

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 –

GOVERNMENT LAND - FRESH QUARRY

CLUSTER EXTENT – 11.20.5 Ha

TVL.SQUARE ENTERPRISES ROUGH STONE QUARRY

Extent – 3.20.5 Ha

Lease Period/Mining Plan Period – 10 Years

Project Proponent



TVL.SQUARE ENTERPRISES,

Thiru.R.Chandran (Partner)

Varaganapalli Village,

Nagamangalam Post,

Denkanikottai Taluk, Krishnagiri District – 635 113.

PROJECT LOCATION	PROPOSED PRODUCTION
<p>Tvl.Square Enterprises S.F. No 629(Part), Extent: 3.20.5 Ha Nagamangalam Village, Denkanikottai Taluk, Krishnagiri District.</p>	<p>As per ToR obtained For First Five Year Production: 4,52,615 m³ of Rough stone, 2,500 m³ of Topsoil For Second Five Year Production: 4,27,040 m³ of Rough stone, Peak Production = 1,00,240 m³ of Rough Stone Proposed Depth = 60m (45m Agl+15m Bgl)</p>
<p style="text-align: center;">ToR obtained vide Lr No.SEIAA-TN/F.No.10238/SEAC/ToR-1556/2023 Dated: 27.09.2023</p>	
<p>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</p> 	<p style="text-align: center;">Laboratory GLOBAL LAB AND CONSULTANCY SERVICES Approved by ISO:9001:2015, NABL, FSSAI, Experts in QHSE S.F No:92/3A2, Geetha Nagar, Alagapuram Pudur, Salem-636016.</p>
<p style="text-align: center;"><u>Baseline Monitoring Period</u> October 2023 – December 2023</p>	
<p style="text-align: center;">JANUARY 2024</p>	

UNDERTAKING

I R.Chandran – Partner of Tvl.Square Enterprises given undertaking that this EIA & EMP report prepared for our Rough stone quarry situated in S.F.No 629(Part), over an extent of 3.20.5 Ha in Nagamangalam Village, Denkanikottai Taluk and Krishnagiri District based on the ToR issued by the State Level Environmental Impact Assessment Authority (SEIAA), Tamil Nadu vide Letter No Lr No.SEIAA-TN/F.No.10238/SEAC/ToR-1556/2023 Dated: 27.09.2023

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
For Tvl.Square Enterprises



R.Chandran

Place : Krishnagiri

Dated :

DECLARATION

I Dr. M.Ifthikhar Ahmed – EIA Co Ordinator declare that the EIA & EMP report for the Rough stone quarry in S.F.No 629(Part),over an extent of 3.20.5 Ha in Nagamangalam Village, Denkanikottai Taluk and Krishnagiri 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 QUARRY					
CODE	Name of the Owner	Mineral	S.F. Nos	Extent in Ha	Status
P1	Tvl.Square Enterprises	Rough Stone	629(P)	3.20.5	Lr No. SEIAA-TN/F.No.10238/SEAC/ToR -1556/2023 Dated: 27.09.2023
TOTAL EXTENT				3.20.5	
EXISTING QUARRIES					
CODE	Name of the Owner	Mineral	S.F. Nos	Extent in Ha	Status
E-1	Thiru.Faldu Chimanlal Monanbhai	Rough Stone	629(Part-1)	4.00.0	29.02.2016 – 28.02.2026
E-2	Thiru.K.Amrish	Rough Stone	629(Part-2)	4.00.0	29.02.2016 – 28.02.2026
E-3	Tvl.Global Trading Company	Granite	629(P)	2.02.5	19.05.1995 – 18.05.2005 *Not taken for calculating Cluster
E-4	Tvl.Indira Granites	Granite	629(P)	0.81.0	06.05.1995 – 05.05.2005 *Not taken for calculating Cluster
E-5	Tvl.M.D.Anandhan	Granite	629(P)	0.81.0	17.03.1996-16.03.2006 *Not taken for calculating Cluster
E-6	Tmt.J.Premalatha	Granite	620(P)	0.81.0	14.12.1995 – 13.12.2005 *Not taken for calculating Cluster
E-7	Thiru.A.Rajamani	Granite	629(P)	2.02.5	06.05.1995 – 05.05.2005 *Not taken for calculating Cluster
E-8	Tvl.Rani Granites	Granite	629(P)	4.05.0	16.06.1993 – 15.06.2003 *Not taken for calculating Cluster
TOTAL EXTENT				18.53.0	
ABANDONED QUARRIES					
A-1	Thiru.Jayendra KumarBavan Bai Patel	Rough Stone	1249(P)	5.00.0	2.7.2008 – 1.7.2018
TOTAL EXTENT				5.00.0	
TOTAL CLUSTER EXTENT				11.20.5	

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

* Homogeneous Minerals will be taken for calculating the Cluster Area.

TERMS OF REFERENCE (ToR) COMPLIANCE

Lr No. SEIAA-TN/F.No.10238/SEAC/ToR -1556/2023 Dated: 27.09.2023

SPECIFIC CONDITIONS		
1	The proponent is requested to carry out a survey and enumerate on the structures located within 100m,200m,300m from the boundary of the mine lease area	Structure study have been carried and it is detailed in the Chapter - 3
2	As the Cauvery North WLS is within 10 km from the proposed site. PP shall consult the DFO concerned for contributing towards conservation measures in the WLS and include the same in the EMP..	Noted and Agreed It will be attached in the Final EIA/EMP report annexure Cauvery North Wildlife Sanctuary - 4 km-South west Udedurgam R.F - 4.22 Km South west

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 zonelbenches (ix) Revised/Modified Mining Plan showing the benches ofnot exceeding 6 m height and ultimate depth of not exceeding 50m.	Not Applicable, It is a Fresh Quarry
2	Details of habitations around the proposed mining area and latest VAO certificate regarding the location of habitations within 300m radius from the periphery of the site.	Detailed in chapter-3 and VAO certificate is incorporated in the Draft EIA/EMP report.
3	The proponent is requested to carry out a survey and enumerate on the structures located within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m (v) 500m shall be enumerated with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places ofworship, industries, factories, sheds, etc with indicating the owner ofthe building, nature ofconstruction, age ofthe building, number of residents, their profession and income, etc.	Structure study have been carried and it is detailed in the Chapter - 3
4	The PP shall submit a detailed hydrological report indicating the impact of proposed quarrying operations on the waterbodies like lake. water tanks, etc are located within 1km of the proposed quarry.	Seasonal Odai - 380m South Odai - 360m NE Tank - 840m SE Tank Near Nagamangalam - 2.5km SE Chinnar Stream - 4.6km SW Tank Near Armadpura - 4.6km NW Ponnaiyar River - 6.5km NE Nanjappan Kodigai Eri - 6.8km West Detailed EIA study has been carried out considering the impact to the water bodies and eco system of the area. Details are covered in the Chapter No.3 and 4. Attached detailed hydrological report in Annexure.

5	The Proponent shall carry out Bio diversity study through reputed Institution and the same shall be included in EIA Report.	Detailed in chapter-3 ecology environment in the draft EIA report.
6	The DFO letter stating that the proximity distance of Reserve Forests, Protected Areas, Sanctuaries, Tiger reserve etc., up to a radius of 25 km from the proposed site.	Udedurgam R.F - 4.22 Km South west Cauvery North Wildlife Sanctuary - 4 km-South west DFO letter will be obtained and attached in the Final EIA/EMP report annexure
7	In the case of proposed lease in an existing (or old) quarry where the benches are not formed (or) partially formed as per the approved Mining Plan, the project proponent (pp) shall the PP shall carry out the scientific studies to assess the slope stability of the working benches to be constructed and existing quarry wall, by involving any one of the reputed Research and Academic Institutions - CSIR-Central Institute of Mining & Fuel Research / Dhanbad, NIRM/Bangalore, Division of Geotechnical Engineering-IIT Madras, NIT-Dept of Mining Engg, Surathkal, and Anna university Chennai-CEG Campus. The PP shall submit a copy of the aforesaid report indicating the stability status of the quarry wall and possible mitigation measures during the time of appraisal for obtaining the EC.	Fresh lease application. The altitude of the area is 847 - 806m (max) above Mean Sea level
8	However, in case of the fresh/virgin quarries, The Proponent shall submit a conceptual 'Slope Stability Plan' for the proposed quarry during the appraisal while obtaining the EC, when the depth of the working is extended beyond 30 m below ground level.	Ultimate Pit Dimension Pit-1 290m(L) x 108m (W) x70m(D) (45m AGL+25m BGL) Proposed Depth = 60m (45m Agl + 15m Bgl)
9	The PP shall furnish the affidavit stating that the blasting operation in the proposed quarry is carried out by the statutory competent person as per the MMR 1961 such as blaster, mining mate, mine foreman, II/1st Class mines manager appointed by the proponent.	Proponent given Affidavit stating that the blasting operation will be carried out by the competent person as per the MMR 1961.
10	The PP shall present a conceptual design for carrying out only controlled blasting operation involving line drilling and muffle blasting in the proposed quarry such that the blast-induced ground vibrations are controlled as well as no fly rock travel beyond 30m from the blast site.	The Blasting will be carried out by controlled blasting adopting muffle blasting and line drilling. The cost for the controlled blasting is allotted in the EMP
11	The EIA Coordinators shall obtain and furnish the details of quarry/quarries operated by the proponent ill the past, either in the same location or elsewhere in the State with video and photographic evidences.	No other Existing, Abandoned and proposed quarries in the name of proponent.
12	If the proponent has already carried out the mining activity in the proposed mining lease area after 15.01.2016, then the proponent shall furnish the following details from AD/DD, mines	No other Existing, Abandoned and proposed quarries in the name of proponent It is a Fresh Lease application.
13	what was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?	No other Existing, Abandoned and proposed quarries in the name of proponent It is a Fresh Lease application.

14	<p>Quantity of minerals mined out</p> <p>a) Highest production achieved in any one year</p> <p>b) Detail of approved depth of mining</p> <p>c) Actual depth of the mining achieved earlier</p> <p>d) Name of the person already mined in that leases area</p> <p>e) If EC and CTO already obtained' the copy of the same shall be submitted</p> <p>f) whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.</p>	Not Applicable, It is a Fresh lease application
15	All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/Topo sheet, topographic sheet, geomorphology, lithology and geology of the mining lease area should be provided. such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).	<p>Coordinates for all the boundaries are given in the Chapter No.2</p> <p>Satellite imagery of the project site marked with Lease boundary, Safety area</p>
16	The PP shall carry out Drone video survey covering the cluster, Green belt, fencing etc.,	Drone video survey covering the Cluster, Greenbelt and fencing will be submitted during appraisal.
17	The proponent shall furnish photographs of adequate fencing, green belt along the periphery including replantation of existing trees & safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan.	<p>The area has been fenced and the photographs are given in the Chapter No.2,</p> <p>No trees within the proposed excavation area, No transplantation is required.</p> <p>Water bodies near to the project site is given in the Chapter No.2</p>
18	The Project Proponent shall provide the details of mineral reserves and mineable reserves, planned production capacity, proposed working methodology with justifications, the anticipated impacts of the mining operations on the surrounding environment and the remedial measures for the same.	<p>As per ToR obtained</p> <p>For First Five Year Production: 4,52,615 m³ of Rough stone, 2,500 m³ of Topsoil</p> <p>For Second Five Year Production: 4,27,040 m³ of Rough stone, Peak Production = 1,00,240 m³ of Rough Stone</p> <p>Proposed Depth = 60m (45m Agl+15m Bgl)</p> <p>The proposed plantation is 1920 Nos.along the safety barrier, village road and panchayat road</p> <p>Details of Geological Resources and Proposed reserves are discussed under Chapter No. 2.</p>
19	The Project Proponent shall provide the organization chart indicating the appointment of various statutory officials and other competent persons to be appointed as per the provisions of 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.	Discussed about Organization chart in Chapter 6,
20	The project proponent shall conduct the hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1km (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 are this regard may be provided.	The hydro-geological study was conducted to evaluate the possible impact on the ground water table. No significant impacts are anticipated on the water bodies around the project area. Details are discussed under Chapter No. 3.
21	The proponent shall furnish the baseline data for the environmental and ecological parameters with regard	Baseline data for the environmental and ecological parameters with regard to surface water/ground water

	to surface water/ground water quality, air quality, soil quality & Flora/fauna including traffic/vehicular movement study.	quality, air quality, soil quality, & flora/fauna including traffic/vehicular movement study to assess the cumulative impact of the proposed project on the environment is prepared. The details of Baseline study is given in the Chapter No. 3.
22	The Proponent shall carry out the Cumulative impact study due to mining operations carried out in the quarry specifically with reference to the specific environment in terms of soil, health, biodiversity, air pollution, water pollution, climate change and flood control & health impacts. Accordingly, the Environment Management plan should be prepared keeping the concerned quarry and the surrounding habitations in the mind.	The Cumulative impact study due to mining operations is explained in chapter – 7
23	Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.	The rain water will be collected in the mine pit at the lower point later it will be utilized for the haul road maintenance, Greenbelt development etc.,
24	Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass pre operational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.	Land use Land cover study within the radius of 10km is detailed in the Chapter No. 3
25	Details of the land for storage of Overburden/Waste Dumps (or) Rejects outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be provided.	Not applicable, There is no wastages anticipated, the entire quarried out Rough stone material will be utilized..
26	Proximity to Areas declared as 'Critically Polluted' (or) the Project areas which attracts the court restrictions for mining operations, should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the TNPCB (or) Dept. of Geology and Mining should be secured and furnished to the effect that the proposed mining activities could be considered.	The area is not declared as Critically polluted area, No court case pending against the project. Proponent obtained Precise area communication letter, Approval for the Mining plan. The Details are enclosed as Annexure .
27	Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.	The rain water collected in the pits after spell of rain will be used for greenbelt development and dust suppression.
28	Impact on local transport infrastructure due to the Project should be indicated.	There is no group of Houses, Schools in the proposed transportation route. Proposed Transportation route with mitigation measures are given in the Chapter No.2
29	A tree survey study shall be carried out (nos., name of the species, age, diameter etc..) both within the mining lease applied area & 300m buffer zone and its management during mining activity.	The Flora study in the core zone has been carried out and the details are given in the Chapter No.3
30	A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.	The mine closure plan is detailed in the Chapter No.4 The budget for the mine closure is included in the Environmental Management plan in Chapter No.10 ,
31	As a part of the study of flora and fauna around the vicinity of the proposed site, the EIA coordinator shall strive to educate the local students on the importance of preserving local flora and fauna by involving them in the study, wherever possible.	The Flora and Fauna study around the vicinity of the site is carried out by the Functional area experts along with Local School Students.
32	The purpose of green belt around the project is to capture the fugitive emissions. Carbon sequestration	The plantation in the project site will be carried out using native and mixed plantation. The

	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 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.	recommended species for the plantation is given in the Chapter No.4 Table
33	Taller/one year old Saplings raised in appropriate size of bags; preferably eco-friendly bags should be planted in proper replacement 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.	Noted and Agreed. The plantation in the project site will be carried out using native and mixed plantation. The recommended species for the plantation is given in the Chapter No.4
34	A Disaster management Plan shall be prepared and included in the EIA/EMP Report.	Disaster management Plan details in Chapter-7
35	A Risk Assessment and management Plan shall be prepared and included in the EIA/EMP Report.	A Risk Assessment and management Plan Chapter-7
36	Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.	Occupational Health impacts of the project with mitigation measures are detailed in the Chapter No.7, Details of Periodical Medical Examination given in the Chapter No.10
37	Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.	The details of the population in the impact zone (within 500m radius) is detailed in the Chapter No.3,
38	The Socio-economic studies should be carried out within a 5 km buffer zone from the mining activity. Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.	Socio Economic study covering 10 km radius is detailed in the Chapter No.3
39	Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.	No court case and litigation pending against the project.
40	Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.	It is explained in Chapter -3- socio economic study
41	If any quarrying operations were carried out in the proposed quarrying site for which now the EC is sought, the Project Proponent shall furnish the detailed compliance to EC conditions given in the previous EC with the site photographs which shall duly be certified by MoEF&CC, Regional Office, Chennai (or) the concerned DEE/TNPCB.	Not applicable, the project is fresh proposal
42	The PP shall prepare the EMP for the entire life of mine and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine.	The EMP has been prepared for the entire life of the mine. Proponent given affidavit stating the EMP will be submitted during the appraisal after completion of Public hearing.

43	Concealing any factual information or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this Terms of Reference besides attracting penal provisions in the Environment (Protection) Act, 1986.	Noted and agreed
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ADDITIONAL CONDITIONS-Annexure-B		
<i>Cluster Management committee</i>		
1.	Cluster Management Committee shall be framed which must include all the proponents in the cluster as members including the existing as well as proposed quarry.	Cluster management committee has been formed with mutual agreement with the proponents including Existing and Proposed quarry at present 6 Nos are members in this CMC
2	The members must coordinate among themselves for the effective implementation of EMP as committed including Green Belt Development, Water sprinkling, tree plantation, blasting etc..	As per the committee agreement proponents will coordinates for the Greenbelt development, Water sprinkling and tree plantation activities combinedly
3	The List of members of the committee formed shall be submitted to AD/Mines before the execution of mining lease and the same shall be updated every year to the AD/Mines.	The formation of committee with list of members has been submitted to the AD mines office, Krishnagiri and the same will be update in every year
4	Detailed operational Plan must be submitted which must include the blasting frequency with respect to the nearby quarry situated in the cluster, the usage of haul roads by the individual quarry in the form of route map and network.	As per the committee agreement the blasting frequency will be discussed and carryout by the Mines Manager appointed by the proponents and the same will be updated in the committee minutes
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 Final 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 Final 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 within the cluster.	Details discussed in chapter 7.
9	The committee shall deliberate on the health of the workers/staff involved in the mining as well as the health of the public.	Details discussed in chapter 10.
10	The committee shall furnish an action plan to achieve sustainable development goals with reference to water, sanitation & safety.	Noted & agreed
11	The committee shall furnish the fire safety and evacuation plan in the case of fire accidents.	Detailed discussed in chapter 7.
<i>Impact study of mining</i>		
12	Detailed study shall be carried out in regard to impact of mining around the proposed mine lease	Details of Soil health is given in Chapter No 3 and biodiversity is given in Chapter No 3.

	<p>area covering the entire mine lease period as per precise area communication order issued from reputed research institutions on the following</p> <p>a) Soil health & bio-diversity b) Climate change leading to Droughts, Floods etc. c) Pollution leading to release of Greenhouse gases (GHG), rise in Temperature' & Livelihood of the local people. d) Possibilities of water contamination and impact on aquatic ecosystem health' e) Agriculture, Forestry & Traditional practices. 1) Hydrothermal/Geothermal effect due to destruction in the Environment' g) Bio-geochemical processes and its foot prints including environmental stress' h) Sediment geochemistry in the surface steams.</p>	<p>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.</p>
Agriculture & Agro-Biodiversity		
13	Impact on surrounding agricultural fields around the proposed mining Area.	Detailed discussed in chapter 4.
14	Impact on soil flora & vegetation around the project site.	Detailed discussed in chapter 4.
15	Details of type of vegetations including no. of trees & shrubs within the proposed mining area and. If so, transplantation of such vegetations all along the boundary of the proposed mining area shall committed mentioned in EMP.	Details discussed in chapter 10
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.	<p>The EIA study on biodiversity, natural ecosystem, the soil micro flora, fauna was carried out and discussed in earlier slides. The species overcome periods of un favorable weather conditions by building up large seed stock in the soil, which is known as "soil seed banks". This strategy protects plant species diversity against local extinction of the species during the disturbance and provides information on the past population dynamics and structure and future regeneration potential of degraded land. The proposed project site is a dry land without any major vegetation and its proposed to remove the top layer of gravelly formation and sold in open market and the 7.5m of safety barrier shall be remained un touched all around the lease applied area.</p>
17	Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.	<p>During Mine Closure the excavated pit will be allowed to collect rain water and shall act as an artificial reservoir and shall prove beneficial for the ecosystem. The proposed greenbelt activity shall also prove beneficial for the ecosystem during mine closure</p>
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 bounded by Existing quarries on the South side. Proponent proposed to erect green mesh along with fencing on the South side besides, Budgetary allocation given in the Chapter No. 10.
Forest		
19	The project proponent shall detail study on impact of mining on Reserve forests free ranging wildlife.	Udedurgam R.F - 4.22 Km South west Cauvery North Wildlife Sanctuary - 4 km-South west
20	The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.	Ecology and Biodiversity environment deals in Chapter-3

21	The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection.	Ecology and Biodiversity environment deals in Chapter-3
22	The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site.	Anticipated Environment Impact and Mitigation measures are detailed in Chapter No.4
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.	There are 10 open wells and 6 bore wells within the radius of 1km from the project area, Hydrogeological study has been conducted by the resistivity method
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.	Details in Chapter 2 and 4 impact of bio diversity
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.	Noted & agreed. Detailed under Chapter 3.
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.	Details in Chapter 3 Water environment.
Energy		
31	The measures taken to control Noise, Air, Water, Dust Control and steps adopted to efficiently utilize the Energy shall be furnished.	Details in Chapter 3 environmental monitoring details.
Climate Change		
32	The Environmental Impact Assessment shall study in detail the carbon emission and also suggest the measures to mitigate carbon emission including development of carbon sinks and temperature reduction including control of other emission and climate mitigation activities.	Details of carbon emission and mitigation activities are given in the Chapter No.4
33	The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock.	Details in Chapter-3 for meteorological and climate/weather data representation of graphs.
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.	Details in Green belt development in chapter 4
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.,	Noted & agreed. Detailed under Chapter 4
40	As per the MoEF& CC office memorandum tr.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 int the Chapter No.4
STANDARD TERMS OF REFERENCE		
1	Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification 1994 came into force, w.r.t. the highest production achieved prior to 1994.	Not applicable. This is not a violation category project. This proposal falls under B1 Category
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 Government 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 No1.1 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 ⁰ bench angles. Quarrying activities will be carried out under the supervision of Competent Persons like Mines Manager, Mines Foreman and Mining Mate. Necessary permissions will be obtained from DGMS after obtaining Environmental Clearance.
9	The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc., should be for the life of the mine / lease period.	Noted & agreed. The study area considered for this study is 10 km radius and all data contained in the EIA report such as waste generation etc., is for the Life of the Mine / lease period.
10	Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.	Land use and land cover of the study area is discussed in Chapter No. 3. Land use plan of the project area showing pre-operational, operational and post-operational phases are discussed in Chapter No. 2, Table No 2.3
11	Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area,	Not Applicable.

	distance from mine lease, its land use, R&R issues, if any, should be given	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 Government 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 to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished	Not Applicable. There are no National Parks, Biosphere Reserves, Wildlife Corridors, and Tiger/Elephant Reserves within 10 km Radius from the periphery of the project area.
18	A detailed biological study of the study area [core zone and buffer zone (10 KM radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled-I fauna found in the study area, the necessary plan along with budgetary provisions for their conservation should be prepared in consultation with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost.	Detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] was carried out and discussed under Chapter No. 3. There is no schedule I species of animals observed within study area as per Wildlife Protection Act 1972 as well as no species is in vulnerable, endangered or threatened category as per IUCN. There is no endangered red list species found in the study area.

19	Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravalli Range', (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Department should be secured and furnished to the effect that the proposed mining activities could be considered.	Not Applicable. Project area / Study area is not declared in 'Critically Polluted' Area and does not come under 'Aravalli Range'.
20	Similarly, for coastal Projects, A CRZ map duly authenticated by one of the authorized agencies demarcating LTL, HTL, CRZ area, location of the mine lease w.r.t CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).	Not Applicable. The project doesn't attract The C. R. Z. Notification, 2018.
21	R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine lease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspects should be discussed in the Report.	Not Applicable. There are no approved habitations within a radius of 300 meters. Therefore, R&R Plan / Compensation details for the Project Affected People (PAP) is not anticipated and Not Applicable for this project.
22	One season (non-monsoon) [i.e. March-May (Summer Season); October-December (post monsoon season); December-February (winter season)]primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the predominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.	Baseline Data were collected for Summer Season (October 2023 – December 2023) as per CPCB Notification and MoEF & CC Guidelines. Details in Chapter No. 3.
23	Air quality modelling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of vehicles for transportation of mineral. The details of the model used and input parameters used for modelling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors,	Air Quality Modelling for prediction of incremental GLC's of pollutant was carried out using AERMOD Model. Details in Chapter No. 4,

	if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map.	
24	The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated.	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 mines 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 70-65m below ground level. The ultimate depth of this projects is 60m(45m Agl + 15m Bgl) from the general ground profile. Maximum depth is proposed in this EIA project is 41m.
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 806-847m AMSL Ultimate depth of the mine is 60m(45m Agl + 15m Bgl) AMSL Water level in the area is 70m to 65m 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 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.	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 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	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. .

	is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines.	
33	Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.	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 7,60,000/- 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.

TABLE OF CONTENTS

1. INTRODUCTION.....	1
1.0 PREAMBLE.....	1
1.1 PURPOSE OF THE REPORT.....	1
1.2 IDENTIFICATION OF PROJECT AND PROJECT PROPONENTS	4
1.3 BRIEF DESCRIPTION OF THE PROJECT	5
1.4 ENVIRONMENTAL CLEARANCE.....	8
1.5 TERMS OF REFERENCE (ToR).....	8
1.6 POST ENVIRONMENT CLEARANCE MONITORING.....	9
1.7 GENERIC STRUCTURE OF EIA DOCUMENT	9
1.8 THE SCOPE OF THE STUDY	9
2. PROJECT DESCRIPTION.....	11
2.0 GENERAL	11
2.1 DESCRIPTION OF THE PROJECT	11
2.2 LOCATION OF THE PROJECT	11
2.3 GEOLOGY.....	17
2.4 RESOURCES AND RESERVES	20
2.5 METHOD OF MINING	25
2.6 GENERAL FEATURES.....	26
2.7 PROJECT REQUIREMENT	28
2.8 EMPLOYMENT REQUIREMENT:.....	29
2.9 PROJECT IMPLEMENTATION SCHEDULE	29
3. DESCRIPTION OF ENVIRONMENT	30
3.0 GENERAL	30
3.1 LAND ENVIRONMENT.....	32
3.2 WATER ENVIRONMENT.....	40
3.3 AIR ENVIRONMENT	53
3.4 NOISE ENVIRONMENT.....	62
3.5 ECOLOGICAL ENVIRONMENT	65
3.6 SOCIO ECONOMIC ENVIRONMENT	77
4. ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES	86
4.0 GENERAL	86
4.1 LAND ENVIRONMENT:.....	86
4.2 WATER ENVIRONMENT.....	87

4.3	<i>AIR ENVIRONMENT</i>	88
4.4	<i>NOISE ENVIRONMENT</i>	94
4.5	<i>ECOLOGY AND BIODIVERSITY</i>	98
4.6	<i>SOCIO ECONOMIC</i>	101
4.7	<i>OCCUPATIONAL HEALTH AND SAFETY</i>	102
4.8	<i>MINE WASTE MANAGEMENT</i>	103
4.9	<i>MINE CLOSURE</i>	103
5.	<i>ANALYSIS OF ALTERNATIVES (TECHNOLOGY AND SITE)</i>	105
5.0	<i>INTRODUCTION</i>	105
5.1	<i>FACTORS BEHIND THE SELECTION OF PROJECT SITE</i>	105
5.2	<i>ANALYSIS OF ALTERNATIVE SITE</i>	105
5.3	<i>FACTORS BEHIND SELECTION OF PROPOSED TECHNOLOGY</i>	105
5.4	<i>ANALYSIS OF ALTERNATIVE TECHNOLOGY</i>	105
6.	<i>ENVIRONMENTAL MONITORING PROGRAMME</i>	106
6.0	<i>GENERAL</i>	106
6.1	<i>METHODOLOGY OF MONITORING MECHANISM</i>	106
6.2	<i>IMPLEMENTATION SCHEDULE OF MITIGATION MEASURES</i>	107
6.3	<i>MONITORING SCHEDULE AND FREQUENCY</i>	108
6.4	<i>BUDGETARY PROVISION FOR EMP</i>	108
6.5	<i>REPORTING SCHEDULES OF MONITORED DATA</i>	109
7.	<i>ADDITIONAL STUDIES</i>	110
7.0	<i>GENERAL</i>	110
7.1.	<i>PUBLIC CONSULTATION</i>	110
7.2	<i>RISK ASSESSMENT</i>	110
7.3	<i>DISASTER MANAGEMENT PLAN</i>	112
7.4	<i>CUMULATIVE IMPACT STUDY</i>	115
7.5	<i>PLASTIC WASTE MANAGEMENT PLAN</i>	123
8.	<i>PROJECT BENEFITS</i>	124
8.0	<i>GENERAL</i>	124
8.1	<i>EMPLOYMENT POTENTIAL</i>	124
8.2	<i>SOCIO-ECONOMIC WELFARE MEASURES PROPOSED</i>	124
8.3	<i>IMPROVEMENT IN PHYSICAL INFRASTRUCTURE</i>	124
8.4	<i>IMPROVEMENT IN SOCIAL INFRASTRUCTURE</i>	124
8.5	<i>OTHER TANGIBLE BENEFITS</i>	124
9.	<i>ENVIRONMENTAL COST BENEFIT ANALYSIS</i>	126

10. ENVIRONMENTAL MANAGEMENT PLAN	127
10.0. GENERAL	127
10.1. ENVIRONMENTAL POLICY	127
10.2. LAND ENVIRONMENT MANAGEMENT –	128
10.3. SOIL MANAGEMENT.....	128
10.4. WATER MANAGEMENT.....	129
10.5. AIR QUALITY MANAGEMENT	129
10.6. NOISE POLLUTION CONTROL	130
10.7. GROUND VIBRATION AND FLY ROCK CONTROL.....	130
10.8. BIOLOGICAL ENVIRONMENT MANAGEMENT	131
10.9. OCCUPATIONAL SAFETY & HEALTH MANAGEMENT.....	132
10.10.: CONCLUSION –	139
11. SUMMARY AND CONCLUSION	140

LIST OF TABLES

TABLE 1.1: DETAILS OF PROJECT PROPONENT	4
TABLE 1.2: SALIENT FEATURES OF THE PROPOSED PROJECT	4
TABLE 1.3: ENVIRONMENT ATTRIBUTES.....	9
TABLE 2.1: SITE CONNECTIVITY	11
TABLE 2.2: CO-ORDINATES – PROJECT BOUNDARY.....	11
TABLE 2.3: LAND USE PATTERN.....	17
TABLE 2.4: RESOURCES AND RESERVES.....	17
TABLE 2.5: RESOURCES AND RESERVES.....	20
TABLE 2.6: YEAR-WISE PRODUCTION PLAN AS PER ToR FOR 10 YEARS	20
TABLE 2.7: ULTIMATE PIT DIMENSION.....	22
TABLE 2.8 PROPOSED MACHINERY DEPLOYMENT	26
TABLE.2.9: TRAFFIC SURVEY LOCATIONS	26
TABLE 2.10: EXISTING TRAFFIC VOLUME.....	26
TABLE 2.11: ROUGH STONE & GRAVEL HOURLY TRANSPORTATION REQUIREMENT.....	27
TABLE 2.12: SUMMARY OF TRAFFIC VOLUME	27
TABLE 2.13: WATER REQUIREMENT FOR THE PROJECT	28
TABLE 2.14: PROPOSED MANPOWER DEPLOYMENT.....	29
TABLE 2.15: EXPECTED TIME SCHEDULE	29
TABLE 3.1: MONITORING ATTRIBUTES AND FREQUENCY OF MONITORING	31
TABLE 3.2: LAND USE / LAND COVER TABLE 10 Km RADIUS.....	32
TABLE 3.3: DETAILS OF ENVIRONMENT SENSITIVITY AROUND THE CLUSTER.....	35
TABLE 3.4: NEARBY WATER BODIES FROM THE PROPOSED PROJECT SITE	35
TABLE 3.5: SOIL SAMPLING LOCATIONS.....	36
TABLE 3.6: METHODOLOGY OF SAMPLING COLLECTION	36
TABLE 3.7: SOIL QUALITY OF THE STUDY AREA.....	38
TABLE 3.8: WATER SAMPLING LOCATIONS	41
TABLE 3.9: GROUND WATER SAMPLING RESULTS.....	43
TABLE 3.10: SURFACE WATER SAMPLING RESULTS.....	45
TABLE 3.11: SUMMER SEASON WATER LEVEL OF OPEN WELLS 1 KM RADIUS	48
TABLE 3.12: SUMMER SEASON WATER LEVEL OF BOREWELLS 1 KM RADIUS	49

TABLE 3.13: RAINFALL DATA.....	54
TABLE 3.14: METEOROLOGICAL DATA RECORDED AT SITE	54
TABLE 3.15: METHODOLOGY AND INSTRUMENT USED FOR AAQ ANALYSIS.....	55
TABLE 3.16: NATIONAL AMBIENT AIR QUALITY STANDARDS	56
TABLE 3.17: AMBIENT AIR QUALITY (AAQ) MONITORING LOCATIONS	56
TABLE 3.18: SUMMARY OF AAQ 1 to AAQ 8	58
TABLE 3.19: ABSTRACT OF AMBIENT AIR QUALITY DATA.....	59
TABLE 3.21: DETAILS OF SURFACE NOISE MONITORING LOCATIONS.....	62
TABLE 3.22: AMBIENT NOISE QUALITY RESULT	63
TABLE 3.23: FLORA IN THE CORE ZONE – CLUSTER AREA.....	67
TABLE 3.24: FLORA IN THE BUFFER ZONE.....	68
TABLE 3.25: NUMBER OF FLORAL LIFE FORMS IN THE STUDY AREA	71
TABLE 3.26: FAUNA IN CORE ZONE	72
TABLE 3.27: LIST OF FAUNA & CONSERVATION STATUS	74
TABLE 3.28: LIST OF BIRDS	74
TABLE 3.29: LIST OF REPTILES IN THE STUDY AREA.....	75
TABLE 3.30: LIST OF BUTTERFLIES IN THE STUDY AREA.....	75
TABLE 3.31: STRUCTURES IN 300m RADIUS.....	77
TABLE 3.32: NAGAMANGALAM VILLAGE CENSUS 2011 DATA.....	79
TABLE 3.33 NAGAMANGALAM WORKING POPULATION ---CENSUS 2011.....	80
TABLE 3.34: POPULATION DATA OF STUDY AREA	81
TABLE 3.35: WORKERS PROFILE OF STUDY AREA.....	82
TABLE 3.36: EDUCATIONAL FACILITIES IN THE STUDY AREA.....	83
TABLE 3.37: MEDICAL FACILITIES IN THE STUDY AREA	84
TABLE 4.1: ESTIMATED EMISSION RATE.....	89
TABLE 4.2: INCREMENTAL & RESULTANT GLC OF PM ₁₀	92
TABLE 4.3: INCREMENTAL & RESULTANT GLC OF PM _{2.5}	92
TABLE 4.4: INCREMENTAL & RESULTANT GLC OF SO ₂	92
TABLE 4.5: INCREMENTAL & RESULTANT GLC OF NO _X	93
TABLE 4.7: ACTIVITY AND NOISE LEVEL PRODUCED BY MACHINERY.....	95
TABLE 4.8: PREDICTED NOISE INCREMENTAL VALUES.....	95

TABLE 4.9: PREDICTED PPV VALUES DUE TO BLASTING	97
TABLE No 4.10. LIST OF PLANT SPECIES PROPOSED FOR GREENBELT DEVELOPMENT	98
TABLE 4.11: ECOLOGICAL IMPACT ASSESSMENTS.	100
TABLE 4.12: RECOMMENDED SPECIES FOR GREENBELT DEVELOPMENT PLAN	101
TABLE 4.13: GREENBELT DEVELOPMENT PLAN	101
TABLE 6.1 IMPLEMENTATION SCHEDULE	107
TABLE 6.2: PROPOSED MONITORING SCHEDULE POST EC FOR P1	108
TABLE 6.3 ENVIRONMENT MONITORING PROGRAM BUDGET	108
TABLE 7.1 RISK ASSESSMENT& CONTROL MEASURES.....	110
TABLE 7.2: PROPOSED TEAMS TO DEAL WITH EMERGENCY SITUATION	113
TABLE 7.3: PROPOSED FIRE EXTINGUISHERS AT DIFFERENT LOCATIONS.....	114
TABLE 7.4: LIST OF QUARRIES WITHIN 500 METER RADIUS	115
TABLE 7.5: SALIENT FEATURES OF PROPOSAL “P1”	116
TABLE 7.6: SALIENT FEATURES OF PROPOSAL “E1”	117
TABLE 7.7: SALIENT FEATURES OF PROPOSAL “E2”	117
TABLE 7.8: CUMULATIVE PRODUCTION LOAD OF ROUGH STONE	118
TABLE 7.9: CUMULATIVE PRODUCTION LOAD OF TOPSOIL	118
TABLE 7.10: EMISSION ESTIMATION FROM QUARRIES WITHIN 500 METER RADIUS	119
TABLE 7.11: INCREMENTAL & RESULTANT GLC WITHIN CLUSTER	119
TABLE 7.12: PREDICTED NOISE INCREMENTAL VALUES FROM CLUSTER.....	121
TABLE 7.13: NEAREST HABITATION FROM EACH MINE.....	121
TABLE 7.14: GROUND VIBRATIONS AT 6MINES.....	122
TABLE 7.15: SOCIO ECONOMIC BENEFITS FROM 6 MINES	122
TABLE 7.16: EMPLOYMENT BENEFITS FROM 6MINES.....	122
TABLE 7.17: GREENBELT DEVELOPMENT BENEFITS FROM 6 MINES.....	122
TABLE 7.18: ACTION PLAN TO MANAGE PLASTIC WASTE	123
TABLE 8.1 CER – ACTION PLAN	125
TABLE 10.1. PROPOSED CONTROLS FOR LAND ENVIRONMENT	128
TABLE 10.2. PROPOSED CONTROLS FOR SOIL MANAGEMENT.....	128
TABLE 10.3. PROPOSED CONTROLS FOR WATER ENVIRONMENT	129
TABLE 10.4. PROPOSED CONTROLS FOR AIR ENVIRONMENT	129

TABLE 10.5.: PROPOSED CONTROLS FOR NOISE ENVIRONMENT	130
TABLE 10.6.: PROPOSED CONTROLS FOR GROUND VIBRATIONS & FLY ROCK – P1	130
TABLE 10.7: PROPOSED GREENBELT ACTIVITIES.....	131
TABLE 10.8. RECOMMENDED SPECIES FOR THE PLANTSAITON	132
TABLE 10.9. MEDICAL EXAMINATION SCHEDULE	132
TABLE 10.10: EMP BUDGET FOR PROPOSED PROJECT	134

LIST OF FIGURES

FIGURE 1.1 SATELLITE IMAGERY CLUSTER QUARRIES	3
FIGURE 1.2 LOCATION MAP OF THE PROJECT SITE	6
FIGURE 1.3: TOPOSHEET MAP OF THE STUDY AREA 10 KM RADIUS	6
FIGURE 1.4: TOPOSHEET MAP OF THE STUDY AREA 2KM RADIUS	7
FIGURE 2.1: TOPOGRAPHICAL VIEW OF PROJECT AREA.....	12
FIGURE 2.2: GOOGLE IMAGE OF THE PROJECT AREA	13
FIGURE 2.3: QUARRY LEASE PLAN / SURFACE PLAN	13
FIGURE 2.4: VILLAGE MAP SUPERIMPOSED ON GOOGLE EARTH IMAGE.....	14
FIGURE 2.5: IMAGE SHOWING SURFACE FEATURES AROUND 10 KM RADIUS	15
FIGURE 2.6: IMAGE SHOWING SURFACE FEATURES AROUND 1 KM RADIUS	16
FIGURE 2.7: REGIONAL GEOLOGY MAP.....	19
FIGURE 2.8: GEOMORPHOLOGY MAP.....	19
FIGURE 2.9: TOPOGRAPHY, GEOLOGICAL, YEAR-WISE DEVELOPMENT PRODUCTION PLAN AND SECTIONS FOR FIRST FIVE YEAR	21
FIGURE 2.9A: TOPOGRAPHY, GEOLOGICAL, YEAR-WISE DEVELOPMENT PRODUCTION PLAN AND SECTIONS FOR SECOND FIVE YEAR.....	22
FIGURE 2.10: CLOSURE PLAN AND SECTIONS.....	23
FIGURE.2.11: MINERAL TRANSPORTATION ROUTE MAP	27
FIGURE 3.1: PIE DIAGRAM OF LAND USE AND LAND COVER	32
FIGURE 3.2: PHYSIOGRAPHIC MAP 10KM RADIUS	34
FIGURE 3.3: LAND USE LAND COVER MAP 10KM RADIUS	34
FIGURE 3.4: LAND USE LAND COVER MAP 500m RADIUS	35
FIGURE 3.5: SOIL SAMPLING LOCATIONS AROUND 10 KM RADIUS	37
FIGURE 3.6: SOIL MAP	37
FIGURE 3.7: SOIL SAMPLE COLLECTION	40
FIGURE 3.8: WATER SAMPLING LOCATIONS AROUND 10 KM RADIUS.....	42
FIGURE 3.9: OPEN WELL CONTOUR MAP OCT - DEC 2023	48
FIGURE 3.10: BOREWELL CONTOUR MAP – OCT - DEC 2023	49
FIGURE 3.11: DRAINAGE MAP AROUND 10 KM RADIUS FROM PROJECT SITE.....	50
FIGURE 3.12: GROUND WATER PROSPECT MAP	50
FIGURE 3.13: WINDROSE DIAGRAM.....	54

FIGURE 3.14: AIR QUALITY MONITORING PHOTOGRAPHS	57
FIGURE 3.15: AMBIENT AIR QUALITY LOCATIONS AROUND 10 KM RADIUS	57
FIGURE 3.16: BAR DIAGRAM OF SUMMARY OF AAQ 1 – AAQ8.....	59
FIGURE 3.17: BAR DIAGRAM OF PARTICULATE MATTER PM _{2.5}	59
FIGURE 3.18: BAR DIAGRAM OF PARTICULATE MATTER PM ₁₀	60
FIGURE 3.19: BAR DIAGRAM OF GASEOUS POLLUTANT SO ₂	60
FIGURE 3.20: BAR DIAGRAM OF GASEOUS POLLUTANT NO _x	61
FIGURE 3.23: NOISE MONITORING STATIONS AROUND 10 KM RADIUS	63
FIGURE 3.24: DAY TIME NOISE LEVELS IN CORE AND BUFFER ZONE	64
FIGURE 3.25: NIGHT TIME NOISE LEVELS IN CORE AND BUFFER ZONE	64
FIGURE 3.26: PIE DIAGRAM OF FLORA DISTRIBUTION IN THE STUDY AREA	71
FIGURE 3.29: STRUCTURE MAP 500m RADIUS	78
FIGURE 4.1: AERMOD TERRAIN MAP.....	90
FIGURE 4.2: PREDICTED INCREMENTAL CONCENTRATION OF PM ₁₀	90
FIGURE 4.3: PREDICTED INCREMENTAL CONCENTRATION OF PM ₂₅	90
FIGURE 4.4: PREDICTED INCREMENTAL CONCENTRATION OF NO _x	91
FIGURE 4.5: PREDICTED INCREMENTAL CONCENTRATION OF SO ₂	91
FIGURE 4.6: PREDICTED INCREMENTAL CONCENTRATION OF FUGITIVE DUST	91
FIGURE 4.6: GROUND VIBRATION PREDICTION	97
FIGURE 6.1: PROPOSED ENVIRONMENTAL MONITORING CELL P1	107
FIGURE 7.1: DISASTER MANAGEMENT TEAM LAYOUT	112
FIGURE 10.1.: PERSONAL PROTECTIVE EQUIPMENT TO THE MINE WORKERS	133

1.INTRODUCTION

1.0 PREAMBLE

Project History:-

The project proponent Tvl. Square Enterprises has applied for Tender cum Auction for Government land and was successfully awarded to the Project Proponent for Rough stone quarry over an extent of 3.20.50 Ha in S.F. No 629(Part), Nagamangalam Village, Denkanikottai Taluk, Krishnagiri District.

- The Project Proponent applied for Tender Cum Auction on 05.04.2022.
- Proponent applied for Rough stone quarry letter on 19.04.2022.
- Precise area communication letter was issued by the Deputy Director, Department of Geology and Mining Krishnagiri vide RC.No. 555/2022/Mines Dated 26.04.2022.
- The Mining plan has been prepared by the Qualified person and got approval by the Deputy Director, Department of Geology and Mining Krishnagiri vide Letter Rc. No. 555/2022/Mines Dated 25.07.2022.
- The Mining plan has been approved for the quantity of 9,09,210 m³ of Rough stone & 2,500 m³ of Topsoil upto the depth of 70m (45m Agl + 25m 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 - 1 proposal and 2 Existing quarries forming Cluster Category {Total Extent of the Cluster is 11.20.5 Ha}- Cluster area calculated as per MoEF & CC Notification S.O. 2269(E) Dated 1st July 2016).

- Proponent applied for Terms of Reference vide Proposal No. SIA/TN/MIN/433058/2023 Dated 12.06.2023 and the ToR Was Granted vide Letter No No Lr No.SEIAA-TN/F.No.10238/SEAC/ToR-1556/2023 Dated: 27.09.2023

As per Obtained ToR the depth was restricted upto 60m(45m Agl + 15m Bgl) for 10 years and Revised Reserves For First Five Year Production is 4,52,615 m³ of Rough stone & 2,500 m³ of Topsoil and For Second Five Year Production 4,27,040 m³ of Rough stone.

Based on the ToR Baseline Monitoring study has been carried out for one season i.e., **October 2023 – December 2023** and this EIA and EMP report is prepared for considering cumulative impacts arising out of these projects, the Cumulative Environmental Impact Assessment study is undertaken, which is followed by preparation of a detailed Environmental Management Plan (EMP) 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.

