temple (shaded) Church (shaded) High Tower (shaded)	
Lighthouse Lighthouse Beacon Light (shaded) (shaded)	
Mine (shaded) (shaded) (shaded) (shaded)	
Palace (shaded) other (shaded) (shaded) (shaded) (shaded)	
Area (shaded) (shaded) (shaded) (shaded)	
Boundary (shaded)	
State (shaded) (shaded)	
Boundary (shaded) (shaded)	
Height (shaded) (shaded) (shaded) (shaded)	
Bench-mark (shaded) (shaded) (shaded) (shaded)	
Post office (shaded) (shaded) (shaded) (shaded)	
Post office (shaded) (shaded) (shaded) (shaded)	
Camping ground (shaded) (shaded) (shaded) (shaded)	
Special names (shaded) (shaded) (shaded) (shaded)	
Hospital Dispensary (shaded) (shaded) (shaded) (shaded)	
Aerodrome (shaded) (shaded) (shaded) (shaded)	
Power line with poles (shaded) with poles (shaded)	

TOPO SKETCH OF QUARRY
LEASE APPLIED AREA FOR
10KM RADIUS

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

M. Santhosh Kumar
M.SANTHOSHKUMAR, M.Sc.,
QUALIFIED PERSON

OCTOBER TO DECEMBER



PLATE NO: I-B

DATE OF SURVEY : 13.09.2023

1Km Radius :

500m Radius :

Q.L.Applied Area :

TOPO SHEET NO. : 57/170

LATITUDE : 12° 43' 18.0590" N to 12° 43' 01.79" N

LONGITUDE : 79° 43' 23.8926" E to 79° 43' 30.8970" E



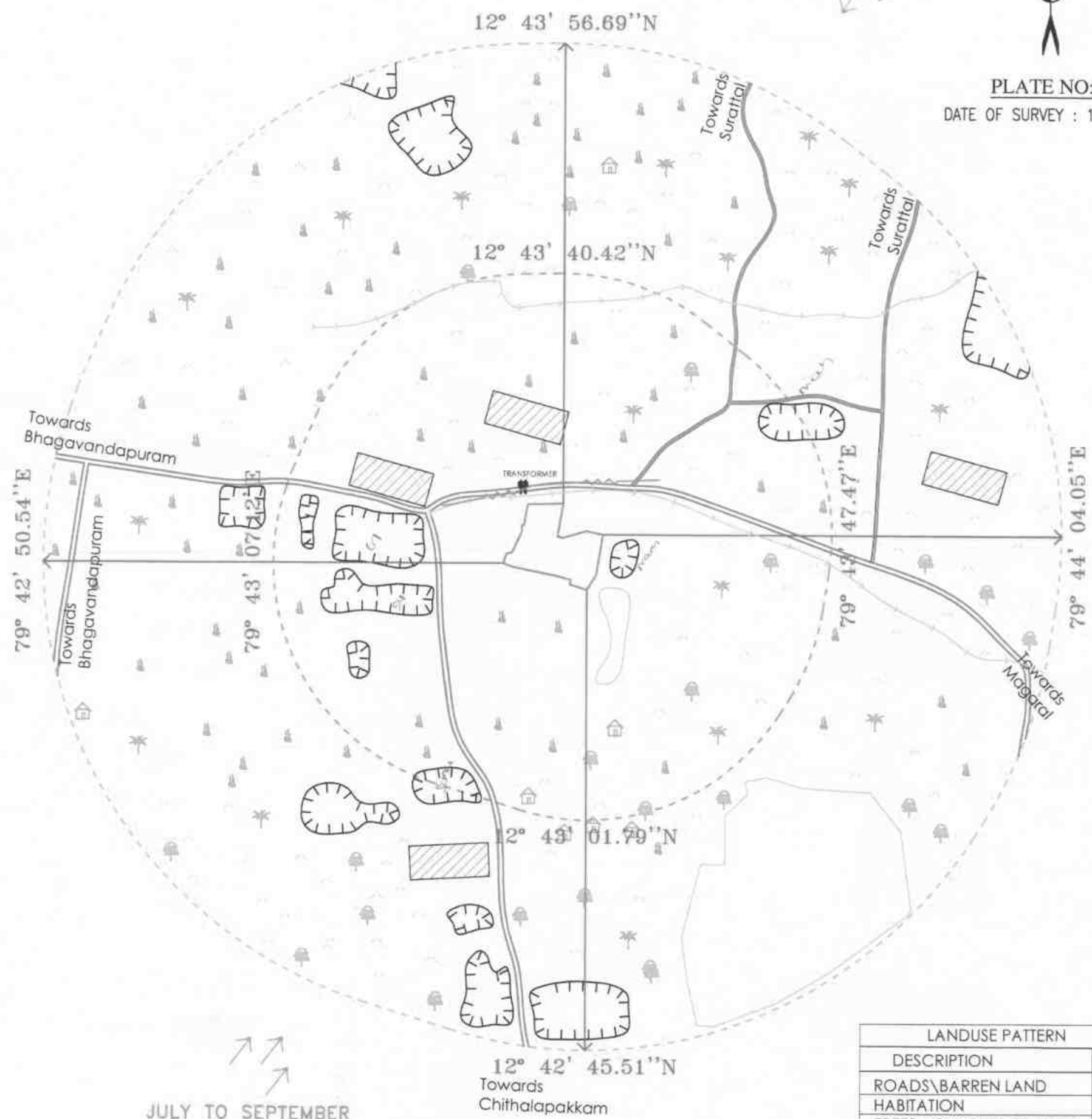
APPLICANT:

THIRU.G.ULAGANATHAN,
S/O.GOMATHINAYAGAM,
No.15/31,RADHA NAGAR,
CHROMPET,
KANCHEEPURAM DISTRICT.

LOCATION OF QUARRY

LEASE APPLIED AREA:

S.F.NO.S : 1/2C,1/3,1/4,1/5. & 16/2A,
EXTENT : 2.39.0 HA.
VILLAGE : SITHTHALAPAKKAM,
TALUK : VEMPAKKAM,
DISTRICT : TIRUVANNAMALAI,
STATE : TAMIL NADU.



JULY TO SEPTEMBER

INDEX

- APPROACH ROAD
- VILLAGE ROAD
- HABITATION
- TREES
- SEASONAL AGRICULTURAL LAND
- PIT
- WIND DIRECTION
- ODAI
- TANK
- CRISHER PLANT
- BARREN LAND
- LT LINE

**ENVIRONMENTAL AND
LANDUSE PLAN (FOR 1Km RADIUS)**

SCALE- 1:10,000

PREPARED BY:

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AUTHENTICATED
BY STATE GOVERNMENT
M. Santosh Kumar
M.SANTHOSHKUMAR, M.Sc.,
QUALIFIED PERSON
Under Rule 15(i)(a) and (b) of MCR, 2016

LANDUSE PATTERN	
DESCRIPTION	%
ROADS\BARREN LAND	(15%)
HABITATION	(02%)
TREES / QUARRY/ CRUSHER	(23%)
SEASONAL AGRI LAND	(50%)
PIT\TANK\ODAI	(10%)

PLATE NO : I-C
ROUTE MAP



Bagavandapuram



2.0km

3.0km



Magaral

10.0km

12.0km



Uthiramerur

INDEX

LEASE AREA



SATATE HIGHWAY



PANCHAYAT ROAD



APPROACH ROAD



APPLICANT :

Thiru.G. ULAGANATHAN,
 S/o.GOMATHINAYAGAM,
 No.15/31,RADHA NAGAR,
 CHROMPET,
 KANCHEEPURAM DISTRICT.

LOCATION OF Q.L. A. AREA:

S.F.NO.S : 1/2C,1/3,1/4,1/5,&16/2A,
 EXTENT : 2.39.0 HA.
 VILLAGE : SITHTHALAPAKKAM,
 TALUK : VEMPAKKAM,
 DISTRICT : TIRUVANNAMALAI,
 STATE : TAMIL NADU.

SCALE :

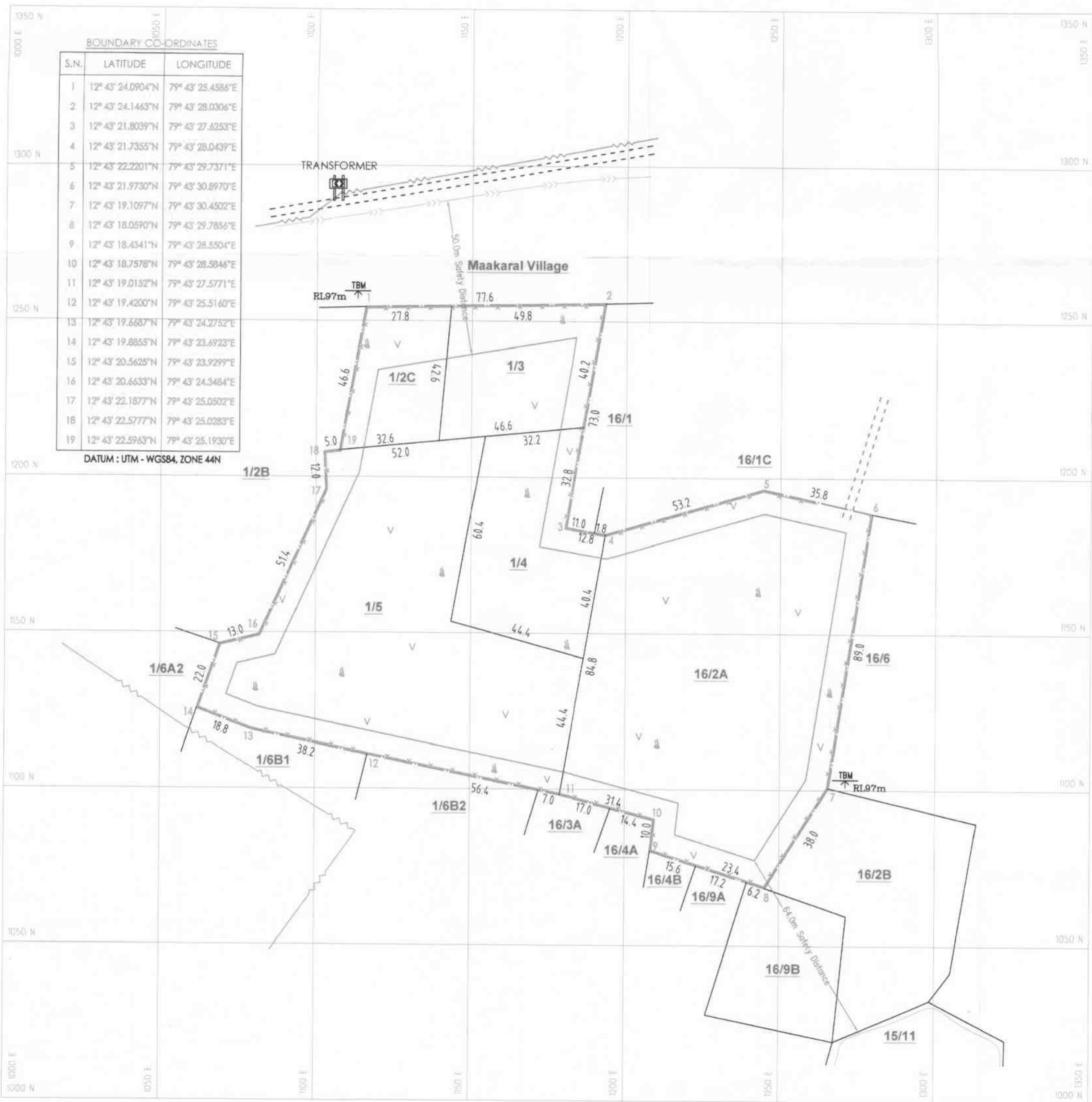
NOT TO SCALE

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 LEASE MAP
 AUTHENTICATED BY STATE GOVERNMENT

M. Santhosh Kumar

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



BOUNDARY CO-ORDINATES

S.N.	LATITUDE	LONGITUDE
1	12° 43' 24.0904"N	79° 43' 25.4586"E
2	12° 43' 24.1463"N	79° 43' 28.0306"E
3	12° 43' 21.8039"N	79° 43' 27.6253"E
4	12° 43' 21.7355"N	79° 43' 28.0439"E
5	12° 43' 22.2201"N	79° 43' 29.7371"E
6	12° 43' 21.9730"N	79° 43' 30.8970"E
7	12° 43' 19.1097"N	79° 43' 30.4502"E
8	12° 43' 18.0590"N	79° 43' 29.7856"E
9	12° 43' 18.4341"N	79° 43' 28.5504"E
10	12° 43' 18.7578"N	79° 43' 28.5846"E
11	12° 43' 19.0152"N	79° 43' 27.5771"E
12	12° 43' 19.4200"N	79° 43' 25.5160"E
13	12° 43' 19.6687"N	79° 43' 24.2752"E
14	12° 43' 19.8855"N	79° 43' 23.6923"E
15	12° 43' 20.5625"N	79° 43' 23.9299"E
16	12° 43' 20.6633"N	79° 43' 24.3484"E
17	12° 43' 22.1877"N	79° 43' 25.0502"E
18	12° 43' 22.5777"N	79° 43' 25.0283"E
19	12° 43' 22.5963"N	79° 43' 25.1930"E

DATUM : UTM - WGS84, ZONE 44N

INDEX

	Q.L. APPLIED AREA BOUNDARY
	7.5m & 50m SAFETY DISTANCE
	TEMPORARY BENCH MARK
	GRAVEL
	SCRUB
	LT LINE
	LT LINE (to be shifted)
	THANGAL ERI
	ODAI
	APPROACH ROAD
	VILLAGE ROAD
	BARBED WIRE FENCING

APPLICANT :
 Thiru.G. ULAGANATHAN,
 S/o.GOMATHINAYAGAM,
 No.15/31,RADHA NAGAR,
 CHROMPET,
 KANCHEEPURAM DISTRICT.

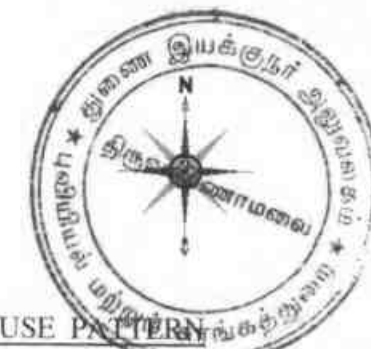
LOCATION OF Q.L. APPLIED AREA:
 S.F.NO.S : 1/2C,1/3,1/4,1/5, & 16/2A.
 EXTENT : 2.39.0 HA.
 VILLAGE : SITHTHALAPAKKAM,
 TALUK : VEMPAKKAM,
 DISTRICT : TIRUVANNAMALAI,
 STATE : TAMIL NADU.

PLATE NO - II
 DATE OF SURVEY : 13.09.2023

**QUARRY LEASE PLAN &
 SURFACE PLAN**
 SCALE: 1:1000

PREPARED BY :
 THIS IS TO CERTIFY THAT THE INFORMATION IN THIS
 PLATE IS TRUE AND CORRECT TO THE BEST OF MY
 KNOWLEDGE BASED UPON THE LEASE MAP
 AUTHENTICATED BY STATE GOVERNMENT

M. S. Santosh Kumar
 M.SANTHOSHKUMAR, M.Sc.,
 QUALIFIED PERSON
 Under Rule 15(i)(a)and(b)of MCR,2016



LAND USE PATTERN

SITE SERVICES	
A	OFFICE
B	STORE ROOM
C	FIRST AID ROOM
D	REST SHELTER
E	TOILET
M	MAGAZINE

DESCRIPTION	PRESENT AREA IN (Ha)	AREA REQUIRED DURING THE FIRST FIVE YEARS OF PLAN PERIOD (Ha)	AREA AT THE END OF LEASE PERIOD (Ha)
QUARRYING PIT	Nil	1.72.0	1.72.0
INFRASTRUCTURE	Nil	0.01.0	0.01.0
ROADS	Nil	0.02.0	0.02.0
GREEN BELT	Nil	0.20.0	0.42.0
UN-UTILIZED AREA	2.39.0	0.44.0	0.22.0
TOTAL	2.39.0	2.39.0	2.39.0

INDEX	
	Q.L. APPLIED AREA BOUNDARY
	7.5m & 50m SAFETY DISTANCE
	TEMPORARY BENCH MARK
	GRAVEL
	ROUGHSTONE
	STRIKE & DIP
	QUARRY PIT
	SCRUB
	LT LINE
	THANGAL ERI
	ODAI
	APPROACH ROAD
	VILLAGE ROAD
	PLANTATION
	BARBED WIRE FENCING
	EXISTING LAND FORM
	SOIL LAYER
	REHABILITATED LAND FORM
	PROPOSED GARLAND DRAIN
	OLD SURFACE LEVEL
	FINISHED SURFACE LEVEL
	RAIN WATER STORAGE

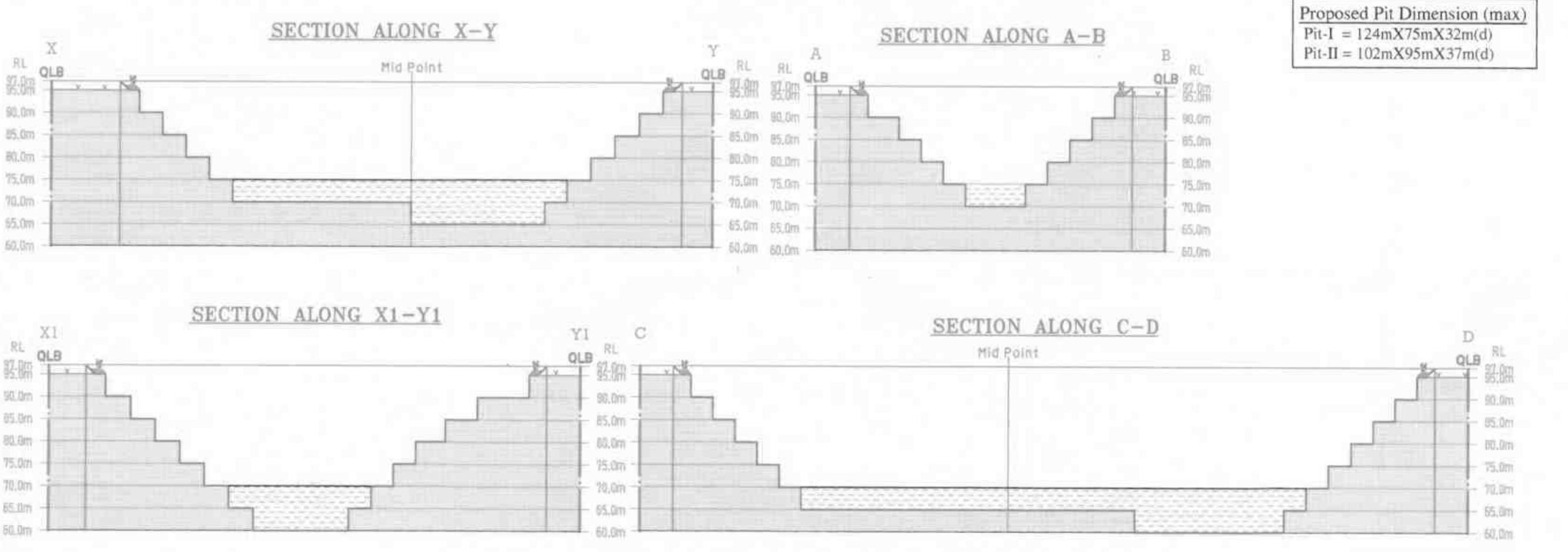
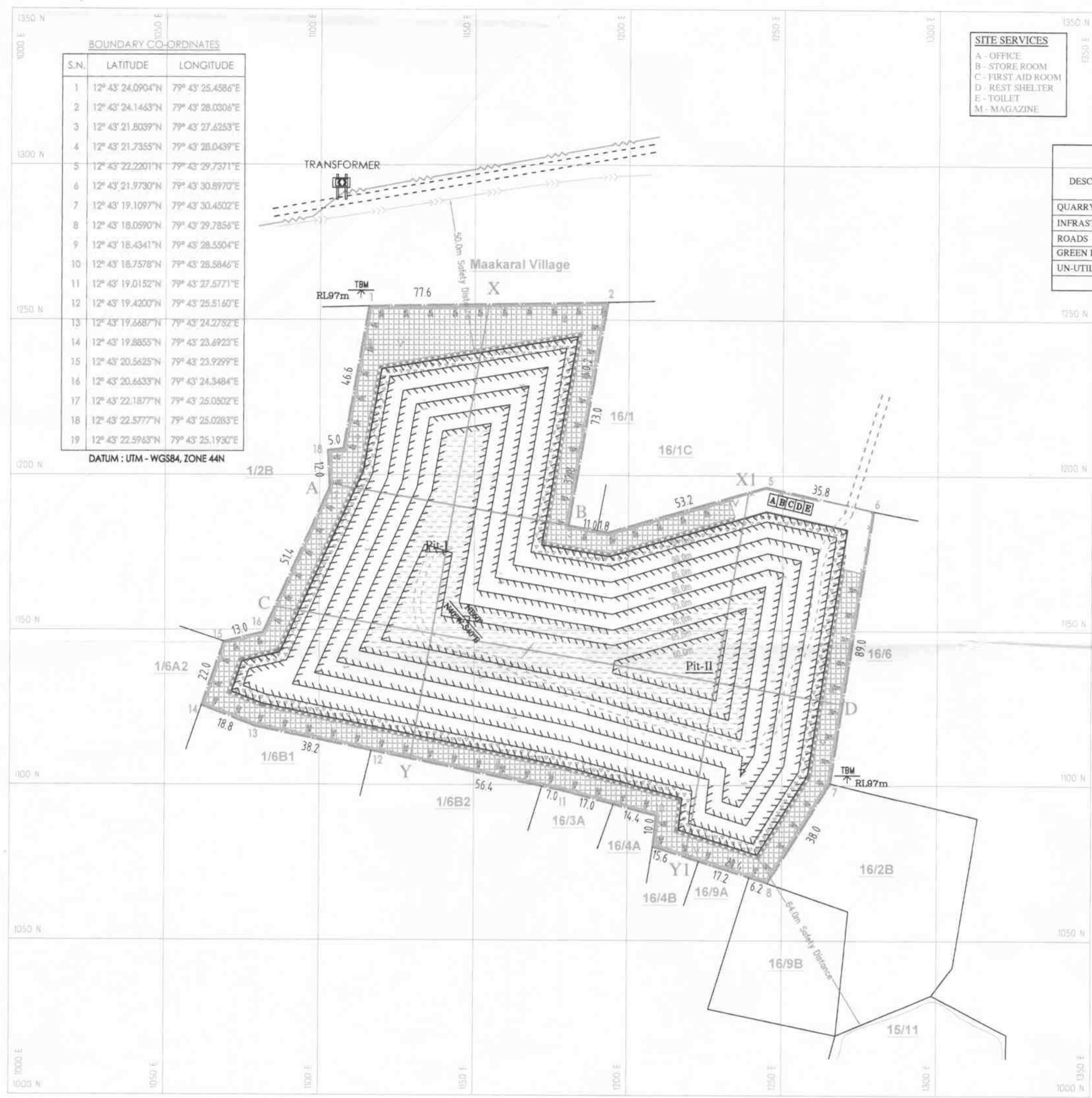
APPLICANT :
 Thiru.G. ULAGANATHAN,
 S/o.GOMATHINAYAGAM,
 No.15/31,RADHA NAGAR,
 CHROMPET,
 KANCHEEPURAM DISTRICT.

LOCATION OF Q.L. APPLIED AREA:
 S.F.NO.S : 1/2C,1/3,1/4,1/5, & 16/2A.
 EXTENT : 2.39.0 HA.
 VILLAGE : SITHTHALAPPAKKAM,
 TALUK : VEMPAKKAM,
 DISTRICT : TIRUVANNAMALAI,
 STATE : TAMIL NADU.

PLATE NO - IV
 DATE OF SURVEY : 13.09.2023

PROGRESSIVE QUARRY CLOSURE PLAN & 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 LEASE MAP AUTHENTICATED BY STATE GOVERNMENT
 M. Santhosh Kumar
 M.SANTHOSHKUMAR,M.Sc.,
 QUALIFIED PERSON
 Under Rule 15(i)(a)and(b)of MCR,2016





SITE SERVICES
 A - OFFICE
 B - STORE ROOM
 C - FIRST AID ROOM
 D - REST SHELTER
 E - TOILET
 M - MAGAZINE

INDEX

- Q.L. APPLIED AREA BOUNDARY
- 7.5m & 50m SAFETY DISTANCE
- TEMPORARY BENCH MARK
- GRAVEL
- ROUGHSTONE
- STRIKE & DIP
- QUARRY PIT
- SCRUB
- LT LINE
- THANGAL ERI
- ODAI
- APPROACH ROAD
- VILLAGE ROAD
- PLANTATION
- BARBED WIRE FENCING

APPLICANT :

Thiru.G. ULAGANATHAN,
 S/o.GOMATHINAYAGAM,
 No.15/31,RADHA NAGAR,
 CHROMPET,
 KANCHEEPURAM DISTRICT.

LOCATION OF Q.L. APPLIED AREA:

S.F.NO.S : 1/2C,1/3,1/4,1/5, & 16/2A,
 EXTENT : 2.39.0 HA.
 VILLAGE : SITHTHALAPPAKKAM,
 TALUK : VEMPAKKAM,
 DISTRICT : TIRUVANNAMALAI,
 STATE : TAMIL NADU.

PLATE NO - V

DATE OF SURVEY : 13.09.2023

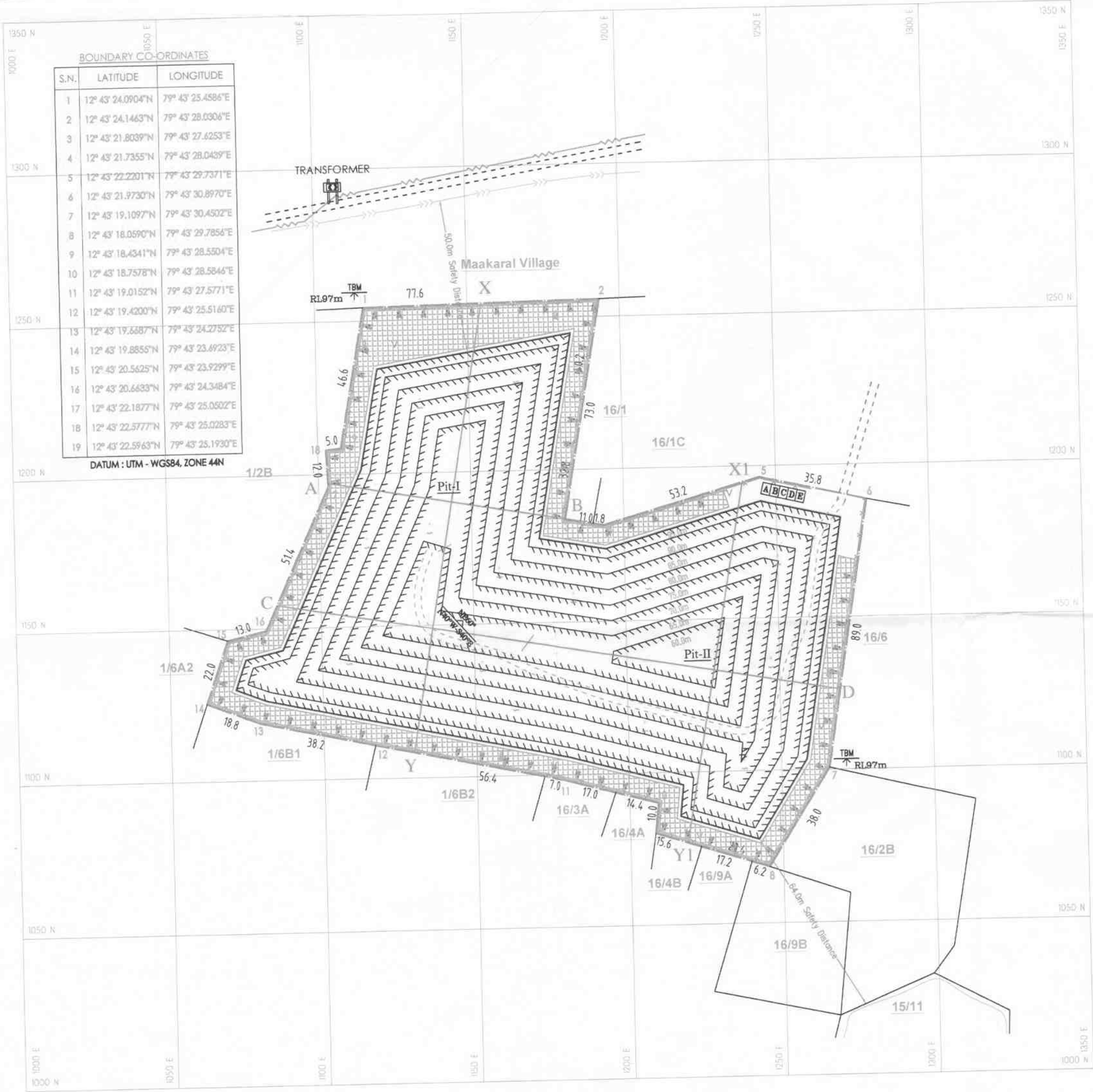
CONCEPTUAL PLAN & SECTIONS

SCALE: 1:1000

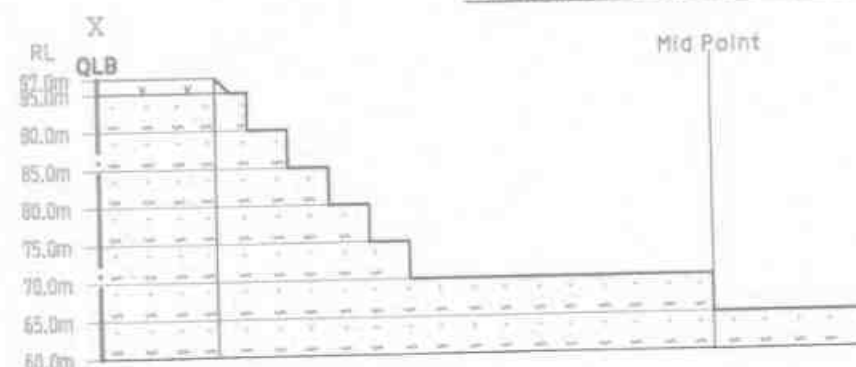
PREPARED BY :

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS PLATE IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE BASED UPON THE LEASE MAP AUTHENTICATED BY STATE GOVERNMENT

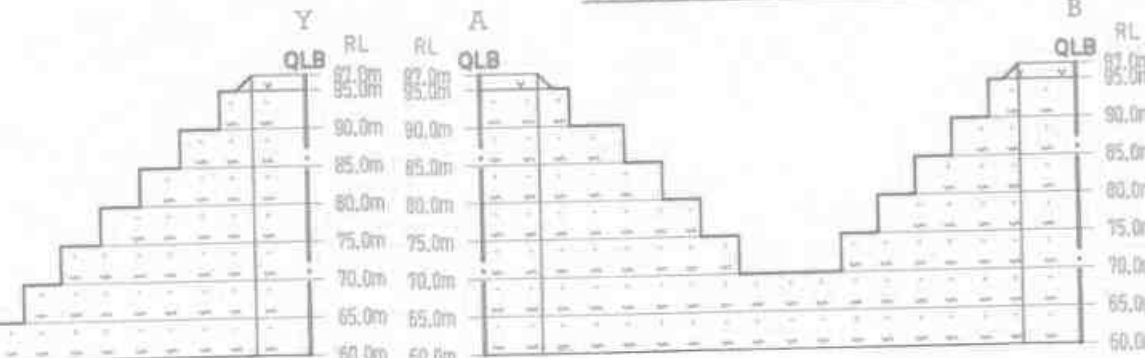
M. Santosh Kumar
 M.SANTHOSHKUMAR,M.Sc.,
 QUALIFIED PERSON
 Under Rule 15(i)(a)and(b)of MCR,2016



SECTION ALONG X-Y

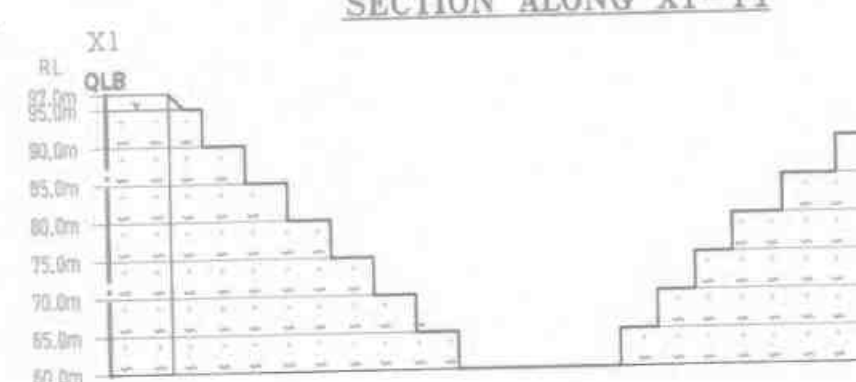


SECTION ALONG A-B

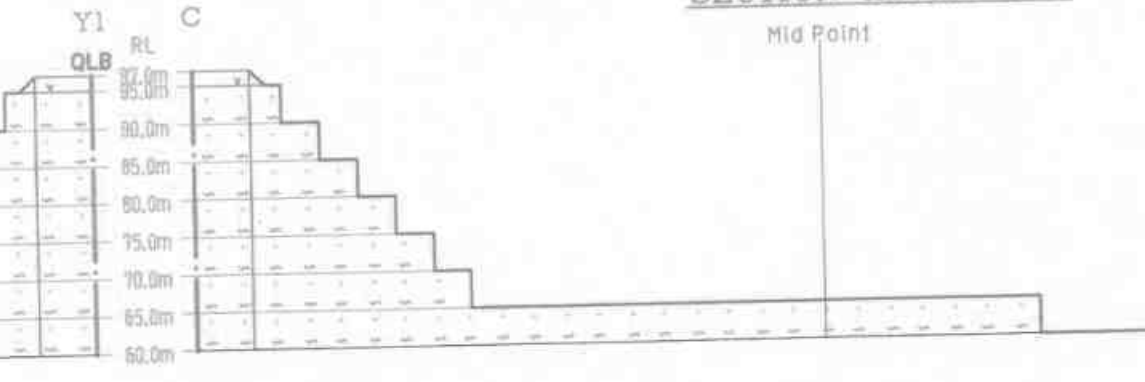


Ultimate Pit Dimension (max)
 Pit-I = 124mX75mX32m(d)
 Pit-II = 102mX95mX37m(d)

SECTION ALONG X1-Y1



SECTION ALONG C-D



HYDROGEOLOGICAL REPORT FOR

**Rough stone and Gravel Quarry Over an
extent of 2.39.0Ha of Patta land in S.F. Nos: 1/2C, 1/3,
1/4, 1/5 & 16/2A of Sithalapakkam Village,
Vembakkam Taluk, Tiruvannamalai District,
Tamil Nadu State**

HYDROGEOLOGICAL REPORT FOR SITHALAPAKKAM

ROUGH STONE AND GRAVEL QUARRY

1. INTRODUCTION

NAME OF THE APPLICANT WITH ADDRESS-

Applicant Name : Thiru. G. Ulaganathan,
S/o. Gomathinayagam,
Address : No.15/31, Rajaji Street,
Radha Nagar, Chromepet,
Kancheepuram, Tamil Nadu State.
Pin Code : 600 044.
Mobile No : +91 93609 52091
Aadhaar No : 4623 3443 9010
Email ID : vanajaulaganathan@gmail.com

DETAILS OF THE AREA-

Land Classification : Patta land
Survey No : 1/2C, 1/3, 1/4, 1/5 & 16/2A
Extent : 2.39.0Ha
Village : Sithalapakkam
Taluk : Vembakkam
District : Tiruvannamalai

The Client requires detailed information on Ground Water Occurrences at Proposed Project Site is rough stone 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 investigated site falls in the Toposheet No: **57–P/10** Latitude between: **12°43'18.0590”N to 12°43'24.1463”N** and Longitude between: **79°43'23.6923”E to 79°43'30.8970”E** on WGS datum-1984.

4. REGIONAL GEOLOGY OF TIRUVANNAMALAI DISTRICT-

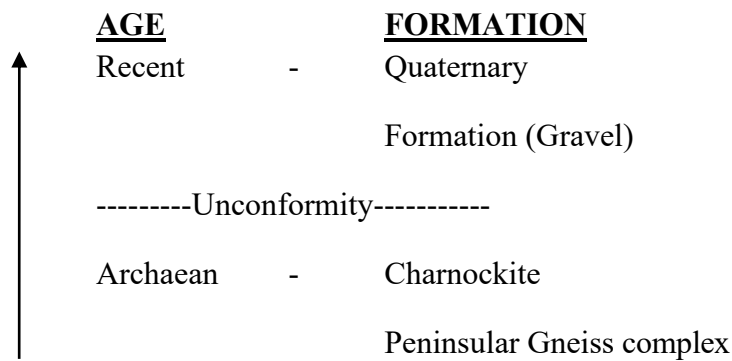
Tiruvannamalai District mainly comprises of rocks of Archaean age. The type of rocks found in the district are Charnockite, Granitic gneiss, Epidote Hornblende Gneiss, Amphibolite, Pyroxenite, Dunite, Migmatites, Banded Magnetite Quartzite, Shale and Clay. Dolerite dykes (Black Granite) are also noticed cutting across the country rocks.

The hard rock terrain comprises predominantly of Charnockite and Khondalite groups and their migmatitic derivatives, supra-crustal sequences of Sathyamangalam and Kolar groups and Peninsular Gneissic Complex (Bhavani Group), intruded by ultramafic-mafic complexes, basic dykes, granites and syenites. The sedimentary rocks of the coastal belt include fluviatile, fluvio-marine and marine sequences, such as Gondwana Supergroup (Carboniferous to Permian and Upper Jurassic to Lower Cretaceous), marine sediments of Cauvery basin (Lower Cretaceous to Paleogene), Cuddalore /Pannambarai Formation (Miocene) and sediments of Quaternary and Recent age.

The Charnockite Group comprises pyroxene granulite and charnockite. The pyroxene granulite is dark grey, medium grained granulitic rock with typical salt and pepper texture,

seen on the weathered surface. It consists of diopside, hypersthene, plagioclase, hornblende, biotite and quartz. Charnockite is the predominant rock in the area. It is grey, medium to coarse grained, greasy looking with foliation seen prominently on the weathered surface. It is essentially made of smoky or grey quartz, pale grey microcline and hypersthene as major minerals with plagioclase, hornblende and biotite as accessories.

Migmatite Complex is represented by hornblende-biotite gneiss, granitic gneiss and pink migmatite. This Complex is a group of banded felsic rocks of varying mineralogical composition that are formed due to the influx of quartzofeldspathic material into high grade metamorphic rocks. Two types of migmatite are seen in the district, one is grey and the other is pink. Next to charnockite, migmatite gneiss is the second most extensive rock. The migmatite gneiss consists of quartz, K-feldspar, plagioclase, hornblende and biotite in varying proportions.



Drainage

Cheyar River which originates from Jawadhu Hills, flows in a southern direction at first, and turns south-east near Chengam after flowing through Polur, Vandavasi and Cheyyartaluks. Palar rising near Nandidurg in Mysore enters Vellore district passing through Gudiyatham, Walajah and Arakonamtaluks before entering into Cheyyartaluk of Tiruvannamalai district and there after enters into Kancheepuram district. Pennaiyar and South Pennaiyar originate from Nandidurg of Karnataka. They pass through Dharmapuri district and enter southern part of Chengamtaluk before entering in to Viluppuram district. Finally, the river enters into the Bay of Bengal at Cuddalore. The river is dry for the most part of the year. Water flows during the monsoon season when it is fed by the southwest monsoon in catchment area and the northeast monsoon in Tamil Nadu. A dam has been constructed across this river at Sathanur which is a picnic spot in this district. Sathanur Reservoir provides drinking water to Tiruvannamalai town and the water is used for irrigation when the reservoir is filled with surplus water.

Soils

The red loamy soil is predominantly found here. However, Polur taluk has concentration of red series loam. The district has also different types of soils such as ferruginous loamy and sandy loamy however black series loam is found in tanks and river beds of Cheyyar and Vandavasi Taluks.

5. GEOPHYSICAL INVESTIGATION METHODS

A variety of methods are available to assist in the assessment of geological sub-surface conditions. The main emphasis of the fieldwork undertaken was to determine the thickness and composition of the sub-surface formations and to identify water-bearing zones. This information was principally obtained in the field using, and vertical electrical soundings (VES). The VES probes the resistivity layering below the site of measurement. This method is described below.

Resistivity Method

Vertical electrical soundings (VES) were carried out to probe the condition of the sub-surface and to confirm the existence of deep groundwater. The VES investigates the resistivity layering below the site of measurement.

Basic Principles

The electrical properties of rocks in the upper part of the earth's crust are dependent upon the lithology, porosity, and the degree of pore space saturation and the salinity of the pore water. Saturated rocks have lower resistivity than unsaturated and dry rocks. The higher the porosity of the saturated rock, or the higher the salinity of the saturating fluids, the lower is the resistivity. The presence of clays and conductive minerals also reduces the resistivity of the rock.

The resistivity of earth materials can be studied by measuring the electrical potential distribution produced at the earth's surface by an electric current that is passed through the earth. Current is moved through the subsurface from one current electrode to the other and the potential difference is recorded as the current passes. From this information, resistivity values of various layers are acquired and layer thickness can be identified.

The apparent resistivity values determined are plotted as a log function versus the log of the spacing between the electrodes. These plotted curves identify thickness of layers. If there are multiple layers (more than 2), the acquired data is compared to a master curve to determine layer thickness. This method is least influenced by lateral in-homogeneities and capable of providing higher depth of investigation.

The resistance R of a certain material is directly proportional to its length L and cross-sectional area A, expressed as:

$$R = R_s * L/A \text{ (in Ohm)}$$

Where R_s is known as the specific resistivity (characteristic of the material and independent of its shape or size)

With Ohm's Law,

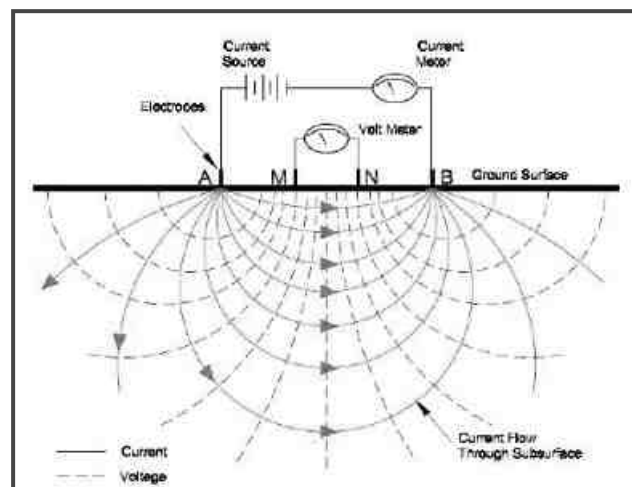
$$R = dV/I \text{ (Ohm)}$$

Where dV is the potential difference across the resistor and I is the electric current through the resistor. The specific resistivity may be determined by:

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

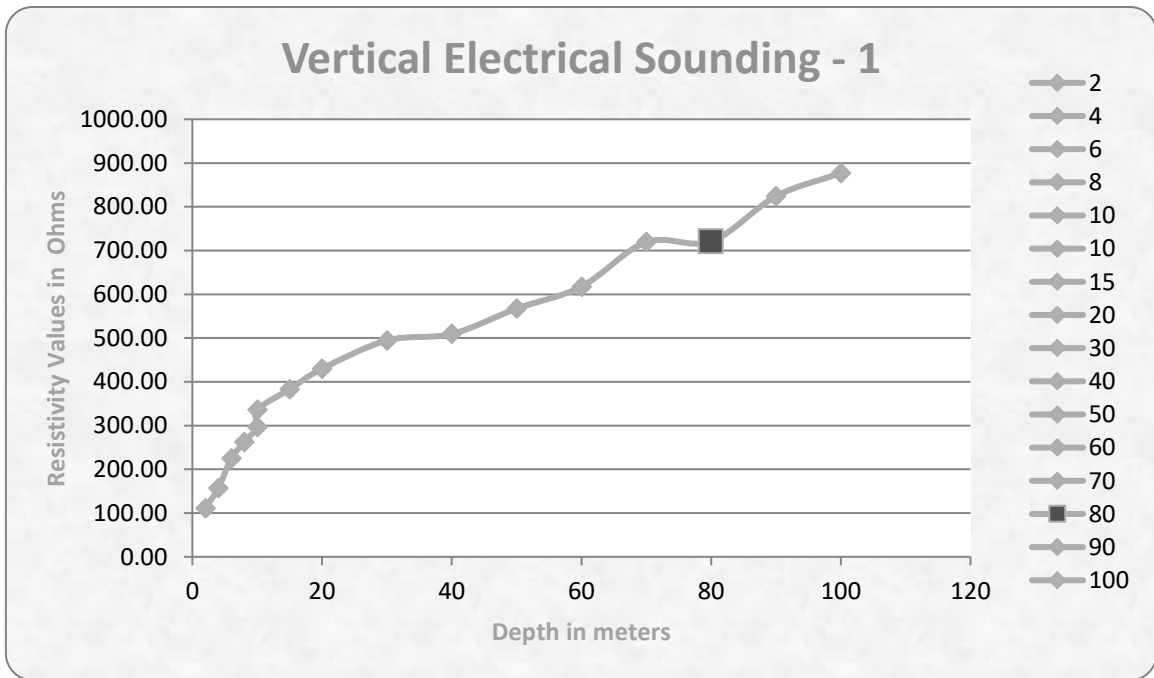
Vertical Electrical Sounding (VES)

When carrying out a resistivity sounding, current is led into the ground by means of two electrodes. With two other electrodes, situated near the center of the array, the potential field generated by the current is measured. From the observations of the current strength and the potential difference, and taking into account the electrode separations, the ground resistivity can be determined. During a resistivity sounding, the separation between the electrodes is step-wise increased (known as a Schlumberger Array), thus causing the flow of current to penetrate greater depths. When plotting the observed resistivity values against depth on double logarithmic paper, a resistivity graph is formed, which depicts the variation of resistivity with depth. This graph can be interpreted with the aid of a computer, and the actual resistivity layering of the subsoil is obtained. The depths and resistivity values provide the hydro geologist with information on the geological layering and thus the occurrence of groundwater.



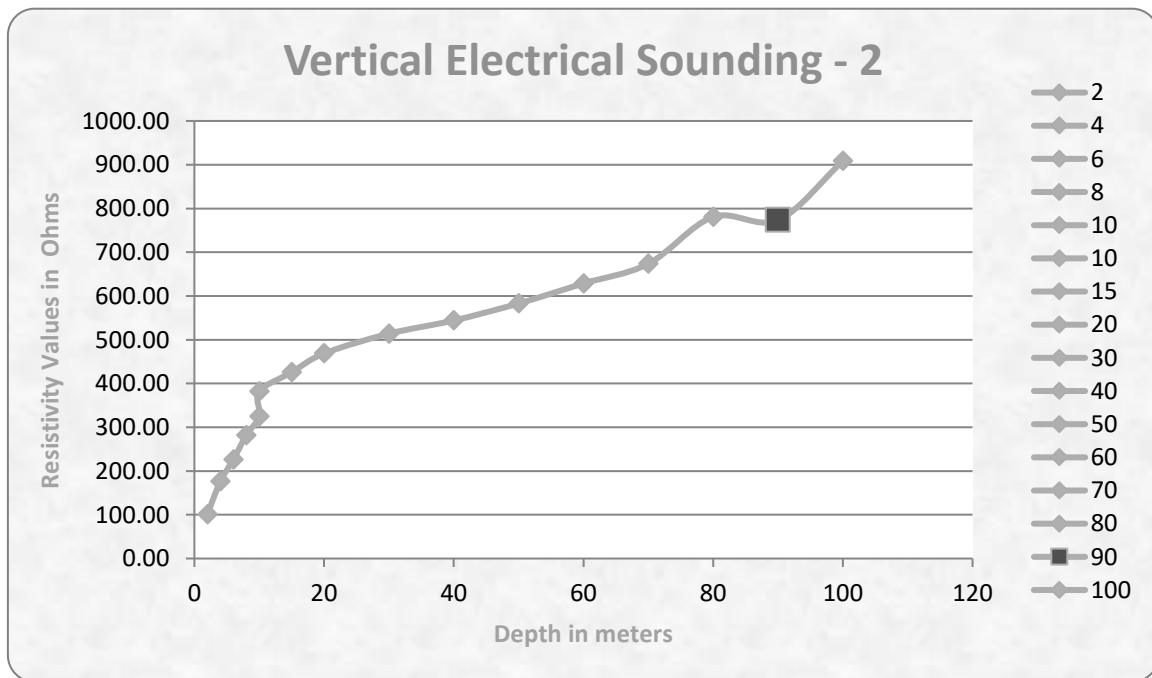
Vertical electrical sounding data and Diagrams

STATION-1					
GPS Coordinates - 12°43'18.0590"N 79°43'23.6923"E					
S.No	Ab/2(m)	Mn/2(m)	Geometrical Factor (G)	Resistance Value in Ohms [R]	Apparent Resistance in Ohms
1	2	1	4.75	23.50	110.69
2	4	1	23.53	6.68	157.31
3	6	1	54.96	4.09	224.75
4	8	1	98.92	2.65	262.11
5	10	1	155.41	1.91	296.91
6	10	5	23.55	14.27	336.06
7	15	5	62.79	6.10	383.08
8	20	5	117.75	3.65	429.79
9	30	5	274.75	1.80	494.55
10	40	5	494.55	1.03	509.39
11	50	5	777.18	0.73	567.32
12	60	5	1122.55	0.55	617.40
13	70	5	1530.75	0.47	719.45
14	80	5	2001.75	0.36	720.63
15	90	5	2535.55	0.33	824.05
16	100	5	3132.15	0.28	877.00



Vertical electrical Sounding Graph indicates purple mark is fracture zone.

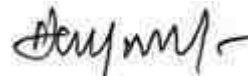
STATION-2					
GPS Coordinates - 12°43'24.1463"N 79°43'30.8970"E					
S.No	Ab/2(m)	Mn/2(m)	Geometrical Factor (G)	Resistance Value in Ohms [R]	Apparent Resistance in Ohms
1	2	1	4.74	21.45	101.03
2	4	1	23.55	7.48	176.15
3	6	1	54.93	4.11	225.84
4	8	1	98.91	2.85	281.89
5	10	1	155.45	2.09	324.89
6	10	5	23.55	16.21	381.75
7	15	5	62.80	6.78	425.78
8	20	5	117.78	3.98	468.65
9	30	5	274.75	1.87	513.78
10	40	5	494.55	1.10	544.01
11	50	5	777.15	0.75	582.86
12	60	5	1122.56	0.56	628.63
13	70	5	1530.72	0.44	673.53
14	80	5	2001.71	0.39	780.68
15	90	5	2535.56	0.31	773.34
16	100	5	3132.11	0.29	908.32



● Vertical electrical Sounding Graph indicates purple mark is fracture zone.

6.CONCLUSION–

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 85m to 90m where minor fractures are observed and shallow aquifers are expected above 70m-75m BGL. The ultimate pit limit as per the approved mining plan depth is 57m below ground level which will have no impact on the Ground Water.



Dr. P. Thangaraju, M.Sc., Ph.D.,

Govt. Approved Hydro Geologist

M/s. Geo Exploration and Mining Solutions,

Regd. Office: No. 17, Advaita Ashram Road,

Alagapuram, Salem – 636 004, Tamil Nadu

Mobile: +91 - 94433 56539

E-Mail: infogeoexploration@gmail.com

அனுப்புநர்

செல்வி.ர.அனாமிகா.இ.ஆ.ப.,
சார் ஆட்சியர்,
செய்யார்.

பெறுநர்:

மாவட்ட ஆட்சித்தலைவர்
திருவண்ணாமலை

ந.க.அ5/4864/2022 நாள்: 1.9-2023

அய்யா,

பொருள் : கனிமவளம் - திருவண்ணாமலை மாவட்டம் - வெம்பாக்கம் வட்டம் - நெ.88 சித்தாலப்பாக்கம் கிராமம் புன்செய் புல எண்கள்: 1/2C, 1/3, 1/4, 1/5, மற்றும் 16/2A ஆகியவற்றின் மொத்த பரப்பு 2.39.0 ஹெக்டேர் பரப்பில் சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டி எடுக்க திரு.சி. உலகநாதன் த-பெ கோமதிநாயகம் என்பவர் குவாரி குத்தகை உரிமம் வழங்க கோரியது - அறிக்கை அனுப்புதல் - தொடர்பாக.

பார்வை : 1. திருவண்ணாமலை மாவட்ட ஆட்சித்தலைவர் அவர்களின் கடித எண்: ந.க.197/கனிமம்/2022, நாள்: 04-08-2022
2. செய்யார் வருவாய் கோட்டாட்சியர் அவர்களின் கடித ந.க.அ5/4864/2022, நாள்: 01-10-2022
3. வெம்பாக்கம் வட்டாட்சியரின் கடித ந.க.ஆ1/2621/2022 நாள்: 15-06-2023

திருவண்ணாமலை மாவட்டம், வெம்பாக்கம் வட்டம், நெ.88 சித்தாலப்பாக்கம் கிராமம் புன்செய் புல எண்கள்: 1/2C (0.13.50), 1/3 (0.20.00), 1/4 (0.26.00), 1/5(0.81.00), 16/2A (0.98.50) ஆக மொத்தம் 2.39.00 ஹெக்டேர் பரப்பில் சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டி எடுக்க சென்னை-44, குரோம்பேட்டை, ராதாநகர், நெ.15/31 என்ற முகவரியில் வசிக்கும் திரு.சி. உலகநாதன் த-பெ கோமதிநாயகம் என்பவர் குவாரி குத்தகை உரிமம் வழங்க கோரி விண்ணப்பம் செய்தது தொடர்பாக பார்வை 3 இல் காணும் வெம்பாக்கம் வட்டாட்சியரது அறிக்கை வரப்பெற்றுள்ளது. இந்நேர்வு தொடர்பாக புலத்தணிக்கை மற்றும் விசாரணை மேற்கொண்டு எனதறிக்கையினை பின்வருமாறு அனுப்புகிறேன்.

திருவண்ணாமலை மாவட்டம், வெம்பாக்கம் வட்டம், நெ.88 சித்தாலப்பாக்கம் கிராமம் புன்செய் புல எண்கள்: 1/2C (0.13.50), 1/3 (0.20.00), 1/4 (0.26.00), 1/5(0.81.00), 16/2A (0.98.50) ஆக மொத்தம் 2.39.00 ஹெக்டேர் பட்டா எண்: 437-இன்படி கோமதிநாயகம் மகன் உலகநாதன் என்பவர் பெயரில் தனி பட்டாவாக கிராம கணக்கில் தாக்கலாகியுள்ளது. இந்நிலங்களில் சாதாரண கற்கல் மற்றும் கிராவல் வெட்டியெடுக்க குவாரிக்குத்தகை உரிமம் வழங்க கோரியுள்ளார்.

கற்குவாரி அமைக்க கோரியுள்ள புலத்தில் அனுமதி வழங்குவது தொடர்பாக நெ.88 சித்தாலப்பாக்கம் கிராமத்தில் 16.03.2023 அன்று "அ1" நோட்டீஸ் பிரசுரம் செய்யப்பட்டதில் நெ.88 சித்தாலப்பாக்கம் கிராமத்தில் ஆட்சேபனை ஏதும் வரப்பெறவில்லை என வெம்பாக்கம் வட்டாட்சியர் தனது அறிக்கையில் தெரிவித்துள்ளார்.

கற்குவாரி அமைக்க உரிமம் வழங்க கோரியுள்ள உத்தேச புலத்தின் நான்கு எல்லைகள் பின்வருமாறு :

வடக்கு	காஞ்சிபுரம் மாவட்டம் மாகரல் கிராமம் ஏழாச்சேரி 10 மாகரல் சாலை மற்றும் கால்வாய்
தெற்கு	சர்வேஎண்: 1/6B1, 1/6B2, 16/3, 16/4A, 16/4B, 16/9A,16/9B
கிழக்கு	சர்வே எண்: 16/1,16/6,16/2B
மேற்கு	சர்வே எண்: 1/2B,1/6A2

குவாரி குத்தகை கோரும் புலத்திலிருந்து கிராம சாலை (புல எண் 174/2) செல்வதற்கு, காஞ்சிபுரம் மாவட்டம் வாலாஜாபாத் வட்டம் மாகரல் கிராம எல்லை பாதையாக பயன்படுத்தப்பட்டு வரும் பகுதியே அணுகு பாதையாக அமைந்துள்ளது. மேற்படி பிரஸ்தாப புல எண்கள் தற்பொழுது தரிசாக காட்சியளிக்கிறது. கற்குவாரி அமையவுள்ள புலத்தின் வடக்கு பக்கம் காஞ்சிபுரம் மாவட்டம் வாலாஜாபாத் வட்டம் மாகரல் கிராமத்தில் கால்வாய் செல்கிறது. மேற்படி கால்வாய் புறம்போக்கிற்கு தடையின்மை சான்று பெற்று சமர்ப்பிப்பதாக விண்ணப்பதாரர் திரு.உலகநாதன் த-பெ கோமதிநாயகம் என்பவரது வாக்குமூலத்தில் தெரிவிக்கப்பட்டுள்ளது.

பிரஸ்தாப புலத்தில் பனைமரம்-240, வேலமரம்-1, ஆலமரம்-1 ஆகியவை அமைந்துள்ளது. மேலும் இப்புலத்தில் வடக்கு மற்றும் கிழக்கு மேற்காக உயர் மின் அழுத்த கம்பி செல்கிறது. பிரஸ்தாப புலத்திலிருந்து 300 மீட்டர் சுற்றளவில் அங்கீகரிக்கப்பட்ட வீட்டுமனைகள்/நத்தம் குடியிருப்புகள் ஏதுமில்லை. உத்தேச புலத்திற்கு 1 கி.மீ சுற்றளவில் வனத்துறைக்கு சொந்தமான நிலங்கள் மற்றும் காடுகள் ஏதுமில்லை. அனுமதி கோரும் உத்தேச புலங்கள் நிலமற்ற ஏழை விவசாயிகளுக்கு ஒப்படை செய்யப்பட்ட(DC) பஞ்சமி நிலங்கள் ஏதுமில்லை. அரசு பொது கிணறு, கட்டிடங்கள், விலை உயர்ந்த மரம், புராதன சின்னங்கள் ஏதுமில்லை. குத்தகை கோரும் பகுதிக்குள் அரசு புறம்போக்கு நிலங்கள் ஏதுமில்லை, 300 மீட்டருக்குள் மாயானம் குடியிருப்புகள், அரசு அங்கீகாரம் பெற்ற வீட்டுமனைப்பிரிவுகள் மற்றும் நீர்நிலைகள் ஏதுமில்லை. பிரஸ்தாப புலம் தரிசு நிலமாக உள்ளது. பிரஸ்தாப புலங்கள் விண்ணப்பதாரரின் அனுபவத்தில் உள்ளது.

கற்குவாரி குத்தகை உரிமம் வழங்க கோரியுள்ள புலத்தின் அருகில் திருவண்ணாமலை மாவட்ட ஆட்சித் தலைவர் (புவியியல் மற்றும் சுரங்கத்துறை) அவர்களின் செயல்முறைகள் ஆணை எண்: R.C.No. 23/Kanimam/2018 , Dated: 07.11.2018- ன்படி மேற்படி ஏழாச்சேரி கிராம புன்செய் புல எண்கள்: 1/2C,2B2B,2D,7,8,9,20/3A ஆகியவற்றின் மொத்தம் 3.74.5 ஹெக்டேரில் திருவாளர் Goldan and sand Bluc Metals நிறுவனத்திற்கு சொந்தமான கற்குவாரி 5 ஆண்டுகள் குத்தகையின்படி இயங்கிவருகிறது.

திருவண்ணாமலை மாவட்டம், வெம்பாக்கம் வட்டம் நெ.88.சித்தாலப்பாக்கம் கிராமம் புன்செய் புல எண்கள். 1/2C (0.13.5), 1/3 (0.20.0), 1/4 (0.26.0), 1/5(0.81.0), 16/2A (0.98.5) ஆக மொத்தம் 239.0 ஹெக்டேர் பரப்பில் திரு.உலகநாதன் த-பெ கோமதிநாயகம் என்பவருக்கு சாதாரண கற்கள் மற்றும் கிராவல்மண் வெட்டி எடுக்க உரிய நிபந்தனைகளுடன் தமிழ்நாடு சிறுகனிம சலுகை விதிகள், 1959, விதி 19(1)-ன் கீழ் குவாரி குத்தகை உரிமம் வழங்கலாம் என பரிந்துரை செய்கிறேன் என்பதை கனிவுடன் தெரிவித்துக்கொள்கிறேன்.

இணைப்பு : விசாரணை ஏடுகள்.

தங்கள் நம்பிக்கையுள்ள,


சார் ஆட்சியர்
செய்யார்


1.9.2023

செய்யார் சார் ஆட்சியரின் புலத்தணிக்கை குறிப்பு

வட்டம் : வெம்பாக்கம்

நாள்: 26.8.2023

கிராமம் : நெ.88.சித்தாலப்பாக்கம்

திருவண்ணாமலை மாவட்டம் வெம்பாக்கம் வட்டம், நெ. 88.சித்தாலப்பாக்கம் கிராமம் புன்செய் சர்வே எண்கள்: 1/2C (0.13.50), 1/3 (0.20.00), 1/4 (0.26.00), 1/5(0.81.00), 16/2A (0.98.50) ஆக மொத்தம் **2.39.00 ஹெக்டேர்** பரப்பில் சாதாரண கற்கள் மற்றும் கிராவல்லமண் வெட்டி எடுக்க குத்தகை உரிமம் வழங்க கோரி சென்னை-44, குரோம்பேட்டை, ராதாநகர், நெ.15/31 என்ற முகவரியில் வசிக்கும் திரு. G. உலகநாதன் த-பெ கோமதிநாயகம் என்பவர் விண்ணப்பம் செய்யப்பட்டது தொடர்பாக இன்று 26.8.2023 தேதி புலத்தணிக்கை செய்யப்பட்டது. இப்புலத்தணிக்கையின்போது வெம்பாக்கம் வட்டாட்சியர், மண்டல துணை வட்டாட்சியர், தூசி வருவாய் ஆய்வாளர் மற்றும் கிராம நிர்வாக அலுவலர் ஆகியோர் உடனிருந்தனர்.

திருவண்ணாமலை மாவட்டம், வெம்பாக்கம் வட்டம், நெ.88 சித்தாலப்பாக்கம் கிராமம் புன்செய் புல எண்கள்: 1/2C (0.13.50), 1/3 (0.20.00), 1/4 (0.26.00), 1/5(0.81.00), 16/2A (0.98.50) ஆக மொத்தம் **2.39.00 ஹெக்டேர்** பட்டா எண்: 437-இன்படி கோமதிநாயகம் மகன் உலகநாதன் என்பவர் பெயரில் தனி பட்டாவாக கிராம கணக்கில் தாக்கலாகியுள்ளது. இந்நிலங்களில் சாதாரண கற்கல் மற்றும் கிராவல் வெட்டியெடுக்க குவாரிக்குத்தகை உரிமம் வழங்க கோரியுள்ளார்.

கற்குவாரி அமைக்க கோரியுள்ள புலத்தில் அனுமதி வழங்குவது தொடர்பாக நெ.88 சித்தாலப்பாக்கம் கிராமத்தில் 16.03.2023 அன்று "அ1" நோட்டீஸ் பிரசுரம் செய்யப்பட்டதில் நெ.88 சித்தாலப்பாக்கம் கிராமத்தில் ஆட்சேபனை ஏதும் வரப்பெறவில்லை என வெம்பாக்கம் வட்டாட்சியர் தனது அறிக்கையில் தெரிவித்துள்ளார்.

கற்குவாரி அமைக்க உரிமம் வழங்க கோரியுள்ள உத்தேச புலத்தின் நான்கு எல்லைகள் பின்வருமாறு :

வடக்கு	காஞ்சிபுரம் மாவட்டம் மாகரல் கிராமம் ஏழாச்சேரி To மாகரல் சாலை மற்றும் கால்வாய்
தெற்கு	சர்வேஎண்: 1/6B1, 1/6B2, 16/3, 16/4A, 16/4B, 16/9A, 16/9B
கிழக்கு	சர்வே எண்: 16/1, 16/6, 16/2B
மேற்கு	சர்வே எண்: 1/2B, 1/6A2

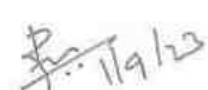
குவாரி குத்தகை கோரும் புலத்திலிருந்து கிராம சாலை (புல எண் 174/2) செல்வதற்கு, காஞ்சிபுரம் மாவட்டம் வாலாஜாபாத் வட்டம் மாகரல் கிராம எல்லை பாதையாக பயன்படுத்தப்பட்டு வரும் பகுதியே அணுகு பாதையாக அமைந்துள்ளது. மேற்படி பிரஸ்தாப புல எண்கள் தற்பொழுது தரிசாக உள்ளது.

கல்குவாரி அமையவுள்ள புலத்தின் வடக்கு பக்கம் காஞ்சிபுரம் மாவட்டம் வாலாஜாபாத் வட்டம் மாகரல் கிராமத்தில் கால்வாய் செல்கிறது. மேற்படி கால்வாய் புறம்போக்கிற்கு தடையின்மை சான்று பெற்று சமர்ப்பிப்பதாக விண்ணப்பதாரர் திரு.உலகநாதன் த-பெ கோமதிநாயகம் என்பவரது வாக்குமூலத்தில் தெரிவிக்கப்பட்டுள்ளது.

பிரஸ்தாப புலத்தில் பனைமரம்-240, வேலமரம்-1, ஆலமரம்-1 ஆகியவை அமைந்துள்ளது. மேலும் இப்புலத்தில் வடக்கு மற்றும் கிழக்கு மேற்காக உயர் மின்அழுத்த கம்பி செல்கிறது. பிரஸ்தாப புலத்திலிருந்து 300 மீட்டர் சுற்றளவில் அங்கீகரிக்கப்பட்ட வீட்டுமனைகள்/நுத்தம் குடியிருப்புகள் ஏதுமில்லை. உத்தேச புலத்திற்கு 1 கி.மீ சுற்றளவில் வனத்துறைக்கு சொந்தமான நிலங்கள் மற்றும் காடுகள் ஏதுமில்லை. அனுமதி கோரும் உத்தேச புலங்கள் நிலமற்ற ஏழை விவசாயிகளுக்கு ஒப்படை செய்யப்பட்ட(DC) பஞ்சமி நிலங்கள் ஏதுமில்லை. அரசு பொது கிணறு, கட்டிடங்கள், விலை உயர்ந்த மரம், புராதன சின்னங்கள் ஏதுமில்லை. குத்தகை கோரும் பகுதிக்குள் அரசு புறம்போக்கு நிலங்கள் ஏதுமில்லை, 300 மீட்டருக்குள் மாயானம் குடியிருப்புகள், அரசு அங்கீகாரம் பெற்ற வீட்டுமனைப்பிரிவுகள் மற்றும் நீர்நிலைகள் ஏதுமில்லை. பிரஸ்தாப புலம் தரிசு நிலமாக உள்ளது.பிரஸ்தாப புலங்கள் விண்ணப்பதாரரின் அனுபவத்தில் உள்ளது.

கற்குவாரி குத்தகை உரிமம் வழங்க கோரியுள்ள புலத்தின் அருகில் திருவண்ணாமலை மாவட்ட ஆட்சித் தலைவர் (புவியியல் மற்றும் சுரங்கத்துறை) அவர்களின் செயல்முறைகள் ஆணை எண்: R.C.No. 23/Kanimam/2018 , Dated: 07.11.2018 என்படி மேற்படி ஏழாச்சேரி கிராம புன்செய் புல எண்கள்: 1/2C,2B2B,2D,7,8,9,20/3A ஆகியவற்றின் மொத்தம் 3.74.5 ஹெக்டேரில் திருவாளர் Goldan and sand Blue Metals நிறுவனத்திற்கு சொந்தமான கற்குவாரி 5 ஆண்டுகள் குத்தகையின்படி இயங்கிவருகிறது.

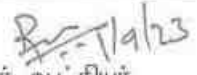
திருவண்ணாமலை மாவட்டம், வெம்பாக்கம் வட்டம் நெ.88.சித்தாலப்பாக்கம் கிராமம் புன்செய் புல எண்கள். 1/2C (0.13.5), 1/3 (0.20.0), 1/4 (0.26.0), 1/5(0.81.0), 16/2A (0.98.5) ஆக மொத்தம் 2.39.0 ஹெக்டேர் பரப்பில் திரு.உலகநாதன் த-பெ கோமதிநாயகம் என்பவருக்கு சாதாரண கற்கள் மற்றும் கிராவல்மண் வெட்டி எடுக்க உரிய நிபந்தனைகளுடன் தமிழ்நாடு சிறுகனிம சலுகை விதிகள், 1959, விதி 19(1)-ன் கீழ் குவாரி குத்தகை உரிமம் வழங்கலாம்


சார் ஆட்சியர்
செய்யார்

படிவம்

1.	உத்தேச புலத்தில் குவாரி குத்தகை அனுமதி வழங்க பொதுமக்கள் ஆட்சேபனை குறித்து சம்பந்தப்பட்ட கிராமத்தில் அ1 நோட்டீஸ் பிரசுரம் செய்து அது தொடர்பான அறிக்கை	கற்குவாரி அமைக்க கோரியுள்ள புலத்தில் அனுமதி வழங்குவது தொடர்பாக நெ.88 சித்தாலப்பாக்கம் கிராமத்தில் 16.03.2023 அன்று "அ1" நோட்டீஸ் பிரசுரம் செய்யப்பட்டதில் நெ.88 சித்தலாப்பாக்கம் கிராமத்தில் ஆட்சேபனை ஏதும் வரப்பெறவில்லை என வெம்பாக்கம் வட்டாட்சியர் தனது அறிக்கையில் தெரிவித்துள்ளார்
2.	உத்தேச புலங்கள் ஒப்படை செய்யப்பட்ட நிலங்களா ?	ஏதுமில்லை
3.	உத்தேச புலத்திற்கு சென்று வர பாதை வசதி உள்ளதா என்ற விவரம் (கூட்டு வரைபடம் / கிராம வரைபடத்தில் குறிப்பிடப்பட்டு ஒப்புதலுடன்)	குவாரி குத்தகை கோரும் புலத்திலிருந்து கிராம சாலை (புல எண் 174/2) செல்வதற்கு, காஞ்சிபுரம் மாவட்டம் வாலாஜாபாத் வட்டம் மாகரல் கிராம எல்லை பாதையாக பயன்படுத்தப்பட்டு வரும் பகுதியே அணுகு பாதையாக அமைந்துள்ளது
4.	உத்தேச புலத்தின் பரப்பு மற்றும் வகைப்பாடு	புன்செய் புல எண்: 2.39.00 ஹெக்டேர்
5.	உத்தேச புலத்தின் மீது விண்ணப்பதாரருக்கு பரப்புரிமை (Surface Right) தொடர்பாக விவரம்	2.39.00 ஹெக்டேர்
6.	உத்தேச புலத்தில் இருந்து 300 மீட்டர் சுற்றளவில் அங்கீகரிக்கப்பட்ட வீட்டு மனைகள் / நத்தம் / குடியிருப்புகள் ஏதேனும் உள்ளதா என்ற விவரம்	ஏதுமில்லை.
7.	உத்தேச புலத்திலிருந்து 50 மீட்டர் தொலைவிற்குள் உயர் / தாழ்வு மின் அழுத்த கம்பிகள் / நெடுஞ்சாலை இருப்புப்பாதை நீர்நிலைகள் மற்றும் தொல்லியல் குறைக்கு பாத்தியப்பட்ட அமைப்புகள் ஏதேனும் உள்ளனவா ? அதன் விவரம்	பிரஸ்தாப புலத்தில் வடக்கு மற்றும் கிழக்கு மேற்காக உயர் மின் அழுத்த கம்பி செல்கிறது.
8.	உத்தேச புலத்திலிருந்து: 10 மீட்டர் தொலைவிற்குள் கிராமச்சாலை ஏதேனும் உள்ளனவா ? அதன் விவரம்	ஏதுமில்லை
9.	உத்தேச புலத்திற்கு 500 மீட்டர் சுற்றளவில் வேறு ஏதேனும் குவாரிகள் இருப்பின் அதன் விவரம்	கற்குவாரி குத்தகை உரிமம் வழங்க கோரியுள்ள புலத்தின் அருகில் ஏழாச்சேரி கிராமத்தில் திருவண்ணாமலை மாவட்ட ஆட்சித் தலைவர் (புவியியல் மற்றும் சுரங்கத்துறை) அவர்களின் செயல்முறைகள் ஆணை எண்: R.C.No. 23/Kanimam/2018 , Dated: 07.11.2018-ன்படி மேற்படி கிராம புன்செய் புல எண்கள்: 1/2C,2B2B,2D,7,8,9,20/3A ஆகியவற்றின் மொத்தம் 3.74.5 ஹெக்டேரில் திருவாளர் Goldan and sand Blue Metals நிறுவனத்திற்கு சொந்தமான கற்குவாரி 5 ஆண்டுகள் குத்தகையின்படி இயங்கிவருகிறது.
10.	உத்தேச புலத்திற்கு 500 மீட்டர்	ஏதுமில்லை

11.	சுற்றளவில் புராதான சின்னங்கள் ஏதேனும் உள்ளனவா? அதன் விவரம் உத்தேச புலத்திற்கு 1 கி.மீ சுற்றளவிற்குள் வனத்துறைக்கு சொந்தமான நிலங்கள் மற்றும் காப்பு காடுகள் உள்ளனவா?	ஏதுமில்லை	
12.	உத்தேச புலத்தின் நான்கு எல்லைகள் பற்றிய வகைப்பாட்டுடன் கூடிய விவரம்	வடக்கு :	காஞ்சிபுரம் மாவட்டம் மாகரல் கிராமம் ஏழாச்சேரி 10 மாகரல் சாலை மற்றும் கால்வாய்
		தெற்கு :	சர்வேஎண்: 1/6B1, 1/6B2, 1/6/3, 1/6/4A, 1/6/4B, 1/6/9A, 1/6/9B
		கிழக்கு :	சர்வே எண்: 1/6/1, 1/6/6, 1/6/2B
		மேற்கு :	சர்வே எண்: 1/2B, 1/6A2
13.	அனுமதி கோரும் உத்தேச புலங்கள் நிலமற்ற ஏழைகளுக்கு ஒப்படை செய்யப்பட்ட DC / பஞ்சமி நிலங்களா என்ற விவரம்	ஏதுமில்லை	
14.	உத்தேச புலங்கள் அரசால் ஆர்ஜிதம் செய்யப்பட்ட/ படவுள்ள நிலங்களா? என்ற விவரம்	ஏதுமில்லை	


 சார் ஆட்சியர்
 செய்யார்


 1.9.2021

விடுநர்:

மூ.கிருஷ்ணமூர்த்தி., DME, PDM,
வட்டாட்சியர்,
வெம்பாக்கம்.

பெறுநர்:

சார் ஆட்சியர்
செய்யார்

ந.க.ஆ.1/2621/2022 நாள்:15-06-2023

மதிப்பிற்குரிய அம்மையர்,

பொருள் : கனிமவளம் - திருவண்ணாமலை மாவட்டம் - வெம்பாக்கம் வட்டம் - நெ.88 சித்தாலப்பாக்கம் கிராமம் புன்செய் புல எண்கள்: 1/2C, 1/3, 1/4, 1/5, மற்றும் 16/2A ஆகியவற்றின் மொத்த பரப்பு 2.39.0 ஹெக்டேர் பரப்பில் சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டி எடுக்க திரு.G. உலகநாதன் த-பெ கோமதிநாயகம் என்பவர் குவாரி குத்தகை உரிமம் வழங்க கோரியது - அறிக்கை அனுப்புதல் - தொடர்பாக.

பார்வை : 1. திருவண்ணாமலை மாவட்ட ஆட்சித்தலைவர் அவர்களின் கடித எண்: ந.க.197/கனிமம்/2022, நாள்: 04-08-2022
2. செய்யார் வருவாய் கோட்டாட்சியர் அவர்களின் கடித எண்: ந.க.அ5/4864/2022, நாள்: 01-10-2022

திருவண்ணாமலை மாவட்டம், வெம்பாக்கம் வட்டம், நெ.88 சித்தாலப்பாக்கம் கிராமம் புன்செய் புல எண்கள்: 1/2C (0.13.50), 1/3 (0.20.00), 1/4 (0.26.00), 1/5(0.81.00), 16/2A (0.98.50) ஆக மொத்தம் 2.39.00 ஹெக்டேர் பரப்பில் சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டி எடுக்க சென்னை-44, குரோம்பேட்டை, ராதாநகர், நெ.15/31 என்ற முகவரியில் வசிக்கும் திரு.G. உலகநாதன் த-பெ கோமதிநாயகம் என்பவர் குவாரி குத்தகை உரிமம் வழங்க கோரி திருவண்ணாமலை மாவட்ட ஆட்சித்தலைவர் அவர்களிடம் கொடுத்துக் கொண்ட மனுவின் அடிப்படையில் வரபெற்ற பார்வை 1-ல் காணும் கடிதத்தின் மீது நேரடி புலத்தணிக்கை செய்து கீழ்க்கண்டவாறு எனது அறிக்கையினை சமர்ப்பிக்கின்றேன்.

மனுதாரா திரு.G. உலகநாதன் த-பெ கோமதிநாயகம் என்பவர் கல்குவாரி குத்தகை உரிமம் கோரும் இடம் வெம்பாக்கம் வட்டம், நெ.88 சித்தாலப்பாக்கம் கிராமம் புன்செய் புல எண்கள்: 1/2C (0.13.50), 1/3 (0.20.00), 1/4 (0.26.00), 1/5(0.81.00), 16/2A (0.98.50) ஆக மொத்தம் 2.39.00 ஹெக்டேர் பட்டா எண்: 437-ல் கோமதிநாயகம் மகன் உலகநாதன் என்பவர் பெயரில் தனி பட்டாவாக கிராம கணக்கில் தாக்கலாகியுள்ளது. மேற்படி பிரஸ்தாப புல எண்கள் தற்பொழுது தரிசாக காட்சியளிக்கிறது. கல்குவாரி அமையவுள்ள புலத்தின் வடக்கு பக்கம் காஞ்சிபுரம் மாவட்டம் வாலாஜாபாத் வட்டம் மாகரல் கிராமத்தில் கால்வாய் செல்கிறது. மேற்படி கால்வாய் புறம்போக்கிற்கு தடையின்மை சான்று பெற்று சமர்ப்பிப்பதாக மனுதாரர் தனது வாக்குமூலத்தில் தெரிவித்துள்ளார்.

இப்புலத்தில் பனைமரம்-240, வேலமரம்-1, ஆலமரம்-1 ஆகியவை அமைந்துள்ளது. மேலும் இப்புலத்தில் வடக்கு மற்றும் கிழக்கு மேற்காக உயர் மின் அழுத்த கம்பி செல்கிறது. கற்குவாரி அமைக்க கோரியுள்ள புலத்தில் அனுமதி வழங்குவது தொடர்பாக கிராமத்தில் 16.03.2023 அன்று "அ1" நோட்டீஸ் பிரசுரம் செய்யப்பட்டது. கற்குவாரி அமைக்க உத்தேசிக்கப்பட்டுள்ள புலத்தில் உரிமம் வழங்க கிராமத்தில் ஆட்சேபனை ஏதும் வரப்பெறவில்லை. குவாரி குத்தகை கோரும் புலத்திலிருந்து கிராம சாலை (புல எண் 174/2) செல்வதற்கு, காஞ்சிபுரம் மாவட்டம் வாலாஜாபாத் வட்டம் மாகரல் கிராம எல்லை பாதையாக பயன்படுத்தப்பட்டு வரும் பகுதியே அணுகு பாதையாக அமைந்துள்ளது. பிரஸ்தாப புலத்திலிருந்து 300 மீட்டர் சுற்றளவில் அங்கீகரிக்கப்பட்ட வீட்டுமனைகள்/நடுத்தம் குடியிருப்புகள் ஏதுமில்லை. கற்குவாரி குத்தகை உரிமம் வழங்க கோரியுள்ள புலத்தின் அருகில் ஏழாச்சேரி கிராமத்தில் திருவண்ணாமலை மாவட்ட ஆட்சித் தலைவர் (புவியியல் மற்றும் சுரங்கத்துறை) அவர்களின் செயல்முறைகள் ஆணை எண்: R.C.No. 23/Kanimam/2018 . Dated: 07.11.2018-ன்படி மேற்படி கிராம புன்செய் புல எண்கள்: 1/2C.2B2B.2D.7.8.9.20/3A ஆகியவற்றின் மொத்தம் 3.74.5 ஹெக்டேரில் திருவாளர் Goldan and sand Blue Metals நிறுவனத்திற்கு சொந்தமான கற்குவாரி 5 ஆண்டுகள் குத்தகையின்படி இயங்கிவருகிறது. உத்தேச புலத்திற்கு 1 கி.மீ சுற்றளவில் வனத்துறைக்கு சொந்தமான நிலங்கள் மற்றும் காடுகள் ஏதுமில்லை. அனுமதி கோரும் உத்தேச புலங்கள் நிலமற்ற ஏழை விவசாயிகளுக்கு ஒப்படை செய்யப்பட்ட(DC) பஞ்சமி நிலங்கள் ஏதுமில்லை. கற்குவாரி அமைக்க உரிமம் வழங்க கோரியுள்ள உத்தேச புலத்தின் நான்கு எல்லைகள் பின்வருமாறு :

வடக்கு	காஞ்சிபுரம் மாவட்டம் மாகரல் கிராமம் ஏழாச்சேரி To மாகரல் சாலை மற்றும் கால்வாய்
தெற்கு	சர்வேஎண்: 1/6B1, 1/6B2, 16/3, 16/4A, 16/4B, 16/9A, மற்றும் 16/9B
கிழக்கு	சர்வே எண்: 16/1,16/6, மற்றும் 16/2B
மேற்கு	சர்வே எண்: 1/2B,1/6A2

அரசு பொது கிணறு, கட்டிடங்கள், விலை உயர்ந்த மரம், புராதன சின்னங்கள் ஏதுமில்லை. குத்தகை கோரும் பகுதிக்குள் அரசு புறம்போக்கு நிலங்கள் ஏதுமில்லை, 300 மீட்டருக்குள் மாயானம் குடியிருப்புகள், அரசு அங்கீகாரம் பெற்ற வீட்டுமனைப்பிரிவுகள் மற்றும் நீர்நிலைகள் ஏதுமில்லை. மனுதாரர் கற்குவாரி குத்தகை உரிமம் பெற உரிமக் கட்டணம் ரூபாய்.1500/- சலான் எண்.20220913002428 நாள்: 13-09-2022-ல் E-Challan மூலம் செலுத்தியுள்ளார். பிரஸ்தாப புலம் தற்பொழுது மனுதாரர் அனுபவத்தில் உள்ளது. மனுதாரர் மேற்படி இடத்தில் கற்குவாரி நடத்த ரூ.20 மதிப்புள்ள நீதிசாரா முத்திரைத்தாளில் அரசுக்கு செலுத்தவேண்டிய கனிம நிலுவைத்தொகை ஏதுமில்லை என்றும் வருமான வரி பாக்கித் தொகை ஏதுமில்லை என நோட்டரி வக்கீலிடம் உறுதிமொழி வாக்குமூலம் அளித்துள்ளதன் நகல் இத்துடன் இணைக்கப்பட்டுள்ளது.


எனவே கல்குவாரி கோரியுள்ள புலம்:-


வ.எண்	பட்டா எண்	புல எண்	விஸ்தீரணம் (ஹெக்டேர்)
1	437	1/2C	0.13.50
2		1/3	0.20.00
3		1/4	0.26.00
4		1/5	0.81.00
5		16/2A	0.98.50
மொத்தம்			2.39.00

திரு.உலகநாதன் த-பெ கோமதிநாயகம் என்பவருக்கு சொந்தமான நெ.88.சித்தாலப்பாக்கம் கிராமம் புன்செய் புல எண்கள். 1/2C (0.13.5), 1/3 (0.20.0), 1/4 (0.26.0), 1/5(0.81.0), 16/2A (0.98.5) ஆக மொத்தம் 2.39.0 ஹெக்டேர் பரப்பில் சாதாரண கற்கள் மற்றும் கிராவல்லம் வட்டி எடுக்க உரிய நிபந்தனைகளுடன் தமிழ்நாடு சிறுகனிம சலுகை விதிகள், 1959, விதி 19(1)-ன் கீழ் 10 ஆண்டுகளுக்கு குவாரி குத்தகை உரிமம் வழங்கலாம் என பரிந்துரை செய்கிறேன்.

இணைப்பு : விசாரணை ஏடுகள்.

தங்கள் நம்பிக்கையுள்ள,


வட்டாட்சியர்,
வெம்பாக்கம் 5/6/23


15/06/23

கற்குவாரி அமைக்கும் புலத்தின் விவரம் :

பட்டாதாரர் பெயர் மற்றும் விலாசம்	திரு. G. உலகநாதன் த-பெ கோமதிநாயகம் நெ.15/31 ராதாநகர், குரோம்பேட்டை, சென்னை-44.
சாதாரணக்கற்கர்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க அனுமதி கோரியுள்ள சர்வே எண்ணின் பட்டாதாரர் விபரம்	திரு. கோமதிநாயகம் மகன் உலகநாதன்
மொத்த பரப்பு	புன்செய் சர்வே எண்கள்: 1/2C (0.13.50), 1/3 (0.20.00), 1/4 (0.26.00), 1/5(0.81.00), 16/2A (0.98.50) ஆக மொத்தம் 2.39.00 ஹெக்டேர்
மேற்படி மொத்த பரப்பில் மனு செய்யப்பட்ட பரப்பு	2.39.00 ஹெக்டேர்
உத்தேச புலத்தில் குவாரி குத்தகை அனுமதி வழங்க பொது மக்கள் ஆட்சேபனை குறித்து சம்மந்தப்பட்ட கிராமத்தில் "அ1" நோட்டீஸ் பிரசுரம் செய்த தேதி விபரம்	16.03.2023
உத்தேச நிலங்கள் ஒப்படை செய்யப்பட்ட நிலங்களா அதன் விபரம்	இல்லை
உத்தேச புலத்திற்கு சென்று வர பாதை வசதி உள்ளதா என்ற விபரம்	உள்ளது
மனு செய்துள்ள புலத்திலிருந்து 300 மீட்டர் சுற்றளவில் அங்கீகரிக்கப்பட்ட வீட்டுமனைகள்/ நத்தம் / குடியிருப்புகள் நிலையான கட்டுமானங்கள் உள்ளதா என்ற விபரம்	இல்லை
உத்தேச புலத்திலிருந்து 50 மீட்டர் தொலைவிற்குள் உயர்/தாழ்வு மின் அழுத்த கம்பிகள் / நெடுஞ்சாலை, இருப்புபாதை நீர்நிலைகள், மற்றும் தொல்லியல் துறைக்கு பாத்தியப்பட்ட அமைப்பு உள்ளதா என்ற விபரம்	50 மீட்டர் சுற்றளவிற்குள் உயர்/தாழ்வு மின் அழுத்த கம்பிகள் ஏதும் இல்லை. மேற்படி புலத்தில் இருப்புபாதை நீர்நிலைகள், மற்றும் தொல்லியல் துறைக்கு அமைப்பு ஏதும் இல்லை.
உத்தேச புலத்திலிருந்து 10 மீட்டர் தொலைவிற்குள் கிராமச் சாலை ஏதேனும் உள்ளதா? அதன் விபரம்	கிராமச் சாலை 10 மீட்டர் தொலைவிற்குள் ஏதும் இல்லை.
உத்தேச புலத்திற்கு 500 மீட்டர் சுற்றளவில் வேறு ஏதேனும் குவாரிகள் இருப்பின் அதன் விபரம்	கற்குவாரி குத்தகை உரிமம் வழங்க கோரியுள்ள புலத்தின் அருகில் ஏழாச்சேரி கிராமத்தில் திருவண்ணாமலை மாவட்ட ஆட்சித் தலைவர் (புவியியல் மற்றும் சுரங்கத்துறை) அவர்களின் செயல்முறைகள் ஆணை எண்: R.C.No. 23/Kanimam/2018 , Dated: 07.11.2018-ன்படி மேற்படி கிராம புன்செய் புல எண்கள்: 1/2C,2B2B,2D,7,8,9,20/3A ஆகியவற்றின் மொத்தம் 3.74.5 ஹெக்டேரில் திருவாளர் Goldan and sand Blue Metals நிறுவனத்திற்கு சொந்தமான கற்குவாரி 5 ஆண்டுகள் குத்தகையின்படி இயங்கிவருகிறது.

உத்தேச புலத்திற்கு 500 மீட்டர் சுற்றளவில் புராதன சின்னங்கள் ஏதேனும் உள்ளனவா அதன் விபரம்	500 மீட்டர் சுற்றளவில் புராதன சின்னங்கள் ஏதுமில்லை.
உத்தேச புலத்திற்கு 1 கி.மீ சுற்றளவில் வனதுறைக்கு சொந்தமான நிலங்கள் மற்றும் காப்பு காப்பு காடுகள் ஏதேனும் உள்ளனவா அதன் விபரம்	1 கி.மீ சுற்றளவில் வனதுறைக்கு சொந்தமான நிலங்கள் மற்றும் காப்பு காடுகள் ஏதுமில்லை.
உத்தேச புலங்கள் நிலமற்ற ஏழைகளுக்கு ஒப்படைசெய்யப்பட்ட DC / பஞ்சமி நிலங்களா அதன் விபரம்	இல்லை
உத்தேச புலங்கள் அரசால் ஆர்ஜிதம் செய்யப்பட்ட / படவுள்ள நிலங்களா அதன் விபரம்	இல்லை
மனுதாரரின் பெயரில் பட்டா இல்லை எனில் சம்மந்தப்பட்ட பட்டாதாரர்களிடம் நோட்டரி வக்கீல் முன்பு 20/- மதிப்புள்ள நீதிசாரா முத்திரைத்தாளில் எத்தனை ஆண்டுகளுக்கு சம்மதம் பெற்றுள்ளார் என்ற விபரம்	மனுதாரர் பெயரில் பட்டாவாக உள்ளது
மனு செய்யப்பட்டுள்ள புலத்தின் பரப்பை சம்மந்தப்பட்ட புலப்பட வரைபடத்தில் குறிப்பிட்டும் கூட்டு வரைபடம் சிட்டா. அடங்கல், ஆகியவற்றை வட்டாட்சியர் ஒப்புதலுடன் மூன்று பிரதிகள் அனுப்பிய விபரம்	இணைக்கப்பட்டுள்ளது
மனு செய்துள்ள புலத்தை ஒட்டி அரசு புறம்போக்கு நிலங்கள் இருப்பின் அதன் சர்வே எண் மற்றும் பரப்பு மற்றும் வகைபாடு	ஏதுமில்லை
குவாரி அமைக்க தேர்வு செய்யப்பட்ட இடத்தின் நான்கு பக்க எல்லைகள்	வடக்கு காஞ்சிபுரம் மாவட்டம் மாகரல் கிராமம் ஏழாச்சேரி To மாகரல் சாலை மற்றும் கால்வாய் தெற்கு 1/6B1, 1/6B2, 16/3, 16/4A, 16/4B, 16/9A, மற்றும் 16/9B கிழக்கு சர்வே எண்: 16/1,16/6, மற்றும் 16/2B மேற்கு சர்வே எண்: 1/2B,1/6A2
வட்டாட்சியரின் பரிந்துரை	திரு.உலகநாதன் த-பெ கோமதிநாயகம் என்பவருக்கு சொந்தம் நெ.88.சித்தாலப்பாக்கம் கிராமம் புன்செய் புல எண்கள். 1/2C (0.13.5), 1/3 (0.20.0), 1/4 (0.26.0), 1/5(0.81.0), 16/2A (0.98.5) ஆக மொத்தம் 2.39.0 ஹெக்டேர் பரப்பில் சாதாரண கற்கள் மற்றும் கிராவல்மண் வெட்டி எடுக்க உரிய நிபந்தனைகளுடன் தமிழ்நாடு சிறுகனிம சலுகை விதிகள், 1959, விதி 19(1)-ன் கீழ் 10 ஆண்டுகளுக்கு குவாரி குத்தகை உரிமம் வழங்கலாம்


 வட்டாட்சியர்
 வெம்பாக்கம் 15/6/23


 15/6/23

வெம்பாக்கம் வட்டாட்சியரின் புலத்தணிக்கை குறிப்பு

வட்டம் : வெம்பாக்கம்

நாள்: 20.05.2023

கிராமம் : நெ.88.சித்தாலப்பாக்கம்

திருவண்ணாமலை மாவட்டம் வெம்பாக்கம் வட்டம், நெ. 88.சித்தாலப்பாக்கம் கிராமம் புன்செய் சர்வே எண்கள்: 1/2C (0.13.50), 1/3 (0.20.00), 1/4 (0.26.00), 1/5(0.81.00), 16/2A (0.98.50) ஆக மொத்தம் 2.39.00 ஹெக்டேர் பரப்பில் சாதாரண கற்கள் மற்றும் கிராவல்மண் வெட்டி எடுக்க குத்தகை உரிமம் வழங்க கோரி சென்னை-44, குரோம்பேட்டை, ராதாநகர், நெ.15/31 என்ற முகவரியில் வசிக்கும் திரு. G. உலகநாதன் த-பெ கோமதிநாயகம் என்பவர் திருவண்ணாமலை மாவட்ட ஆட்சித்தலைவர் அவர்களிடம் அளித்த மனுமீது இன்று (02 .05.2023) நேரடி புலத்தணிக்கை செய்யப்பட்டது. புலத்தணிக்கையின் போது மண்டல துணை வட்டாட்சியர், தூசி வருவாய் ஆய்வாளர், வெம்பாக்கம் வட்ட துணை ஆய்வாளர், சித்தாலப்பாக்கம் கிராம நிர்வாக அலுவலர் மற்றும் கிராம உதவியாளர் ஆகியோர் உடனிருந்தனர்.