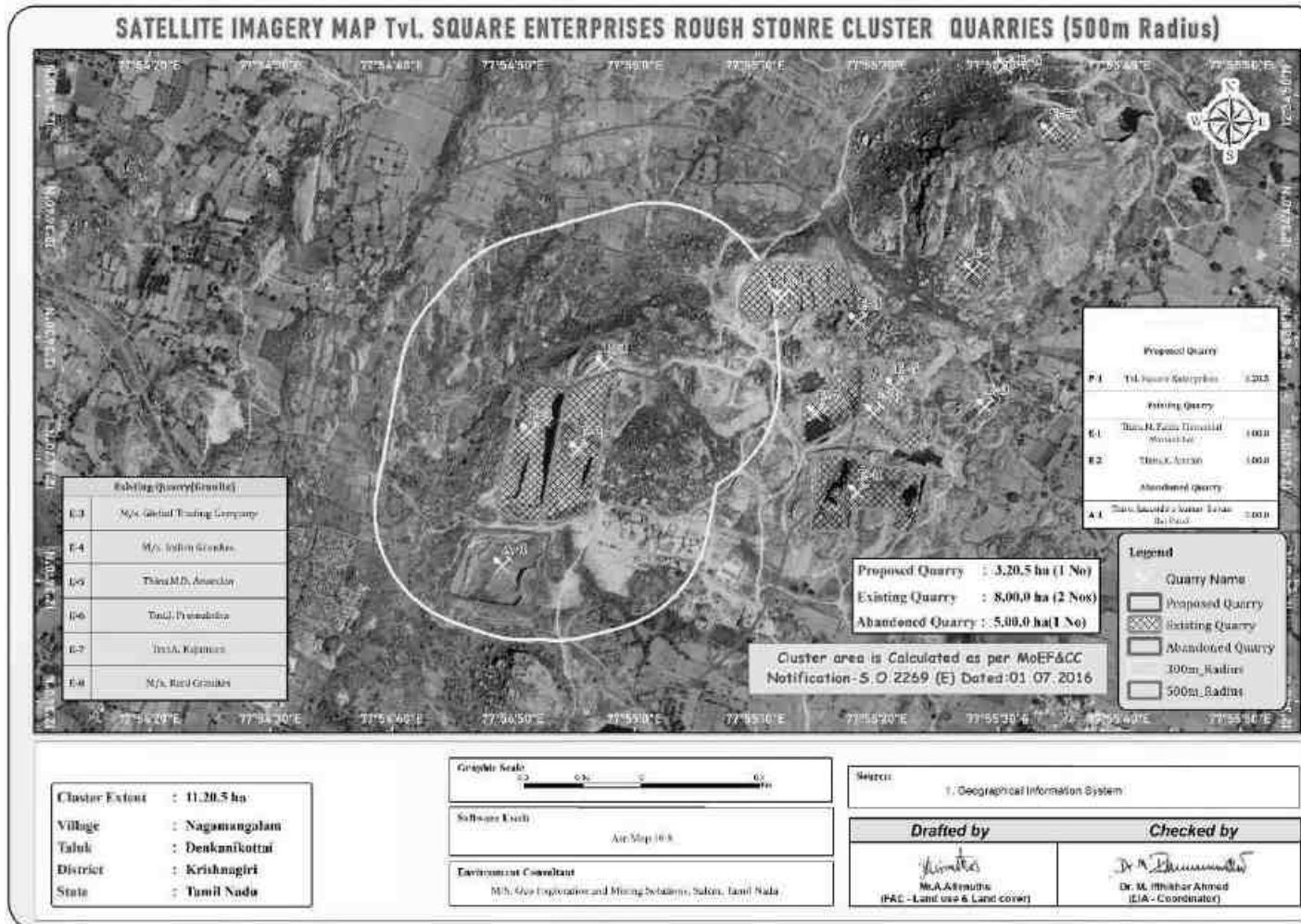
Now, as per Order Dated: 04.09.2018 & 13.09.2018 passed by Hon'ble National Green Tribunal, New Delhi in O.A. No. 173 of 2018 & O.A. No, 186 of 2016 and MoEF & CC Office Memorandum F. No. L-11011/175/2018-

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	Tvl. Square Enterprises Rough Stone Quarry
Address	Thiru.R.Chandran(Partner), Varaganapalli Village, Nagamangalam Post, Denkanikottai Taluk, Krishnagiri District. - 635113
Mobile	9444895079
Email	rainandhunisha@gmail.com
Status	Individual

1.2.2 Identification of Project

TABLE 1.2: SALIENT FEATURES OF THE PROPOSED PROJECT

Name of the Project	Tvl. Square Enterprises Rough Stone Quarry	
S.F. No.	629(Part)	
Extent	3.20.5 ha	
Village Taluk and District	Nagamangalam Village, Denkanikottai Taluk, Krishnagiri District.	
Land Type	Government Land	
Existing quarry operation	Nil, it is a Fresh area	
Toposheet No	57-H/14	
Latitude between	12° 36' 14.45"N to 12° 36' 21.97"N	
Longitude between	77° 54' 50.52"E to 77° 55' 02.03"E	
Elevation of the area	847 - 806m AMSL	
Lease period	10 Years	
Mining Plan period	10 years	
Proposed Depth of Mining as per ToR	60 m (45m Agl + 15m Bgl) (1m Topsoil + 59 m Rough stone)	
Geological Resources	Rough Stone in m ³	Topsoil
	18,35,565	4,850
Mineable Reserves	9,09,210	2,500
For First Five Year Production as per ToR	4,52,615	2,500
For Second Five Year Production as per ToR	4,27,040	-
Peak Production	1,00,240	1,512
Ultimate Pit Dimension	290m (L) x 108m (W) x 70m(D) (45m Agl + 25m Bgl)	
Water Level in the region	70 – 65 m bgl	
Method of Mining	Opencast Mechanized Mining Method involving small drilling and Controlled blasting using Slurry Explosives	
Topography	The lease applied area is Hilly terrain. The area has gentle sloping towards Eastern side and altitude of the area is 847 – 806 m above from Mean sea level. The area is covered Massive Rough Stone (Granitic gneiss) which is clearly inferred from the Surface due to the entire area.	
Machinery proposed	Jack Hammer	9 Nos
	Compressor	2 Nos
	Excavator with Bucket and Rock Breaker	2 Nos
	Tippers	5 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.	
Proposed Manpower Deployment	37 Nos	
Project Cost	Rs. 2,78,59,000/-	
6 months once compliance Monitoring Cost (EMP)	Rs. 7,60,000/-	
CER Cost	Rs. 5,00,000/-	
Nearby Water Bodies	Seasonal Odai	380m South
	Odai	360m NE
	Tank	840m SE
	Tank Near Nagamangalam	2.5km SE
	Chinnar Stream	4.6km SW
	Tank Near Armadpuram	4.6km NW
	Ponnaiyar River	6.5km NE
	Nanjappan Kodigai Eri	6.8km West
Greenbelt Development Plan	Proposed to plant 1920 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	1.8 KLD	
Nearest Habitation	1.2 km – South East	
Nearest Reserve Forest	Udedurgam. R.F. – 4.22 km – South West (Source - TNGIS)	
Nearest Wild Life Sanctuary	Cauvery North Wildlife sanctuary -4 km-SouthWest Cauvery South Wildlife sanctuary -27 km-South	

Source: Approved Mining & Land Documents.

1.3 BRIEF DESCRIPTION OF THE PROJECT

1.3.1 Nature and Size of the Project

The quarrying operation is proposed to be carried out by Opencast Mechanized Mining method with 5.0m bench height and 5.0m bench width by deploying Jack Hammer Drilling & Slurry Explosive during blasting. Hydraulic Excavator and tippers are used for Loading and transportation. Rock Breakers are deployed to avoid secondary blasting.

The peak production of Rough stone is 1,00,240 m³ maximum in a year (293 m³ per day/ 24 Tippers per day considering 12m³ per load). The depth of the mining is 60m (45m Agl + 15m Bgl).

1.3.2 Location of the Project

- The project site is located in Nagamangalam Village, Denkanikottai Taluk and Krishnagiri District.
- 30km Northwest of Krishnagiri, 14km Northeast of Denkanikottai and 2.5 km Northwest side of Nagamangalam Village.

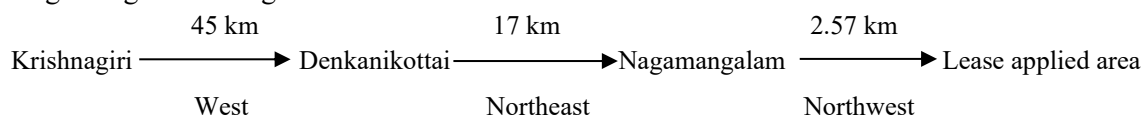
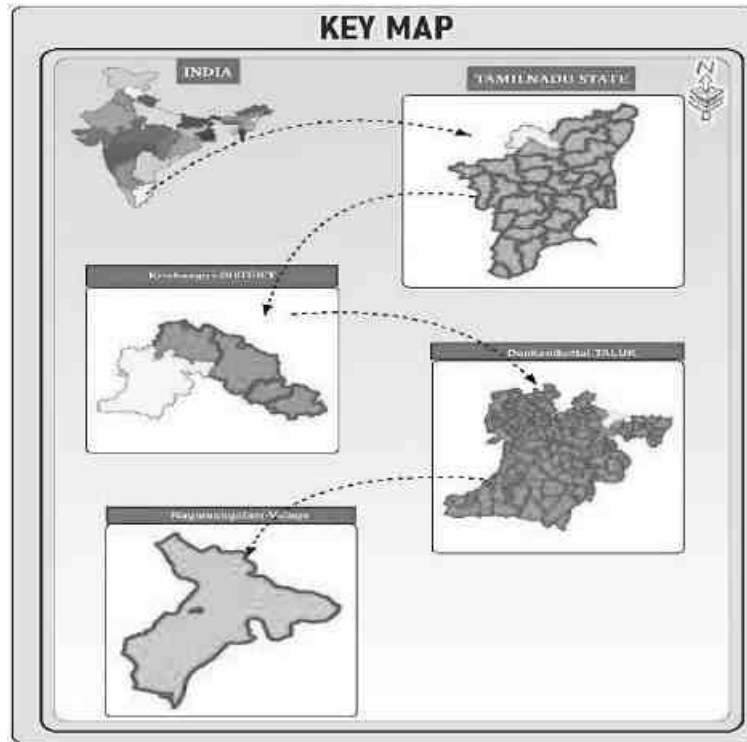


FIGURE 1.2 LOCATION MAP OF THE PROJECT SITE



Source: Survey of India Toposheet 57-H/14

FIGURE 1.3: TOPOSHEET MAP OF THE STUDY AREA 10 KM RADIUS

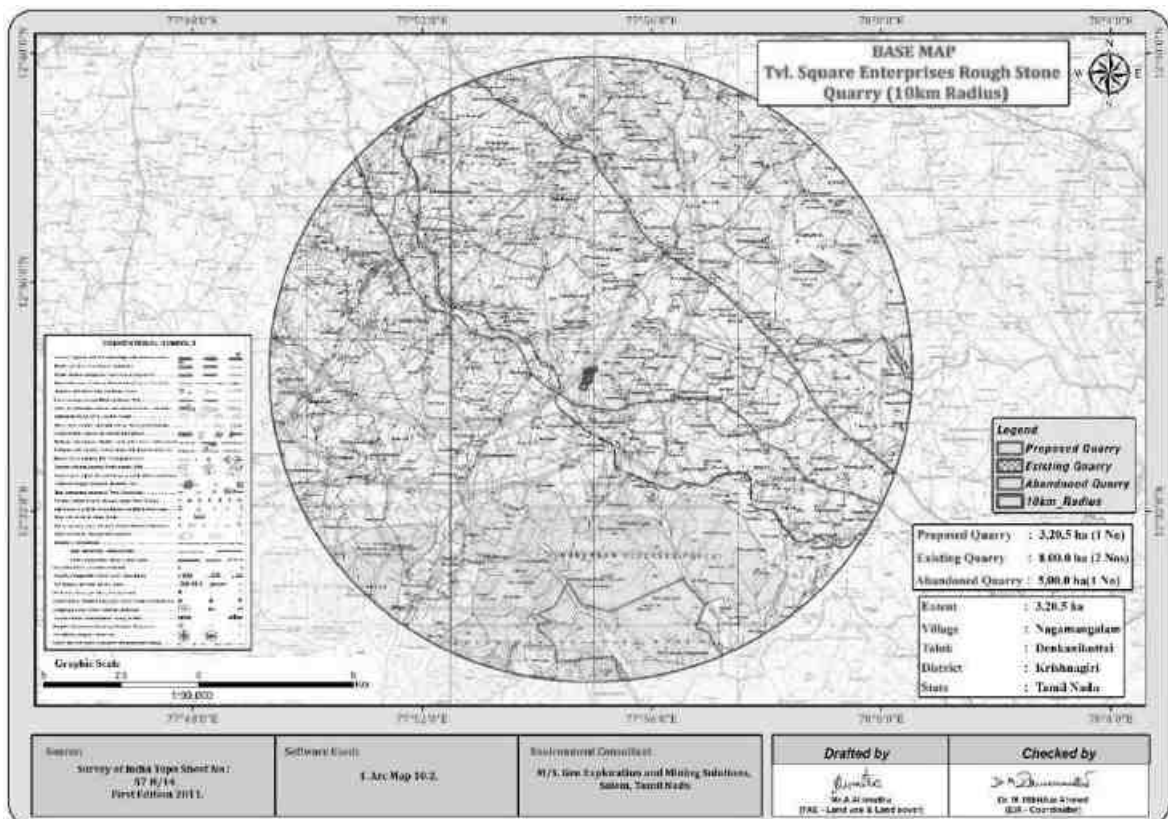
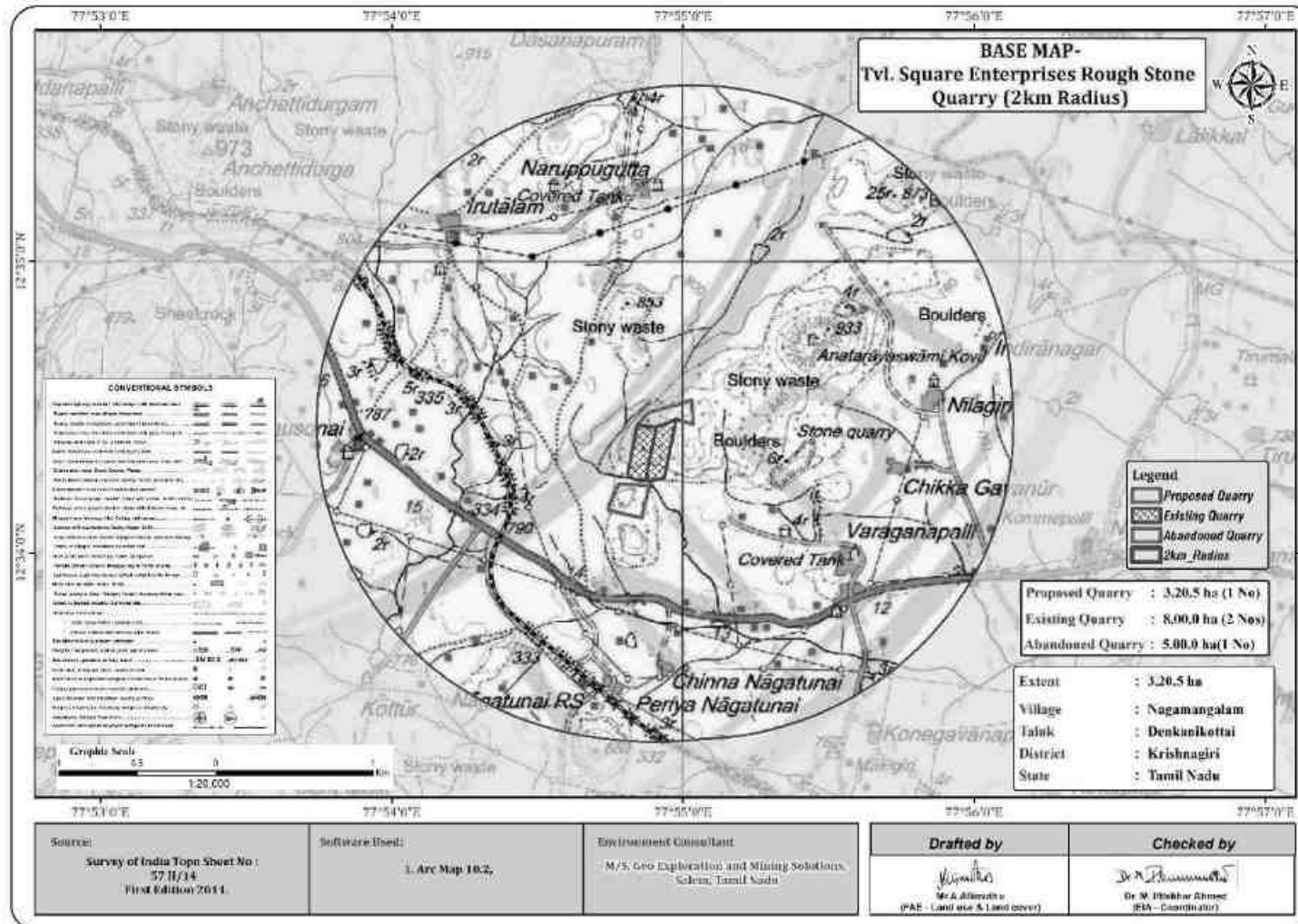


FIGURE 1.4: TOPOSHEET MAP OF THE STUDY AREA 2KM RADIUS



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 –

- The Project Proponent applied for Tender Cum Auction on 05.04.2022.
- Proponent applied for Rough stone quarry letter on 19.04.2022
- Precise Area Communication Letter was issued by the Deputy Director Department of Geology and Mining, Krishnagiri Rc. No 555/2022/Mines, Dated: 26.04.2022.
- The Mining Plan was prepared by Recognized Qualified Person and approved by Deputy Director, Geology and Mining, Krishnagiri District, vide Rc. No 555/2022/Mines, Dated: 25.07.2022
- 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/433058/2023. dated: 12.06.2023.

SCOPING:

- The proposal was placed in 407th SEAC meeting held on 07.09.2023 and the committee recommended for issue of ToR.
- The proposal was considered in 658th SEIAA meeting held on 26.09.2023 & 27.09.2023 and issued ToR vide Lr No.SEIAA-TN/F.No.10238/SEAC/ToR-1556/2023 Dated: 27.09.2023

PUBLIC CONSULTATION

Application to The Member Secretary of the Tamil Nadu Pollution Control Board (TNPCB) to conduct Public Hearing in a systematic, time bound and transparent manner ensuring widest possible public participation at the project site or in its close proximity in the district is submitted along with this Draft EIA/ EMP Report and 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 Lr No.SEIAA-TN/F.No.10238/SEAC/ToR-1556/2023 Dated: 27.09.2023. The Details of the ToR Compliance is given in the Page No.

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 (October 2023- December 2023) for various environmental components so as to assess the anticipated impacts of the cluster quarry projects on the environment and suggest suitable mitigation measures for likely adverse impacts due to the proposed project.

TABLE 1.3: 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 (1 Core & 6 Buffer)
2	Meteorology	Wind speed and direction, temperature, relative humidity and rainfall	Near project site continuous for three months with hourly recording and from secondary sources of IMD station
3	Water quality	Physical, Chemical and Bacteriological parameters	Grab samples were collected at 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)	7 locations – data monitored once for 24 hours during EIA study
6	Soil Characteristics	Physical and Chemical Parameters	Once at 6 locations during study period
7	Land use	Existing land use for different categories	Based on Survey of India topographical sheet and satellite imagery and primary survey.
8	Socio-Economic Aspects	Socio-economic and demographic characteristics, worker characteristics	Based on primary survey and secondary sources data like census of India 2011.

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

Source: 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.
- ToR vide Lr No.SEIAA-TN/F.No.10238/SEAC/ToR-1556/2023 Dated: 27.09.2023

2. PROJECT DESCRIPTION

2.0 GENERAL

The Proposed Rough Stone Quarries requires Environmental Clearance. There are 1 proposed, and 2 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 11.20.5 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

30km Northwest of Krishnagiri, 14km Northeast of Denkanikottai and 2.5 km Northwest side of Nagamangalam Village.

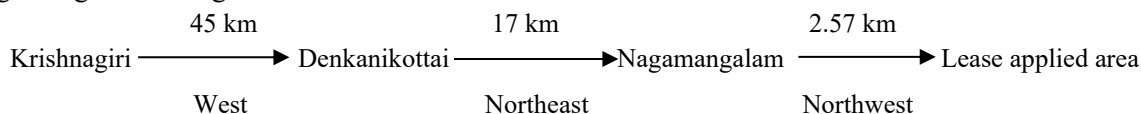


TABLE 2.1: SITE CONNECTIVITY

Nearest Roadway	NH844-Rayakottai– Hosur Road	-4.30 km-NE
	SH85 -Rayakottai– Attibele Road	-1.05 km-SE
Nearest Village	Varaganapalli	- 1.30 km- SE
Nearest Town	Kelamangalam	- 8 km-NW
Nearest Railway Station	Kelamangalam	- 8 km-NW
	Salem – Bangalore Railway line	- 860m SW
Nearest Airport	Bengaluru	- 72 km – NW
Seaport	Kochi	- 273 km – NE

TABLE 2.2: CO-ORDINATES – PROJECT BOUNDARY

Corner Nos.	Latitude	Longitude
1	12°34'26.17" N	77°54'50.52" E
2	12°34'28.77" N	77°54'52.82" E
3	12°34'31.26" N	77°55'01.69" E
4	12°34'26.39" N	77°55'02.03" E
5	12°34'27.33" N	77°54'58.59" E
6	12°34'25.78" N	77°54'54.48" E
Datum: UTM-WGS84, Zone 43 North		

FIGURE 2.1: TOPOGRAPHICAL VIEW OF PROJECT AREA



Project Site

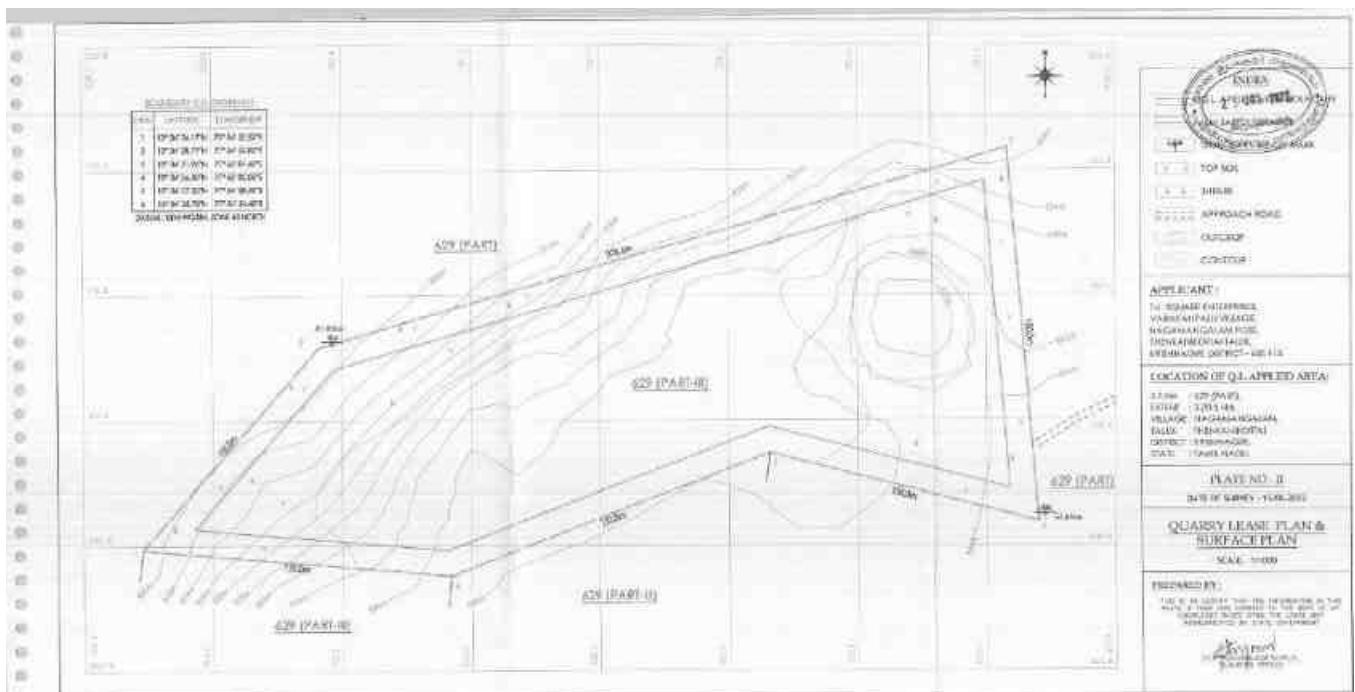


FIGURE 2.2: GOOGLE IMAGE OF THE PROJECT AREA



Source: Google Earth Imagery

FIGURE 2.3: QUARRY LEASE PLAN / SURFACE PLAN



Source: Approved Mining Plan

FIGURE 2.4: VILLAGE MAP SUPERIMPOSED ON GOOGLE EARTH IMAGE

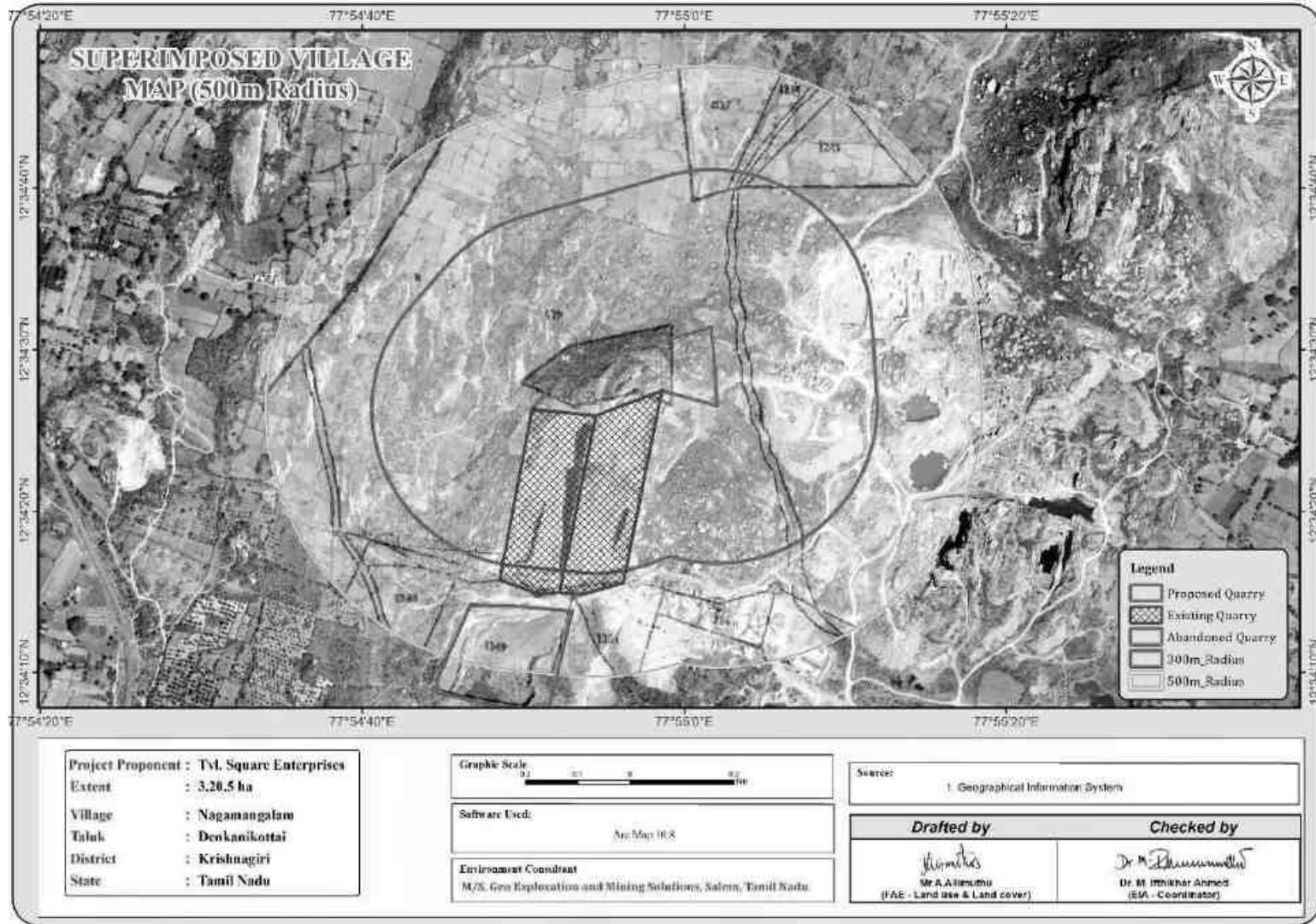


FIGURE 2.5: IMAGE SHOWING SURFACE FEATURES AROUND 10 KM RADIUS

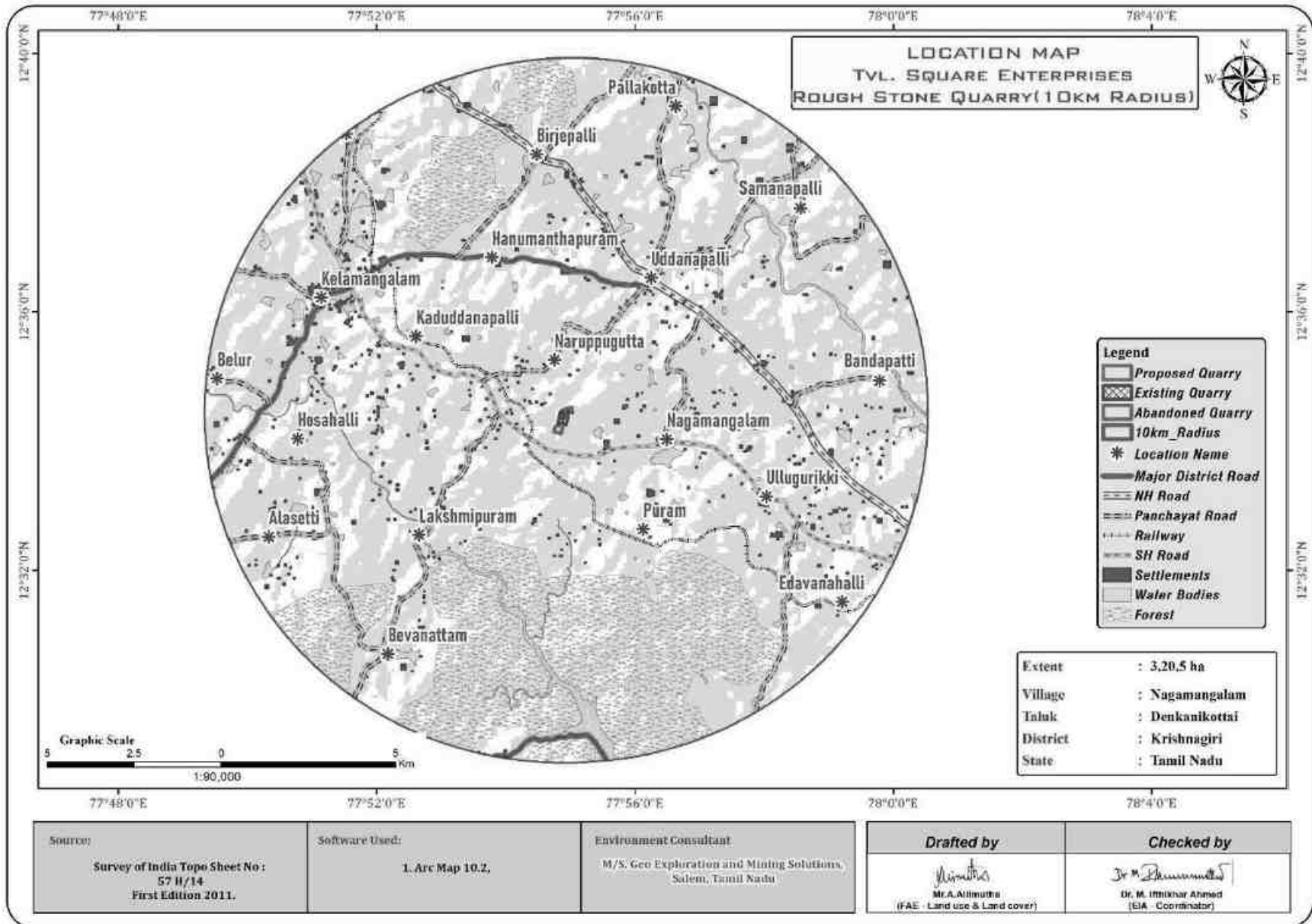
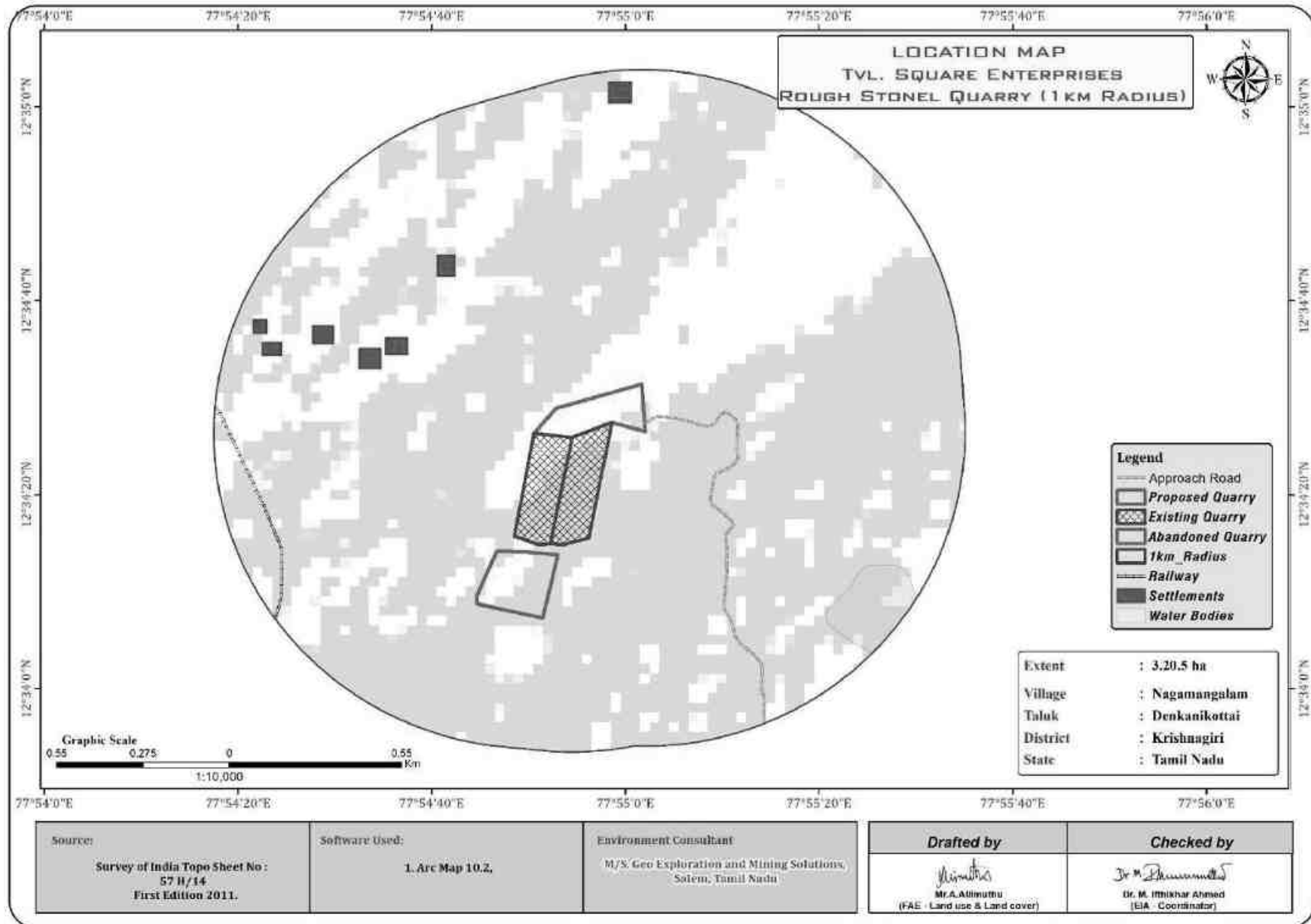


FIGURE 2.6: IMAGE SHOWING SURFACE FEATURES AROUND 1 KM RADIUS



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 at the end of this quarrying period (Ha)
Area under quarrying	Nil	2.38.5
Infrastructure	Nil	0.01.0
Roads	Nil	0.02.0
Green Belt	Nil	0.20.0
Unutilized Area	3.20.5	0.59.0
Grand Total	3.20.5	3.20.5

Source: Approved Mining

2.2.2 Size or Magnitude of Operation

TABLE 2.4: RESOURCES AND RESERVES

PARTICULARS	DETAILS	
	Rough Stone	Topsoil in m ³
Geological Resources	18,35,565	4,850
Mineable Reserves	9,09,210	2,500
Production for first five-year plan period	4,52,615	2,500
Production for Second five-year plan period	4,27,040	-
Peak Production	1,00,240	1,512
Mining Plan Period / Lease Applied Period	10 Years	
Number of Working Days	300 Days	
Production per day	293	4
No of Lorry loads (12m ³ per load)	24	1 trip per week
Proposed Depth of Mining as per ToR	60m (45m Agl + 15m Bgl) (1m Topsoil + 59m Rough Stone)	

Source: Approved mining plan.

2.3 GEOLOGY

2.3.1 Regional Geology

There are no major minerals observed in the vicinity of the project site. A brief description of the regional Geology is discussed below.

The peninsular gneiss is the widest spread group of rocks in many parts of Tamil Nadu. The southern domain of Tamil Nadu is characterized by the khondalite group of rocks (with subordinate amount of Charnockite) and marked by the absence of BMQ and Dolerite dyke systems.

The geological formations of the district belong mainly to Archaean age along with rock of Proterozoic age. The former is represented by Khondalite Group of rocks, Charnockite Group of rocks, Migmatites Complex, Sathyamangalam Group of rocks, while the latter is represented by alkaline rocks. The Khondalite Group includes garnet sillimanite gneiss and quartzite which occur as small patches. The migmatite complex includes garnetiferous quartzo feldspathic gneiss and hornblends biotite gneiss, the former exposed on the western part of the district. The Sathyamangalam Group includes fuchsite quartzite, sillimanite mica schist and amphibolites. The Bhavani Group in this area includes fissile hornblende-biotite gneiss, granitoid gneiss and pink migmatite. Amphibolites

with barbed ferruginous quartzite and associated quartzo-feldspathic rocks (Champion Gneiss) represent the Kolar group and are found west and southwest of Veppanapalli. Following this there are basic intrusions occurring as dykes. The Charnockite Group occupies a major part of the south-west portion of this district with small bands of garnetiferous quartzo-feldspathic gneiss, Granite gneiss and dolerite dykes.

The North-East and Northern part of the district mainly consist of granite gneiss with small patches of Pink Migmatite, hornblende-biotite gneiss and dolerite dykes. The Eastern part of the district consists of Epidote-Hornblende Gneiss, Ultra Mafics, Syenite and Carbonatite.

The Alkaline Complex is represented by epidote-hornblende gneiss, ultramafics, syenite and carbonatite and these are distributed in the eastern part of the district. Innumerable basic dykes and felsites, quartz, barites and pegmatite veins form part of the Alkali Complex.

2.3.2 Structural Settings of Krishnagiri: -

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

Order of super position: -

ROCK TYPE	AGE
Topsoil	Pleistocene to Recent
----- Unconformity -----	-----
Quartz and Pegmatite vein	
Dolerite dykes	
Migmatite Complex	
Granite Gneiss	Archaean to Proterozoic
Charnockite group	
Peninsular Gneissic Complex	

2.3.3. Geology of the lease area

The study area follows the regional trend and mainly comprises of Hard Rock Formation as a homogeneous formation / Batholith formation of Charnockite. The project area is Hilly topography, sloping toward Eastern with an altitude of 847- 806m AMSL. The project area is covered with Massive Rough Stone (Granitic gneiss) is clearly visible right from the surface due to the entire area is covered by Rough Stone.

Physical attitude of the Charnockite deposit of this area is given below:-

Strike Direction	-	N20 ⁰ E – S20 ⁰ W
Dip amount and direction	-	SE60 ⁰

2.3.4 Hydrogeology

Krishnagiri district is underlined by Archaean crystalline formations with Recent alluvial deposits of limited areal extent and thickness along the courses of major rivers. The occurrence and movement of ground water are controlled by various factors such as physiography, climate, geology and structural features. Weathered, and fractured crystalline rocks constitute the important aquifer systems in the district. Ground water generally occurs under phreatic conditions in the weathered mantle and under semi-confined conditions in the fractured zones at deeper levels. It is inferred that the entire cluster area is a Hard rock terrain and the low -resistance encountered at the depth between 65-80 m bgl, 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 60 m will not encounter any subsurface water. The thickness of weathered zones in the district ranges from less than a meter to more than 15 m (Source Central Ground Water Board – Krishnagiri).

In the geophysical study it has been clearly inferred that the depth of the quarrying operation will not intersect the ground water table

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	Topsoil m ³
Geological Resource in m ³	18,35,565	4,850
Mineable Resource in m ³	9,09,210	2,500
Year wise production for First five-year plan period as per ToR	4,52,615	2,500
Year wise production for Second five-year plan period as per ToR	4,27,040	-

Source: Approved Mining Plan

TABLE 2.6: YEAR-WISE PRODUCTION PLAN AS PER ToR FOR 10 YEARS

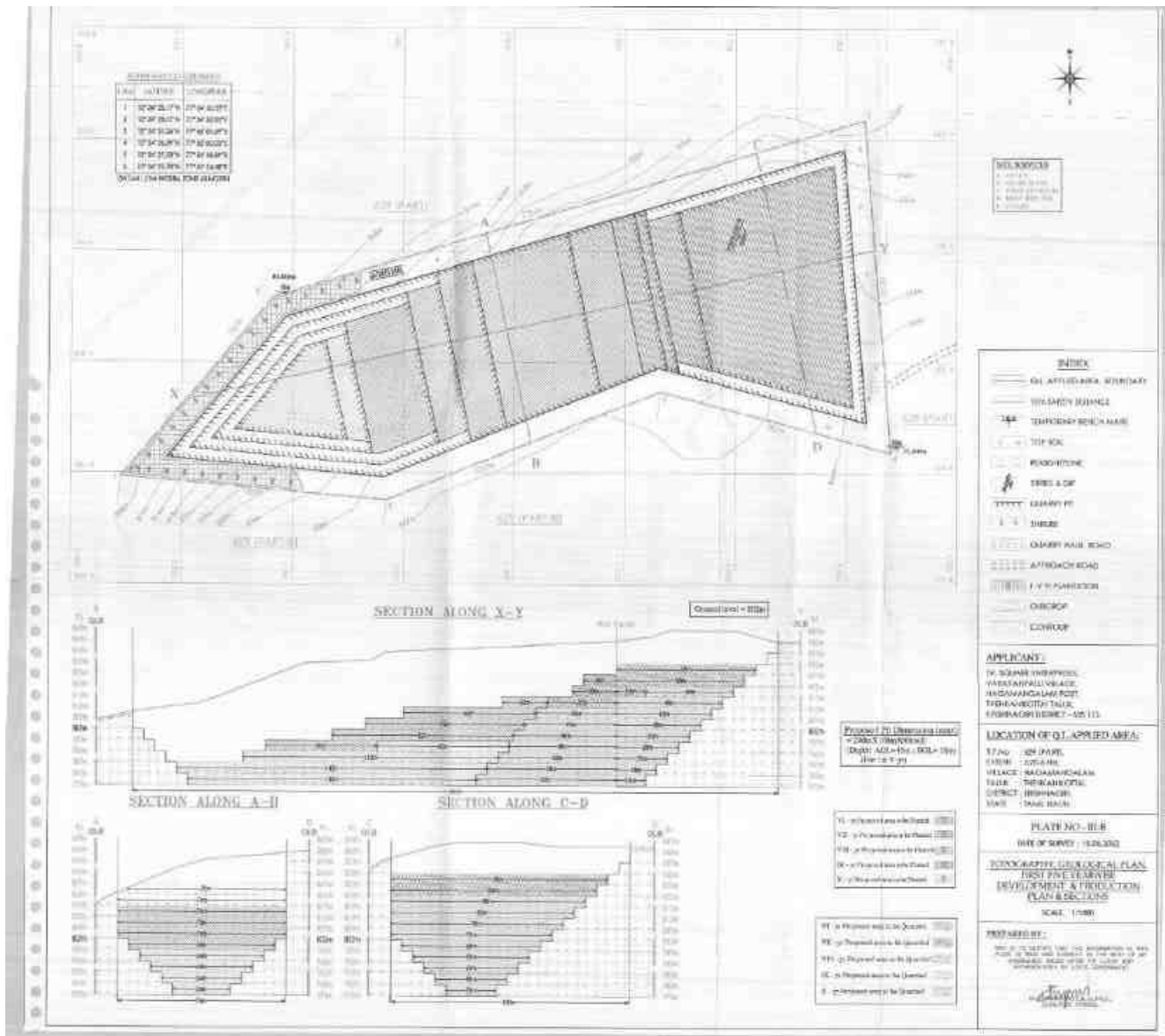
YEAR	ROUGH STONE (m ³)	TOPSOIL (m ³)
I	89,615	2,500
II	1,00,240	-
III	87,490	-
IV	88,110	-
V	87,160	-
VI	98,820	-
VII	88,340	-
VIII	97,420	-
IX	68,450	-
X	74,010	-
TOTAL	8,79,655	2,500

Source: Approved Mining Plan

Disposal of Waste

In this Proposed Quarry no waste is anticipated, quarried out materials (Rough stone) will be utilized (100%).