மனுதாரர் திரு. G. உலகநாதன் த-பெ கோமதிநாயகம் என்பவர் கல்குவாரி குத்தகை உரிமம் கோரும் இடம் வெம்பாக்கம் வட்டம், நெ.88.சித்தாலப்பாக்கம் கிராமம் புன்செய் சர்வே எண்கள்: 1/2C (0.13.50), 1/3 (0.20.00), 1/4 (0.26.00), 1/5(0.81.00), 16/2A (0.98.50) ஆக மொத்தம் 2.39.00 ஹெக்டேர் பட்டா எண்: 437-ல் திரு.கோமதிநாயகம் மகன் உலகநாதன் என்பவர் பெயரில் தனி பட்டாவாக தாக்கலாகியுள்ளது. மேற்படி பிரஸ்தாப புல எண்கள் தற்பொழுது தரிசாக காட்சியளிக்கிறது. கல்குவாரி அமையவுள்ள புலத்தின் வடக்கு பக்கம் காஞ்சிபுரம் மாவட்டம் வாலாஜாபாத் வட்டம் மாகரல் கிராம எல்லை அமைந்துள்ளது. மேற்படி மாகரல் எல்லையில் ஏழாச்சேரி கிராமத்திலிருந்து மாகரல் செல்லும் சாலையும் சாலையை ஒட்டி கால்வாய் செல்கிறது. பிரஸ்தாப புலத்தில் வடக்கு மற்றும் கிழக்கு மேற்காக உயர் மின்னழுத்த கம்பி செல்கிறது. இப்புலத்தில் பனைமரம்-240, ஆலமரம்-1, வேலமரம்-1 ஆகியவை அமைந்துள்ளது. கற்குவாரி அமைக்க கோரியுள்ள புலத்தில் அனுமதி வழங்குவது தொடர்பாக கிராமத்தில் 16 .03.2023 அன்று "அ1" நோட்டீஸ் பிரசுரம் செய்யப்பட்டது. கற்குவாரி அமைக்க உத்தேசிக்கப்பட்டுள்ள புலத்தில் உரிமம் வழங்க கிராமத்தில் ஆட்சேபனை ஏதும் வரப்பெறவில்லை. குவாரி குத்தகை கோரும் புலத்திலிருந்து கிராம சாலை செல்வதற்கு, காஞ்சிபுரம் மாவட்டம் வாலாஜாபாத் வட்டம் மாகரல் கிராம எல்லை ஏழாச்சேரி to மாகரல் சாலையும் சாலையை ஒட்டி கால்வாயும் அணுகு பாதையாக அமைந்துள்ளது. மேற்படி கால்வாய்க்கு காஞ்சிபுரம் மாவட்டத்திலிருந்து தடையின்மை சான்று சமர்ப்பிப்பதாகவும் மனுதாரர் தெரிவித்துள்ளார். பிரஸ்தாப புலத்திலிருந்து 300 மீட்டர் சுற்றளவில் அங்கீகரிக்கப்பட்ட வீட்டுமனைகள்/நத்தம் குடியிருப்புகள் ஏதுமில்லை. உத்தேச புலம் கிராமச் சாலையிலிருந்து 10 மீட்டர் தொலைவு உள்ளது. கற்குவாரி குத்தகை உரிமம் வழங்க கோரியுள்ள புலத்தின் அருகில் ஏழாச்சேரி கிராமத்தில் திருவண்ணாமலை மாவட்ட ஆட்சித் தலைவர் (புவியியல் மற்றும் சுரங்கத்துறை) அவர்களின் செயல்முறைகள் ஆணை எண்: R.C.No. 23/Kanimam/2018 , Dated: 07.11.2018-ன்படி மேற்படி கிராம புன்செய் புல எண்கள்:

1/2C,2B2B,2D,7,8,9,20/3A ஆகியவற்றின் மொத்தம் 3.74.5 ஹெக்டேரில் திருவாளர் Goldan and sand Blue Metals நிறுவனத்திற்கு சொந்தமான கற்குவாரி 5 ஆண்டுகள் குத்தகையின்படி இயங்கிவருகிறது. உத்தேச புலத்திற்கு 1 கி.மீ சுற்றளவில் வனத்துறைக்கு சொந்தமான நிலங்கள் மற்றும் காடுகள் ஏதுமில்லை. அனுமதி கோரும் உத்தேச புலங்கள் நிலமற்ற ஏழை விவசாயிகளுக்கு ஒப்படை செய்யப்பட்ட(DC) பஞ்சமி நிலங்கள் ஏதுமில்லை. மேலும் சர்வே எண்: 1/5-ல் கிணறு உள்ளதாக ஆவணத்தில் குறிப்பிடப்பட்டுள்ளது. கற்குவாரி அமைக்க உரிமம் வழங்க கோரியுள்ள உத்தேச புலத்தின் நான்கு எல்லைகள் பின்வருமாறு :


வடக்கு	காஞ்சிபுரம் மாவட்டம் மாகரல் கிராமம் ஏழாச்சேரி To மாகரல் சாலை மற்றும் கால்வாய்
தெற்கு	சர்வேஎண்: 1/6B1, 1/6B2, 16/3, 16/4A, 16/4B, 16/9A, மற்றும் 16/9B
கிழக்கு	சர்வே எண்: 16/1,16/6, மற்றும்16/2B
மேற்கு	சர்வே எண்: 1/2B,1/6A2

மேற்படி பிரஸ்தாப புலத்தில் கிழக்கு மேற்காக உயர் மின் அழுத்த கம்பி செல்கிறது. அரசு பொது கிணறு, கட்டிடங்கள், விலை உயர்ந்த மரம், புராதன சின்னங்கள் ஏதுமில்லை. குத்தகை கோரும் பகுதிக்குள் அரசு புறம்போக்கு நிலங்கள் மாயானம் குடியிருப்புகள், அரசு அங்கீகாரம் பெற்ற வீட்டுமனைப்பிரிவுகள் மற்றும் நீர்நிலைகள் ஏதுமில்லை. மனுதாரர் கற்குவாரி குத்தகை உரிமம் பெற உரிமக் கட்டணம் ரூபாய்.1500/- சலான் எண்.20220913002428 நாள்: 13-09-2022-ல் E-Challan மூலம் செலுத்தியுள்ளார். பிரஸ்தாப புலம் தற்பொழுது மனுதாரர் அனுபவத்தில் உள்ளது. மனுதாரர் மேற்படி இடத்தில் கற்குவாரி நடத்த ரூ.20 மதிப்புள்ள நீதிசாரா முத்திரைத்தாளில் அரசுக்கு செலுத்தவேண்டிய கனிம நிலுவைத்தொகை ஏதுமில்லை என்றும் வருமான வரி பாக்கித் தொகை ஏதுமில்லை என நோட்டரி வக்கீலிடம் உறுதிமொழி வாக்குமூலம் அளித்துள்ளதன் நகல் இத்துடன் இணைக்கப்பட்டுள்ளது.

எனவே கற்குவாரி கோரியுள்ள புலம்:-

வ.எண்	பட்டா எண்	புல எண்	விஸ்தீரணம் (ஹெக்டேர்)
1	437	1/2C	0.13.50
2		1/3	0.20.00
3		1/4	0.26.00
4		1/5	0.81.00
5		16/2A	0.98.50
மொத்தம்			2.39.00

திரு.உலகநாதன் த-பெ கோமதிநாயகம் என்பவருக்கு சொந்தமான நெ.88.சித்தாலப்பாக்கம் கிராமம் புன்செய் சர்வே எண்கள். 1/2C (0.13.5), 1/3 (0.20.0), 1/4 (0.26.0), 1/5(0.81.0), 16/2A (0.98.5) ஆக மொத்தம் 2.39.0 ஹெக்டேர் பரப்பில் சாதாரண கற்கள் மற்றும் கிராவல்மண் வெட்டி எடுக்க உரிய நிபந்தனைகளுடன் தமிழ்நாடு சிறுகனிம சலுகை விதிகள், 1959, விதி 19(1)-ன் கீழ் 10 ஆண்டுகளுக்கு குவாரி குத்தகை உரிமம் வழங்கலாம் என பரிந்துரை செய்கிறேன்.


வட்டாட்சியர்
வெம்பாக்கம் 02/11/23

மண்டல துணை வட்டாட்சியரின் புலத்தணிக்கை குறிப்பு

வட்டம் : வெம்பாக்கம்

நாள்:05.2023

கிராமம் : நெ88. சித்தாலப்பாக்கம்

திருவண்ணாமலை மாவட்டம் வெம்பாக்கம் வட்டம், நெ. 88.சித்தாலப்பாக்கம் கிராமம் புன்செய் சர்வே எண்கள்: 1/2C (0.13.50), 1/3 (0.20.00), 1/4 (0.26.00), 1/5(0.81.00), 16/2A (0.98.50) ஆக மொத்தம் 2.39.00 ஹெக்டேர் பரப்பில் சாதாரண கற்கள் மற்றும் கிராவல்மண் வெட்டி எடுக்க குத்தகை உரிமம் வழங்க கோரி சென்னை-44, குரோம்பேட்டை, ராதாநகர், நெ.15/31 என்ற முகவரியில் வசிக்கும் திரு.G. உலகநாதன் த-பெ கோமதிநாயகம் என்பவர் திருவண்ணாமலை மாவட்ட ஆட்சித்தலைவர் அவர்களிடம் அளித்த மனுமீது இன்று (30 .05.2023) நேரடி புலத்தணிக்கை செய்யப்பட்டது. புலத்தணிக்கையின் போது மண்டல துணை வட்டாட்சியர், தூசி வருவாய் ஆய்வாளர், வெம்பாக்கம் வட்ட துணை ஆய்வாளர், சித்தாலப்பாக்கம் கிராம நிர்வாக அலுவலர் மற்றும் கிராம உதவியாளர் ஆகியோர் உடனிருந்தனர்.

மனுதாரர் திரு.G. உலகநாதன் த-பெ கோமதிநாயகம் என்பவர் கல்குவாரி குத்தகை உரிமம் கோரும் இடம் வெம்பாக்கம் வட்டம், நெ.88.சித்தாலப்பாக்கம் கிராமம் புன்செய் சர்வே எண்கள்: 1/2C (0.13.50), 1/3 (0.20.00), 1/4 (0.26.00), 1/5(0.81.00), 16/2A (0.98.50) ஆக மொத்தம் 2.39.00 ஹெக்டேர் பட்டா எண்: 437-ல் திரு.கோமதிநாயகம் மகன் உலகநாதன் என்பவர் பெயரில் தனி பட்டாவாக தாக்கலாகியுள்ளது. மேற்படி பிரஸ்தாப புல எண்கள் தற்பொழுது தரிசாக காட்சியளிக்கிறது. கல்குவாரி அமையவுள்ள புலத்தின் வடக்கு பக்கம் காஞ்சிபுரம் மாவட்டம் வாலாஜாபாத் வட்டம் மாகரல் கிராம எல்லை அமைந்துள்ளது. மேற்படி மாகரல் எல்லையில் ஏழாச்சேரி கிராமத்திலிருந்து மாகரல் செல்லும் சாலையும் சாலையை ஒட்டி கால்வாய் செல்கிறது. பிரஸ்தாப புலத்தில் வடக்கு மற்றும் கிழக்கு மேற்காக உயர் மின்னழுத்த கம்பி செல்கிறது, இப்புலத்தில் பணமரம்-240, ஆலமரம்-1, வேலமரம்-1 ஆகியவை அமைந்துள்ளது. கற்குவாரி அமைக்க கோரியுள்ள புலத்தில் அனுமதி வழங்குவது தொடர்பாக கிராமத்தில் .03.2023 அன்று "அ1" நோட்டீஸ் பிரசுரம் செய்யப்பட்டது. கற்குவாரி அமைக்க உத்தேசிக்கப்பட்டுள்ள புலத்தில் உரிமம் வழங்க கிராமத்தில் ஆட்சேபனை ஏதும் வரப்பெறவில்லை. குவாரி குத்தகை கோரும் புலத்திலிருந்து கிராம சாலை செல்வதற்கு, காஞ்சிபுரம் மாவட்டம் வாலாஜாபாத் வட்டம் மாகரல் கிராம எல்லை ஏழாச்சேரி to மாகரல் சாலையும் சாலையை ஒட்டி கால்வாயும் அணுகு பாதையாக அமைந்துள்ளது. மேற்படி கால்வாய்க்கு காஞ்சிபுரம் மாவட்டத்திலிருந்து தடையின்மை சான்று சமர்ப்பிப்பதாகவும் மனுதாரர் தெரிவித்துள்ளார். பிரஸ்தாப புலத்திலிருந்து 300 மீட்டர் சுற்றளவில் அங்கீகரிக்கப்பட்ட வீட்டுமனைகள்/நத்தம் குடியிருப்புகள் ஏதுமில்லை. உத்தேச புலம் கிராமச் சாலையிலிருந்து 10 மீட்டர் தொலைவு உள்ளது. கற்குவாரி குத்தகை உரிமம் வழங்க கோரியுள்ள புலத்தின் அருகில் ஏழாச்சேரி கிராமத்தில் திருவண்ணாமலை மாவட்ட ஆட்சித் தலைவர் (புவியியல் மற்றும் சுரங்கத்துறை) அவர்களின் செயல்முறைகள் ஆணை எண்: R.C.No. 23/Kanimam/2018 , Dated: 07.11.2018-ன்படி மேற்படி கிராம புன்செய் புல எண்கள்:

1/2C,2B2B,2D,7,8,9,20/3A ஆகியவற்றின் மொத்தம் 3.74.5 ஹெக்டேரில் திருவாளர் Goldan and sand Blue Metals நிறுவனத்திற்கு சொந்தமான கற்குவாரி 5 ஆண்டுகள் குத்தகையின்படி இயங்கிவருகிறது. உத்தேச புலத்திற்கு 1 கி.மீ சுற்றளவில் வளத்துறைக்கு சொந்தமான நிலங்கள் மற்றும் காடுகள் ஏதுமில்லை. அனுமதி கோரும் உத்தேச புலங்கள் நிலமற்ற ஏழை விவசாயிகளுக்கு ஒப்படை செய்யப்பட்ட(DC) பஞ்சமி நிலங்கள் ஏதுமில்லை. மேலும் சர்வே எண்: 1/5-ல் கிணறு உள்ளதாக ஆவணத்தில் குறிப்பிடப்பட்டுள்ளது. கற்குவாரி அமைக்க உரிமம் வழங்க கோரியுள்ள உத்தேச புலத்தின் நான்கு எல்லைகள் பின்வருமாறு :


வடக்கு	காஞ்சிபுரம் மாவட்டம் மாகரல் கிராமம் ஏழாச்சேரி To மாகரல் சாலை மற்றும் கால்வாய்
தெற்கு	சர்வேஎண்: 1/6B1, 1/6B2, 16/3, 16/4A, 16/4B, 16/9A, மற்றும் 16/9B
கிழக்கு	சர்வே எண்: 16/1,16/6, மற்றும் 16/2B
மேற்கு	சர்வே எண்: 1/2B,1/6A2

மேற்படி பிரஸ்தாப புலத்தில் கிழக்கு மேற்காக உயர் மின் அழுத்த கம்பி செல்கிறது. அரசு பொது கிணறு, கட்டிடங்கள், விலை உயர்ந்த மரம், புராதன சின்னங்கள் ஏதுமில்லை. குத்தகை கோரும் பகுதிக்குள் அரசு புறம்போக்கு நிலங்கள் மாயானம் குடியிருப்புகள், அரசு அங்கீகாரம் பெற்ற வீட்டுமனைப்பிரிவுகள் மற்றும் நீர்நிலைகள் ஏதுமில்லை. மனுதாரர் கற்குவாரி குத்தகை உரிமம் பெற உரிமக் கட்டணம் ரூபாய்.1500/- சலான் எண்.20220913002428 நாள்: 13-09-2022-ல் E-Challan மூலம் செலுத்தியுள்ளார். பிரஸ்தாப புலம் தற்பொழுது மனுதாரர் அனுபவத்தில் உள்ளது. மனுதாரர் மேற்படி இடத்தில் கற்குவாரி நடத்த ரூ.20 மதிப்புள்ள நீதிசாரா முத்திரைத்தாளில் அரசுக்கு செலுத்தவேண்டிய கனிம நிலுவைத்தொகை ஏதுமில்லை என்றும் வருமான வரி பாக்கித் தொகை ஏதுமில்லை என நோட்டரி வக்கீலிடம் உறுதிமொழி வாக்குமூலம் அளித்துள்ளதன் நகல் இத்துடன் இணைக்கப்பட்டுள்ளது.

எனவே கற்குவாரி கோரியுள்ள புலம்:-

வ.எண்	பட்டா எண்	புல எண்	விஸ்தீரணம் (ஹெக்டேர்)
1	437	1/2C	0.13.50
2		1/3	0.20.00
3		1/4	0.26.00
4		1/5	0.81.00
5		16/2A	0.98.50
மொத்தம்			2.39.00

மனுதாரர் திரு.உலகநாதன் த-பெ கோமதிநாயகம் என்பவருக்கு சொந்தமான நெ.88.சித்தாலப்பாக்கம் கிராமம் புன்செய் சர்வே எண்கள். 1/2C (0.13.5), 1/3 (0.20.0), 1/4 (0.26.0), 1/5(0.81.0), 16/2A (0.98.5) ஆக மொத்தம் 2.39.0 ஹெக்டேர் பரப்பில் சாதாரண கற்கள் மற்றும் கிராவல்மண் வெட்டி எடுக்க உரிய நிபந்தனைகளுடன் தமிழ்நாடு சிறுகனிம சலுகை விதிகள், 1959, விதி 19(1)-ன் கீழ் 10 ஆண்டுகளுக்கு குவாரி குத்தகை உரிமம் வழங்கலாம் என பரிந்துரை செய்கிறேன்.


மண்டல் துணை வட்டாட்சியர்
வெம்பாக்கம்.

அ.தி.மு 351 /2023

பணிந்துசமர்ப்பிக்கப்படுகிறது.:

நாள்: 05.2023

திருவண்ணாமலை மாவட்டம் வெம்பாக்கம் வட்டம், நெ. 88.சித்தலாப்பாக்கம் கிராமம் புன்செய் சர்வே எண்கள்: 1/2C (0.13.50), 1/3 (0.20.00), 1/4 (0.26.00), 1/5(0.81.00), 16/2A (0.98.50) ஆக மொத்தம் 2.39.00 ஹெக்டேர் பரப்பில் சாதாரண கற்கள் மற்றும் கிராவல்மண் இடம் எடுக்க குத்தகை உரிமம் வழங்க கோரி சென்னை-44, குரோம்பேட்டை, ராதாநகர், நெ.15/31 என்ற முகவரியில் வசிக்கும் திரு.G. உலகநாதன் த-பெ கோமதிநாயகம் என்பவர் திருவண்ணாமலை மாவட்ட ஆட்சித்தலைவர் அவர்களிடம் கொடுத்துக்கொண்ட மனு மீது விசாரணை மற்றும் நேரடி புலத்தணிக்கை செய்து கீழ்க்கண்டவாறு எனது அறிக்கையினை சமர்ப்பிக்கின்றேன்.

மனுதாரர் திரு.G. உலகநாதன் த-பெ கோமதிநாயகம் என்பவர் கல்குவாரி குத்தகை உரிமம் கோரும் இடம் வெம்பாக்கம் வட்டம், நெ.88.சித்தலாப்பாக்கம் கிராமம் புன்செய் சர்வே எண்கள்: 1/2C (0.13.50), 1/3 (0.20.00), 1/4 (0.26.00), 1/5(0.81.00), 16/2A (0.98.50) ஆக மொத்தம் 2.39.00 ஹெக்டேர் பட்டா எண்: 437-ல் திரு.கோமதிநாயகம் மகன் உலகநாதன் என்பவர் பெயரில் தனி பட்டாவாக கிராம கணக்கில் தாக்கலாகியுள்ளது. மேற்படி பிரஸ்தாப புல எண்கள் தற்பொழுது தரிசாக காட்சியளிக்கிறது. கல்குவாரி அமையவுள்ள புலத்தின் வடக்கு பக்கம் காஞ்சிபுரம் மாவட்டம் வாலாஜாபாத் வட்டம் மாகரல் கிராம எல்லை அமைந்துள்ளது. மேற்படி மாகரல் எல்லையில் ஏழாச்சேரி கிராமத்திலிருந்து மாகரல் செல்லும் சாலையும் சாலையை ஒட்டி கால்வாய் செல்கிறது. பிரஸ்தாப புலத்தில் வடக்கு மற்றும் கிழக்கு மேற்காக உயர் மின்னழுத்த கம்பி செல்கிறது, இப்புலத்தில் பணமரம்-240, ஆலமரம்-1, வேலமரம்-1 ஆகியவை அமைந்துள்ளது. கற்குவாரி அமைக்க கோரியுள்ள புலத்தில் அனுமதி வழங்குவது தொடர்பாக கிராமத்தில் 16.03.2023 அன்று "அ1" நோட்டீஸ் பிரசுரம் செய்யப்பட்டது. கற்குவாரி அமைக்க உத்தேசிக்கப்பட்டுள்ள புலத்தில் உரிமம் வழங்க கிராமத்தில் ஆட்சேபனை ஏதும் வரப்பெறவில்லை. குவாரி குத்தகை கோரும் புலத்திலிருந்து கிராம சாலை செல்வதற்கு, காஞ்சிபுரம் மாவட்டம் வாலாஜாபாத் வட்டம் மாகரல் கிராம எல்லை ஏழாச்சேரி to மாகரல் சாலையும் சாலையை ஒட்டி கால்வாயும் அணுகு பாதையாக அமைந்துள்ளது. மேற்படி கால்வாய்க்கு காஞ்சிபுரம் மாவட்டத்திலிருந்து தடையின்மை சான்று சமர்ப்பிப்பதாகவும் மனுதாரர் தெரிவித்துள்ளார். பிரஸ்தாப புலத்திலிருந்து 300 மீட்டர் சுற்றளவில் அங்கீகரிக்கப்பட்ட வீட்டுமனைகள்/நத்தம் குடியிருப்புகள் ஏதுமில்லை. உத்தேச புலம் கிராமச் சாலையிலிருந்து 10 மீட்டர் தொலைவு உள்ளது. கற்குவாரி குத்தகை உரிமம் வழங்க கோரியுள்ள புலத்தின் அருகில் ஏழாச்சேரி கிராமத்தில் திருவண்ணாமலை மாவட்ட ஆட்சித் தலைவர் (புவியியல் மற்றும் சுரங்கத்துறை) அவர்களின் செயல்முறைகள் ஆணை எண்: R.C.No. 23/Kanimam/2018 , Dated: 07.11.2018-ன்படி மேற்படி கிராம புன்செய் புல எண்கள்: 1/2C,2B2B,2D,7,8,9,20/3A ஆகியவற்றின் மொத்தம் 3.74.5 ஹெக்டேரில் திருவாளர் Goldan and sand Blue Metals நிறுவனத்திற்கு சொந்தமான கற்குவாரி 5 ஆண்டுகள் குத்தகையின்படி இயங்கிவருகிறது. உத்தேச புலத்திற்கு 1 கி.மீ சுற்றளவில் வனத்துறைக்கு சொந்தமான நிலங்கள் மற்றும் காடுகள் ஏதுமில்லை. அனுமதி கோரும் உத்தேச புலங்கள் நிலமற்ற ஏழை விவசாயிகளுக்கு ஒப்படை செய்யப்பட்ட(DC) பஞ்சமி நிலங்கள் ஏதுமில்லை.

மேலும் சர்வே எண்: 1/5-ல் கிணறு உள்ளதாக ஆவணத்தில் மட்டும் குறிப்பிடப்பட்டுள்ளது. கற்குவாரி அமைக்க உரிமம் வழங்க கோரியுள்ள உத்தேச புலத்தின் நான்கு எல்லைகள் பின்வருமாறு :

வடக்கு	காஞ்சிபுரம் மாவட்டம் மாகரல் கிராமம் ஏழாச்சேரி To மாகரல் சாலை மற்றும் கால்வாய்
தெற்கு	சர்வே எண்: 1/6B1, மற்றும் 1/6B2, தலை 40
கிழக்கு	சர்வே எண்: 16/6, மற்றும் 16/2B, 16/1
மேற்கு	சர்வே எண்: 1/2B, 1/6A2

மேற்படி பிரஸ்தாப புலத்தில் கிழக்கு மேற்காக உயர் மின் அழுத்த கம்பி செல்கிறது. அரசு பொது கிணறு, கட்டிடங்கள், விலை உயர்ந்த மரம், புராதன சின்னங்கள் ஏதுமில்லை. குத்தகை கோரும் பகுதிக்குள் அரசு புறம்போக்கு நிலங்கள் மாயானம் குடியிருப்புகள், அரசு அங்கீகாரம் பெற்ற வீட்டுமனைப்பிரிவுகள் மற்றும் நீர்நிலைகள் ஏதுமில்லை. மனுதாரர் கற்குவாரி குத்தகை உரிமம் பெற உரிமக் கட்டணம் ரூபாய்.1500/- சலான் எண்.20220913002428 நாள்: 13-09-2022-ல் E-Challan மூலம் செலுத்தியுள்ளார். பிரஸ்தாப புலம் தற்பொழுது மனுதாரர் அனுபவத்தில் உள்ளது. மனுதாரர் மேற்படி இடத்தில் கற்குவாரி நடத்த ரூ.20 மதிப்புள்ள நீதிசாரா முத்திரைத்தாளில் அரசுக்கு செலுத்தவேண்டிய கனிம நிலுவைத்தொகை ஏதுமில்லை என்றும் வருமான வரி பாக்கித் தொகை ஏதுமில்லை என நோட்டரி வக்கீலிடம் உறுதிமொழி வாக்குமூலம் அளித்துள்ளதன் நகல் இத்துடன் இணைக்கப்பட்டுள்ளது.

கற்குவாரி கோரியுள்ள புலம்:-

வ.எண்	பட்டா எண்	புல எண்	விஸ்தரணம் (ஹெக்டேர்)
1	437	1/2C	0.13.50
2		1/3	0.20.00
3		1/4	0.26.00
4		1/5	0.81.00
5		16/2A	0.98.50
மொத்தம்			2.39.00

மனுதாரர் திரு.உலகநாதன் த-பெ கோமதிநாயகம் என்பவருக்கு சொந்தமான நெ.88.சித்தாலப்பாக்கம் கிராமம் புன்செய் சர்வே எண்கள். 1/2C (0.13.5), 1/3 (0.20.0), 1/4 (0.26.0), 1/5(0.81.0), 16/2A (0.98.5) ஆக மொத்தம் 2.39.0 ஹெக்டேர் பரப்பில் சாதாரண கற்கள் மற்றும் கிராவல்மண் வெட்டி எடுக்க உரிய நிபந்தனைகளுடன் தமிழ்நாடு சிறுகனிம சலுகை விதிகள், 1959, விதி 19(1)-ன் கீழ் 10 ஆண்டுகளுக்கு குவாரி குத்தகை உரிமம் வழங்க பரிந்துரை செய்கிறேன் என்பதை பணிவுடன் தெரிவித்துக்கொள்கிறேன்.

வருவாய் ஆய்வாளர்,
வருவாய் துறை, வளர்ச்சி,
தூசி உள்வட்டம்,
வெம்பாக்கம் வட்டம்.

பெறுநர் :
வட்டாட்சியர்,
வெம்பாக்கம்.

**திருவண்ணாமலை மாவட்டம், வெம்பாக்கம் வட்டம், நெ.88 சித்தாலப்பாக்கம் கிராம
நிருவாக அலுவலர் மற்றும் மேட்டுக்குடிகள் கொடுத்துக் கொண்ட வாக்குமூலம்:**

நாங்கள் மேற்படி முகவரியில் நிலையாக வசித்து வருகிறோம். திருவண்ணாமலை மாவட்டம் வெம்பாக்கம் வட்டம், நெ. 88.சித்தாலப்பாக்கம் கிராமம் புன்செய் சர்வே எண்கள்: 1/2C (0.13.50), 1/3 (0.20.00), 1/4 (0.26.00), 1/5(0.81.00), 16/2A (0.98.50) ஆக மொத்தம் 2.39.00 ஹெக்டேர் பரப்பில் சாதாரண கற்கள் மற்றும் கிராவல்மண் வெட்டி எடுக்க குத்தகை உரிமம் வழங்க கோரி சென்னை-44, குரோம்பேட்டை, ராதாநகர், நெ.15/31 என்ற முகவரியில் வசிக்கும் திரு.G. உலகநாதன் த-பெ கோமதிநாயகம் என்பவர் திருவண்ணாமலை மாவட்ட ஆட்சித்தலைவர் (புவியியல் மற்றும் சுரங்கத்துறை) அவர்களிடம் கொடுத்துக்கொண்ட மனு மீது விசாரணை என்பதை தெரிந்துகொண்டோம்.

மனுதாரர் திரு.G. உலகநாதன் த-பெ கோமதிநாயகம் என்பவர் கல்குவாரி குத்தகை உரிமம் கோரும் இடம் வெம்பாக்கம் வட்டம், நெ.88.சித்தாலப்பாக்கம் கிராமம் புன்செய் சர்வே எண்கள்: 1/2C (0.13.50), 1/3 (0.20.00), 1/4 (0.26.00), 1/5(0.81.00), 16/2A (0.98.50) ஆக மொத்தம் 2.39.00 ஹெக்டேர் பட்டா எண்: 437-ல் திரு.கோமதிநாயகம் மகன் உலகநாதன் என்பவர் பெயரில் தனி பட்டாவாக கிராம கணக்கில் தாக்கலாகியுள்ளது. மேற்படி பிரஸ்தாப புல எண்கள் தற்பொழுது தரிசாக காட்சியளிக்கிறது. கல்குவாரி அமையவுள்ள புலத்தின் வடக்கு பக்கம் காஞ்சிபுரம் மாவட்டம் வாலாஜாபாத் வட்டம் மாகரல் கிராம எல்லை அமைந்துள்ளது. மேற்படி மாகரல் எல்லையில் ஏழாச்சேரி கிராமத்திலிருந்து மாகரல் செல்லும் சாலையும் சாலையை ஒட்டி கால்வாய் செல்கிறது. பிரஸ்தாப புலத்தில் வடக்கு மற்றும் கிழக்கு மேற்காக உயர் மின்னழுத்த கம்பி செல்கிறது, இப்புலத்தில் பனைமரம்-240, ஆலமரம்-1, வேலமரம்-1 ஆகியவை அமைந்துள்ளது. கற்குவாரி அமைக்க கோரியுள்ள புலத்தில் அனுமதி வழங்குவது தொடர்பாக கிராமத்தில் 16.03.2023 அன்று "அ1" நோட்டீஸ் பிரசுரம் செய்யப்பட்டது. கற்குவாரி அமைக்க உத்தேசிக்கப்பட்டுள்ள புலத்தில் உரிமம் வழங்க கிராமத்தில் ஆட்சேபனை ஏதும் வரப்பெறவில்லை. குவாரி குத்தகை கோரும் புலத்திலிருந்து கிராம சாலை செல்வதற்கு, காஞ்சிபுரம் மாவட்டம் வாலாஜாபாத் வட்டம் மாகரல் கிராம எல்லை ஏழாச்சேரி to மாகரல் சாலையும் சாலையை ஒட்டி கால்வாயும் அணுகு பாதையாக அமைந்துள்ளது. மேற்படி கால்வாய்க்கு காஞ்சிபுரம் மாவட்டத்திலிருந்து தடையின்மை சான்று சமர்ப்பிப்பதாகவும் மனுதாரர் தெரிவித்துள்ளார். பிரஸ்தாப புலத்திலிருந்து 300 மீட்டர் சுற்றளவில் அங்கீகரிக்கப்பட்ட வீட்டுமனைகள்/நுத்தம் குடியிருப்புகள் ஏதுமில்லை. உத்தேச புலம் கிராமச் சாலையிலிருந்து 10 மீட்டர் தொலைவு உள்ளது. கற்குவாரி குத்தகை உரிமம் வழங்க கோரியுள்ள புலத்தின் அருகில் ஏழாச்சேரி கிராமத்தில் திருவண்ணாமலை மாவட்ட ஆட்சித் தலைவர் (புவியியல் மற்றும் சுரங்கத்துறை) அவர்களின் செயல்முறைகள் ஆணை எண்: R.C.No. 23/Kanimam/2018 , Dated: 07.11.2018-ன்படி மேற்படி கிராம புன்செய் புல எண்கள்: 1/2C.2B2B.2D.7.8.9.20/3A ஆகியவற்றின் மொத்தம் 3.74.5 ஹெக்டேரில் திருவாளர் Goldan and sand Blue Metals நிறுவனத்திற்கு சொந்தமான கற்குவாரி 5 ஆண்டுகள் குத்தகையின்படி இயங்கிவருகிறது. உத்தேச புலத்திற்கு 1 கி.மீ சுற்றளவில் வளத்துறைக்கு சொந்தமான நிலங்கள் மற்றும் காடுகள் ஏதுமில்லை. அனுமதி கோரும் உத்தேச புலங்கள் நிலமற்ற ஏழை விவசாயிகளுக்கு ஒப்படை செய்யப்பட்ட(DC) பஞ்சமி நிலங்கள் ஏதுமில்லை. மேலும் சர்வே எண்: 1/5-ல் கிணறு உள்ளதாக ஆவணத்தில் மட்டும் குறிப்பிடப்பட்டுள்ளது. கற்குவாரி அமைக்க உரிமம் வழங்க கோரியுள்ள உத்தேச புலத்தின் நான்கு எல்லைகள் பின்வருமாறு :

வடக்கு	காஞ்சிபுரம் மாவட்டம் மாகரல் கிராமம் ஏழாச்சேரி To மாகரல் சாலை மற்றும் கால்வாய்
தெற்கு	சர்வே எண்: 1/6B1, மற்றும் 1/6B2, <small>சில புல எண்கள்</small>
கிழக்கு	சர்வே எண்: 16/6, மற்றும் 16/2B, 16/1.
மேற்கு	சர்வே எண்: 1/2B, 1/6A2.

மேற்படி பிரஸ்தாப புலத்தில் கிழக்கு மேற்காக உயர் மின் அழுத்த கம்பி செல்கிறது. அரசு பொது கிணறு, கட்டிடங்கள், விலை உயர்ந்த மரம், புராதன சின்னங்கள் ஏதுமில்லை. குத்தகை கோரும் பகுதிக்குள் அரசு புறம்போக்கு நிலங்கள் மாயானம் குடியிருப்புகள், அரங்கீகாரம் பெற்ற வீட்டுமனைப்பிரிவுகள் மற்றும் நீர்நிலைகள் ஏதுமில்லை. மனுதாரர் கற்குவாரி குத்தகை உரிமம் பெற உரிமக் கட்டணம் ரூபாய்.1500/- சலான் எண்.20220913002428 நாள்: 13-09-2022-ல் E-Challan மூலம் செலுத்தியுள்ளார். பிரஸ்தாப புலம் தற்பொழுது மனுதாரர் அனுபவத்தில் உள்ளது. மனுதாரர் மேற்படி இடத்தில் கற்குவாரி நடத்த ரூ.20 மதிப்புள்ள நீதிசாரா முத்திரைத்தாளில் அரசுக்கு செலுத்தவேண்டிய கனிம நிலுவைத்தொகை ஏதுமில்லை என்றும் வருமான வரி பாக்கித் தொகை ஏதுமில்லை என நோட்டரி வக்கீலிடம் உறுதிமொழி வாக்குமூலம் அளித்துள்ளதன் நகல் இத்துடன் இணைக்கப்பட்டுள்ளது.

கற்குவாரி கோரியுள்ள புலம்:-

வ.எண்	பட்டா எண்	புல எண்	விஸ்தீரணம் (ஹெக்டேர்)
1	437	1/2C	0.13.50
2		1/3	0.20.00
3		1/4	0.26.00
4		1/5	0.81.00
5		16/2A	0.98.50
மொத்தம்			2.39.00

மனுதாரர் திரு.உலகநாதன் த-பெ கோமதிநாயகம் என்பவருக்கு சொந்தமான நெ.88.சித்தாலப்பாக்கம் கிராமம் புன்செய் சர்வே எண்கள். 1/2C (0.13.5), 1/3 (0.20.0), 1/4 (0.26.0), 1/5(0.81.0), 16/2A (0.98.5) ஆக மொத்தம் 2.39.0 ஹெக்டேர் பரப்பில் சாதாரண கற்கள் மற்றும் கிராவல்மண் வெட்டி எடுக்க உரிய நிபந்தனைகளுடன் தமிழ்நாடு சிறுகனிம சலுகை விதிகள், 1959, விதி 19(1)-ன் கீழ் 10 ஆண்டுகளுக்கு குவாரி குத்தகை உரிமம் வழங்க எங்களுக்கு எவ்வித ஆட்சேபனையும் இல்லை என்பதை பணிவுடன் தெரிவித்துக் கொள்கிறோம்.

//படிக்கக் கேட்டோம் சரி :: படித்துப்பார்த்தோம் சரி//

மேட்டுக்குடிகள்:-

1. புருசன்
2. முன்கை
3. உயிர்
4. ராமன்
5. உயிர்

// என் முன்பாக //

வருவாய் ஆய்வாளர்,
தூசி உள்ளூட்டம்,
வெம்பாக்கம் வட்டம்.

கிராம நிர்வாக அலுவலர்

கிராம நிர்வாக அலுவலர்,
88, சித்தாலப்பாக்கம் கிராமம்,
வெம்பாக்கம் வட்டம்,
திருவண்ணாமலை மாவட்டம்.

சென்னை-44, குரோம்பேட்டை, ராதாநகர், நெ.15/31 என்ற முகவரியில் வசிக்கும் திரு. உலகநாதன் து-பெ கோமதிநாயகம் ஆகிய நான் கொண்ட வாக்குமூலம்:

நான் மேற்படி முகவரியில் வசித்து வருகிறேன். நான் திருவண்ணாமலை மாவட்டம் வெம்பாக்கம் வட்டம், நெ. 88.சித்தாலப்பாக்கம் கிராமம் புன்செய் சர்வே எண்கள்: 1/2C (0.13.50), 1/3 (0.20.00), 1/4 (0.26.00), 1/5(0.81.00), 16/2A (0.98.50) ஆக மொத்தம் 2.39.00 ஹெக்டேர் பரப்பில் சாதாரண கற்கள் மற்றும் கிராவல்மண் வெட்டி எடுக்க குத்தகை உரிமம் வழங்க கோரி கொடுத்துக்கொண்ட மனு மீது என்னை நேரடி விசாரணை செய்வதை தெரிந்துகொண்டேன்.

நான் கற்குவாரி குத்தகை உரிமம் கோரும் இடமானது வெம்பாக்கம் வட்டம், நெ. 88.சித்தாலப்பாக்கம் கிராமம் புன்செய் சர்வே எண்கள்: 1/2C (0.13.50), 1/3 (0.20.00), 1/4 (0.26.00), 1/5(0.81.00), 16/2A (0.98.50) ஆக மொத்தம் 2.39.00 ஹெக்டேர் பரப்புள்ள நிலம் பட்டா எண்: 437-ல் எனது பெயரில் தனிபட்டாவாக உள்ளது. மேற்படி பிரஸ்தாப புல எண்கள் தற்பொழுது தரிசாக காட்சியளிக்கிறது. கற்குவாரி அமையவுள்ள புலத்தின் வடக்கு பக்கம் காஞ்சிபுரம் மாவட்டம் வாலாஜாபாத் வட்டம் மாகரல் கிராம எல்லை அமைந்துள்ளது. மேற்படி மாகரல் எல்லையில் ஏழாச்சேரி கிராமத்திலிருந்து மாகரல் செல்லும் சாலையும் சாலையை ஒட்டி கால்வாய் செல்கிறது. பிரஸ்தாப புலத்தில் வடக்கு மற்றும் கிழக்கு மேற்காக உயர் மின்னழுத்த கம்பி செல்கிறது, இப்புலத்தில் பனைமரம்-240, ஆலமரம்-1, வேலமரம்-1 ஆகியவை அமைந்துள்ளது. குவாரி குத்தகை கோரும் புலத்திலிருந்து கிராம சாலை செல்வதற்கு, காஞ்சிபுரம் மாவட்டம் வாலாஜாபாத் வட்டம் மாகரல் கிராம எல்லை ஏழாச்சேரி to மாகரல் சாலையும் சாலையை ஒட்டி கால்வாயும் அணுகு பாதையாக அமைந்துள்ளது. மேற்படி கால்வாய்க்கு காஞ்சிபுரம் மாவட்டத்திலிருந்து தடையின்மை சான்று சமர்ப்பிக்கின்றேன். பிரஸ்தாப புலத்திலிருந்து 300 மீட்டர் சுற்றளவில் அங்கீகரிக்கப்பட்ட வீட்டுமனைகள்/நுத்தம் குடியிருப்புகள் ஏதுமில்லை. உத்தேச புலம் கிராமச் சாலையிலிருந்து 10 மீட்டர் தொலைவு உள்ளது. கற்குவாரி குத்தகை உரிமம் வழங்க கோரியுள்ள புலத்தின் அருகில் ஏழாச்சேரி கிராமத்தில் திருவண்ணாமலை மாவட்ட ஆட்சித் தலைவர் (புவியியல் மற்றும் சுரங்கத்துறை) அவர்களின் செயல்முறைகள் ஆணை எண்: R.C.No. 23/Kanimam/2018 , Dated: 07.11.2018- ன்படி மேற்படி கிராம புன்செய் புல எண்கள்: 1/2C,2B2B,2D,7,8,9,20/3A ஆகியவற்றின் மொத்தம் 3.74.5 ஹெக்டேரில் திருவாளர் Goldan and sand Blue Metals நிறுவனத்திற்கு சொந்தமான கற்குவாரி 5 ஆண்டுகள் குத்தகையின்படி இயங்கிவருகிறது. உத்தேச புலத்திற்கு 1 கி.மீ சுற்றளவில் வனத்துறைக்கு சொந்தமான நிலங்கள் மற்றும் காடுகள் ஏதுமில்லை. அனுமதி கோரும் உத்தேச புலங்கள் நிலமற்ற ஏழை விவசாயிகளுக்கு ஒப்படை செய்யப்பட்ட(DC) பஞ்சமி நிலங்கள் ஏதுமில்லை.

கற்குவாரி அமைக்க உரிமம் வழங்க கோரியுள்ள உத்தேச புலத்தின் நாண்டு எல்லைகள் பின்வருமாறு :

வடக்கு	காஞ்சிபுரம் மாவட்டம் மாகரல் கிராமம் ஏழாச்சேரி To மாகரல் சாலை மற்றும் கால்வாய்
தெற்கு	சர்வே எண்: 1/6B1, மற்றும் 1/6B2, சீலு 440 எண். 1/6B2
கிழக்கு	சர்வே எண்: 16/6, மற்றும் 16/2B, 16/1,
மேற்கு	சர்வே எண்: 1/2B, 1/6A2

மேற்படி பிரஸ்தாப புலத்தில் கிழக்கு மேற்காக உயர் மின் அழுத்த கம்பி செல்கிறது. அரசு பொது கிணறு, கட்டிடங்கள், விலை உயர்ந்த மரம், புராதன சின்னங்கள் ஏதுமில்லை. குத்தகை கோரும் பகுதிக்குள் அரசு புறம்போக்கு நிலங்கள் மாயானம் குடியிருப்புகள், அரசு அங்கீகாரம் பெற்ற வீட்டுமனைப்பிரிவுகள் மற்றும் நீர்நிலைகள் ஏதுமில்லை. நான் கற்குவாரி குத்தகை உரிமம் பெற உரிமக் கட்டணம் ரூபாய்.1500/- சலான் எண்.20220913002428 நாள்: 13-09-2022-ல் E-Challan மூலம் செலுத்தியுள்ளேன். பிரஸ்தாப புலம் தற்பொழுது எனது அனுபவத்தில் உள்ளது. நான் மேற்படி இடத்தில் கற்குவாரி நடத்த ரூ.20 மதிப்புள்ள நீதிசாரா முத்திரைத்தாளில் அரசுக்கு செலுத்தவேண்டிய கனிம நிலுவைத்தொகை ஏதுமில்லை என்றும் வருமான வரி பாக்கித் தொகை ஏதுமில்லை என நோட்டரி வக்கீலிடம் உறுதிமொழி வாக்குமூலம் அளித்துள்ளதன் நகல் இத்துடன் இணைத்துள்ளேன்.

எனவே எனக்கு நெ.88.சித்தாலப்பாக்கம் கிராமம் புன்செய் சர்வே எண்கள். 1/2C (0.13.5), 1/3 (0.20.0), 1/4 (0.26.0), 1/5(0.81.0), 16/2A (0.98.5) ஆக மொத்தம் 2.39.0 ஹெக்டேர் பரப்பில் சாதாரண கற்கள் மற்றும் கிராவல்மண் வெட்டி எடுக்க உரிய நிபந்தனைகளுடன் தமிழ்நாடு சிறுகனிம சலுகை விதிகள், 1959, விதி 19(1)-ன் கீழ் 10 ஆண்டுகளுக்கு குவாரி குத்தகை உரிமம் வழங்குமாறு பணிவுடன் கேட்டுக்கொள்கிறேன்.

//படித்துப்பார்த்தேன் சரி :: படிக்கக்கேட்டேன் சரி//

// என் முன்பாக //

வருவாய் ஆய்வாளர்
தாசி உள்வட்டம்
வெம்பாக்கம் வட்டம்

அ.1 நோட்டீஸ்

திருவண்ணாமலை மாவட்டம், வெம்பாக்கம் வட்டம், நெ.88.சித்தாலப்பாக்கம் கிராமத்தில் திரு.ச.உலகநாதன் த/பெ கோமதிநாயகம் குவாரி குத்தகை உரிமம் வழங்க விண்ணப்பம் செய்து கொண்டிருக்கிறார் என்று இதனால் அறிக்கையிடப்படுகிறது. மேற்படி நிலங்களை ஒப்படை செய்யக் கூடாதென்று ஆட்சேபிப்பவர்கள் இந்த அறிக்கை பிரசுரத்து செய்யப்படும் தேதியிலிருந்து 15 தினங்கள் கொண்ட ஒரு கால அளவுக்குள் மேற்படி கிராமத்தில் மணியக்காரரிடத்திலும் கர்ணமிடத்திலும் தங்களுடைய ஆட்சேபணைகளைத் தெரிவிக்க வேண்டும்.

ஷெட்யூல்

வ.எண்	பட்டாளம்	புன்செய் ச.எண்	மொத்தப்பரப்பு (ஹெ.ஏ)	எல்லைகள்
1.	437	1/2C	0.13.50	வடக்கு: காஞ்சிபுரம் மாவட்டம் மாகரல் கிராமம் ஏழாச்சேரி to மாகரல் சாலை மற்றும் கால்வாய் தெற்கு: சர்வே எண்கள்: 1/6B1 மற்றும் 1/6B2, கிழக்கு: சர்வே எண்கள்: 16/6, மற்றும் 16/2B, மேற்கு: சர்வே எண்: 1/2B
2.		1/3	0.20.00	
3		1/4	0.26.00	
4.		1/5	0.81.00	
5.		16/2A	0.98.50	
மொத்தம்			2.39.00	

தேதி: 18.08.2023

2023 ஆம் வருடம் மாதம் ம் தேதி
88.சித்தாலப்பாக்கம் கிராமம்

ஷை அறிக்கையானது மேலே கண்ட
தேதியன்றுதண்டோராப்போட்டுப் பிரசித்தப்பட்டுத்தப்பட்டதென்றும் ஷை
கிராமசாவடியிலும் சம்பந்தப்பட்ட நிலங்களிலும் காட்டிவைக்கப்பட்டதென்றும்
உறுதிமொழி கூறப்படுகிறது.

(1) ஷை கிராமத்தில் வசிக்கும் படித்தவர்கள் குறைந்தது
இரண்டு பேர்களுடைய கையெழுத்துக்கள்

(2) மேலே (1) பாகத்தில் குறிக்கப்பட்டிருப்பவர்களின்
கையெழுத்துக்களை வாங்காததற்கு காரணம்

மேட்டுக்குடிகள்:

1. அந்தர்

2. பாடி

3. முருகன்

4. முருகன்

5. செல்வன்

6. சண்முகன்

7. அந்தர்

8. சண்முகன்

கிராம நிர்வாக அலுவலர்
கிராமநிர்வாக அலுவலர்
80. அரணாண்டி
சி. சண்முகன்
கிராம நிர்வாக அலுவலர்

சண்முகன்
செல்வன்

குறிப்பு: தென் கன்னடம் ஜில்லாவின் விஷயத்தில் இந்த நமுனாவுக்கு
அடியில் உள்ள சர்டிவிகேட் அடியிற் கண்டபடி இருக்க வேண்டும்.
ஷை அறிக்கையானது மேலே குறிப்பிட்ட தேதியன்று பிரஸ்தாப தர்காஸ்து
நிலத்தில் காட்டிவைக்கப்பட்டது மூலமாய் பிரசித்தம் செய்யப்பட்டதென்றும்
ரெஜிஸ்டரான கைப்பற்றுதாரர்களிடத்தும் ஷை நிலம் விஷயமாய் கும்கி
சுதந்திரங்களுடைய வாள்வர்க்கத்தாராகளிடத்தும் மூலகேணிதாரர்களிடத்தும்
மரவரி ஏற்பாட்டின் பிரகாரம் அந்த நிலத்திலே மரங்களை கைப்பற்றி
வைத்திருப்பவர்களிடத்திலும் அல்லது அந்த நிலத்திலுள்ள ஒரு கிணற்றின்
தண்ணீரை சாகுபடிபாயிச்சி கொண்டிருப்பவர்களிடத்திலும் ஷை அறிக்கை
சேர்ப்பிக்கப்பட்டிருக்கிறது என்றும் உறுதி மொழி கூறப்படுகிறது.

UDAYAM EXPLOSIVES

No. 6/22, Ramani Nagar, 2nd Street, Krishna Nagar,
West Tambaram, Chennai - 600 045

Proprietor
J. SIVAKUMAR

Date...01/11/2003

To,
Mr. G.ULAGANATHAN,
S/o. Gomathinayagam,
No.15/31, Rajaji Street,
Radha Nagar, Chromepet,
Kanchipuram,
Tamil Nadu State – 600 044.

Sub: Regarding blasting work using explosive in your proposed quarry

Sir,

We are having explosive license in Form 22 holding no. **E/SC/TN/22/164 (E10462)** situate in Survey No.4/1, Nattarasanpattu Village, Sriperumbudhur Taluk, Kanchipuram District, our office functioning at Address 6/22, Ramani Nagar, 2nd Street, Mudichur Road, West Tambaram, Chennai 600 045.

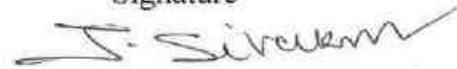
We are enacting explosive vans for transporting detonators and class:2 separately for our magazine to our work site. We are well experienced with licensed blasters and shot fired for safe blasting work since 10 years without untoward incident.

We are willing to undertake blasting work on contract basis at your proposed quarry at SF. Nos. **1/2C, 1/3, 1/4, 1/5 & 16/2A** over an extent of **2.39.0** Hectares. Sithalapakkam village, Vembakkam Taluk, Tiruvannamalai District, Tamil Nadu State.