FIGURE 2.9A: TOPOGRAPHY, GEOLOGICAL, YEAR-WISE DEVELOPMENT PRODUCTION PLAN AND SECTIONS FOR SECOND FIVE YEAR



Source: Approved Mining Plan

Conceptual Mining Plan/ Final Mine Closure Plan

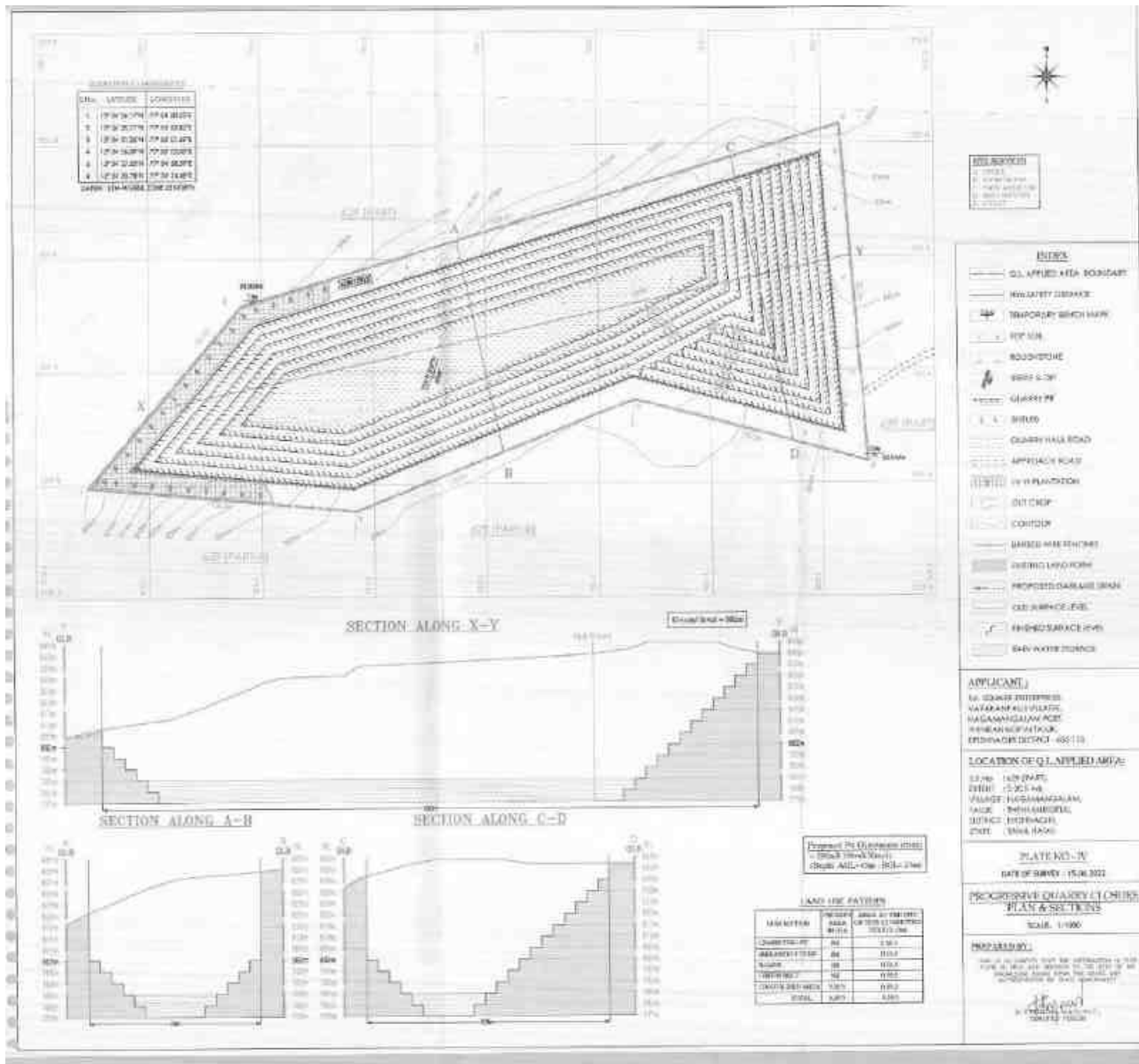
The ultimate pit size is designed based on certain practical parameters such as economical depth of mining, safety zones, permissible area, etc.

TABLE 2.7: ULTIMATE PIT DIMENSION

Pit	Length (Max) (m)	Width (Max) (m)	Depth (Max)
I	290	108	70m(45m Agl + 25m Bgl)

Source: Approved Mining Plan

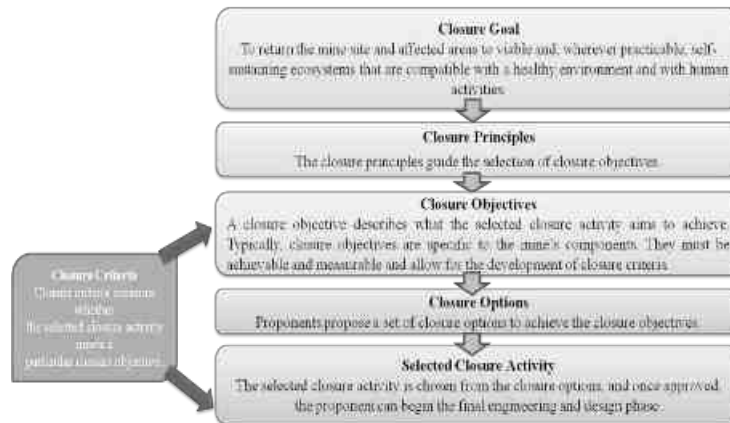
FIGURE 2.10: CLOSURE PLAN AND SECTIONS



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	–	8.0 tonnes/kg
Diameter of hole	–	32 mm
Total Volume	=	8,79,655 m ³
	=	8,79,655/10
	=	87,965/300
	=	293 * 2.6
	=	761 Tonnes per day
Therefore, Number of Holes per day	=	761/8
	=	95 Kg of Explosive Used
	=	95*2
	=	190 Holes

Explosives per hole = ½ kg hence 95 kg of Explosives will be utilized maximum considering the 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	9	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	Tipppers	5	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.

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. Rayakottai-Hosur SH Road
2. Nagamangalam Panchayat 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	Rayakottai-Hosur SH Road	1.3km SE	Sate Highway
TS2	Nagamangalam Panchayat Road	3.5km NE	Panchayat Road

Source: On-site monitoring by GEMS FAE & TM

TABLE 2.10: EXISTING TRAFFIC VOLUME

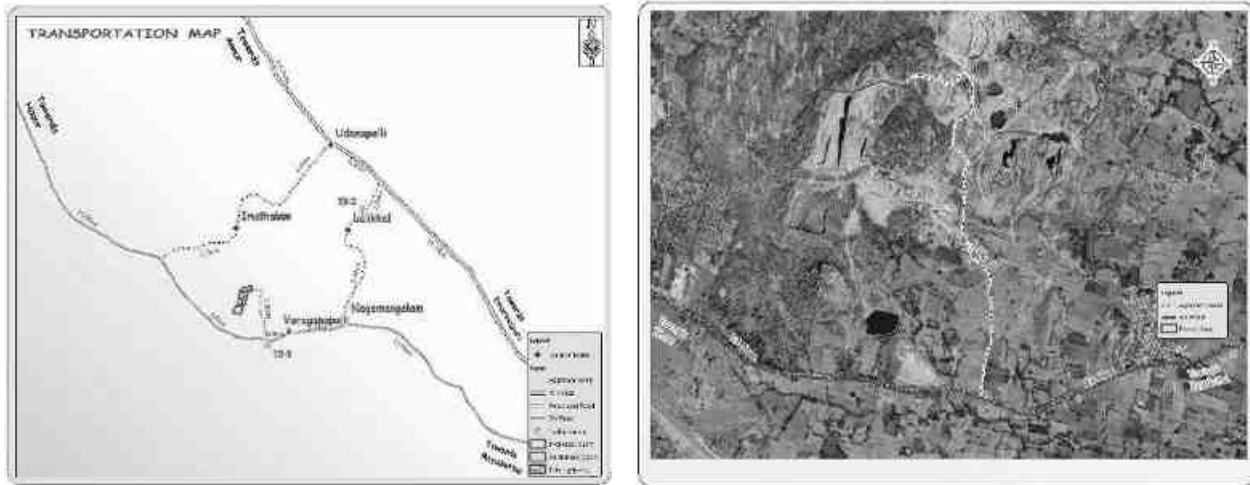
Station code	HMV		LMV		2/3 Wheelers		Total PCU
	No	PCU	No	PCU	No	PCU	
TS1	225	675	125	125	200	100	900
TS2	175	525	75	75	150	75	750

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	24	72

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

1. The Rough stone will be transported to the needy customer from the Project Site
2. Existing approach road is located on the East side this road connecting in the Rayakottai - Hosur road (Total Stretch of the approach road = 1.5km)
3. Rayakottai - Hosur road road connecting in the State Highway (89) at a distance of 2km the total Stretch of the Transportation route is about 1.5 to 2 km from the project site
4. 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
Rayakottai-Hosur SH Road (SH-85)	900	60	960	1200
Nagamangalam Panchayat Road	750	60	810	1500

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

2.6.4 Mineral Beneficiation and Processing

There is no proposal for the mineral processing or ore beneficiation in 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	0.7 KLD	From nearby tank
Green Belt	0.6 KLD	From nearby tank
Sanitation & Drinking	0.5 KLD	From existing, bore wells and drinking water will be sourced from Approved water vendors.
Total	1.8 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 Topsoil per hour.
 Peak production of Rough stone = 293m³
 Peak production of Topsoil = 21m³

Type of machinery	Working hours	Average Diesel consumption/ Hour	Quantity of Diesel in Ltrs
Working hours of Excavator (Aprx)	293m ³ /25 m ³ = 11 Hrs (Rough stone)	18 Ltrs	198
	4/60m ³ = 1 Hrs	18 Ltrs	18
Compressor	Working hours per day 2 Hrs	8 Ltrs	16
Tippers, Motor pumps to drain water	Occasionally		20
Total Diesel Consumption			252

The Maximum diesel consumption is around 255 Litres per day considering the 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 353 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	16
Excavator Operator	2
Tippers driver	5
Helper	4
Cleaner & Co-operator	7
Security	1
Total	37

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 October 2023 – December 2023 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 Approved by ISO:9001:2015, NABL, FSSAI, **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 summer season i.e., October 2023 – December 2023.

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's 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 (December 2020 – February 2021)	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	7 (2 core & 5 buffer zone)	IS 9989 As per CPCB Guidelines
Ecology	Existing Flora and Fauna	Through field visit during the study period	Study Area	Primary Survey by Quadrante & Transect Study Secondary Data – Forest Working Plan
Socio Economic Aspects	Socio-Economic Characteristics, Population Statistics and Existing Infrastructure in the study area	Site Visit & Census Handbook, 2011	Study Area	Primary Survey, census handbook & need based assessments.

Source: On-site monitoring/sampling by Global Lab and Consultancy Services 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

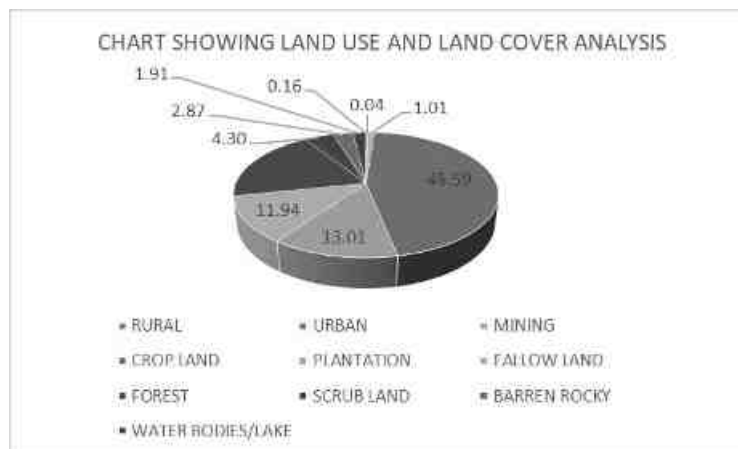
A visual interpretation technique has been adopted for land use classification based on the keys suggested in the chapter – V of the guidelines issued by NNRMS Bangalore & Level III classification with 1:50,000 scale for the preparation of land use mapping. Land use pattern of the area was studied through 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	Rural	52.00	0.16
2	Urban	13.42	0.04
3	Mining	328.63	1.01
AGRICULTURAL LAND			
4	Crop Land	14762.02	45.59
5	Plantation	4212.50	13.01
6	Fallow Land	3865.53	11.94
FOREST			
7	Forest	6203.34	19.16
BARREN/WASTE LANDS			
8	Scrub Land	1391.71	4.30
9	Barren Rocky	930.37	2.87
WETLANDS/ WATER BODIES			
10	Water bodies/lake	618.81	1.91
TOTAL		32378.34	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) 70.59% followed by Built-up Lands – 1.21%, Scrub land – 4.30%, and Water bodies 0.41%.

The total mining area within the study area is 328.63 ha i.e., 1.01%. The cluster area of 11.20.5 ha contributes about 1.01% 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 Hilly terrain having gentle slope towards East side, the south side of the area is existing Rough stone quarry. The North side of the area having dry agricultural lands.

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

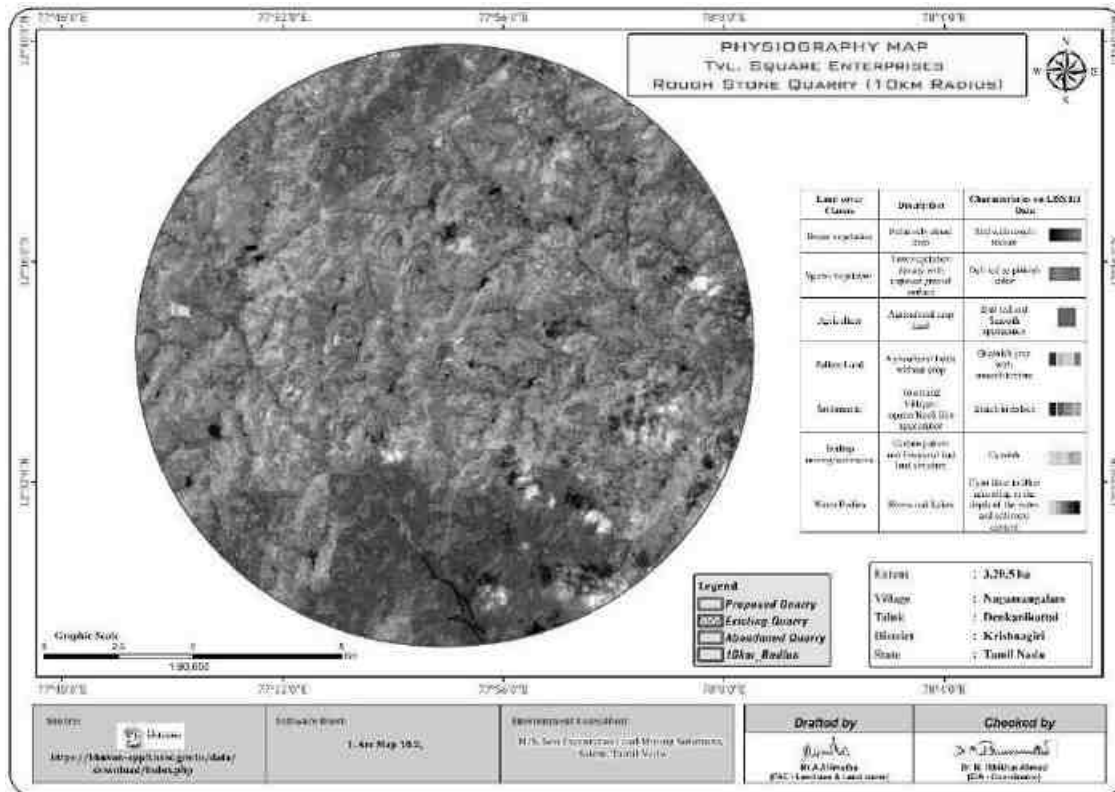


FIGURE 3.3: LAND USE LAND COVER MAP 10KM RADIUS

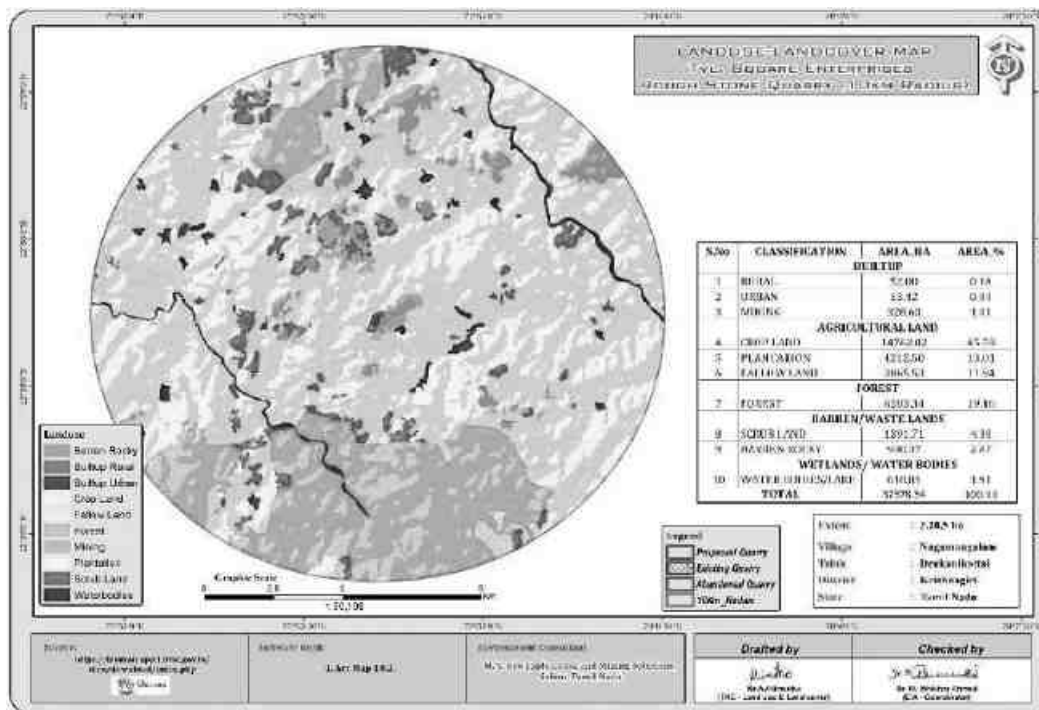


TABLE 3.3: DETAILS OF ENVIRONMENT SENSITIVITY AROUND THE CLUSTER

Sl.No	Sensitive Ecological Features	Name	Arial Distance in km from Cluster
1	National Park / Wild life Sanctuaries	Cauvery North Wildlife Sanctuary	4 km-South west
2	Reserve Forest	Udedurgam R.F	4.22 Km South west
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	Seasonal Odai	380m South
2	Odai	360m NE
3	Tank	840m SE
4	Tank Near Nagamangalam	2.5km SE
5	Chinnar Stream	4.6km SW
6	Tank Near Armadpuram	4.6km NW
7	Ponnaiyar River	6.5km NE
8	Nanjappan Kodigai Eri	6.8km West

Source: Village Cadastral Map and Field Survey

FIGURE 3.4: LAND USE LAND COVER MAP 500m RADIUS

Land use Landcover of the area within 500m radius were studied in detailed that the majority of the land within 500m is Scrub land (35.13) followed by agriculture land and Mining areas are contributing majority of the land use.

3.1.6 Soil Environment

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

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	S-1	Core Zone	Project Area	12°34'28.07"N 77°55'0.15"E
2	S-2	Nagamangalam	2.7km SE	12°34'0.17"N 77°56'27.06"E
3	S-3	Kadudhanapalli	4.7km NW	12°35'38.22"N 77°52'35.97"E
4	S-4	Agaram	6.2km NE	12°36'53.29"N 77°57'19.33"E
5	S-5	Konasandram	4.8km SW	12°33'1.49"N 77°52'39.90"E
6	S-6	Kommepalli	6.5km North	12°37'59.49"N 77°54'19.92"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 Labs Private Limited in association with GEMS

Soil Testing Result –

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

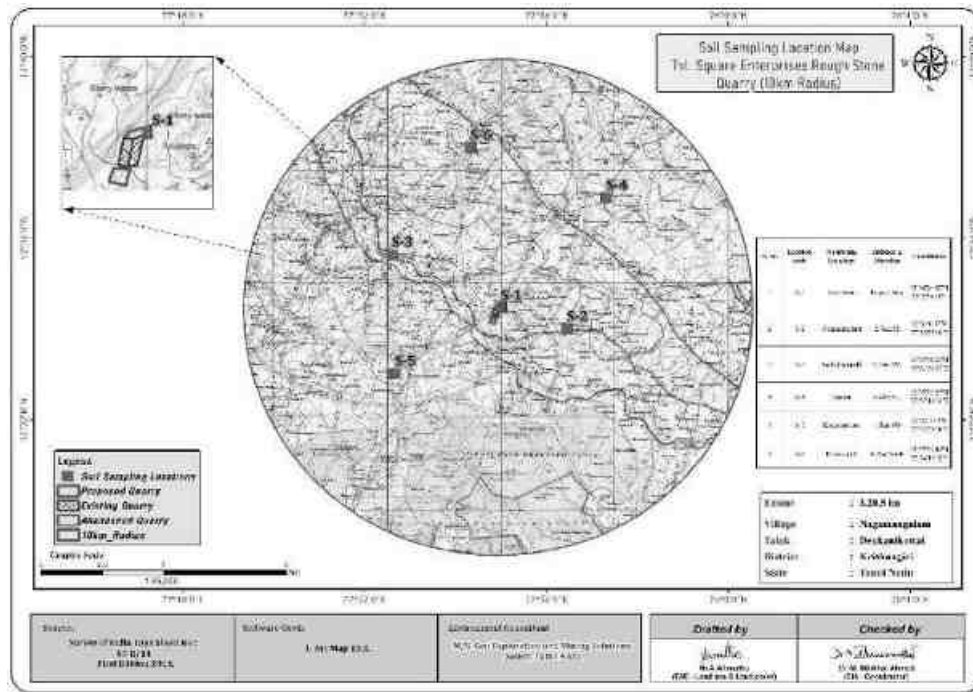


FIGURE 3.6: SOIL MAP

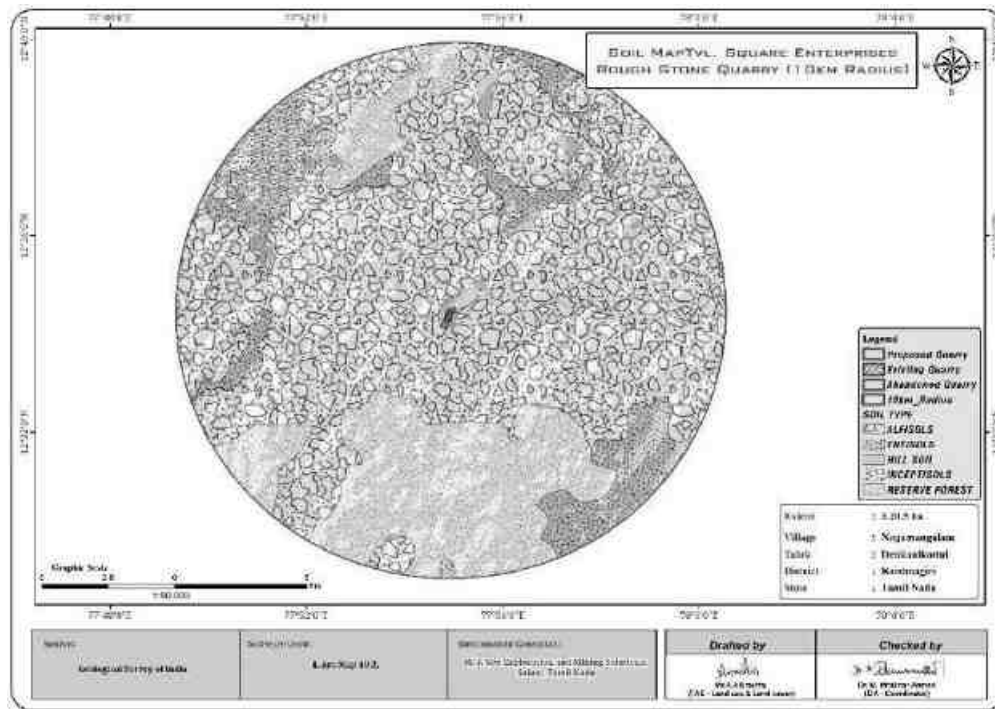


TABLE 3.7: SOIL QUALITY OF THE STUDY AREA

Sl. No	Test Parameters	Test Method	Unit	S1 Core Zone	S2 Nagamangalam	S3 Kadudhanapalli	S4 Agaram	S5 Konasandram	S5 Kommepalli
1	Organic Matter	GLCS/SOP/S/003	%	2.41	1.33	1.6	1.26	1.53	1.39
2	pH	IS 2720	-	7.83	8.13	8.32	8.52	8.61	8.06
3	Specific Electrical Conductivity	IS 14767	µS/cm	360	430	470	460	420	378
4	Available Phosphorous	GLCS/SOP/S/005	mg/kg	13.7	13.8	18.4	14.6	16.1	15.1
5	Available Potassium	GLCS/SOP/S/026	meq/l	0.87	0.93	1.16	1.29	0.88	0.8
6	Exchangeable Calcium (as Ca)	GLCS/SOP/S/020	meq/100g	6.8	5.6	6.4	7.4	8.4	7.2
7	Exchangeable Magnesium (as Mg)	GLCS/SOP/S/021	meq/100g	1.8	2.8	3.4	3.6	5	2.6
8	Sulphate as SO ₄	GLCS/SOP/S/009	mg/100g	42.5	50.8	57.4	52.2	58.6	73.7
7	Cation Exchange Capacity	GLCS/SOP/S/024	meq/100g	16.7	15.7	13.89	14.2	15.37	13
8	Bulk Density	GLCS/SOP/S/017	g/cc	1.18	1.08	1.1	1.06	1.16	1.13
9	Texture Sand	GLCS/SOP/S/015	%	29.37	28.13	46.24	35	48.73	27.5
10	Texture Silt	GLCS/SOP/S/015	%	39.46	43.62	32.14	44	28.37	47.5
11	Texture Clay	GLCS/SOP/S/015	%	31.17	28.25	21.62	21	22.9	25
12	Water Holding Capacity	GLCS/SOP/S/016	%	52	48.6	42.6	45.4	51.2	55.6
13	Available Nitrogen as N	GLCS/SOP/S/029	Kg/ha	238	200.7	175.6	225.8	238.4	200.7
14	Chloride as (Cl) in Saturation Extract	GLCS/SOP/S/004	meq/l	4.3	5.4	6.2	6.3	6.8	5.8

15	Texture	GLCS/SOP/S/015	-	Sandy Clay Loom	Sandy Clay Loom	Sandy Clay Loom	Sandy Clay Loom	Sandy Clay Loom	Sandy Clay Loom
16	Permeability	By Permeameter	%	45.6	45.2	44.9	44.6	45.7	44.8
17	Manganese	USEPA Method	mg/kg	14.73	BDL(DL:0.5)	19.7	15.5	14.9	15.2
18	Zinc	USEPA Method	mg/kg	5.4	4.5	14	7	18.9	24.9
19	Cadmium as Cd	USEPA Method	mg/kg	2.45	1.25	2.74	2.35	1.74	1.74
20	Chromium as Cr	USEPA Method	mg/kg	9	6.5	10.5	19.7	19.2	28.9
21	Copper as Cu	USEPA Method	mg/kg	1.96	2.37	3.5	6.6	3.5	8.2
22	Lead as Pb	USEPA Method	mg/kg	0.49	BDL(DL:0.5)	3.5	2.1	0.25	2.74
23	Iron as Fe	USEPA Method	mg/kg	42	17.2	32.4	17.8	16.2	31.4
24	Organic Carbon	GLCS/SOP/S/003	%	1.4	0.77	0.93	0.73	0.89	0.81
25	Boron as B	USEPA Method	mg/kg	4.17	5.12	3.5	3.3	1.74	2

Source: Sampling Results by GLCS Lab Private Limited.

FIGURE 3.7: SOIL SAMPLE COLLECTION**Interpretation & Conclusion****Physical Characteristics –**

The physical properties of the soil samples were examined for texture, bulk density, porosity and water holding capacity. The soil texture found in the study area is Clay (21 % 31.17 %) to Sandy Loam Soil and Bulk Density of Soils in the study area varied between 1.08-1.18 g/cc. The Water Holding Capacity of the soil samples is found to be medium i.e., ranging from 42.6 – 55.6 %.

Chemical Characteristics –

- The nature of soil is slightly alkaline to strongly alkaline with pH range 1.26 – 1.39
- The available Nitrogen content range between 175.6 – 238.4 mg/kg
- The available Phosphorus content range between 13.7 – 18.4 mg/kg
- The available Potassium range between 0.8 mg/kg to 1.29 mg/kg

Observation :

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

3.2 WATER ENVIRONMENT

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

3.2.1 Surface Water Resources:

Ponnaiyar 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	SW-1	Tank near Armadapuram	4.7km North	12°37'2.45"N 77°54'48.36"E
2	SW-2	Nanjappan Kodigai Eri	7km NW	12°36'11.29"N 77°51'20.99"E
GROUND WATER				
3	WW-1	Near Project Area	870m SE	12°34'15.95"N 77°55'29.02"E
4	WW-2	U.Kothapalli	3.5km SE	12°33'5.67"N 77°56'20.36"E
5	BW-1	Nagamangalam	2.7km SE	12°33'54.40"N 77°56'22.01"E
6	BW-2	Konasandram	4.8km SW	12°32'59.05"N 77°52'39.77"E

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

FIGURE 3.8: WATER SAMPLING LOCATIONS AROUND 10 KM RADIUS

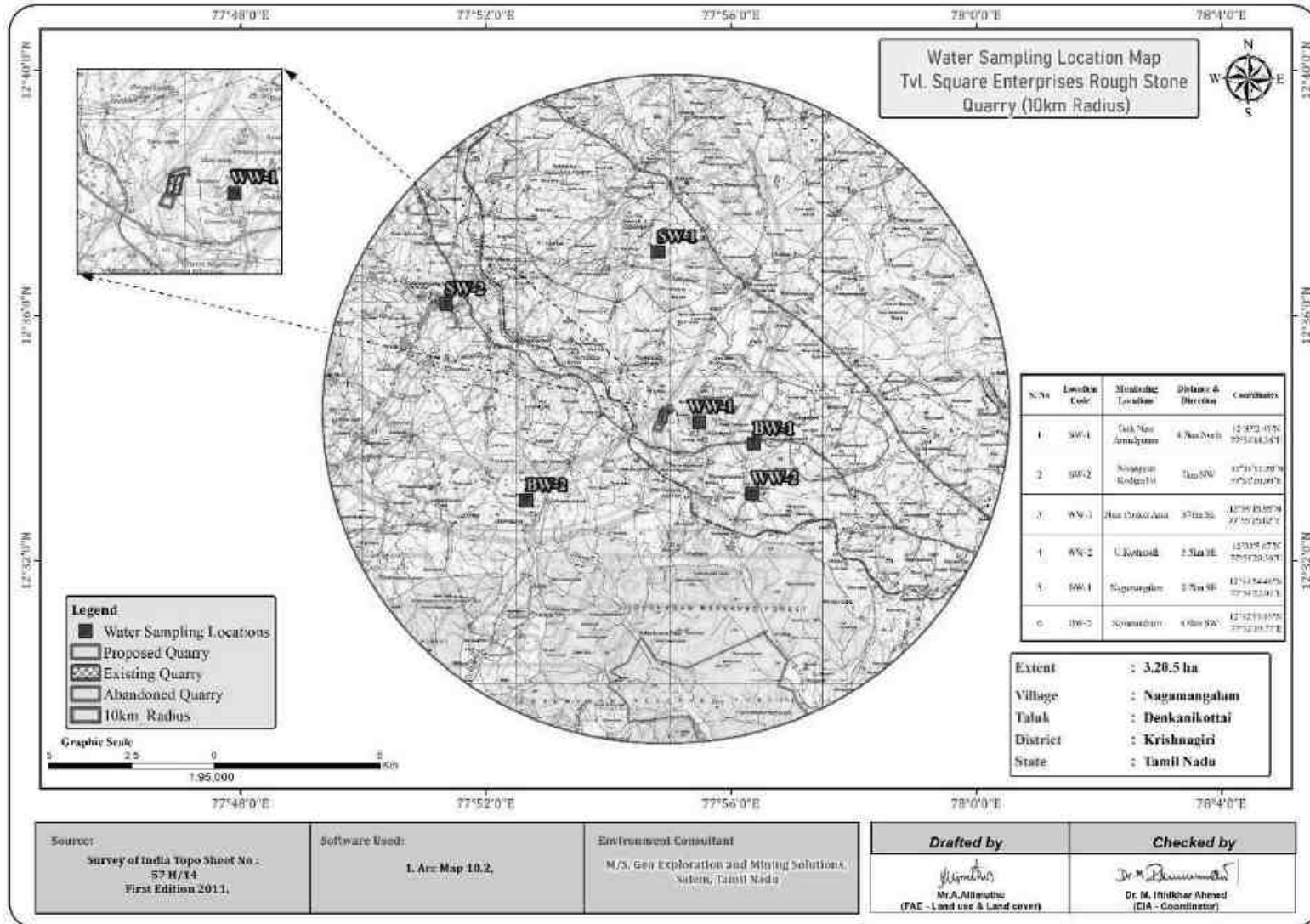


TABLE 3.9: GROUND WATER SAMPLING RESULTS

Sl. No.	Test Parameters	Test Method	Unit	WW1 Near Project Area	WW2 U.Kothapalli	BW1 Nagamangalam	BW2 Konasandram
1	Color	IS 3025 PART 4	Hazen	< 5	< 5	< 5	< 5
2	Odor	IS 3025 PART 5	-	Agreeable	Agreeable	Agreeable	Agreeable
3	pH	IS 3025 PART 11	-	7.62	7.49	7.84	7.59
4	Electrical Conductivity	IS 3025 PART 14	µS/cm	2328	2450	2341	2618
5	Turbidity	IS 3025 PART 10	NTU	<1	<1	<1	<1
6	Total Dissolved Solids	IS 3025 PART 16	mg/l	1513	1592	1516	1702
7	Total Suspended Solids	IS 3025 PART 17	mg/l	BDL(DL:2)	BDL(DL:2)	BDL(DL:2)	BDL(DL:2)
8	Total Alkalinity	IS 3025 PART 23	mg/l	680	580	690	660
9	Total Hardness as CaCO ₃	IS 3025 PART 21	mg/l	840	790	910	1020
10	Calcium as Ca	IS 3025 PART 40	mg/l	184	148	172	248
11	Magnesium as Mg	IS 3025 PART 46	mg/l	92	102	117	97
12	Chloride as Cl ⁻	IS 3025 PART 32	mg/l	246	355	266	453
13	Sulphate as SO ₄ ⁻	IS 3025 PART 24	mg/l	79	105	224	157
14	Iron as Fe	IS 3025 PART 53	mg/l	0.72	0.65	0.39	0.12
15	Boron as B	IS 3025 PART 57	mg/l	BDL(DL:0.1)	BDL(DL:0.1)	BDL(DL:0.1)	BDL(DL:0.1)
16	Free Residual Chlorine as Cl ₂	IS 3025 PART 26	mg/l	BDL(DL:1.0)	BDL(DL:1.0)	BDL(DL:1.0)	BDL(DL:1.0)
17	Fluoride as F	GLCS/SOP/W/015	mg/l	0.76	0.67	0.47	0.34
18	Nitrate as NO ₃	IS 3025 PART 34	mg/l	BDL(DL :2.0)	BDL(DL :2.0)	BDL(DL :2.0)	BDL(DL :2.0)
19	Manganese as Mn	IS 3025 PART 59	mg/l	BDL(DL:0.1)	BDL(DL:0.1)	BDL(DL:0.1)	BDL(DL:0.1)
20	Total Coliforms	IS 15185	Per 100ml	Absent	Absent	Absent	Absent
21	<i>Escherichia coli</i>	IS 15185	Per 100ml	Absent	Absent	Absent	Absent
22	Arsenic as As	GLCS/SOP/W/62	mg/l	BDL(DL:0.002)	BDL(DL:0.002)	BDL(DL:0.002)	BDL(DL:0.002)

22	Ammonia (NH ₃)	IS 3025 PART 34	mg/l	BDL(DL:1.0)	BDL(DL:1.0)	BDL(DL:1.0)	BDL(DL:1.0)
23	Zinc as Zn	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)	BDL(DL:0.01)	BDL(DL:0.01)	BDL(DL:0.01)
24	Aluminium as Al	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)	BDL(DL:0.01)	BDL(DL:0.01)	BDL(DL:0.01)
25	Cadmium as Cd	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)	BDL(DL:0.01)	BDL(DL:0.01)	BDL(DL:0.01)
26	Molybdenum as Mo	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)	BDL(DL:0.01)	BDL(DL:0.01)	BDL(DL:0.01)
27	Selenium	GLCS/SOP/W/62	mg/l	BDL(DL:0.002)	BDL(DL:0.002)	BDL(DL:0.002)	BDL(DL:0.002)
28	Lead as Pb	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)	BDL(DL:0.01)	BDL(DL:0.01)	BDL(DL:0.01)
29	Barium as Ba	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)	BDL(DL:0.01)	BDL(DL:0.01)	BDL(DL:0.002)
30	Anionic Surfactants	IS 13428 Annex K	mg/l	BDL(DL:0.05)	BDL(DL:0.05)	BDL(DL:0.05)	BDL(DL:1.0)
31	Cyanide	IS 3025 PART 27	mg/l	BDL(DL:0.02)	BDL(DL:0.02)	BDL(DL:0.02)	BDL(DL:0.01)
32	Phenolic Compounds	IS 3025 PART 43	mg/l	BDQ(DL:0.1)	BDQ(DL:0.1)	BDQ(DL:0.1)	BDL(DL:0.01)
33	Chromium as Cr	GLCS/SOP/W/62	mg/l	BDL(DL:0.1)	BDL(DL:0.1)	BDL(DL:0.1)	BDL(DL:0.01)
34	Sulphide	GLCS/SOP/W/66	mg/l	BDL(DL:1.0)	BDL(DL:1.0)	BDL(DL:1.0)	BDL(DL:0.01)
35	Copper as Cu	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)	BDL(DL:0.01)	BDL(DL:0.01)	BDL(DL:0.002)
36	Mercury as Hg	GLCS/SOP/W/62	mg/l	BDL(DL:0.002)	BDL(DL:0.002)	BDL(DL:0.002)	BDL(DL:0.01)

* 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.	TEST PARAMETERS	TEST METHOD	UNIT	SW1 Tank Near Armampuram	SW2 Nanjappan Kodigai Eri
1	Color	IS 3025 PART 4	Hazen	<5	<5
2	Odor	IS 3025 PART 5	-	Agreeable	Agreeable
3	pH	IS 3025 PART11	-	7.36	7.93
4	Electrical Conductivity	IS 3025 PART14	µS/cm	3108	1786
5	Turbidity	IS 3025 PART10	NTU	4	<1
6	Total Dissolved Solids	IS 3025 PART16	mg/l	2020	1160
7	Total Alkalinity as CaCO ₃	IS 3025 PART 23	mg/l	720	470
8	Total Hardness as CaCO ₃	IS 3025 PART 21	mg/l	990	670
9	Calcium as Ca	IS 3025 PART40	mg/l	216	136
10	Magnesium as Mg	IS 3025 PART 46	mg/l	109	80
11	Chloride as Cl ⁻	IS 3025 PART 32	mg/l	424	187
12	Sulphate as SO ₄ ⁻	IS 3025 PART24	mg/l	264	185
13	Iron as Fe	IS 3025 PART 53	mg/l	0.72	0.5
14	Boron as B	IS 3025 PART 57	mg/l	BDL(DL:0.1)	BDL(DL:0.1)
15	Free Residual Chlorine as Cl ₂	IS 3025 PART 26	mg/l	BDL(DL:1.0)	BDL(DL:1.0)
16	Fluoride as F	GLCS/SOP/W/015	mg/l	0.53	0.36
17	Manganese as Mn	IS 3025 PART 59	mg/l	BDL(DL:0.1)	BDL(DL:0.1)
18	Nitrate as NO ₃	IS 3025 PART 34	mg/l	BDL(DL :2.0)	BDL(DL :2.0)
19	Dissolved Oxygen	IS 3025 PART 38	mg/l	6	8
20	Bio-Chemical Oxygen Demand @ 27°C for 3 days	IS 3025 PART 44	mg/l	6	9
21	Chemical Oxygen Demand	IS 3025 PART 58	mg/l	20	28
22	Total Coliforms	IS 1622	MPN/100ml	<2	<2
23	<i>Escherichia coli</i>	IS 1622	MPN/100ml	<2	<2
24	Total Suspended Solids	IS 3025 PART 17	mg/l	BDL(DL:2)	7
25	Phenolic Compounds	IS 3025 PART 43	mg/l	BDL(DL:0.1)	BDL(DL:0.1)
26	Anionic Surfactants	IS 13428 ANNEX K	mg/l	BDL(DL:0.05)	BDL(DL:0.05)
27	Cyanide	IS 3025 PART 27	mg/l	BDL(DL:0.02)	BDL(DL:0.02)
28	Sulphide	GLCS/SOP/W/66	mg/l	BDL(DL:1)	BDL(DL:1)
29	Copper as Cu	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)	BDL(DL:0.01)
30	Mercury (Hg)	GLCS/SOP/W/62	mg/l	BDL(DL:0.002)	BDL(DL:0.002)
31	Cadmium as Cd	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)	BDL(DL:0.01)

32	Selenium	GLCS/SOP/W/62	mg/l	BDL(DL:0.002)	BDL(DL:0.002)
33	Aluminium as Al	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)	BDL(DL:0.01)
34	Lead as Pb	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)	BDL(DL:0.01)
35	Zinc as Zn	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)	BDL(DL:0.01)
36	Chromium as Cr	GLCS/SOP/W/62	mg/l	BDL(DL:0.1)	BDL(DL:0.1)
37	Barium as Ba	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)	BDL(DL:0.01)
38	Molybdenum as Mo	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)	BDL(DL:0.01)
39	Arsenic as As	GLCS/SOP/W/62	mg/l	BDL(DL:0.002)	BDL(DL:0.002)
40	Ammonia as NH ₃	IS 3025 PART 34	mg/l	BDL(DL:1.0)	BDL(DL:1.0)

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 7.36 – 7.93 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 1160-2020 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 187-424 mg/l, sulphates varied from 185 - 264 mg/l.

Ground Water

The pH of the water samples collected ranged from 7.49 – 7.84 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 1513 - 1702 mg/l in all samples. Total hardness varied between 790 - 1020 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 70-65m. The maximum depth proposed out of proposed projects is 60m (45m Agl+15m Bgl) (1m Topsoil + 59m Rough Stone).

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 eight open well and 6 borewells.