Thank You,

Enclosure: 1. License copies
2. E-Van license copies

Signature



(For Udayam Explosives)



भारत सरकार | Government of India

वाणिज्य और उद्योग मंत्रालय | Ministry of Commerce & Industry

पेट्रोलियम तथा विस्फोटक सुरक्षा संगठन (पेसो) | Petroleum & Explosives Safety Organisation (PESO)

पूर्व नाम- विस्फोटक विभाग | Formerly- Department of Explosives

A और D - विंग, ब्लॉक 1-8, दूसरा तल, शास्त्री भवन | A & D - Wing, Block 1-8, IInd Floor, Shastri Bhavan

26 हड्डोउस रोड, नुंगम्बक्कम चेन्नै | 26 Haddous Road, Nungambakkam Chennai 600006

फोन (Phone):- 28281023 | फैक्स (Fax):- 28284848

ई-मेल Email: jtccechennai@explosives.gov.in

संख्या (No.):

E/SC/TN/22/164(E10462)

दिनांक (Date): 13/03/2023

सेवा में | To,

M/s.UDAYAM EXPLOSIVES Proprieter.J.Sivakumar,

NO.6/22, Ramani Nagar, 2nd Street, Mudichur Road, West Tambaram, Chennai,
Town/Village - Chennai

District-CHENNAI, State-Tamil Nadu, Pincode - 600045

विषय : Survey No(s).4/1, ग्राम Nattarasampattu, जिला KANCHIPURAM, राज्य Tamil Nadu में विस्फोटक के मैगजीन में उपयोग के लिए कब्जा हेतु विस्फोटक नियम, 2008 के अंतर्गत LE-3 में जारी अनुज्ञप्ति सं E/SC/TN/22/164(E10462) के नवीनीकरण संदर्भ में।

Possession for Use of of Explosives from magazine situated at Survey No(s):4/1,

Subject: Nattarasampattu, Dist. KANCHIPURAM, Tamil Nadu -Licence No.: E/SC/TN/22/164(E10462) granted in Form LE-3 of Explosives Rules, 2008 - Renewal regarding

महोदय | Sir,

आपका उपर्युक्त विषय पर पत्र संख्या X दिनांक 25/01/2023 का संदर्भ ग्रहण करें। विस्फोटक नियम, 2008 के अंतर्गत प्ररूप LE-3 में जारी अनुज्ञप्ति दिनांक

31/3/2028

तक नवीनीकृत कर इस पत्र के साथ भेजी जा रही है।

Reference to your letter No.: X dated: 25/01/2023, the subject licence duly renewed upto

31/3/2028

and issued in Form LE-3 of Explosives Rules, 2008 is forwarded herewith.

अनुज्ञप्ति के आगामी नवीकरण हेतु कृपया निम्नलिखित दस्तावेज दिनांक

31/03/ 2028

से पहले

इस कार्यालय

को भेजे जाएं.

For further renewal of licence, please submit the following documents so as to reach

this office

on or before

31/3/2028

- प्ररूप आरई-1 में विधिवत पूर्ण एवं हस्ताक्षरित आवेदन।
Application in Form RE-1 duly filled in and signed.
- एक से पाँच वर्ष के अनुज्ञप्ति शुल्को का, विस्फोटक नियम, 2008 के तहत ऑनलाइन आवेदन पोर्टल पर उपलब्ध ई-भुगतान सुविधा के माध्यम से लाइसेंस शुल्क ऑनलाइन जमा किया जाना है।
Licence fees renewable for one to five years, to be submitted online through e-payment facility available on online application portal under the Explosives Rules, 2008.
- अनुमोदित प्लान के साथ मूल अनुज्ञप्ति।
Original licence with approved plan.
- कृपया इस संबंध में विस्फोटक नियम, 2008 के नियम 112 का भी संदर्भ ग्रहण करें।
In this connection, please also refer to Rule 112 of Explosives Rules, 2008.
- विस्फोटकों के क्रय हेतु आरई-11 में मांगपत्र (इंडेंट) आपूर्तिकर्ता को दिया जाए और उसी की एक प्रति इस कार्यालय को भेजी जाए (आतिशबाजी गोदाम के लिए लागू नहीं)।
Indent for purchase of explosives shall be placed in RE-11 with the supplier and copy of the same shall be sent to this office.(Not applicable for fireworks store house)
- कृपया विस्फोटकों की त्रैमासीक विवरणी हर तिमाही के अंत में आरई-7 में प्रस्तुत की जाएं। विवरणी इस कार्यालय के कार्यालय में आगामी तिमाही के 10 तारीख से पहले पहुंच जानी चाहिए (आतिशबाजी गोदाम के लिए लागू नहीं)। Please submit quarterly returns of explosives in RE-7 at the end of every quarter so as to reach this office by 10th of the succeeding quarter.(Not applicable for fireworks store house)
- सभी ब्लास्टिंग आपरेशन एक सक्षम द्वारा की जाएगी जो उपरोक्त नियमों के तहत एक वैध शॉट फायर प्रमाणपत्र धारक हो। हालांकि, खान अधिनियम 1952 के अधीन आने वाले खानों में ब्लास्टिंग आपरेशन करने वाले ब्लास्टर की योग्यता उसी अधिनियम से निर्धारित हो।
All blasting operations shall be carried out by a competent person holding a valid shot firer's permit granted under above rules. However, blasting operations in mines coming under the purview of the Mines Act 1952, the blaster shall have qualifications prescribed in the regulations framed under the said Act.

भवदीय | Your's faithfully

(डा.टी.एल.थनुलिंगम | Dr. T. L. THANULINGAM)

उप मुख्य विस्फोटक नियंत्रक | Deputy Chief Controller of Explosives
कृते संयुक्त मुख्य विस्फोटक नियंत्रक | For Joint Chief Controller of Explosives
दक्षिणांचल, चेन्नै | South Circle, Chennai

प्रतिलिपि प्रेषित | Copy Forwarded to:

1. ज़िला मजिस्ट्रेट (District Magistrate), KANCHIPURAM (Tamil Nadu)- सूचना के लिए (for information.)
कृते संयुक्त मुख्य विस्फोटक नियंत्रक | For Joint Chief Controller of Explosives
दक्षिणांचल, चेन्नै | South Circle, Chennai
(अधिक जानकारी जैसे आवेदन की स्थिति, शुल्क आदि के लिए हमारी वेबसाइट <http://peso.gov.in> देखें.)
(For more information regarding status, fees and other details please visit our website <http://peso.gov.in>)

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GOVERNMENT OF INDIA
MINISTRY OF COMMERCE & INDUSTRY
PETROLEUM AND EXPLOSIVES SAFETY ORGANISATION (PESO)

(Formerly Department of Explosives)

A & D - Wing, Block 1-8, IInd Floor, Shastri Bhavan
26 Haddous Road, Nungambakkam Chennai 600006

Tele: 28281023 Fax: 28284848

Email: jtccechennai@explosives.gov.in

No:E/SC/TN/25/1428(E113629)

Dated : 14/02/2023

To,
Udayam Explosives,
J. Sivakumar, Proprietor/Occupier, M/s Udayam Explosives No. 6/22, Ramani Nagar, 2nd street, Mudichur Road, West Tambaram
Town/Village - West Tambaram
Distt. KANCHIPURAM, State. Tamil Nadu, Pincode-600045

Subject: Road Van for the carriage of Explosives Registration No TN-11/AJ-2506 Licence No.E/SC/TN/25/1428(E113629) granted in Form LE-7 of of Explosives Rules 2008 - Renewal regarding

Sir(s),

Reference to your letter No.: 77327 dated: 25/01/2023, the subject licence duly renewed upto 31/3/2028 and issued in Form LE-7 of Explosives Rules, 2008 is forwarded herewith.

For further renewal of licence, please submit the following documents so as to reach **this office** on or before **31/3/2028**.

- Application in Form RE-1 duly filled in and signed.
- Licence fees renewable for one to five years, to be submitted online through e-payment facility available on online application portal under the Explosives Rules, 2008.
- Original licence with approved plan.
- In this connection, please also refer to Rule 112 of Explosives Rules, 2008.

Please follow following instructions strictly:

1. The records of explosives transported by the licenced Roadvan shall be maintained in the proforma RE-6 under Part 5 of schedule V of Explosives Rules 2008.
2. Please ensure that persons whose antecedents verified by the local Police shall only be employed with the licenced explosives roadvan/compressor mounded truck as drivers or cleaners. List of such drivers and cleaner's alongwith the personal particulars shall be made available to the local police in advance. The re-verification of such staff shall also be made at least once in a year in compliance to Rule 61(3) of Explosives Rules 2008.
3. Please note that during transportation of explosives, the Roadvan shall always be attended to by two armed guards. If the consignment of explosives is likely to pass through sensitive areas notified by Ministry of Home Affairs, it should be escorted by armed Police escort / guard provided by District Police Administration as required in Rule 67(7) of Explosives Rules 2008.

Enclosures :

Yours faithfully,

(Manmeet Singh Manhas)
Dy. Controller of Explosives
For Joint Chief Controller of Explosives
South Circle, Chennai

Copy Forwarded to:

1. District Magistrate, KANCHIPURAM (Tamil Nadu) for information.

For Joint Chief Controller of Explosives
South Circle, Chennai

[For more information regarding status, fees and other details, please visit our web site <http://peso.gov.in>]

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GOVERNMENT OF INDIA
MINISTRY OF COMMERCE & INDUSTRY
PETROLEUM AND EXPLOSIVES SAFETY ORGANISATION(PESO)
(Formerly Department of Explosives)
A & D - Wing, Block 1-8, IInd Floor, Shastri Bhavan
26 Haddous Road, Nungambakkam Chennai 600006
Tele: 28281023 Fax: 28284848
Email: jtcecechennai@explosives.gov.in

No:E/SC/TN/25/1429(E113628)

Dated : 14/02/2023

To,
Udayam Explosives,
J. Sivakumar, Proprietor/Occupier, M/s Udayam Explosives No.6/22, Ramani Nagar, 2nd Street, Mudichur Road, West Tambaram
Town/Village - West Tambaram
Distt. KANCHIPURAM, State. Tamil Nadu, Pincode-600045

Subject: **Road Van for the carriage of Explosives Registration No TN-11/AJ-2596 Licence No.E/SC/TN/25/1429(E113628) granted in Form LE-7 of of Explosives Rules 2008 - Renewal regarding**

Sir(s),

Reference to your letter No.: 77335 dated: 25/01/2023, the subject licence duly renewed upto 31/3/2028 and issued in Form LE-7 of Explosives Rules, 2008 is forwarded herewith.

For further renewal of licence, please submit the following documents so as to reach **this office** on or before 31/3/2028.

- Application in Form RE-1 duly filled in and signed.
- Licence fees renewable for one to five years, to be submitted online through e-payment facility available on online application portal under the Explosives Rules, 2008.
- Original licence with approved plan.
- In this connection, please also refer to Rule 112 of Explosives Rules, 2008.

Please follow following instructions strictly:

1. The records of explosives transported by the licenced Roadvan shall be maintained in the proforma RE-6 under Part 5 of schedule V of Explosives Rules 2008.
2. Please ensure that persons whose antecedents verified by the local Police shall only be employed with the licenced explosives roadvan/compressor mounded truck as drivers or cleaners. List of such drivers and cleaner's alongwith the personal particulars shall be made available to the local police in advance. The re-verification of such staff shall also be made at least once in a year in compliance to Rule 61(3) of Explosives Rules 2008.
3. Please note that during transportation of explosives, the Roadvan shall always be attended to by two armed guards. If the consignment of explosives is likely to pass through sensitive areas notified by Ministry of Home Affairs, it should be escorted by armed Police escort / guard provided by District Police Administration as required in Rule 67(7) of Explosives Rules 2008.

Enclosures :

Yours faithfully,

(Manmeet Singh Manhas)
Dy. Controller of Explosives
For Joint Chief Controller of Explosives
South Circle, Chennai

Copy Forwarded to:

1. District Magistrate, KANCHIPURAM (Tamil Nadu) for information.

For Joint Chief Controller of Explosives
South Circle, Chennai

[For more information regarding status, fees and other details, please visit our web site <http://peso.gov.in>]

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125. சித்தாலப்பாக்கம் கிராமம்

01/11/2023

அண்ணா

திருவண்ணாமலை மாவட்டம்,

வெம்பாக்கம் வட்டம், சித்தாலப்பாக்கம்
கிராமத்தின் புஞ்சை 4௫ எண் 1/2C, 1/3,
1/4, 1/5 & 16/2A ஆக 2.39.00 ஏக்கர்
ஏக்கர் 5.90 ஏக்கர் மொத்தம் 8.29 எண்
429. திரு உத்தரவுகள் மூலம் உடனடி,

பேர்ப்படி புது எண்களில் அடங்கிய பொது
சாற்று 300 மீட்டர் சுற்றளவுள்ள சூழலியல்புகள்,
கிராமத்தினர், பன்னித் தட்டம் ஏக்கர் கிராம
என அண்ணா அங்கீகரிக்கப்படுகிறது.

 02-11-2023

கிராம நிர்வாக அலுவலர்,
88, சித்தாலப்பாக்கம் கிராமம்,
வெம்பாக்கம் வட்டம்,
திருவண்ணாமலை மாவட்டம்.

**TOPOGRAPHICAL VIEW OF SITHALAPAKKAM ROUGH STONE
AND GRAVEL QUARRY LEASE APPLIED AREA**



Name of the Applicant : **G. Ulaganathan,**
S/o. Gomathinayagam,
Address : No.15/31, Rajaji Street,
Radha Nagar, Chromepet,
Kancheepuram, Tamil Nadu State – 600 044.

LOCATION DETAILS

Extent : 2.39.0 ha
S.F. Nos. : 1/2C, 1/3, 1/4, 1/5 and 16/2A
Village : Sithalapakkam
Taluk : Vembakkam
District : Tiruvannamalai
State : Tamil Nadu

Signature of the applicant


(G.Ulaganathan)


சிராம நிர்வாக அலுவலர்,
(Village Administrative Officer)
வெம்பாக்கம் வட்டம்,
திருவன்னாமலை மாவட்டம்.
Attestation



TMT. P. RAJESWARI, I.F.S.,
MEMBER SECRETARY

STATE LEVEL ENVIRONMENT IMPACT
ASSESSMENT AUTHORITY – TAMIL NADU

3rd Floor, Panagal Maaligai,
No.1, Jeenis Road, Saidapet,
Chennai-15.

Phone No. 044-24359973

Fax No. 044-24359975

ENVIRONMENTAL CLEARANCE

Lr. No.SEIAA-TN/F.No.8486/1(a)/EC.No: 4824/2021 dated:18.10.2021

To

Thiru.G.Manavalan
S/o.Govindhanaidu
No.294,Perumal Koil Street
Thenagkulam Village
Walajapet Taluk
Kancheepuram-631606

Sir/Madam,


Sub: SEIAA-TN – Proposed Rough Stone & Gravel quarry lease area over an extent of 2.01.5Ha at S.F.Nos.28/12& 28/13, Chithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District, Tamil Nadu by Thiru.G.Manavalan - issue of Environmental Clearance– Reg.

- Ref:**
1. Online Proposal No. SIA/TN/MIN/205597/2021, Dated; 24.03.2021
 2. Application for Environmental Clearance dated: 29.03.2021
 3. Minutes of the 230th meeting of SEAC held on 31.08.2021.
 4. Minutes of the 467th SEIAA meeting held on 06.10.2021.

Details of Minor Mineral Activity:-

This has reference to your application second cited. The proposal is for obtaining Environmental Clearance for mining/quarrying of minor minerals based on the particulars furnished in your application as shown below.




MEMBER SECRETARY
SEIAA-TN

1	Name of Project Proponent and address	Thiru.G.Manavalan S/o.Govindhanaidu No.294,Perumal Koil Street Thenagkulam Village Walajapet Taluk Kancheepuram-631606
2	Location of the Proposed Activity	
	Survey Number	28/12& 28/13
	Latitude and Longitude	12°43'12.55"N to 12°43'19.24"N 79°43'44.98"E to 79°43'49.88"E
	Village	Chithalapakkam
	Taluk	Vembakkam
	District	Tiruvannamalai
3	Proposed Activity	
	i. Minor mineral	Rough Stone & Gravel Quarry
	ii. Mining Lease Area	2,01.5Ha
	iii. Approved quantity	2,71,880cu.m of Rough stone & 47979cu.m of Gravel
	iv. Depth of Mining	38 m
	v. Type of mining	Opencast Mechanized Mining Method
	vi. Category(B1/B2)	B2
	vii. Precise area communication approved by the District Collector of Geology with date	RC. No.28/kanimam/ 2020, dt.16.07.2020
	viii. Mining plan approval by Assistant Director, of Geology and Mining with date	RC. No. 28/Kanimam/2020, dt.16.12.2020..
	ix. Mining period	5 Years
4	Whether Project area attracts any General	Not attracted. Affidavit furnished.



[Signature]
MEMBER SECRETARY
SEIAA-TN

	conditions specified in the EIA notification, 2006 as amended:-	
5	Man Power requirement per day:	30 Nos
6	Utilities	
	i. Source of Water :	Water Vendors
	ii. Quantity of Water Requirement in KLD:	2.0 KLD
	a. Domestic & Drinking purpose	0.5 KLD
	b. Green Belt & Dust Suppression	1.0 KLD & 0.5 KLD
	iii. Power Requirement:	
	a. Domestic Purpose	TNEB
	b. Industrial Purpose	2,31,936Liters of HSD
7	Cost	
	i. Project Cost (excluding EMP cost)	Rs. 49.61Lakhs
	ii. EMP Cost	Rs. 3.80 Lakhs
	iii. CER Cost	Rs. 1.00Lakhs
8	Validity:	
	This Environmental Clearance is granted for the production of 2,71,880cu.m of Rough stone & 47979cu.m of Gravel for the period of 5 Years from the date of execution of the mining lease.	

Affidavit

The Proponent has furnished affidavit in One Hundred Rupees stamp paper attested by the Notary stating that

I, Thiru.G.Manavalan, S/o.Govindhanaidu No.294, Perumal Koil Street, Thenagkulam Village, Walajapet Taluk, Kancheepuram-631606, solemnly declare and sincerely affirm that:

I have applied for getting Environmental Clearance to SEIAA, Tamil Nadu for mining lease for mining of Rough Stone & Gravel quarry lease area over an extent of 2.01.5Ha at S.F.Nos.28/12& 28/13, Chithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District, Tamil Nadu by Thiru.G.Manavalan, Tamil Nadu.



[Signature]
MEMBER SECRETARY
SEIAA-TN

1. I Swear to state and confirm that within 10km area of the quarry site, I have applied for environment Clearance: none of the following is situated.
- protected areas notified under the wildlife (Protection) Act, 1972
 - Critically polluted areas as notified by the Central Pollution Control Board constituted under Water (Prevention and Control of Pollution) Act, 1974.
 - Eco-Sensitive area as notified,
 - Interstate boundaries and international boundaries within 10Km radius from the boundary of the proposed Site.
2. I will complete the following Corporate Environment Responsibility (CER) activities before commencement of the quarrying activities.

CER Activity	Project Cost (Rs. In Lakhs)	CER Cost 2.0% of project cost (Rs. In Lakhs)
1. Water purifier Cot and Bed facility to the kancheepuram dispensary etc., 2. If we are instructed by PWD/Competent bodies to desilt the water bodies nearby. I assure to spend out CER cost for desilting/strengthening the bunds of the nearby water bodies.	49.61	1.00
Total cost Allocation	49.61	1.00

3. The total area of following quarries located within 500m radius from the periphery of my quarry site details as sown below:

Proposed Quarry

S.No	Name and address of the applicant	Village & Taluk	S.F.No s	Extent (in Hects)	Classification
1	G.Manavalan	Chithalapakkam Village, Vembakkam Taluk	28/12 & 28/13	2.01.5	Patta Lands

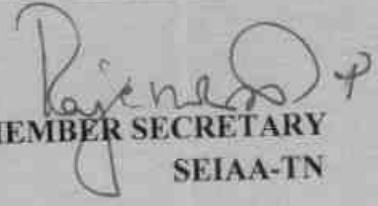
Existing Quarry

S.No	Name and address of the applicant	Village & Taluk	S.F.No s	Extent (in Hects)	Classification
1		Nil			

Abandoned Quarry

S.No	Name and address of the	Village & Taluk	S.F.No s	Extent (in	Classification




 MEMBER SECRETARY
 SEIAA-TN

	applicant			Hects)	
1		Nil			

Future Proposed Quarry

S.No	Name and address of the applicant	Village & Taluk	S.F.Nos	Extent (in Hects)	Classification
1		Nil			

4. There will not be hindrance or disturbance to the people living no enrooted/ nearby our quarry site while transporting the mineral our material and due to quarrying activities.
5. There is no approved habitation within 300m radius from the periphery of our quarry.
6. I swear that afforestation will be carried out during the course of quarrying operation and maintained.
7. The required insurance will be taken in the name of the labourers working in our quarry site.
8. Approach road belongs to local panchayat only and other private patta roads encountered.
9. I will not engage any child labour in our quarry site and I aware that engaging child labour is punishable under the law.
10. All types of safety/protective equipment will be provided to all the labourers working in our quarry.
11. No permanent structures, temples, etc., are located within 500m radius from the periphery of my quarry.

I ensure to do all the social and environment commitment as mentioned in the mining plan to the best of our knowledge.

Details of Quarries located within 500M radius from the proposed quarry:

The Project Proponent has submitted a copy of the letter obtained from the Assistant Director, Tiruvannamalai District in his RC No. 28/Kannimam/2020, dt:16.12.2020 has stated that the details of other quarries within a radius 500m from the boundary of the proposed quarry site as follows:

Existing Quarry

S.No	Name and address of the applicant	Village & Taluk	S.F.Nos	Extent (in Hects)	Classification
1		Nil			



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Abandoned Quarry

S.No	Name and address of the applicant	Village & Taluk	S.F.No s	Extent (in Hects)	Classification
1		Nil			

Proposed Quarry

S. No	Name and address of the applicant	Village & Taluk, S.F.Nos	Extent (in Hects)
1	Thiru.G.Manavalan, S/o.Govindhanaidu No.294, Perumal Koil Street, Thenagkulam Village, Walajapet Taluk, Kancheepuram	Chithalapakkam Village, Vembakkam Taluk, 28/12 & 28/13	2.01.5

Future Proposed Quarry

S.No	Name and address of the applicant	Village & Taluk	S.F.No s	Extent (in Hects)	Classification
1		Nil			

Appraisal by SEAC:

The proposal was placed for appraisal in this 230th meeting of SEAC held on 31.08.2021. The details of the project furnished by the proponent are given on the website (parivesh.nic.in).

The SEAC noted the following:

1. The project proponent, Thiru.G.Manavalan, has applied for Environmental Clearance for the proposed Rough stone & Gravel quarry lease area over an extent of 2.01.5Ha at S.F.Nos.28/12& 28/13, Chithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District, Tamil Nadu.
2. The project/activity is covered under Category "B2" of Item 1(a) "Mining of Minerals Projects" of the Schedule to the EIA Notification, 2006.
3. The production for the five years states that the total quantity of recoverable as 279920cu.m of Rough Stone & 47979cu.m of Gravel and the ultimate depth of mining is 43m.

Based on the presentation and documents furnished by the project proponent, SEAC decided to recommend the proposal for the grant of issue of Environmental Clearance subject to the following specific conditions, in addition to normal conditions stipulated by MOEF &CC:

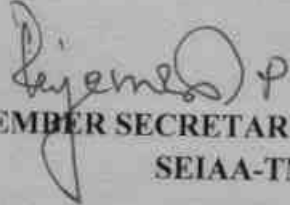
1. Restricting the depth of mining to 38m ultimate depth and quantity of 2,71,880 cu.m of



Rejendra P.
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- Rough stone & 47979 cu.m of Gravel are permitted for mining over five years considering the environmental impacts due to the mining, safety of the working personnel and following the principle of the sustainable mining.
2. The proponent shall provide culvert on the North Eastern direction through the Public Works Department before obtaining consent to operate from TNPCB.
 3. The proponent shall provide offset of 5m for the palm trees within the proposed mine lease area and the other trees within the proposed mine lease area shall be re-planted all along the periphery before obtaining consent to operate from TNPCB.
 4. The proponent shall form proper benches as per the approved mining plan during the operation of the quarry considering the hydro-geological regime of the surrounding area as well as for safe mining.
 5. The Proponent should install cautionary boards at the entry and important locations of the mining site displaying caution notice to the public about the danger of entering the mining lease.
 6. The proponent shall conduct annual physical fitness test and eye test for all the employees to ensure health & safety during occupation.
 7. Fugitive emission measurements should be carried out during the mining operation and the report on the same may be submitted to TNPCB once in six months.
 8. The Proponent shall ensure that the noise level is monitored during mining operation at the project site and adequate noise level reduction measures be undertaken.
 9. The proponent shall erect fencing all around the boundary of the proposed area with gates for entry/exit as per the conditions and shall furnish the photographs/map showing the same before obtaining the CTO from TNPCB.
 10. Greenbelt needs to be developed in the periphery of the mines area preferably adopting Miyawaki scheme of atleast 3m width so that at the closure time the trees would have grown well.
 11. Groundwater quality monitoring should be conducted once every six months and the report should be submitted to TNPCB.
 12. After mining is completed, proper leveling should be done by the Project proponent & Environmental Management Plan furnished by the Proponent should be strictly followed.




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13. The Project proponent shall strictly adhere to mine closure plan after ceasing mining operations as committed. Also the proponent shall 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 that is fit for the growth of fodder, flora, fauna etc.
14. Proper barrier to reduce noise level, dust pollution and to hold down any possible fly material (debris) should be established by providing greenbelt and/or metal sheets along the boundary of the quarrying site and suitable working methodology to be adopted by considering the wind direction.
15. The operation of the quarry should not affect the agriculture activities & water bodies near the project site and a safety distance of 50m from the water body should be left vacant without any mining activity.
16. Transportation of the quarried materials shall not cause any hindrance to the Village people or damage to the existing Village road.
17. The Project Proponent shall comply with the mining and other relevant rules and regulations wherever applicable.
18. The proponent shall develop an adequate greenbelt with native species on the periphery of the mine lease area before the commencement of the mining activity, in consultation with DFO of the concerned district/agriculture.
19. The quarrying activity shall be stopped if the entire quantity indicated in the Mining plan is quarried even before the expiry of the quarry lease period and the same shall be monitored by the District Authorities.
20. Prior clearance from Forestry & Wild Life including clearance from committee of the National Board for Wildlife as applicable shall be obtained before starting the quarrying operation, if the project site attracts the NBWL clearance.
21. To ensure safety measures along the boundary of the quarry site, security guards are to be posted during the entire period of the mining operation.
22. 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 furnish the detailed EMP mentioning all the activities as proposed in the CER and furnish the same before placing the subject to SEIAA.
23. All the conditions imposed by the Deputy Director, Geology & Mining, Thiruvannamalai



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District in the mining plan approval and the precise area communication issued by District Collector, Thiruvannamalai District should be strictly followed

Discussion by SEIAA and the Remarks:-

The subject was placed in the 467th Authority meeting held on 06.10.2021. After detailed discussions, the Authority accepted the recommendation of SEAC and decided to grant Environmental Clearance subject to the conditions as recommended by SEAC & normal condition in addition to the following condition.

1. As per the recommendation of SEAC and as accepted by the proponent, the ultimate depth of mining is restricted to 38 m and the quantity of 2,71,880cu.m of Rough stone & 47979cu.m of Gravel for five years with a bench height of 5m as per the approved mining plan considering the hydrogeological regime of the surrounding area as well as to ensure sustainable and safety mining
2. As per the MoEF&CC office memorandum F.No.22-65/2017-IA.III dated: 30.09.2020 and 20.10.2020 the proponent has furnished the detailed EMP, mentioning all the CER activities for Rs. 1.00 Lakhs as committed. All the activities indicated in the EMP shall be carried out before obtaining CTO from TNPCB.

Part-A: Conditions to be Complied before commencing mining operations:-

1. The project proponent shall advertise in at least two local newspapers widely circulated in the region, one of which shall be in the vernacular language informing the public that

1. The project has been accorded Environmental Clearance.
 2. Copies of clearance letters are available with the Tamil Nadu Pollution Control Board.
 3. Environmental Clearance may also be seen on the website of the SEIAA.
 4. The advertisement should be made within 7 days from the date of receipt of the clearance letter and a copy of the same shall be forwarded to the SEIAA.
2. Mining activity should be reviewed by the District Collector after three years and decide for further extension.
3. The mine closure plan submitted by the project proponent shall be strictly followed after the lapse of the mine.



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4. NOC from the Standing committee of the NBWL shall be obtained, if protected areas are located within 10 Km from the proposed project site.
5. The project proponent shall comply the conditions laid down in the Section V, Rule 36 of Tamil Nadu Minor Minerals Concession Rules 1959.
6. A copy of the Environment Clearance letter shall be sent by the proponent to the concerned Panchayat, Town Panchayat / Panchayat union/ Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the proponent and also kept at the site, for the general public to see.
7. Quarry lease area should be demarcated on the ground with wire fencing to show the boundary of the lease area on all sides with red flags on every pillar shall be erected before commencement of quarrying.
8. The proponent shall ensure that First Aid Box is available at site.
9. The excavation activity shall not alter the natural drainage pattern of the area.
10. The excavated pit shall be restored by the project proponent for useful purposes.
11. The proponent shall quarry and remove only in the permitted areas as per the approved Mining Plan details.
12. The quarrying operation shall be restricted between 7AM and 5 PM.
13. The proponent shall take necessary measures to ensure that there shall not be any adverse impacts due to quarrying operation on the nearby human habitations, by way of pollution to the environment.
14. A minimum distance of 50mts. from any civil structure shall be kept from the periphery of any excavation area.
15. The mined out pits should be backfilled where warranted and area should be suitably landscaped to prevent environmental degradation. The mine closure plan as furnished in the proposal shall be strictly followed with back filling and tree plantation.
16. Wet drilling method is to be adopted to control dust emissions. Delay detonators and shock tube initiation system for blasting shall be used so as to reduce vibration and dust.



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17. Drilling and blasting shall be done only either by licensed explosive agent or by the proponent after obtaining required approvals from Competent Authorities.
18. Blasting shall be carried out after announcing to the public adequate through public address system to avoid any accident.
19. A study has to be conducted to assess the optimum blast parameters and blast design to keep the vibration limits less than prescribed levels and only such design and parameters should be implemented while blasting is done. Periodical monitoring of the vibration at specified location to be conducted and records kept for inspection.
20. The Proponent shall take appropriate measures to ensure that the GLC shall comply with the revised NAAQ norms notified by MoEF& CC, GoI on 16.11.2009.
21. The following measures are to be implemented to reduce Air Pollution during transportation of mineral
 - i. Roads shall be graded to mitigate the dust emission.
 - ii. Water shall be sprinkled at regular interval on the main road and other service roads to suppress dust
22. The following measures are to be implemented to reduce Noise Pollution
 - i. Proper and regular maintenance of vehicles and other equipment
 - ii. Limiting time exposure of workers to excessive noise.
 - iii. The workers employed shall be provided with protection equipment and earmuffs etc.
 - iv. Speed of trucks entering or leaving the mine is to be limited to moderate speed of 25 kmph to prevent undue noise from empty trucks.
 - v. All noise generating machinery the compressor, generator to be enclosed in acoustic enclosure so as to reduce noise in working area.
23. Measures should be taken to comply with the provisions laid under Noise Pollution (Regulation and Control) (Amendment) Rules, 2010, dt: 11.01.2010 issued by the MoEF& CC, GoI to control noise to the prescribed levels.
24. Suitable conservation measures to augment groundwater resources in the area shall be planned and implemented in consultation with Regional Director, CGWB. Suitable measures should be taken for rainwater harvesting.



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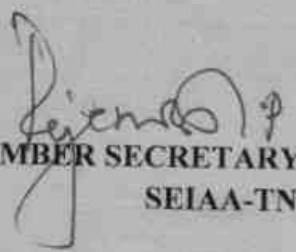
25. Permission from the competent authority should be obtained for drawl of ground water, if any, required for this project.
26. Topsoil, if any, shall be stacked properly with proper slope with adequate measures and should be used for plantation purpose.
27. The following measures are to be adopted to control erosion of dumps:-
 - i. Retention/ toe walls shall be provided at the foot of the dumps.
 - ii. Worked out slopes are to be stabilized by planting appropriate shrub/ grass species on the slopes.
28. Waste oils, used oils generated from the EM machines, mining operations, if any, shall be disposed as per the Hazardous & other wastes (Management, and Trans Boundary Movement) Rules, 2016 and its amendments thereof to the recyclers authorized by TNPCB.
29. Concealing the factual data or failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.
30. Rain water harvesting to collect and utilize the entire water falling in land area should be provided.
31. Rain water getting accumulated in the quarry floor shall not be discharged directly to the nearby stream or water body. If it is to be let into the nearby water body, it has to be discharged into a silt trap on the surface within the lease area and only the overflow after allowing settling of soil be let into the nearby waterways. The silt trap should be of sufficient dimensions to catch all the silt water being pumped out during one season. The silt trap should be cleaned of all the deposited silt at the end of the season and kept ready for taking care of the silt in the next season.
32. The lease holder shall undertake adequate safeguard measures during extraction of material and ensure that due to this activity, the hydro-geological regime of the surrounding area shall not be affected. Regular monitoring of ground water level and quality shall be carried out around the mine lease area during the mining operation. If at any stage, if it is observed that the groundwater table is getting depleted due to the



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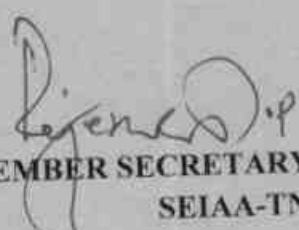
- mining activity; necessary corrective measures shall be carried out. District Collector/mining officer shall ensure this.
33. No tree-felling shall be done in the leased area, except only with the permission from competent Authority.
 34. To take up environmental monitoring of the proposed quarry site before, during and after the mining activities including vibration study data, water, air & flora/fauna environment, slurry water generated/disposed and method of disposal, involving a reputed academic Institution.
 35. It shall be ensured that the total extent of nearby quarries(existing, abandoned and proposed) located within 500 meter radius from the periphery of this quarry is not exceeding 5 hectares within the mining lease period of this application.
 36. It shall be ensured that there is no habitation is located within 300 meter radius from the periphery of the quarry site and also ensure that no hindrance will be caused to the people of the habitation located within 300m radius from the periphery of the quarry site.
 37. Free Silica test should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF& CC, GOI.
 38. Air sampling at intersection point should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF& CC, GOI.
 39. Bunds to be provided at the boundary of the project site.
 40. The project proponent shall undertake plantation/afforestation work by planting the native species on all side of the lease area at the rate of 400/Ha. Suitable tall tree saplings should be planted on the bunds and other suitable areas in and around the work place.
 41. Floor of excavated pit to be levelled and sides to be sloped with gentle slope (Except for granite quarries) in the mine closure phase.
 42. The Project Proponent shall ensure a minimum of 2.5% of the annual turnover will be utilized for the CSR Activity
 43. The Project Proponent shall provide solar lighting system to the nearby villages.
 44. Earthen bunds and barbed wire fencing around the pits with green belt all along the boundary shall be developed and maintained.
 45. Safety equipments to be provided to all the employees.




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46. Safety distance of 50m has to be provided in case of railway, reservoir, canal/odai
47. The Assistant/Deputy Director, Department of Geology & mining shall ensure that the proponent has engaged the blaster with valid Blasting license/certificate obtained from the competent authority before execution of mining lease.
48. The proponent shall furnish the Baseline data covering the Air, Water, Noise and land environment quality for the proposed quarry site before execution of mining lease.
49. The proponent shall erect the pillars in accordance with the Rules for depicting GPS details in the earmarked boundary of the quarry site to monitor electronically before execution of mining.
50. The proponent has to provide insurance protection to the workers in the case of existing mining or provide the affidavit in case of fresh lease before execution of mining lease.
51. The proponent has to display the name board at the quarry site showing the details of Proponent, lease period, extent, etc., with respect to the existing activity before execution of mining.
52. Heavy earth machinery equipments if utilized, after getting approval from the competent authority.
53. The Proponent shall ensure that the project activity including blasting, mining transportation etc should in no way have adverse impact to the other forests, such as reserve forests and social forests, tree plantation and bio diversity, surrounding water bodies etc.
54. The proponent shall provide Green Belt development at the rate of not less than 400 trees/Hectare. The tree saplings shall be not less than 3m height.
55. The fugitive emissions should be monitored during the mining activity and should be reported to TNPCB once in a month and the operation of the quarry should no way impact the agriculture activity & water bodies near the project site.
56. All the commitment made by the project proponent in the proposal shall be strictly followed.
57. 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




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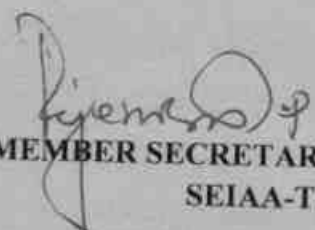
activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc.

58. The Project proponent has to strictly comply the outcome/direction of the Hon'ble NGT, Principle Bench, New Delhi in the O.A No.186 of 2016 (M.A.No.350/2016), O.A. No.200/2016, O.A.No.580/2016 (M.A.No.1182/2016), O.A.No.102/2017, O.A.No.404/2016 (M.A.No.758/2016, M.A. No. 920 /2016, M.A.No.1122/2016, M.A.No.12/2017 & M.A.No.843/2017), O.A.No.405/2016 and O.A.No.520 of 2016 (M.A.No.981/2016, M.A.No.982/2016 & M.A.No.384/2017).

Part B: General Conditions:

1. EC is given only on the factual records, documents and the commitment furnished in non judicial stamp paper by the proponent.
2. The Proponent shall obtain the Consent from the TNPC Board before commencing the activity.
3. No change in mining technology and scope of working should be made without prior approval of the SEIAA, Tamil Nadu.
4. No change in the calendar plan including excavation, quantum of mineral (minor mineral) should be made.
5. Effective safeguard measures, such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulate matter such as loading and unloading point and all transfer points. Extensive water sprinkling shall be carried out on haul roads. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.
6. Effective safeguards shall be adopted against health risks on account of breeding of vectors in the water bodies created due to excavation of earth.
7. A berm shall be left from the boundary of adjoining field having a width equal to at least half the depth of proposed excavation.
8. Loading and unloading areas including all the transfer points should also have efficient dust control arrangements. These should be properly maintained and operated.




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9. Vehicular emissions shall be kept under control and be regularly monitored. The mineral transportation shall be carried out through the covered trucks only and the vehicles carrying the mineral shall not be overloaded.
10. Access and haul roads to the quarrying area should be restored in a mutually agreeable manner where these are considered unnecessary after extraction has been completed.
11. All Personnel shall be provided with protective respiratory devices including safety shoes, masks, gloves etc. Supervisory people should be provided with adequate training and information on safety and health aspects. Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.
12. Periodical medical examination of the workers engaged in the project shall be carried out and records maintained. For the purpose, schedule of health examination of the workers should be drawn and followed accordingly. The workers shall be provided with personnel protective measures such as masks, gloves, boots etc.
13. Workers/labourers shall be provided with facilities for drinking water and sanitation facility for Female and Male separately.
14. The project proponent shall ensure that child labour is not employed in the project as per the sworn affidavit furnished.
15. The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry of Environment and Forests and its Regional Office located at Chennai.
16. The Environmental Clearance does not absolve the applicant/proponent of his obligation/requirement to obtain other statutory and administrative clearances from other statutory and administrative authorities.
17. This Environmental Clearance does not imply that the other statutory / administrative clearances shall be granted to the project by the concerned authorities. Such authorities would be considering the project on merits and be taking decisions independently of the Environmental Clearance



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18. The SEIAA, Tamil Nadu may alter/modify the above conditions or stipulate any further conditions in the interest of environment protection.
19. The SEIAA, Tamil Nadu may cancel the Environmental Clearance granted to this project under the provisions of EIA Notification, 2006, at any stage of the validity of this Environmental Clearance, if it is found or if it comes to the knowledge of this SEIAA, TN that the project proponent has deliberately concealed and/or submitted false or misleading information or inadequate data for obtaining the Environmental Clearance.
20. Failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of the Environment (Protection) Act, 1986.
21. The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, the Public Liability Insurance Act, 1991, along with their amendments, Minor Mineral Conservation & Development Rules, 2010 framed under MMDR Act 1957, National Commission for protection of Child Right Rules, 2006, Wildlife Protection Act, 1972, Forest Conservation Act, 1980, Biodiversity Conservation Act, 2016, the Biological Diversity Act, 2002 and Biological diversity Rules, 2004 and Rules made there under and also any other orders passed by the Hon'ble Supreme Court of India/Hon'ble High Court of Madras and any other Courts of Law relating to the subject matter.
22. Any other conditions stipulated by other Statutory/Government authorities shall be complied.
23. Any appeal against this Environmental Clearance shall lie with the Hon'ble National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.
24. The Environmental Clearance is issued based on the documents furnished by the project proponent. In case any documents found to be incorrect/not in order at a later date the Environmental Clearance issued to the project will be deemed to be revoked/ cancelled.




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Copy to:

1. The Secretary, Ministry of Mines, Government of India, Shastri Bhawan, New Delhi.
2. The Principal Secretary to Government, Environment and Forests Department, Tamil Nadu.
3. The Principal Secretary to Government, Industries Department, Tamil Nadu.
4. The Additional Principal Chief Conservator of Forests, Regional Office (SZ), 34, HEPC Building, 1st& 2nd Floor, Cathedral Garden Road, Nungambakkam, Chennai – 34.
5. The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-Cum-Office Complex, East Arjun Nagar, New Delhi-110 032.
6. The Chairman, TNPC Board, 76, Mount Salai, Guindy, Chennai-32
7. The District Collector, Thiruvannamalai District.
8. The Commissioner of Geology and Mines, Guindy, Chennai-32
9. EIA Division, Ministry of Environment & Forests, Paryavaran Bhawan, New Delhi.
10. Spare.

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நகஎன் 337/கனிமம்/2017

மாவட்ட ஆட்சியர் அலுவலகம்,
(புவியியல் மற்றும் சுரங்கத்துறை),
திருவண்ணாமலை-4. /
நாள்: 24.12.2017.

அறிவிக்கை

பொருள்: கனிமங்களும் குவாரிகளும் - சிறுகனிமம் -
திருவண்ணாமலை மாவட்டம் - வெம்பாக்கம் வட்டம் -
சித்தாலப்பாக்கம் கிராமம் - பட்டர் - புல எண்கள் 16/6 -
0.43.0, 16/7 - 0.40.0 மற்றும் 17/1 - 0.43.0-ல் மொத்தம்
1.26.0 பரப்பில் - சாதாரணக்கற்கள் மற்றும் கிராவல்மண்
வெட்டியெடுக்க - குவாரி சூத்தகை உரிமம் வழங்கக்கோரி
திரு. E.முத்துகிருஷ்ணன், வெம்பாக்கம் வட்டம் என்பவர்
விண்ணப்பம் செய்தது - பரிந்துரை அறிக்கை வரப்பெற்றது
- சுரங்கத் திட்டம் (Mining Plan) தயார் செய்து சமர்ப்பிக்க
கோருவது - தொடர்பாக.

- பார்வை: 1. திரு. E.முத்துகிருஷ்ணன், 221, செஞ்சியம்மன் கோவில்
தெரு சித்தாலப்பாக்கம் கிராமம், வெம்பாக்கம் வட்டம்,
திருவண்ணாமலை மாவட்டம் என்பவரின் விண்ணப்பம்,
நாள் 20.2.2017.
2. திருவண்ணாமலை மாவட்ட ஆட்சித்தலைவர்
அலுவலரின் கடிதம் நகஎன் 337/கனிமம்/2017, நாள்
09.02.2017.
3. செயலர், வருவாய்க்கோட்ட அலுவலர் அலுவலரின்
கடிதம் நகஎன் 433812/2017, நாள் 30.02.2017.
4. திருவண்ணாமலை, மாவட்ட புவியியல் மற்றும்
சுரங்கத்துறை, உதவி இயக்குநர் புலத்தணிக்கை
அறிக்கை நாள் 06.10.2017.
5. அரசாணை எண். 79, தொழில்(எம்.எம்.சி.)துறை,
நாள் 06.04.2015.

திருவண்ணாமலை மாவட்டம் வெம்பாக்கம் வட்டம், சித்தாலப்பாக்கம்
கிராமம், பட்டர் புல எண்கள் 16/6-0.43.0, 16/7-0.40.0 மற்றும் 17/1-0.43.0-ல்
மொத்தம் 1.26.0 ஹெக்டேர் பரப்பில் சாதாரணக்கற்கள் மற்றும் கிராவல்மண்
வெட்டியெடுக்க & ஆண்டுக்குக் குவாரிக்குத்தகை உரிமம் வழங்கக்கோரி
திரு. E.முத்துகிருஷ்ணன் வெம்பாக்கம் என்பவர் அளித்த பார்வை (1)-ல் கண்ட
விண்ணப்பத்தின் மீது பார்வை (2) மற்றும் (4)-ல் கண்ட செயலர்
வருவாய்க்கோட்ட அலுவலர் மற்றும் திருவண்ணாமலை மாவட்டம், புவியியல்
மற்றும் சுரங்கத்துறை, உதவி இயக்குநர் ஆபீஸார் அளித்த பரிந்துரை
அறிக்கைகள் பரிசீலிக்கப்பட்டது.



திரு. E. முத்துகிருஷ்ணன், வெம்பாக்கம் என்பவர் சாதாரணக்கற்கள் மற்றும் கிராவல் வெட்டி வெடுக்க 5 ஆண்டுகளுக்கு குவாரிக்குத்தகை உரிமை வழங்குகோரி விண்ணப்பித்துள்ள வெம்பாக்கம் வட்டம் சித்தாலப்பாக்கம் கிராமம், பட்டா புல எண்கள் 16/6-0.43.0, 16/7- 0.40.0 மற்றும் 17/1 -0.43.0 -ஓ மொத்தம் 1.26.0 ஹெக்டேர் பரப்பில் எவ்வித தடையும் இன்றி சாதாரணவகை கல் குவாரிப்பணி செய்ய வாய்ப்பு உள்ளதால், மேற்படி விண்ணப்பதாரர் திரு. E. முத்துகிருஷ்ணன் என்பவருக்கு சாதாரணக்கற்கள் மற்றும் கிராவல் குத்தகை உரிமை வழங்க பரிந்துரை செய்யப்பட்ட 1.26.0 ஹெக்டேர் பரப்பிற்கு 1959-ஆம் வருடத்திய தமிழ்நாடு சிறுகனிம சலுகை விதிகள், விதி எண் 41(4)-ன்படி கரங்கத்திட்டம் (Mining Plan) தயார் செய்து சமர்ப்பிக்கும்படி திரு. E. முத்துகிருஷ்ணன் என்பவருக்கு தெரிவிக்கப்படுகிறது.

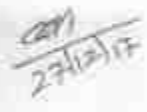
மேலும், கரங்க திட்டமானது (Mining Plan) பதிவு பெற்ற தகுதி வாய்ந்த நபர் RQP (Recognized Qualified Person) மூலம் தயாரிக்கப்பட வேண்டும் என்றும், அக்கரங்க திட்டத்திற்கு அங்கீகாரம் (Approval) வழங்க திருவண்ணாமலை மாவட்ட புவியியல் மற்றும் கரங்கத்துறை உதவி இயக்குநருக்கு அதிகாரம் வழங்கப்பட்டு உள்ளதால், 1959-ம் வருடத்திய தமிழ்நாடு சிறுகனிம சலுகை விதிகள் விதி எண் 41(5)-ன்படி, விண்ணப்பதாரர் மேற்கூறியவாறு கரங்கத்திட்டம் (Mining Plan) தயார் செய்து அதற்கு அங்கீகாரம் பெற இக்கடிதம் கிடைத்த 60 நாட்களுக்குள் இவ்வலுவலகத்தில் சமர்ப்பிக்கும்படி அறிவுறுத்தப்படுகிறது.

இணைப்பு
குத்தகை உரிமை கோரும் விண்ணப்பம் இணைப்புகளுடன்.

(ஓம்)XXXXXXXX,
மாவட்ட ஆட்சித்தலைவர்,
திருவண்ணாமலை.
// உண்மை நகல் // உத்திரவுப்படி //

மாவட்ட ஆட்சித்தலைவருக்காக
திருவண்ணாமலை.

பெறுநர்
திரு. E. முத்துகிருஷ்ணன் தலைமையிலான
எண். 221, செஞ்சியம்மன் கோவில் தெரு,
சித்தாலப்பாக்கம் கிராமம், வெம்பாக்கம் வட்டம்,
திருவண்ணாமலை மாவட்டம்.


27/12/17



QUARRY - PHASE - I
E - C - CLEARANCE

DISTRICT LEVEL ENVIRONMENTAL IMPACT ASSESSMENT AUTHORITY - TIRUVANNAMALAI

THIRU. K.S.KANDASAMY I.A.S.,
CHAIRMAN

Collector's Office,
Tiruvannamalai - 606 604
Tel : 04175 - 233333 (O)
04175-233366, (R)
Fax : 04175 - 232222
Email : Collirtvm@nic.in

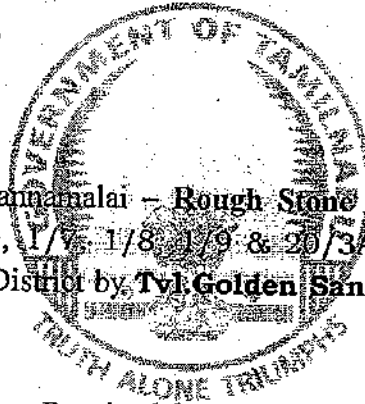
ENVIRONMENTAL CLEARANCE

DEIAA- 5 /TVM/TN/E.No.23/Kanimam/2018/E.C.No.315/2017- 24 dated: .09.2018

To

Tvl.Golden Sands,
No.15, 4th Street,
VGP Lay Out, East Coast Road,
Injambakkam, Sholinganallur,
Chennai -115

Sir,



Sub: DEIAA - Tiruvannamalai - **Rough Stone and Gravel quarry** at S.F.Nos. 1/2C, 1/2B2B, 1/2D, 1/7, 1/8, 1/9 & 20/3A Elacheri Village, Vembakkam Taluk, Tiruvannamalai District by **Tvl.Golden Sands** - Environmental Clearance - Issued.

- Ref:**
1. Your Application Received for Environmental Clearance dt: **29.06.2018**
 2. Minutes of the 5th DEAC held on **27.07.2018**
 3. Minutes of the 5th DEIAA meeting held on **27.08.2018**

Details of Minor Mineral Activity:

This is in reference to your application first cited. The proposal is for obtaining environmental clearance for quarrying of minor minerals based on the particulars furnished in your application as shown below:

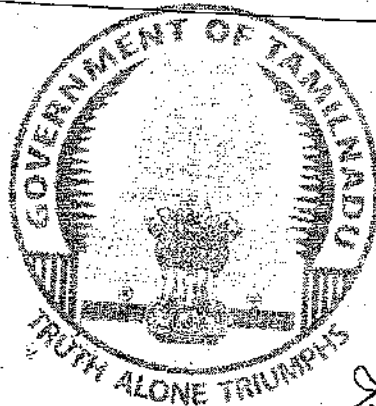
1	Name of Project Proponent and address	Tvl.Golden Sands, No.15, 4 th Street, VGP Lay Out, East Coast Road, Injambakkam, Sholinganallur, Chennai -115
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 CHAIRMAN
 DEIAA

TIRUVANNAMALAI

2	Location of the Proposed Activity	
	Survey Number	1/2C, 1/2B2B, 1/2D, 1/7, 1/8, 1/9 & 20/3A
	Latitude and Longitude	N 12°43'18.09" to 12°43'24.02" E 79°43'19.41" to 79°43'11.43"
	Village	Elacheri
	Taluk	Vembakkam
	District	Tiruvannamalai
3	Proposed Activity	
	i. Minor mineral	Rough Stone and Gravel
	ii. Mining Lease Area	3.74.5 hec
	iii. Approved quantity	4,18,040 M ³ of Rough Stone 39,600 M ³ of Gravel
	iv. Depth of Mining	37 m
	v. Type of mining	Opencast Semi Mechanized Method
	vi. Category(B1/B2)	B2
	vii. Precise Area Communication	Re.No.23/Kanimam/2018 dt:21.06.2018 Assistant Director (G&M) Tiruvannamalai.
	viii. Mining plan approval	RC.No.23/Kanimam/2018 dt 25.06.2018
	ix. Mining lease period	5 Years
4.	Whether Project area attracts any General conditions specified in the EIA notification, 2006 as amended:	Not attracted. Affidavit furnished.
5	Man Power requirement per day:	18
6	Utilities	Water
	i. Source of Water:	R.O Vendors / Surface water
	ii. Quantity of Water Requirement in KLD:	
	a. Domestic	} 2.500 KLD
	b. Industrial	
	c. Green Belt & Dust Suppression	

Cost		
i.	Project Cost	i. Rs. 66,50,000/-
ii.	EMP Cost	ii. Rs. 7,50,000/-
8	Public Consultation:-	Not required as per O.M. dated 24.12.2013 of MoEF, GoI.
9	Date of Appraisal by DEAC:-	27.07.2018
	Agenda No:	5
10	<u>Date of Review/Discussion by DEIAA and the Remarks:-</u>	
	The proposal was placed before the DEIAA in its 5 th Meeting held on 27.08.2018 and the Authority after careful consideration, decided to grant environmental clearance to the said project Mining of Rough Stone and Gravel subject to terms and conditions stipulated under the provisions of Environment Impact Assessment Notification, 2006 as amended.	
11	<u>Validity:</u>	
	The Environmental Clearance for the quarry lease permission is limited to a period of FIVE YEARS or coterminous with quarry lease period.	



[Signature]
CHAIRMAN
DEIAA
TIRUVANNAMALAI.

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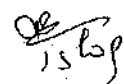
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 14/9/18

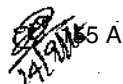
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Conditions to be Complied before/during commencing quarrying operations :-

1. The project proponent shall advertise in at least two local newspapers widely circulated in the region, one of which shall be in the vernacular language informing the public that
 - i). The project has been accorded Environmental Clearance
 - ii). Copies of Clearance letters are available with the Tamil Nadu Pollution Control Board
 - iii). Environmental Clearance may also be seen on the website of the DEIAA.
 - iv). The advertisement should be made within 7 days from the date of receipt of the clearance letter and a copy of the same shall be forwarded to the DEIAA.
2. NOC from the standing committee of the NBWL shall be obtained, if protected areas are located within 10 Km from the proposed project site.
3. The project proponent shall comply the conditions laid down in the section V, Rule 36 of Tamil Nadu Minor Minerals Concession Rules 1959.
4. A copy of the Environment Clearance letter shall be sent by the proponent to the Concerned Panchayat, Town Panchayat / Panchayat union / Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions / representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the proponent and also kept at the site, for the general public to see. The proponent shall ensure that First Aid Box is available at site.
5. Quarry lease area should be demarcated on the ground with wire fencing to show the boundary of the lease area on all sides with red flags on every pillar shall be erected before commencement of quarrying
6. The excavation activity shall not alter the natural drainage pattern of the area.
7. The excavated pit shall be restored by the project proponent for useful purposes.
8. The proponent shall quarry and remove only in the permitted and approved areas.
9. It shall be ensured that the quarrying operation shall be carried out between 7 AM and 5 PM.

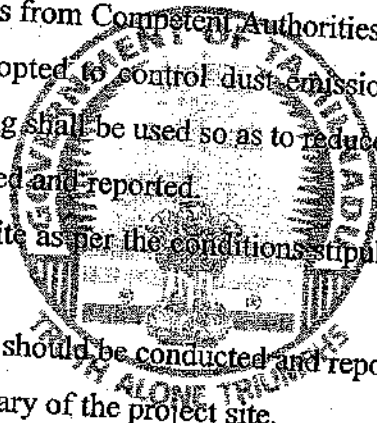

CHAIRMAN
DEIAA
TIRUVANNAMALAI.


15/6/9


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DISTRICT LEVEL ENVIRONMENTAL IMPACT ASSESSMENT AUTHORITY - TIRUVANNAMALI

10. The proponent shall take necessary measures to ensure that there shall not be any adverse impact due to quarrying operation on the nearby human habitations, by way of pollution to the environment.
11. A minimum distance of 15 mts. from any civil structure shall be kept from the periphery of any excavation area.
12. Depth of quarrying shall be 2 Meter above the ground water table / approved depth of mining whichever is lesser to be considered as a safe guard against Environmental Contamination and over exploitation of resources.
13. The mined out pits should be backfilled wherever warranted and area should be suitably landscaped to prevent environmental degradation. The mine closure plan as furnished in the proposal shall be strictly followed with back filling and tree plantation.
14. Drilling and blasting shall be done only either by licensed explosive agent or by the proponent after obtaining required approvals from Competent Authorities.
15. Wet drilling method is to be adopted to control dust emissions. Delay detonators and shock tube initiation system for blasting shall be used so as to reduce vibration and dust.
16. Free silica test should be conducted and reported.
17. The explosive shall be stored at site as per the conditions stipulated in the permits issued by the licensing Authority.
18. Air Sampling at intersection point should be conducted and reported.
19. Bunds to be provided at the boundary of the project site.
20. Ground water quality monitoring should be conducted once in 3 months
21. Transportation of the quarried materials shall not cause any hindrance to the village people / Existing village road.
22. Rainwater shall be pumped out via setting tank only.
23. The project proponent shall undertake plantation / afforestation work by planting the native species on all side of the lease area.
24. Atleast 10 Neem trees should be planted around the boundary of the quarry site.
25. Floor of excavated pit to be leveled and sides to be sloped with gentle slope (Except for granite quarries) in the mine closure phase.





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CHAIRMAN
DEIAA
TIRUVANNAMALAI.

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26. Earthen bunds and barbed wire fencing around the pits with green belt all along the boundary shall be developed and maintained.
27. The project proponent shall ensure a minimum of 2.5% of the annual turnover will be utilized for the CSR Activity.
28. The project proponent shall provide solar lighting system to the nearby villages.
29. The project proponent shall comply the mining and other relevant rules and regulations where ever applicable.
30. As per MoEF& CC, Gol, office memorandum dated 30-03-2015, prior clearance from Forestry & Wild Life angle including clearance from obtaining committee of the National Board for Wild life as applicable shall be obtained before starting the quarrying operations, if the project site is located within 10 Km from National park and sanctuaries.
31. The quarrying activity shall be stopped if the entire quantity indicated in the Mining Plan is quarried even before the expiry of the quarry lease period and the same shall be monitored by the District Authorities. Necessary allocation of funds for implementation of the conservation plan shall be made and the funds so allocated shall be included in the project cost. A copy of action plan shall be submitted to the Regional Office of the Ministry of Environment and Forests, Chennai.
32. It shall be ensured that the total extent of mining area including existing, abandoned and proposed shall not exceed 25 Ha within 500 meter radius from the boundary of this quarry within the mining lease period of this application. If the area exceeds, the applicant has to obtain fresh Environmental Clearance submitting EIA study Report under Category "B1".
33. It shall be ensured that there is no habitation is located within 500 meter radius from the periphery of the quarry site.
34. Blasting shall be carried out after announcing to the public adequate through public address system to avoid any accident.



CHAIRMAN
DEIAA
TIRUVANNAMALAI.




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12/10/18

35. A study has to be conducted to assess the optimum blast parameters and blast design to /keep the vibration limits less than prescribed levels and only such design and parameters should be implemented while blasting is done. Periodical monitoring of the vibration at specified location to be conducted and records kept for inspection.
36. The proponent shall take appropriate measures to ensure that the GLC shall comply with the revised NAAQ norms notified by MOEF, GoI on 16.11.2009.
37. The following measures are to be implemented to reduce Air pollution during transportation of mineral.
 - i. Roads shall be graded to mitigate the dust emission.
 - ii. Water shall be sprinkled at regular interval on the main road and other service roads to suppress dust.
38. The following measures are to be implemented to reduce Noise Pollution
 - i. Proper and regular maintenance of vehicles and other equipment
 - ii. Limiting time exposure of workers to excessive noise.
 - iii. The workers employed shall be provided with protection equipment and earmuffs etc.
 - iv. Speed of trucks entering or leaving the mine is to be limited to moderate speed of 25kmph to prevent undue noise from empty trucks.
39. Measure should be taken to comply with the provisions laid under Noise pollution (Regulation and Control) (Amendment) Rules, 2010 dt: 11.01.2010 issued by the MoE&F, GoI to control noise to the prescribed levels.
40. Suitable conservation measures to augment groundwater resources in the area shall be planned and implemented in consultation with Regional Director, CGWB. Suitable measures should be taken for rainwater harvesting.
41. Permission from the competent authority should be obtained for drawl of ground water, if any required for this project.


CHAIRMAN
DEIAA
TIRUVANNAMALAI.


15/09


17/09/16
58.A

DISTRICT LEVEL ENVIRONMENTAL IMPACT ASSESSMENT AUTHORITY - TIRUVANNAMALI

42. Topsoil, if any, shall be stacked properly with proper slope with adequate measures and should be used for plantation purpose.

43. The following measures are to be adopted to control erosion of dumps:-

- i. Retention / toe walls shall be provided at the foot of the dumps.
- ii. Worked out slopes are to be stabilized by planting appropriate shrub / grass species on the slopes.

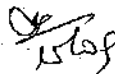
44. Waste oils, used oils generated from the EM machines, mining operations, if any, shall be disposed as per the Hazardous Wastes (Management, Handling, and trans boundary movement) Rules, 2008 and its amendments thereof to the recyclers authorized by TNCPB.


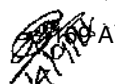
45. Concealing the factual data or failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.

46. Rain Water harvesting to collect and utilize the entire water falling in land area should be provided.

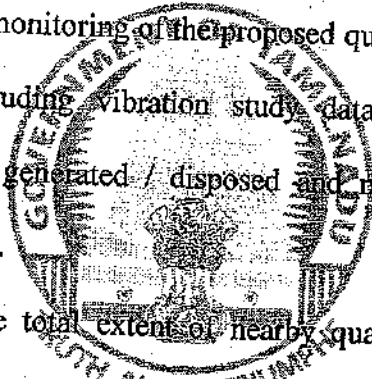
47. Rain water getting accumulated in the quarry floor shall not be discharged directly to the nearby stream or water body. If it is to be let into the nearby water body, it has to be discharged into a silt trap on the surface within the lease area and only the overflow after allowing settling of soil be let into the nearby waterways. The silt trap should be of sufficient dimensions to catch all the silt water being pumped out during one season. The silt trap should be cleaned of all the deposited silt at the end of the season and kept ready for taking care of the silt in the next season.


**CHAIRMAN
DEIAA
TIRUVANNAMALAI.**





21/11/2018

48. The lease holder shall undertake adequate safeguard measures during extraction of material and ensure that due to this activity, the hydro - geological regime of the surrounding area shall not be affected. Regular monitoring of ground water level and quality shall be carried out around the mine lease area during the mining operation. If at any stage, if it is observed that the groundwater table is getting depleted due to the mining activity; necessary corrective measure shall be carried out. District Collector / mining officer shall ensure this.
49. No tree-felling shall be done in the leased area, except only with the permission from competent Authority.
50. To take up environmental monitoring of the proposed quarry site before, during and after the mining activities including vibration study, data, water, air & flora / fauna environment, slurry water generated / disposed and method of disposal involving a reputed academic institution.
51. It shall be ensured that the total extent of nearby quarries (existing, abandoned and proposed) located within 500 meter radius from the periphery of this quarry is not exceeding 25 hectares within the mining lease period of this application.
52. Ground water quality monitoring should be conducted once in 3 months.
53. Safety equipments to be provided to all the employees.
54. Safety distance of 50m has to be provided in case of railway, reservoir, canal/odai.




 CHAIRMAN
 DEIAA
 TIRUVANNAMALAI.

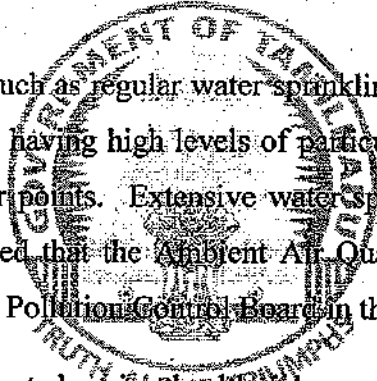
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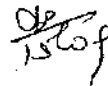
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2. General Conditions :

1. EC is given only on the factual records, documents and the commitment furnished in non judicial stamp paper by the proponent.
2. The Proponent shall obtain the Consent for Establishment from the TNPC Board before commencing the activity.
3. No change in mining technology and scope of working should be made without prior approval of the DEIAA, Tiruvannamalai District, Tamil Nadu.
4. No change in the calendar plan including excavation, quantum of mineral (minor mineral) should be made.
5. Effective safeguard measures, such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulate matter such as loading and unloading point and all transfer points. Extensive water sprinkling shall be carried out on haul roads. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.
6. Effective safeguards shall be adopted against health risks on account of breeding of vectors in the water bodies created due to excavation of earth.
7. A berm shall be left from the boundary of adjoining field having a width equal to atleast half the depth of proposed excavation.

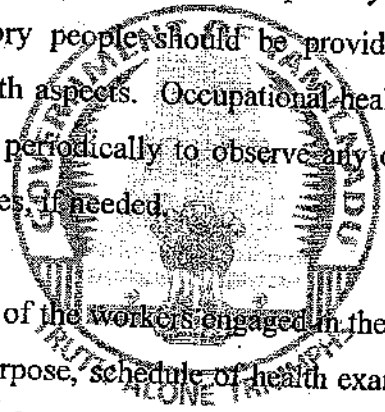



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TIRUVANNAMALAI.

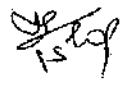


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8. Mineral handling area shall be provided with adequate number of high efficiency dust extraction system. Loading and unloading areas including all the transfer points should also have efficient dust control arrangements. These should be properly maintained and operated.
9. Vehicular emissions shall be kept under control and be regularly monitored. The mineral transportation shall be carried out through the covered trucks only and the vehicles carrying the mineral shall not be overloaded.
10. Access and haul roads to the quarrying area should be restored in a mutually agreeable manner where these are considered unnecessary after extraction has been completed.
11. All personnel shall be provided with protective respiratory devices including safety shoes, Masks, Gloves etc. Supervisory people should be provided with adequate training and information on safety and health aspects. Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.
12. Periodical medical examination of the workers engaged in the project shall be carried out and records maintained. For the purpose, schedule of health examination of the workers should be drawn and followed accordingly. The workers shall be provided with personnel protective measures such as masks, gloves, boots etc.,
13. Workers / labourers shall be provided with facilities for drinking water and sanitation facility for Female and Male separately.
14. The project proponent shall ensure that child labour is not employed in the project as per the sworn affidavit furnished.

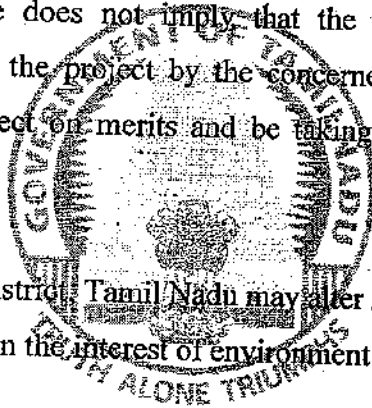



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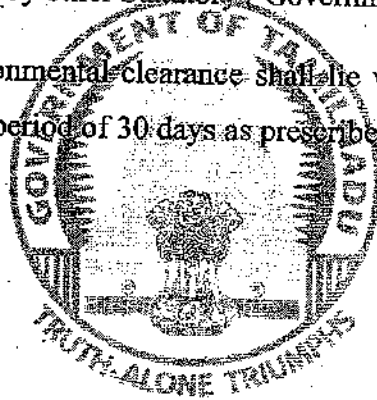
DISTRICT LEVEL ENVIRONMENTAL IMPACT ASSESSMENT AUTHORITY - TIRUVANNAMALI

15. The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry of Environment and Forests and its Regional Office located at Chennai.
16. Land use classification as per DTCP / Agriculture shall meet the requirement of mining / industrial use.
17. The Environmental Clearance does not absolve the applicant / proponent of his obligation / requirement to obtain other statutory and administrative clearances from other statutory and administrative authorities.
18. This Environmental Clearance does not imply that the other statutory / administrative clearances shall be granted to the project by the concerned authorities. Such authorities would be considering the project on merits and be taking decisions independently of the Environmental Clearance.
19. The DEIAA, Tiruvannamalai District, Tamil Nadu may alter / modify the above conditions or stipulate any further conditions in the interest of environment protection.
20. The DEIAA, Tiruvannamalai District, Tamil Nadu may cancel the environmental clearance granted to this project under the provisions of EIA Notification, 2006, at any stage of the validity of this environmental clearance, if it is found or if it comes to the knowledge of this DEIAA, Tiruvannamalai District, Tamil Nadu that the project proponent has deliberately concealed and / or submitted false or misleading information or inadequate data for obtaining the environmental clearance.
21. Failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of the Environment (Protection) Act, 1986.




CHAIRMAN
DEIAA
TIRUVANNAMALAI.

22. The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, the Public Liability Insurance Act, 1991, along with their amendments, draft Minor Mineral Conservation & Development Rules, 2010 framed under MMDR Act 1957, National Commission for protection of Child Right Rules, 2006 and rules made there under and also any other orders passed by the Hon'ble Supreme Court of India / Hon'ble High Court of Madras and any other Courts of Law relating to the subject matter.
23. The Environmental Clearance shall not be used as a document to obtain any other clearance unless it is specifically prescribed by the issuing authority.
24. Any other conditions stipulated by other Statutory / Government authorities shall be complied.
25. Any appeal against this environmental clearance shall lie with the Hon'ble National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.



[Signature]
CHAIRMAN
DEIAA
TIRUVANNAMALAI.

Copy to:

1. The Secretary, Ministry of Mines, Government of India, Shastri Bhawan, New Delhi.
2. The Principal Secretary, Environment and Forests Department, Government of Tamil Nadu, Tamil Nadu.
3. The Additional Chief Secretary, Industries Department, Government of Tamil Nadu, Tamil Nadu.
4. The Additional Principal Chief Conservator of Forests, Regional Office (SZ), 34, HEPC Building, 1st & 2nd Floor, Cathedral Garden Road, Nungambakkam, Chennai - 34.
5. The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-Cum-Office Complex, East Arjun Nagar
6. The Chairman, Tamil Nadu Pollution Control Board, 76, Mount Salai, Guindy, Chennai - 32.
7. The District Collector, Tiruvannamalai District.
8. The Commissioner of Geology and Mining, Guindy, Chennai-32.
9. E1 Division, Ministry of Environment & Forests, Paryavaran Bhawan, New Delhi.
10. Spare.



TMT. P. RAJESWARI, I.F.S.,
MEMBER SECRETARY

STATE LEVEL ENVIRONMENT IMPACT
ASSESSMENT AUTHORITY – TAMIL NADU

3rd Floor, Panagal Maaligai,
No.1, Jeenis Road, Saidapet,
Chennai-15.
Phone No. 044-24359973
Fax No. 044-24359975

ENVIRONMENTAL CLEARANCE

Lr. No.SEIAA-TN/F.No.7123/EC.No: 4776/2020 dated: 09.10.2021

To

Thiru. P. Shankar,
S/o Ponnappan,
No.1/63, Pillaiyar Koil Street
Erumaiyur Village,
Thirumudivakkam,
Chennai



Sir/Madam,

Sub: SEIAA-TN – Proposed Rough Stone & Gravel quarry over an extent of 2.09.5 ha in S.F. Nos. 21/2E, 21/2G, 21/2H, 21/2I, 21/2J and 21/2K, Ezhacheri Village, Vembakkam Taluk, Tiruvannamalai District, Tamil Nadu by Thiru. P. Shankar, – Environmental Clearance Issued– Regarding.

- Ref:**
1. Terms of Reference issued by SEIAA vide Lr.No.SEIAA-TN/F.No.7123/SEAC/TOR-687/2020dated:31.01.2020.
 2. Public hearing conducted on 05.02.2021 and Minutes was received from TNPCB vide Lr.No.T2/TNPCB/F.3916/TMV/PH/2021 dated: 17.02.2021.
 3. The project proponent submitted EIA report to SEIAA-TN on 22.02.2021.
 4. Online Proposal No. SIA/TN/MIN/42488/2019, Dated: 21.02.2021.
 5. Your Application for Environmental Clearance dated: 22.02.202.
 6. Minutes of the 226th meeting of SEAC - TN held on 17.08.2021.
 7. Minutes of the 463rd meeting of SEIAA - TN held on 24.09.2021.



P. Rajeswari
MEMBER SECRETARY
SEIAA-TN

Details of Minor Mineral Activity:-

This has reference to your application second cited. The proposal is for obtaining Environmental Clearance for mining/ quarrying of minor minerals based on the particulars furnished in your application as shown below.

Details of Minor Mineral Activity:-

This has reference to your application second cited. The proposal is for obtaining Environmental Clearance for mining / quarrying of minor minerals based on the particulars furnished in your application as shown below.

1	Name of Project Proponent and address	Thiru. P. Shankar, S/o Ponnappan, No.1/63,Pillaiyar Koil Street Erumaiyur Village, Thirumudivakkam, Chennai
2	Location of the Proposed Activity	
	Survey Number	21/2F, 21/2G, 21/2H, 21/2I, 21/2J and 21/2K
	Latitude and Longitude	12°43'03"N to 12°43'07"N 79°43'15"E to 79°43'22"E
	Village	Ezhacheri
	Taluk	Vembakkam
	District	Tiruvannamalai
3	Proposed Activity	
	i. Minor mineral	Rough Stone and Gravel
	ii. Mining Lease Area	2.09.5 ha (Patta Land)
	iii. Approved quantity	289685 m3 of Rough stone 31122 m3 of Weathered Rock and 16320 m3 of Gravel
	iv. Depth of Mining	32m
	v. Type of mining	Opencast Mechanized Mining



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	vi. Category(B1/B2)	B2
	vii. Precise area communication approved by the District Collector with date	Rc.No.80/Kanimam/2018 dt:12.07.2019
	viii. Mining plan approval by AD/Mines with date	Rc.No.80/Kanimam/2018 dt:31.07.2019
	ix. Scheme of Mining period	5Years
4	Whether Project area attracts any General conditions specified in the EIA notification, 2006 as amended:-	Not attracted. Affidavit furnished.
5	Man Power requirement per day:	22 Nos.
6	Utilities	
	i. Source of Water :	Existing Borewell and Water Vendors
	ii. Quantity of Water Requirement in KLD:	3.5 kLD
	a. Domestic & Drinking purpose	1.3 kLD
	b. Green Belt & Dust Suppression	1.5 kLD & 0.7 KLD
	iii. Power Requirement:	
	a. Domestic Purpose	TNEB
	b. Industrial Purpose	liters of HSD
7	Cost	
	i. Project Cost	Rs. 83.88 Lakhs
	ii. EMP Cost	Rs. 5.10 Lakhs
	iii. CER Cost	Rs. 1.76 Lakh
8	<u>Validity:</u> This Environmental Clearance is granted for the production in 289685 m ³ of Rough stone 31122 m ³ of Weathered Rock and 16320 m ³ of Gravel for the period of 5 Years from the date of execution of the mining lease.	

The Proponent has furnished affidavit in Hundred Rupees stamp paper attested by the Notary stating that The Proponent ThiruThiru. P. Shankar, S/o Ponnappan, No.1/63,Pillaiyar



Rajendra P
MEMBER SECRETARY
SEIAA-TN

Koil Street Erumaiyur Village, Thirumudivakkam, Chennai, solemnly declare and sincerely affirm that:

I have applied for getting prior Environmental Clearance to SEIAA, Tamil Nadu for quarry lease for quarrying of Rough Stone & Gravel quarry lease over an extent 2.09.5 ha in S.F. Nos. 21/2F, 21/2G, 21/2H, 21/2I, 21/2J and 21/2K, Ezhacheri Village, Vembakkam Taluk, Tiruvannamalai District Tamil Nadu.

I swear to state and confirm that within 10km area of the quarry site, I have applied for Environmental Clearance, none of the following sited.

- Protected areas notified under the wild life(Protection) Act, 1972
- Critically polluted areas as notified by the Central Pollution Control Board constituted under Water (Prevention and Control of Pollution) Act, 1974.
- Eco sensitive areas as notified.
- Interstate boundaries and international boundaries within 5 km radius from the boundary of the proposed site.

2. I will complete the following Corporate Environment Responsibility (CER) activities before commencement of the quarrying activities.

CER Activity	Total Project Cost (Rs. In Lakh) (including EMP)	CER Cost 2.0% of project cost (Rs. In Lakh)
1. Developing the library facilities/Drinking water facilities for Ezhacheri Governmnet School	87.98	1.75.9
Total Cost Allocation	87.98	1.75.9

Quarries located within 500m radius from the periphery of the quarry site.

a. Existing quarries:

S.No	Name of the Owner	Village and Taluk	S.F.Nos.	Extent in Hect.	Lease Status
1.	Thiru.B.Dheenan, Vembakkam Taluk	Ezhacheri Village, Vembakkam Taluk,	65/6	0.95.5	
2.	C.Sugumar S/o.Chandrasekar, No.18-A, V.V Koavil Street, Walajabad Taluk, Kancheepuram District.	Ezhacheri Village, Vembakkam Taluk,	20/1H, 20/1I, 20/2B, 20/3C & 20/3D	1.82.5	
3.	Tvl. Golden Sands, No.15,4 th Street, VGP lay out, East Coast Road, Chennai-15	Ezhacheri Village,	1/2B2B, 1/2D, 1/7, 1/B, 1/9, 1/2C, 20/3A	1.82.5	



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SEIAA-TN

4.	Thiru.M.R.Azhagiri, S/o.M.P.Rajalingam, Sripermbuthur taluk, kancheepuram District.	Chithalapakam Village	8/1A,8/1B,8/1C,8/1D,8/1E,8/1F etc.,	3.87.5	
			Nil		

b. Details of abandoned Quarries

S.No	Name of the Owner	Village and Taluk	S.F.Nos.	Extent in Hect.	Lease Status
1.	Thiru.B.Dheenana, Vembakkam Taluk	Ezhacheri Village,	21/2F, 2G, 2H,2I,2J,2K	2.09.5	

c. Present Proposed Quarries

S.No	Name of the Owner	Village and Taluk	S.F.Nos.	Extent in Hect.	Lease Status
1.	Thiru.P.Sankar, S/o. Ponnappan, No.1/63, Pillaiyar koil Street, Erumaiyur Village, Thirumudivakkam, Chennai.	Ezhacheri Village, Vembakkam Taluk.	21/2F,21/2G, 21/2H, 21/2I, 21/2J and 21/2K	2.09.5	

d. Future Proposed Quarries

S.No	Name of the Owner	Village and Taluk	S.F.Nos.	Extent in Hect.	Lease Status
1.	Thiru.K.Chandrasekaran, S/o.Kathirvel, No.301, Madhurayanpettai Street, Mamandur Village, Vembakkam Taluk, Tiruvannamalai District.	Kundiyan thandalam Village	163/A,163/1 B, 163/2, 163/3 etc.,	1.97.5	

- There will not be hindrance or disturbance to the people living no enrout / nearby our quarry site while transporting the mineral our material and due to quarrying activites.
- No habitation / village are located within 500 radius from the periphery of my quarry.
- I swear that afforestation will be carried out during the course of quarrying operation and maintained.
- The required insurance will be taken in the name of the labourers working in my quarry site.
- Approach road belongs to me only and no other private.
- I will not engage any child labour in our quarry site and We aware that engaging child labour is punishable under the law.
- All types of safety/ Personal protective equipment will be provided to all the labourers working in my quarry.
- No permanent structures, temples etc., are located within 500m radius from the periphery of my quarry.

I ensure to do all the social and Environment commitment as mentioned in the mining plan to the best of my knowledge.



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SEIAA-TN

Details of 500M radius Proposed quarry:

The Project Proponent has submitted a copy of the letter obtained from the Assistant Director, Department of Geology & Mining, Tiruvannamalai District in his letter R.c. No. 80/kanimam/2018 dt: 31.07.2019 has stated that the details of other quarries (Proposed / Existing / Abandoned Quarries) within a radius 500m from the boundary of the proposed quarry site as follows:

S.No	Name of the Owner (Tvl.)	Village and S.F.Nos.	Extent in Hect.	Lease Status
1.	Thiru.B.Dheenana, Vembakkam Taluk	Ezhacheri Village, & 65/6	0.95.5	20.07.2018 to 01.03.2021
2.	C.Sugumar S/o.Chandrasekar, No.18-A, V.V Koavil Street, Walajabad Taluk, Kancheepuram District.	Ezhacheri Village, & 20/1H, 20/1I, 20/2B, 20/3C & 20/3D	1.82.5	16.11.2018 to 15.11.2023
3.	Tvl. Golden Sands, No.15,4 th Street, VGP lay out, East Coast Road, Chennai-15	Ezhacheri Village, & 1/2B2B, 1/2D, 1/7, 1/B, 1/9, 1/2C, 20/3A	1.82.5	07.11.2018 to 06.11.2023
4.	Thiru.M.R.Azhagiri, S/o.M.P.Rajalingam, Sripermbuthur taluk, kancheepuram District.	Chithalapakam Village & 8/1A,8/1B,8/1C,8/1D,8/1E, 8/1F etc.,	3.87.5	17.10.2018 to 16.10.2023

a. Abandoned Quarries

S.No	Name of the Owner (Tvl)	Village and Taluk	Extent in Hect.	Lease Period	Remark
1.	Thiru.B.Dheenana, Vembakkam Taluk	Ezhacheri Village, & 25/2	1.00.5	19.03.2010 to 18.03.2015	Abandoned Quarry

b. Present Proposed Quarries

S.No	Name of the Owner	Village and S.F.Nos.	Extent in Hect.	Lease Period	Remark
1.	Thiru.P.Sankar, S/o. Ponnappan, No.1/63, Pillaiyar koil Street, Erumaiyur Village, Thirumudivakkam, Chennai.	Ezhacheri & 21/2F,21/2G, 21/2H, 21/2I, 21/2J and 21/2K	2.09.5	-	-

c. Future Proposed Quarries

S.No	Name of the Owner	Village & S.F.Nos.	Extent in Hect.	Lease Period	Remark
1.	Thiru.K.Chandrasekaran, S/o.Kathirvel, No.301, Madhuranpettai Street, Mamandur Village, Vembakkam Taluk, Tiruvannamalai District.	Kundiyanthandalam & 163/A,163/1B, 163/2, 163/3 etc.,	1.97.5		



Rajane D.P.
MEMBER SECRETARY
SEIAA-TN

Appraisal by SEAC:-

The proposal was placed for appraisal in the 211th meeting of SEAC held on 24.04.2021. The project proponent gave detailed presentation. The details of the project furnished by the proponent are given in the website (parivesh.nic.in).

SEAC noted the following:

1. The project proponent, Thiru. P.Sankar has applied for Environmental Clearance for the proposed Rough stone & Gravel quarry lease over an extent of 2.09.5Ha at S.F.Nos. 21/2F, 21/2G, 21/2H, 21/2I, 21/2J & 21/2K of Ezhacheri Village, Vembakkam Taluk, Tiruvannamalai District, TamilNadu.
2. The project/activity is covered under Category "B1" of Item 1(a) "Mining of Mineral Projects" of the Schedule to the EIA Notification, 2006.
3. Terms of Reference issued by SEIAA vide Lr.No.SEIAA-TN/F.No.7123/SEAC/TOR-687/2020dated:31.01.2020.
4. Public hearing conducted on 05.02.2021 and Minutes was received from TNPCB vide Lr.No.T2/TNPCB/F.3916/TMV/PH/2021 dated: 17.02.2021.
5. The project proponent submitted EIA report to SEIAA-TN on 22.02.2021.
6. The production for the five years states that the total quantity of recoverable as 328200 cu.m of Rough stone, 31122 cu.m of weathered rock & 16320 cu.m of Gravel should not exceed for the depth of mining is 43m below ground level.

Based on the presentation made by the proponent and the documents furnished, the committee instructed the project proponent to furnish the following details:

1. The cumulative impact analysis due to emission from the source and the fugitive emission due to mining as well as transport of minerals needs to be assessed and the report may be submitted.
2. A detailed hydro-geological impact study of the proposed mining on the nearby water bodies shall be conducted by a reputed Government institution like IIT, NIT, Anna University, NEERI, or any other NABET approved Geologists/Geo hydrologists, and the report may be submitted.

The proponent has furnished additional particulars vide its Letter Dt: 25.06.2021. The proposal was placed in the 226th meeting of SEAC dated 17.08.2021.




Rajesh P
MEMBER SECRETARY
SEIAA-TN

Based on the presentation and documents furnished by the project proponent, SEAC decided to recommend the proposal for the **grant of Environmental Clearance** subject to the following specific conditions in addition to normal stipulated by MoEF&CC:

1. **Restricting the maximum depth of mining up to 32m for Rough stone, Weathered Rock and Gravel** considering the environmental impacts due to the mining, safety of the working personnel and following the principle of the sustainable mining are permitted for mining over five years.
2. The proponent shall form the proper benches as per the approved mining plan during the operation of the quarry considering the hydro-geological regime of the surrounding area as well as for safe mining.
3. The Proponent should install cautionary board at the entry and important locations of the mining site, displaying caution notice to the public about the danger of entering the mining lease.
4. The proponent shall conduct annual physical fitness test and eye test for all the employees to ensure health & safety during occupation.
5. Fugitive emission measurements should be carried out during the mining operation and the report on the same may be submitted to SEIAA once in six months.
6. The Proponent shall ensure that the Noise level is monitored during mining operation at the project site and adequate noise level reduction measures undertaken.
7. The proponent shall erect fencing all around the boundary of the proposed area with gates for entry/exit as per the conditions and shall furnish the photographs/map showing the same before obtaining the CTO from TNPCB.
8. Greenbelt needs to be developed in the periphery of the mines area so that at the closure time the trees would have grown well.
9. Ground water quality monitoring in the surrounding 500m radius could be conducted once every six months and the report may be submitted to TNPCB.
10. After mining is completed, proper leveling should be done by the Project proponent & Environmental Management Plan furnished by the Proponent should be strictly followed.
11. The Project proponent shall, after ceasing mining operations, undertake re- grassing the mining area and any other area which may have been disturbed due to their




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SEIAA-TN

- mining activities and restore the land to a condition that is fit for the growth of fodder, flora, fauna etc.
12. Proper barrier to reduce noise level, dust pollution and to hold down any possible fly material (debris) should be established by providing greenbelt and/or metal sheets along the boundary of the quarrying site and suitable working methodology to be adopted by considering the wind direction.
 13. The operation of the quarry should not affect the agriculture activities & water bodies near the project site and a safety distance of 50m from the water body should be left vacant without any mining activity.
 14. Transportation of the quarried materials shall not cause any hindrance to the Village people or damage to the existing Village road.
 15. The Project Proponent shall comply with the mining and other relevant rules and regulations wherever applicable.
 16. The proponent shall develop an adequate greenbelt with native species on the periphery of the mine lease area before the commencement of the mining activity, in consultation with DFO of the concerned district/agriculture.
 17. The project proponent should provide a detailed plan regarding the green belt area surrounding the mining area at least with a width of 3m.
 18. The quarrying activity shall be stopped if the entire quantity indicated in the Mining plan is quarried even before the expiry of the quarry lease period and the same shall be monitored by the District Authorities.
 19. Prior clearance from Forestry & Wild Life including clearance from committee of the National Board for Wildlife as applicable shall be obtained before starting the quarrying operation, if the project site attracts the NBWL clearance.
 20. To ensure safety measures along the boundary of the quarry site, security guards are to be posted during the entire period of the mining operation.
 21. The mine closure plan submitted by the project proponent shall be strictly followed after the lapse of the mine.
 22. 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 furnish the detailed EMP mentioning



all the activities as proposed in the CER and furnish the same before placing the subject to SEIAA.

23. All the conditions imposed by the Deputy Director, Geology & Mining, Tiruvannamalai District in the mining plan approval and the precise area communication should be strictly followed.

Discussion by SEIAA and the Remarks:-

The subject was placed before the Authority in its 463rd meeting held on 24.09.2021. After detailed discussions, the Authority accepted the recommendation of SEAC and decided to grant **Environmental Clearance** to the proposed Project subject to the conditions as recommended by SEAC & normal conditions in addition to the following conditions:

1. As per the recommendation of SEAC and as accepted by the proponent, the ultimate depth of mining is restricted to 32m for Rough stone, Weathered Rock and Gravel considering the environmental impacts due to the mining, safety of the working personnel and following the principle of the sustainable mining are permitted for mining over five years.
2. As per the MoEF& CC office memorandum F.No.22-65/2017-IA.III dated: 30.09.2020 and 20.10.2020 the proponent has furnished the detailed EMP mentioning all the activities of CER as committed. All the activities proposed shall be carried out before obtaining CTO from TNPCB.

Part-A: Conditions to be Complied before commencing mining operations:-

1. The project proponent shall advertise in at least two local newspapers widely circulated in the region, one of which shall be in the vernacular language informing the public that
 - I. The project has been accorded Environmental Clearance.
 - II. Copies of clearance letters are available with the Tamil Nadu Pollution Control Board.
 - III. Environmental Clearance may also be seen on the website of the SEIAA.
 - IV. The advertisement should be made within 7 days from the date of receipt of the clearance letter and a copy of the same shall be forwarded to the SEIAA.

2. Mining activity should be reviewed by the District Collector after three years and decide for further extension.



MEMBER SECRETARY
SEIAA-TN

3. NOC from the Standing committee of the NBWL shall be obtained, if protected areas are located within 10 Km from the proposed project site.
4. The project proponent shall comply the conditions laid down in the Section V, Rule 36 of Tamil Nadu Minor Minerals Concession Rules 1959.
5. **A copy of the Environment Clearance letter shall be sent by the proponent to the concerned Panchayat, Town Panchayat / Panchayat union/ Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the proponent and also kept at the site, for the general public to see.**
6. Quarry lease area should be demarcated on the ground with wire fencing to show the boundary of the lease area on all sides with red flags on every pillar shall be erected before commencement of quarrying.
7. The proponent shall ensure that First Aid Box is available at site.
8. The excavation activity shall not alter the natural drainage pattern of the area.
9. The excavated pit shall be restored by the project proponent for useful purposes.
10. The proponent shall quarry and remove only in the permitted areas as per the approved Mining Plan details.
11. The quarrying operation shall be restricted between 7AM and 5 PM.
12. The proponent shall take necessary measures to ensure that there shall not be any adverse impacts due to quarrying operation on the nearby human habitations, by way of pollution to the environment.
13. A minimum distance of 50mts. from any civil structure shall be kept from the periphery of any excavation area.
14. Depth of quarrying should be as per approved mining plan.
15. The mined out pits should be backfilled where warranted and area should be suitably landscaped to prevent environmental degradation. The mine closure plan as furnished in the proposal shall be strictly followed with back filling and tree plantation.
16. Wet drilling method is to be adopted to control dust emissions. Delay detonators and shock tube initiation system for blasting shall be used so as to reduce vibration and dust.



Kejensh D.P
MEMBER SECRETARY
SEIAA-TN

17. Drilling and blasting shall be done only either by licensed explosive agent or by the proponent after obtaining required approvals from Competent Authorities.
18. Blasting shall be carried out after announcing to the public adequate through public address system to avoid any accident.
19. A study has to be conducted to assess the optimum blast parameters and blast design to keep the vibration limits less than prescribed levels and only such design and parameters should be implemented while blasting is done. Periodical monitoring of the vibration at specified location to be conducted and records kept for inspection.
20. The Proponent shall take appropriate measures to ensure that the GLC shall comply with the revised NAAQ norms notified by MoEF& CC, GoI on 16.11.2009.
21. The following measures are to be implemented to reduce Air Pollution during transportation of mineral
- Roads shall be graded to mitigate the dust emission.
 - Water shall be sprinkled at regular interval on the main road and other service roads to suppress dust
22. The following measures are to be implemented to reduce Noise Pollution
- Proper and regular maintenance of vehicles and other equipment
 - Limiting time exposure of workers to excessive noise.
 - The workers employed shall be provided with protection equipment and earmuffs etc.
 - Speed of trucks entering or leaving the mine is to be limited to moderate speed of 25 kmph to prevent undue noise from empty trucks.
 - All noise generating machinery the compressor, generator to be enclosed in acoustic enclosure so as to reduce noise in working area.
23. Measures should be taken to comply with the provisions laid under Noise Pollution (Regulation and Control) (Amendment) Rules, 2010, dt: 11.01.2010 issued by the MoEF& CC, GoI to control noise to the prescribed levels.
24. Suitable conservation measures to augment groundwater resources in the area shall be planned and implemented in consultation with Regional Director, CGWB. Suitable measures should be taken for rainwater harvesting.




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25. Permission from the competent authority should be obtained for drawl of ground water, if any, required for this project.
26. Topsoil, if any, shall be stacked properly with proper slope with adequate measures and should be used for plantation purpose.
27. The following measures are to be adopted to control erosion of dumps:-
 - i. Retention/ toe walls shall be provided at the foot of the dumps.
 - ii. Worked out slopes are to be stabilized by planting appropriate shrub/ grass species on the slopes.
28. Waste oils, used oils generated from the EM machines, mining operations, if any, shall be disposed as per the Hazardous & other wastes (Management, and Trans Boundary Movement) Rules, 2016 and its amendments thereof to the recyclers authorized by TNPCCB.
29. Concealing the factual data or failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.
30. Rain water harvesting to collect and utilize the entire water falling in land area should be provided.
31. Rain water getting accumulated in the quarry floor shall not be discharged directly to the nearby stream or water body. If it is to be let into the nearby water body, it has to be discharged into a silt trap on the surface within the lease area and only the overflow after allowing settling of soil be let into the nearby waterways. The silt trap should be of sufficient dimensions to catch all the silt water being pumped out during one season. The silt trap should be cleaned of all the deposited silt at the end of the season and kept ready for taking care of the silt in the next season.
32. The lease holder shall undertake adequate safeguard measures during extraction of material and ensure that due to this activity, the hydro-geological regime of the surrounding area shall not be affected. Regular monitoring of ground water level and quality shall be carried out around the mine lease area during the mining operation. If at any stage, if it is observed that the groundwater table is getting depleted due to the mining activity; necessary corrective measures shall be carried out. District Collector/mining officer shall ensure this.



Rejendra P.
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33. No tree-felling shall be done in the leased area, except only with the permission from competent Authority.
34. To take up environmental monitoring of the proposed quarry site before, during and after the mining activities including vibration study data, water, air & flora/fauna environment, slurry water generated/disposed and method of disposal, involving a reputed academic Institution.
35. It shall be ensured that the total extent of nearby quarries(existing, abandoned and proposed) located within 500 meter radius from the periphery of this quarry is not exceeding 5 hectares within the mining lease period of this application.
36. It shall be ensured that there is no habitation is located within 300 meter radius from the periphery of the quarry site and also ensure that no hindrance will be caused to the people of the habitation located within 300m radius from the periphery of the quarry site.
37. Free Silica test should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF& CC, GOI.
38. Air sampling at intersection point should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF& CC, GOI.
39. Bunds to be provided at the boundary of the project site.
40. The project proponent shall undertake plantation/afforestation work by planting the native species on all side of the lease area at the rate of 400/Ha. Suitable tall tree saplings should be planted on the bunds and other suitable areas in and around the work place.
41. Floor of excavated pit to be levelled and sides to be sloped with gentle slope (Except for granite quarries) in the mine closure phase.
42. The Project Proponent shall ensure a minimum of 2.5% of the annual turnover will be utilized for the CSR Activity
43. The Project Proponent shall provide solar lighting system to the nearby villages.
44. Earthen bunds and barbed wire fencing around the pits with green belt all along the boundary shall be developed and maintained.
45. Safety equipments to be provided to all the employees.
46. Safety distance of 50m has to be provided in case of railway, reservoir, canal/odai



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47. The Assistant/Deputy Director, Department of Geology & mining shall ensure that the proponent has engaged the blaster with valid Blasting license/certificate obtained from the competent authority before execution of mining lease.
48. The proponent shall furnish the Baseline data covering the Air, Water, Noise and land environment quality for the proposed quarry site before execution of mining lease.
49. The proponent shall erect the pillars in accordance with the Rules for depicting GPS details in the earmarked boundary of the quarry site to monitor electronically before execution of mining.
50. The proponent has to provide insurance protection to the workers in the case of existing mining or provide the affidavit in case of fresh lease before execution of mining lease.
51. The proponent has to display the name board at the quarry site showing the details of Proponent, lease period, extent, etc., with respect to the existing activity before execution of mining.
52. Heavy earth machinery equipments if utilized, after getting approval from the competent authority.
53. The Proponent shall ensure that the project activity including blasting, mining transportation etc should in no way have adverse impact to the other forests, such as reserve forests and social forests, tree plantation and bio diversity, surrounding water bodies etc.
54. The proponent shall provide Green Belt development at the rate of not less than 400 trees/Hectare. The tree saplings shall be not less than 3m height.
55. The fugitive emissions should be monitored during the mining activity and should be reported to TNPCB once in a month and the operation of the quarry should no way impact the agriculture activity & water bodies near the project site.
56. All the commitment made by the project proponent in the proposal shall be strictly followed.
57. 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.



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58. The Project proponent has to strictly comply the outcome/direction of the Hon'ble NGT, Principle Bench, New Delhi in the O.A No.186 of 2016 (M.A.No.350/2016), O.A. No.200/2016, O.A.No.580/2016 (M.A.No.1182/2016), O.A.No.102/2017, O.A.No.404/2016 (M.A.No. 758/2016, M.A. No. 920 /2016, M.A.No.1122/2016, M.A.No. 12/2017 & M.A.No.843/2017), O.A.No.405/2016 and O.A.No.520 of 2016 (M.A.No.981/2016, M.A.No.982/2016 & M.A.No.384/2017).

Part B: General Conditions:

1. EC is given only on the factual records, documents and the commitment furnished in non judicial stamp paper by the proponent.
2. The Proponent shall obtain the Consent from the TNPC Board before commencing the activity.
3. No change in mining technology and scope of working should be made without prior approval of the SEIAA, Tamil Nadu.
4. No change in the calendar plan including excavation, quantum of mineral (minor mineral) should be made.
5. Effective safeguard measures, such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulate matter such as loading and unloading point and all transfer points. Extensive water sprinkling shall be carried out on haul roads. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.
6. Effective safeguards shall be adopted against health risks on account of breeding of vectors in the water bodies created due to excavation of earth.
7. A berm shall be left from the boundary of adjoining field having a width equal to at least half the depth of proposed excavation.
8. Loading and unloading areas including all the transfer points should also have efficient dust control arrangements. These should be properly maintained and operated.
9. Vehicular emissions shall be kept under control and be regularly monitored. The mineral transportation shall be carried out through the covered trucks only and the vehicles carrying the mineral shall not be overloaded.
10. Access and haul roads to the quarrying area should be restored in a mutually agreeable manner where these are considered unnecessary after extraction has been completed.