The average water level in the open well is varies from = 11.8 m to 14.2m bgl

The water level in the bore well is varies from = 71.6 to 73.5 m 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 60m 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	Oct-23	Nov-23	Dec-23
1	OW-1	77° 55' 29.0174" E	12° 34' 15.9361" N	13	13.6	14.2
2	OW-2	77° 55' 38.3988" E	12° 34' 25.8810" N	12.6	13.2	13.8
3	OW-3	77° 55' 15.3997" E	12° 35' 01.6400" N	12.9	13.5	14.1
4	OW-4	77° 54' 59.3369" E	12° 35' 06.8553" N	12.4	13	13.6
5	OW-5	77° 54' 24.6166" E	12° 34' 55.6574" N	11.8	12.4	13
6	OW-6	77° 54' 21.4266" E	12° 34' 34.0034" N	13	13.6	14.2
7	OW-7	77° 54' 32.9801" E	12° 34' 34.0405" N	12.5	13.1	13.7
8	OW-8	77° 54' 02.9400" E	12° 34' 17.9455" N	12.3	12.9	13.5
9	OW-9	77° 54' 58.4509" E	12° 33' 30.7790" N	11.9	12.5	13.1
10	OW-10	77° 55' 09.0265" E	12° 33' 46.8895" N	12.8	13.4	14

Source: Onsite monitoring data

FIGURE 3.9: OPEN WELL CONTOUR MAP OCT - DEC 2023

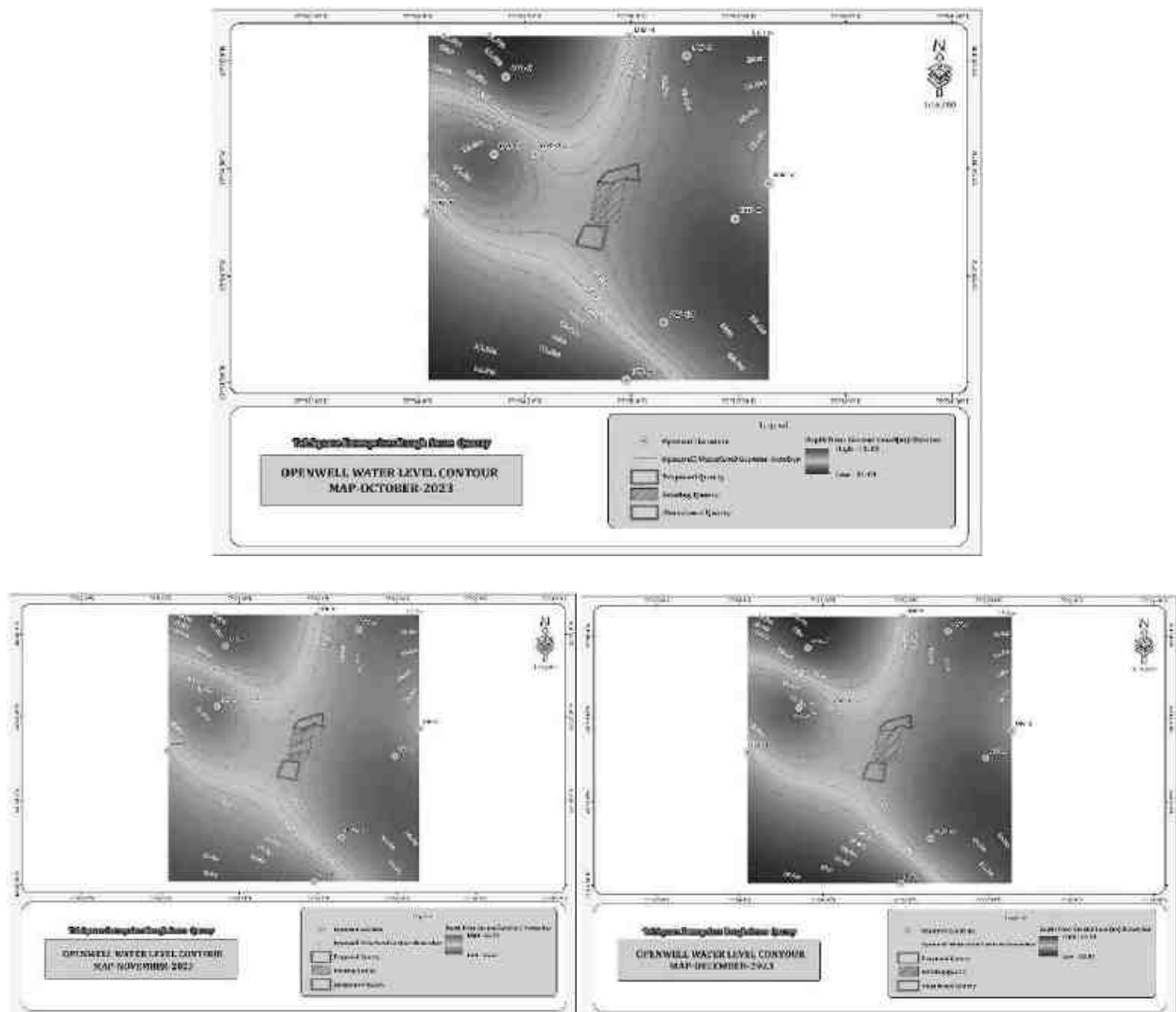


TABLE 3.12: SUMMER SEASON WATER LEVEL OF BOREWELLS 1 KM RADIUS

S.NO	LABEL	LONGITUDE	LATITUDE	Oct-23	Nov-23	Dec-23
1	BW-1	77° 54' 18.5263" E	12° 34' 11.5984" N	66.8	67.4	68
2	BW-2	77° 54' 23.4888" E	12° 34' 37.8180" N	66	66.6	67.2
3	BW-3	77° 54' 57.4656" E	12° 35' 11.1679" N	66.5	67.1	67.7
4	BW-4	77° 55' 42.1780" E	12° 34' 14.6867" N	66.3	66.9	67.5
5	BW-5	77° 55' 32.5639" E	12° 34' 01.7203" N	67	67.6	68.2
6	BW-6	77° 54' 56.6035" E	12° 33' 37.2048" N	66.9	67.5	68.1

Source: Onsite monitoring data

FIGURE 3.10: BOREWELL CONTOUR MAP – OCT - DEC 2023

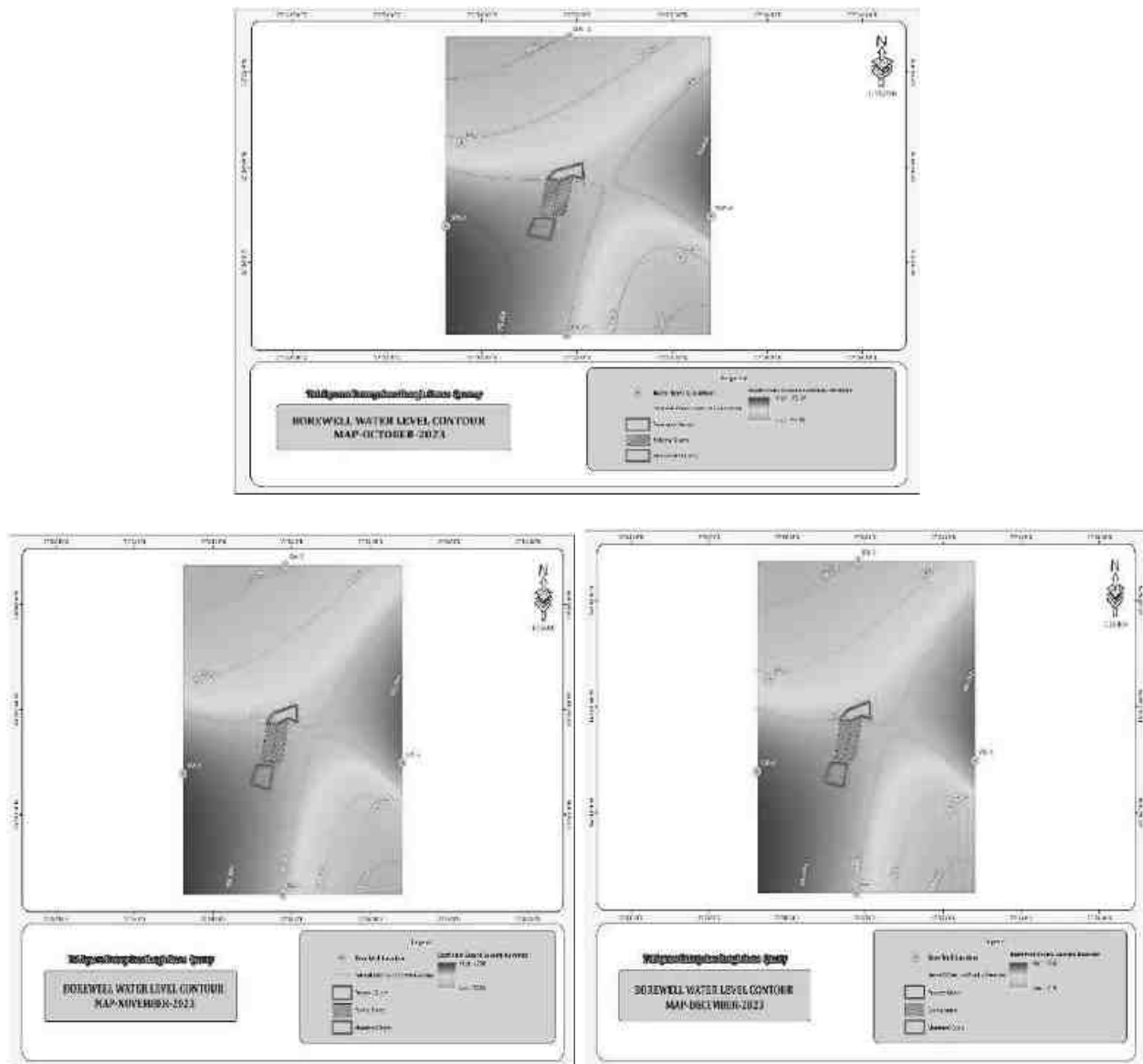
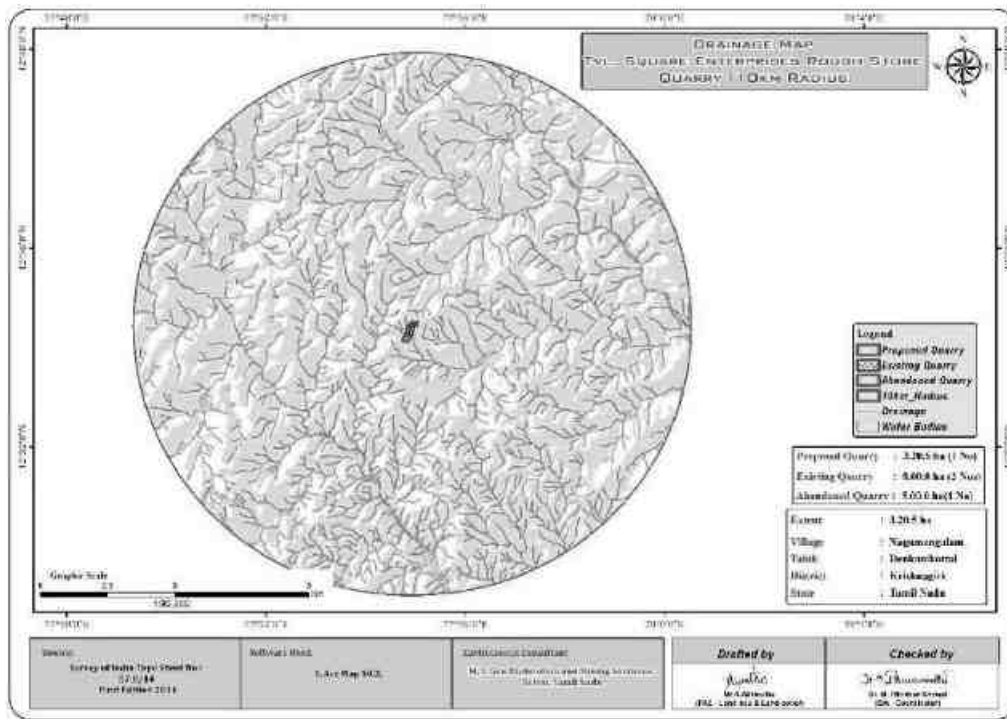
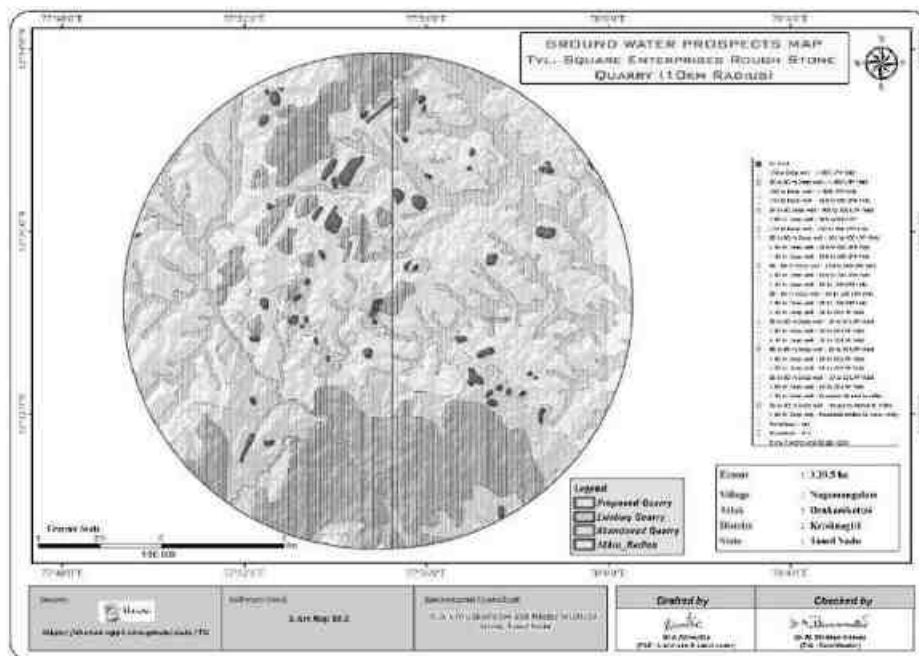


FIGURE 3.11: DRAINAGE MAP AROUND 10 KM RADIUS FROM PROJECT SITE



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 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

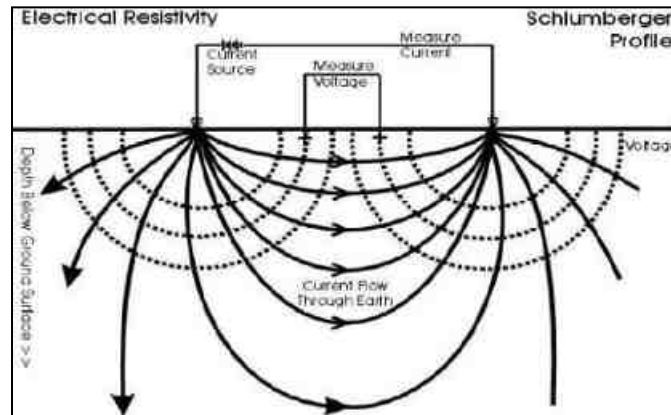
\emptyset = Fractional pore volume

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 ... (1+2...+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 65-70 m. The maximum depth proposed out of proposed projects 60m(45m Agl + 15m 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 15m 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

Krishnagiri lies on 489m above sea level. The climate is tropical in Krishnagiri. The Summers are much rainier than the winter. This climate is considered to be Aw according to the Köppen-Geiger climate classification.

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

<https://en.climate-data.org/asia/india/tamil-nadu/krishnagiri-34157/>

Rainfall

TABLE 3.13: RAINFALL DATA

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

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

TABLE 3.14: METEOROLOGICAL DATA RECORDED AT SITE

S. No	Parameters		Oct 2023	Nov-2023	Dec 2023
1	Temperature (°C)	Max	25.65	24.22	23.8
		Min	22.01	21.62	19.48
		Avg.	23.83	22.92	21.64
2	Relative Humidity (%)	Avg.	77.65	88.84	82.87
3	Wind Speed (m/s)	Max	4.73	4.16	4.59
		Min	1.17	1.89	1.66
		Avg.	2.95	3.02	3.12
4	Cloud Cover (OKTAS)		0-8	0-8	0-8
5	Wind direction		ENE,E	ENE,E	ENE,E

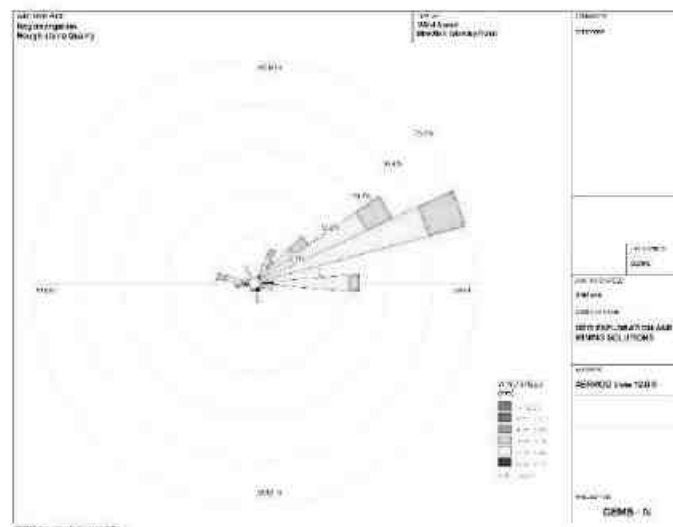
Source: On-site monitoring/sampling by GLCS lab Private Limited in association with GEMS

Correlation between Secondary and Primary Data

The meteorological data collected at the site is almost similar to that of secondary data collected from IMD Krishnagiri Agro. A comparison of site data generated during the three months with that of IMD, Krishnagiri_Agro reveals the following.

Wind rose diagram of the study site is depicted in Figure. 3.14. Predominant downwind direction of the area during study season is East-North-East to East South 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 ENE, E, SSE
2. Wind velocity readings were recorded between 0.50 to 5.70m/s
3. Calm conditions prevail of about 0 % of the monitoring period
4. Temperature readings ranging from 19.48 to 25.65 °C
5. Relative humidity ranging from 77.65 to 88.84 %
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
SO ₂	IS-5182 Part II (Improved West & Gaeke method)	Respirable Dust Sampler with gaseous attachment
NO _x	IS-5182 Part II (Jacob & Hochheiser modified method)	Respirable Dust Sampler with gaseous attachment
Free Silica	NIOSH – 7601	Visible Spectrophotometry

Source: Sampling Methodology followed by GLCS lab Private Limited & CPCB Notification

TABLE 3.16: NATIONAL AMBIENT AIR QUALITY STANDARDS

Sl.No.	Pollutant	Time Weighted Average	Concentration in ambient air	
			Industrial, Residential, Rural & other areas	Ecologically Sensitive area (Notified by Central Govt.)
1	Sulphur Dioxide ($\mu\text{g}/\text{m}^3$)	Annual Avg.* 24 hours**	50.0 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 $10\mu\text{m}$) PM ₁₀ ($\mu\text{g}/\text{m}^3$)	Annual Avg. 24 hours	60.0 100.0	60.0 100.0
4	Particulate matter (size less than $2.5\mu\text{m}$) PM _{2.5} ($\mu\text{g}/\text{m}^3$)	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 October 2023 – December 2023. The baseline data of ambient air has been generated for PM₁₀, PM_{2.5}, Sulphur Dioxide (SO₂) & Nitrogen Dioxide (NO₂) Monitoring has been carried out as per the CPCB, MoEF guidelines and notifications.

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	12°34'27.37"N 77°55'1.05"E
2	AAQ-2	Near Crusher	360m South	12°34'14.45"N 77°55'2.61"E
3	AAQ-3	Nagamangalam	2.7km SE	12°34'4.25"N 77°56'27.44"E
4	AAQ-4	Kadudhanapalli	4.7km NW	12°35'36.96"N 77°52'35.21"E
5	AAQ-5	Agaram	6.2km NE	12°36'53.34"N 77°57'19.80"E
6	AAQ-6	Konasandram	4.8km SW	12°33'0.94"N 77°52'40.09"E
7	AAQ-7	U.Puram	3.6km SE	12°32'47.41"N 77°56'9.22"E

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

FIGURE 3.14: AIR QUALITY MONITORING PHOTOGRAPHS



FIGURE 3.15: AMBIENT AIR QUALITY LOCATIONS AROUND 10 KM RADIUS

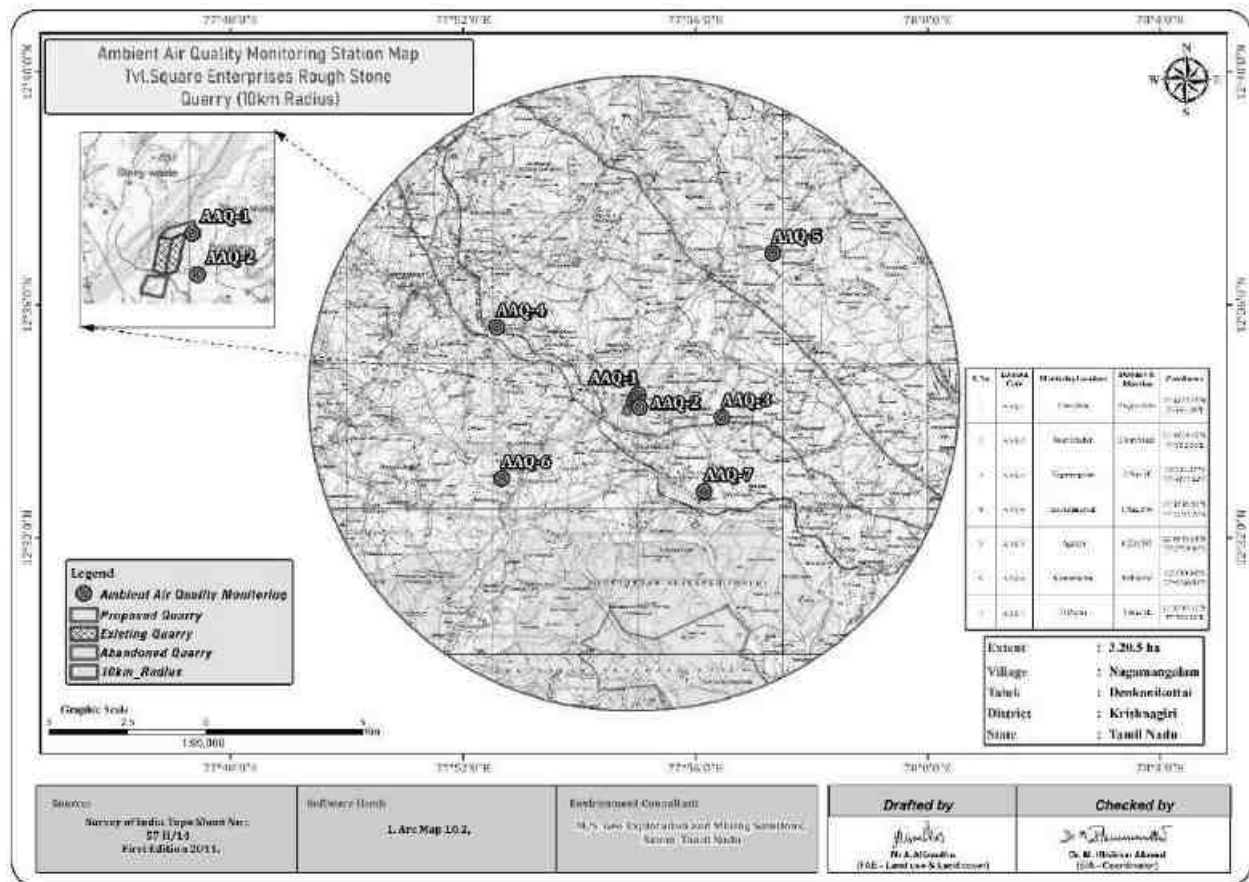


TABLE 3.18: SUMMARY OF AAQ 1 to AAQ 8

PM10	AAQ1 Core zone	AAQ2 Near Crusher	AAQ3 Nagamangalam	AAQ4 Kadudhanapalli	AAQ5 Agaram	AAQ6 Konasandram	AAQ7 U.Puram
Arithmetic Mean	42.2	44.4	42.7	43.1	43.2	43.2	43.0
Minimum	40.0	41.7	41.2	41.0	41.2	41.2	41.2
Maximum	49.2	46.9	44.3	45.8	45.7	45.2	45.4
NAAQ Norms	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PM2.5	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7
Arithmetic Mean	21.6	23.4	22.3	22.4	22.2	22.6	22.5
Minimum	20.0	20.4	21.2	20.4	20.4	20.0	20.4
Maximum	24.5	26.2	24.1	24.5	24.5	24.5	24.1
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	5.7	5.7	5.9	5.9	5.5	6.1	5.9
Minimum	4.1	2.2	4.1	4.2	4.1	4.4	4.1
Maximum	9.6	8.8	7.3	7.9	8.4	7.8	10.0
NAAQ Norms	80.0	80.0	80.0	80.0	80.0	80.0	80.0
NO2	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7
Arithmetic Mean	20.8	21.2	20.8	21.3	20.8	20.6	21.1
Minimum	17.7	18.9	18.8	18.1	18.1	18.8	19.0
Maximum	22.7	24.8	23.2	25.0	22.5	22.1	24.4
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	PM _{2.5}	PM ₁₀	SO ₂	NO ₂
2	No. of Observations	182	182	182	182
3	98 th Percentile Value	46.7	25.4	8.5	24.5
4	Arithmetic Mean	43.1	22.4	5.8	20.9
5	Geometric Mean	43.1	22.4	5.7	20.9
6	Standard Deviation	1.4	1.3	1.3	1.2
7	Minimum	40.0	20.0	2.2	17.7
8	Maximum	49.2	26.2	10.0	25.0
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

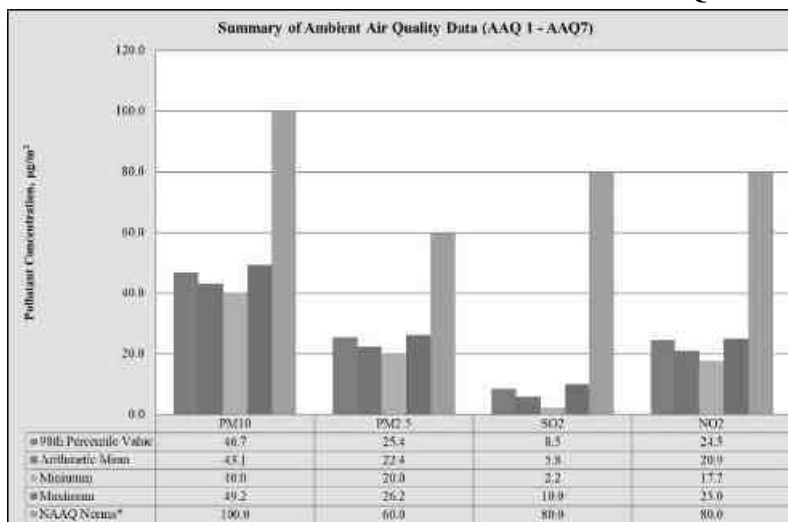


FIGURE 3.17: BAR DIAGRAM OF PARTICULATE MATTER PM_{2.5}

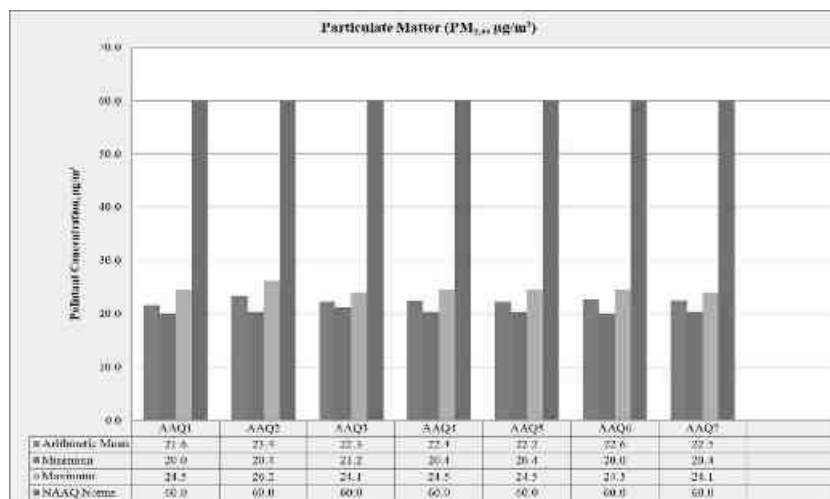


FIGURE 3.18: BAR DIAGRAM OF PARTICULATE MATTER PM₁₀

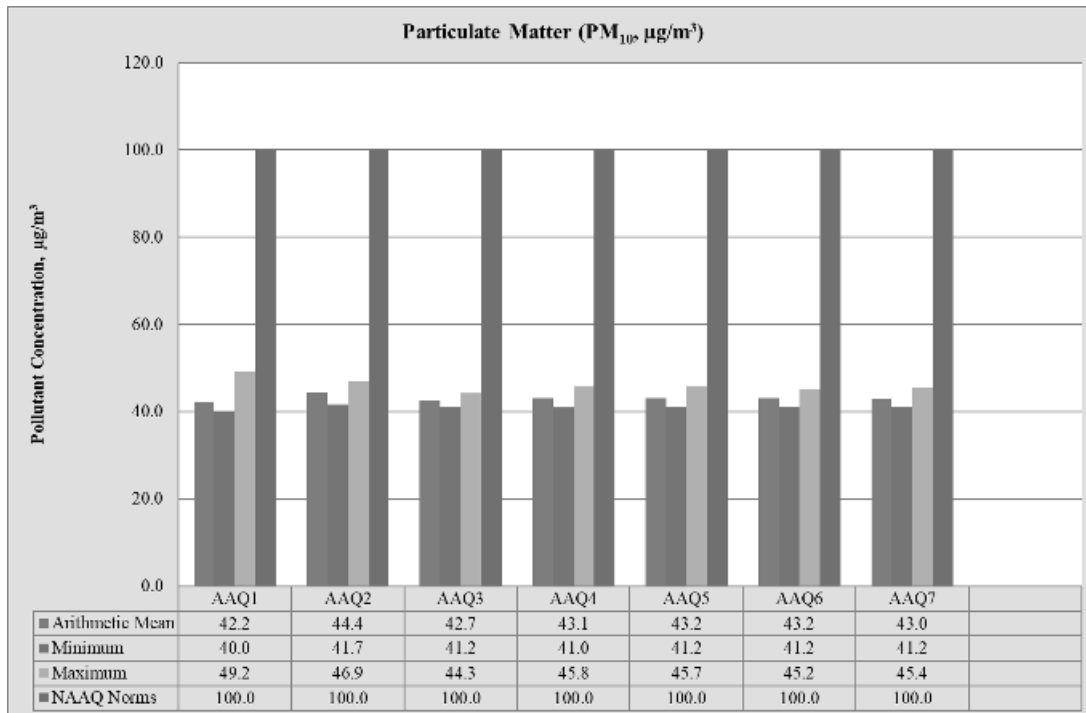


FIGURE 3.19: BAR DIAGRAM OF GASEOUS POLLUTANT SO₂

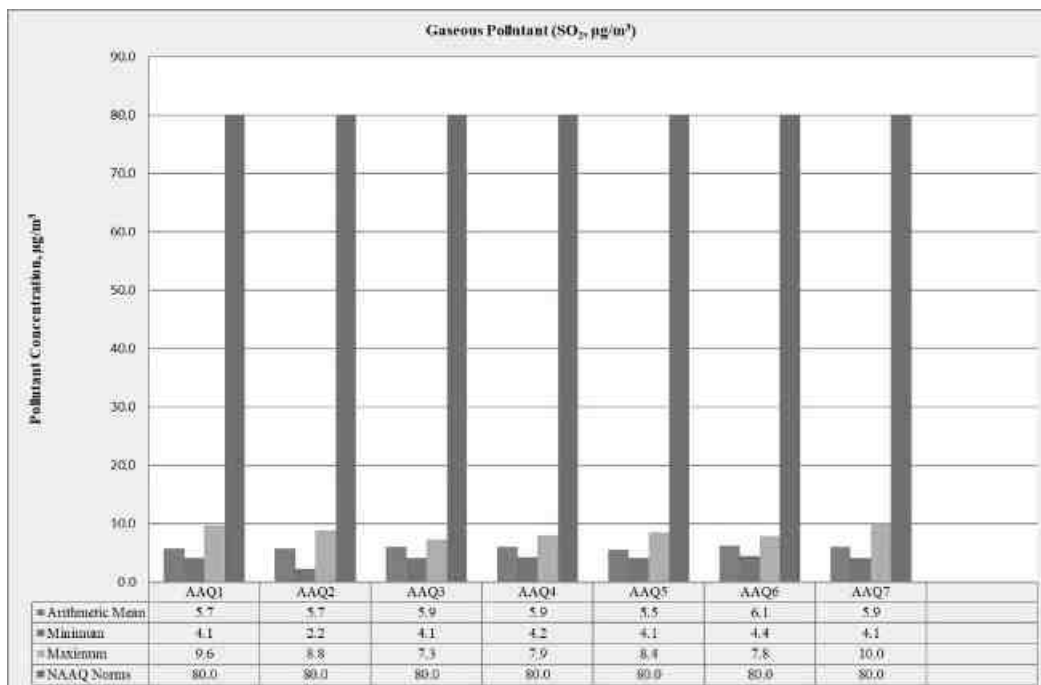
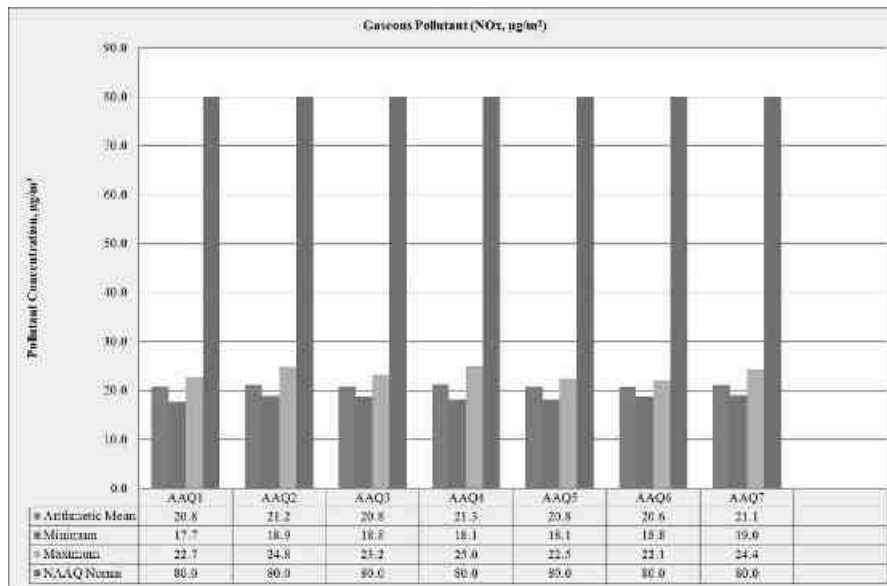


FIGURE 3.20: BAR DIAGRAM OF GASEOUS POLLUTANT NO_x



3.3.6 Interpretations & Conclusion

As per monitoring data, PM₁₀ ranges from 40.0 µg/m³ to 49.2 µg/m³, PM_{2.5} data ranges from 20.0 µg/m³ to 26.2 µg/m³, SO₂ ranges from 2.2 µg/m³ to 10.0 µg/m³ and NO₂ data ranges from 17.7 µg/m³ to 25.0 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	12°34'27.63"N77°54'59.60"E
2	N2	Near Crusher	360m South	12°34'14.86"N 77°55'2.87"E
3	N3	Nagamangalam	2.7km SE	12°34'4.60"N 77°56'27.38"E
4	N4	Kadudhanapalli	4.7km NW	12°35'37.08"N77°52'35.43"E
5	N5	Agaram	6.2km NE	12°36'53.45"N77°57'19.54"E
6	N6	Konasandram	4.8km SW	12°33'1.07"N 77°52'40.17"E
7	N7	U.Puram	3.6km SE	12°32'47.16"N 77°56'9.12"E

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

3.4.2 Method of Monitoring

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

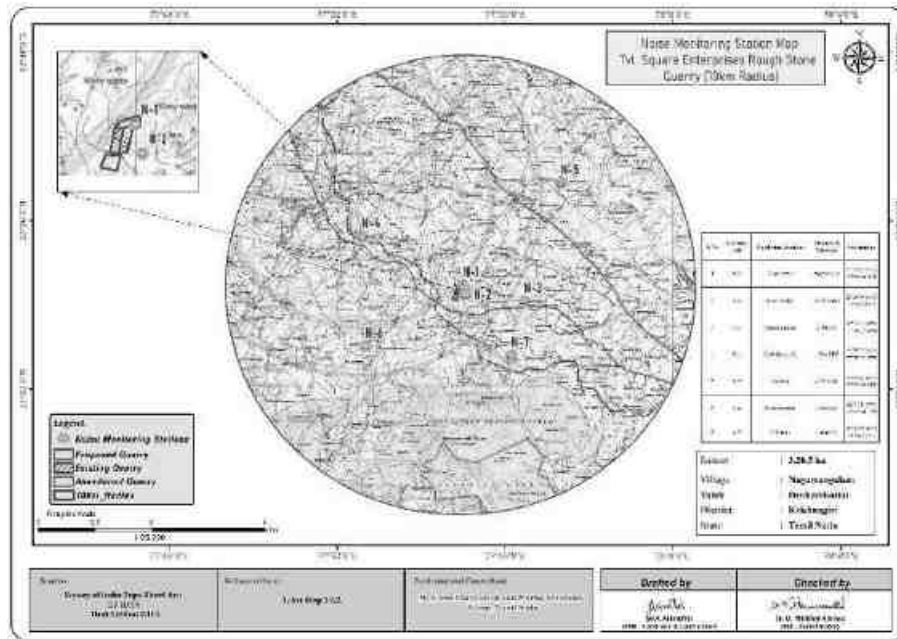
$$Leq = 10 \log L / T \sum (10L_n/10)$$

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	42.7	38.1	Industrial Day Time- 75 dB (A) Night Time- 70 dB (A)
2	Near Crusher	41.8	36.9	
3	Nagamangalam	41.1	36.2	Residential Day Time- 55 dB (A) Night Time- 45 dB (A)
4	Kadudhanapalli	37.8	36.7	
5	Agaram	36.3	35.4	
6	Konasandram	35.6	34.7	
7	U.Puram	35.9	35.5	

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

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

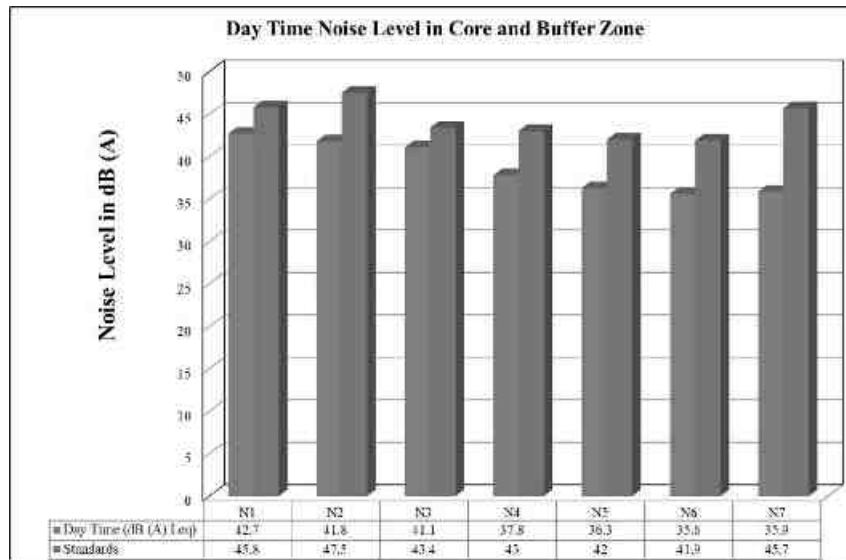
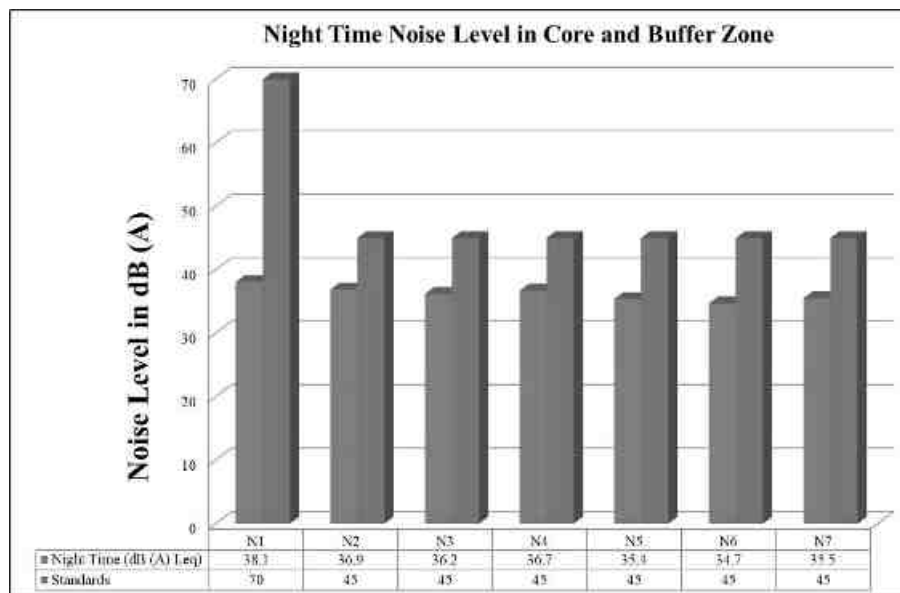


FIGURE 3.25: NIGHT TIME NOISE LEVELS IN CORE AND BUFFER ZONE



3.4.4 Interpretation & Conclusion:

Ambient noise levels were measured at 7 (Seven) locations around the proposed project area. Noise levels recorded in core zone during day time were from 41.8 - 42.7 dB (A) Leq and during night time were from 36.9 – 38.1 dB (A) Leq. Noise levels recorded in buffer zone during day time were from 35.6 – 41.1 dB (A) Leq and during night time were from 34.7 – 36.9 dB (A) Leq. Thus, the noise level for Industrial and Residential area meets the requirements of CPCB.

3.5 ECOLOGICAL ENVIRONMENT

3.5.1. Study area Ecology

The core area extent of 3.20.5 Ha of Rough stone Quarry has an impact on the diversity of flora and fauna of the surrounding area. But present work was carried out on the detailed study of the impacts of the Rough stone Quarry on the ecology and biodiversity of the core lease area with the proper mitigation and sustainable management plan. The proposed mine lease area is situated on a hilly terrain. The following methods were applied during the baseline study of flora, fauna and diversity assessment.

3.5.2. Objectives of Biological Studies

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

3.5.3. Methodology of Sampling

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).

3.5.3.1. Sampling

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

3.5.3.2 Sampling Size

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

3.5.3.3. Timing of Study

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

3.5.3.4. Observations from Sampling

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

3.5.3.5. Equipment/ References

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

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

3.5.4. Part I Field Sampling Techniques**3.5.4.1. Transect walk – Birds**

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

3.5.4.2. Modified Pollard Walk – for Butterflies

The Modified Pollard Walk (Pollard 1977, 1993, Walpole 1999) using fixed width transect walk method was 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 for the search. VES technique is one of the simplest methods and an appropriate technique for both inventory and monitoring Herpetofauna (Heyer et al. 1994).

3.5.4.4. Observational methods- Mammals

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

3.5.4.5. Multiple Stage Quadrat – Vegetation

A variety of habitat or vegetation structure variables were measured using the Multiple Stage Quadrat sampling protocol (Sykes and Horrill 1977). All of those areas were sampled, and the major corners were temporarily delineated

with colored ribbons. Each site was identified in the field using a compass and clinometer, and the plot's latitude, longitude, and elevation were recorded using a handheld Global Positioning System (Garmin 12XL).

3.5.5. Flora

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

TABLE 3.23: FLORA IN THE CORE ZONE – CLUSTER AREA

SI. No	English Name	Vernacular Name	Scientific Name	Family Name
Trees				
1.	Mesquite	Mullu maram	<i>Prosopis juliflora</i>	Fabaceae
2.	Millettia pinnata	Pongam oiltree	<i>Pongamia pinnata</i>	Fabaceae
3.	Pala indigo	Pala maram	<i>Wrightia tinctoria</i>	Apocynaceae
4.	Bitter Albizia	Arappu Tree	<i>Albizia amara</i>	Fabaceae
5.	Neem	Vembu	<i>Azadirachta indica</i>	Meliaceae
Shrubs				
1.	Lantana	Unni chedi	<i>Lantana camara</i>	Verbenaceae
2.	Tanner's cassia	Avaram	<i>Senna auriculata</i>	Fabaceae
3.	Triangular spruge	Chaturakalli	<i>Euphorbia antiquorum</i>	Euphorbiaceae
Herbs				
1.	Common leucas	Thumbai	<i>Leucas aspera</i>	Lamiaceae
2.	Asthma-plant	Amman pacharisi	<i>Euphorbia hirta</i>	Euphorbiaceae
3.	Carrot grass	Partiniyam	<i>Parthenium hysterophorus</i>	Asteraceae
4.	Coat buttons	Thatha poo	<i>Tridax procumbens</i>	Asteraceae
5.	Giant Aloe vera	Kattu katrazhai	<i>Aloe vera</i>	Asphodelaceae
6.	Bindii	Nerunji mullu	<i>Tribulus terrestris</i>	Zygophyllaceae
7.	Holy basil	Thulasi	<i>Ocimum tenuiflorum</i>	Lamiaceae
8.	Prickly chaff flower	Nayuruv	<i>Achyranthes aspera</i>	Amaranthaceae
Grass				
1.	Eragrostis	Pullu	<i>Eragrostis ferruginea</i>	Poaceae
2.	Great brome	Thodappam	<i>Bromus diandrus</i>	Poaceae
3.	Nut grass	Korai	<i>Cyperus rotandus</i>	Poaceae

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

3.5.6. Flora Composition in the Core Zone

Taxonomically a total of 19 species belonging to 12 families have been recorded from the core zone mining lease area. The area is situated on a hilly terrain. The area has gentle sloping towards Eastern side Based on the habitat classification of the enumerated plants the majority of species were Herbs 8, followed by Tress 5, Shrubs 3, and Grass 3. Details of flora with the scientific name were mentioned in Table No. 3.53. The result of the core zone of flora studies shows that Fabaceae and Poaceae, Euphorbiaceae are the main dominating species in the study area mentioned in Table No.3.53. No species were found as threatened category.