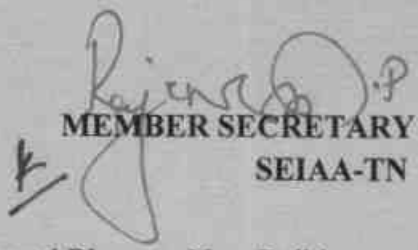
[Signature]
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11. All Personnel shall be provided with protective respiratory devices including safety shoes, masks, gloves etc. Supervisory people should be provided with adequate training and information on safety and health aspects. Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.
12. Periodical medical examination of the workers engaged in the project shall be carried out and records maintained. For the purpose, schedule of health examination of the workers should be drawn and followed accordingly. The workers shall be provided with personnel protective measures such as masks, gloves, boots etc.
13. Workers/labourers shall be provided with facilities for drinking water and sanitation facility for Female and Male separately.
14. The project proponent shall ensure that child labour is not employed in the project as per the sworn affidavit furnished.
15. The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry of Environment and Forests and its Regional Office located at Chennai.
16. The Environmental Clearance does not absolve the applicant/proponent of his obligation/requirement to obtain other statutory and administrative clearances from other statutory and administrative authorities.
17. This Environmental Clearance does not imply that the other statutory / administrative clearances shall be granted to the project by the concerned authorities. Such authorities would be considering the project on merits and be taking decisions independently of the Environmental Clearance
18. The SEIAA, Tamil Nadu may alter/modify the above conditions or stipulate any further conditions in the interest of environment protection.
19. The SEIAA, Tamil Nadu may cancel the Environmental Clearance granted to this project under the provisions of EIA Notification, 2006, at any stage of the validity of this Environmental Clearance, if it is found or if it comes to the knowledge of this SEIAA, TN that the project proponent has deliberately concealed and/or submitted false or misleading information or inadequate data for obtaining the Environmental Clearance.



Rajesh P
MEMBER SECRETARY
SEIAA-TN

20. Failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of the Environment (Protection) Act, 1986.
21. The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, the Public Liability Insurance Act, 1991, along with their amendments, Minor Mineral Conservation & Development Rules, 2010 framed under MMDR Act 1957, National Commission for protection of Child Right Rules, 2006, Wildlife Protection Act, 1972, Forest Conservation Act, 1980, Biodiversity Conservation Act, 2016, the Biological Diversity Act, 2002 and Biological diversity Rules, 2004 and Rules made there under and also any other orders passed by the Hon'ble Supreme Court of India/Hon'ble High Court of Madras and any other Courts of Law relating to the subject matter.
22. Any other conditions stipulated by other Statutory/Government authorities shall be complied.
23. Any appeal against this Environmental Clearance shall lie with the Hon'ble National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.
24. The Environmental Clearance is issued based on the documents furnished by the project proponent. In case any documents found to be incorrect/not in order at a later date the Environmental Clearance issued to the project will be deemed to be revoked/ cancelled.


MEMBER SECRETARY
SEIAA-TN

Copy to:

1. The Secretary, Ministry of Mines, Government of India, Shastri Bhawan, New Delhi.
2. The Principal Secretary to Government, Environment and Forests Department, Tamil Nadu.
3. The Principal Secretary to Government, Industries Department, Tamil Nadu.
4. The Additional Principal Chief Conservator of Forests, Regional Office (SZ), 34, HEPC Building, 1st & 2nd Floor, Cathedral Garden Road, Nungambakkam, Chennai - 34.



5. The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-Cum-Office Complex, East Arjun Nagar, New Delhi-110 032.
6. The Chairman, TNPC Board, 76, Mount Salai, Guindy, Chennai-32
7. The District Collector, Tiruvannamalai District
8. The Commissioner of Geology and Mines, Guindy, Chennai-32
9. EI Division, Ministry of Environment & Forests, Paryavaran Bhawan, New Delhi Spare.
10. The Executive Officer/ BDO, Ezhacheri Village, Vembakkam Taluk, Tiruvannamalai District.

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SEIAA
TN



TEST REPORT

ULR-TC606024000003759F

Report Number: GLCS/TR/227/2024-25(1)

Report Date: 04.05.2024

Issued To: Thiru .G.Ulaganathan, S/o.Gomathinayagam, No.15/31, Rajaji Street, Radha Nagar, Chromepet, Kancheepuram District.		Site Address: Minor Mineral Rough Stone, Lease Area – 2.39.0 Ha. S.F.No:1/2C,1/3,1/4,1/5 & 16/2A of Sithalapakkam Village, Vembakkam Taluk, Thiruvannamalai District.	
Attention	-	Sample Receipt Condition	Ambient -- Good
Customer Ref No	107	Sample Quantity	2Liters
Sample Name	Surface Water -1	Sampled by	Laboratory
Sample Description	Liquid	Sampling Method	GLCS/SOP/W/028
Sample Code	GLCS /227	Sample Receipt Date	04.04.2024
Location Name	SW-1 –Cheyyar River	Date of Analysis	04.04.2024
Sampling Date	03.04.2024	Date of Completion	13.04.2024
Location Co-ordinates	12°42'42.15"N 79°45'25.46"E		

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Color	IS 3025 PART 4	Hazen	5
2	Odor	IS 3025 PART 5	-	Agreeable
3	pH	IS 3025 PART11	-	7.51
4	Electrical Conductivity	IS 3025 PART14	µS/cm	1361
5	Turbidity	IS 3025 PART10	NTU	5.4
6	Total Dissolved Solids	IS 3025 PART16	mg/l	803
7	Total Alkalinity as CaCO ₃	IS 3025 PART 23	mg/l	293.46
8	Total Hardness as CaCO ₃	IS 3025 PART 21	mg/l	308
9	Calcium as Ca	IS 3025 PART40	mg/l	75.35



For Global Lab and Consultancy Services LLP

Authorised Signatory
L. SUDHAPRIYA
 Technical Manager

Page 1 of 3

Note: The test results are only to the sample submitted for test. Any Correction of the test report on full or part shall invalidate the report. Samples are not drawn by us unless otherwise stated. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. Perishable samples will be discarded immediately after reporting. We do not accept any liability with regard to origin or source from which the samples are extracted. The Laboratory is not responsible for authenticity of photocopied test reports. Any holder of this report is advised that information contained here on reflects the laboratory's finding at the time of its intervention only and within the limits of client instructions. The authenticity of the test report's issued by us can be verified by submitting on E-mail request with report number and report date along with report copy.

TEST REPORT

ULR-TC606024000003759F

Report Number: GLCS/TR/227/2024-25(1)

Report Date: 04.05.2024

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
10	Magnesium as Mg	IS 3025 PART 46	mg/l	29.18
11	Chloride as Cl ⁻	IS 3025 PART 32	mg/l	195.93
12	Sulphate as SO ₄ ⁻	IS 3025 PART 24	mg/l	51.33
13	Iron as Fe	IS 3025 PART 53	mg/l	0.19
14	Boron as B	IS 3025 PART 57	mg/l	BDL (DL:0.1)
15	Free Residual Chlorine as Cl ₂	IS 3025 PART 26	mg/l	BDL (DL:1.0)
16	Fluoride as F	GLCS/SOP/W/015	mg/l	0.21
17	Manganese as Mn	IS 3025 PART 59	mg/l	BDL (DL:0.1)
18	Nitrate as NO ₃	IS 3025 PART 34	mg/l	5.74
19	Dissolved Oxygen	IS 3025 PART 38	mg/l	5.7
20	Bio-Chemical Oxygen Demand @ 27°C for 3 days	IS 3025 PART 44	mg/l	8.4
21	Chemical Oxygen Demand	IS 3025 PART 58	mg/l	40
22	Ammonia as NH ₃	IS 3025 PART 34	mg/l	2.38

Note: BDL – Below Detection Limit, DL – Detection Limit.

For Global Lab and Consultancy Services LLP




Authorised Signatory
L. SUDHAPRIYA
 Technical Manager

Page 2 of 3

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TEST REPORT

ULR-TC606024000003759F

Report Number: GLCS/TR/227/2024-25(1)

Report Date: 04.05.2024

Issued To: Thiru .G.Ulaganathan, S/o.Gomathinayagam, No.15/31, Rajaji Street, Radha Nagar, Chromepet, Kancheepuram District.		Site Address: Minor Mineral Rough Stone, Lease Area – 2.39.0 Ha. S.F.No:1/2C, 1/3, 1/4, 1/5 & 16/2A of Sithalapakkam Village, Vembakkam Taluk, Thiruvannamalai District.	
Attention	-	Sample Receipt Condition	Good
Customer Ref No	107	Sample Quantity	250 ml
Sample Name	Surface Water -1	Sampled by	Laboratory
Sample Description	Liquid	Sampling Method	GLCS/M/SOP-05
Sample Code	GLCS /227	Date of Analysis	04.04.2024
Location Name	SW-1 –Cheyyar River	Date of Completion	11.04.2024
Sample Receipt Date	03.04.2024.	Location Co-ordinates	12°42'42.15"N 79°45'25.46"E

Sl. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Total Coliforms	IS 1622	MPN/100ml	300
2	<i>Escherichia coli</i>	IS 1622	MPN/100ml	40

Note: MPN- Most Probable Number..

For Global Lab and Consultancy Services LLP



L. Dineshkumar
Authorised Signatory
L. DINESHKUMAR
 Technical Manager-Microbiology

*****End of Report*****

Page 3 of 3

Note: The test results are only to the sample submitted for test. Any Correction of the test report on full or part shall invalidate the report. Samples are not drawn by us unless otherwise stated. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. Perishable samples will be discarded immediately after reporting. We do not accept any liability with regard to origin or source from which the samples are extracted. The Laboratory is not responsible for authenticity of photocopied test reports. Any holder of this report is advised that information contained here on reflects the laboratory's finding at the time of its intervention only and within the limits of client instructions. The authenticity of the test report's issued by us can be verified by submitting on E-mail request with report number and report date along with report copy.

TEST REPORT

Report Number: GLCS/TR/227/2024-25(2)

Report Date: 04.05.2024

Issued To: Thiru .G.Ulaganathan, S/o.Gomathinayagam, No.15/31, Rajaji Street, Radha Nagar, Chromepet, Kancheepuram District.		Site Address: Minor Mineral Rough Stone, Lease Area – 2.39.0 Ha. S.F.No:1/2C, 1/3, 1/4, 1/5 & 16/2A of Sithalapakkam Village, Vembakkam Taluk, Thiruvannamalai District.	
Attention	-	Sample Receipt Condition	Ambient – Good
Customer Ref No	107	Sample Quantity	2Liters
Sample Name	Surface Water -1	Sampled by	Laboratory
Sample Description	Liquid	Sampling Method	GLCS/SOP/W/028
Sample Code	GLCS /227	Sample Receipt Date	04.04.2024
Location Name	SW-1 –Cheyyar River	Date of Analysis	04.04.2024
Sampling Date	03.04.2024	Date of Completion	13.04.2024
Location Co-ordinates	12°42'42.15"N 79°45'25.46"E		

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Total Suspended Solids	IS 3025 PART 17	mg/l	12.0
2	Phenolic Compounds	IS 3025 PART 43	mg/l	BDL (DL:0.1)
3	Anionic Detergents	IS 13428 ANNEX K	mg/l	BDL (DL:0.05)
4	Cyanide	IS 3025 PART 27	mg/l	BDL (DL:0.02)
5	Sulphide	GLCS/SOP/W/66	mg/l	BDL (DL:1)
6	Copper as Cu	GLCS/SOP/W/62	mg/l	BDL (DL:0.01)
7	Mercury (Hg)	GLCS/SOP/W/62	mg/l	BDL (DL:0.002)
8	Cadmium as Cd	GLCS/SOP/W/62	mg/l	BDL (DL:0.01)
9	Selenium	GLCS/SOP/W/62	mg/l	BDL (DL:0.002)
10	Aluminium as Al	GLCS/SOP/W/62	mg/l	0.013
11	Lead as Pb	GLCS/SOP/W/62	mg/l	BDL (DL:0.01)
12	Zinc as Zn	GLCS/SOP/W/62	mg/l	BDL (DL:0.01)
13	Chromium	GLCS/SOP/W/62	mg/l	BDL (DL:0.01)
14	Barium as Ba	GLCS/SOP/W/62	mg/l	0.110
15	Molybdenum as Mo	GLCS/SOP/W/62	mg/l	BDL (DL:0.01)
16	Arsenic as As	GLCS/SOP/W/62	mg/l	BDL (DL:0.002)

Note : BDL – Below Detection Limit, DL – Detection Limit.



For Global Lab and Consultancy Services LLP

Authorised Signatory

L. SUDHAPRIYA
Technical Manager

*****End of Report*****

Page 1 of 1

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TEST REPORT

ULR-TC606024000003760F

Report Number: GLCS/TR/228/2024-25(1)

Report Date: 04.05.2024

Issued To: Thiru .G.Ulaganathan, S/o.Gomathinayagam, No.15/31, Rajaji Street, Radha Nagar, Chromepet, Kancheepuram District.		Site Address: Minor Mineral Rough Stone, Lease Area – 2.39.0 Ha. S.F.No:1/2C,1/3,1/4,1/5 & 16/2A of Sithalapakkam Village, Vembakkam Taluk, Thiruvannamalai District.	
Attention	-	Sample Receipt Condition	Ambient – Good
Customer Ref No	107	Sample Quantity	2Liters
Sample Name	Surface Water -2	Sampled by	Laboratory
Sample Description	Liquid	Sampling Method	GLCS/SOP/W/028
Sample Code	GLCS /228	Sample Receipt Date	04.04.2024
Location Name	SW-2 Mamandur Tank	Date of Analysis	04.04.2024
Sampling Date	03.04.2024	Date of Completion	13.04.2024
Location Co-ordinates	12°44'10.09"N 79°39'45.76"E		

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Color	IS 3025 PART 4	Hazen	10
2	Odor	IS 3025 PART 5	-	Agreeable
3	pH	IS 3025 PART11	-	7.16
4	Electrical Conductivity	IS 3025 PART14	µS/cm	1244
5	Turbidity	IS 3025 PART10	NTU	7.6
6	Total Dissolved Solids	IS 3025 PART16	mg/l	734
7	Total Alkalinity as CaCO ₃	IS 3025 PART 23	mg/l	261.3
8	Total Hardness as CaCO ₃	IS 3025 PART 21	mg/l	280
9	Calcium as Ca	IS 3025 PART40	mg/l	60.92

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 Technical Manager

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TEST REPORT

ULR-TC606024000003760F

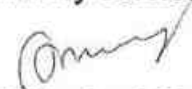
Report Number: GLCS/TR/228/2024-25(1)

Report Date: 04.05.2024

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
10	Magnesium as Mg	IS 3025 PART 46	mg/l	31.13
11	Chloride as Cl ⁻	IS 3025 PART 32	mg/l	163.95
12	Sulphate as SO ₄ ⁻	IS 3025 PART24	mg/l	49.52
13	Iron as Fe	IS 3025 PART 53	mg/l	0.18
14	Boron as B	IS 3025 PART 57	mg/l	BDL (DL:0.1)
15	Free Residual Chlorine as Cl ₂	IS 3025 PART 26	mg/l	BDL (DL:1.0)
16	Fluoride as F	GLCS/SOP/W/015	mg/l	0.19
17	Manganese as Mn	IS 3025 PART 59	mg/l	BDL (DL:0.1)
18	Nitrate as NO ₃	IS 3025 PART 34	mg/l	5.18
19	Dissolved Oxygen	IS 3025 PART 38	mg/l	5.4
20	Bio-Chemical Oxygen Demand @ 27°C for 3 days	IS 3025 PART 44	mg/l	15.6
21	Chemical Oxygen Demand	IS 3025 PART 58	mg/l	60
22	Ammonia as NH ₃	IS 3025 PART 34	mg/l	1.26

Note: BDL – Below Detection Limit, DL – Detection Limit.

For Global Lab and Consultancy Services LLP

Authorised Signatory

L. SUDHAPRIYA
Technical Manager

Page 2 of 3

Note: The test results are only to the sample submitted for test. Any Correction of the test report on full or part shall invalidate the report. Samples are not drawn by us unless otherwise stated. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. Perishable samples will be discarded immediately after reporting. We do not accept any liability with regard to origin or source from which the samples are extracted. The Laboratory is not responsible for authenticity of photocopied test reports. Any holder of this report is advised that information contained here on reflects the laboratory's finding at the time of its intervention only and within the limits of client instructions. The authenticity of the test report's issued by us can be verified by submitting on E-mail request with report number and report date along with report copy.

TEST REPORT

ULR-TC606024000003759F

Report Number: GLCS/TR/227/2024-25(1)

Report Date: 04.05.2024

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
10	Magnesium as Mg	IS 3025 PART 46	mg/l	29.18
11	Chloride as Cl ⁻	IS 3025 PART 32	mg/l	195.93
12	Sulphate as SO ₄ ⁻	IS 3025 PART 24	mg/l	51.33
13	Iron as Fe	IS 3025 PART 53	mg/l	0.19
14	Boron as B	IS 3025 PART 57	mg/l	BDL (DL:0.1)
15	Free Residual Chlorine as Cl ₂	IS 3025 PART 26	mg/l	BDL (DL:1.0)
16	Fluoride as F	GLCS/SOP/W/015	mg/l	0.21
17	Manganese as Mn	IS 3025 PART 59	mg/l	BDL (DL:0.1)
18	Nitrate as NO ₃	IS 3025 PART 34	mg/l	5.74
19	Dissolved Oxygen	IS 3025 PART 38	mg/l	5.7
20	Bio-Chemical Oxygen Demand @ 27°C for 3 days	IS 3025 PART 44	mg/l	8.4
21	Chemical Oxygen Demand	IS 3025 PART 58	mg/l	40
22	Ammonia as NH ₃	IS 3025 PART 34	mg/l	2.38

Note: BDL – Below Detection Limit, DL – Detection Limit.

For Global Lab and Consultancy Services LLP




Authorised Signatory
L. SUDHAPRIYA
 Technical Manager

Page 2 of 3

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TEST REPORT

Report Number: GLCS/TR/228/2024-25(2)

Report Date: 04.05.2024

Issued To: Thiru .G.Ulaganathan, S/o.Gomathinayagam, No.15/31, Rajaji Street, Radha Nagar, Chromepet, Kancheepuram District.		Site Address: Minor Mineral Rough Stone, Lease Area – 2.39.0 Ha. S.F.No:1/2C,1/3,1/4,1/5 & 16/2A of Sithalapakkam Village, Vembakkam Taluk, Thiruvannamalai District.	
Attention	-	Sample Receipt Condition	Ambient – Good
Customer Ref No	107	Sample Quantity	2Liters
Sample Name	Surface Water -2	Sampled by	Laboratory
Sample Description	Liquid	Sampling Method	GLCS/SOP/W/028
Sample Code	GLCS /228	Sample Receipt Date	04.04.2024
Location Name	SW-2 Mamandur Tank	Date of Analysis	04.04.2024
Sampling Date	03.04.2024	Date of Completion	13.04.2024
Location Co-ordinates	12°44'10.09"N 79°39'45.76"E		

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Total Suspended Solids	IS 3025 PART 17	mg/l	18
2	Phenolic Compounds	IS 3025 PART 43	mg/l	BDL (DL:0.1)
3	Anionic Detergents	IS 13428 ANNEX K	mg/l	BDL (DL:0.05)
4	Cyanide	IS 3025 PART 27	mg/l	BDL (DL:0.02)
5	Sulphide	GLCS/SOP/W/66	mg/l	BDL (DL:1)
6	Copper as Cu	GLCS/SOP/W/62	mg/l	BDL (DL:0.01)
7	Mercury (Hg)	GLCS/SOP/W/62	mg/l	BDL (DL:0.002)
8	Cadmium as Cd	GLCS/SOP/W/62	mg/l	BDL (DL:0.01)
9	Selenium	GLCS/SOP/W/62	mg/l	BDL (DL:0.002)
10	Aluminium as Al	GLCS/SOP/W/62	mg/l	BDL (DL:0.01)
11	Lead as Pb	GLCS/SOP/W/62	mg/l	BDL (DL:0.01)
12	Zinc as Zn	GLCS/SOP/W/62	mg/l	BDL (DL:0.01)
13	Chromium	GLCS/SOP/W/62	mg/l	BDL (DL:0.01)
14	Barium as Ba	GLCS/SOP/W/62	mg/l	BDL (DL:0.01)
15	Molybdenum as Mo	GLCS/SOP/W/62	mg/l	BDL (DL:0.01)
16	Arsenic as As	GLCS/SOP/W/62	mg/l	BDL (DL:0.002)

Note : BDL – Below Detection Limit, DL – Detection Limit.



For Global Lab and Consultancy Services LLP

*****End of Report*****

Page 1 of 1

(Signature)
Authorised Signatory
L. SUDHAPRIYA
 Technical Manager

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TEST REPORT

ULR-TC606024000003761F

Report Number: GLCS/TR/229/2024-25(1)

Report Date: 04.05.2024

Issued To: Thiru .G.Ulaganathan, S/o.Gomathinayagam, No.15/31, Rajaji Street, Radha Nagar, Chromepet, Kancheepuram District.		Site Address: Minor Mineral Rough Stone, Lease Area – 2.39.0 Ha. S.F.No:1/2C,1/3,1/4,1/5 & 16/2A of Sithalapakkam Village, Vembakkam Taluk, Thiruvannamalai District.	
Attention	-	Sample Receipt Condition	Ambient – Good
Customer Ref No	107	Sample Quantity	2Liters
Sample Name	Well Water -1	Sampled by	Laboratory
Sample Description	Liquid	Sampling Method	GLCS/SOP/W/028
Sample Code	GLCS /229	Sample Receipt Date	04.04.2024
Location Name	Near Project Area	Date of Analysis	04.04.2024
Sampling Date	03.04.2024	Date of Completion	13.04.2024
Location Co-ordinates	12°43'14.14"N 79°43'31.51"		

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Color	IS 3025 PART 4	Hazen	<5
2	Odor	IS 3025 PART 5	-	Agreeable
3	pH	IS 3025 PART11	-	7.24
4	Electrical Conductivity	IS 3025 PART14	µS/cm	1283
5	Turbidity	IS 3025 PART10	NTU	<1
6	Total Dissolved Solids	IS 3025 PART16	mg/l	758
7	Total Alkalinity as CaCO ₃	IS 3025 PART 23	mg/l	317.58
8	Total Hardness as CaCO ₃	IS 3025 PART 21	mg/l	288
9	Calcium as Ca	IS 3025 PART40	mg/l	56.11



For Global Lab and Consultancy Services LLP


Authorised Signatory

L. SUDHAPRIYA
Technical Manager

Page 1 of 3

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TEST REPORT

ULR-TC606024000003761F

Report Number: GLCS/TR/229/2024-25(1)

Report Date: 04.05.2024

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
10	Magnesium as Mg	IS 3025 PART 46	mg/l	35.99
11	Chloride as Cl ⁻	IS 3025 PART 32	mg/l	169.94
12	Sulphate as SO ₄ ⁻	IS 3025 PART24	mg/l	35.11
13	Iron as Fe	IS 3025 PART 53	mg/l	0.10
14	Boron as B	IS 3025 PART 57	mg/l	BDL (DL:0.1)
15	Free Residual Chlorine as Cl ₂	IS 3025 PART 26	mg/l	BDL (DL:1.0)
16	Fluoride as F	GLCS/SOP/W/015	mg/l	0.18
17	Manganese as Mn	IS 3025 PART 59	mg/l	BDL (DL:0.1)
18	Nitrate as NO ₃	IS 3025 PART 34	mg/l	BDL (DL :2.0)
19	Total Suspended Solids	IS 3025 PART 17	mg/l	BDL (DL:2)

Note: BDL – Below Detection Limit, DL – Detection Limit.

For Global Lab and Consultancy Services LLP




Authorised Signatory

L. SUDHAPRIYA
Technical Manager

Page 2 of 3

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TEST REPORT

ULR-TC606024000003761F

Report Number: GLCS/TR/229/2024-25(1)

Report Date: 04.05.2024

Issued To: <i>Thiru .G.Ulaganathan,</i> <i>S/o.Gomathinayagam,</i> <i>No.15/31, Rajaji Street,</i> <i>Radha Nagar, Chromepet,</i> <i>Kancheepuram District.</i>		Site Address: <i>Minor Mineral Rough Stone,</i> <i>Lease Area – 2.39.0 Ha.</i> <i>S.F.No:1/2C,1/3,1/4,1/5 & 16/2A of</i> <i>Sithalapakkam Village, Vembakkam Taluk,</i> <i>Thiruvannamalai District.</i>	
Attention	-	Sample Receipt Condition	Good
Customer Ref No	107	Sample Quantity	250 ml
Sample Name	Well Water -1	Sampled by	Laboratory
Sample Description	Liquid	Sampling Method	GLCS/M/SOP-05
Sample Code	GLCS /229	Date of Analysis	04.04.2024
Location Name	Near Project Area	Date of Completion	05.04.2024
Sample Receipt Date	03.04.2024	Location Co-ordinates	12°43'14.14"N 79°43'31.51"

SI. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Total Coliforms	IS 15185	Per 100ml	Absent
2	<i>Escherichia coli</i>	IS 15185	Per 100ml	Absent

For Global Lab and Consultancy Services LLP



L. Dineshkumar
Authorised Signatory
L. DINESHKUMAR
Technical Manager-Microbiology

*****End of Report*****

Page 3 of 3

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TEST REPORT

Report Number: GLCS/TR/229/2024-25(2)

Report Date: 04.05.2024

Issued To: Thiru .G.Ulaganathan, S/o.Gomathinayagam, No.15/31, Rajaji Street, Radha Nagar, Chromepet, Kancheepuram District.		Site Address: Minor Mineral Rough Stone, Lease Area – 2.39.0 Ha. S.F.No:1/2C,1/3,1/4,1/5 & 16/2A of Sithalapakkam Village, Vembakkam Taluk, Thiruvannamalai District.	
Attention	-	Sample Receipt Condition	Ambient – Good
Customer Ref No	107	Sample Quantity	2Liters
Sample Name	Well Water -1	Sampled by	Laboratory
Sample Description	Liquid	Sampling Method	GLCS/SOP/W/028
Sample Code	GLCS /229	Sample Receipt Date	04.04.2024
Location Name	Near Project Area	Date of Analysis	04.04.2024
Sampling Date	03.04.2024	Date of Completion	13.04.2024
Location Co-ordinates	12°43'14.14"N 79°43'31.51"		

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Phenolic Compounds	IS 3025 PART 43	mg/l	BDL (DL:0.1)
2	Anionic Detergents	IS 13428 ANNEX K	mg/l	BDL (DL:0.05)
3	Cyanide	IS 3025 PART 27	mg/l	BDL (DL:0.02)
4	Sulphide	GLCS/SOP/W/66	mg/l	BDL (DL:1)
5	Copper as Cu	GLCS/SOP/W/62	mg/l	BDL (DL:0.01)
6	Mercury (Hg)	GLCS/SOP/W/62	mg/l	BDL (DL:0.002)
7	Cadmium as Cd	GLCS/SOP/W/62	mg/l	BDL (DL:0.01)
8	Selenium	GLCS/SOP/W/62	mg/l	BDL (DL:0.002)
9	Aluminium as Al	GLCS/SOP/W/62	mg/l	BDL (DL:0.01)
10	Lead as Pb	GLCS/SOP/W/62	mg/l	BDL (DL:0.01)
11	Zinc as Zn	GLCS/SOP/W/62	mg/l	0.011
12	Chromium	GLCS/SOP/W/62	mg/l	BDL (DL:0.01)
13	Barium as Ba	GLCS/SOP/W/62	mg/l	BDL (DL:0.01)
14	Molybdenum as Mo	GLCS/SOP/W/62	mg/l	BDL (DL:0.01)
15	Arsenic as As	GLCS/SOP/W/62	mg/l	BDL (DL:0.002)
16	Ammonia as NH ₃	IS 3025 PART 34	mg/l	BDL (DL:1.0)

Note : BDL – Below Detection Limit, DL – Detection Limit.

For Global Lab and Consultancy Services LL



*****End of Report*****

Page 1 of 1


Authorised Signatory
L. SUDHAPRIYA
Technical Manager

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TEST REPORT

ULR-TC606024000003762F

Report Number: GLCS/TR/230/2024-25(1)

Report Date: 04.05.2024

Issued To: <i>Thiru .G.Ulaganathan,</i> S/o.Gomathinayagam, No.15/31, Rajaji Street, Radha Nagar, Chromepet, Kancheepuram District.		Site Address: <i>Minor Mineral Rough Stone,</i> Lease Area – 2.39.0 Ha. S.F.No:1/2C,1/3,1/4,1/5 & 16/2A of Sithalapakkam Village, Vembakkam Taluk, Thiruvannamalai District.	
Attention	-	Sample Receipt Condition	Ambient – Good
Customer Ref No	107	Sample Quantity	2Liters
Sample Name	Well Water -2	Sampled by	Laboratory
Sample Description	Liquid	Sampling Method	GLCS/SOP/W/028
Sample Code	GLCS /230	Sample Receipt Date	04.04.2024
Location Name	Mathur	Date of Analysis	04.04.2024
Sampling Date	03.04.2024	Date of Completion	13.04.2024
Location Co-ordinates	12°42'51.70"N 79°40'55.86"E		

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Color	IS 3025 PART 4	Hazen	<5
2	Odor	IS 3025 PART 5	-	Agreeable
3	pH	IS 3025 PART11	-	7.39
4	Electrical Conductivity	IS 3025 PART14	µS/cm	1228
5	Turbidity	IS 3025 PART10	NTU	<1
6	Total Dissolved Solids	IS 3025 PART16	mg/l	725
7	Total Alkalinity as CaCO ₃	IS 3025 PART 23	mg/l	277.38
8	Total Hardness as CaCO ₃	IS 3025 PART 21	mg/l	280
9	Calcium as Ca	IS 3025 PART40	mg/l	62.52



For Global Lab and Consultancy Services LLP


Authorised Signatory

L. SUDHAPRIYA
Technical Manager

Page 1 of 3

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ULR-TC606024000003762F

Report Number: GLCS/TR/230/2024-25(1)

Report Date: 04.05.2024

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
10	Magnesium as Mg	IS 3025 PART 46	mg/l	30.15
11	Chloride as Cl ⁻	IS 3025 PART 32	mg/l	177.94
12	Sulphate as SO ₄ ²⁻	IS 3025 PART 24	mg/l	49.42
13	Iron as Fe	IS 3025 PART 53	mg/l	0.11
14	Boron as B	IS 3025 PART 57	mg/l	BDL (DL:0.1)
15	Free Residual Chlorine as Cl ₂	IS 3025 PART 26	mg/l	BDL (DL:1.0)
16	Fluoride as F	GLCS/SOP/W/015	mg/l	0.19
17	Manganese as Mn	IS 3025 PART 59	mg/l	BDL (DL:0.1)
18	Nitrate as NO ₃	IS 3025 PART 34	mg/l	BDL (DL :2.0)
19	Total Suspended Solids	IS 3025 PART 17	mg/l	BDL (DL:2.0)

Note: BDL – Below Detection Limit, DL – Detection Limit.

For Global Lab and Consultancy Services LLP




Authorised Signatory

L. SUDHAPRIYA
Technical Manager

Page 2 of 3

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Report Date: 04.05.2024

Issued To: <i>Thiru .G.Ulaganathan,</i> <i>S/o.Gomathinayagam,</i> <i>No.15/31, Rajaji Street,</i> <i>Radha Nagar, Chromepet,</i> <i>Kancheepuram District.</i>		Site Address: <i>Minor Mineral Rough Stone,</i> <i>Lease Area – 2.39.0 Ha.</i> <i>S.F.No:1/2C,1/3,1/4,1/5 & 16/2A of</i> <i>Sithalapakkam Village, Vembakkam Taluk,</i> <i>Thiruvannamalai District.</i>	
Attention	-	Sample Receipt Condition	Good
Customer Ref No	107	Sample Quantity	250 ml
Sample Name	Well Water -2	Sampled by	Laboratory
Sample Description	Liquid	Sampling Method	GLCS/M/SOP-05
Sample Code	GLCS /230	Date of Analysis	04.04.2024
Location Name	Mathur	Date of Completion	05.04.2024
Sample Receipt Date	03.04.2024	Location Co-ordinates	12°42'51.70"N 79°40'55.86"E

Sl. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Total Coliforms	IS 15185	Per 100ml	Absent
2	<i>Escherichia coli</i>	IS 15185	Per 100ml	Absent



For Global Lab and Consultancy Services LLP


Authorised Signatory
L. DINESHKUMAR
Technical Manager-Microbiology

*****End of Report*****

Page 3 of 3

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Report Date: 04.05.2024

Issued To: Thiru .G.Ulaganathan, S/o.Gomathinayagam, No.15/31, Rajaji Street, Radha Nagar, Chromepet, Kancheepuram District.		Site Address: Minor Mineral Rough Stone, Lease Area – 2.39.0 Ha. S.F.No:1/2C,1/3,1/4,1/5 & 16/2A of Sithalapakkam Village, Vembakkam Taluk, Thiruvannamalai District.	
Attention	-	Sample Receipt Condition	Ambient – Good
Customer Ref No	107	Sample Quantity	2Liters
Sample Name	Well Water -2	Sampled by	Laboratory
Sample Description	Liquid	Sampling Method	GLCS/SOP/W/028
Sample Code	GLCS /230	Sample Receipt Date	04.04.2024
Location Name	Mathur	Date of Analysis	04.04.2024
Sampling Date	03.04.2024	Date of Completion	13.04.2024
Location Co-ordinates	12°42'51.70"N 79°40'55.86"E		

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Phenolic Compounds	IS 3025 PART 43	mg/l	BDL (DL:0.1)
2	Anionic Detergents	IS 13428 ANNEX K	mg/l	BDL (DL:0.05)
3	Cyanide	IS 3025 PART 27	mg/l	BDL (DL:0.02)
4	Sulphide	GLCS/SOP/W/66	mg/l	BDL (DL:1)
5	Copper as Cu	GLCS/SOP/W/62	mg/l	BDL (DL:0.01)
6	Mercury (Hg)	GLCS/SOP/W/62	mg/l	BDL (DL:0.002)
7	Cadmium as Cd	GLCS/SOP/W/62	mg/l	BDL (DL:0.01)
8	Selenium	GLCS/SOP/W/62	mg/l	BDL (DL:0.002)
9	Aluminium as Al	GLCS/SOP/W/62	mg/l	BDL (DL:0.01)
10	Lead as Pb	GLCS/SOP/W/62	mg/l	BDL (DL:0.01)
11	Zinc as Zn	GLCS/SOP/W/62	mg/l	BDL (DL:0.01)
12	Chromium	GLCS/SOP/W/62	mg/l	BDL (DL:0.01)
13	Barium as Ba	GLCS/SOP/W/62	mg/l	BDL (DL:0.01)
14	Molybdenum as Mo	GLCS/SOP/W/62	mg/l	BDL (DL:0.01)
15	Arsenic as As	GLCS/SOP/W/62	mg/l	BDL (DL:0.002)
16	Ammonia as NH ₃	IS 3025 PART 34	mg/l	BDL (DL:1.0)

Note : BDL – Below Detection Limit, DL – Detection Limit.



For Global Lab and Consultancy Services LLP

*****End of Report*****

Page 1 of 1

Authorised Signatory

L. SUDHAPRIYA

Technical Manager

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TEST REPORT

ULR-TC606024000003763F

Report Number: GLCS/TR/231/2024-25(1)

Report Date: 04.05.2024

Issued To: Thiru .G.Ulaganathan, S/o.Gomathinayagam, No.15/31, Rajaji Street, Radha Nagar, Chromepet, Kancheepuram District.		Site Address: Minor Mineral Rough Stone, Lease Area – 2.39.0 Ha. S.F.No:1/2C,1/3,1/4,1/5 & 16/2A of Sithalapakkam Village, Vembakkam Taluk, Thiruvannamalai District.	
Attention	-	Sample Receipt Condition	Good
TRF No.	107	Sample Quantity	2liters
Sample Name	Borewell Water -1	Sampled by	Laboratory
Sample Description	Liquid	Sampling Method	GLCS/SOP/W/028
Location	Near Crusher		
Sample Code	GLCS /231	Date of Analysis	04.04.2024
Sample Receipt Date	03.04.2024	Date of Completion	13.04.2024
Location Co-ordinates	12°43'26.02"N 79°43'13.19"E		

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Color	IS 3025 PART 4	Hazen	< 5
2	Odor	IS 3025 PART 5	-	Agreeable
3	pH	IS 3025 PART 11	-	7.70
4	Electrical Conductivity	IS 3025 PART 14	µS/cm	1199
5	Turbidity	IS 3025 PART 10	NTU	<1
6	Total Dissolved Solids	IS 3025 PART 16	mg/l	707
7	Total Suspended Solids	IS 3025 PART 17	mg/l	BDL (DL:2)

Note: BDL- Below Detection Limit, DL- Detection Limit.

For Global Lab and Consultancy Services LLP



Page 1 of 3


Authorised Signatory
L. SUDHAPRIYA
 Technical Manager

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TEST REPORT

ULR-TC606024000003763F

Report Number: GLCS/TR/231/2024-25(1)

Report Date: 04.05.2024

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
8	Total Alkalinity	IS 3025 PART 23	mg/l	293.46
9	Total Hardness as CaCO ₃	IS 3025 PART 21	mg/l	272
10	Calcium as Ca	IS 3025 PART 40	mg/l	59.32
11	Magnesium as Mg	IS 3025 PART 46	mg/l	30.15
12	Chloride as Cl ⁻	IS 3025 PART 32	mg/l	143.95
13	Sulphate as SO ₄ ⁻	IS 3025 PART 24	mg/l	27.55
14	Iron as Fe	IS 3025 PART 53	mg/l	BDL (DL:0.1)
15	Boron as B	IS 3025 PART 57	mg/l	BDL (DL:0.1)
16	Free Residual Chlorine as Cl ₂	IS 3025 PART 26	mg/l	BDL (DL:1.0)
17	Fluoride as F	GLCS/SOP/W/015	mg/l	0.21
18	Nitrate as NO ₃	IS 3025 PART 34	mg/l	BDL (DL :2.0)
19	Manganese as Mn	IS 3025 PART 59	mg/l	BDL (DL:0.1)

Note: BDL- Below Detection Limit, DL- Detection Limit

For Global Lab and Consultancy Services LLP



Page 2 of 3

Authorised Signatory

L. SUDHAPRIYA
Technical Manager

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TEST REPORT

ULR-TC606024000003763F

Report Number: GLCS/TR/231/2024-25(1)

Report Date: 04.05.2024

Issued To: <i>Thiru .G.Ulaganathan,</i> <i>S/o.Gomathinayagam,</i> <i>No.15/31, Rajaji Street,</i> <i>Radha Nagar, Chromepet,</i> <i>Kancheepuram District.</i>		Site Address: <i>Minor Mineral Rough Stone,</i> <i>Lease Area – 2.39.0 Ha.</i> <i>S.F.No:1/2C,1/3,1/4,1/5 & 16/2A of</i> <i>Sithalapakkam Village, Vembakkam Taluk,</i> <i>Thiruvannamalai District.</i>	
Attention	-	Sample Receipt Condition	Good
TRF No.	107	Sample Quantity	250 ml
Sample Name	Borewell Water -1	Sampled by	Laboratory
Sample Description	Liquid	Sampling Method	GLCS/M/SOP-05
Sample Code	GLCS /231	Date of Analysis	04.04.2024
Location	Near Crusher	Date of Completion	05.04.2024
Sample Receipt Date	03.04.2024	Location Co-ordinates	12°43'26.02"N 79°43'13.19"E

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Total Coliforms	IS 15185	Per 100ml	Absent
2	<i>Escherichia coli</i>	IS 15185	Per 100ml	Absent



For Global Lab and Consultancy Services LLP


Authorised Signatory
L. DINESHKUMAR
Technical Manager-Microbiology

*****End of Report*****
Page 3 of 3

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TEST REPORT

Report Number: GLCS/TR/231/2024-25(2)

Report Date: 04.05.2024

Issued To: Thiru .G.Ulaganathan, S/o.Gomathinayagam, No.15/31, Rajaji Street, Radha Nagar, Chromepet, Kancheepuram District.		Site Address: Minor Mineral Rough Stone, Lease Area – 2.39.0 Ha. S.F.No:1/2C, 1/3, 1/4, 1/5 & 16/2A of Sithalapakkam Village, Vembakkam Taluk, Thiruvannamalai District.	
Attention	-	Sample Receipt Condition	Good
TRF No.	107	Sample Quantity	2liters
Sample Name	Borewell Water -1	Sampled by	Laboratory
Sample Description	Liquid	Sampling Method	GLCS/SOP/W/028
Location	Near Crusher		
Sample Code	GLCS /231	Date of Analysis	04.04.2024
Sample Receipt Date	03.04.2024	Date of Completion	13.04.2024
Location Co-ordinates	12°43'26.02"N 79°43'13.19"E		

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Arsenic as As	GLCS/SOP/W/62	mg/l	BDL (DL:0.002)
2	Ammonia (NH ₃)	IS 3025 PART 34	mg/l	BDL (DL:1.0)
3	Zinc as Zn	GLCS/SOP/W/62	mg/l	0.011
4	Aluminium as Al	GLCS/SOP/W/62	mg/l	BDL (DL:0.01)
5	Cadmium as Cd	GLCS/SOP/W/62	mg/l	BDL (DL:0.01)
6	Molybdenum as Mo	GLCS/SOP/W/62	mg/l	BDL (DL:0.01)
7	Selenium	GLCS/SOP/W/62	mg/l	BDL (DL:0.002)
8	Lead as Pb	GLCS/SOP/W/62	mg/l	BDL (DL:0.01)

Note : BDL – Below Detection Limit, DL – Detection Limit;

For Global Lab and Consultancy Services LLP



Page 1 of 2

Authorised Signatory

L. SUDHAPRIYA
Technical Manager

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TEST REPORT

ULR-TC606024000003764F

Report Number: GLCS/TR/232/2024-25(1)

Report Date: 04.05.2024

Issued To: Thiru .G.Ulaganathan, S/o.Gomathinayagam, No.15/31, Rajaji Street, Radha Nagar, Chromepet, Kancheepuram District.		Site Address: Minor Mineral Rough Stone, Lease Area – 2.39.0 Ha. S.F.No:1/2C,1/3,1/4,1/5 & 16/2A of Sithalapakkam Village, Vembakkam Taluk, Thiruvannamalai District.	
Attention	-	Sample Receipt Condition	Good
TRF No.	107	Sample Quantity	2liters
Sample Name	Borewell Water - 2	Sampled by	Laboratory
Sample Description	Liquid	Sampling Method	GLCS/SOP/W/028
Location	Manalmedu		
Sample Code	GLCS /232	Date of Analysis	04.04.2024
Sample Receipt Date	03.04.2024	Date of Completion	13.04.2024
Location Co-ordinates	12°41'24.74"N 79°45'41.63"E		

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Color	IS 3025 PART 4	Hazen	< 5
2	Odor	IS 3025 PART 5	-	Agreeable
3	pH	IS 3025 PART 11	-	7.91
4	Electrical Conductivity	IS 3025 PART 14	µS/cm	1177
5	Turbidity	IS 3025 PART 10	NTU	<1
6	Total Dissolved Solids	IS 3025 PART 16	mg/l	694
7	Total Suspended Solids	IS 3025 PART 17	mg/l	BDL (DL:2)

Note: BDL- Below Detection Limit, DL- Detection Limit.