TABLE 3.24: FLORA IN THE BUFFER ZONE

S.No.	English Name	Vernacular Name	Scientific Name	Family Name
Trees				
1.	Mesquite	Mullu maram	<i>Prosopis juliflora</i>	Fabaceae
2.	Bitter Albizia	Arappu Tree	<i>Albizia amara</i>	Fabaceae
3.	Peepal	Arasanmaram	<i>Ficus religiosa</i>	Moraceae
4.	Blue gum	Thayala maram	<i>Eucalyptus</i>	Myrtaceae
5.	Indian ash tree	Odiya maram	<i>Lannea coromandelica</i>	Anacardiaceae
6.	Neem	Vembu	<i>Azadirachta indica</i>	Meliaceae
7.	Tamarind	Puliyamaram	<i>Tamarindus indica</i>	Legumes
8.	Jackfruit	Palamaram	<i>Artocarpus heterophyllus</i>	Moraceae
9.	Wild Date Palm	Icham	<i>Phoenix sylvestris</i>	Arecaceae
10.	Coral Tree	Kalyana murungai	<i>Erythrina variegata</i>	Papilionoide
11.	Asian Palmyra palm	Panai maram	<i>Borassus flabellifer</i>	Arecaceae
12.	White Bark Acacia	Vela maram	<i>Vachellia leucophloea</i>	Fabaceae
13.	Indian almond	Padam maram	<i>Terminalia catappa</i>	Combretaceae
14.	Banana tree	Vazhaimaram	<i>Musa acuminata</i>	Musaceae
15.	Indian ash tree	Odiya maram	<i>Lannea coromandelica</i>	Anacardiaceae
16.	Curry leaves	Karuveppali	<i>Murraya koenigii</i>	Rutaceae
17.	Lemon	Ezhumuchaipalam	<i>Citrus lemon</i>	Rutaceae
18.	Bidi leaf tree	Thiruvathi Plant	<i>Bauhinia racemosa</i>	Fabaceae
19.	Rusty Acacia	Parambai	<i>Acacia ferruginea</i>	Mimosaceae
20.	Mango	Manga	<i>Mangifera indica</i>	Anacardiaceae
21.	Teak	Thekku	<i>Tectona grandis</i>	Verbenaceae
22.	Yellow flame tree	Perunkondrai	<i>Peltophorum pterocarpum</i>	Fabaceae
23.	Custard apple	Seethapazham	<i>Annona reticulata</i>	Annonaceae
24.	Flamboyant	Cemmayir-konrai	<i>Delonix regia</i>	Fabaceae
25.	Chinaberry	Malai vembu	<i>Melia azedarach L.</i>	Meliaceae
26.	Monkey pod tree	Thungumoonchi	<i>Samanea saman</i>	Fabaceae
27.	Yellow Flame	Iyalvagai	<i>Peltophorumpterocarpum</i>	Fabaceae
28.	Millettia pinnata	Pongam oiltree	<i>Pongamia pinnata</i>	Fabaceae
29.	Indian gooseberry	Nelli	<i>Emblica officinalis</i>	Phyllanthaceae
30.	Black Siris	Karuvagai	<i>Albizia odoratissima</i>	Mimosaceae
31.	Madras thorn	Kudukapuli	<i>Pithecellobium dulce</i>	Fabaceae
32.	Malayan Cherry	Ten Pazham	<i>Muntingia calabura</i>	Muntingiaceae
33.	Indian Jujube	Ilanthai	<i>Ziziphus jujuba</i>	Rhamnaceae
34.	Banyan tree	Alamaram	<i>Ficus benghalensis</i>	Moraceae
35.	Chinese chaste tree	Nochi	<i>Vitex negundo</i>	Verbenaceae
36.	Ceylon satinwood	Porasu	<i>Chloroxylon swietenia</i>	Rutaceae
37.	Bamboo	Moonghil	<i>Bambusa bambo</i>	Poaceae
38.	Sacred Tree	Porasu	<i>Butea monosperma</i>	Fabaceae
39.	Coconut	Thennai maram	<i>Cocos nucifera</i>	Arecaceae
40.	Guava	Koyya	<i>Psidium guajava</i>	Myrtaceae
41.	River tamarind	Savundal maram	<i>Leucaena leucocephala</i>	Fabaceae
42.	Portia tree	Poovarasam	<i>Thespesia populnea</i>	Malvaceae
43.	Drumstick tree	Murunga maram	<i>Moringa oleifera</i>	Moringaceae
44.	Jamun Fruit Plant	Naval maram	<i>Syzygium cumini</i>	Myrtaceae
45.	Mesquite	Mullu maram	<i>Prosopis juliflora</i>	Fabaceae

46.	Papaya	Pappali maram	<i>Carica papaya L</i>	Caricaceae
47.	Pala indigo	Pala maram	<i>Wrightia tinctoria</i>	Apocynaceae
Shrubs				
1.	Puriging nut	Kattamanakku	<i>Jatropha curcas</i>	Euphorbiaceae
2.	Milk Weed	Erukku	<i>Calotropis gigantea</i>	Apocynaceae
3.	Lantana	Unni chedi	<i>Lantana camara</i>	Verbenaceae
4.	Triangular spruge	Chaturakalli	<i>Euphorbia antiquorum</i>	Euphorbiaceae
5.	Indian mallow	Thuthi	<i>Abutilon indicum</i>	Meliaceae
6.	Broom creeper	Kattukodi	<i>Cocculus hirsutus</i>	Menispermaceae
7.	<i>Solanum pubescens</i>	Malaisundai	<i>Solanum pubescens Willd</i>	Solanaceae
8.	Indian Oleander	Arali	<i>Nerium indicum</i>	Apocynaceae
9.	Tanner's cassia	Avaram	<i>Senna auriculata</i>	Fabaceae
10.	Shoe flower	Chemparuthi	<i>Hibiscu rosa-sinensis</i>	Malvaceae
11.	Prickly pear	Nagathali	<i>Opuntia dillenii</i>	Cactaceae
12.	Jackal jujube	Suraimullu	<i>Ziziphus oenopia</i>	Rhamnaceae
13.	Chinese chastetree	Nalla nochi	<i>Vitex negundo</i>	Verbinaceae
14.	Night shade plan	Sundaika	<i>Solanum torvum</i>	Solanaceae
15.	Triangular spruge	Chaturakalli	<i>Euphorbia antiquorum</i>	Euphorbiaceae
16.	Thorn apple	Oomathai	<i>Datura stramonium</i>	Solanaceae
17.	Malabar catmint	Pei veratti	<i>Anisomeles malabarica</i>	Lamiaceae
18.	Castor oil plant	Amanakku	<i>Ricinus communis</i>	Euphorbiaceae
19.	Bush Morning Glory	Neiveli Kattamani	<i>Ipomoea carnea</i>	Convolvulaceae
20.	Carray Cheddle	Kaarai	<i>Canthiumparviflorum</i>	Rubiaceae
21.	Touch-me-not	Thottalchinungi	<i>Mimosa pudica</i>	Mimosaceae
22.	Flame of the Woods	Idlipoo	<i>Xoracoc cinea</i>	Rubiaceae
Herbs				
1.	Coat buttons	Thatha poo	<i>Tridax procumbens</i>	Asteraceae
2.	Eggplant	Kathrikkai	<i>Solanum melongena</i>	Solanaceae
3.	Aloe barbadensis	Katrazhai	<i>Aloe vera</i>	Asphodelaceae
4.	Mountain knotgrass	Thengaipoo kirai	<i>Aerva lanata</i>	Amaranthaceae
5.	Prickly chaff flower	Nayuruv	<i>Achyranthes aspera</i>	Amaranthaceae
6.	Bindii	Nerunchi	<i>Tribulus terrestris</i>	Zygophyllaceae
7.	Fish poison	Kolinchi	<i>Tephrosia purpurea</i>	Fabaceae
8.	Ban Tulsi	Melakai poondu	<i>Croton bonplandianus</i>	Euphorbiaceae
9.	<i>Commelina benghalensis</i>	Kanavazha	<i>Commelina benghalensis</i>	Commelinaceae
10.	Asthma-plant	Amman pacharisi	<i>Euphorbia hirta</i>	Euphorbiaceae
11.	Indian doab	Arugampul	<i>Cynodon dactylon</i>	Poaceae
12.	Spiny amaranth	Mullu keerai	<i>Amaranthus spinosus</i>	Amaranthaceae
13.	Chilli	Milakai	<i>Capsicum annuum</i>	Solanaceae
14.	Indian Copperleaf	Kuppaimeni	<i>Acalypha indica</i>	Euphorbiaceae
15.	Madagascar Periwinkle	Nithykalyani Podi	<i>Catharanthus roseus</i>	Apocynaceae
16.	Asian spiderflower	Naaikaduku	<i>Cleome viscosa L</i>	Cleomaceae
17.	Chay root	Chaaya ver	<i>Oldenlandia umbellata</i>	Rubiaceae
18.	Ash Fleabane	Puvangkuruntal	<i>Vernonia cinerea</i>	Asteraceae
19.	Tomato	Thakkali	<i>Solanum lycopersicum</i>	Solanaceae
20.	White dammar	Mookutipoondu	<i>Vicoa indica</i>	Asteraceae
21.	<i>Cleome viscosa</i>	Nai kadugu	<i>Celome viscosa</i>	Capparidaceae
22.	Bindii	Nerunji mullu	<i>Tribulus terrestris</i>	Zygophyllaceae
23.	Bara Gokhru	Yanainerunjil	<i>Pedaliium murex</i>	Pedaliaceae
24.	<i>Digeria muricata</i>	Thoiya keerai	<i>Digeria muricata</i>	Amaranthaceae

25.	False daisy	Karisalankanni	<i>Eclipta alba</i>	Asteraceae
26.	Sessile Joyweed	Ponnakanni	<i>Alternanthera sessilis</i>	Amaranthaceae
27.	Chilli	Milakai	<i>Capsicum annum</i>	Solanaceae
28.	Field beans	Avarai	<i>Hyacinth Beans</i>	Fabaceae
29.	Common leucas	Thumbai	<i>Leucas aspera</i>	Lamiaceae
30.	Spiny amaranth	Mullu keerai	<i>Amaranthus spinosus</i>	Amaranthaceae
31.	Holy basil	Thulasi	<i>Ocimum tenuiflorum</i>	Lamiaceae
32.	Coat buttons	Thatha poo	<i>Tridax procumbens</i>	Asteraceae
33.	Indian mint	Karpura valli	<i>Coleus amboinicus</i>	Lamiaceae
34.	Aloe barbadensis	Katrashai	<i>Aloe vera</i>	Asphodelaceae
35.	Indian mint	Karpura valli	<i>Coleus amboinicus</i>	Lamiaceae
36.	Europeanblack nightshade	Manathakkali	<i>Solanumnigrum</i>	Solanaceae
37.	Bright eyes	Nithiyakalyani	<i>Catharanthus roseus</i>	Apocynaceae
38.	Carrot grass	Parttiniyam	<i>Parthenium hysterophorus</i>	Asteraceae
39.	Red Spiderling	Mukirattai	<i>Boerhavia diffusa</i>	Nyctaginaceae
Climber/ Creeper				
1.	Stemmed vine	Perandai	<i>Cissus quadrangularis</i>	Vitaceae
2.	Wild bitter	Pavarkai	<i>Momordica charantia</i>	Cucurbitaceae
3.	Ivy gourd	Kovai	<i>Coccinia grandis</i>	Cucurbitaceae
4.	Balloon plant	Mudakrttan	<i>Cardiospermum halicacabum</i>	Sapindaceae
5.	Cucumis maderaspatanus	Musumusukkai	<i>Mukia maderaspatana</i>	Cucurbitaceae
6.	Butterfly pea	Sangu poo	<i>Clitoria ternatea</i>	Fabaceae
7.	Wild jasmine	Malli	<i>Jasminum augustifolium</i>	Oleaceae
8.	Pointed gourd	Kovakkai	<i>Trichosanthes dioica</i>	Cucurbitaceae
9.	Bitter apple	Peikkumatti	<i>Citrullus colocynthis</i>	Cucurbitaceae
10.	Bottle Guard	Sorakkai	<i>Lagenaria siceraria</i>	Cucurbitaceae
11.	Rosary Pea	Gundumani	<i>Abrus precatorius</i>	Fabaceae
Grass				
1.	Windmill grass	Chevvarakupul	<i>Chloris barbata</i>	Poaceae
2.	Jungle rice	Kuthirai vaalKattu arusi	<i>Echinochloa colona</i>	Poaceae
3.	Swollen Windmill Grass	Kondai Pul	<i>Chloris barbata</i>	Poaceae
4.	Needle Grass	Thodappam	<i>Aristida adscensionis</i>	Poaceae
5.	Eragrostis	Pullu	<i>Eragrostis ferruginea</i>	Poaceae
6.	Needle Grass	-	<i>Aristida funiculata</i>	Poaceae
7.	Mauritian Grass	Moongil pul	<i>Apluda mutica</i>	Amaranthaceae

Sources: Species observation in the field study and secondary data

3.5.7. Flora Composition in the Buffer Zone

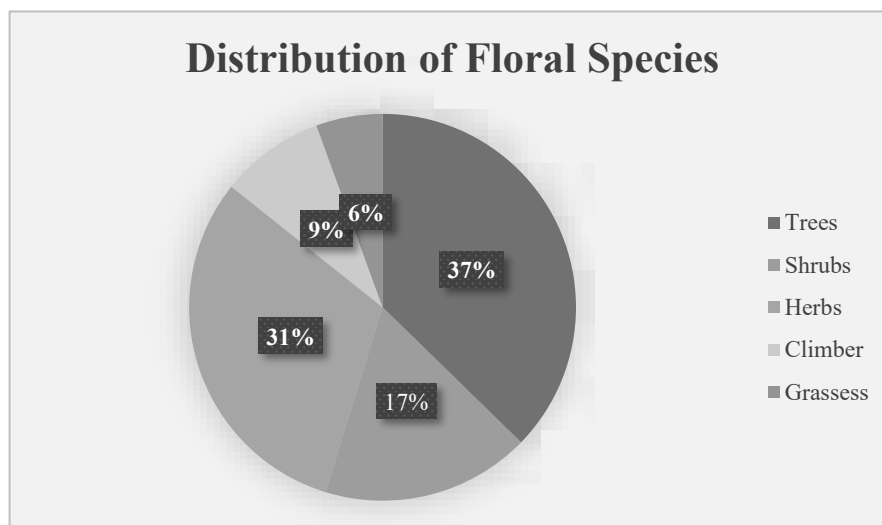
Similar habitats may be found in the buffer area as well, although there is a wider variety of plants there than in the core zone area. The buffer zone has some forests located away from the proposed project site and there are 126 species in the buffer zone study area in total, based on records. The floral (126) varieties among them Trees 47, Herbs 39, Shrubs 22, Climbers/Creepers 11, and Grasses 7 were identified. The result of the buffer zone of flora studies shows that Fabaceae and Cucurbitaceous, Euphorbiaceae is the main dominating species in the study area mentioned in Table No.3.55. 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 3.55 and their % distribution.

TABLE 3.25: NUMBER OF FLORAL LIFE FORMS IN THE STUDY AREA

S. No	Plant Life Form	Number of Species
1	Trees	47
2	Shrubs	22
3	Herbs	39
4	Climber	11
6	Grassess	7
Total No. of Species		126

FIGURE 3.26: PIE DIAGRAM OF FLORA DISTRIBUTION IN THE STUDY AREA



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

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 few reserve forest are located in the study areas, Sanamavu R.F has located about 6km on the Northwest followed by Udeduragm RF located about 4 km on the South, Denkanikottai RF located about 6 km on the Southwest and Marandahalli Extn RF is located about 9km on the South side. Cauvery wildlife sanctuary is situated at a distance of 4km on the southwest side from the applied lease area. The company has obtained from the District Forest .There are no protected forests within the project 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.

3.5.10. Fauna

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

3.5.10.1. Fauna Composition in the Core Zone

Core Zone: A total of 21 varieties of species were observed in the Core zone of Nagamangalam Village, Rough stone Quarry (Table No.3.57) among them numbers of Insects 6, Reptiles 4, Mammals 2, and Avian 9. A total of 21 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 11 species are under Schedule IV according to the Indian Wildlife Act 1972. A total of 9 species of bird were sighted in the mining lease area. There are no critically endangered, endangered, vulnerable, and endemic species were observed

TABLE 3.26: FAUNA IN CORE ZONE

SI. No	Common name/English Name	Family Name	Scientific Name	Schedule list wildlife Protection act 1972
Insects				
1.	Common Tiger	Nymphalidae	<i>Danaus genutia</i>	Schedule IV
2.	Red-veined darter	Libellulidae	<i>Sympetrum fonscolombii</i>	NL
3.	Grey pansy	Nymphalidae	<i>Junonia atlites</i>	Schedule IV
4.	Grasshopper	Acrididae	<i>Hieroglyphus sp</i>	NL
5.	Common Tiger	Nymphalidae	<i>Danaus genutia</i>	NL
6.	Striped tiger	Nymphalidae	<i>Danaus plexippus</i>	Schedule IV
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.	Koel	Cuculidae	<i>Eudynamys</i>	Schedule IV
2.	Common myna	Sturnidae	<i>Acridotheres tristis</i>	NL
3.	Black drongo	Dicruridae	<i>Dicrurus macrocercus</i>	Schedule IV
4.	Shikra	Laniidae	<i>Laniusexcubitor</i>	Schedule IV
5.	Rose-ringed parakeet	Psittaculidae	<i>Psittacula krameri</i>	NL
6.	Common quail	Phasianidae	<i>Coturnix coturnix</i>	Schedule IV
7.	House crow	Corvidae	<i>Corvus splendens</i>	NL
8.	Cattle egret	Ardeidae	<i>Bubulcus ibis</i>	NE
9.	Indian Robin	Turdinae	<i>Saxicoloides fulicata</i>	Schedule IV

NL- Not listed, LC- Least Concern

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

1.5.11. Fauna Composition in the Buffer Zone

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

There are no Sanctuaries, National Parks, Tiger Reserve or Biosphere reserves or Elephant Corridor or other protected areas within 10 km radius of from the core area. It is evident from the available records, reports, and circumstantial

evidence that the entire study area including the core and buffer areas were free from any endangered animals. There were no resident birds other than common bird species such as Cattle egret, Asian Koel, House crow, Black drangos, Crows, Rose-ringed Parakeet etc.,

The list of bird species recorded during the field survey and literature from the study area are given in Table 3.38. The list of reptilian species recorded during the field survey and literature from the study area is given in Table 3.39. The list of insect species recorded during the field survey and literature from the study area are given in Table 3.41. The list of Butterflies species recorded during the field survey and literature from the study area are given in Table 3.40. 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 81 species recorded were from the buffer zone area. Based on habitat classification the majority of species were birds 37, followed by Butterflies 15, Reptiles 10, Insects 5, Mammals 10, and Amphibians 4. There are five Schedule II species, two species are under the schedule III and forty-seven species are under Schedule IV according to the Indian Wildlife Act 1972. A total of 37 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 three amphibian was observed during the extensive field visit *Sphaerotheca breviceps*, *Euphlyctis hexadactylus*, *Bufo melanostictus*, etc. There is no Schedule I Species in the study area. There are no critically endangered, endangered, vulnerable, and endemic species were observed.

TABLE 3.27: LIST OF FAUNA & CONSERVATION STATUS

SI. No	Scientific Name	Common Name/English Name	Schedule list wildlife Protection act 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
9.	<i>Cynopterus sphinx</i>	Short nosed fruit bat	Schedule IV
10.	<i>Macaca radiata</i>	Bonnet Macaque	Schedule II

Status assigned by the IUCN, where – CR – Critically Endangered; EN – Endangered; LC – Least Concern; NT – Near Threatened; VU – Vulnerable, DA – Data Deficient, NE – Not Evaluated

TABLE 3.28: LIST OF BIRDS

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

35.	<i>Coracias benghalensis</i>	Indian roller	Schedule IV
36.	<i>Turdoides striatus</i>	Jungle Babbler	Schedule IV
37.	<i>Tringa hypoleucos</i>	Common sandpiper	Schedule IV

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

TABLE 3.29: LIST OF REPTILES IN THE STUDY AREA

SI. No	Scientific Name	Common Name/English Name	Schedule list wildlife Protection act 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 3.30: LIST OF BUTTERFLIES IN THE STUDY AREA

SI. No	Scientific Name	Common Name/English 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	-

3.5.12 Aquatic Ecology

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

3.5.13 Findings/Results

The assessment was carried out during the Summer season. The inspection day was quite alright 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	Cauvery wildlife sanctuary is situated at a distance of 4km on the southwest side from the applied lease area.
2.	Reserved Forests	There are few reserve forest are located in the study areas, Sanamavu R.F has located about 6km on the Northwest followed by Udeduragm RF located about 4 km on the South, Denkanikottai RF located about 6 km on the Southwest and Marandahalli Extn RF is located about 9km on the South side.
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

3.5.14 Conclusion

There is no Major trees, Shrubs within the project site and no Fauna observed during the entire study period except some least concerns. During the quarry operation plantation will be developed in the project site about 680 Nos of trees will be planted in the boundary barrier and village road through this project and after the excavation the pit will act as temporary reservoir to create the small eco system in the site. Hence the positive impact will create due to this project after closure.

- No Aquatic diversity is noticed in the core zone area. Aquatic weeds are found to be growing everywhere in 10 km radius area
- There are no Biosphere reserves or wildlife sanctuaries or National parks or Important Bird Areas (IBAs), or migratory routes of fauna.
- Mine lease area and the 10 Km buffer zone is not ecologically sensitive. It is away from the proposed project site

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

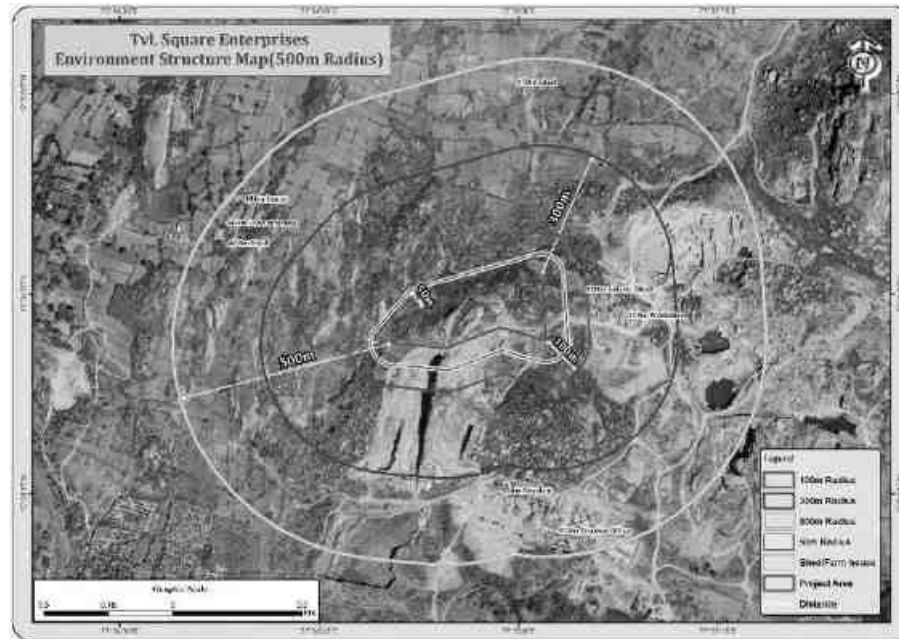
There are few structures within the radius of 500m from the project site, the details of the structures is given below:

TABLE 3.31: STRUCTURES IN 300m RADIUS

0-50m radius – No Structures							
50 – 100m – No Structures							
Structure Numbers	Type of Structure	Usage Purpose	Commercial / industry / residential / farm house / Govt. building	Occupants of Building/ Structure	Structure belongs to owner	Structure Not belongs to owner	Remarks
1 – 80m Crusher - NW	Crusher	To make size reduced stone	Industrial	Nil	No	Yes	Compound wall erected around the crusher one Material Store shed is along with Crusher
2- 90m SW	Crusher	To make size reduced stone	Industrial	Nil	No	Yes	Crusher is not in use now
100-500m – 8 Nos							
Structure Numbers	Type of Structure	Usage Purpose	Commercial / industry / residential / farm house / Govt. building	Occupants of Building/ Structure	Structure belongs to owner	Structure Not belongs to owner	Remarks
1.	Labour shed - 100m E	Only rest time stay	Industry	Nil	No	Yes	Occasionally used for the lunch hours and rest time
2.	Workshop – 170m E	Usage for the Repairing, assembling of machineries	Industry	Nil	No	Yes	Total Employment – 3 members No stay
3.	Crusher – 350m S	To make size reduced stone	Industrial	Nil	No	Yes	Total Employment – 5 members No stay
4.	Crusher Office – 450m S	Used for the storage and Maintenance of the crusher Records	Industrial	Nil	No	Yes	Total Employment – 2 members No stay
5.	Shed – 460m NW	Used for the people live in	Commercial	Nil	No	Yes	occasionally used for the staying purpose
6.	Labour House – 460m NW	Labours working in the nearest quarries	Commercial	Nil	No	Yes	occasionally used for the staying purpose

		Used for the people live in					
7.	Shed – 460m NW	Used for the people live in	Commercial	Nil	No	Yes	occasionally used for the staying purpose
8.	House – 480m NW	Used for the people live in	Commercial	Nil	No	Yes	occasionally used for the staying purpose

FIGURE 3.29: STRUCTURE MAP 500m RADIUS



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

'Krishna' refers to 'black' and 'giri' refers to 'hill'. This district is gifted with black granite hillocks and named as "krishnagiri". The region came under the rule of Krishna Deva Raya and hence it might have been named after this king. Its the holy land of wise scholars, men of valour and courage, blessed with the green valleys, hills and hillocks and inhabited by people known for innovative farming was divided, for the formation of Krishnagiri district, carved out of Dharmapuri district as 30th district of Tamil Nadu.

Krishnagiri district is bounded by Vellore and Tiruvannamalai districts in the East, Karnataka state in the west, State of Andhra Pradesh in the North Dharmapuri District in the south. Its area is 5143 Sq. Kms. This district is elevated from 300m to 1400m above the mean sea level. It is located between 11° 12'N to 12° 49'N Latitude, 77° 27'E to 78° 38'E Longitude.

3.6.4 Study area:**NAGAMANGALAM VILLAGE**

Nagamangalam village is situated in Teshil Denkanikottai, District Krishnagiri and in State of Tamil Nadu India. Village has population of 4948 as per census data of 2011, in which male population is 2502 and female population is 2446. Total geographical area of Nagamangalam village is 2478.5 Hectares. Population density of Nagamangalam is 2 persons per Hectares. Total number of house hold in village is 1115.

Sex Ratio of Nagamangalam Village -Census 2011

As per the Census Data 2011 there are 978 Females per 1000 males out of 4948 total population of village. There are 936 girls per 1000 boys under 6 years of age in the village.

Literacy of Nagamangalam Village

Out of total population total 2675 people in Nagamangalam Village are literate, among them 1559 are male and 1116 are female in the village. Total literacy rate of of Nagamangalam is 61.2%, for male literacy is 70.74% and for female literacy rate is 51.5%.

Workers profile of Nagamangalam Village

Total working population of Nagamangalam is 2617 which are either main or marginal workers. Total workers in the village are 2617 out of which 1566 are male and 1051 are female. Total main workers are 2326 out of which female main workers are 1440 and male main workers are 886. Total marginal workers of village are 291.

TABLE 3.32: NAGAMANGALAM VILLAGE CENSUS 2011 DATA

Description	Census 2011 Data
Village Name	Nagamangalam
Teshil Name	Denkanikottai
District Name	Krishnagiri
State Name	Tamil Nadu
Total Population	4948
Total Area	2479 (Hectares)
Total No of House Holds	1115
Total Male Population	2502
Total Female Population	2446
0-6 Age group Total Population	577
0-6 Age group Male Population	298
0-6 Age group Female Population	279
Total Person Literates	2675
Total Male Literates	1559
Total Female Literates	1116
Total Person Illiterates	2273
Total Male Illiterates	943
Total Female Illiterates	1330
Scheduled Cast Persons	650
Scheduled Cast Males	322
Scheduled Cast Females	328
Scheduled Tribe Persons	32
Scheduled Tribe Males	25
Scheduled Tribe Females	32

Source:<https://etrace.in/census/village/nagamangalam-denkanikottai-district-krishnagiri-tamil-nadu-644015/>

TABLE 3.33 NAGAMANGALAM WORKING POPULATION ---CENSUS 2011

	Total	Male	Female
Total Workers	2617	1566	1051
Main Workers	2326	1440	886
Main Workers Cultivators	1151	692	459
Agriculture Labourer	734	409	325
Household Industries	53	27	26
Other Workers	388	312	76
Marginal Workers	291	126	165
Non Working Persons	2331	936	1395

Source:<https://etrace.in/census/village/nagamangalam-denkanikottai-district-krishnagiri-tamil-nadu-644015/>

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	Agaram Agraharam	288	1219	620	599	687	389	298	532	231	301
2	Anekollu	628	2858	1471	1387	1482	861	621	1376	610	766
3	Ayaranapalli	1171	4986	2578	2408	2923	1734	1189	2063	844	1219
4	Bairamangalam	1207	4932	2569	2363	3376	1940	1436	1556	629	927
5	Bevunutham	823	3768	1985	1783	1935	1157	778	1833	828	1005
6	Bithireddi	693	3076	1585	1491	1574	914	660	1502	671	831
7	Bodichipalli	1176	4982	2549	2433	2850	1638	1212	2132	911	1221
8	Hosappuram	763	3561	1830	1731	2048	1166	882	1513	664	849
9	Jakkeri	914	3957	1989	1968	2347	1337	1010	1610	652	958
10	Kamandoddi	1450	6524	3394	3130	3601	2093	1508	2923	1301	1622
11	Karukkanahalli	1369	6006	3103	2903	3113	1838	1275	2893	1265	1628
12	Kundumaranapalli	863	3867	1972	1895	2243	1342	901	1624	630	994
13	Mallasandram	907	4062	2130	1932	2272	1349	923	1790	781	1009
14	Muthanhalli	727	3157	1623	1534	1999	1171	828	1158	452	706
15	Nagamangalam	1115	4948	2502	2446	2675	1559	1116	2273	943	1330
16	Nellur	917	3874	1990	1884	1971	1148	823	1903	842	1061
17	Pachapanatti	863	3895	1959	1936	2098	1183	915	1797	776	1021
18	Rathnagiri	505	2342	1221	1121	1316	766	550	1026	455	571
19	Samanapalli	721	3198	1635	1563	1652	922	730	1546	713	833
20	T.Gollahalli	305	1255	653	602	780	446	334	475	207	268
21	Thimijapalli	960	4425	2318	2107	2156	1256	900	2269	1062	1207
22	Thiyagarsanapalli	990	4479	2291	2188	2286	1304	982	2193	987	1206
23	Thiyarandurgam	919	4143	2136	2007	2245	1337	908	1898	799	1099
24	Thuppuganapalli	989	4281	2192	2089	2328	1340	988	1953	852	1101
25	Uddanapalli	1091	4691	2387	2304	2779	1563	1216	1912	824	1088
26	Udedurgam	763	3441	1780	1661	1792	1041	751	1649	739	910
27	Ulagam	1031	4242	2183	2059	2190	1288	902	2052	895	1157
28	Ullatti	737	3311	1762	1549	1638	1023	615	1673	739	934

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	Agaram Agraharam	741	416	325	692	391	301	290	276	112	478
2	Anekollu	1713	918	795	1496	832	664	923	446	94	1145
3	Ayaranapalli	2628	1531	1097	2422	1423	999	1167	357	885	2358
4	Bairamangalam	2330	1573	757	1723	1257	466	725	282	690	2602
5	Bevunutham	2072	1192	880	1852	1077	775	1161	591	68	1696
6	Bithireddi	1655	967	688	1586	926	660	822	627	82	1421
7	Bodichipalli	2108	1430	678	1674	1197	477	806	400	444	2874
8	Hosappuram	1822	1115	707	1693	1064	629	427	1118	119	1739
9	Jakkeri	2088	1252	836	1735	1070	665	467	814	426	1869
10	Kamandoddi	3003	1982	1021	2221	1536	685	863	403	906	3521
11	Karukkanahalli	3497	1915	1582	3021	1747	1274	1739	758	411	2509
12	Kundumaranapalli	1784	1164	620	1562	1099	463	513	454	560	2083
13	Mallasandram	1945	1210	735	1720	1098	622	848	402	446	2117
14	Muthanhalli	1771	989	782	1676	936	740	712	680	246	1386
15	Nagamangalam	2617	1566	1051	2326	1440	886	1151	734	388	2331
16	Nellur	2287	1256	1031	2175	1196	979	905	1097	140	1587
17	Pachapanatti	1772	1151	621	935	756	179	470	277	172	2123
18	Rathnagiri	1321	730	591	840	432	408	584	232	21	1021
19	Samanapalli	1630	954	676	1585	925	660	443	894	221	1568
20	T.Gollahalli	554	357	197	297	221	76	26	4	215	701
21	Thimijapalli	2089	1332	757	1578	1088	490	594	492	408	2336
22	Thiyagarsanapalli	2369	1437	932	1772	1177	595	459	961	337	2110
23	Thiyarandurgam	2137	1306	831	1692	1092	600	598	524	551	2006
24	Thuppuganapalli	2395	1381	1014	2322	1346	976	445	1563	290	1886
25	Uddanapalli	2306	1473	833	1820	1176	644	1049	81	619	2385
26	Udedurgam	2079	1154	925	1844	1036	808	796	763	278	1362
27	Ulagam	1962	1262	700	1456	1001	455	715	501	236	2280
28	Ullatti	1854	1068	786	1727	1031	696	877	586	231	1457

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	Agaram Agraharam	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
2	Anekollu	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
3	Ayaranapalli	1	2	1	2	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
4	Bairamangalam	1	2	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
5	Bevunutham	1	2	1	2	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
6	Bithireddi	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
7	Bodichipalli	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
8	Hosappuram	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
9	Jakkeri	1	2	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
10	Kamandoddi	1	2	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
11	Karukkanahalli	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
12	Kundumaranapalli	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
13	Mallasandram	1	2	1	2	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
14	Muthanhalli	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
15	Nagamangalam	1	1	1	2	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
16	Nellur	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
17	Pachapanatti	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
18	Rathnagiri	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	Samanapalli	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
20	T.Gollahalli	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	Thimijapalli	1	2	1	1	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
22	Thiyagarsanapalli	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
23	Thiyarandurgam	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
24	Thuppuganapalli	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	Uddanapalli	1	1	1	1	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
26	Udedurgam	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
27	Ulagam	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
28	Ullatti	1	2	1	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

SI. No.	Village Name	CHC	PHC	PHSC	MCW	TBC	HA	HAM	D	VH	MHC	FWC	NGM-I/O
1	Agaram Agraharam	0	0	0	0	0	0	0	0	0	0	0	a
2	Anekollu	0	0	0	0	0	0	0	0	1	0	0	a
3	Ayaranapalli	0	0	1	1	0	0	0	0	0	0	0	a
4	Bairamangalam	0	0	1	0	0	0	0	0	0	0	0	b
5	Bevunutham	0	0	1	0	0	0	0	0	0	0	0	b
6	Bithireddi	0	0	1	1	0	0	0	0	0	0	0	b
7	Bodichipalli	0	0	2	0	0	0	0	0	0	0	0	a
8	Hosappuram	0	0	1	0	0	0	0	0	0	0	0	a
9	Jakkeri	0	0	2	0	0	0	0	0	0	0	0	a
10	Kamandoddi	0	1	1	1	1	0	0	1	1	0	1	
11	Karukkanahalli	0	0	1	0	0	0	0	0	1	0	0	b
12	Kundumaranapalli	0	0	1	0	0	0	0	0	1	0	0	a
13	Mallasandram	0	0	1	0	0	0	0	0	1	0	0	b
14	Muthanhalli	0	0	1	0	0	0	0	0	0	0	0	b
15	Nagamangalam	0	1	1	1	1	0	0	1	0	0	1	
16	Nellur	0	0	1	0	0	0	0	0	0	0	0	a
17	Pachapanatti	0	0	1	0	0	0	0	0	0	0	0	b
18	Rathnagiri	0	0	1	0	0	0	0	0	0	0	0	b
19	Samanapalli	0	0	1	0	0	0	0	0	0	0	0	b
20	T.Gollahalli	0	0	0	0	0	0	0	0	0	0	0	b
21	Thimijapalli	0	0	2	0	0	0	0	0	0	0	0	b
22	Thiyagarsanapalli	0	0	1	0	0	0	0	0	0	0	0	a
23	Thiyarandurgam	0	0	1	0	0	0	0	0	0	0	0	a
24	Thuppuganapalli	0	0	1	0	0	0	0	0	0	0	0	a
25	Uddanapalli	0	1	1	1	1	0	0	1	1	0	1	
26	Udedurgam	0	1	1	1	1	0	0	1	1	0	1	
27	Ulagam	0	0	1	0	0	0	0	0	0	0	0	b
28	Ullatti	0	0	1	0	0	0	0	0	0	0	0	b

Abbreviations: CHC-Community Health Centre; TBC-TB Clinic; VH- Veternity 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 is agriculture, quarry operation, Crushing units and Polishing Units there are 8 Numbers of quarries operated in the region and now only 8 quarry is operating at present. Hence starting up of new mine in this region is necessary at current scenario
- 1 number of Crushers operating within 1km and the demand of Rough stone is high to the crushing units 100 Nos of peoples 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 37 Nos of peoples will benefitted directly due to employment and more than 30 Nos of peoples and Crushers will benefitted through this project
- As part of CER activities proponent intends to spend Rs 5 Lakhs 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

- 2.38.5 Ha of the land will be under mining sine 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 2.38.5 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 1920 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
- 1.8 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 falls 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

PM₁₀			
Activity	Source type	Value	Unit
Drilling	Point Source	0.103401421	g/s
Blasting	Point Source	0.002859216	g/s
Mineral Loading	Point Source	0.044462173	g/s
Haul Road	Line Source	0.002497951	g/s/m
Overall Mine	Area Source	0.064452766	g/s
SO₂			
Activity	Source type	Value	Unit
Overall Mine	Area Source	0.001132846	g/s
NO_x			
Overall Mine	Area Source	0.000080038	g/s

FIGURE 4.1: AERMOD TERRAIN MAP

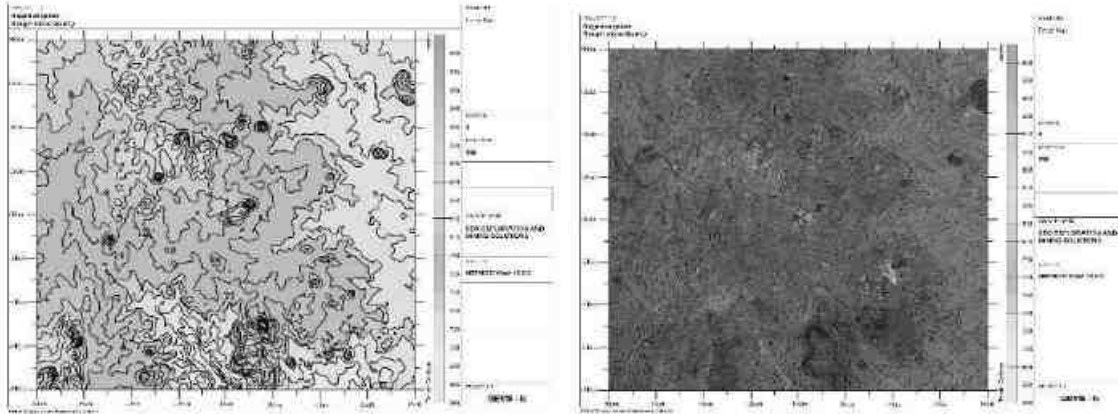


FIGURE 4.2: PREDICTED INCREMENTAL CONCENTRATION OF PM₁₀

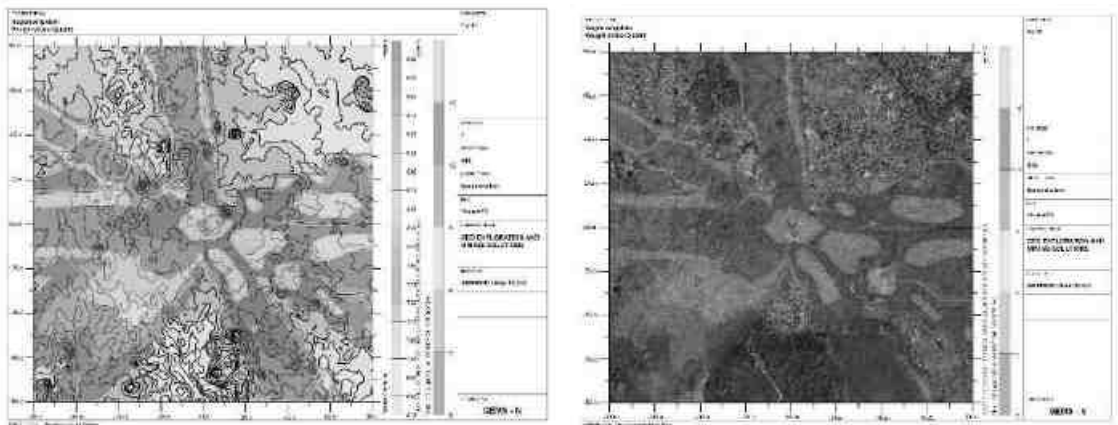


FIGURE 4.3: PREDICTED INCREMENTAL CONCENTRATION OF PM₂₅

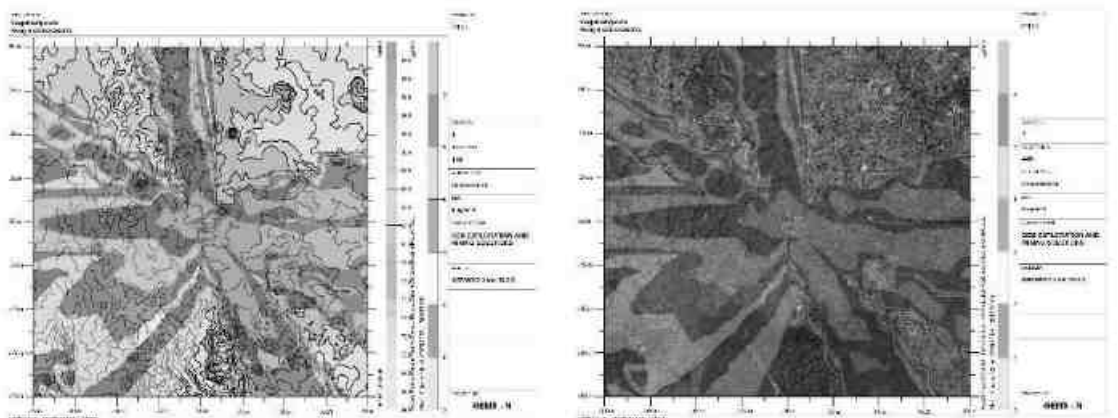


FIGURE 4.4: PREDICTED INCREMENTAL CONCENTRATION OF NO_x

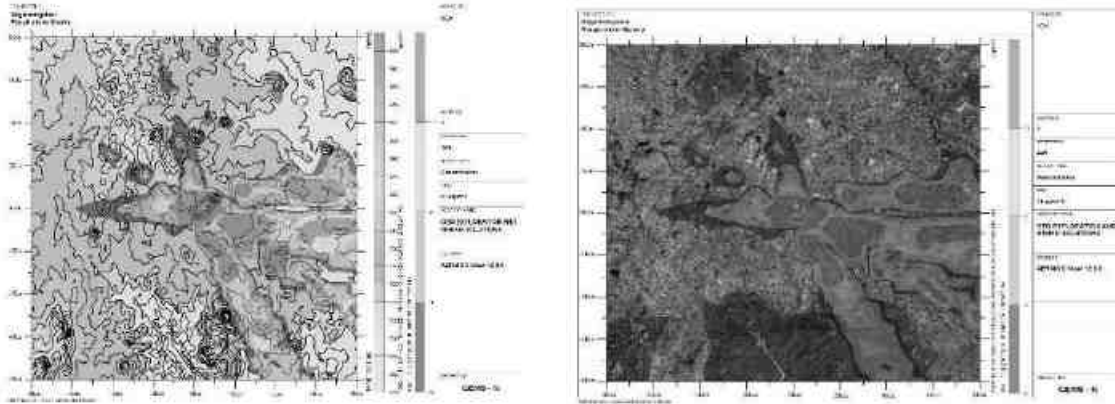


FIGURE 4.5: PREDICTED INCREMENTAL CONCENTRATION OF SO₂

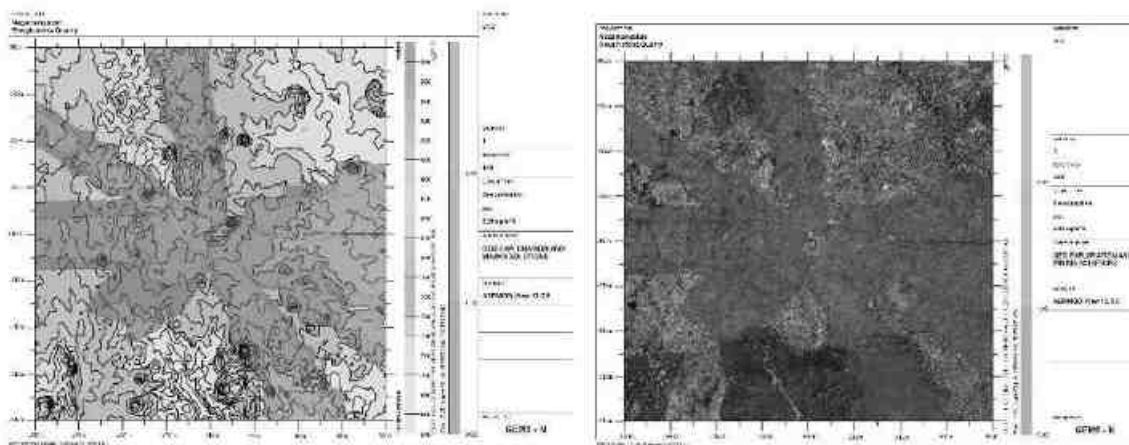
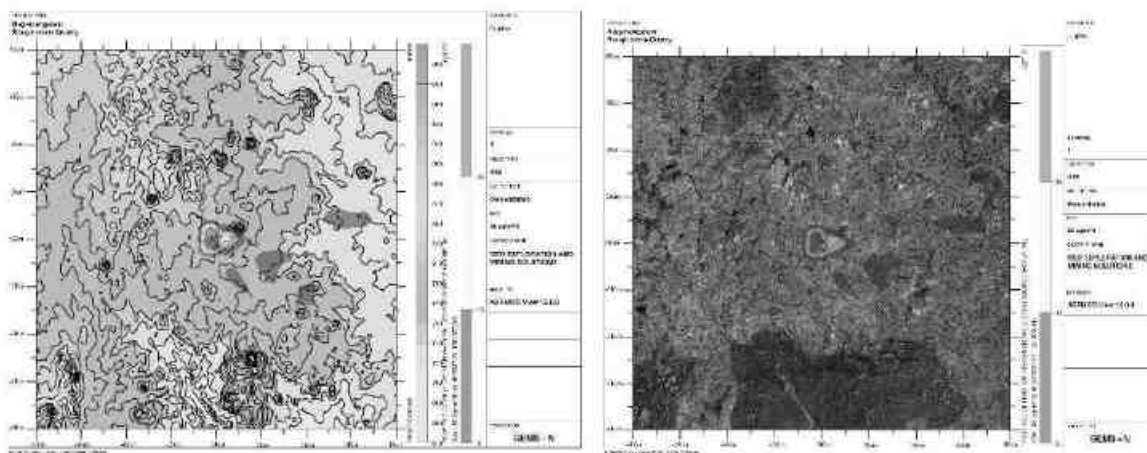


FIGURE 4.6: PREDICTED INCREMENTAL CONCENTRATION OF FUGITIVE DUST



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°34'27.37"N 77°55'1.05"E	118	4	42.4	15.89	58.29
AAQ2	12°34'14.45"N 77°55'2.61"E	164	-436	43.1	15.31	58.41
AAQ3	12°34'23.06"N 77°56'56.17"E	3635	-170	42.6	13.70	56.3
AAQ4	12°35'36.27"N 77°52'6.97"E	-5199	2095	42.8	5.00	47.8
AAQ5	12°36'53.34"N 77°57'19.80"E	4353	4492	42.9	0	42.9
AAQ6	12°33'0.94"N 77°52'40.09"E	-4183	-2719	42.9	7.80	50.7
AAQ7	12°32'47.39"N 77°56'26.76"E	2732	-3142	42.7	12.50	55.2

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°34'27.37"N 77°55'1.05"E	118	4	22.5	8.79	31.29
AAQ2	12°34'14.45"N 77°55'2.61"E	164	-436	22.2	8.23	30.43
AAQ3	12°34'23.06"N 77°56'56.17"E	3635	-170	22.2	7.65	29.85
AAQ4	12°35'36.27"N 77°52'6.97"E	-5199	2095	22.1	2.90	25
AAQ5	12°36'53.34"N 77°57'19.80"E	4353	4492	22.1	0	22.1
AAQ6	12°33'0.94"N 77°52'40.09"E	-4183	-2719	22.2	3.88	26.08
AAQ7	12°32'47.39"N 77°56'26.76"E	2732	-3142	26.7	6.66	33.36

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°34'27.37"N 77°55'1.05"E	118	4	6.5	2.29	8.79
AAQ2	12°34'14.45"N 77°55'2.61"E	164	-436	5.4	2.25	7.65
AAQ3	12°34'23.06"N 77°56'56.17"E	3635	-170	5.9	2.20	8.1
AAQ4	12°35'36.27"N 77°52'6.97"E	-5199	2095	5.9	0	5.9
AAQ5	12°36'53.34"N 77°57'19.80"E	4353	4492	5.8	0	5.8
AAQ6	12°33'0.94"N 77°52'40.09"E	-4183	-2719	6.1	0.74	6.84
AAQ7	12°32'47.39"N 77°56'26.76"E	2732	-3142	5.9	1.95	7.85

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°34'27.37"N 77°55'1.05"E	118	4	20.5	11.91	32.41
AAQ2	12°34'14.45"N 77°55'2.61"E	164	-436	20.5	11.19	31.69
AAQ3	12°34'23.06"N 77°56'56.17"E	3635	-170	20.6	6.87	27.47
AAQ4	12°35'36.27"N 77°52'6.97"E	-5199	2095	20.8	0	20.8
AAQ5	12°36'53.34"N 77°57'19.80"E	4353	4492	20.6	0	20.6
AAQ6	12°33'0.94"N 77°52'40.09"E	-4183	-2719	20.3	0	20.3
AAQ7	12°32'47.39"N 77°56'26.76"E	2732	-3142	21.0	4.61	25.61

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-metalead 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 –

- 680 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
Maximum Monitored Value (Day) dB(A)	54.5	54.2	55.5	55.6	55.1	55.9	55.6
Incremental Value dB(A)	66.1	49.0	31.5	26.7	24.3	26.5	29.0
Total Predicted Noise level dB(A)	66.4	55.3	55.5	55.6	55.1	55.9	55.6

The incremental noise level is found within the range of 66.1 dB (A) in Core Zone and 24.3-31.5 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

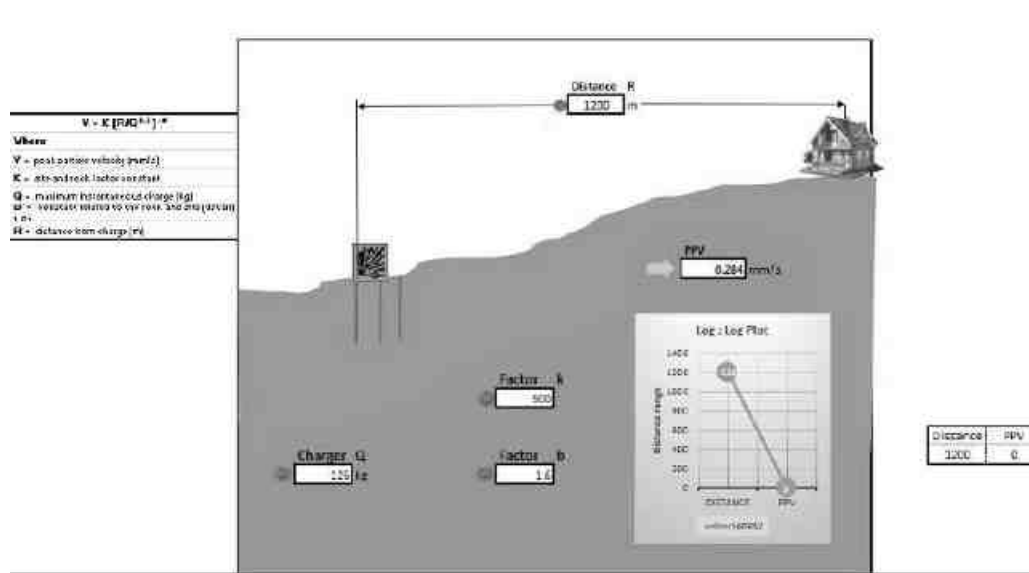
Q = maximum instantaneous charge (kg)

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	126	1.2 Km-SE	0.284

FIGURE 4.6: GROUND VIBRATION PREDICTION

From the above graph, the total charge for blast of 126 kg and it will be used as 30kgs per shot, there will be four sets of blasting, which 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 all the project proponents ensure that the charge per blast shall be less than 85 kg and carry out blasting twice or thrice a day based on the onsite conditions under the supervision of a competent person employed. However, as per statutory requirements, 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 operations 30kg 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 will be carried out 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 ECOLOGY AND BIODIVERSITY

Mining activities generally result in deforestation, land degradation, and water, air, and noise pollution which directly or indirectly affect the faunal and floral status of the mine area. However, the occurrence and magnitude of these impacts are entirely dependent upon the project location, mode of operation, and technology involved. Existing roads will be used; new roads will not be constructed to reduce the impact on flora. Wildlife is not commonly found in the lease area and its immediate environments because of the lack of vegetal cover and surface water.

4.5.1. Anticipated Impact on Flora

- None of the plants will be cut during the operational phase of the mine.
- There shall be negligible air emissions or effluents from the project site. During the loading of the truck, dust generation will be likely. This shall be a temporary effect and not anticipated to affect the surrounding vegetation significantly.
- Most of the land in the buffer area is undulating terrain with croplands, grass patches, and small shrubs. Hence, there will be no effect on the flora of the region.

4.5.1.1. Mitigation Measures

The main objective of the green belt is to provide a barrier between the source of pollution and the surrounding areas. Although the project will not lead to any tree cutting, it is proposed to improve the greenery of the locality through plantation services. To avoid dust emissions, the mined materials will be covered with tarpaulin during transportation.

- 1920 Nos of trees is proposed to plant in the project site and village roads
- Plants that grow fast will be preferred.
- Preference for high canopy covers plants with local varieties.
- Perennial and evergreen plants will be preferred.
- The development of the Green Belt is an important aspect for any plant because:
 - a. It improves the ambient air quality by controlling Suspended Particulate Matter (SPM) in the air.
 - b. It helps in noise abatement for the surrounding area.
 - c. It helps in the settlement of new birds and insects within itself.
 - d. It maintains the ecological balance.
 - e. It increases the aesthetic value of the site.

TABLE No 4.10. LIST OF PLANT SPECIES PROPOSED FOR GREENBELT DEVELOPMENT

S. No	Scientific name	Tamil Name
1	<i>Aegle marmelos</i>	Vilva Maram

2	<i>Albizia lebbbeck</i>	Vaagai Maram
3	<i>Cassia fistula</i>	Konrai tree
4	<i>Lannea coromandelica</i>	Othiyam
5	<i>Limonia acidissima</i>	Vila maram
6	<i>Syzygium cumini</i>	Naval maram
7	<i>Toona ciliata</i>	Santhana Vembu
8	<i>Ficus hispida</i>	Aththi maram
9	<i>Borassus flabellifer</i>	Panai-maram
Species suitable for abatement of noise and dust pollution		
1	<i>Azadirachta indica</i>	Vembhu maram
2	<i>Ficus religiosa</i>	Arasan maram
3	<i>Ficus hispida</i>	Aththi maram
4	<i>Bombax ceiba</i>	Mul Elavu
5	<i>Syzygium cumini</i>	Naval maram
6	<i>Tamarindus indica</i>	Puliyamaram
7	<i>Mangifera indica</i>	Manga maram
8	<i>Harwickia binata</i>	Anjan maram

4.5.2. Anticipated Impact on Fauna

- No rare, endemic & or endangered species are reported in the buffer zone. However, during the course of mining, the management will practice the scientific method of mining with a proper Environmental Management Plan including pollution control measures especially for air and noise, to avoid any adverse impact on the surrounding wildlife.
- Fencing around the mine lease area to restrict the entry of stray animals.
- Green belt development will be carried out which will help in minimizing adverse impact on the flora found in the area.

4.5.2.1. Mitigation Measures

- A suitable plan for the conservation of Schedule-I Species have been prepared and the necessary fund for implementation for the same will be made.
- All the preventive measures will be taken for the growth & development of fauna.
- Creating and developing awareness for nature and wildlife in the adjoining villages.
- The workers shall be trained to not harm any wildlife, should it come near the project site. No work shall be carried out after 6.00 p.m.
- Topsoil has a large number of seeds of native plant species in the mining area.
- Checks and controls the movement of vehicles in and out of the mine.
- Undertaking mitigative measures for a conducive environment for the flora and fauna in consultation with the Forest Department.
- A dust suppression system will be installed within the mine and periphery of the mine.

4.5.3. Impact on Aquatic Biodiversity

Mining activities will not disturb the aquatic ecology as there is no effluent discharge proposed from the Rough Stone and Gravel quarry. There is no natural perennial surface water body within the mine lease area, like wetlands, rivers streams, lakes, and farmer sites. There are few water bodies located in the study area. There are a few Odai and Canals located in the study area. There is no impact on fish habitats

and the food WEB/ food chain in the water body and Reservoir. Kindly refer the clause no 3.5.12. Aquatic biodiversity is observed in the study area.

4.5.4. Impacts on Bird Fauna

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

4.5.5. Impacts on wildlife

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

4.5.5. Impact Assessment on Biological Environment

A detail of impact and assessments was mentioned in Table No 4.14

TABLE 4.11: ECOLOGICAL IMPACT ASSESSMENTS.

S.No	Attributes	Assessment
1	Impact of mining activity on agricultural land nearby the proposed project site.	Agricultural land is located away from the proposed project site. There are no impacts on the agricultural land & Horticulture. Kindly refer to the conclusion.
	Activities of the project affect the breeding/nesting sites of birds and animals	No breeding and nesting site was identified in the mining lease site. The fauna sighted mostly migrated from the buffer area.
2	Located near an area populated by rare or endangered species	No Endangered, Critically Endangered, or vulnerable species were sighted in the core mining lease area.
3	Proximity to national park/wildlife sanctuary/reserve forest /mangroves/ coastline/estuary/sea	Udedurgam Reserve Forest – 4.22 km NE Cauvery North Wildlife Sanctuary – 4 km SW There is no National Park/ Mangroves and Eco-Sensitive zone/ Critically polluted area/ HACA/CRZ located within 10 km radius of the area.
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 tress proposed to be planted	Considering survival rate of 80% additionally 20% of plantation is proposed	Area to be covered in m ²	Name of the species
I	1600	1920	The safety zone along the boundary barrier has been identified to be utilized for Greenbelt development.	Neem, Pongamia Pinnata 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 60 m (45m Agl + 15m 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 2.38.5 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 1 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 these projects. 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.

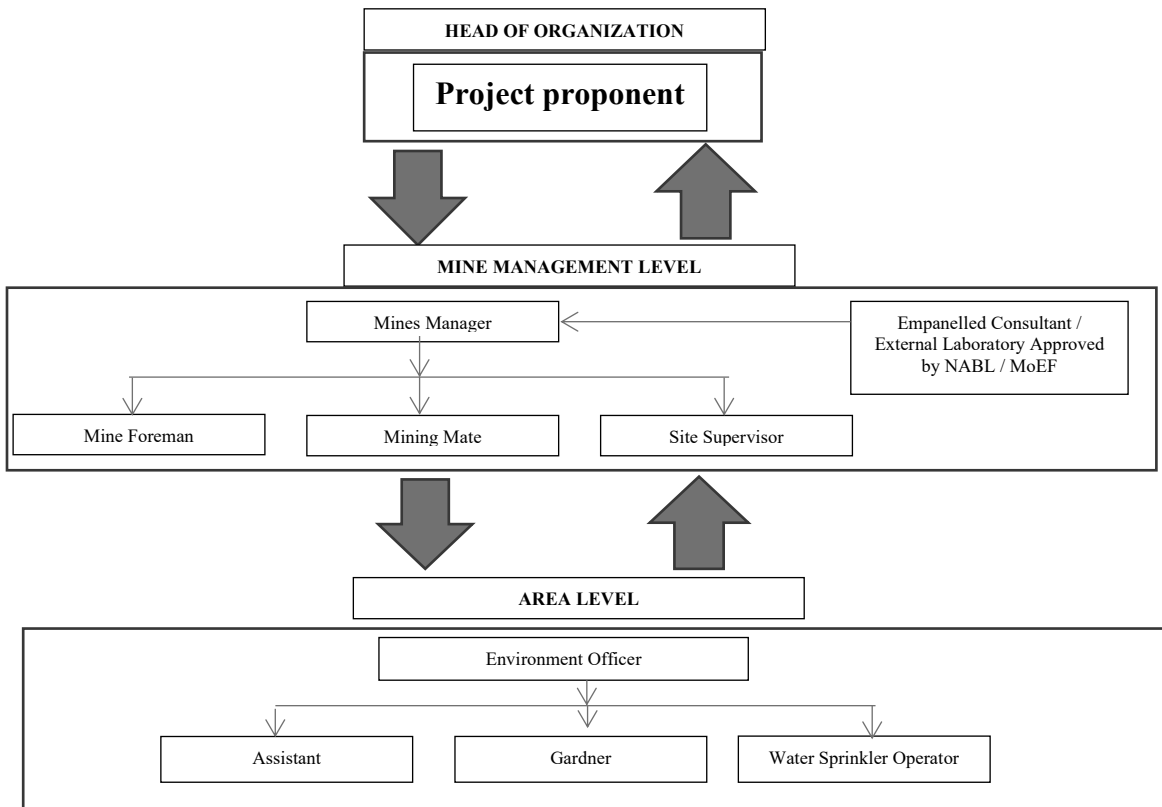
An Environment monitoring cell (EMC) will be constituted to monitor the implementation of EMP and other environmental protection measures in all the proposed quarries.

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 P1

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 7,60,000/- per annum for this Project.

TABLE 6.3 ENVIRONMENT MONITORING PROGRAM BUDGET

PROPOSAL – P1			
Sl.No.	Parameter	Capital Cost	Recurring Cost per annum
1	Air Quality	Rs. 76,000/-	Rs. 76,000/-
2	Meteorology		
3	Water Quality		

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

Source: Approved Mining Plan

6.5 REPORTING SCHEDULES OF MONITORED DATA

The monitored data on air quality, water quality, noise levels and other environmental attributes will be periodically examined by the 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
- Post-COVID Health Management Plan

7.1. PUBLIC CONSULTATION

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

7.2 RISK ASSESSMENT

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

The whole quarry operation will be carried out under the direction of a Qualified Competent Mine Manager holding certificate of competency to manage a metalliferous mine granted by the DGMS, Dhanbad 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;

			<p>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> <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>

		Operator of truck leaving his cabin when it is loaded.	All vehicles should be fitted with reverse horn with one spotter at every tipping point Loading according to the vehicle capacity Periodical maintenance of vehicles as per operator manual
6	Natural calamities	Unexpected happenings	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

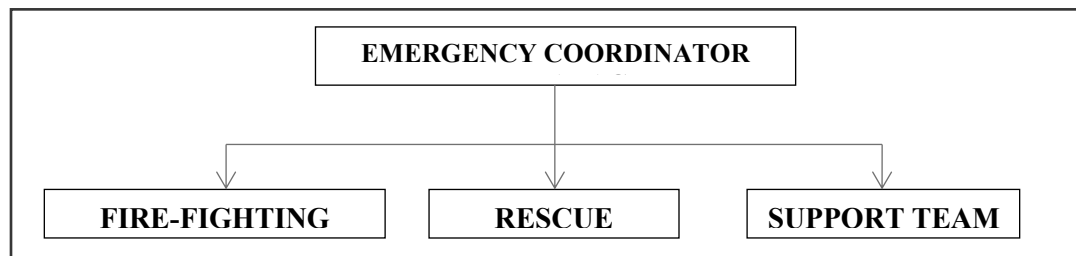
The Disaster Management Plan is aimed to ensure safety of life, protection of environment, protection of installation, restoration of production and salvage operations in this same order of priorities.

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 QUARRY					
CODE	Name of the Owner	Mineral	S.F. Nos	Extent in Ha	Status
P1	Tvl.Square Enterprises	Rough Stone	629(P)	3.20.5	Lr No. SEIAA-TN/F.No.10238/SEAC/ToR -1556/2023 Dated: 27.09.2023
TOTAL EXTENT				3.20.5	
EXISTING QUARRIES					
CODE	Name of the Owner	Mineral	S.F. Nos	Extent in Ha	Status
E-1	Thiru.Faldu Chimanal Monanbhai	Rough Stone	629(Part-1)	4.00.0	29.02.2016 – 28.02.2026
E-2	Thiru.K.Amrish	Rough Stone	629(Part-2)	4.00.0	29.02.2016 – 28.02.2026
E-3	Tvl.Global Trading Company	Granite	629(P)	2.02.5	19.05.1995 – 18.05.2005 *Not taken for calculating Cluster
E-4	Tvl.Indira Granites	Granite	629(P)	0.81.0	06.05.1995 – 05.05.2005 *Not taken for calculating Cluster
E-5	Tvl.M.D.Anandhan	Granite	629(P)	0.81.0	17.03.1996-16.03.2006 *Not taken for calculating Cluster
E-6	Tmt.J.Premalatha	Granite	620(P)	0.81.0	14.12.1995 – 13.12.2005 *Not taken for calculating Cluster
E-7	Thiru.A.Rajamani	Granite	629(P)	2.02.5	06.05.1993 – 15.06.2003 *Not taken for calculating Cluster
E-8	Tvl.Rani Granites	Granite	629(P)	4.05.0	16.06.1993 – 15.06.2003 *Not taken for calculating Cluster
TOTAL EXTENT				18.53.0	
ABANDONED QUARRIES					
A-1	Thiru.Jayendra KumarBavan Bai Patel	Rough Stone	1249(P)	5.00.0	2.7.2008 – 1.7.2018
TOTAL EXTENT				5.00.0	
TOTAL CLUSTER EXTENT				11.20.5	

- Cluster area is calculated as per MoEF & CC Notification – S.O. 2269 (E) Dated: 01.07.2016
- * Homogeneous Minerals will be taken for calculating the Cluster Area.

TABLE 7.5: SALIENT FEATURES OF PROPOSAL "P1"

Name of the Project	Tvl. Square Enterprises Rough Stone Quarry	
S.F. No.	629(Part)	
Extent	3.20.5 ha	
Village Taluk and District	Nagamangalam Village, Denkanikottai Taluk, Krishnagiri District.	
Land Type	Government Land	
Existing quarry operation	Nil it is a Fresh area	
Toposheet No	57-H/14	
Latitude between	12° 36' 14.45"N to 12° 36' 21.97"N	
Longitude between	77° 54' 50.52"E to 77° 55' 02.03"E	
Elevation of the area	847 - 806m AMSL	
Lease period	10 Years	
Mining Plan period	10 years	
Proposed Depth of Mining as per ToR	60 m (45m Agl + 15m Bgl) (1m Topsoil + 59 m Rough stone)	
Geological Resources	Rough Stone in m ³	Topsoil
	18,35,565	4,850
Mineable Reserves	9,09,210	2,500
For First Five Year Production as per ToR	4,52,615	2,500
For Second Five Year Production as per ToR	4,27,040	-
Peak Production	1,00,240	1,512
Ultimate Pit Dimension	290m (L) x 108m (W) x 70m(D) (45m Agl + 25m Bgl)	
Water Level in the region	70 – 65 m bgl	
Method of Mining	Opencast Mechanized Mining Method involving small drilling and Controlled blasting using Slurry Explosives	
Topography	The lease applied area is Hilly terrain. The area has gentle sloping towards Eastern side and altitude of the area is 847 – 806 m above from Mean sea level. The area is covered Massive Rough Stone (Granitic gneiss) which is clearly inferred from the Surface due to the entire area.	
Machinery proposed	Jack Hammer	9 Nos
	Compressor	2 Nos
	Excavator with Bucket and Rock Breaker	2 Nos
	Tippers	5 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.	
Proposed Manpower Deployment	37 Nos	
Project Cost	Rs. 2,78,59,000/-	
6 months once compliance Monitoring Cost (EMP)	Rs. 7,60,000/-	
CER Cost	Rs. 5,00,000/-	
Nearby Water Bodies	Seasonal Odai	380m South
	Odai	360m NE

	Tank	840m SE
	Tank Near Nagamangalam	2.5km SE
	Chinnar Stream	4.6km SW
	Tank Near Armadpuram	4.6km NW
	Ponnaiyar River	6.5km NE
	Nanjappan Kodigai Eri	6.8km West
Greenbelt Development Plan	Proposed to plant 1920 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	1.8 KLD	
Nearest Habitation	1.2 km – South East	
Nearest Reserve Forest	Udedurgam. R.F. – 4.22 km – South West (Source - TNGIS)	
Nearest Wild Life Sanctuary	Cauvery North Wildlife sanctuary -4 km-SouthWest Cauvery South Wildlife sanctuary -27 km-South	

Source: Approved Mining Plan

TABLE 7.6: SALIENT FEATURES OF PROPOSAL “E1”

Name of the Quarry	Thiru. Faldu Chimanlal Mohanbhai Rough Stone Quarry	
S.F.Nos	629 Part-I	
Extent	4.00.0 Ha	
Lease Period	10 Years	
Toposheet No	57-H/14	
Latitude between	12°34'15"N - 12°34'26"N	
Longitude between	77°54'48"E - 77°54'53"E	
Geological Resources	Rough Stone in m ³	Topsoil m ³
	17,16,275 m ³	-
Mineable Reserves	Rough Stone in m ³	Topsoil m ³
	8,51,195 m ³	-
Year wise Production	Rough Stone in m ³	Topsoil m ³
	8,51,195 m ³	-
Ultimate Pit Dimension	313 (L) * 101 (W) * 20 (D) Bgl	
Method of Mining	Opencast Mechanized Mining Method involving drilling and blasting	
Machinery proposed	Jack Hammer	4 Nos
	Compressor	1 No
	Hydraulic Excavator	3 No
	Tippers	3Nos
Proposed Manpower Deployment	16	
Project Cost	Rs.1,48,50,000/-	
CER Cost @ 2% of Project Cost	Rs. 2,97,000/-	

Source: Approved Mining Plan

TABLE 7.7: SALIENT FEATURES OF PROPOSAL “E2”

Name of the Quarry	Thiru. Amrish Rough Stone Quarry	
S.F.Nos	629 Part-II	
Extent	4.00.0 Ha	
Toposheet No	57-H/14	
Lease period	10 Years	
Latitude between	12°34'15"N - 12°34'27"N	
Longitude between	77°54'52"E - 77°54'58"E	

Geological Resources	Rough Stone in m ³	Topsoil m ³
	22,15,110 m ³	-
Mineable Reserves	Rough Stone in m ³	Topsoil m ³
	8,61,045 m ³	-
Year wise Production	Rough Stone in m ³	Topsoil m ³
	8,61,045 m ³	-
Ultimate Pit Dimension	319 (L) * 98 (W) * 20 (D) Bgl	
Method of Mining	Opencast Mechanized Mining Method involving drilling and blasting	
Machinery proposed	Jack Hammer	4 Nos
	Compressor	1 No
	Hydraulic Excavator	3 No
	Tippers	3Nos
Proposed Manpower Deployment	16	
Project Cost	Rs.1,48,45,000/-	
CER Cost @ 2% of Project Cost	Rs. 2,96,900/-	

Source: Approved Mining Plan

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

Air Environment –

Calculating the Cumulative Load of Mining within the cluster is as shown in table 7.10 & 7.11.

TABLE 7.8: CUMULATIVE PRODUCTION LOAD OF ROUGH STONE

Quarry	Production for five/Ten year plan period	Per Year Production in m ³	Per Day Production in m ³	Number of Lorry Load Per Day
P1	8,79,655	87,965	293	24
Total	8,79,655	87,965	293	24
E1	8,51,195	85,119	283	23
E2	8,61,045	86,104	287	23
Total	17,12,240	1,71,223	570	46
Grand Total	25,91,895	2,59,188	863	70

TABLE 7.9: CUMULATIVE PRODUCTION LOAD OF TOPSOIL

Quarry	Production for Two-year plan period	Per Year Production in m ³	Per Day Production in m ³	Number of Lorry Load Per Week
P1	2500	1,250	4	1
Total	2500	1,250	4	1
E1	-	-	-	-
E2	-	-	-	-
Total	-	-	-	-
Grand Total	2500	1,250	4	1

On a cumulative basis considering the proposed quarry, it can be seen that the overall production of Rough Stone is 293m³ per day and overall production of Topsoil is 4 m³ per day with a capacity of 24 trips of Rough Stone per day and 1 Trips per Week of Topsoil and weathered rock 5 Trips per day from the cluster.

Note: Per day production of Rough Stone is calculated for 10 Years Lease Period and for Topsoil production with 1 year 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 2 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 7.10: 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	0.103401421	g/s
	Blasting	Point Source	0.002859216	g/s
	Mineral Loading	Point Source	0.044462173	g/s
	Haul Road	Line Source	0.002497951	g/s/m
	Overall Mine	Area Source	0.064452766	g/s
	Estimated Emission Rate for SO ₂	Overall Mine	Area Source	0.001132846	g/s
Estimated Emission Rate for NOx	Overall Mine	Area Source	0.000080038	g/s
EMISSION ESTIMATION FOR QUARRY "E1"				
	Activity	Source type	Value	Unit
Estimated Emission Rate for PM ₁₀	Drilling	Point Source	0.102919137	g/s
	Blasting	Point Source	0.002793156	g/s
	Mineral Loading	Point Source	0.044326527	g/s
	Haul Road	Line Source	0.002497476	g/s/m
	Overall Mine	Area Source	0.070311989	g/s
	Estimated Emission Rate for SO ₂	Overall Mine	Area Source	0.00112793	g/s
Estimated Emission Rate for NOx	Overall Mine	Area Source	0.000097174	g/s
EMISSION ESTIMATION FOR QUARRY "E2"				
	Activity	Source type	Value	Unit
Estimated Emission Rate for PM ₁₀	Drilling	Point Source	0.102627216	g/s
	Blasting	Point Source	0.002753767	g/s
	Mineral Loading	Point Source	0.044284577	g/s
	Haul Road	Line Source	0.002497331	g/s/m
	Overall Mine	Area Source	0.070273495	g/s
	Estimated Emission Rate for SO ₂	Overall Mine	Area Source	0.001117705	g/s
Estimated Emission Rate for NOx	Overall Mine	Area Source	0.000096258	g/s

Source: Emission Calculation

TABLE 7.11: INCREMENTAL & RESULTANT GLC WITHIN CLUSTER

PM₁₀ in µg/m³	
Background	42.4
Incremental	15.89
Resultant	58.29
NAAQ Norms	100 µg/m³
PM_{2.5} in µg/m³	

Background	22.5
Incremental	8.79
Resultant	31.29
NAAQ Norms	60 µg/ m³
So2 in µg/m³	
Background	6.5
Incremental	2.29
Resultant	8.79
NAAQ Norms	80 µg/ m³
No2 in µg/m³	
Background	20.5
Incremental	11.91
Resultant	32.41
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 7.12: 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	36.5	38.5	40.6	55
Habitation Near E1	40.2	36.9	41.9	
Habitation Near E2	42.5	37.2	43.6	

Source: Lab Monitoring Data

The incremental noise level is found within the range of 36.9 – 38.5 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 3 Mines within cluster are anticipated due to operation of Mining Machines like Excavators, drilling and blasting, transportation vehicles, etc. However, the major source of ground vibration from the all the 6 mines is blasting. The major impact of the ground vibrations is observed on the domestic houses located in the villages nearby the mine lease area. The kuchha houses are more prone to cracks and damage due to the vibrations induced by blasting whereas RCC framed structures can withstand more ground vibrations. Apart from this, the ground vibrations may develop a fear factor in the nearby settlements nearby the mining areas and may cause injury to persons or damage to the structures. Nearest Habitations from 6 mines respectively are as in below Table 7.21.

TABLE 7.13: NEAREST HABITATION FROM EACH MINE

Location ID	Distance & Direction
Habitation Near P1	1.2 km SouthEast
Habitation Near E1	1.3 km SouthEast
Habitation Near E2	1.2 km SouthEast

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 7.14: GROUND VIBRATIONS AT 3MINES

Location ID	Maximum Charge in kgs	Nearest Habitation in m	PPV in m/ms
P1	126	1200m SE	0.284
E1	122	1300m SE	0.243
E2	124	1200m SE	0.280

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 7.15: SOCIO ECONOMIC BENEFITS FROM 3 MINES

Location ID	Project Cost	CER
P1	Rs. 2,78,59,000/-	Rs.5,00,000/-
E1	Rs.1,48,50,000/-	Rs.2,97,000/-
E2	Rs. 1,48,45,000/-	Rs 2,96,900/-
Total	Rs. 5,75,54,000 /-	Rs. 10,93,900/-

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

- Proposed Projects shall fund towards CER – **Rs 10,00,000/-**

TABLE 7.16: EMPLOYMENT BENEFITS FROM 3MINES

Description	Employment
P1	37
Total	37
E1	16
E2	16
Total	32
Grand Total	69

A total of 37 people will get employment due to 1 proposed mine in cluster and 32 people are already employed at existing mines.

TABLE 7.17: GREENBELT DEVELOPMENT BENEFITS FROM 3 MINES

CODE	No of Trees proposed to be planted	Survival %	Area Covered Sq.m	Name of the Species
P1	1920	80%	The safety zone along the boundary barrier has been identified to be utilized for Greenbelt development	Neem, Pinnata, Pongamia, Ashoka etc.,
Total	1920			
E1	2400			
E2	2400			
Total	4,800			
G.Total	6,720			

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 1920 Trees Planted over a period of 10 Years with Survival Rate of 80%.

7.5 PLASTIC WASTE MANAGEMENT PLAN

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

Objective –

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

TABLE 7.18: 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 at Nagamanagalam Village aims to produce **8,79,655 m³** Rough Stone over a period of 10 Years and Topsoil 2500 m³ for period of 2 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 37 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 quarry is located in Nagamangalam Village, Denkanikottai Taluk and Krishnagiri District of Tamil Nadu and the area have communications, roads and other facilities already well established. The following physical infrastructure facilities will further improve due to proposed mine.

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

8.4 IMPROVEMENT IN SOCIAL INFRASTRUCTURE

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

8.5 OTHER TANGIBLE BENEFITS

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

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

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 Nagamangalam 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 Tvl. Square Enterprises 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 60 m (45m Agl + 15m Bgl), the water table in the area is 70 m – 65 m below ground level, hence the proposed projects 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 1920nos. 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 trees proposed to be planted	Considering survival rate of 80% additionally 20% of plantation is proposed	Area to be covered in m ²	Name of the species
I	1600	1920	The safety zone along the boundary barrier has been identified to be utilized for Greenbelt development.	Neem, Pongamia Pinnata 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 PLANTSAITON

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 and 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

Activities	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	32050	32050
	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 - 9 Units	225000	22500
	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 - 5 Units	25000	1250
	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	64100
	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	1143552
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	32050	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	641000	10000
	3. Progressive Closure Activity Green belt development - 500 trees per one hectare - Proposal for 1920 Trees - (250 Inside Lease Area & 1670 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)	50000	7500
		Avenue Plantation @ 300 per plant (capital) for plantation outside the lease area and @ 30 per plant maintenance (recurring)	501000	50100
	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	76350	0
	5. Contribution towards Green Fund. As per TNMMCR 1959, Rule 35 A	The Contribution towards Green Funds @ 10% of Seigniorage fee are indicated as part of EMP Budge and not necessarily implemented in the Project Site	7916895	0

Implementation of EC, Mining Plan & DGMS Condition	Size 6' X 5' with blue background and white letters as mentioned in MoM Appendix II by the SEAC TN	Fixed Display Board at the Quarry Entrance as permanent structure mentioning Environmental Conditions	10000	1000
	Air, Water, Noise and Soil Quality Sampling every 6 Months for Compliance Report of EC Conditions	Submission of 2 Half Yearly Compliance - Lab Monitoring Report as per CPCB norms	0	50000
	Workers will be provided with Personal Protective Equipment's	Provision of PPE @ Rs. 4000/- per employee with recurring based on wear and tear (say, @ Rs. 1000/- per employee) - 37 Employees	148000	37000
	Health check up for workers will be provisioned	IME & PME Health check up @ Rs. 1000/- per employee	0	37000
	First aid facility will be provided	Provision of 2 Kits per Hectare @ Rs. 2000/-	0	6410
	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	160250	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			3274350	2383462

*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. The EMP has been prepared for the entire **lease period of 10 years** for the peak production capacity of **1,00,240 m³ of Rough stone**.

Year	Total Cost	Year	Total Cost
1 st	₹ 56,57,812	6 th	₹ 46,79,143
2 nd	₹ 25,02,635	7 th	₹ 32,75,925
3 rd	₹ 26,27,766	8 th	₹ 34,39,721
4 th	₹ 27,59,155	9 th	₹ 36,11,707
5 th	₹ 28,97,112	10 th	₹ 38,68,643
Total 353 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 629(Part), Nagamangalam Village, Denkanikottai Taluk, Krishnagiri District belongs to Tvl. Square Enterprises the Project falls in the Cluster category consist of 1 Proposed, 2 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 October 2023 – December 2023 for various environmental components so as to assess the anticipated impacts of the cluster quarry projects on the environment and suitable mitigation measures for likely adverse impacts due to the 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 37 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 Tvl. Square Enterprises Rough Stone Quarry (Extent – 3.20.5 ha).

12. DISCLOSURE OF CONSULTANT

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 Tvl. Square Enterprises Rough Stone Quarry over an Extent of 3.20.5 ha in Nagamangalam Village of Denkanikottai Taluk, Krishnagiri 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:


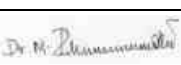



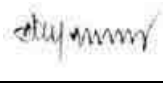







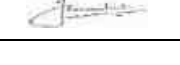


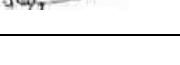



Period of Involvement: **January 2019 to till date**

Associated Team Member with EIA Coordinator:


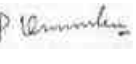

1. Mr. S. Nagamani
2. Mr.P. Viswanathan
3. Mr. M. Santhoshkumar
4. Mr. S. Ilavarasan

FUNCTIONAL AREA EXPERTS ENGAGED IN THE PROJECT

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

6	EB	<ul style="list-style-type: none"> ▪ Collection of Baseline data of Flora and Fauna. ▪ Identification of species labelled as Rare, Endangered and threatened as per IUCN list. ▪ Impact of the project on flora and fauna. ▪ Suggesting species for greenbelt development. 	Mrs. Amirtham	
			Mr. Alagappa Moses	
7	RH	<ul style="list-style-type: none"> ▪ Identification of hazards and hazardous substances ▪ Risks and consequences analysis ▪ Vulnerability assessment ▪ Preparation of Emergency Preparedness Plan ▪ Management plan for safety. 	Mr. N. Senthilkumar	
			Mr. S. Pavel	
			Mr. J. R. Vikram Krishna	
8	LU	<ul style="list-style-type: none"> ▪ Construction of Land use Map ▪ Impact of project on surrounding land use ▪ Suggesting post closure sustainable land use and mitigative measures. 	Mr. A. Allimuthu	
9	NV	<ul style="list-style-type: none"> ▪ Identify impacts due to noise and vibrations ▪ Suggesting appropriate mitigation measures for EMP. 	Mr. A. Jagannathan	
10	AQ	<ul style="list-style-type: none"> ▪ Identifying different source of emissions and propose predictions of incremental GLC using AERMOD. ▪ Recommending mitigations measures for EMP 	Mr. N. Senthilkumar	
11	SC	<ul style="list-style-type: none"> ▪ Assessing the impact on soil environment and proposed mitigation measures for soil conservation 	Dr. M. Iftikhar 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 ▪ Assist in Resources & Reserve Calculation and preparation of Production Plan & Conceptual Plan 	<i>S. Umamahesvaran</i>
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. Annam</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 Tvl. Square Enterprises Rough Stone Quarry over an Extent of 3.20.5 ha in Nagamangalam Village of Denkanikottai Taluk, Krishnagiri District of Tamil Nadu. It is also certified that information furnished in the EIA study are true and correct to the best of our knowledge.

Signature& Date:



Name:

Dr. M. Ifthikhar Ahmed

Designation:

Managing Partner

Name of the EIA Consultant Organization:

M/s. Geo Exploration and Mining Solutions

NABET Certificate No & Issue Date:

NABET/EIA/2225/RA 0276 Dated: 20-2-2023

Validity:

Valid till 06.08.2025

ANNEXURE

TVL.SQUARE ENTERPRISES ROUGH STONE QUARRY

S.F. No 629(Part),

Nagamangalam Village, Denkanikottai Taluk, Krishnagiri District

EXTENT = 3.20.5 Ha

ToR obtained

Lr No.SEIAA-TN/F.No.10238/SEAC/ToR-1556/2023 Dated: 27.09.2023

Project Proponent

Tvl.Square Enterprises

Thiru.R.Chandran (Partner),

Varaganapalli Village,

Nagamangalam Post,

Denkanikottai Taluk,

Krishnagiri District. - 635113

LIST OF ANNEXURES

ANNEXURES	DESCRIPTION	PAGE NOS
P1- Tvl.Square Enterprises,	COPY OF TERMS OF REFERENCE	1A - 23A
	COPY OF 500M RADIUS QUARRIES DETAILS LETTER	24A – 26A
	COPY OF MINING PLAN APPROVED LETTER	27A – 30A
	COPY OF APPROVED MINING PLAN WITH PLATES	31A - 115A
	COPY OF ADDITIONAL DOCUUMENT	116A - 143A
E1 - Thiru.Faldu Chimanlal Monanbhai	COPY OF MINING PLAN APPROVED LETTER	144A - 145A
E2 - Thiru.K.Amrish	COPY OF MINING PLAN APPROVED LETTER	146A - 147A
	COPY OF BASE LINE MONITORING DATA	148A - 221A
	COPY OF NABET CERTIFICATE	222A



**THIRU. DEEPAK S. BILGI, I.F.S.
MEMBER SECRETARY**

**STATE LEVEL ENVIRONMENT IMPACT
ASSESSMENT AUTHORITY-TAMILNADU**

3rd Floor, Panagal Maaligai,
No.1, Jeenis Road, Saidapet,
Chennai - 600 015.
Phone No. 044-24359973
Fax No. 044-24359975

TERMS OF REFERENCE (ToR)

Lr No.SEIAA-TN/F.No.10238/SEAC/ToR-1556/2023 Dated: 27.09.2023

To

Tvl. Square Enterprises,
Varaganapalli Village,
Nagamangalam Post,
Denkanikottai Taluk,
Krishnagiri District - 635 113.

Sir / Madam,

Sub: SEIAA, Tamil Nadu – Terms of Reference with Public Hearing (ToR) for the Proposed Rough Stone quarry over an extent of 3.20.5 Ha at S.F.No. 629 (Part) (Government Poramboke Land) of Nagamangalam Village, Denkanikottai Taluk, Krishnagiri District, Tamil Nadu by Tvl. Square Enterprises - under project category – “B1” and Schedule S.No.1(a) – ToR issued along with Public Hearing - preparation of EIA report – Regarding.

Ref: 1. Online proposal No. SIA/TN/MIN/433058/2023, dated: 12.06.2023
2. Your application submitted for Terms of Reference dated: 20.07.2023
3. Minutes of the 407th SEAC meeting held on 07.09.2023
4. Minutes of the 658th SEIAA meeting held on 26.09.2023 & 27.09.2023

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

The proponent, Tvl. Square Enterprises has submitted application for Terms of Reference (ToR) on 20.07.2023, in Form-I, Pre-Feasibility report for the Proposed Rough Stone quarry over an


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extent of 3.20.5 Ha at S.F.No. 629 (Part) (Government Poramboke Land) of Nagamangalam Village, Denkanikottai Taluk, Krishnagiri District, Tamil Nadu.

Discussion by SEAC and the Remarks:-

Proposed Rough stone quarry over an extent of 3.20.5 Ha at S.F. No. 629 (Part) (Government Poramboke Land) of Nagamangalam Village, Denkanikottai Taluk, Krishnagiri District, Tamil Nadu by Tvl. Square Enterprises - For Terms of Reference.

The proposal was placed in this 407th meeting of SEAC held on 07.09.2023. The details of the project furnished by the proponent are available in the website (parivesh.nic.in).

The SEAC noted the following:

1. The Project Proponent, Tvl. Square Enterprises has applied seeking Terms of Reference for the proposed Rough stone quarry over an extent of 3.20.5 Ha at S.F. No. 629 (Part) (Government Poramboke Land) of Nagamangalam Village, Denkanikottai Taluk, Krishnagiri District, Tamil Nadu.
2. The proposed quarry/activity is covered under Category "B1" of Item 1(a) "Mining Projects" of the Schedule to the EIA Notification, 2006, as amended.
3. The precise area communication was issued for the period of 10 Years. The mining plan is for 10 Years. The annual peak production for First Five Years period shall not exceed 100240 m³ of Rough stone for the ultimate depth of 70m (45m AGL + 25m BGL).

Based on the presentation made by the project proponent, **SEAC decided to recommend for grant of Terms of Reference (TOR) with Public Hearing**, subject to the following TORs, in addition to the standard terms of reference for EIA study for non-coal mining projects and details issued by the MOEF & CC and additional ToR conditions given in **ANNEXURE-I** are to be included in EIA/EMP Report:

1. The proponent is requested to carry out a survey and enumerate on the structures located within 50m, 100m, 150m, 200m, 250m, 300m and 500m from the boundary of the mine lease area.
2. As the Cauvery North WLS is within 10 km from the proposed site, PP shall consult the DFO concerned for contributing towards conservation measures in the WLS and include the same in the EMP.

ANNEXURE-I

1. In the case of existing/operating mines, a letter obtained from the concerned AD (Mines) shall be submitted and it shall include the following:


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- (i) Original pit dimension
 - (ii) Quantity achieved Vs EC Approved Quantity
 - (iii) Balance Quantity as per Mineable Reserve calculated.
 - (iv) Mined out Depth as on date Vs EC Permitted depth
 - (v) Details of illegal/illicit mining
 - (vi) Violation in the quarry during the past working.
 - (vii) Quantity of material mined out outside the mine lease area
 - (viii) Condition of Safety zone/benches
 - (ix) Revised/Modified Mining Plan showing the benches of not exceeding 6 m height and ultimate depth of not exceeding 50m.
2. Details of habitations around the proposed mining area and latest VAO certificate regarding the location of habitations within 300m radius from the periphery of the site.
 3. The proponent is requested to carry out a survey and enumerate on the structures located within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m (v) 500m shall be enumerated with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places of worship, industries, factories, sheds, etc with indicating the owner of the building, nature of construction, age of the building, number of residents, their profession and income, etc.
 4. The PP shall submit a detailed hydrological report indicating the impact of proposed quarrying operations on the waterbodies like lake, water tanks, etc are located within 1 km of the proposed quarry.
 5. The Proponent shall carry out Bio diversity study through reputed Institution and the same shall be included in EIA Report.
 6. The DFO letter stating that the proximity distance of Reserve Forests, Protected Areas, Sanctuaries, Tiger reserve etc., up to a radius of 25 km from the proposed site.
 7. In the case of proposed lease in an existing (or old) quarry where the benches are not formed (or) partially formed as per the approved Mining Plan, the Project Proponent (PP) shall the PP shall carry out the scientific studies to assess the slope stability of the working benches to be constructed and existing quarry wall, by involving any one of the reputed Research and Academic Institutions - CSIR-Central Institute of Mining & Fuel Research / Dhanbad, NIRM/Bangalore, Division of Geotechnical Engineering-IIT-Madras, NIT-Dept of Mining Engg, Surathkal, and Anna University Chennai-CEG Campus. The PP shall


MEMBER SECRETARY
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- submit a copy of the aforesaid report indicating the stability status of the quarry wall and possible mitigation measures during the time of appraisal for obtaining the EC.
8. However, in case of the fresh/virgin quarries, the Proponent shall submit a conceptual 'Slope Stability Plan' for the proposed quarry during the appraisal while obtaining the EC, when the depth of the working is extended beyond 30 m below ground level.
 9. The PP shall furnish the affidavit stating that the blasting operation in the proposed quarry is carried out by the statutory competent person as per the MMR 1961 such as blaster, mining mate, mine foreman, II/I Class mines manager appointed by the proponent.
 10. The PP shall present a conceptual design for carrying out only controlled blasting operation involving line drilling and muffle blasting in the proposed quarry such that the blast-induced ground vibrations are controlled as well as no fly rock travel beyond 30 m from the blast site.
 11. The EIA Coordinators shall obtain and furnish the details of quarry/quarries operated by the proponent in the past, either in the same location or elsewhere in the State with video and photographic evidences.
 12. If the proponent has already carried out the mining activity in the proposed mining lease area after 15.01.2016, then the proponent shall furnish the following details from AD/DD, mines.
 13. What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?
 14. Quantity of minerals mined out.
 - Highest production achieved in any one year
 - Detail of approved depth of mining.
 - Actual depth of the mining achieved earlier.
 - Name of the person already mined in that leases area.
 - If EC and CTO already obtained, the copy of the same shall be submitted.
 - Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.
 15. All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/Topo sheet, topographic sheet, geomorphology, lithology and geology of the mining lease area should be provided. Such an Imagery of the proposed area should


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SEIAA-TN

- clearly show the land use and other ecological features of the study area (core and buffer zone).
16. The PP shall carry out Drone video survey covering the cluster, green belt, fencing, etc.,
 17. The proponent shall furnish photographs of adequate fencing, green belt along the periphery including replantation of existing trees & safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan.
 18. The Project Proponent shall provide the details of mineral reserves and mineable reserves, planned production capacity, proposed working methodology with justifications, the anticipated impacts of the mining operations on the surrounding environment, and the remedial measures for the same.
 19. The Project Proponent shall provide the Organization chart indicating the appointment of various statutory officials and other competent persons to be appointed as per the provisions of the Mines Act 1952 and the MMR, 1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment.
 20. The Project Proponent shall conduct the hydro-geological study considering the contour map of the water table detailing the number of groundwater pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds, etc. within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD / TWAD so as to assess the impacts on the wells due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided.
 21. The proponent shall furnish the baseline data for the environmental and ecological parameters with regard to surface water/ground water quality, air quality, soil quality & flora/fauna including traffic/vehicular movement study.
 22. The Proponent shall carry out the Cumulative impact study due to mining operations carried out in the quarry specifically with reference to the specific environment in terms of soil health, biodiversity, air pollution, water pollution, climate change and flood control & health impacts. Accordingly, the Environment Management plan should be prepared keeping the concerned quarry and the surrounding habitations in the mind.
 23. Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.