For Global Lab and Consultancy Services LLP



Page 1 of 3


Authorised Signatory
L. SUDHAPRIYA
 Technical Manager

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TEST REPORT

ULR-TC606024000003764F

Report Number: GLCS/TR/232/2024-25(1)

Report Date: 04.05.2024

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
8	Total Alkalinity	IS 3025 PART 23	mg/l	285.4
9	Total Hardness as CaCO ₃	IS 3025 PART 21	mg/l	296
10	Calcium as Ca	IS 3025 PART 40	mg/l	65.73
11	Magnesium as Mg	IS 3025 PART 46	mg/l	32.10
12	Chloride as Cl ⁻	IS 3025 PART 32	mg/l	149.95
13	Sulphate as SO ₄ ⁻	IS 3025 PART 24	mg/l	22.75
14	Iron as Fe	IS 3025 PART 53	mg/l	BDL (DL:0.1)
15	Boron as B	IS 3025 PART 57	mg/l	BDL (DL:0.1)
16	Free Residual Chlorine as Cl ₂	IS 3025 PART 26	mg/l	BDL (DL:1.0)
17	Fluoride as F	GLCS/SOP/W/015	mg/l	0.15
18	Nitrate as NO ₃	IS 3025 PART 34	mg/l	BDL (DL :2.0)
19	Manganese as Mn	IS 3025 PART 59	mg/l	BDL (DL:0.1)

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For Global Lab and Consultancy Services LLP



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L. SUDHAPRIYA
Technical Manager

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205 A



TEST REPORT

ULR-TC606024000003764F

Report Number: GLCS/TR/232/2024-25(1)

Report Date: 04.05.2024

Issued To: Thiru .G.Ulaganathan, S/o.Gomathinayagam, No.15/31, Rajaji Street, Radha Nagar, Chromepet, Kancheepuram District.		Site Address: Minor Mineral Rough Stone, Lease Area – 2.39.0 Ha. S.F.No:1/2C,1/3,1/4,1/5 & 16/2A of Sithalapakkam Village, Vembakkam Taluk, Thiruvannamalai District.	
Attention	-	Sample Receipt Condition	Good
TRF No.	107	Sample Quantity	250 ml
Sample Name	Borewell Water - 2	Sampled by	Laboratory
Sample Description	Liquid	Sampling Method	GLCS/M/SOP-05
Sample Code	GLCS /232	Date of Analysis	04.04.2024
Sample Receipt Date	03.04.2024	Date of Completion	05.04.2024
Location	Manalmedu	Location Co-ordinates	12°41'24.74"N 79°45'41.63"E

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Total Coliforms	IS 15185	Per 100ml	Absent
2	Escherichia coli	IS 15185	Per 100ml	Absent



For Global Lab and Consultancy Services LLP


Authorised Signatory
L. DINESHKUMAR
Technical Manager-Microbiology

*****End of Report*****

Page 3 of 3

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Attention	-	Sample Receipt Condition	Good
TRF No.	107	Sample Quantity	2liters
Sample Name	Borewell Water - 2	Sampled by	Laboratory
Sample Description	Liquid	Sampling Method	GLCS/SOP/W/028
Location	Manalmedu	Date of Analysis	04.04.2024
Sample Code	GLCS /232	Date of Completion	13.04.2024
Sample Receipt Date	-		
Location Co-ordinates	12°41'24.74"N 79°45'41.63"E		

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Arsenic as As	GLCS/SOP/W/62	mg/l	BDL (DL:0.002)
2	Ammonia (NH ₃)	IS 3025 PART 34	mg/l	BDL (DL:1.0)
3	Zinc as Zn	GLCS/SOP/W/62	mg/l	BDL (DL:0.01)
4	Aluminium as Al	GLCS/SOP/W/62	mg/l	BDL (DL:0.01)
5	Cadmium as Cd	GLCS/SOP/W/62	mg/l	BDL (DL:0.01)
6	Molybdenum as Mo	GLCS/SOP/W/62	mg/l	BDL (DL:0.01)
7	Selenium	GLCS/SOP/W/62	mg/l	BDL (DL:0.002)
8	Lead as Pb	GLCS/SOP/W/62	mg/l	BDL (DL:0.01)

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For Global Lab and Consultancy Services LLP



Page 1 of 2

L. Sudhapriya
Authorised Signatory
L. SUDHAPRIYA
Technical Manager

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TEST REPORT

Report Number: GLCS/TR/232/2024-25(2)

Report Date: 04.05.2024

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
9	Barium as Ba	GLCS/SOP/W/62	mg/l	BDL (DL:0.01)
10	Anionic Detergents	IS 13428 ANNEX K	mg/l	BDL (DL:0.05)
11	Cyanide	IS 3025 PART 27	mg/l	BDL (DL:0.02)
12	Phenolic Compounds	IS 3025 PART 43	mg/l	BDQ(DL:0.1)
13	Chromium	GLCS/SOP/W/62	mg/l	BDL (DL:0.01)
14	Sulphide	GLCS/SOP/W/66	mg/l	BDL (DL:1.0)
15	Copper as Cu	GLCS/SOP/W/62	mg/l	BDL (DL:0.01)
16	Mercury as Hg	GLCS/SOP/W/62	mg/l	BDL (DL:0.002)

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Authorised Signatory

L. SUDHAPRIYA
Technical Manager

*****End of Report*****

Page 2 of 2

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TEST REPORT

ULR-TC606024000003779F

Report Number: GLCS/TR/233/2024-25(1)

Report Date: 06.05.2024

Issued To: Thiru .G.Ulaganathan, S/o.Gomathinayagam, No.15/31, Rajaji Street, Radha Nagar, Chromepet, Kancheepuram District.		Site Address: Minor Mineral Rough Stone, Lease Area – 2.39.0 Ha. S.F.No:1/2C,1/3,1/4,1/5 & 16/2A of Sithalapakkam Village, Vembakkam Taluk, Thiruvannamalai District.	
Attention	-	Sample Receipt Condition	Ambient – Good
TRF No	107	Sample Quantity	2 kg
Sample Name	Soil - 1	Sampled by	Laboratory
Sample Description	Lumps	Sampling Method	GLCS/SOP/S/014
Location Name	S-1 Core Zone	Date of Analysis	05.04.2024
Sampling Date	02.04.2024 - 03.04.2024	Date of Completion	13.04.2024
Sample Receipt Date	04.04.2024	Location Co-ordinates	12°43'20.49"N 79°43'25.21"E
Sample Code	GLCS / 233		

Sl. No	TEST PARAMETERS	TEST METHOD	UNITS	RESULTS
1	Organic Matter	GLCS/SOP/S/003	%	1.09
2	pH	IS 2720 PART 26	-	8.04
3	Specific Electrical Conductivity	IS 14767	µS/cm	495
4	Available Phosphorous	GLCS/SOP/S/005	mg/kg	19.6
5	Soluble Potassium (as K) in saturation extract	GLCS/SOP/S/006	mg/100g	1.34
6	Exchangeable Calcium (as Ca)	GLCS/SOP/S/020	meq/100g	3.7

For Global Lab and Consultancy Services LLP



Page 1 of 2


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Technical Manager

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ULR-TC606024000003779F

Report Number: GLCS/TR/233/2024-25(1)

Report Date: 06.05.2024

SI. NO.	TEST PARAMETER	TEST METHOD	UNITS	RESULTS	
7	Exchangeable Magnesium (as Mg)	GLCS/SOP/S/021	meq/100g	2.2	
8	Sulphate as SO ₄	GLCS/SOP/S/009	mg/100g	1.29	
9	Cation Exchange Capacity	GLCS/SOP/S/024	meq/100g	19.2	
10	Bulk Density	GLCS/SOP/S/017	g/cc	1.041	
11	Texture	Sand	GLCS/SOP/S/015	%	33.61
12		Slit	GLCS/SOP/S/015	%	42.42
13		Clay	GLCS/SOP/S/015	%	23.96
14	Water Holding Capacity	GLCS/SOP/S/016	%	50.8	
15	Available Nitrogen as N	GLCS/SOP/S/029	Kg/ha	464.128	
16	Chloride (as Cl) in saturation extract	GLCS/SOP/S/004	meq/l	3.1	

For Global Lab and Consultancy Services LLP



*****End of Report*****
Page 2 of 2


Authorised Signatory
L. SUDHAPRIYA
Technical Manager

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TEST REPORT

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Attention	-	Sample Receipt Condition	Ambient – Good
TRF No	107	Sample Quantity	2 kg
Sample Name	Soil - 1	Sampled by	Laboratory
Sample Description	Lumps	Sampling Method	GLCS/SOP/S/014
Location Name	S-1 Core Zone	Date of Analysis	05.04.2024
Sampling Date	02.04.2024 - 03.04.2024	Date of Completion	13.04.2024
Sample Receipt Date	04.04.2024	Location Co-ordinates	12°43'20.49"N 79°43'25.21"E
Sample Code	GLCS / 223		

Sl. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Permiability	By Permeameter	%	48.5
2	Manganese as Mn	USEPA 6010D	mg/kg	16.47
3	Zinc as Zn	USEPA 6010D	mg/kg	11.48
4	Cadmium as Cd	USEPA 6010D	mg/kg	3.49
5	Chromium as Cr	USEPA 6010D	mg/kg	6.49
6	Copper as Cu	USEPA 6010D	mg/kg	2.00
7	Lead as Pb	USEPA 6010D	mg/kg	0.75
8	Iron as Fe	USEPA 6010D	mg/kg	11.23
9	Organic Carbon	GLCS/SOP/S/003	%	0.63
10	Boron as B	USEPA 6010D	mg/kg	1.0

For Global Lab and Consultancy Services LLP



*****End of Report*****

Page 1 of 1

Authorised Signatory

L. SUDHAPRIYA
Technical Manager

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TEST REPORT

ULR-TC606024000003780F

Report Number: GLCS/TR/234/2024-25(1)

Report Date: 06.05.2024

Issued To: Thiru .G.Ulaganathan, S/o.Gomathinayagam, No.15/31, Rajaji Street, Radha Nagar, Chromepet, Kancheepuram District.		Site Address: Minor Mineral Rough Stone, Lease Area – 2.39.0 Ha. S.F.No:1/2C,1/3,1/4,1/5 & 16/2A of Sithalapakkam Village, Vembakkam Taluk, Thiruvannamalai District.	
Attention	-	Sample Receipt Condition	Ambient – Good
TRF No	107	Sample Quantity	2 kg
Sample Name	Soil - 2	Sampled by	Laboratory
Sample Description	Lumps	Sampling Method	GLCS/SOP/S/014
Location Name	S-2 Near Existing Quarry	Date of Analysis	05.04.2024
Sampling Date	02.04.2024 - 03.04.2024	Date of Completion	13.04.2024
Sample Receipt Date	04.04.2024	Location Co-ordinates	12°43'7.99"N 79°43'20.60"E
Sample Code	GLCS / 234		

Sl. No	TEST PARAMETERS	TEST METHOD	UNITS	RESULTS
1	Organic Matter	GLCS/SOP/S/003	%	1.38
2	pH	IS 2720 PART 26	-	8.56
3	Specific Electrical Conductivity	IS 14767	µS/cm	525
4	Available Phosphorous	GLCS/SOP/S/005	mg/kg	17.8
5	Soluble Potassium (as K) in saturation extract	GLCS/SOP/S/006	mg/100g	1.15
6	Exchangeable Calcium (as Ca)	GLCS/SOP/S/020	meq/100g	2.9

For Global Lab and Consultancy Services LLP



*****End of Report*****

Page 1 of 1

Authorised Signatory

L. SUDHAPRIYA
Technical Manager

Note: The test results are only to the sample submitted for test. Any Correction of the test report on full or part shall invalidate the report. Samples are not drawn by us unless otherwise stated. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. Perishable samples will be discarded immediately after reporting. We do not accept any liability with regard to origin or source from which the samples are extracted. The Laboratory is not responsible for authenticity of photocopied test reports. Any holder of this report is advised that information contained here on reflects the laboratory's finding at the time of its intervention only and within the limits of client instructions. The authenticity of the test report's issued by us can be verified by submitting on E-mail request with report number and report date along with report copy.



TEST REPORT

ULR-TC606024000003780F

Report Number: GLCS/TR/234/2024-25(1)

Report Date: 06.05.2024

SI. NO.	TEST PARAMETER	TEST METHOD	UNITS	RESULTS	
7	Exchangeable Magnesium (as Mg)	GLCS/SOP/S/021	meq/100g	1.6	
8	Sulphate as SO ₄	GLCS/SOP/S/009	mg/100g	1.44	
9	Cation Exchange Capacity	GLCS/SOP/S/024	meq/100g	18.3	
10	Bulk Density	GLCS/SOP/S/017	g/cc	1.025	
11	Texture	Sand	GLCS/SOP/S/015	%	32.08
12		Silt	GLCS/SOP/S/015	%	43.29
13		Clay	GLCS/SOP/S/015	%	24.64
14	Water Holding Capacity	GLCS/SOP/S/016	%	51.8	
15	Available Nitrogen as N	GLCS/SOP/S/029	Kg/ha	388.864	
16	Chloride (as Cl) in saturation extract	GLCS/SOP/S/004	meq/l	3.5	

For Global Lab and Consultancy Services LLP



*****End of Report*****

Page 2 of 2


Authorised Signatory
L. SUDHAPRIYA
Technical Manager

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TEST REPORT

Report Number: GLCS/TR/234/2024-25(2)

Report Date: 06.05.2024

Issued To: Thiru .G.Ulaganathan, S/o.Gomathinayagam, No.15/31, Rajaji Street, Radha Nagar, Chromepet, Kancheepuram District.		Site Address: Minor Mineral Rough Stone, Lease Area – 2.39.0 Ha. S.F.No:1/2C,1/3,1/4,1/5 & 16/2A of Sithalapakkam Village, Vembakkam Taluk, Thiruvannamalai District.	
Attention	-	Sample Receipt Condition	Ambient – Good
TRF No	107	Sample Quantity	2 kg
Sample Name	Soil - 2	Sampled by	Laboratory
Sample Description	Lumps	Sampling Method	GLCS/SOP/S/014
Location Name	S-2 Near Existing Quarry	Date of Analysis	05.04.2024
Sampling Date	02.04.2024 - 03.04.2024	Date of Completion	13.04.2024
Sample Receipt Date	04.04.2024	Location Co-ordinates	12°43'7.99"N 79°43'20.60"E
Sample Code	GLCS / 234		

SI. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Permiability	By Permeameter	%	50.5
2	Manganese as Mn	USEPA 6010D	mg/kg	23.84
3	Zinc as Zn	USEPA 6010D	mg/kg	16.73
4	Cadmium as Cd	USEPA 6010D	mg/kg	2.93
5	Chromium as Cr	USEPA 6010D	mg/kg	5.02
6	Copper as Cu	USEPA 6010D	mg/kg	2.09
7	Lead as Pb	USEPA 6010D	mg/kg	2.51
8	Iron as Fe	USEPA 6010D	mg/kg	27.60
9	Organic Carbon	GLCS/SOP/S/003	%	0.80
10	Boron as B	USEPA 6010D	mg/kg	2.93

For Global Lab and Consultancy Services LLP



*****End of Report*****

Page 1 of 1

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L. SUDHAPRIYA
Technical Manager

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TEST REPORT

ULR-TC606024000003781F

Report Number: GLCS/TR/235/2024-25(1)

Report Date: 06.05.2024

Issued To: Thiru .G.Ulaganathan, S/o.Gomathinayagam, No.15/31, Rajaji Street, Radha Nagar, Chromepet, Kancheepuram District.		Site Address: Minor Mineral Rough Stone, Lease Area – 2.39.0 Ha. S.F.No:1/2C,1/3,1/4,1/5 & 16/2A of Sithalapakkam Village, Vembakkam Taluk, Thiruvannamalai District.	
Attention	-	Sample Receipt Condition	Ambient – Good
TRF No	107	Sample Quantity	2 kg
Sample Name	Soil - 3	Sampled by	Laboratory
Sample Description	Lumps	Sampling Method	GLCS/SOP/S/014
Location Name	S-3 Manalmedu	Date of Analysis	05.04.2024
Sampling Date	02.04.2024 - 03.04.2024	Date of Completion	13.04.2024
Sample Receipt Date	04.04.2024	Location Co-ordinates	12°41'24.64"N 79°45'39.26"E
Sample Code	GLCS / 235		

Sl. No	TEST PARAMETERS	TEST METHOD	UNITS	RESULTS
1	Organic Matter	GLCS/SOP/S/003	%	0.86
2	pH	IS 2720 PART 26	-	8.84
3	Specific Electrical Conductivity	IS 14767	µS/cm	440
4	Available Phosphorous	GLCS/SOP/S/005	mg/kg	16.5
5	Soluble Potassium (as K) in saturation extract	GLCS/SOP/S/006	mg/100g	1.05
6	Exchangeable Calcium (as Ca)	GLCS/SOP/S/020	meq/100g	3.0

For Global Lab and Consultancy Services LLP



Page 1 of 2


Authorised Signatory
L. SUDHAPRIYA
 Technical Manager

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TEST REPORT

ULR-TC606024000003781F

Report Number: GLCS/TR/235/2024-25(1)

Report Date: 06.05.2024

Sl. NO.	TEST PARAMETER	TEST METHOD	UNITS	RESULTS	
7	Exchangeable Magnesium (as Mg)	GLCS/SOP/S/021	meq/100g	2.6	
8	Sulphate as SO ₄	GLCS/SOP/S/009	mg/100g	1.76	
9	Cation Exchange Capacity	GLCS/SOP/S/024	meq/100g	17.2	
10	Bulk Density	GLCS/SOP/S/017	g/cc	1.048	
11	Texture	Sand	GLCS/SOP/S/015	%	33.45
12		Slit	GLCS/SOP/S/015	%	43.41
13		Clay	GLCS/SOP/S/015	%	23.14
14	Water Holding Capacity	GLCS/SOP/S/016	%	50.2	
15	Available Nitrogen as N	GLCS/SOP/S/029	Kg/ha	363.77	
16	Chloride (as Cl) in saturation extract	GLCS/SOP/S/004	meq/l	2.8	

For Global Lab and Consultancy Services LLP



*****End of Report*****

Page 2 of 2



Authorised Signatory

L. SUDHAPRIYA

Technical Manager

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TEST REPORT

Report Number: GLCS/TR/235/2024-25(2)

Report Date: 06.05.2024

Issued To: Thiru .G.Ulaganathan, S/o.Gomathinayagam, No.15/31, Rajaji Street, Radha Nagar, Chromepet, Kancheepuram District.		Site Address: Minor Mineral Rough Stone, Lease Area – 2.39.0 Ha. S.F.No:1/2C, 1/3, 1/4, 1/5 & 16/2A of Sithalapakkam Village, Vembakkam Taluk, Thiruvannamalai District.	
Attention	-	Sample Receipt Condition	Ambient – Good
TRF No	107	Sample Quantity	2 kg
Sample Name	Soil - 3	Sampled by	Laboratory
Sample Description	Lumps	Sampling Method	GLCS/SOP/S/014
Location Name	S-3 Manalmedu	Date of Analysis	05.04.2024
Sampling Date	02.04.2024 - 03.04.2024	Date of Completion	13.04.2024
Sample Receipt Date	04.04.2024	Location Co-ordinates	12°41'24.64"N 79°45'39.26"E
Sample Code	GLCS / 235		

Sl. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Permiability	By Permeameter	%	49.6
2	Manganese as Mn	USEPA 6010D	mg/kg	17.73
3	Zinc as Zn	USEPA 6010D	mg/kg	8.74
4	Cadmium as Cd	USEPA 6010D	mg/kg	BDL (DL:0.5)
5	Chromium as Cr	USEPA 6010D	mg/kg	4.25
6	Copper as Cu	USEPA 6010D	mg/kg	1.75
7	Lead as Pb	USEPA 6010D	mg/kg	0.75
8	Iron as Fe	USEPA 6010D	mg/kg	13.74
9	Organic Carbon	GLCS/SOP/S/003	%	0.56
10	Boron as B	USEPA 6010D	mg/kg	1.25

NOTE: BDL- Below Detection Limit; DL- Detection Limit

For Global Lab and Consultancy Services LLP



*****End of Report*****

Page 1 of 1

(Signature)
Authorised Signatory
L. SUDHAPRIYA
 Technical Manager

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TEST REPORT

ULR-TC606024000003782F

Report Number: GLCS/TR/236/2024-25(1)

Report Date: 06.05.2024

Issued To: <i>Thiru .G.Ulaganathan,</i> S/o.Gomathinayagam, No.15/31, Rajaji Street, Radha Nagar, Chromepet, Kancheepuram District.		Site Address: <i>Minor Mineral Rough Stone,</i> Lease Area – 2.39.0 Ha. S.F.No:1/2C,1/3,1/4,1/5 & 16/2A of Sithalapakkam Village, Vembakkam Taluk, Thiruvannamalai District.	
Attention	-	Sample Receipt Condition	Ambient – Good
TRF No	107	Sample Quantity	2 kg
Sample Name	Soil - 4	Sampled by	Laboratory
Sample Description	Lumps	Sampling Method	GLCS/SOP/S/014
Location Name	S-4 Nathakollai	Date of Analysis	05.04.2024
Sampling Date	02.04.2024 - 03.04.2024	Date of Completion	18.04.2024
Sample Receipt Date	04.04.2024	Location Co-ordinates	12°46'2.56"N 79°41'41.60"E
Sample Code	GLCS / 236		

Sl. No	TEST PARAMETERS	TEST METHOD	UNITS	RESULTS
1	Organic Matter	GLCS/SOP/S/003	%	1.66
2	pH	IS 2720 PART 26	-	8.70
3	Specific Electrical Conductivity	IS 14767	µS/cm	550
4	Available Phosphorous	GLCS/SOP/S/005	mg/kg	15.8
5	Soluble Potassium (as K) in saturation extract	GLCS/SOP/S/006	mg/100g	1.28
6	Exchangeable Calcium (as Ca)	GLCS/SOP/S/020	meq/100g	3.8

For Global Lab and Consultancy Services LLP



Page 1 of 2


Authorised Signatory
L. SUDHAPRIYA
Technical Manager

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TEST REPORT

ULR-TC606024000003782F

Report Number: GLCS/TR/236/2024-25(1)

Report Date: 06.05.2024

SI. NO.	TEST PARAMETER	TEST METHOD	UNITS	RESULTS	
7	Exchangeable Magnesium (as Mg)	GLCS/SOP/S/021	meq/100g	2.3	
8	Sulphate as SO ₄	GLCS/SOP/S/009	mg/100g	1.84	
9	Cation Exchange Capacity	GLCS/SOP/S/024	meq/100g	18.9	
10	Bulk Density	GLCS/SOP/S/017	g/cc	1.033	
11	Texture	Sand	GLCS/SOP/S/015	%	30.37
12		Slit	GLCS/SOP/S/015	%	46.86
13		Clay	GLCS/SOP/S/015	%	22.76
14	Water Holding Capacity	GLCS/SOP/S/016	%	50.8	
15	Available Nitrogen as N	GLCS/SOP/S/029	Kg/ha	526.84	
16	Chloride (as Cl) in saturation extract	GLCS/SOP/S/004	meq/l	3.8	

For Global Lab and Consultancy Services LLP



*****End of Report*****

Page 2 of 2


Authorised Signatory
L. SUDHAPRIYA
Technical Manager

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TEST REPORT

Report Number: GLCS/TR/236/2024-25(2)

Report Date: 06.05.2024

Issued To: Thiru .G.Ulaganathan, S/o.Gomathinayagam, No.15/31, Rajaji Street, Radha Nagar, Chromepet, Kancheepuram District.		Site Address: Minor Mineral Rough Stone, Lease Area – 2.39.0 Ha. S.F.No:1/2C,1/3,1/4,1/5 & 16/2A of Sithalapakkam Village, Vembakkam Taluk, Thiruvannamalai District.	
Attention	-	Sample Receipt Condition	Ambient – Good
TRF No	107	Sample Quantity	2 kg
Sample Name	Soil - 4	Sampled by	Laboratory
Sample Description	Lumps	Sampling Method	GLCS/SOP/S/014
Location Name	S-4 Nathakollai	Date of Analysis	05.04.2024
Sampling Date	02.04.2024 - 03.04.2024	Date of Completion	18.04.2024
Sample Receipt Date	04.04.2024	Location Co-ordinates	12°46'2.56"N 79°41'41.60"E
Sample Code	GLCS / 236		

Sl. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Permiability	By Permeameter	%	50.3
2	Manganese as Mn	USEPA 6010D	mg/kg	12.68
3	Zinc as Zn	USEPA 6010D	mg/kg	7.21
4	Cadmium as Cd	USEPA 6010D	mg/kg	1.49
5	Chromium as Cr	USEPA 6010D	mg/kg	7.46
6	Copper as Cu	USEPA 6010D	mg/kg	0.75
7	Lead as Pb	USEPA 6010D	mg/kg	1.24
8	Iron as Fe	USEPA 6010D	mg/kg	11.94
9	Organic Carbon	GLCS/SOP/S/003	%	0.96
10	Boron as B	USEPA 6010D	mg/kg	0.75

For Global Lab and Consultancy Services LLP



*****End of Report*****

Page 1 of 1

(Signature)
Authorised Signatory
L. SUDHAPRIYA
 Technical Manager

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TEST REPORT

ULR-TC606024000003783F

Report Number: GLCS/TR/237/2024-25(1)

Report Date: 06.05.2024

Issued To: Thiru .G.Ulaganathan, S/o.Gomathinayagam, No.15/31, Rajaji Street, Radha Nagar, Chromepet, Kancheepuram District.		Site Address: Minor Mineral Rough Stone, Lease Area – 2.39.0 Ha. S.F.No:1/2C,1/3,1/4,1/5 & 16/2A of Sithalapakkam Village, Vembakkam Taluk, Thiruvannamalai District.	
Attention	-	Sample Receipt Condition	Ambient – Good
TRF No	107	Sample Quantity	2 kg
Sample Name	Soil - 5	Sampled by	Laboratory
Sample Description	Lumps	Sampling Method	GLCS/SOP/S/014
Location Name	S-5 Arpakkam	Date of Analysis	05.04.2024
Sampling Date	02.04.2024 - 03.04.2024	Date of Completion	18.04.2024
Sample Receipt Date	04.04.2024	Location Co-ordinates	12°44'4.66"N 79°45'38.45"E
Sample Code	GLCS / 237		

Sl. No	TEST PARAMETERS	TEST METHOD	UNITS	RESULTS
1	Organic Matter	GLCS/SOP/S/003	%	1.50
2	pH	IS 2720 PART 26	-	8.68
3	Specific Electrical Conductivity	IS 14767	µS/cm	374
4	Available Phosphorous	GLCS/SOP/S/005	mg/kg	19.5
5	Soluble Potassium (as K) in saturation extract	GLCS/SOP/S/006	mg/100g	1.00
6	Exchangeable Calcium (as Ca)	GLCS/SOP/S/020	meq/100g	3.7

For Global Lab and Consultancy Services LLP



Page 1 of 2


Authorised Signatory
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Technical Manager

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ULR-TC606024000003783F

Report Number: GLCS/TR/237/2024-25(1)

Report Date: 06.05.2024

SI. NO.	TEST PARAMETER	TEST METHOD	UNITS	RESULTS
7	Exchangeable Magnesium (as Mg)	GLCS/SOP/S/021	meq/100g	2.7
8	Sulphate as SO ₄	GLCS/SOP/S/009	mg/100g	2.78
9	Cation Exchange Capacity	GLCS/SOP/S/024	meq/100g	17.4
10	Bulk Density	GLCS/SOP/S/017	g/cc	1.01
11	Texture	Sand	%	33.69
12		Silt	%	42.30
13		Clay	%	24.01
14	Water Holding Capacity	GLCS/SOP/S/016	%	52.2
15	Available Nitrogen as N	GLCS/SOP/S/029	Kg/ha	313.6
16	Chloride (as Cl) in saturation extract	GLCS/SOP/S/004	meq/l	4.4

For Global Lab and Consultancy Services LLP



*****End of Report*****

Page 2 of 2


Authorised Signatory
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TEST REPORT

Report Number: GLCS/TR/237/2024-25(2)

Report Date: 06.05.2024

Issued To: Thiru .G.Ulaganathan, S/o.Gomathinayagam, No.15/31, Rajaji Street, Radha Nagar, Chromepet, Kancheepuram District.		Site Address: Minor Mineral Rough Stone, Lease Area – 2.39.0 Ha. S.F.No:1/2C,1/3,1/4,1/5 & 16/2A of Sithalapakkam Village, Vembakkam Taluk, Thiruvannamalai District.	
Attention	-	Sample Receipt Condition	Ambient – Good
TRF No	107	Sample Quantity	2 kg
Sample Name	Soil - 5	Sampled by	Laboratory
Sample Description	Lumps	Sampling Method	GLCS/SOP/S/014
Location Name	S-5 Arpakkam	Date of Analysis	05.04.2024
Sampling Date	02.04.2024 - 03.04.2024	Date of Completion	18.04.2024
Sample Receipt Date	04.04.2024	Location Co-ordinates	12°44'4.66"N 79°45'38.45"E
Sample Code	GLCS / 237		

Sl. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Permiability	By Permeameter	%	47.5
2	Manganese as Mn	USEPA 6010D	mg/kg	9.01
3	Zinc as Zn	USEPA 6010D	mg/kg	8.19
4	Cadmium as Cd	USEPA 6010D	mg/kg	2.46
5	Chromium as Cr	USEPA 6010D	mg/kg	2.46
6	Copper as Cu	USEPA 6010D	mg/kg	2.25
7	Lead as Pb	USEPA 6010D	mg/kg	BDL(DL:0.5)
8	Iron as Fe	USEPA 6010D	mg/kg	14.54
9	Organic Carbon	GLCS/SOP/S/003	%	0.87
10	Boron as B	USEPA 6010D	mg/kg	1.64

NOTE: BDL- Below Detection Limit; DL- Detection Limit

For Global Lab and Consultancy Services LLP



*****End of Report*****

Page 1 of 1

Authorised Signatory
L. SUDHAPRIYA
Technical Manager

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TEST REPORT

ULR-TC606024000003784F

Report Number: GLCS/TR/238/2024-25(1)

Report Date: 06.05.2024

Issued To: Thiru .G.Ulaganathan, S/o.Gomathinayagam, No.15/31, Rajaji Street, Radha Nagar, Chromepet, Kancheepuram District.		Site Address: Minor Mineral Rough Stone, Lease Area – 2.39.0 Ha. S.F.No:1/2C,1/3,1/4,1/5 & 16/2A of Sithalapakkam Village, Vembakkam Taluk, Thiruvannamalai District.	
Attention	-	Sample Receipt Condition	Ambient – Good
TRF No	107	Sample Quantity	2 kg
Sample Name	Soil - 6	Sampled by	Laboratory
Sample Description	Lumps	Sampling Method	GLCS/SOP/S/014
Location Name	S-6 Mathur	Date of Analysis	05.04.2024
Sampling Date	02.04.2024 - 03.04.2024	Date of Completion	18.04.2024
Sample Receipt Date	04.04.2024	Location Co-ordinates	12°42'52.98"N 79°40'53.68"E
Sample Code	GLCS / 238		

Sl. No	TEST PARAMETERS	TEST METHOD	UNITS	RESULTS
1	Organic Matter	GLCS/SOP/S/003	%	1.15
2	pH	IS 2720 PART 26	-	8.55
3	Specific Electrical Conductivity	IS 14767	µS/cm	360
4	Available Phosphorous	GLCS/SOP/S/005	mg/kg	16.5
5	Soluble Potassium (as K) in saturation extract	GLCS/SOP/S/006	mg/100g	1.13
6	Exchangeable Calcium (as Ca)	GLCS/SOP/S/020	meq/100g	4.1

For Global Lab and Consultancy Services LLP



Page 1 of 2


Authorised Signatory
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TEST REPORT

ULR-TC606024000003784F

Report Number: GLCS/TR/238/2024-25(1)

Report Date: 06.05.2024

SI. NO.	TEST PARAMETER	TEST METHOD	UNITS	RESULTS	
7	Exchangeable Magnesium (as Mg)	GLCS/SOP/S/021	meq/100g	2.6	
8	Sulphate as SO ₄	GLCS/SOP/S/009	mg/100g	1.73	
9	Cation Exchange Capacity	GLCS/SOP/S/024	meq/100g	16.9	
10	Bulk Density	GLCS/SOP/S/017	g/cc	1.00	
11	Texture	Sand	GLCS/SOP/S/015	%	35.86
12		Silt	GLCS/SOP/S/015	%	40.41
13		Clay	GLCS/SOP/S/015	%	23.73
14	Water Holding Capacity	GLCS/SOP/S/016	%	52.8	
15	Available Nitrogen as N	GLCS/SOP/S/029	Kg/ha	338.68	
16	Chloride (as Cl) in saturation extract	GLCS/SOP/S/004	meq/l	3.2	

For Global Lab and Consultancy Services LLP



*****End of Report*****

Page 2 of 2


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TEST REPORT

Report Number: GLCS/TR/238/2024-25(2)

Report Date: 06.05.2024

Issued To: Thiru .G.Ulaganathan, S/o.Gomathinayagam, No.15/31, Rajaji Street, Radha Nagar, Chromepet, Kancheepuram District.		Site Address: Minor Mineral Rough Stone, Lease Area – 2.39.0 Ha. S.F.No:1/2C,1/3,1/4,1/5 & 16/2A of Sithalapakkam Village, Vembakkam Taluk, Thiruvannamalai District.	
Attention	-	Sample Receipt Condition	Ambient – Good
TRF No	107	Sample Quantity	2 kg
Sample Name	Soil - 6	Sampled by	Laboratory
Sample Description	Lumps	Sampling Method	GLCS/SOP/S/014
Location Name	S-6 Mathur	Date of Analysis	05.04.2024
Sampling Date	02.04.2024 - 03.04.2024	Date of Completion	18.04.2024
Sample Receipt Date	04.04.2024	Location Co-ordinates	12°42'52.98"N 79°40'53.68"E
Sample Code	GLCS / 238		

SI. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Permiability	By Permeameter	%	46.3
2	Manganese as Mn	USEPA 6010D	mg/kg	28.57
3	Zinc as Zn	USEPA 6010D	mg/kg	19.91
4	Cadmium as Cd	USEPA 6010D	mg/kg	3.03
5	Chromium as Cr	USEPA 6010D	mg/kg	10.82
6	Copper as Cu	USEPA 6010D	mg/kg	7.36
7	Lead as Pb	USEPA 6010D	mg/kg	BDL(DL:0.5)
8	Iron as Fe	USEPA 6010D	mg/kg	32.47
9	Organic Carbon	GLCS/SOP/S/003	%	0.67
10	Boron as B	USEPA Method	mg/kg	0.87

NOTE: BDL- Below Detection Limit; DL- Detection Limit

For Global Lab and Consultancy Services LLP



*****End of Report*****

Page 1 of 1

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TEST REPORT

ULR-TC606024000004139F

Report Number: GLCS/TR/908/2024-25

Report Date: 21.05.2024

Issued To: Thiru .G.Ulaganathan, S/o.Gomathinayagam, No.15/31, Rajaji Street, Radha Nagar, Chromepet, Kancheepuram District.		Site Address: Minor Mineral Rough Stone, Lease Area – 2.39.0 Ha. S.F.No:1/2C, 1/3, 1/4, 1/5 & 16/2A of Sithalapakkam Village, Vembakkam Taluk, Thiruvannamalai District.		
Attention	-	Sampling Condition	Good - Active	
TRF No	405	Sampled by	Laboratory	
Sample Name	Noise Level Monitoring	Sampling Method	GLCS/SOP/N/014	
Sample Description	Ambient Noise	Sample Code	GLCS/908	
Sampling Time	Every 60 minutes	Sample Receipt Date	30.04.2024	
Sampling Date	29.04.2024 -30.04.2024	Date of Analysis	02.05.2024	
Location Name	AN1- Project Area SE Corner	Date of Completion	15.05.2024	
Location Co-ordinates		12°43'19.17"N 79°43'30.07"E		
S. No	Time(Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)
1	6.00	34.1	40.3	38.22
2	7.00	33.9	44.1	41.49
3	8.00	36.6	45.2	42.75
4	9.00	37.4	45.3	42.94
5	10.00	40.1	48.2	45.82
6	11.00	40.5	47.2	45.03
7	12.00	39.8	47.9	45.52
8	13.00	41.5	51.5	48.90
9	14.00	38.6	48.9	46.28
10	15.00	38.1	47.5	44.96
11	16.00	40.5	50.2	47.63
12	17.00	39.6	48.4	45.93
13	18.00	35.6	46.6	43.92
14	19.00	36.1	47.4	44.70
15	20.00	36.9	45.3	42.88



For Global Lab and Consultancy Services LLP

Page 1 of 2


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Report Number: GLCS/TR/908/2024-25

Report Date: 21.05.2024

Issued To: Thiru .G.Ulaganathan, S/o.Gomathinayagam, No.15/31, Rajaji Street, Radha Nagar, Chromepet, Kancheepuram District.		Site Address: Minor Mineral Rough Stone, Lease Area – 2.39.0 Ha. S.F.No:1/2C,1/3,1/4,1/5 & 16/2A of Sithalapakkam Village, Vembakkam Taluk, Thiruvannamalai District.	
Attention	-	Sampling Condition	Good - Active
TRF No	405	Sampled by	Laboratory
Sample Name	Noise Level Monitoring	Sampling Method	GLCS/SOP/N/014
Sample Description	Ambient Noise	Sample Code	GLCS/908
Sampling Time	Every 60 minutes	Sample Receipt Date	30.04.2024
Sampling Date	29.03.2024 - 30.03.2024	Date of Analysis	02.05.2024
		Date of Completion	15.05.2024

S. No	Time(Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)
16	21.00	35.5	40.1	38.38
17	22.00	34.2	40.5	38.40
18	23.00	33.8	38.9	37.06
19	0.00	32.5	37.6	35.76
20	1.00	31.4	40.3	37.82
21	2.00	32.8	40.3	38.00
22	3.00	33.6	41.6	39.23
23	4.00	34.2	40.6	38.49
24	5.00	33.6	38.5	36.71
Day Mean dB(A)				44.08
Night Mean dB(A)				37.68

Limits as per The Noise Pollution (Regulation & Control) Rules, 2010 of MoEFCC / CPCB (Industrial)	Day Time : 75 dB (A)
	Night Time : 70dB (A)

Note: MoEFCC – Ministry of Environment Forest and Climate Change; CPCB – Central Pollution Control Board.



For Global Lab and Consultancy Services LLP

*****End of Report*****

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Report Date: 21.05.2024

Issued To: Thiru .G.Ulaganathan, S/o.Gomathinayagam, No.15/31, Rajaji Street, Radha Nagar, Chromepet, Kancheepuram District.		Site Address: Minor Mineral Rough Stone, Lease Area – 2.39.0 Ha. S.F.No:1/2C,1/3,1/4,1/5 & 16/2A of Sithalapakkam Village, Vembakkam Taluk, Thiruvannamalai District.		
Attention	-	Sampling Condition	Good - Active	
TRF No	405	Sampled by	Laboratory	
Sample Name	Noise Level Monitoring	Sampling Method	GLCS/SOP/N/014	
Sample Description	Ambient Noise	Sample Code	GLCS/909	
Sampling Time	Every 60 minutes	Sample Receipt Date	30.04.2024	
Sampling Date	29.03.2024 - 30.03.2024	Date of Analysis	02.05.2024	
Location Name	AN2- Project Area NW Corner	Date of Completion	15.05.2024	
Location Co-ordinates		12°43'23.70"N 79°43'26.25"E		
S. No	Time(Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)
1	6.30	33.6	42.8	40.28
2	7.30	35.2	45.6	42.97
3	8.30	36.9	47.5	44.85
4	9.30	38.1	48.4	45.78
5	10.30	40.5	50.4	47.81
6	11.30	41.9	49.7	47.36
7	12.30	40.6	49.6	47.10
8	13.30	42.8	51.8	49.30
9	14.30	40.6	50.5	47.91
10	15.30	38.9	49.8	47.13
11	16.30	39.6	48.2	45.75
12	17.30	37.5	45.9	43.48
13	18.30	36.4	47.1	44.44
14	19.30	35.8	44.7	42.22
15	20.30	34.9	43.8	41.32

For Global Lab and Consultancy Services LLP



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Report Date: 21.05.2024

Issued To: Thiru .G.Ulaganathan, S/o.Gomathinayagam, No.15/31, Rajaji Street, Radha Nagar, Chromepet, Kancheepuram District.		Site Address: Minor Mineral Rough Stone, Lease Area – 2.39.0 Ha. S.F.No:1/2C,1/3,1/4,1/5 & 16/2A of Sithalapakkam Village, Vembakkam Taluk, Thiruvannamalai District.	
Attention	-	Sampling Condition	Good - Active
TRF No	405	Sampled by	Laboratory
Sample Name	Noise Level Monitoring	Sampling Method	GLCS/SOP/N/014
Sample Description	Ambient Noise	Sample Code	GLCS/909
Sampling Time	Every 60 minutes	Sample Receipt Date	30.04.2024
Sampling Date	29.03.2024 - 30.03.2024	Date of Analysis	02.05.2024
		Date of Completion	15.05.2024

S. No	Time(Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)
16	21.30	35.4	44.4	41.90
17	22.30	33.6	42.5	40.02
18	23.30	33.9	40.7	38.51
19	0.30	32.9	38.9	36.86
20	1.30	32.5	37.4	35.61
21	2.30	31.5	38.4	36.20
22	3.30	30.9	36.5	34.55
23	4.30	31.4	36.9	34.97
24	5.30	32.1	37.5	35.59
Day Mean dB(A)				44.98
Night Mean dB(A)				37.13

Limits as per The Noise Pollution (Regulation & Control) Rules, 2010 of MoEFCC / CPCB (Industrial)	Day Time : 75 dB (A)
	Night Time : 70 dB (A)

Note: MoEFCC – Ministry of Environment Forest and Climate Change; CPCB – Central Pollution Control Board.



For Global Lab and Consultancy Services LLP

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Page 2 of 2

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TEST REPORT

ULR-TC606024000004141F

Report Number: GLCS/TR/910/2024 -25

Report Date: 21.05.2024

Issued To: Thiru .G.Ulaganathan, S/o.Gomathinayagam, No.15/31, Rajaji Street, Radha Nagar, Chromepet, Kancheepuram District.		Site Address: Minor Mineral Rough Stone, Lease Area – 2.39.0 Ha. S.F.No:1/2C,1/3,1/4,1/5 & 16/2A of Sithalapakkam Village, Vembakkam Taluk, Thiruvannamalai District.		
Attention	-	Sampling Condition	Good - Active	
TRF No	405	Sampled by	Laboratory	
Sample Name	Noise Level Monitoring	Sampling Method	GLCS/SOP/N/014	
Sample Description	Ambient Noise	Sample Code	GLCS/910	
Sampling Time	Every 60 minutes	Sample Receipt Date	30.04.2024	
Sampling Date	29.03.2024 - 30.03.2024	Date of Analysis	02.05.2024	
Location Name	AN3- Near Existing Quarry	Date of Completion	15.05.2024	
Location Co-ordinates		12°43'7.41"N 79°43'20.11"E		
S. No	Time(Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)
1	6.10	37.2	46.3	43.79
2	7.10	36.9	48.5	45.78
3	8.10	38.4	53.6	50.72
4	9.10	39.2	55.5	52.59
5	10.10	40.2	54.3	51.46
6	11.10	42.6	53.9	51.20
7	12.10	43.5	54.6	51.91
8	13.10	42.9	55.7	52.91
9	14.10	42.5	58.1	55.21
10	15.10	41.9	55.6	52.77
11	16.10	43.2	54.6	51.89
12	17.10	40.1	52.6	49.83
13	18.10	41.5	53.7	50.94
14	19.10	39.5	48.5	46.00
15	20.10	37.5	46.3	43.83



For Global Lab and Consultancy Services LLP

Page 1 of 2


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TEST REPORT

ULR-TC606024000004141F

Report Number: GLCS/TR/910/2024-25

Report Date: 21.05.2024

Issued To: <i>Thiru .G.Ulaganathan,</i> S/o.Gomathinayagam, No.15/31, Rajaji Street, Radha Nagar, Chromepet, Kancheepuram District.		Site Address: <i>Minor Mineral Rough Stone,</i> Lease Area – 2.39.0 Ha. S.F.No:1/2C,1/3,1/4,1/5 & 16/2A of Sithalapakkam Village, Vembakkam Taluk, Thiruvannamalai District.	
Attention	-	Sampling Condition	Good - Active
TRF No	405	Sampled by	Laboratory
Sample Name	Noise Level Monitoring	Sampling Method	GLCS/SOP/N/014
Sample Description	Ambient Noise	Sample Code	GLCS/910
Sampling Time	Every 60 minutes	Sample Receipt Date	30.04.2024
Sampling Date	29.03.2024 - 30.03.2024	Date of Analysis	02.05.2024
		Date of Completion	15.05.2024

S. No	Time(Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)
16	21.10	36.6	45.2	42.75
17	22.10	35.3	46.6	43.90
18	23.10	36.1	45.5	42.96
19	0.10	34.5	43.6	41.09
20	1.10	31.5	38.5	36.28
21	2.10	32.9	41.1	38.70
22	3.10	32.5	39.8	37.53
23	4.10	31.9	40.1	37.70
24	5.10	32.6	39.8	37.55
Day Mean dB(A)				49.26
Night Mean dB(A)				39.46

Limits as per The Noise Pollution (Regulation & Control) Rules, 2010 of MoEFCC / CPCB (Industrial)	Day Time : 75 dB (A)
	Night Time : 70 dB (A)

Note: MoEFCC – Ministry of Environment Forest and Climate Change; CPCB – Central Pollution Control Board.



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TEST REPORT

ULR-TC606024000004142F

Report Number: GLCS/TR/911/2024 -25

Report Date: 21.05.2024

Issued To: Thiru .G.Ulaganathan, S/o.Gomathinayagam, No.15/31, Rajaji Street, Radha Nagar, Chromepet, Kancheepuram District.		Site Address: Minor Mineral Rough Stone, Lease Area – 2.39.0 Ha. S.F.No:1/2C,1/3,1/4,1/5 & 16/2A of Sithalapakkam Village, Vembakkam Taluk, Thiruvannamalai District.		
Attention	-	Sampling Condition	Good - Active	
TRF No	405	Sampled by	Laboratory	
Sample Name	Noise Level Monitoring	Sampling Method	GLCS/SOP/N/014	
Sample Description	Ambient Noise	Sample Code	GLCS/911	
Sampling Time	Every 60 minutes	Sample Receipt Date	30.04.2024	
Sampling Date	29.03.2024 - 30.03.2024	Date of Analysis	02.05.2024	
Location Name	AN4- Manalmedu	Date of Completion	15.05.2024	
Location Co-ordinates		12°41'24.67"N 79°45'39.41"E		
S. No	Time(Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)
1	6.15	36.1	45.3	42.78
2	7.15	39.5	48.2	45.74
3	8.15	40.5	49.8	47.27
4	9.15	41.2	49.5	47.09
5	10.15	39.5	49.1	46.54
6	11.15	41.5	50.9	48.36
7	12.15	41.9	42.1	42.00
8	13.15	42.5	54.5	51.76
9	14.15	43.7	52.3	49.85
10	15.15	41.8	49.8	47.43
11	16.15	40.7	49.5	47.03
12	17.15	38.5	47.9	45.36
13	18.15	39.5	48.2	45.74
14	19.15	36.3	44.2	41.84
15	20.15	35.7	46.6	43.93



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L. SUDHAGRIYA
 Technical Manager

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TEST REPORT

ULR-TC606024000004142F

Report Number: GLCS/TR/911/2024-25

Report Date: 21.05.2024

Issued To: Thiru .G.Ulaganathan, S/o.Gomathinayagam, No.15/31, Rajaji Street, Radha Nagar, Chromepet, Kancheepuram District.		Site Address: Minor Mineral Rough Stone, Lease Area – 2.39.0 Ha. S.F.No:1/2C,1/3,1/4,1/5 & 16/2A of Sithalapakkam Village, Vembakkam Taluk, Thiruvannamalai District.	
Attention	-	Sampling Condition	Good - Active
TRF No	405	Sampled by	Laboratory
Sample Name	Noise Level Monitoring	Sampling Method	GLCS/SOP/N/014
Sample Description	Ambient Noise	Sample Code	GLCS/911
Sampling Time	Every 60 minutes	Sample Receipt Date	30.04.2024
Sampling Date	29.03.2024 - 30.03.2024	Date of Analysis	02.05.2024
		Date of Completion	15.05.2024

S. No	Time(Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)
16	21.15	34.5	45.1	42.45
17	22.15	34.9	43.8	41.32
18	23.15	35.1	39.5	37.83
19	0.15	34.6	40.6	38.56
20	1.15	33.8	39.1	37.21
21	2.15	34.2	40.8	38.65
22	3.15	32.6	41.5	39.02
23	4.15	33.5	39.8	37.70
24	5.15	32.9	41.5	39.05
Day Mean dB(A)				45.68
Night Mean dB(A)				38.67
Limits as per The Noise Pollution (Regulation & Control) Rules, 2010 of MoEFCC / CPCB (Industrial)				Day Time : 75 dB (A)
				Night Time : 70 dB (A)

Note: MoEFCC – Ministry of Environment Forest and Climate Change; CPCB – Central Pollution Control Board.



For Global Lab and Consultancy Services LLP

*****End of Report*****

Page 2 of 2


Authorised Signatory
L. SUDHUPRIYA
 Technical Manager

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TEST REPORT

ULR-TC606024000004143F

Report Number: GLCS/TR/912/2024 -25

Report Date: 21.05.2024

Issued To: Thiru .G.Ulaganathan, S/o.Gomathinayagam, No.15/31, Rajaji Street, Radha Nagar, Chromepet, Kancheepuram District.		Site Address: Minor Mineral Rough Stone, Lease Area – 2.39.0 Ha. S.F.No:1/2C, 1/3, 1/4, 1/5 & 16/2A of Sithalapakkam Village, Vembakkam Taluk, Thiruvannamalai District.		
Attention	-	Sampling Condition	Good - Active	
TRF No	405	Sampled by	Laboratory	
Sample Name	Noise Level Monitoring	Sampling Method	GLCS/SOP/N/014	
Sample Description	Ambient Noise	Sample Code	GLCS/912	
Sampling Time	Every 60 minutes	Sample Receipt Date	30.04.2024	
Sampling Date	29.03.2024 - 30.03.2024	Date of Analysis	02.05.2024	
Location Name	AN5- Nathakollai Near School	Date of Completion	15.05.2024	
Location Co-ordinates		12°46'1.49"N 79°41'37.74"E		
S. No	Time(Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)
1	6.11	36.5	39.6	38.32
2	7.11	35.1	50.2	47.32
3	8.11	37.2	52.8	49.91
4	9.11	36.9	57.2	54.23
5	10.11	40.5	56.3	53.40
6	11.11	41.8	60.5	57.55
7	12.11	42.5	58.9	55.99
8	13.11	39.4	59.5	56.53
9	14.11	41.2	58.5	55.57
10	15.11	41.6	53.8	51.04
11	16.11	40.3	51.6	48.90
12	17.11	39.5	50.8	48.10
13	18.11	35.6	49.1	46.28
14	19.11	36.9	45.5	43.05
15	20.11	35.8	46.6	43.94



For Global Lab and Consultancy Services LLP

Page 1 of 1


Authorised Signatory
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ULR-TC606024000004143F

Report Number: GLCS/TR/912/2024-25

Report Date: 21.05.2024

Issued To: Thiru .G.Ulaganathan, S/o.Gomathinayagam, No.15/31, Rajaji Street, Radha Nagar, Chromepet, Kancheepuram District.		Site Address: Minor Mineral Rough Stone, Lease Area – 2.39.0 Ha. S.F.No:1/2C,1/3,1/4,1/5 & 16/2A of Sithalapakkam Village, Vembakkam Taluk, Thiruvannamalai District.	
Attention	-	Sampling Condition	Good - Active
TRF No	405	Sampled by	Laboratory
Sample Name	Noise Level Monitoring	Sampling Method	GLCS/SOP/N/014
Sample Description	Ambient Noise	Sample Code	GLCS/912
Sampling Time	Every 60 minutes	Sample Receipt Date	30.04.2024
Sampling Date	29.03.2024 - 30.03.2024	Date of Analysis	02.05.2024
		Date of Completion	15.05.2024

S. No	Time(Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)
16	21.11	33.6	41.5	39.14
17	22.11	35.6	40.5	38.71
18	23.11	31.9	41.1	38.58
19	0.11	31.5	40.2	37.74
20	1.11	32.5	39.6	37.36
21	2.11	34.2	39.6	37.69
22	3.11	35.6	40.1	38.41
23	4.11	33.6	38.5	36.71
24	5.11	33.9	39.6	37.62
Day Mean dB(A)				49.33
Night Mean dB(A)				37.85

Limits as per The Noise Pollution (Regulation & Control) Rules, 2010 of MoEFCC / CPCB (Industrial)	Day Time : 75 dB (A)
	Night Time : 70 dB (A)

Note: MoEFCC – Ministry of Environment Forest and Climate Change; CPCB – Central Pollution Control Board.