MEMBER SECRETARY
SEIAA-TN

24. Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.
25. Details of the land for storage of Overburden/Waste Dumps (or) Rejects outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be provided.
26. Proximity to Areas declared as 'Critically Polluted' (or) the Project areas which attracts the court restrictions for mining operations, should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the TNPCB (or) Dept. of Geology and Mining should be secured and furnished to the effect that the proposed mining activities could be considered.
27. Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.
28. Impact on local transport infrastructure due to the Project should be indicated.
29. A tree survey study shall be carried out (nos., name of the species, age, diameter etc..) both within the mining lease applied area & 300m buffer zone and its management during mining activity.
30. A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.
31. As a part of the study of flora and fauna around the vicinity of the proposed site, the EIA coordinator shall strive to educate the local students on the importance of preserving local flora and fauna by involving them in the study, wherever possible.
32. The purpose of Green belt around the project is to capture the fugitive emissions, carbon sequestration and to attenuate the noise generated, in addition to improving the aesthetics. A wide range of indigenous plant species should be planted as given in the appendix-I in consultation with the DFO, State Agriculture University. The plant species with dense/moderate canopy of native origin should be chosen. Species of small/medium/tall trees alternating with shrubs should be planted in a mixed manner.


MEMBER SECRETARY
SEIAA-TN

33. Taller/one year old Saplings raised in appropriate size of bags, preferably ecofriendly bags should be planted as per the advice of local forest authorities/botanist/Horticulturist with regard to site specific choices. The proponent shall earmark the greenbelt area with GPS coordinates all along the boundary of the project site with at least 3 meters wide and in between blocks in an organized manner
34. A Disaster management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.
35. A Risk Assessment and management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.
36. Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.
37. Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.
38. The Socio-economic studies should be carried out within a 5 km buffer zone from the mining activity. Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.
39. Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.
40. Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.
41. If any quarrying operations were carried out in the proposed quarrying site for which now the EC is sought, the Project Proponent shall furnish the detailed compliance to EC conditions given in the previous EC with the site photographs which shall duly be certified by MoEF&CC, Regional Office, Chennai (or) the concerned DEE/TNPCB.
42. The PP shall prepare the EMP for the entire life of mine and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine.


MEMBER SECRETARY
SEIAA-TN

43. Concealing any factual information or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this Terms of Conditions besides attracting penal provisions in the Environment (Protection) Act, 1986.

Appendix

List of Native Trees Suggested for Planting

1. *Aegle marmelos* – Vilvam
2. *Adenaanthera pavonina* - Manjadi
3. *Albizia lebbek* – Vaagai
4. *Albizia amara* - Usil
5. *Bauhinia purpurea* - Mantharai
6. *Bauhinia racemosa* - Aathi
7. *Bauhinia tomentosa* – Iruvathi
8. *Buchanania axillaris* - Kattuma
9. *Borassus flabellifer* - Panai
10. *Butea monosperma* - Murukka maram
11. *Bobax ceiba* – Ilavu, Sevvilavu
12. *Calophyllum inophyllum* - Punnai
13. *Cassia fistula* - Sarakondrai
14. *Cassia roxburghii*- Sengondrai
15. *Chloroxylon sweitenia* - Purasa maram
16. *Cochlospermum religiosum* – Kongu, Manjal Ilavu
17. *Cordia dichotoma* – Mookuchali maram
18. *Creteva adansonii* – Mavalingum
19. *Dillenia indica* – Uva, Uzha
20. *Dillenia pentagyna* – Siru Uva, Sitruzha
21. *Diospyros ebenum* - Karungali
22. *Diospyros chloroxylon* – Vaganai
23. *Ficus amplissima* – Kal Itchi
24. *Hibiscus tiliaceus* – Aatru poovarasu
25. *Hardwickia binata* – Aacha
26. *Holoptelia integrifolia* - Aayili


MEMBER SECRETARY
SEIAA-TN

27. *Lannea coromandelica* - Odhiam
28. *Lagerstroemia speciosa* - Poo Marudhu
29. *Lepisanthus tetraphylla* - Neikottai maram
30. *Limonia acidissima* - Vila maram
31. *Litsea glutinosa* - Pisin pattai
32. *Madhuca longifolia* - Illuppai
33. *Manilkara hexandra* - Ulakkai Paalai
34. *Mimusops elengi* - Magizha maram
35. *Mitragyna parvifolia* - Kadambu
36. *Morinda pubescens* - Nuna
37. *Morinda citrifolia* - Vellai Nuna
38. *Phoenix sylvestre* - Eachai
39. *Pongamia pinnata* - Pungam
40. *Premna mollissima* - Munnai
41. *Premna serratifolia* - Narumunnai
42. *Premna tomentosa* - Purangai Naari, Pudanga Naari
43. *Prosopis cinerea* - Vanni maram
44. *Pterocarpus marsupium* - Vengai
45. *Pterospermum canescens* - Vennangu, Tada
46. *Pterospermum xylocarpum* - Polavu
47. *Puthranjiva roxburghii* - Puthranjivi
48. *Salvadora persica* - Uгаа Maram
49. *Sapindus emarginatus* - Manipungan, Soapu kai
50. *Saraca asoca* - Asoca
51. *Streblus asper* - Piraya maram
52. *Strychnos nuxvomica* - Yetti
53. *Strychnos potatorum* - Therthang Kottai
54. *Syzygium cumini* - Naval
55. *Terminalia bellerica* - Thandri
56. *Terminalia arjuna* - Ven marudhu
57. *Toona ciliate* - Sandhana vembu
58. *Thespesia populnea* - Puvarasu

MEMBER SECRETARY
SEIAA-TN

59. **Walsuratrifoliata** – valsura
60. **Wrightia tinctoria** – Veppalai
61. **Pithecellobium dulce** – Kodukkapuli

Discussion by SEIAA and the Remarks:-

The proposal was placed in the 658th Authority meeting held on 26.09.2023 & 27.09.2023. The authority noted that this proposal was placed for appraisal in 407th SEAC meeting held on 07.09.2023, the committee has furnished its recommendations for granting ToR with Public hearing subject to the conditions stated therein. After detailed discussions, the Authority accepts the recommendation of SEAC and decided to grant **Terms of Reference (ToR) for the ultimate depth of mining restricted upto 60m (45m AGL + 15 BGL) along with Public Hearing** under cluster for undertaking the combined Environment Impact Assessment Study and preparation of separate Environment Management Plan subject to the conditions as recommended by SEAC & normal conditions in addition to the conditions in '**Annexure B**' of this minutes.

Annexure 'B'

Cluster Management Committee

1. Cluster Management Committee shall be framed which must include all the proponents in the cluster as members including the existing as well as proposed quarry.
2. The members must coordinate among themselves for the effective implementation of EMP as committed including Green Belt Development, Water sprinkling, tree plantation, blasting etc.,
3. The List of members of the committee formed shall be submitted to AD/Mines before the execution of mining lease and the same shall be updated every year to the AD/Mines.
4. Detailed Operational Plan must be submitted which must include the blasting frequency with respect to the nearby quarry situated in the cluster, the usage of haul roads by the individual quarry in the form of route map and network.
5. The committee shall deliberate on risk management plan pertaining to the cluster in a holistic manner especially during natural calamities like intense rain and the mitigation measures considering the inundation of the cluster and evacuation plan.
6. The Cluster Management Committee shall form Environmental Policy to practice sustainable mining in a scientific and systematic manner in accordance with the law. The role played by the committee in implementing the environmental policy devised shall be given in detail.


MEMBER SECRETARY
SEIAA-TN

7. The committee shall furnish action plan regarding the restoration strategy with respect to the individual quarry falling under the cluster in a holistic manner.
8. The committee shall furnish the Emergency Management plan within the cluster.
9. The committee shall deliberate on the health of the workers/staff involved in the mining as well as the health of the public.
10. The committee shall furnish an action plan to achieve sustainable development goals with reference to water, sanitation & safety.
11. The committee shall furnish the fire safety and evacuation plan in the case of fire accidents.

Impact study of mining

12. Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area covering the entire mine lease period as per precise area communication order issued from reputed research institutions on the following
 - a) Soil health & soil biological, physical land chemical features .
 - b) Climate change leading to Droughts, Floods etc.
 - c) Pollution leading to release of Greenhouse gases (GHG), rise in Temperature, & Livelihood of the local people.
 - d) Possibilities of water contamination and impact on aquatic ecosystem health.
 - e) Agriculture, Forestry & Traditional practices.
 - f) Hydrothermal/Geothermal effect due to destruction in the Environment.
 - g) Bio-geochemical processes and its foot prints including environmental stress.
 - h) Sediment geochemistry in the surface streams.

Agriculture & Agro-Biodiversity

13. Impact on surrounding agricultural fields around the proposed mining Area.
14. Impact on soil flora & vegetation around the project site.
15. Details of type of vegetations including no. of trees & shrubs within the proposed mining area and. If so, transplantation of such vegetations all along the boundary of the proposed mining area shall committed mentioned in EMP.
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.


MEMBER SECRETARY
SEIAA-TN

18. The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands, Horticulture, Agriculture and livestock.

Forests

19. The project proponent shall detailed study on impact of mining on Reserve forests free ranging wildlife.
20. The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.
21. The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection.
22. The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site.

Water Environment

23. Hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) so as to assess the impacts on the nearby waterbodies due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided, covering the entire mine lease period.
24. Erosion Control measures.
25. Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area on the nearby Villages, Water-bodies/ Rivers, & any ecological fragile areas.
26. The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir.
27. The project proponent shall study and furnish the details on potential fragmentation impact on natural environment, by the activities.
28. The project proponent shall study and furnish the impact on aquatic plants and animals in water bodies and possible scars on the landscape, damages to nearby caves, heritage site, and archaeological sites possible land form changes visual and aesthetic impacts.
29. The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components.
30. The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites.


MEMBER SECRETARY
SEIAA-TN

Energy

31. The measures taken to control Noise, Air, Water, Dust Control and steps adopted to efficiently utilise the Energy shall be furnished.

Climate Change

32. The Environmental Impact Assessment shall study in detail the carbon emission and also suggest the measures to mitigate carbon emission including development of carbon sinks and temperature reduction including control of other emission and climate mitigation activities.

33. The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock.

Mine Closure Plan

34. Detailed Mine Closure Plan covering the entire mine lease period as per precise area communication order issued.

EMP

35. Detailed Environment Management Plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued.

36. The Environmental Impact Assessment should hold detailed study on EMP with budget for Green belt development and mine closure plan including disaster management plan.

Risk Assessment


37. To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining.

Disaster Management Plan

38. To furnish disaster management plan and disaster mitigation measures in regard to all aspects to avoid/reduce vulnerability to hazards & to cope with disaster/untoward accidents in & around the proposed mine lease area due to the proposed method of mining activity & its related activities covering the entire mine lease period as per precise area communication order issued.

Others

39. The project proponent shall furnish VAO certificate with reference to 300m radius regard to approved habitations, schools, Archaeological sites, Structures, railway lines, roads, water bodies such as streams, odai, vaari, canal, channel, river, lake pond, tank etc.


MEMBER SECRETARY
SEIAA-TN

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

A. STANDARD TERMS OF REFERENCE

- 1) Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification-1994 came into force, w.r.t. the highest production achieved prior to 1994.
- 2) A copy of the document in support of the fact that the Proponent is the rightful lessee of the mine should be given.
- 3) All documents including approved mine plan, EIA and Public Hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and should be in the name of the lessee.
- 4) All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/ topo sheet, topographic sheet, geomorphology and geology of the area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).
- 5) Information should be provided in Survey of India Topo sheet in 1:50,000 scale indicating geological map of the area, geomorphology of land forms of the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics.
- 6) Details about the land proposed for mining activities should be given with information as to whether mining conforms to the land use policy of the State; land diversion for mining should have approval from State land use board or the concerned authority.
- 7) It should be clearly stated whether the proponent Company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA Report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/ violation of the environmental or forest norms/ conditions? The hierarchical system or administrative order of the Company to deal with the environmental


MEMBER SECRETARY
SEIAA-TN

issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large, may also be detailed in the EIA Report.

- 8) Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.
- 9) The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc. should be for the life of the mine / lease period.
- 10) Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.
- 11) Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.
- 12) Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area. In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees.
- 13) Status of forestry clearance for the broken up area and virgin forestland involved in the Project including deposition of Net Present Value (NPV) and Compensatory Afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.
- 14) Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.
- 15) The vegetation in the RF / PF areas in the study area, with necessary details, should be given.
- 16) A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any


MEMBER SECRETARY
SEIAA-TN

- other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted.
- 17) Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/ Elephant Reserves/(existing as well as proposed), if any, within 10 km of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished.
 - 18) A detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled-I fauna found in the study area, the necessary plan along with budgetary provisions for their conservation should be prepared in consultation with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost.
 - 19) Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravali Range', (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Department should be secured and furnished to the effect that the proposed mining activities could be considered.
 - 20) Similarly, for Coastal Projects, a CRZ map duly authenticated by one of the authorized agencies demarcating LTL, HTL, CRZ area, location of the mine lease with respect to CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).
 - 21) R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly


MEMBER SECRETARY
SEIAA-TN

brought out whether the village(s) located in the mine lease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspects should be discussed in the Report.

- 22) One season (non-monsoon) [i.e. March-May (Summer Season); October-December (post monsoon season) ; December-February (winter season)] primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.
- 23) Air quality modeling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of Vehicles for transportation of mineral. The details of the model used and input parameters used for modeling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map.
- 24) The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated.
- 25) Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.
- 26) Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.
- 27) Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided.
- 28) Based on actual monitored data, it may clearly be shown whether working will intersect 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


MEMBER SECRETARY
SEIAA-TN

undertaken and Report furnished. The Report inter-alia, shall include details of the aquifers present and impact of mining activities on these aquifers. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.

- 29) Details of any stream, seasonal or otherwise, passing through the lease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be brought out.
- 30) Information on site elevation, working depth, groundwater table etc. Should be provided both in AMSL and bgl. A schematic diagram may also be provided for the same.
- 31) A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the Project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The details of plantation already done should be given. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution.
- 32) Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines.
- 33) Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.
- 34) Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report.
- 35) Occupational Health impacts of the Project should be anticipated and the proposed 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.


MEMBER SECRETARY
SEIAA-TN

- 36) Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.
- 37) Measures of socio economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.
- 38) Detailed Environmental Management Plan (EMP) to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project.
- 39) Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.
- 40) Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.
- 41) The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.
- 42) A Disaster management Plan shall be prepared and included in the EIA/EMP Report.
- 43) Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.
- 44) Besides the above, the below mentioned general points are also to be followed:-
 - a) Executive Summary of the EIA/EMP Report
 - b) All documents to be properly referenced with index and continuous page numbering.
 - c) Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated.
 - d) Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise etc. using the MoEF&CC/NABL accredited laboratories. All the original analysis/testing reports should be available during appraisal of the Project.
 - e) Where the documents provided are in a language other than English, an English translation should be provided.
 - f) The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted.


MEMBER SECRETARY
SEIAA-TN

- g) While preparing the EIA report, the instructions for the Proponents and instructions for the Consultants issued by MoEF&CC vide O.M. No. J-11013/41/2006-IA.II (I) dated 4th August, 2009, which are available on the website of this Ministry, should be followed.
- h) Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the PFR for securing the TOR) should be brought to the attention of MoEF&CC with reasons for such changes and permission should be sought, as the ToR may also have to be altered. Post Public Hearing changes in structure and content of the draft EIA/EMP (other than modifications arising out of the P.H. process) will entail conducting the PH again with the revised documentation.
- i) As per the circular no. J-11011/618/2010-IA.II (I) dated 30.5.2012, certified report of the status of compliance of the conditions stipulated in the Environment Clearance for the existing operations of the project, should be obtained from the Regional Office of Ministry of Environment, Forest and Climate Change, as may be applicable.
- j) The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area. (ii) geological maps and sections and (iii) sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area.

In addition to the above, the following shall be furnished:-

The Executive summary of the EIA/EMP report in about 8-10 pages should be prepared incorporating the information on following points:

1. Project name and location (Village, District, State, Industrial Estate (if applicable)).
2. Process description in brief, specifically indicating the gaseous emission, liquid effluent and solid and hazardous wastes.
3. Measures for mitigating the impact on the environment and mode of discharge or disposal.
4. Capital cost of the project, estimated time of completion.
5. The proponent shall furnish the contour map of the water table detailing the number of wells located around the site and impacts on the wells due to mining activity.
6. A detailed study of the lithology of the mining lease area shall be furnished.
7. Details of village map, "A" register and FMB sketch shall be furnished.
8. Detailed mining closure plan for the proposed project approved by the Geology of Mining department shall be submitted along with EIA report.


MEMBER SECRETARY
SEIAA-TN

9. Obtain a letter /certificate from the Assistant Director of Geology and Mining standing that there is no other Minerals/resources like sand in the quarrying area within the approved depth of mining and below depth of mining and the same shall be furnished in the EIA report.
10. EIA report should strictly follow the Environmental Impact Assessment Guidance Manual for Mining of Minerals published February 2010.
11. Detail plan on rehabilitation and reclamation carried out for the stabilization and restoration of the mined areas.
12. The EIA study report shall include the surrounding mining activity, if any.
13. Modeling study for Air, Water and noise shall be carried out in this field and incremental increase in the above study shall be substantiated with mitigation measures.
14. A study on the geological resources available shall be carried out and reported.
15. A specific study on agriculture & livelihood shall be carried out and reported.
16. Impact of soil erosion, soil physical chemical and biological property changes may be assumed.
17. Site selected for the project - Nature of land - Agricultural (single/double crop), barren, Govt./ private land, status of its acquisition, nearby (in 2-3 km.) water body, population, within 10km other industries, forest, eco-sensitive zones, accessibility, (note - in case of industrial estate this information may not be necessary)
18. Baseline environmental data - air quality, surface and ground water quality, soil characteristic, flora and fauna, socio-economic condition of the nearby population
19. Identification of hazards in handling, processing and storage of hazardous material and safety system provided to mitigate the risk.
20. Likely impact of the project on air, water, land, flora-fauna and nearby population
21. Emergency preparedness plan in case of natural or in plant emergencies
22. Issues raised during public hearing (if applicable) and response given
23. CER plan with proposed expenditure.
24. Occupational Health Measures
25. Post project monitoring plan
26. The project proponent shall carry out detailed hydro geological study through intuitions/NABET Accredited agencies.
27. A detailed report on the green belt development already undertaken is to be furnished and also submit the proposal for green belt activities.


MEMBER SECRETARY
SEIAA-TN

28. The proponent shall propose the suitable control measure to control the fugitive emissions during the operations of the mines.
29. A specific study should include impact on flora & fauna, disturbance to migratory pattern of animals.
30. Reserve funds should be earmarked for proper closure plan.
31. A detailed plan on plastic waste management shall be furnished. Further, the proponent should strictly comply with Tamil Nadu Government Order (Ms) No.84 Environment and forests (EC.2) Department dated 25.06.2018 regarding ban on one time use and throw away plastics irrespective of thickness with effect from 01.01.2019 under Environment (Protection) Act, 1986. In this connection, the project proponent has to furnish the action plan.

Besides the above, the below mentioned general points should also be followed:-

- a. A note confirming compliance of the TOR, with cross referencing of the relevant sections / pages of the EIA report should be provided.
- b. All documents may be properly referenced with index, page numbers and continuous page numbering.
- c. Where data are presented in the report especially in tables, the period in which the data were collected and the sources should be indicated.
- d. While preparing the EIA report, the instructions for the proponents and instructions for the consultants issued by MoEF & CC vide O.M. No. J-11013/41/2006-IA.II (I) dated 4th August, 2009, which are available on the website of this Ministry should also be followed.
- e. The consultants involved in the preparation of EIA/EMP report after accreditation with Quality Council of India (QCI)/National Accreditation Board of Education and Training (NABET) would need to include a certificate in this regard in the EIA/EMP reports prepared by them and data provided by other organization/Laboratories including their status of approvals etc. In this regard circular no F. No.J -11013/77/2004-IA-II(I) dated 2nd December, 2009, 18th March 2010, 28th May 2010, 28th June 2010, 31st December 2010 & 30th September 2011 posted on the Ministry's website <http://www.moef.nic.in/> may be referred.
 - After preparing the EIA (as per the generic structure prescribed in Appendix-III of the EIA Notification, 2006) covering the above mentioned points, the proponent will take further necessary action for obtaining environmental clearance in accordance with the procedure prescribed under the EIA Notification, 2006.


MEMBER SECRETARY
SEIAA-TN

- The final EIA report shall be submitted to the SEIAA, Tamil Nadu for obtaining Environmental Clearance.
- The TORs with public hearing prescribed shall be **valid for a period of three years** from the date of issue, for submission of the EIA/EMP report as per OMNo.J-11013/41/2006-IA-II(I)(part) dated 29th August, 2017.


MEMBER SECRETARY
SEIAA-TN

Copy to:

1. The Additional Chief Secretary to Government, Environment, Climate Change and Forests Department, Govt. of Tamil Nadu, Fort St. George, Chennai - 9.
2. The Chairman, Central Pollution Control Board, Parivesh Bhavan, CBD Cum-Office Complex, East Arjun Nagar, New Delhi - 110 032.
3. The Chairman, Tamil Nadu Pollution Control Board, 76, Mount Salai, Guindy, Chennai - 600 032.
4. The APCCF (C), Regional Office, MoEF & CC (SZ), 34, HEPC Building, 1st & 2nd Floor, Cathedral Garden Road, Nungambakkam, Chennai - 34.
5. Monitoring Cell, IA Division, Ministry of Environment, Forests & CC, Paryavaran Bhavan, CGO Complex, New Delhi - 110 003.
6. The District Collector, Krishnagiri District.
7. Stock File.

From

Dr. S.Vediappan, M.Sc.,Ph.d.,
Deputy Director,
Dept of Geology and Mining,
Krishnagiri.

To

TVL. Square Enterprises,
Varaganapalli Village,
Nagamangalam Post,
Denkanikottai Taluk,
Krishnagiri – 635 113.

Roc.No.536/2022/Mines Dated: 27.07.2022

Sir,

Sub: Mines and Minerals – Rough stone - Krishnagiri District – Denkanikottai Taluk – Nagamangalam Village- Govt Poramboke land in S.F.No. 629(Part) Over an extent of 3.20.5 Hects – Tender Cum Auction conducted – TVL. Square Enterprises declared as highest bidder - Mining Plan approved – Other quarry situated in 500 mtrs radial distance – Details furnished - reg.

Ref:

1. Krishnagiri District, Extraordinary Gazette notification No. 15 & 20, dated 14.03.2022 & 28.03.2022.
2. This Office Letter No.555/2022/Mines dated: 26.04.2022.
3. Draft Mining plan submitted by TVL. Square Enterprises, dated: 23. 07 .2022
4. This Office Letter No.555/2022/Mines dated: 23.07.2022

Kind attention is invited to the references cited above.

2. Tender Cum Auction has been conducted on 05.04.2022 for the grant of quarry lease to quarry rough stone in government lands situated in Krishnagiri district including S.F.No. 629(Part) Over an extent of 3.20.5 Hects of Nagamangalam Village, Denkanikottai Taluk.

3. TVL. Square Enterprises has quoted highest lease amount and hence he has been declared as highest bidder for the grant of quarry lease for quarrying Rough stone over an extent of 3.20.50 Hects of government lands in S.F.No. 629(Part) in Nagamangalam Village, Denkanikottai Taluk, Krishnagiri District for a period of 10 years under the provisions of Rule 8 of Tamil Nadu Minor Mineral Concession Rules, 1959. In this regard, precise area communication has been issued to the applicant vide letter dated: 06.05.2022 with a

direction to submit approved mining plan and Environment Clearance.

4. Accordingly, TVL. Square Enterprises had submitted 03 copies of draft Mining Plan vide letter dated: 23. 07 .2022 and the same has been approved vide this office letter dated: .09.2022. In addition to that the details of other quarries situated within 500 mts radial distance from the subject quarry is furnished as follows.

I. Details of Existing quarries.

Sl No	Name of the lessee	Village & Taluk	Mineral	S.F No.	Extent in Het	GO No.& Date	Lease period.
1.	Thiru. Faldu Chimanlal Monanbhai S/o. Mohanbhai, Door No 2/198 C, Varaganapalli Nagamangalam Denkanikottai Krishnagiri	Nagamangalam Village, Denkanikottai Taluk	Rough Stone	629 (Part 1)	4.00.0	Roc.82/20 12/Mines-2 dated 21.5.2012 and 5.2.2016	29.2.2016 to 28.2.2026
2	Thiru K.Amrish, S/o. Krishnappa, No.2-56, Varaganapalli Nagamanagalam Denkanikottai Krishnagiri District	Nagamangalam Village, Denkanikottai Taluk	Rough Stone	629 (Part 2)	4.00.0	Roc.83/20 12/Mines-2 dated 21.5.2012 . and 5.2.1016	29.2.2016 to 28.2.2026
3.	Tvl. Global Trading Company, 5 3 rd Floor, Rosy Tower,7, Nungambakkam High road, Chennai - 34	Nagamangalam Village, Denkanikottai Taluk	Granite	629 (P)	2.02.5	G.O. 3(D) no. 96 Industries Dept dated 2.5.1995	19.5.1995 to 18.5.2005 operated under Court order.
4.	Tvl. Indira Granites, NO. 7, Cause Way road, Lakshmi Mansion, Gugai, Salem - 636006	Nagamangalam Village, Denkanikottai Taluk	Granite	629 (P)	0.81.0	G.O. 3(D) no. 821 Industries Dept dated 24.4.1995	06.5.1995 to 05.5.2005 operated under Court order.
5.	Thiru M.D.Anandan, No.73, Gowdiyamutt Road, Rayapettai, Chennai - 14	Nagamangalam Village, Denkanikottai Taluk	Granite	629 (P)	0.81.0	G.O. 3(D) no. 321 Industries Dept dated 8.11.1995	17.3.1996 to 16.3.2006 operated under Court order.

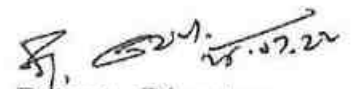
6.	J.Premalatha, Tvl.R.V.Granites, No.77A, Ramnagar, Rani Illam, Kumarasamypettai Salem - 636007.	Nagamangalam Village, Denkanikottai Taluk	Granite	620 (P)	0.81.0	G.O. 3(D) no. 322 Industries Dept dated 8.11.1995	14.12.199 5 to 13.12.200 5 operated under Court order.
7.	A.Rajamani, Tvl. Mahalakshmi Enterprises, 7, 1 st Street, North Gopalapuram, Chennai 86.	Nagamangalam Village, Denkanikottai Taluk	Granite	629 (P)	2.02.5	G.O. 3(D) no. 80 Industries Dept dated 24.4.1995	06.05.199 5 to 05.05.200 5 operated under Court order.
8.	Rani Granites, 33, 1 st Pulikuthi Street, Gugai, Salem	Nagamangalam Village, Denkanikottai Taluk	Granite	629 (P)	4.05.0	G.O. 3(D) no. 197 Industries Dept dated 1.6.1993	16.06.199 3 to 15.06.200 3 operated under Court order.

II. Details of abandoned/Old quarries.


Sl. No.	Name of the lessee	Village	Mineral	S.F No.	Extent in Het	GO No.& Date	Lease period.
1.	Jayendra Kumar Bavan Bai Patel, S/o Bavan Bai Patel, 2/198B, Varganapalli, Nagamangalam Denkanikottai	Nagamangalam, Village, Denkanikottai Taluk	Rough stone	1249 (P)	5.00.0	District Collector Proc Rc. No. 138/2008/ Mines-2 dated 02.07.2008	2.7.2008 to 1.7.2018

III. Details of Proposed quarries

Sl No	Name of the lessee	Village & Taluk	Mineral	S.F No.	Extent in Het	GO No.& Date	Lease period.
1.	Tvl. Square Enterprises	Nagamangalam, Village, Denkanikottai Taluk	Rough Stone	629 (P)	3.20.5	Rc.No. 555/2022/Mine s Dated: 26.04.2022	Instant Proposal (Precise area given)


 Deputy Director,
 Dept of Geology and Mining,
 Krishnagiri.

Copy to :-


 25/7/22

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

From

Dr.S.Vediappan,M.Sc.,Ph.D.,
Deputy Director,
Dept of Geology and Mining,
Krishnagiri.

To

TVI. Square Enterprises,
Varaganapalli Village,
Nagamangalam Post,
Denkanikottai Taluk,
Krishnagiri - 635 113.

Rc.No.555/2022/Mines Dated: 23.07.2022.

Sir,

Sub: Mines and Minerals - Rough stone - Krishnagiri District - Denkanikottai Taluk - Nagamangalam Village- Govt Poramboke land in S.F.No. 629(Part) Over an extent of 3.20.5 Hects - Tender Cum Auction conducted - TVI. Square Enterprises declared as highest bidder - Precise area communicated - Draft Mining Plan submitted for approval - Approved - reg.

Ref: 2. Krishnagiri District, Extraordinary Gazette notification No. 15 & 20, dated 14.03.2022 & 28.03.2022.
4. This Office Letter No.555/2022/Mines dated: 26.04.2022.
5. Draft Mining plan submitted by TVI. Square Enterprises, dated: 23.07.2022

Kind attention is invited to the references cited above.

2. Tender Cum Auction has been conducted on 05.04.2022 for the grant of quarry lease to quarry rough stone in government lands situated in Krishnagiri district including S.F.No. 629(Part) Over an extent of 3.20.5 Hects of Nagamangalam Village, Denkanikottai Taluk, TVI. Square Enterprises has quoted highest lease amount and hence they have been declared as successful bidder.

3. Accordingly, TVI. Square Enterprises has been directed to submit the mining plan for approval and to obtain Environmental Clearance for quarrying Rough stone over an extent of 3.20.5 Hects of Government Poramboke land in S.F.No. 629(Part) in Nagamangalam Village, Denkanikottai Taluk, Krishnagiri District for a period of 10

(Ten) years under the provisions of Rule 8 of Tamil Nadu Minor Mineral Concession Rules, 1959.

4. In this regard, the bidder TVL. Square Enterprises had submitted 03 copies of draft Mining Plan vide letter dated:23.07.2022 and the same has been examined in detail and it is found correct.

5. As per the mining plan the year wise production for the proposed first and second five years are as follows.

First Five Years	Year	Recoverable Reserves (m³) @ 100%	Top Soil (Gravel)in (m³)
	1 st Year	89615	988
	2 nd year	100240	0
	3 rd year	87490	0
	4 th year	88110	0
	5 th year	87160	1512
	Total	452615	2500

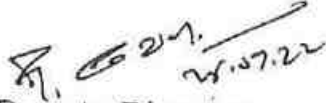
Second Five Years	Year	Recoverable Reserves (m³) @ 100%	Top Soil (Gravel)in (m³)
	1 st Year	98820	0
	2 nd year	88340	0
	3 rd year	97420	0
	4 th year	85350	0
	5 th year	86665	0
	Total	456595	0

6. Hence, as per the powers delegated under Rule 42 of TNMMCR, 1959 and also as per the guidelines/instructions issued by the Commissioner of Geology and Mining, vide letter Rc.No.3868/LC/2012 dated:19.11.2012, the said mining plan submitted by the TVL. Square Enterprises is here by approved subject to the following conditions.

- i. That the mining plan is approved without prejudice to any other law applicable to the quarry lease from time to time whether such laws are made by the Central Government, State Government or any other authority.

- ii. This approval of the mining plan does not in any way imply the approval of the Government in terms of any other provisions of Mines and Minerals Development and Regulation) Act 1957, or any other connected laws including Forest (Conservation) Act 1957, or any other connected Laws industry Forest (Conservation) Act 1980, Forest Conservation Rules 1981 Environment protection Act 1980, Indian Explosive Act 1884 (Central Act IV of 1884) and the rules made there under, Minor Mineral Conservation and Development Rules, and The Tamil Nadu Minor Mineral Concession rules, 1959.
- iii. That the mining plan is approved without prejudice to any other order or directions from any court of competent jurisdiction.
- iv. All the conditions mentioned in the precise area letter should be followed during quarry operation as per rules.
- v. The applicant should get prior Environmental clearance from the appropriate authority and should submit it to the District Collector, Krishnagiri.
- vi. Provisions of the Mines Act 1952 and the rules and regulation made there under including submission of notice of opening, appointment of manager and other statutory officials has required under Mines Act 1952 shall be complied with.
- vii. Provisions made under the Mines and Minerals (Development and Regulation) Acts 1957, amended Act 2015 made there under shall be complied with.
- viii. This approval of Mining Plan is restricted to the mining lease area only as shown in the plan.
- ix. The earlier instances of irregular / illegal quarrying, if any shall not be regularized through the approval of this document.
- x. The applicant shall remit penalty /cost of the mineral /other dues if any.

- xi. Every Mining Plan duly approved under rule 41(9) of TNMMCR, 1959 shall be valid for a period of five years. Further, the applicant shall submit modification in the mining plan if any, review the mining plan and submit scheme of mining plan for the next five years of the lease if any as per TNMMCR 1959.
- xii. Non adherence to any condition set out above, the approval shall be deemed to have been withdrawn with immediate effect.


Deputy Director,
Dept of Geology and Mining,
Krishnagiri.


25/7/22

Copy submitted to : 1. The Commissioner,
Dept of Geology and Mining,
Guindy, Chennai -32.

**MINING PLAN AND PROGRESSIVE QUARRY
CLOSURE PLAN FOR NAGAMANGALAM
ROUGH STONE QUARRY**

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

Government Land / Lease Period = Ten years

IN

LOCATION OF THE QUARRY LEASE APPLIED AREA

EXTENT : 3.20.5 Ha
S.F.NO : 629 (Part)
VILLAGE : NAGAMANGALAM
TALUK : DENKANIKOTTAI
DISTRICT : KRISHNAGIRI
STATE : TAMIL NADU

FOR

APPLICANT

Tvl. Square Enterprises,
Varaganapalli Village,
Nagamangalam Post,
Denkanikottai Taluk,
Krishnagiri District - 635 113.

PREPARED BY

Dr. P. Thangaraju, M.Sc., Ph.D.,
Qualified Person

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





Tvl. Square Enterprises,
Varaganapalli Village,
Nagamangalam Post,
Denkanikottai Taluk,
Krishnagiri District - 635 113.

CONSENT LETTER FROM APPLICANT

The Mining Plan and Progressive Quarry Closure Plan in Respect of Nagamangalam Rough Stone Quarry over an extent of 3.20.50Ha of Government land in S.F.No.629 (Part) of Nagamangalam Village, Denkanikottai Taluk, Krishnagiri District, Tamil Nadu State has been prepared by

Dr. P. Thangaraju, M.Sc., Ph.D.,
Qualified Person

We request to the District Collector, Krishnagiri District to make further correspondence regarding the modification of the Mining Plan with the said Qualified Person at his following address.

Dr. P. Thangaraju, M.Sc., Ph.D.,
Regd. Off. No. 17,
Advaita Ashram Road,
Alagapuram, Salem District – 636 004.
Cell: +91 94422 78601 & 94433 56539.

We 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.

For Tvl. Square Enterprises,

R. Chandran
R. Chandran
(Partner)

Place: Krishnagiri

Date: 08.06.2022



Tvl. Square Enterprises,
Varaganapalli Village,
Nagamangalam Post,
Denkanikottai Taluk,
Krishnagiri District - 635 113.

DECLARATION OF THE APPLICANT

The Mining Plan and Progressive Quarry Closure Plan in Respect of Nagamangalam Rough Stone Quarry over an extent of 3.20.50Ha of Government land in S.F.No.629 (Part) of Nagamangalam Village, Denkanikottai Taluk, Krishnagiri District, Tamil Nadu State has been prepared in full consultation with me.

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

For Tvl. Square Enterprises,
R. Chandran
R. Chandran
(Partner)

Place: Krishnagiri
Date: 08.06.2022



CERTIFICATE

Certified that I am, **Dr. P. THANGARAJU**, M.Sc., Ph.D., having an office at Regd. Off. No. 17, Advaita Ashram Road, Alagapuram, Salem District – 636 004, holding a Post Graduate Degree in Geology (M.Sc. Geology) from Madras University, Chennai and I worked in the field of Geology 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 Nagamangalam Rough Stone Quarry over an extent of 3.20.50Ha of Government land in S.F.No.629 (Part) of Nagamangalam Village, Denkanikottai Taluk, Krishnagiri District, Tamil Nadu State for **Tvl. Square Enterprises**, having office at Varaganapalli Village, Nagamangalam Post, Denkanikottai Taluk, Krishnagiri District - 635 113.. 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


Dr. P. Thangaraju, M.Sc., Ph.D.,

Place: Salem

Date: 23.06.2022



Dr. P. Thangaraju, M.Sc., Ph.D.,

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 Nagamangalam Rough Stone Quarry over an extent of 3.20.50Ha of Government land in S.F.No.629 (Part) of Nagamangalam Village, Denkanikottai Taluk, Krishnagiri District, Tamil Nadu State has been prepared for

Tvl. Square Enterprises,

Varaganapalli Village,

Nagamangalam Post,


Denkanikottai Taluk,

Krishnagiri District - 635 113.

Whenever specific permissions/ exemptions/ relaxations and approvals are required, the Applicant will approach the concerned authorities of the District Collector, Krishnagiri District, Tamil Nadu 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


Dr. P. Thangaraju, M.Sc., Ph.D.,

Place: Salem

Date: 23.06.2022



Dr. P. Thangaraju, M.Sc., Ph.D.,
Regd. Off. No. 17,
Advaita Ashram Road,
Alagapuram, Salem District – 636 004.
Cell: +91 94422 78601 & 94433 56539.

CERTIFICATE FROM THE QUALIFIED PERSON

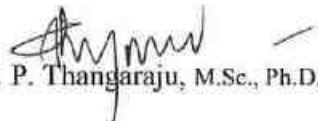
Certified that the Provisions of Mines Act, Rules and Regulations and Orders made there under have been observed in the preparation of Mining Plan and Progressive Quarry Closure Plan for Nagamangalam Rough Stone Quarry over an extent of 3.20.50Ha of Government land in S.F.No.629 (Part) of Nagamangalam Village, Denkanikottai Taluk, Krishnagiri District, Tamil Nadu State has been prepared for

Tvl. Square Enterprises,
Varaganapalli Village,
Nagamangalam Post,
Denkanikottai Taluk,
Krishnagiri District - 635 113.

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, 17th Main, 100ft Road, 4th Block, Koramangala, Bengaluru, Karnataka – 560 034, 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


Dr. P. Thangaraju, M.Sc., Ph.D.,

Place: Salem

Date: 23.06.2022



LIST OF CONTENTS

S. No.	Description	Page No.
1.0	Introduction and Executive Summary	1
2.0	General Information	4
3.0	Location	5
	<u>PART-A</u>	
4.0	Geology and Mineral Reserves	6
5.0	Mining	11
6.0	Blasting	16
7.0	Mine Drainage	17
8.0	Other Permanent Structures	18
9.0	Employment Potential & Welfare Measures	20
	<u>PART-B</u>	
10.0	Environment Management Plan	22
11.0	Progressive Quarry Closure Plan	29
12.0	Any Other Details Intend to Furnish by the Applicant	35



LIST OF ANNEXURES

S. No.	Description	Annex. No.
1.	Copy of Precise Area Communication	I
2.	Copy of FMB	II
3.	Copy of Combined Map	III
4.	Copy of Adangal	IV
5.	Copy of A-Register	V
6.	Copy of District Gazette	VI
7.	Copy of Partnership deed	VII
8.	Copy of ID Proof	VIII
9.	Copy of Educational Certificate of Qualified Person	IX
	Copy of Experience Certificate of Qualified Person	X

LIST OF PLATES

S. No.	Description	Plate No.
1.	Location Plan	I
2.	Topo sketch of Quarry Lease Applied Area for 10km Radius	IA
3.	Environmental & Land use Plan	IB
4.	Route Map	IC
5.	Quarry Lease & Surface Plan	II
6.	Topography, Geological, Yearwise Development & Production Plan	III-A
7.	Topography, Geological, Yearwise Development & Production Sections	III-B
8.	Progressive Quarry Closure Plan & Sections	IV
9.	Conceptual Plan & Sections	V



MINING PLAN ALONG WITH PROGRESSIVE QUARRY CLOSURE PLAN FOR NAGAMANGALAM ROUGH STONE QUARRY.

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

1.0 INTRODUCTION AND EXECUTIVE SUMMARY

The Mining Plan and Environment Management Plan are prepared for **Tvl. Square Enterprises**, having office at Varaganapalli Village, Nagamangalam Post, Denkanikottai Taluk, Krishnagiri District - 635 113.

The Rough Stone quarry lease applied area is a Government land. The applicant has preferred the application under Rule, 8 (6) (b) of Tamil Nadu Minor Mineral Concession Rules, 1959 and the area was awarded to the successful bidder **Tvl. Square Enterprises**, through Tender Cum Auction for over an extent of **3.20.50Ha** of **Government land** in **S.F.No.629 (Part)** of **Nagamangalam Village, Denkanikottai Taluk, Krishnagiri District** under Rule 8 (6) (b) of Tamil Nadu Minor Mineral Concession Rules, 1959.

The application was processed by the District Collector, Krishnagiri District and passed a Precise Area Communication letter vide **Rc.No.555/2022/Mines, Dated:26.04.2022** to submit Mining Plan for the approval in Department of Geology and Mining, Krishnagiri District and obtain Environmental Clearance from the SEIAA, Chennai, Tamil Nadu State, with the conditions to provide:

1. Quarrying minerals should be transported after paying Seigniorage fee according to the schedule II of Tamil nadu Minor Mineral Concession Rules, 1959.
2. The applicant should leave a safety distance of 7.5m to the adjacent Patta lands, 10m to the Government Poramboke lands and 50 mto to other permanent structures.
3. Mining plan adhering to rules and regulations must be submitted within the stipulated time limit.
4. Quarrying lease will be granted only after getting Environmental Clearance from the SEIAA, Chennai, Tamil Nadu State.

(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



Mining Plan and PQCP

Nagamangalam Rough Stone Quarry

area up to less than 100ha including projects or minor mineral with lease applied area less than 100ha 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 SEIAA, Chennai, Tamil Nadu State, Rough Stone 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 24.01.2019.

Short Notes of Mining Plan:

- a. Village Panchayat - Nagamangalam
- b. Panchayat Union - Kelamangalam
- c. The Geological Resources are **18,35,565m³** of Rough Stone and **4,850m³** of Topsoil in the entire area.
- d. The Total Mineable Reserves are **9,09,210m³** of Rough Stone and **2,500m³** of Topsoil in the entire area.
- e. The proposed quantity of reserves/ (level of production) to be mined are **9,09,210m³** of Rough Stone for ten years in the entire area.
- f. Total extent of the lease applied area = 3.20.50Ha
- g. Topography of the area = The area exhibits an Hilly topography.
- h. Proposed Depth of mining = 70m (45m AGL + 25m BGL).
- i. Lease Period = Ten years
- j. Mining plan period = Ten years
- k. It is a fresh lease applied area, no existing quarry pit within the area (Refer Plate No. II).
- l. Method of mining / level of mechanization.
Opencast mechanized method, the quarry operation involves shallow jack hammer drilling, slurry blasting.
- m. 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).
- n. No trees will be uprooted due to this quarrying operation.
- o. The existing road from the main road to quarry is in good condition. The same will be maintained and utilized for Transportation of quarry materials and machineries.