For Global Lab and Consultancy Services LLP



*****End of Report*****

Page 2 of 2


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TEST REPORT

ULR-TC606024000004144F

Report Number: GLCS/TR/913/2024 -25

Report Date: 21.05.2024

Issued To: Thiru .G.Ulaganathan, S/o.Gomathinayagam, No.15/31, Rajaji Street, Radha Nagar, Chromepet, Kancheepuram District.		Site Address: Minor Mineral Rough Stone, Lease Area – 2.39.0 Ha. S.F.No:1/2C, 1/3, 1/4, 1/5 & 16/2A of Sithalapakkam Village, Vembakkam Taluk, Thiruvannamalai District.		
Attention	-	Sampling Condition	Good - Active	
TRF No	405	Sampled by	Laboratory	
Sample Name	Noise Level Monitoring	Sampling Method	GLCS/SOP/N/014	
Sample Description	Ambient Noise	Sample Code	GLCS/913	
Sampling Time	Every 60 minutes	Sample Receipt Date	30.04.2024	
Sampling Date	29.03.2024 - 30.03.2024	Date of Analysis	02.05.2024	
Location Name	AN6- Arpakkam	Date of Completion	15.05.2024	
Location Co-ordinates		12°44'4.57"N 79°45'38.23"E		
S. No	Time(Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)
1	6.45	36.5	44.1	41.79
2	7.45	35.9	44.5	42.05
3	8.45	37.2	46.3	43.79
4	9.45	40.5	51.6	48.91
5	10.45	41.9	55.5	52.68
6	11.45	42.6	58.3	55.41
7	12.45	43.6	59.2	56.31
8	13.45	44.9	61.4	58.49
9	14.45	42.5	54.6	51.85
10	15.45	43.6	55.1	52.39
11	16.45	40.5	54.2	51.37
12	17.45	40.9	52.9	50.16
13	18.45	39.6	50.5	47.83
14	19.45	40.1	53.7	50.88
15	20.45	38.5	51.1	48.32



For Global Lab and Consultancy Services LLP

Page 1 of 1


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TEST REPORT

ULR-TC606024000004144F

Report Number: GLCS/TR/913/2024-25

Report Date: 21.05.2024

Issued To: Thiru .G.Ulaganathan, S/o.Gomathinayagam, No.15/31, Rajaji Street, Radha Nagar, Chromepet, Kancheepuram District.		Site Address: Minor Mineral Rough Stone, Lease Area – 2.39.0 Ha. S.F.No:1/2C,1/3,1/4,1/5 & 16/2A of Sithalapakkam Village, Vembakkam Taluk, Thiruvannamalai District.	
Attention	-	Sampling Condition	Good - Active
TRF No	405	Sampled by	Laboratory
Sample Name	Noise Level Monitoring	Sampling Method	GLCS/SOP/N/014
Sample Description	Ambient Noise	Sample Code	GLCS/913
Sampling Time	Every 60 minutes	Sample Receipt Date	30.04.2024
Sampling Date	29.03.2024 - 30.03.2024	Date of Analysis	02.05.2024
		Date of Completion	15.05.2024

S. No	Time(Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)
16	21.45	37.6	46.6	44.10
17	22.45	36.6	45.9	43.37
18	23.45	35.9	46.3	43.67
19	0.45	34.9	40.9	38.86
20	1.45	35.4	38.1	36.96
21	2.45	33.1	41.2	38.82
22	3.45	33.8	41.1	38.83
23	4.45	32.4	39.8	37.52
24	5.45	34.1	40.5	38.39
Day Mean dB(A)				49.77
Night Mean dB(A)				40.06

Limits as per The Noise Pollution (Regulation & Control) Rules, 2010 of MoEFCC / CPCB (Industrial)	Day Time : 75 dB (A)
	Night Time : 70 dB (A)

Note: MoEFCC – Ministry of Environment Forest and Climate Change; CPCB – Central Pollution Control Board.



For Global Lab and Consultancy Services LLP

*****End of Report*****

Page 2 of 2


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Report Number: GLCS/TR/914/2024 -25

Report Date: 21.05.2024

Issued To: Thiru .G.Ulaganathan, S/o.Gomathinayagam, No.15/31, Rajaji Street, Radha Nagar, Chromepet, Kancheepuram District.		Site Address: Minor Mineral Rough Stone, Lease Area – 2.39.0 Ha. S.F.No:1/2C,1/3,1/4,1/5 & 16/2A of Sithalapakkam Village, Vembakkam Taluk, Thiruvannamalai District.		
Attention	-	Sampling Condition	Good - Active	
TRF No	405	Sampled by	Laboratory	
Sample Name	Noise Level Monitoring	Sampling Method	GLCS/SOP/N/014	
Sample Description	Ambient Noise	Sample Code	GLCS/914	
Sampling Time	Every 60 minutes	Sample Receipt Date	30.04.2024	
Sampling Date	29.03.2024 - 30.03.2024	Date of Analysis	02.05.2024	
Location Name	AN7- Mathur	Date of Completion	15.05.2024	
Location Co-ordinates		12°42'53.23"N 79°40'52.72"E		
S. No	Time(Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)
1	6.30	40.1	49.5	46.96
2	7.30	42.3	50.2	47.84
3	8.30	40.8	56.5	53.61
4	9.30	39.5	55.6	52.70
5	10.30	41.5	59.5	56.56
6	11.30	41.8	57.5	54.61
7	12.30	42.7	58.5	55.60
8	13.30	42.3	53.6	50.90
9	14.30	40.8	58.5	55.56
10	15.30	39.5	54.5	51.62
11	16.30	38.5	53.6	50.72
12	17.30	40.6	53.1	50.33
13	18.30	41.7	50.5	48.03
14	19.30	42.5	50.4	48.04
15	20.30	39.6	48.9	46.37

For Global Lab and Consultancy Services LLP



Page 1 of 2


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ULR-TC606024000004145F

Report Number: GLCS/TR/914/2024-25

Report Date: 21.05.2024

Issued To: Thiru .G.Ulaganathan, S/o.Gomathinayagam, No.15/31, Rajaji Street, Radha Nagar, Chromepet, Kancheepuram District.		Site Address: Minor Mineral Rough Stone, Lease Area – 2.39.0 Ha. S.F.No:1/2C,1/3,1/4,1/5 & 16/2A of Sithalapakkam Village, Vembakkam Taluk, Thiruvannamalai District.	
Attention	-	Sampling Condition	Good - Active
TRF No	405	Sampled by	Laboratory
Sample Name	Noise Level Monitoring	Sampling Method	GLCS/SOP/N/014
Sample Description	Ambient Noise	Sample Code	GLCS/914
Sampling Time	Every 60 minutes	Sample Receipt Date	30.04.2024
Sampling Date	29.03.2024 - 30.03.2024	Date of Analysis	02.05.2024
		Date of Completion	15.05.2024

S. No	Time(Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)
16	21.30	38.8	47.5	45.04
17	22.30	36.5	45.1	42.65
18	23.30	34.2	42.6	40.18
19	0.30	32.6	43.1	40.46
20	1.30	34.2	40.1	38.08
21	2.30	31.6	40.8	38.28
22	3.30	32.6	38.5	36.48
23	4.30	33.5	39.6	37.54
24	5.30	32.1	40.5	38.08
Day Mean dB(A)				50.42
Night Mean dB(A)				39.64

Limits as per The Noise Pollution (Regulation & Control) Rules, 2010 of MoEFCC / CPCB (Industrial)

Day Time : 75 dB (A)

Night Time : 70 dB (A)

Note: MoEFCC – Ministry of Environment Forest and Climate Change; CPCB – Central Pollution Control Board.



For Global Lab and Consultancy Services LLP


Authorised Signatory
L. SUDHAPRIYA
Technical Manager

*****End of Report*****

Page 2 of 2

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TEST REPORT

ULR-TC606024000004146F

Report Number: GLCS/TR/915/2024 -25

Report Date: 21.05.2024

Issued To: Thiru .G.Ulaganathan, S/o.Gomathinayagam, No.15/31, Rajaji Street, Radha Nagar, Chromepet, Kancheepuram District.		Site Address: Minor Mineral Rough Stone, Lease Area – 2.39.0 Ha. S.F.No:1/2C,1/3,1/4,1/5 & 16/2A of Sithalapakkam Village, Vembakkam Taluk, Thiruvannamalai District.		
Attention	-	Sampling Condition	Good - Active	
TRF No	405	Sampled by	Laboratory	
Sample Name	Noise Level Monitoring	Sampling Method	GLCS/SOP/N/014	
Sample Description	Ambient Noise	Sample Code	GLCS/915	
Sampling Time	Every 60 minutes	Sample Receipt Date	30.04.2024	
Sampling Date	29.03.2024 - 30.03.2024	Date of Analysis	02.05.2024	
Location Name	AN8- Pudupalayam	Date of Completion	15.05.2024	
Location Co-ordinates		12°41'27.52"N 79°43'1.30"E		
S. No	Time(Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)
1	6.45	39.5	50.5	47.82
2	7.45	41.5	51.8	49.18
3	8.45	41.5	56.9	54.01
4	9.45	39.1	57.1	54.16
5	10.45	40.5	58.9	55.95
6	11.45	41.5	57.5	54.60
7	12.45	40.3	55.8	52.91
8	13.45	39.5	56.8	53.87
9	14.45	41.2	60.5	57.54
10	15.45	39.2	53.6	50.74
11	16.45	38.8	51.5	48.72
12	17.45	40.2	52.8	50.02
13	18.45	39.6	51.8	49.04
14	19.45	38.8	49.8	47.12
15	20.45	37.9	46.6	44.14

For Global Lab and Consultancy Services LLP



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Attention	-	Sampling Condition	Good - Active
TRF No	405	Sampled by	Laboratory
Sample Name	Noise Level Monitoring	Sampling Method	GLCS/SOP/N/014
Sample Description	Ambient Noise	Sample Code	GLCS/915
Sampling Time	Every 60 minutes	Sample Receipt Date	30.04.2024
Sampling Date	29.03.2024 - 30.03.2024	Date of Analysis	02.05.2024
		Date of Completion	15.05.2024

S. No	Time(Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)
16	21.45	39.6	50.1	47.46
17	22.45	35.6	46.3	43.64
18	23.45	35.6	43.9	41.49
19	0.45	34.7	41.2	39.07
20	1.45	35.6	39.6	38.05
21	2.45	34.1	41.8	39.47
22	3.45	32.8	39.1	37.00
23	4.45	33.6	40.8	38.55
24	5.45	32.9	39.2	37.10
Day Mean dB(A)				50.64
Night Mean dB(A)				40.20

Limits as per The Noise Pollution (Regulation & Control) Rules, 2010 of MoEFCC / CPCB (Industrial)	Day Time : 75 dB (A)
	Night Time : 70 dB (A)

Note: MoEFCC – Ministry of Environment Forest and Climate Change; CPCB – Central Pollution Control Board.

For Global Lab and Consultancy Services LLP



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L. SUDHAPRIYA
 Technical Manager

*****End of Report*****

Page 2 of 2

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Salem - 636 016. Tamil Nadu.

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SUMMARY REPORT

Issued To	Thiru .G.Ulaganathan, S/o.Gomathinayagam,No.15/31, Rajaji Street, Radha Nagar, Chromepet, Kancheepuram District.		
Site Location	Minor Mineral Rough Stone, Lease Area – 2.39.0 Ha. S.F.No:1/2C,1/3,1/4,1/5 & 16/2A of Sithalapakkam Village, Vembakkam Taluk, Thiruvannamalai District.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ1– Project Area SE Corner
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/12179,12211,12409,12533,12703,12842,131,220,395, 428,548, 598, 733,747,901,962,1117,1200,1332,1446,1332,1549,1616,1792,1832,2000,2022		
Location Coordinates	12°43'18.52"N 79°43'29.41"E		
Report Date	24.06.2024		

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)
11.03.2024	07.00 – 7.00	42.08	19.54	7.01	20.06	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
12.03.2024	07.10 – 07.10	45.07	19.96	4.67	20.82	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
18.03.2024	08.00 – 08.00	45.07	19.96	6.00	23.48	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
19.03.2024	8.10 – 8.10	44.78	19.96	6.02	21.06	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
25.03.2024	08.45 – 08.45	45.06	20.79	7.04	21.83	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
26.03.2024	08.45 – 08.45	45.18	20.79	4.98	22.48	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
01.04.2024	08.00 – 08.00	45.40	21.21	5.61	22.54	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
02.04.2024	08.10 – 08.10	45.55	21.62	BDL(DL:4.0)	20.04	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
08.04.2024	09.00 – 09.00	45.58	21.62	4.99	23.24	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
09.04.2024	09.10 – 09.10	45.88	22.04	6.69	18.07	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
15.04.2024	09.10 – 09.10	45.69	21.62	7.88	20.92	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
16.04.2024	09.10 – 09.10	44.87	21.20	7.86	21.93	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
22.04.2024	08.30 – 08.30	46.17	21.62	6.71	24.31	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
23.04.2024	08.45 – 08.45	46.07	20.79	5.45	19.22	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
29.04.2024	08.00 – 08.00	44.87	21.62	7.33	21.25	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
30.04.2024	08.15 – 08.15	45.77	22.04	7.16	22.60	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
06.05.2024	08.15 – 08.15	45.27	19.96	9.38	21.65	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
07.05.2024	08.25 – 08.25	47.08	21.21	6.18	21.34	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
13.05.2024	08.00 – 08.00	42.48	19.13	6.97	20.40	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
14.05.2024	08.10 – 08.10	42.48	18.71	7.34	20.88	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
20.05.2024	08.00 – 08.00	42.80	19.13	7.06	21.26	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
21.05.2024	08.15 – 08.15	43.99	19.13	BDL(DL:4.0)	22.43	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
27.05.2024	09.00 – 09.00	44.59	19.96	5.23	21.93	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
28.05.2024	09.15 – 09.15	44.19	20.79	7.60	21.21	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
03.06.2024	08.00 – 08.00	42.08	18.71	4.57	19.61	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
04.06.2024	08.10 – 08.10	45.08	20.79	4.68	19.91	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
NAAQ* Standard		<100	<60	<80	<80	<180	<400	<4

Note: BDL: Below Detection Limit; DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.



Verified by

L. SUDHAPRIYA

Technical Manager

SUMMARY REPORT

Issued To	Thiru .G.Ulaganathan, S/o.Gomathinayagam,No.15/31, Rajaji Street, Radha Nagar, Chromepet, Kancheepuram District.		
Site Location	Minor Mineral Rough Stone, Lease Area – 2.39.0 Ha. S.F.No:1/2C,1/3,1/4,1/5 & 16/2A of Sithalapakkam Village, Vembakkam Taluk, Thiruvannamalai District.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ1– Project Area SE Corner
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/12179,12211,12409,12533,12703,12842,131,220,395, 428,548, 598, 733,747,901,962,1117,1200,1332,1446,1332,1549,1616,1792,1832,2000,2022		
Location Coordinates	12°43'18.52"N 79°43'29.41"E		
Report Date	24.06.2024		

Date	Period. hrs	Ni (ng/m ³)	As (ng/m ³)	C6H6 (µg/m ³)	BaP (ng/m ³)	Pb (µg/m ³)
11.03.2024	07.00 – 7.00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
12.03.2024	07.10 – 07.10	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
18.03.2024	08.00 – 08.00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
19.03.2024	8.10 – 8.10	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
25.03.2024	08.45 – 08.45	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
26.03.2024	08.45 – 08.45	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
01.04.2024	08.00 – 08.00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
02.04.2024	08.10 – 08.10	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
08.04.2024	09.00 – 09.00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
09.04.2024	09.10 – 09.10	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
15.04.2024	09.10 – 09.10	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
16.04.2024	09.10 – 09.10	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
22.04.2024	08.30 – 08.30	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
23.04.2024	08.45 – 08.45	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
29.04.2024	08.00 – 08.00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
30.04.2024	08.15 – 08.15	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
06.05.2024	08.15 – 08.15	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
07.05.2024	08.25 – 08.25	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
13.05.2024	08.00 – 08.00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
14.05.2024	08.10 – 08.10	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
20.05.2024	08.00 – 08.00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
21.05.2024	08.15 – 08.15	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
27.05.2024	09.00 – 09.00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
28.05.2024	09.15 – 09.15	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
03.06.2024	08.00 – 08.00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
04.06.2024	08.10 – 08.10	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
NAAQ* Standard		<20	<6.0	<5.0	<1.0	<1.0

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 2 of 2

Verified by

L. Sudhapriya
L. SUDHAPRIYA
Technical Manager

SUMMARY REPORT

Issued To	Thiru .G.Ulaganathan, S/o.Gomathinayagam,No.15/31, Rajaji Street, Radha Nagar, Chromepet, Kancheepuram District.		
Site Location	Minor Mineral Rough Stone, Lease Area – 2.39.0 Ha. S.F.No:1/2C,1/3,1/4,1/5 & 16/2A.of Sithalapakkam Village, Vembakkam Taluk, Thiruvannamalai District.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ 2 – Project Area NW Corner
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/12180, 12212, 12410,12534,12704, 12843,132, 221,396,429,549,599,734, 748,902,963,1118,1201,1447,1333,1550,1617,1793,1833,2001,2023		
Location Coordinates	12°43'23.75"N 79°43'25.69"E		
Report Date	24.06.2024		

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)
11.03.2024	07.15 – 07.15	43.99	19.96	4.90	23.68	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
12.03.2024	07.25 – 07.25	44.09	19.13	BDL(DL:4.0)	21.09	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
18.03.2024	08.30 – 08.30	43.38	18.71	4.03	22.44	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
19.03.2024	8.40 – 8.40	45.19	20.79	5.18	23.14	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
25.03.2024	09.10 – 09.10	45.66	19.96	6.51	22.01	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
26.03.2024	09.15 – 09.15	44.82	20.37	BDL(DL:4.0)	22.33	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
01.04.2024	08.30 – 08.30	44.09	19.96	7.34	20.86	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
02.04.2024	08.40 – 08.40	43.99	19.54	BDL(DL:4.0)	18.82	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
08.04.2024	09.35 – 09.35	44.67	20.79	3.95	19.05	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
09.04.2024	09.45 – 09.45	44.71	21.20	5.68	18.30	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
15.04.2024	09.35 – 09.35	44.86	20.37	6.64	20.53	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
16.04.2024	09.45 – 09.45	46.17	21.62	7.32	20.69	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
22.04.2024	09.00 – 09.00	45.80	20.79	6.90	24.62	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
23.04.2024	09.15 – 09.15	44.98	19.54	4.00	22.83	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
29.04.2024	08.30 – 08.30	45.76	21.21	6.34	22.00	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
30.04.2024	08.45 – 08.45	45.97	21.21	8.76	23.91	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
06.05.2024	09.00 – 09.00	44.79	19.54	5.99	21.63	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
07.05.2024	09.10-09.10	46.70	20.79	5.90	20.90	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
13.05.2024	08.30 – 08.30	42.99	18.71	6.39	19.83	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
14.05.2024	08.40 – 08.40	41.98	19.13	6.42	20.86	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
20.05.2024	08.30 – 08.30	43.97	18.71	6.91	18.95	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
21.05.2024	08.45 – 08.45	43.08	19.54	5.20	21.99	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
27.05.2024	09.30 – 09.30	43.16	19.13	4.59	23.72	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
28.05.2024	09.45 -09.45	43.51	19.54	6.39	20.64	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
03.06.2024	08.30-08.30	43.01	19.54	BDL(DL:4.0)	20.22	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
04.06.2024	08.40-08.40	44.47	19.54	4.43	20.62	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
NAAQ* Standard		<100	<60	<80	<80	<180	<400	<4

Note: BDL: Below Detection Limit; DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.



Verified by

L. SUDHAPRIYA
Technical Manager

SUMMARY REPORT

Issued To	Thiru .G.Ulaganathan, S/o.Gomathinayagam,No.15/31, Rajaji Street, Radha Nagar, Chromepet, Kancheepuram District.		
Site Location	Minor Mineral Rough Stone, Lease Area - 2.39.0 Ha. S.F.No:1/2C,1/3,1/4,1/5 & 16/2A of Sithalapakkam Village, Vembakkam Taluk, Thiruvannamalai District.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ 2 - Project Area NW Corner
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/12180, 12212, 12410,12534,12704, 12843,132, 221,396,429,549,599,734, 748,902,963,1118,1201,1447,1333,1550,1617,1793,1833,2001,2023		
Location Coordinates	12°43'23.75"N 79°43'25.69"E		
Report Date	24.06.2024		

Date	Period. hrs	Ni (ng/m ³)	As (ng/m ³)	C6H6 (µg/m ³)	BaP (ng/m ³)	Pb (µg/m ³)
11.03.2024	07.15 - 07.15	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
12.03.2024	07.25 - 07.25	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
18.03.2024	08.30 - 08.30	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
19.03.2024	8.40 - 8.40	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
25.03.2024	09.10 - 09.10	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
26.03.2024	09.15 - 09.15	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
01.04.2024	08.30 - 08.30	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
02.04.2024	08.40 - 08.40	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
08.04.2024	09.35 - 09.35	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
09.04.2024	09.45 - 09.45	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
15.04.2024	09.35 - 09.35	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
16.04.2024	09.45 - 09.45	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
22.04.2024	09.00 - 09.00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
23.04.2024	09.15 - 09.15	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
29.04.2024	08.30 - 08.30	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
30.04.2024	08.45 - 08.45	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
06.05.2024	09.00 - 09.00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
07.05.2024	09.10-09.10	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
13.05.2024	08.30 - 08.30	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
14.05.2024	08.40 - 08.40	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
20.05.2024	08.30 - 08.30	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
21.05.2024	08.45 - 08.45	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
27.05.2024	09.30 - 09.30	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
28.05.2024	09.45 -09.45	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
03.06.2024	08.30-08.30	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
04.06.2024	08.40-08.40	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
NAAQ* Standard		<20	<6.0	<5.0	<1.0	<1.0

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

L. SUDHAPRIYA
Technical Manager



Committed to Precision

LABORATORY | CONSULTANCY | SUSTAINABILITY

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SUMMARY REPORT

Issued To	Thiru .G.Ulaganathan, S/o.Gomathinayagam,No.15/31, Rajaji Street, Radha Nagar, Chromepet, Kancheepuram District.		
Site Location	Minor Mineral Rough Stone, Lease Area – 2.39.0 Ha. S.F.No:1/2C,1/3,1/4,1/5 & 16/2A of Sithalapakkam Village, Vembakkam Taluk, Thiruvannamalai District.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ 3 – Near Existing Quarry SW
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/12181, 12213, 12411, 12535,12705,12844, 133,222,397,430,550,600,735,749,903,964, 1119, 1202,1448,1334,1551,1618,1794,1834,2002,2024		
Location Coordinates	12°43'7.44"N 79°43'20.72"E		
Report Date			

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)
11.03.2024	7.30 – 7.30	43.18	18.71	5.40	20.70	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
12.03.2024	7.40 – 7.40	42.49	18.30	BDL(DL:4.0)	23.50	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
18.03.2024	09.10 – 09.10	42.86	19.13	BDL(DL:4.0)	23.35	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
19.03.2024	09.20 – 09.20	43.69	19.13	BDL(DL:4.0)	21.63	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
25.03.2024	09.40 – 09.40	45.10	18.71	7.44	21.87	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
26.03.2024	09.50 – 09.50	44.02	19.13	BDL(DL:4.0)	21.49	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
01.04.2024	09.10 – 09.10	44.85	20.37	5.57	20.76	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
02.04.2024	09.20 – 09.20	44.45	18.71	7.10	18.27	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
08.04.2024	10.10 – 10.10	42.97	18.71	4.63	20.92	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
09.04.2024	10.20 – 10.20	45.10	19.96	BDL(DL:4.0)	20.86	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
15.04.2024	10.10 – 10.10	44.51	19.96	8.04	19.58	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
16.04.2024	10.20 – 10.20	45.48	20.37	BDL(DL:4.0)	17.78	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
22.04.2024	09.45 – 09.45	45.15	19.96	7.43	21.14	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
23.04.2024	10.00 – 10.00	45.78	19.96	4.36	17.78	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
29.04.2024	09.15 – 09.15	44.78	20.37	6.78	20.52	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
30.04.2024	09.30 – 09.30	44.68	20.79	6.64	19.96	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
06.05.2024	09.30 – 09.30	44.68	19.13	5.89	20.55	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
07.05.2024	09.40 – 09.40	45.40	19.54	7.66	21.93	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
13.05.2024	09.10 – 09.10	43.61	19.13	6.52	22.73	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
14.05.2024	09.20 – 09.20	43.66	19.96	6.09	21.04	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
20.05.2024	09.15 – 09.15	43.58	19.54	6.89	20.70	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
21.05.2024	09.30 – 09.30	42.81	18.71	8.98	21.79	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
27.05.2024	10.15 – 10.15	42.69	18.71	BDL(DL:4.0)	20.33	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
28.05.2024	10.30 – 10.30	42.69	18.71	4.83	21.85	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
03.06.2024	09.10-09.10	44.20	20.37	4.17	19.59	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
04.06.2024	09.20-09.20	43.85	19.96	4.72	19.18	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
NAAQ* Standard		<100	<60	<80	<80	<180	<400	<4

Note: BDL: Below Detection Limit; DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.



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L. SUDHAPRIYA

Technical Manager

SUMMARY REPORT

Issued To	Thiru .G.Ulaganathan, S/o.Gomathinayagam,No.15/31, Rajaji Street, Radha Nagar, Chromepet, Kancheepuram District.		
Site Location	Minor Mineral Rough Stone, Lease Area – 2.39.0 Ha. S.F.No:1/2C,1/3,1/4,1/5 & 16/2A of Sithalapakkam Village, Vembakkam Taluk, Thiruvannamalai District.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ 3 – Near Existing Quarry SW
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/12181, 12213, 12411, 12535,12705,12844, 133,222,397,430,550,600,735,749,903,964, 1119, 1202,1448,1334,1551,1618,1794,1834,2002,2024		
Location Coordinates	12°43'7.44"N 79°43'20.72"E		
Report Date	24.06.2024		

Date	Period. hrs	Ni (ng/m ³)	As (ng/m ³)	C6H6 (µg/m ³)	BaP (ng/m ³)	Pb (µg/m ³)
11.03.2024	7.30 – 7.30	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
12.03.2024	7.40 – 7.40	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
18.03.2024	09.10 – 09.10	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
19.03.2024	09.20 – 09.20	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
25.03.2024	09.40 – 09.40	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
26.03.2024	09.50 – 09.50	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
01.04.2024	09.10 – 09.10	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
02.04.2024	09.20 – 09.20	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
08.04.2024	10.10 – 10.10	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
09.04.2024	10.20 – 10.20	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
15.04.2024	10.10 – 10.10	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
16.04.2024	10.20 – 10.20	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
22.04.2024	09.45 – 09.45	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
23.04.2024	10.00 – 10.00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
29.04.2024	09.15 – 09.15	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
30.04.2024	09.30 – 09.30	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
06.05.2024	09.30 – 09.30	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
07.05.2024	09.40 – 09.40	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
13.05.2024	09.10 – 09.10	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
14.05.2024	09.20 – 09.20	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
20.05.2024	09.15 – 09.15	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
21.05.2024	09.30 – 09.30	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
27.05.2024	10.15 – 10.15	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
28.05.2024	10.30 – 10.30	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
03.06.2024	09.10-09.10	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
04.06.2024	09.20-09.20	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
NAAQ* Standard		<20	<6.0	<5.0	<1.0	<1.0

Note: BDL: Below Detection Limit; DL: Detection Limit

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*****End of Report*****

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L. SUDHAPRIYA

Technician

SUMMARY REPORT

Issued To	Thiru .G.Ulaganathan, S/o.Gomathinayagam,No.15/31, Rajaji Street, Radha Nagar, Chromepet, Kancheepuram District.		
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Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ 4 - Manalmedu
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/12182, 12214, 12412, 12536,12706, 12845, 134,223,398,431,551,601,736, 750,904,965, 1120,1203, 1449,1335,1552,1619,1795,1835,2003,2025		
Location Coordinates	12°41'25.00"N 79°45'41.25"E		
Report Date	24.06.2024		

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)
11.03.2024	7.45 - 7.45	42.91	19.13	BDL(DL:4.0)	23.76	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
12.03.2024	7.55 - 7.55	43.69	17.88	4.79	21.91	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
18.03.2024	09.45 - 09.45	44.00	19.96	4.89	21.83	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
19.03.2024	10.00 - 10.00	43.95	19.54	BDL(DL:4.0)	19.79	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
25.03.2024	10.15 - 10.15	42.96	19.13	BDL(DL:4.0)	19.92	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
26.03.2024	10.30 - 10.30	43.69	19.54	4.32	20.40	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
01.04.2024	09.45 - 09.45	43.75	19.13	BDL(DL:4.0)	19.18	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
02.04.2024	10.00 - 10.00	45.86	19.13	5.58	16.92	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
08.04.2024	11.00 - 11.00	44.05	19.54	5.20	18.65	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
09.04.2024	11.15 - 11.15	44.10	19.13	4.0	20.42	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
15.04.2024	11.00 - 11.00	43.37	18.71	5.38	20.06	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
16.04.2024	11.15 - 11.15	45.67	20.79	6.80	18.89	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
22.04.2024	10.15 - 10.15	46.00	22.04	7.97	20.74	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
23.04.2024	10.30 - 10.30	46.69	21.62	5.13	19.61	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
29.04.2024	10.00 - 10.00	45.00	19.96	5.66	21.19	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
30.04.2024	10.10 - 10.10	44.17	20.37	5.95	21.82	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
06.05.2024	10.15 - 10.15	45.99	20.37	6.14	22.43	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
07.05.2024	10.25 - 10.25	46.00	19.13	5.27	21.06	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
13.05.2024	09.45 - 09.45	42.09	18.30	5.81	20.27	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
14.05.2024	10.00 - 10.00	41.72	19.54	7.80	20.98	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
20.05.2024	10.00 - 10.00	43.21	19.96	7.04	20.82	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
21.05.2024	10.10 - 10.10	42.31	19.54	5.64	23.86	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
27.05.2024	11.00 - 11.00	43.51	19.96	6.21	20.62	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
28.05.2024	11.15 - 11.15	42.99	19.96	6.37	21.49	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
03.06.2024	09.45 - 09.45	41.87	19.96	5.14	19.94	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
04.06.2024	10.00 - 10.00	44.06	19.13	5.04	20.31	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
NAAQ* Standard		<100	<60	<80	<80	<180	<400	<4

Note: BDL: Below Detection Limit, DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.



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L. SUDHAPRIYA
Technical Manager



Committed to Precision

LABORATORY | CONSULTANCY | SUSTAINABILITY

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SUMMARY REPORT

Issued To	Thiru .G.Ulaganathan, S/o.Gomathinayagam,No.15/31, Rajaji Street, Radha Nagar, Chromepet, Kancheepuram District.		
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Sample Name	Air Quality Monitoring	Sampling Location	AAQ 4 – Manalmedu
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
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Location Coordinates	12°41'25.00"N 79°45'41.25"E		
Report Date	24.06.2024		

Date	Period. hrs	Ni (ng/m ³)	As (ng/m ³)	C6H6 (µg/m ³)	BaP (ng/m ³)	Pb (µg/m ³)
11.03.2024	7.45 – 7.45	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
12.03.2024	7.55 – 7.55	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
18.03.2024	09.45 – 09.45	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
19.03.2024	10.00 – 10.00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
25.03.2024	10.15 – 10.15	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
26.03.2024	10.30 – 10.30	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
01.04.2024	09.45 – 09.45	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
02.04.2024	10.00 – 10.00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
08.04.2024	11.00 – 11.00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
09.04.2024	11.15 – 11.15	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
15.04.2024	11.00 – 11.00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
16.04.2024	11.15 – 11.15	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
22.04.2024	10.15 – 10.15	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
23.04.2024	10.30 – 10.30	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
29.04.2024	10.00 – 10.00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
30.04.2024	10.10 – 10.10	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
06.05.2024	10.15 – 10.15	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
07.05.2024	10.25 – 10.25	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
13.05.2024	09.45 – 09.45	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
14.05.2024	10.00 -10.00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
20.05.2024	10.00 – 10.00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
21.05.2024	10.10 – 10.10	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
27.05.2024	11.00 -11.00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
28.05.2024	11.15 – 11.15	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
03.06.2024	09.45-09.45	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
04.06.2024	10.00 – 10.00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
NAAQ* Standard		<20	<6.0	<5.0	<1.0	<1.0

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 2 of 2

Verified by

L. SUDHAPRIYA
Technical Manager

SUMMARY REPORT

Issued To	Thiru .G.Ulaganathan, S/o.Gomathinayagam,No.15/31, Rajaji Street, Radha Nagar, Chromepet, Kancheepuram District.		
Site Location	Minor Mineral Rough Stone, Lease Area – 2.39.0 Ha. S.F.No:1/2C,1/3,1/4,1/5 & 16/2A of Sithalapakkam Village, Vembakkam Taluk, Thiruvannamalai District.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ 5 – Nathakollai Near School
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/12183, 12215, 12413,12537,12707, 12846,135,224,399,432,552,602,737,751,905,966, 1121,1204, 1450, 1336,1553,1620,1796,1836,2004,2026		
Location Coordinates	12°46'1.12"N 79°41'37.89"E		
Report Date	24.06.2024		

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)
11.03.2024	08.00 – 08.00	43.69	19.13	BDL(DL:4.0)	21.87	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
12.03.2024	08.15 – 08.15	45.46	19.54	BDL(DL:4.0)	20.24	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
18.03.2024	10.30 – 10.30	45.25	20.79	BDL(DL:4.0)	20.59	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
19.03.2024	10.40 – 10.40	45.60	19.96	6.41	21.33	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
25.03.2024	11.05 – 11.05	44.07	19.13	6.33	22.01	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
26.03.2024	11.15 – 11.15	45.50	21.21	BDL(DL:4.0)	20.85	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
01.04.2024	10.30 – 10.30	43.66	19.54	BDL(DL:4.0)	20.34	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
02.04.2024	10.40 – 10.40	45.05	19.13	6.82	19.98	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
08.04.2024	11.50 – 11.50	46.19	21.20	6.11	22.20	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
09.04.2024	12.00 – 12.00	45.10	22.03	5.79	19.77	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
15.04.2024	11.50 – 11.50	45.11	22.87	4.46	21.33	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
16.04.2024	12.00 – 12.00	44.11	19.54	5.83	21.13	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
22.04.2024	11.10 – 11.10	45.67	19.96	7.50	21.59	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
23.04.2024	11.20 – 11.20	46.71	21.62	4.63	23.28	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
29.04.2024	10.45 – 10.45	46.07	22.04	5.37	21.27	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
30.04.2024	11.00 – 11.00	46.08	20.79	5.93	19.80	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
06.05.2024	11.00 – 11.00	46.68	19.13	9.17	20.12	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
07.05.2024	11.10 – 11.10	46.57	20.37	6.05	19.57	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
13.05.2024	10.30 – 10.30	41.88	19.96	6.52	21.44	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
14.05.2024	10.40 – 10.40	42.10	19.96	6.64	19.93	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
20.05.2024	10.45 – 10.45	43.79	19.13	6.90	20.16	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
21.05.2024	11.00 – 11.00	43.61	19.54	7.61	23.16	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
27.05.2024	11.45 – 11.45	43.86	19.13	8.32	20.68	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
28.05.2024	12.00 -12.00	42.47	18.71	4.41	21.27	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
03.06.2024	10.30 - 10.30	43.08	18.30	4.64	19.72	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
04.06.2024	10.40 – 10.40	44.26	19.96	5.15	21.77	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
NAAQ* Standard		<100	<60	<80	<80	<180	<400	<4

Note: BDL: Below Detection Limit; DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.



Verified by

L. SUDHAPRIYA
Technical Manager

SUMMARY REPORT

Issued To	Thiru .G.Ulaganathan, S/o.Gomathinayagam,No.15/31, Rajaji Street, Radha Nagar, Chromepet, Kancheepuram District.		
Site Location	Minor Mineral Rough Stone, Lease Area – 2.39.0 Ha. S.F.No:1/2C,1/3,1/4,1/5 & 16/2A of Sithalapakkam Village, Vembakkam Taluk, Thiruvannamalai District.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ 5 – Nathakollai Near School
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/12183, 12215, 12413,12537,12707, 12846,135,224,399,432,552,602,737,751,905,966, 1121,1204, 1450, 1336,1553,1620,1796,1836,2004,2026		
Location Coordinates	12°46'1.12"N 79°41'37.89"E		
Report Date	24.06.2024		

Date	Period. hrs	Ni (ng/m ³)	As (ng/m ³)	C6H6 (µg/m ³)	BaP (ng/m ³)	Pb (µg/m ³)
11.03.2024	08.00 – 08.00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
12.03.2024	08.15 – 08.15	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
18.03.2024	10.30 – 10.30	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
19.03.2024	10.40 – 10.40	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
25.03.2024	11.05 – 11.05	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
26.03.2024	11.15 – 11.15	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
01.04.2024	10.30 – 10.30	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
02.04.2024	10.40 – 10.40	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
08.04.2024	11.50 – 11.50	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
09.04.2024	12.00 – 12.00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
15.04.2024	11.50 – 11.50	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
16.04.2024	12.00 – 12.00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
22.04.2024	11.10 – 11.10	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
23.04.2024	11.20 – 11.20	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
29.04.2024	10.45 – 10.45	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
30.04.2024	11.00 – 11.00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
06.05.2024	11.00 – 11.00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
07.05.2024	11.10 – 11.10	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
13.05.2024	10.30 – 10.30	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
14.05.2024	10.40 – 10.40	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
20.05.2024	10.45 – 10.45	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
21.05.2024	11.00 – 11.00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
27.05.2024	11.45 – 11.45	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
28.05.2024	12.00 -12.00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
03.06.2024	10.30-10.30	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
04.06.2024	10.40 – 10.40	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
NAAQ* Standard		<20	<6.0	<5.0	<1.0	<1.0

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 2 of 2

Verified by

L. SUDHAPRIYA
Technical Manager

SUMMARY REPORT

Issued To	Thiru .G.Ulaganathan, S/o.Gomathinayagam,No.15/31, Rajaji Street, Radha Nagar, Chromepet, Kancheepuram District.		
Site Location	Minor Mineral Rough Stone, Lease Area – 2.39.0 Ha. S.F.No:1/2C,1/3,1/4,1/5 & 16/2A of Sithalapakkam Village, Vembakkam Taluk, Thiruvannamalai District.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ 6 - Arpakkam
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/ 12184, 12216, 12414, 12538,12708,12847,136,225, 400, 433, 553, 603,738,752, 906, 967,1122,1205,1451,1337,1554,1621,1797,1837,2005,2027		
Location Coordinates	12°44'5.00"N 79°45'37.81"E		
Report Date	24.06.2024		

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)
11.03.2024	08.15 – 08.15	43.07	19.96	4.07	21.17	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
12.03.2024	08.35 – 08.35	44.17	19.13	4.72	22.09	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
18.03.2024	11.15 – 11.15	44.79	19.54	6.79	21.85	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
19.03.2024	11.30 – 11.30	44.69	18.30	4.60	22.87	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
25.03.2024	12.00 – 12.00	44.92	19.13	BDL(DL:4.0)	23.51	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
26.03.2024	12.15 – 12.15	44.80	19.54	4.66	23.65	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
01.04.2024	11.15 – 11.15	43.07	19.96	8.05	22.51	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
02.04.2024	11.30 – 11.30	44.68	19.96	BDL(DL:4.0)	18.93	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
08.04.2024	12.30 – 12.30	44.47	19.54	BDL(DL:4.0)	20.55	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
09.04.2024	12.40 – 12.40	43.65	20.79	6.00	18.87	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
15.04.2024	12.30 – 12.30	44.38	21.21	4.78	21.55	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
16.04.2024	12.45 – 12.45	44.99	19.96	7.07	20.62	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
22.04.2024	12.00 – 12.00	45.06	20.37	5.83	21.09	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
23.04.2024	12.15 – 12.15	45.58	20.37	5.16	23.44	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
29.04.2024	11.30 – 11.30	45.79	21.62	6.01	21.09	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
30.04.2024	11.45 – 11.45	45.67	22.03	5.62	21.77	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
06.05.2024	11.15 – 11.15	46.08	19.96	7.53	20.99	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
07.05.2024	12.00 – 12.00	45.60	19.96	8.25	20.33	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
13.05.2024	11.15 – 11.15	41.99	18.71	5.59	21.00	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
14.05.2024	11.30 – 11.30	43.12	18.30	6.43	20.92	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
20.05.2024	11.30 – 11.30	42.66	19.54	6.62	19.15	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
21.05.2024	11.40 – 11.40	43.99	18.71	4.87	21.41	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
27.05.2024	12.30 – 12.30	42.99	18.71	7.79	20.79	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
28.05.2024	12.45 -12.45	43.02	19.13	5.13	20.10	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
03.06.2024	11.15 - 11.15	42.71	18.71	BDL(DL:4.0)	19.38	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
04.06.2024	11.30 – 11.30	41.98	19.54	4.07	20.45	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
NAAQ* Standard		<100	<60	<80	<80	<180	<400	<4

Note: BDL: Below Detection Limit; DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.



Verified by

L. SUDHAPRIYA
Technical Manager

SUMMARY REPORT

Issued To	Thiru .G.Ulaganathan, S/o.Gomathinayagam, No.15/31, Rajaji Street, Radha Nagar, Chromepet, Kancheepuram District.		
Site Location	Minor Mineral Rough Stone, Lease Area - 2.39.0 Ha S.F.No:1/2C,1/3,1/4,1/5 & 16/2A of Sithalapakkam Village, Vembakkam Taluk, Thiruvannamalai District.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ 6 - Arpakkam
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/ 12184, 12216, 12414, 12538,12708,12847,136,225, 400, 433, 553, 603,738,752, 906, 967,1122,1205,1451,1337,1554,1621,1797,1837,2005,2027		
Location Coordinates	12°44'5.00"N 79°45'37.81"E		
Report Date	24.06.2024		

Date	Period. hrs	Ni (ng/m ³)	As (ng/m ³)	C6H6 (µg/m ³)	BaP (ng/m ³)	Pb (µg/m ³)
11.03.2024	08.15 - 08.15	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
12.03.2024	08.35 - 08.35	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
18.03.2024	11.15 - 11.15	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
19.03.2024	11.30 - 11.30	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
25.03.2024	12.00 - 12.00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
26.03.2024	12.15 - 12.15	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
01.04.2024	11.15 - 11.15	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
02.04.2024	11.30 - 11.30	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
08.04.2024	12.30 - 12.30	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
09.04.2024	12.40 - 12.40	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
15.04.2024	12.30 - 12.30	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
16.04.2024	12.45 - 12.45	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
22.04.2024	12.00 - 12.00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
23.04.2024	12.15 - 12.15	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
29.04.2024	11.30 - 11.30	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
30.04.2024	11.45 - 11.45	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
06.05.2024	11.15 - 11.15	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
07.05.2024	12.00 - 12.00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
13.05.2024	11.15 - 11.15	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
14.05.2024	11.30 - 11.30	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
20.05.2024	11.30 - 11.30	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
21.05.2024	11.40 - 11.40	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
27.05.2024	12.30 - 12.30	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
28.05.2024	12.45 - 12.45	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
03.06.2024	11.15-11.15	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
04.06.2024	11.30 - 11.30	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
NAAQ* Standard		<20	<6.0	<5.0	<1.0	<1.0

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 2 of 2

Verified by

L. SUDHAPRIYA
Technical Manager



LABORATORY | CONSULTANCY | SUSTAINABILITY

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SUMMARY REPORT

Issued To	Thiru .G.Ulaganathan, S/o.Gomathinayagam,No.15/31, Rajaji Street, Radha Nagar, Chromepet, Kancheepuram District.		
Site Location	Minor Mineral Rough Stone, Lease Area – 2.39.0 Ha. S.F.No:1/2C,1/3,1/4,1/5 & 16/2A of Sithalapakkam Village, Vembakkam Taluk, Thiruvannamalai District.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ 7 – Mathur
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/12185,12217, 12415,12539,12709, 12848,137, 226, 401,434,554,604,739,753,907,968, 1123,1206,1452,1338,1555,1622,1798,1838,2006,2028		
Location Coordinates	12°42'52.85"N 79°40'52.40"E		
Report Date	24.06.2024		

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)
11.03.2024	08.30 – 08.30	43.02	19.54	6.08	22.51	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
12.03.2024	09.00 – 09.00	42.29	19.54	4.21	21.82	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
18.03.2024	12.00 – 12.00	44.11	19.54	BDL(DL:4.0)	23.74	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
19.03.2024	12.10 – 12.10	44.87	19.13	6.63	21.72	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
25.03.2024	12.40 – 12.40	45.66	19.96	5.40	23.22	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
26.03.2024	12.50 – 12.50	44.32	19.96	6.11	22.15	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
01.04.2024	12.00 – 12.00	44.02	20.37	BDL(DL:4.0)	24.84	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
02.04.2024	12.10 – 12.10	44.96	19.54	BDL(DL:4.0)	20.18	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
08.04.2024	13.10 – 13.10	45.08	19.10	BDL(DL:4.0)	22.37	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
09.04.2024	13.20 – 13.20	44.00	19.96	5.52	21.19	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
15.04.2024	13.10 – 13.10	44.58	19.96	BDL(DL:4.0)	21.85	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
16.04.2024	13.20 – 13.20	45.69	20.79	7.21	19.69	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
22.04.2024	12.45 – 12.45	45.98	20.79	6.77	22.77	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
23.04.2024	13.00 – 13.00	44.99	20.79	5.09	21.76	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
29.04.2024	12.15 – 12.15	45.15	19.96	6.69	23.24	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
30.04.2024	12.30 – 12.30	45.11	19.54	8.81	21.25	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
06.05.2024	12.30 – 12.30	45.66	19.96	7.06	20.70	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
07.05.2024	12.45 – 12.45	45.02	20.37	7.52	22.29	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
13.05.2024	12.00 – 12.00	42.90	21.21	4.77	21.78	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
14.05.2024	12.10 – 12.10	43.78	18.71	6.70	22.18	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
20.05.2024	12.15 – 12.15	43.11	18.71	7.21	23.28	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
21.05.2024	12.30 – 12.30	42.50	19.13	4.52	21.37	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
27.05.2024	13.15 – 13.15	42.69	20.37	9.11	20.12	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
28.05.2024	13.30 – 13.30	43.47	19.54	6.13	20.12	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
03.06.2024	12.00-12.00	43.69	19.54	BDL(DL:4.0)	21.48	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
04.06.2024	12.10-12.10	42.39	18.71	BDL(DL:4.0)	19.83	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
NAAQ* Standard		<100	<60	<80	<80	<180	<400	<4

Note: BDL: Below Detection Limit, DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.



Verified by

L. SUDHAPRIYA
Technical Manager

SUMMARY REPORT

Issued To	Thiru .G.Ulaganathan, S/o.Gomathinayagam,No.15/31, Rajaji Street, Radha Nagar, Chromepet, Kancheepuram District.		
Site Location	Minor Mineral Rough Stone, Lease Area – 2.39.0 Ha. S.F.No:1/2C,1/3,1/4,1/5 & 16/2A of Sithalapakkam Village, Vembakkam Taluk, Thiruvannamalai District.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ 7 – Mathur
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/12185,12217, 12415,12539,12709, 12848,137, 226, 401,434,554,604,739,753,907,968, 1123,1206,1452,1338,1555,1622,1798,1838,2006,2028		
Location Coordinates	12°42'52.85"N 79°40'52.40"E		
Report Date	24.06.2024		

Date	Period. hrs	Ni (ng/m ³)	As (ng/m ³)	C6H6 (µg/m ³)	BaP (ng/m ³)	Pb (µg/m ³)
11.03.2024	08.30 – 08.30	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
12.03.2024	09.00 – 09.00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
18.03.2024	12.00 – 12.00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
19.03.2024	12.10 – 12.10	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
25.03.2024	12.40 – 12.40	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
26.03.2024	12.50 – 12.50	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
01.04.2024	12.00 – 12.00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
02.04.2024	12.10 – 12.10	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
08.04.2024	13.10 – 13.10	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
09.04.2024	13.20 – 13.20	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
15.04.2024	13.10 – 13.10	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
16.04.2024	13.20 – 13.20	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
22.04.2024	12.45 – 12.45	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
23.04.2024	13.00 – 13.00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
29.04.2024	12.15 – 12.15	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
30.04.2024	12.30 – 12.30	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
06.05.2024	12.30 – 12.30	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
07.05.2024	12.45 – 12.45	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
13.05.2024	12.00 – 12.00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
14.05.2024	12.10 – 12.10	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
20.05.2024	12.15 – 12.15	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
21.05.2024	12.30 – 12.30	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
27.05.2024	13.15 – 13.15	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
28.05.2024	13.30 – 13.30	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
03.06.2024	12.00-12.00	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
04.06.2024	12.10-12.10	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
NAAQ* Standard		<20	<6.0	<5.0	<1.0	<1.0

Note: BDL: Below Detection Limit, DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.



Verified by

L. SUDHAPRIYA

Technical Manager

*****End of Report*****

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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

Note: Names of approved EIA Coordinators and Functional Area Experts are mentioned in RAAC minutes dated Jan 06, 2023 and posted on QCI-NABET website.

The Accreditation shall remain in force subject to continued compliance to the terms and conditions mentioned in QCI-NABET's letter of accreditation bearing no QCI/NABET/ENV/ACO/23/2684 dated Feb 20, 2023. The accreditation needs to be renewed before the expiry date by Geo Exploration & Mining Solutions, Salem following due process of assessment.

Sr. Director, NABET
Dated: Feb 20, 2023

Certificate No.
NABET/EIA/2225/RA 0276

Valid up to
August 06, 2025

For the updated List of Accredited EIA Consultant Organizations with approved Sectors please refer to the QCI-NABET website.