Mining Plan and PQCP

Nagamangalam Rough Stone Quarry

25 JUL 2022

கிருஷ்ணகிரி

- p. There is No Export of this Rough Stone.
- q. 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 is marked and enclosed as Plate Nos. IA & IB.
- r. The lease applied area is about 3.20.5Ha bounded by six corners; the corners are designated as 1-6 Clockwise from the Southwestern corner, the Co – ordinates for the all the corners are clearly marked in the Quarry Lease and Surface Plan enclosed as Plate No. II.
- s. 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.
- t. General conditions will not be applicable for the proposed area. The area applied for lease is 10Km away from the,
- Interstate Boundary,
 - Critically polluted areas as identified by CPCB,
- u. Cauvery wildfe sanctuary is situated at a distance of 4km Southwest from the lease applied area.
- v. There is no waste anticipated during this quarry operation, hence waste dump is not proposed in the lease applied area.
- w. Around 37 employees are deploying in the quarrying operation.
- x. Total Cost of the project is about **Rs. 2,91,92,000/-**.
- y. 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	Anusonai	2km – West
Nearest School	Nagamangalam	3km – SE
Nearest Dispensary	Kelamangalam	7km – NW
Nearest Town	Denkanikottai	14km – SW
Nearest Police Station	Kelamangalam	7km – NW
Nearest Hospital	Hosur	21km – NW
Nearest D.S.P. Office	Hosur	21km – NW
Nearest Railway Station	Periya Nagathunai	2km – SW
Nearest Airport	Bangalore	58km – NW
Nearest Seaport	Chennai	262km – NE
District Head quarters	Krishnagiri	33km – SE

25 JUL 2022

2.0 GENERAL INFORMATION**2.1 a) Name of the Applicant : Tvl. Square Enterprises****b) Address of the Applicant (With Phone No and Aadhaar No)**

Address : Varaganapalli Village,
Nagamangalam Post,
Denkanikottai Taluk,
Krishnagiri District.

Pin Code : 635 113

Mobile No : +91 94448 95079

Aadhaar No : 3259 6609 1019

Email ID : rajnandhunisha@gmail.com

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

The applicant is a Individual.

2.2 a) Mineral which the Applicant intends to mine:

The Applicant intends to quarry Rough Stone only.

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

The precise area communication letter was received from the District Collector, Krishnagiri District vide **Rc.No.555/2022/Mines, Dated:26.04.2022** to submit approved mining plan and to obtain Environmental Clearance from the SEIAA, Chennai, Tamil Nadu State.

c) Period of permission / lease to be granted:

Ten years.

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

Name : **Dr. P. Thangaraju, M.Sc., Ph.D.,**
Qualified Person

Address : Regd. Off. No. 17,
Advaitha Ashram Road,
Alagapuram, Salem District – 636 004.

Telephone : 0427- 2431989 (Office)

Cell No : +91 94422 78601 & 94433 56539

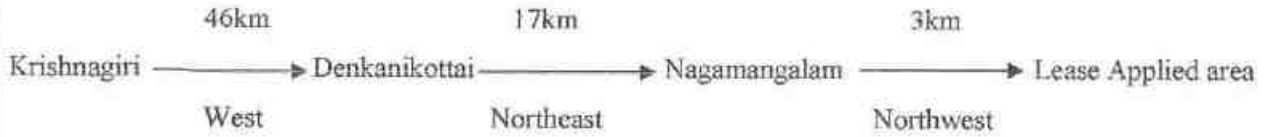
Email : infogeoexploration@gmail.com



3.0 LOCATION

a) Details of the area with location map:

The lease applied area is about 33.0km Northwestern side of Krishnagiri town, 14.0km Northeastern side of Denkanikottai town and 3.0km Northwestern side of Nagamangalam Village.



Location Map of the Lease Applied Area

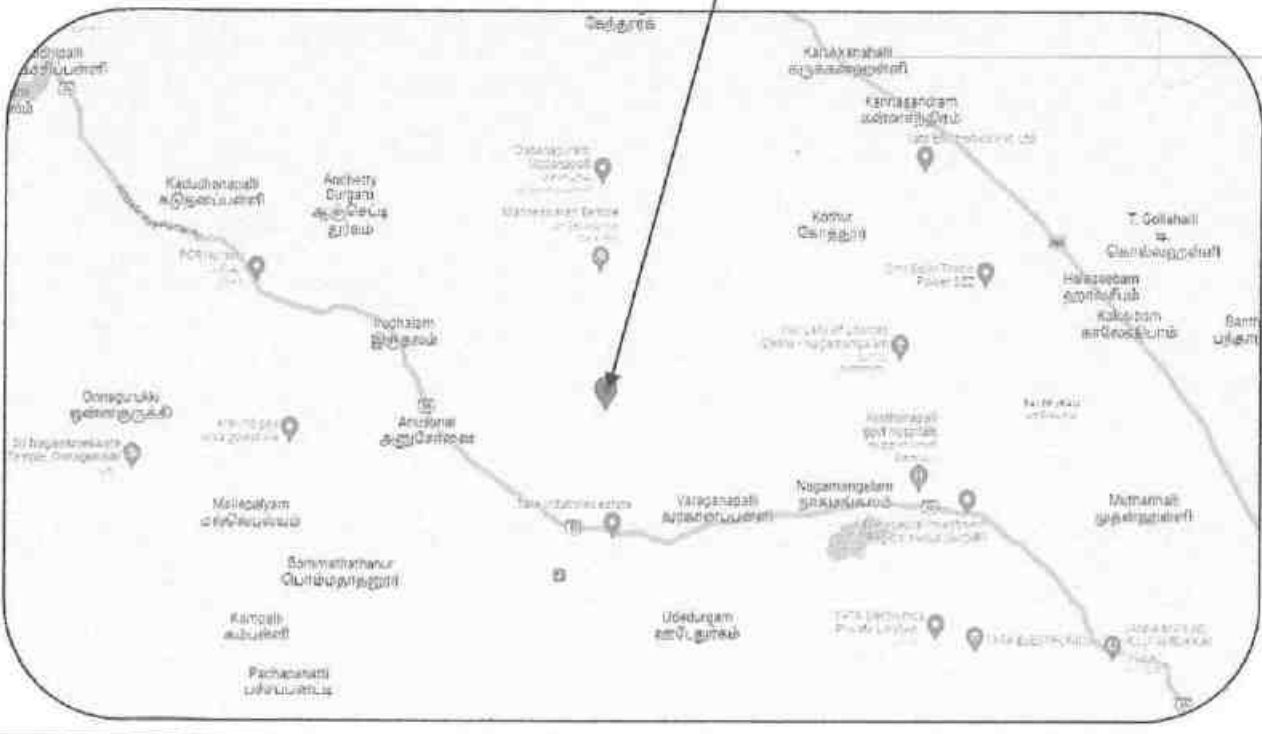
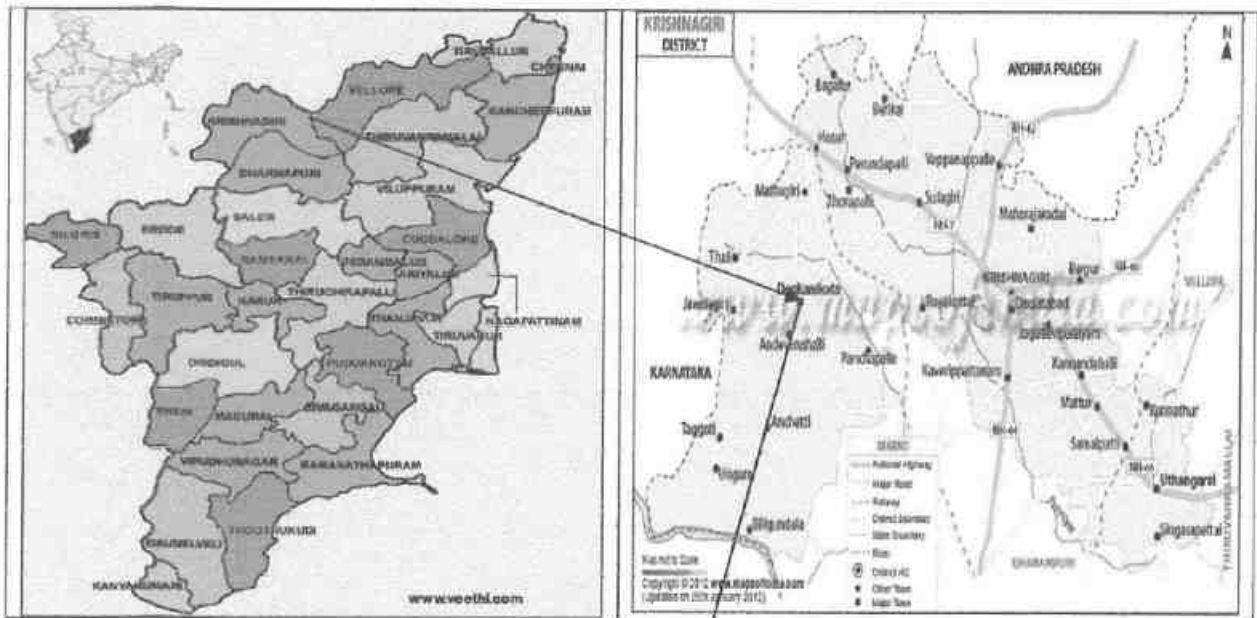




TABLE-2

District	Taluk	Village	S.F. Nos.	Lease Applied Area (Ha)
Krishnagiri	Denkanikottai	Nagamangalam	629 (Part)	3.20.5
Total Extent				3.20.5

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

It is a Government Poramboke land, which is not fit for vegetation/ Cultivation.

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

It is a Government Poramboke land. The applicant has awarded tender cum auction from the Government.

d) Topo sheet No. with latitude and longitude:

The lease applied area falls in the Topo sheet No: 57 - H/14 Latitude between: 12°36'14.45"N to 12°36'21.97"N and Longitude between: 77°53'57.46"E to 77°54'07.76"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 (Earth) road is situated on the Eastern side which connects to the village road at a distance 800m on the Southern side of the 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 quarry is constructed, the same road will be maintained and utilized for haulage, besides trees will be planted on the either side of the road to prevent dust and noise propagation to the nearby areas.

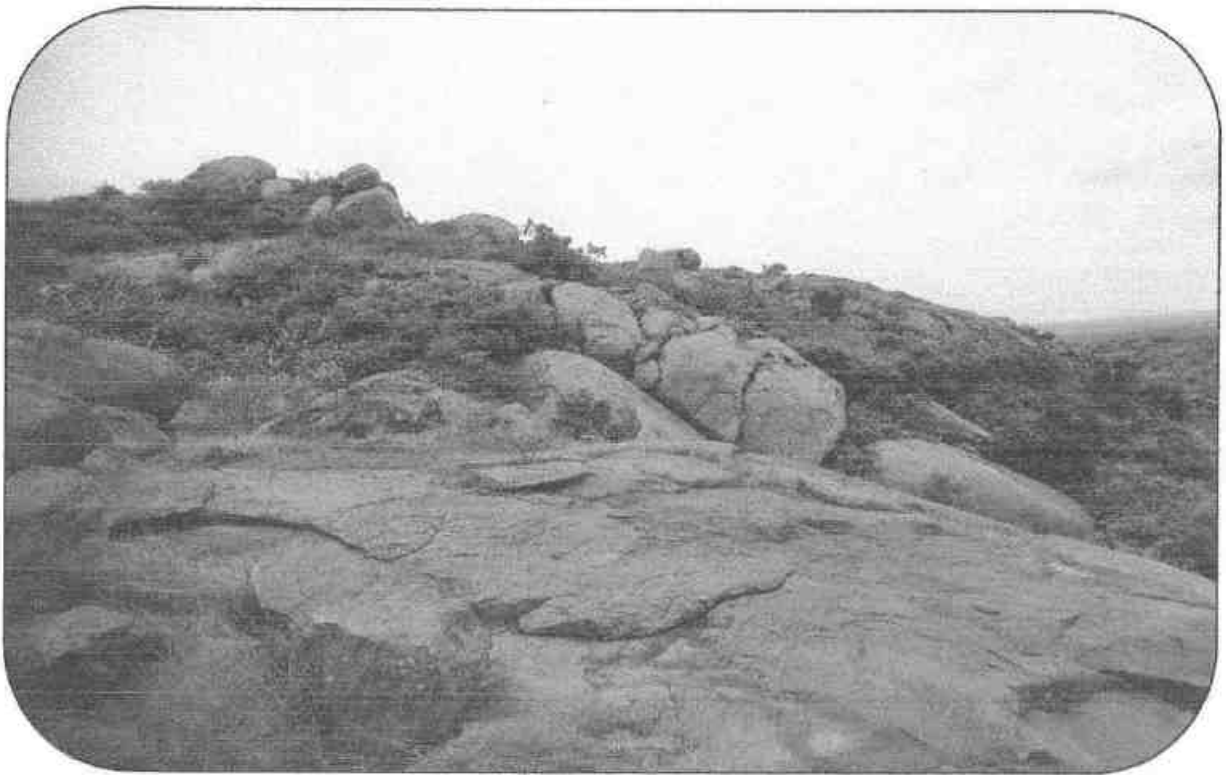
The Nearest Railway line is Bangalore – Salem which is about 2km on the Southwestern side of the lease applied area.

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 exhibits a hilly topography. The area has gentle sloping towards Eastern side. The altitude of the area varies between is 847m to 806m above Mean Sea level. The Massive Rough Stone (Granitic gneiss) is clearly visible right from the surface due to the entire area is covered by Rough Stone. The Water table is found at a depth of 70m in summer and at 65m in rainy seasons. Average annual rainfall is about 851mm.



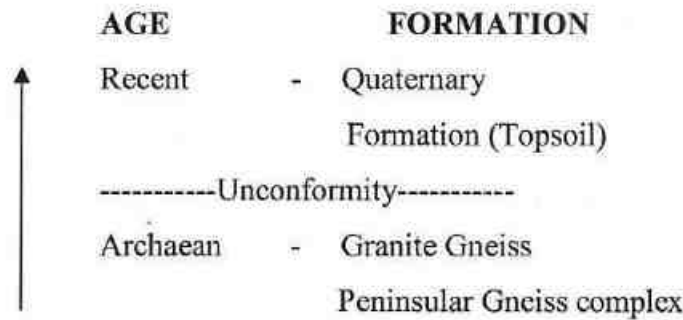
Topographical View of lease applied area



25 JUL 2022

Peninsular gneiss forms the oldest rock formations, in which the massive formation of Granite Gneiss lies over with rich accumulation of recent quaternary formation. On regional-scale of the Granite Gneiss body is $N20^{\circ}E - S20^{\circ}W$ with dipping $SE60^{\circ}$.

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



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 Krishnagiri 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 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 (Granite Gneiss) 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 three sections have been drawn, one sections are drawn Length wise as (X-Y) and another two cross sections are drawn Width wise as (A-B and C-D) to cover the maximum area considered for calculation upto a depth of 70m (45m AGL + 25m BGL) below from the existing ground profile.

The Topographical, Geological plan and sections demarcated the commercial marketable Rough Stone (Granite Gneiss) 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.

**Geological Resources (Plate No. III):**

The Geological Resources of Rough Stone are calculated up to a maximum depth of 70m (45m AGL + 25m BGL) below from the general ground profile. **The total Geological resources are calculated by sectional method.** The total geological resources are given below:

TABLE-3

Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Geological Resources of Rough Stone (m ³)	Topsoil (m ³)
XY-AB	I	69	29	1	-	2001
	I	50	58	5	14500	-
	II	108	71	5	38340	-
	III	147	82	5	60270	-
	IV	160	93	5	74400	-
	V	170	96	5	81600	-
	VI	183	96	5	87840	-
	VII	214	96	5	102720	-
	VIII	235	96	5	112800	-
	IX	235	96	5	112800	-
	X	235	96	5	112800	-
	XI	235	96	5	112800	-
	XII	235	96	5	112800	-
	XIII	235	96	5	112800	-
Total					1136470	2001
XY-CD	I	37	77	1	-	2849
	I	45	49	5	11025	-
	II	83	113	5	46895	-
	III	83	126	5	52290	-
	IV	83	129	5	53535	-
	V	83	129	5	53535	-
	VI	83	129	5	53535	-
	VII	83	129	5	53535	-
	VIII	83	129	5	53535	-
	IX	83	129	5	53535	-
	X	83	129	5	53535	-
	XI	83	129	5	53535	-
	XII	83	129	5	53535	-
	XIII	83	129	5	53535	-
	XIV	83	129	5	53535	-
Total					699095	2849
Grand Total					1835565	4850

Total Geological Resources of Rough Stone : 18,35,565 m³

Total Geological Resources of Topsoil : 4,850 m³

**Mineable Reserves:**

The Mineable reserves are calculated after leaving the safety distance and bench loss to a maximum depth of 70m (45m AGL + 25m BGL) from the general ground profile.

TABLE-4

Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Mineable Reserves of Rough stone in (m ³)100%	Topsoil (m ³)
XY-AB	I	52	19	1	-	988
	I	50	19	5	4750	-
	II	108	48	5	25920	-
	III	147	61	5	44835	-
	IV	160	72	5	57600	-
	V	170	76	5	64600	-
	VI	183	76	5	69540	-
	VII	214	76	5	81320	-
	VIII	218	76	5	82840	-
	IX	213	66	5	70290	-
	X	208	56	5	58240	-
	XI	203	46	5	46690	-
	XII	198	36	5	35640	-
	XIII	193	26	5	25090	-
Total					667355	988
XY-CD	I	27	56	1	-	1512
	I	45	49	5	11025	-
	II	73	101	5	36865	-
	III	68	103	5	35020	-
	IV	63	98	5	30870	-
	V	58	93	5	26970	-
	VI	53	88	5	23320	-
	VII	48	83	5	19920	-
	VIII	43	78	5	16770	-
	IX	38	73	5	13870	-
	X	33	63	5	10395	-
	XI	28	53	5	7420	-
	XII	23	43	5	4945	-
	XIII	18	33	5	2970	-
	XIV	13	23	5	1495	-
Total					241855	1512
Grand Total					909210	2500

Total Mineable Reserve of Rough Stone : 9,09,210 m³

Total Mineable Reserve of Topsoil : 2,500 m³

The mineable reserves have been computed as 9,09,210m³ of Rough Stone and 2,500m³ of Topsoil at the rate of 100% recovery upto a maximum depth of 70m (45m AGL + 25m BGL) below general ground level for a period of ten years.



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) as above is seldom possible due to various inherent petro genetic factors coupled with mining difficulties. Hence it is proposed to obtain relaxation to the provisions of the above regulation from the Director of Mines Safety, Bengaluru for which necessary provision is available with the Regulation 106 (2) (b) of MMR-1961, under Mine Act - 1952.

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 shallow jack hammer drilling, slurry 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 slurry 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 Granite Gneiss 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 Topsoil, the top soil (2,500m³) will be safely removed and preserved within the applied area. After completion of quarry operation backfilled in the part of the quarry pit also spread out the quarried out top bench to facilitate the greenbelt development. The entire quarried out Rough stone will be consumed hence waste dump is not proposed. The composite Year wise Development and production plan and section indicating the Pit lay out, Green belt development are shown in Plate No – III.

TABLE-5

YEARWISE PROPOSAL FOR FIRST FIVE YEARS

Section	Year	Bench	Length in (m)	Width in (m)	Depth in (m)	Recoverable Reserve Rough stone (m ³)	Topsoil (m ³)
XY-AB	I	I	52	19	1	-	988
		III	31	61	5	9455	-
		IV	39	72	5	14040	-
		V	44	76	5	16720	-
		VI	52	76	5	19760	-
		VII	78	76	5	29640	-
		Total					89615	988
	II	II	15	48	5	3600	-
		III	18	61	5	5490	-
		IV	18	72	5	6480	-
		V	18	76	5	6840	-
		VI	18	76	5	6840	-
		VII	18	76	5	6840	-
		VIII	95	76	5	36100	-
		IX	85	66	5	28050	-
		Total					100240
	III	II	32	48	5	7680	-
		III	32	61	5	9760	-
		IV	32	72	5	11520	-
		V	32	76	5	12160	-
		VI	32	76	5	12160	-
		VII	22	76	5	8360	-
		VIII	10	76	5	3800	-
		X	50	56	5	14000	-
		XI	35	46	5	8050	-
		Total					87490
	IV	I	50	19	5	4750	-
		II	56	48	5	13440	-
		III	56	61	5	17080	-
		IV	56	72	5	20160	-
		V	56	76	5	21280	-
		VI	30	76	5	11400	-
		Total					88110
V	II	5	48	5	1200	-	
	III	10	61	5	3050	-	
	I	27	56	1	-	1512	
	I	45	49	5	11025	-	
	II	73	101	5	36865	-	
	III	68	103	5	35020	-	
	Total					87160	1512
First Five year grand Total						452615	2500

YEARWISE PROPOSAL FOR SECOND FIVE YEARS									
Section	Year	Bench	Length in (m)	Width in (m)	Depth in (m)	Recoverable Reserves of Rough stone (m ³)	Topsoil (m ³)		
XY-AB	VI	VI	20	76	5	7600	-		
		VII	60	76	5	22800	-		
		VIII	72	76	5	27360	-		
		IX	82	66	5	27060	-		
		X	50	56	5	14000	-		
	Total						98820		
	VII	IV	15	72	5	5400	-		
		V	20	76	5	7600	-		
		VI	31	76	5	11780	-		
		IV	63	98	5	30870	-		
V		58	93	5	26970	-			
XY-CD	VI	VI	13	88	5	5720	-		
		Total						88340	
		VIII	VI	40	88	5	17600	-	
	VII	VII	48	83	5	19920	-		
		VIII	43	78	5	16770	-		
		IX	38	73	5	13870	-		
		VII	36	76	5	13680	-		
		VIII	41	76	5	15580	-		
	Total						97420		
	XY-AB	IX	X	60	56	5	16800	-	
XI			115	46	5	26450	-		
XII			140	36	5	25200	-		
XIII			130	26	5	16900	-		
Total						85350			
XY-CD		X	IX	46	66	5	15180	-	
			X	48	56	5	13440	-	
			XI	53	46	5	12190	-	
			XII	58	36	5	10440	-	
			XIII	63	26	5	8190	-	
	X		33	63	5	10395	-		
	XI		28	53	5	7420	-		
	XII		23	43	5	4945	-		
	XIII		18	33	5	2970	-		
	XIV		13	23	5	1495	-		
Total						86665			
Second Five year grand Total						456595			
Ten Year Grand Total						909210	2500		

The recoverable reserves have been computed as 9,09,210m³ of Rough stone to a maximum depth of 70m [45m AGL + 25m BGL] from the existing ground profile for the period of ten years.



Mining Plan and PQCP

Nagamangalam Rough Stone Quarry

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 General of Mine Safety, Bengaluru** 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 plan period	=	9,09,210m ³
Hence total lorry loads per day	=	9,09,210m ³ /6m ³
	=	1,51,535 lorry loads
	=	1,51,535 /10years
	=	15,153/300 Days
Rough Stone	=	50 - 51 lorry loads per day
Total quantity to be removed in these plan period	=	2,500m ³
Hence total lorry loads per day	=	2,500m ³ /6m ³
	=	417 lorry loads
	=	417/2 years
	=	209/300 Days
Topsoil	=	1 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-6

I. DRILLING MACHINE:

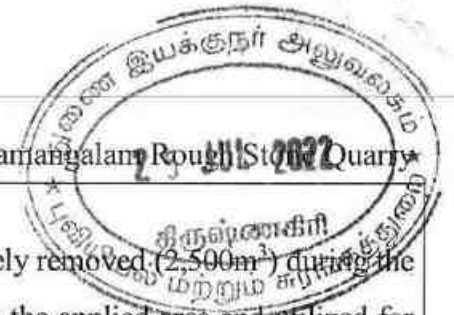
S. No.	Type	Nos	Dia Hole mm	Size Capacity	Motive power
1	Jack hammer	8	30-35	1.2m to 2.0m	Compressed air
2	Compressor	2	-	400 psi	Diesel Drive
3	Wagon Drill	1	32	60HP	Diesel Drive

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	5	20 tonnes	Diesel Drive



5.6 Disposal of Overburden/Waste:

The overburden in the form of Topsoil, the top soil will be safely removed (2,500m³) during the mining plan period. The quarried out topsoil will be preserved within the applied area and utilized for construction of bund and backfilled in the part of the quarry pit also spread out the quarried out top bench to facilitate the greenbelt development. There is no disposal of Topsoil. The excavated Rough stone 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 base 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 ten years, the ultimate pit limit (dimension) at the end of this mining plan period is given below:

TABLE-7

Length in m (Max)	Width in m (Max)	Depth in m (Max)
290	108	70m (45m AGL + 25m BGL)

Greenbelt has proposed on the Panchayat roads by planting native species of Neem, Casuarina and Pongamia pinnata, etc., tree sapling. 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. It is propose to engage any local institution to monitor the EIA and EMP during the course of quarrying operation after the grant of quarry lease.

Except topsoil, there is no wastage anticipated during the entire life of quarry. The quarried out topsoil will be preserved within the applied area and utilized for construction of bund and backfilled in the part of the quarry pit also spread out the quarried out top bench to facilitate the greenbelt development. The quarry area will be fenced with barbed wire fencing also safety bund constructed around the area to prevent inadvertent entry of public and cattle (Refer Plate No. IV).



6.0 BLASTING

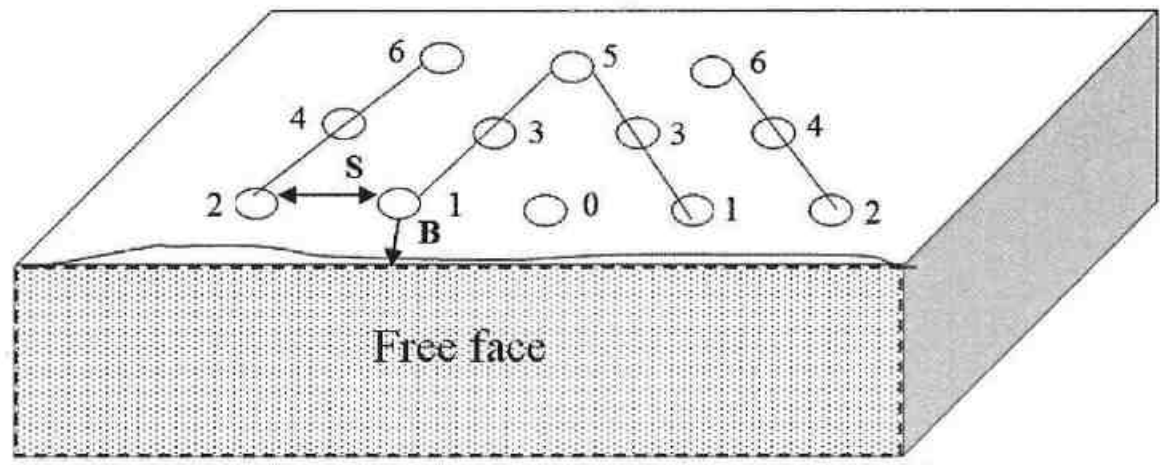
6.1 Blasting pattern:

The quarrying operation is proposed to be carried out by Mechanized Opencast Method in conjunction with conventional method of mining using jack hammer drilling and slurry 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	=	526 Holes

6.2 Type of explosives to be used:

Small Dia. 25mm slurry 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.

25 JUL 2022

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.

Shallow depths 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	= 526 Holes
Yield	= 1,578 Tons
Powder factor	= 6 Tons/Kg of explosives
Total explosive required	= 263 Kg-Slurry 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 have the valid Blaster certificate. He will blast holes in the quarry site. After the completion of Blasting the Explosive Agencies will take it out back the remaining quantity of Explosives.

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

The Water Table in the area is 70m in summer season and 65m in rainy season which is observed from the nearby bore wells and the data obtained from existing private boreholes. The lease area is fully covered by Massive Granite Gneiss formation. Hence the Ground Water problem will not arise. If water seepage may occur due to the fracture, the same will be used for Greenbelt.

TABLE-8

Type	Distance & Direction	Location
Bore Well	450m Southern side	12°34'12.14"N 77°55'04.05"E

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

Quarry operations are confined well above the water table during the entire lease period. If water is encountered at due to rain water and seepage, the same will be pumped out by 5HP water pumps to the Greenbelt 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)

8.1 Habitations/ Villages natham:

There is no approved habitation within 300m radius from the lease applied area.

8.2 Power Lines (HT/LT):

There is no EB line (HT & LT Line) within the radius of 50m from the lease applied area.

8.3 Water bodies (river, ponds, lake, odai, canal, etc.):

There is no River, Pond, Lake, Odai, Canal located within 50m radius of the lease applied area.

8.4 Archaeological / historical monuments:

There are no Archaeological / historical monuments within 500m radius from the lease applied area.

8.5 Road (NH, SH):

The Nearest National Highway (NH-844) Hosur – Palacode is situated about 4km on the Northeastern side of the lease applied area.

The State Highway (SH-85) Attibele – Rayakottai is situated about 1km on the Southwestern side of the lease applied area.

8.6 Places of worships:

There is no place of worships within the radius of 300m from the lease applied area.

8.7 Reserved forest / forest / social forest / wild life sanctuary etc.,

The following reserve forest are located within radius of 10km of the lease applied area.

1. Sanamavu R.F – 6km NW
2. Udeduragm R.F – 4km South
3. Denkanikottai R.F – 6km SW
4. Marandahalli Extn R.F – 9 km South

Cauvery wildlife sanctuary is situated at a distance of 4km Soutwest from lease applied area.

**SALIENT FEATURES****TABLE-9**

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																				
1.	Railways, Highways, Reservoirs or Canal	50m	None of the above situated within 50m radius.																				
2.	Village Road	10m	There is no village road situated within 10m radius of the area.																				
3.	Habitation / Village	300m	There is no approved habitation within 300m radius from the lease applied area (Refer Plate No I-B).																				
4.	Adjacent Patta lands / Govt. Land	7.5m/10m	<table border="1"> <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>629 (Part)</td> <td>Govt. land</td> <td>10m</td> </tr> <tr> <td>East</td> <td>629 (Part)</td> <td>Govt. land</td> <td>10m</td> </tr> <tr> <td>South</td> <td>629 (Part)</td> <td>Govt. land</td> <td>10m</td> </tr> <tr> <td>West</td> <td>629 (Part)</td> <td>Govt. land</td> <td>10m</td> </tr> </tbody> </table> <p>(Refer Plate No. II).</p>	Direction	S.F.No.	Classification	Safety Distance	North	629 (Part)	Govt. land	10m	East	629 (Part)	Govt. land	10m	South	629 (Part)	Govt. land	10m	West	629 (Part)	Govt. land	10m
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South	629 (Part)	Govt. land	10m																				
West	629 (Part)	Govt. land	10m																				
5.	Housing area, EB line (HT & LT Line)	50m	There is no other Housing area, EB line (HT & LT Line) within the radius of 50m from the lease applied area.																				
6.	Boundaries of the permitted area	7.5m/10m	<p>The boundaries of the permitted areas are as follows:</p> <p>North – S.F.No.629 (Part)</p> <p>East – S.F.No.629 (Part)</p> <p>South – S.F.No.629 (Part)</p> <p>West – S.F.No.629 (Part)</p> <p>(Refer Plate No. II).</p>																				
7.	Reserve forest	1km	There is no reserved forest located within the radius of 1km from the lease applied area. (Refer Plate No. IA and IB).																				
8.	Protected area / ECO sensitive area/Wild Life Sanctuary	10km	<p>There is no ECO sensitive Zone / Critically Polluted Area / HACA / CRZ located within 10km radius of the area.</p> <p>Cauvery Wildlife Sanctuary is located at distance of 4km Southwest from the lease applied area. (Refer Plate No. IA).</p>																				



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. Mine official & Competent Persons

Mines Manager/Mines Foreman	:	1
Mate/Blaster	:	1

b. Machinery Operators

Jack hammer operator	:	16
Excavator Operator	:	2
Tippers Driver	:	5

c. Ordinary Employee

Helper	:	4
Cleaner & Co-Operator	:	7
Security	:	1
Total	:	37

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.

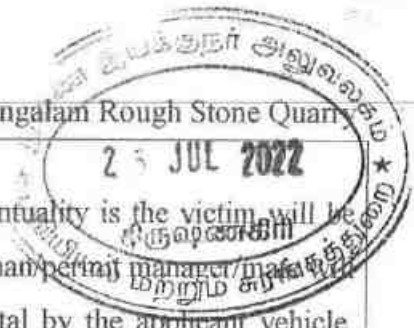
9.2 Welfare Measures:

a. **Drinking Water:**

Packaged drinking water is available from the nearby approved water vendors in Denkanikottai which is about 14.0km on the Southwestern 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.



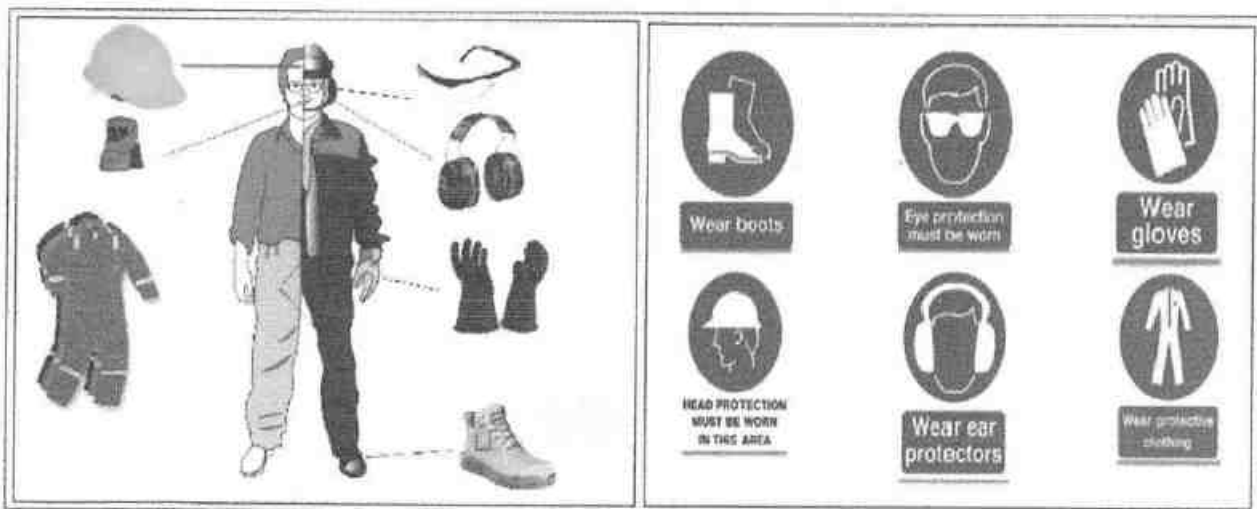
c. First aid facility:

First aid kits are kept in Mines office room, in case of such eventuality is the victim will be given first aid immediately at the site by the competent and statutory foreman/permitting manager/manager be in charge of first aid and injured person will be taken to the hospital by the applicant vehicle. Hospital is available in Hosur located at a distance of 21km 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 exhibits a Hilly topography. The area is a dry barren land devoid of Agriculture and Habitations. The lease applied area has utilized only for quarry operation in earlier.

LAND USE TABLE-10

Description	Present area (Ha)	Area at the end of this quarrying period (Ha)
Area under Quarrying	Nil	2.38.5
Infrastructure	Nil	0.01.0
Roads	Nil	0.02.0
Green Belt	Nil	0.20.0
Unutilized Area	3.20.5	0.59.0
Grand Total	3.20.5	3.20.5





10.2 Water Regime:

It is a simple opencast quarry operation. The quality of water will not be affected due to this quarrying operation. 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-11

S.No.	Name of the plant (Scientific)	Family Name	Common Name	Habit	Picture
1.	<i>Thespesia populnea</i>	Indian Tulip Tree	Poovarasu	Tree	
2.	<i>Aegle marmelos</i>	Rutaceae	Indian bael	Tree	
3.	<i>Calotropis gigantea</i>	Apocynaceae	Erukku	Shurb	
4.	<i>Cassia auriculata</i>	Fabaceae	Aavarampoo	Shurb	
5.	<i>Lantana camara</i>	Verbenaceae	Unnicheddi	Shrub	

List of Fauna

S.No.	Scientific Name	Common Name	Picture
1.	<i>Capra hircus</i>	Goat	
2.	<i>Athene brama</i>	Spotted owl	
3.	<i>Passer domesticus</i>	House sparrow	
4.	<i>Precis hierta</i>	Yellow pansy	
5.	<i>Funambulus palmarum</i>	Indian palm squirrel	

**10.4 Climatic Conditions:**

The area receives rainfall of about 851mm/annum and the rainy season is mainly from Oct - Dec during monsoon. The summer is hot with maximum temperature of 42°C and winter encounters a minimum temperature of 23°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-12

S. No	Name of the Village	Approximate distance & Direction from lease applied area	Approximate population
1.	Nagamangalam	3km – SE	5000
2.	Udedurgam	2km – SE	3500
3.	Pachanapatti	5km – SW	3900
4.	Kothur	3km – NE	2800

Basic human welfare Amenities such as Health Centre, Schools, Communication Facilities, and Commercial Centres etc., are available at Hosur located at a distance of 21km 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 slurry blasting, jack hammer drilling, loading and unloading during the Rough Stone quarry operation.

The following Mitigations measures will be carried out:

- Mist Water spraying will be carried out by means of water sprinklers to suppress the dust emission in the Haul roads.
- Vegetations will be formed on the non quarrying area.
- Avoiding spillages during the transportation.

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**.

23 JUL 2022

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 Noise will be controlled in the following manner.

- Selection of new low – noise equipment's is proposed to be deployed for the Rough Stone quarry operation.
- Modifications of older equipments.
- Implementation of effective preventive maintenance which reduces noise more than 50%.
- Developing Green belts which act as Acoustic barrier, pollution absorbent and noise controller.
- The drivers will be strictly instructed to move the vehicle during the transportation not exceed 40km per hour.
- 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 slurry 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 ten 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.7,60,000/-**.

10.9 Proposal for waste management:

There is no waste anticipated in this Rough Stone 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 plan is proposed only to a maximum depth of 70m (45m AGL + 25m BGL) below from the existing ground profile has been envisaged as workable depth for safe & economic mining for the entire lease period. Except topsoil, there is no waste anticipated during the entire life of quarry. The quarried out topsoil will be preserved all along the safety barrier and utilized for construction of bund and afforestation purpose. Hence, backfilling is not possible in this quarry. After completion of quarry operation, the quarry 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 the storage water will be used for afforestation purpose. The quarry area will be fenced with barbed wire fencing also safety bund constructed around the quarry pit to prevent inadvertent entry of public and cattle (Refer Plate No. IV). The barbed wire fencing cost would be around **Rs.2,61,000/-**.



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

The safety zone all along the boundary barrier has been identified to be utilized for Greenbelt development. Appropriate native species of Neem, Pongamia Pinnata, Casuarina, etc., trees will be planted in a phased manner as described below.

TABLE-13

Year	No. of trees proposed to be planted	Survival %	Area to be covered sq.m.	Name of the species	No. of trees expected to be grown
I	25	80%	200	Neem, Pongamia pinnata, Thespesia populnea, Casuarina, etc.,	20
II	25	80%	200		20
III	25	80%	200		20
IV	25	80%	200		20
V	25	80%	200		20
VI	25	80%	200		20
VII	25	80%	200		20
VIII	25	80%	200		20
IX	25	80%	200		20
X	25	80%	200		20

Nearly 2,000sq.m area is proposed to use under Greenbelt by planting 25 Number of tree saplings during every year with an anticipated survival rate of 80% (Please refer Plate No. III). The estimated budget for plantation and maintenance of Greenbelt development would be around **Rs.25,000/-** for the period of Ten years.

The Greenbelt Development will be formed in around the panchayat road of the lease applied area. The cost would be around **Rs.25,000/-**.

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

Budget Provision for the entire quarrying period:

TABLE-14

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.7,60,000/-** for the period of ten years.

A. Project / investment / Operational cost		
i) Land cost	It is a Government land the tender amount is	Rs. 1,65,00,000/-
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.1,00,00,000/-
iii) Refilling/ Fencing	Fencing will be constructed around the quarry pit to prevent the inadvertent entry of public and cattles cost would be around	= Rs.2,61,000/-
iv) Labourers shed	Labour sheds will be constructed as semi permanent structure. The cost would be around	= Rs.2,00,000/-
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.1,00,000/-
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.2,00,000/-
viii) Sanitary arrangement	The latrine and urinal will keep clean and sanitary condition. The maintenance cost would be around	= Rs.70,000/-
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.70,000/-
x) Water sprinkling	Water will be sprinkled in the haul roads by water sprinklers the cost would be around	= Rs.2,00,000/-
xi) Garland drains Construction	Construction of garland drains to divert surface run-off from virgin area away from mining area	= Rs.1,98,000/-
xii) Greenbelt etc.	Greenbelt program will be carried out in the boundary barriers the cost would be around	= Rs.25,000/-
	Greenbelt program will be carried out in the quarried out top benches, approach road and panchayat road	= Rs.25,000/-
	Total Operational Cost	= Rs.2,78,59,000/-

Mining Plan and PQCP

Nagamangalam Rough Stone Quarry



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 ten years period is Rs.7,60,000/-	
Description	Amount (Rs.)
A. Operational Cost	2,78,59,000
B. EMP Cost	7,60,000
Total Project Cost (A+ B)	2,86,19,000
The applicant indents to involve corporate environment responsibilities (CER) activity like Solar Panel System, Water Purifier, Cot and Bed facilities to the nearby Dispensary and Water Purifier and Tables facilities to the near Govt. School at 2.0% from the total project cost. The Cost would be around Rs.5,73,000/- .	5,73,000
Total Cost	2,91,92,000
The Total cost would be around two crore Ninety one lakhs and Ninety two thousand only.	



11.0 PROGRESSIVE QUARRY CLOSURE PLAN

11.1 Introduction:

The Progressive Quarry Closure Plan for Rough Stone quarry over an extent of 3.20.50Ha of Government land in S.F.No.629 (Part) of Nagamangalam Village, Denkanikottai Taluk, Krishnagiri District, Tamil Nadu State has been prepared for Tvl. Square Enterprises, having office at Varaganapalli Village, Nagamangalam Post, Denkanikottai Taluk, Krishnagiri District - 635 113.

11.2 Present Land use pattern:

LAND USE TABLE-15

Description	Present area (Ha)
Area under Quarrying	Nil
Infrastructure	Nil
Roads	Nil
Green Belt	Nil
Unutilized Area	3.20.5
Grand Total	3.20.5

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.

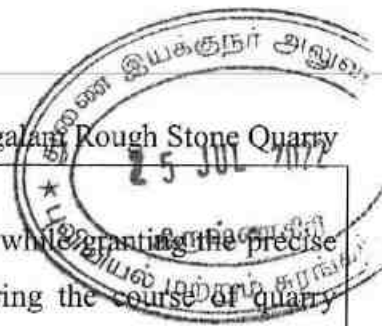
However, as far as the quarrying of Rough Stone is concerned, observance of the provisions of Regulation 106 (2) (b) as above is seldom possible due to various inherent petro genetic factors coupled with mining difficulties. Hence it is proposed to obtain relaxation to the provisions of the above regulation from the Director of Mines Safety for which necessary provision is available with the Regulation 106 (2) (b) of MMR-1961, under Mine Act – 1952.

11.4 Mineral Processing Operations:

The quarried out Rough Stone will be transported by the 20tons capacity Tipper 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 due to sufficient reserves are available to carry on the activities. Hence, the reason for closure will be discussed in the final mine closure 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 : **Dr. P. Thangaraju, M.Sc., Ph.D.,**
Qualified Person

Address : Regd. Off. No. 17,
Advaitha 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 the next mining plan.

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

At the end of mining plan period, about 2.38.5Ha of area will be mined out. Land use at various stages is given in the table below.

LAND USE TABLE-16

Description	Present area (Ha)	Area at the end of this quarrying period (Ha)
Area under Quarrying	Nil	2.38.5
Infrastructure	Nil	0.01.0
Roads	Nil	0.02.0
Green Belt	Nil	0.20.0
Unutilized Area	3.20.5	0.59.0
Grand Total	3.20.5	3.20.5

The Greenbelt Development will be formed in the safety barrier of 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 2,500m³ of topsoil will be generated during the entire lease period. Except topsoil, there is no waste anticipated during the entire life of quarry. The quarried out topsoil will be preserved all along the safety barrier and utilized for construction of bund and afforestation purpose. The entire quarried out Rough stone will be utilized (100%). Hence, waste management does not arise.

(v) Disposal of mining machinery:

All the machineries will be engaging 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 person 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 provide before blasting time to prevent any accident.
- Security guards will be posted.
- In the event of temporary closer, approaches will be fenced off and notice displayed.

(vii) Disaster Management and Risk Assessment:

This should deal with action plan for high risk accidents like landslides, subsidence, flood, fire, seismic activities, tailing dam failures etc. and emergency plan proposed for quick evacuation, ameliorative measures to be taken etc. The capability of applicant to meet such eventualities and the assistance to be required from the local authorities should be described.

- The mechanized mining activities in the area may involve any high risk accident due to side falls/collapse, 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 panchayat road of the lease applied area.

**(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 maximum 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-17

ACTIVITY	YEAR										RATE	COST (Rs.)
	I	II	III	IV	V	VI	VII	VIII	IX	X		
Plantation under safety zone	25	25	25	25	25	25	25	25	25	25	@100 Rs Per sapling Including Maintenance	25,000
	2500	2500	2500	2500	2500	2500	2500	2500	2500	2500		
Plantation in the quarried out top benches, approach road and panchayat road	25	25	25	25	25	25	25	25	25	25	@100 Rs Per sapling Including Maintenance	25,000
	2500	2500	2500	2500	2500	2500	2500	2500	2500	2500		
Wire Fencing for 870 Mtrs length	261000	-	-	-	-	-	-	-	-	-	@300 Rs Per Meter	2,61,000
Garland Drain with settling traps for 660 Mtrs length	198000	-	-	-	-	-	-	-	-	-	@300 Rs Per Meter	1,98,000
Total												5,09,000



12.0 ANY OTHER DETAILS INTEND TO FURNISH BY THE APPLICANT

This Mining Plan for Rough Stone (Granite Gneiss) is under Rules 41 & 42 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 as per the guidelines of the Concerned Department.

Prepared by

[Signature]
Dr. P. Thangaraju, M.Sc., Ph.D.,
Qualified Person

Place: Salem

Date: 23.06.2022

DONATE RED
SPREAD GREEN
SAVE BLUE

This Mining Plan is approved based on guidelines / instruction issued and in corporation of the particulars specified in the letter Roc. No. 508/2022 Dated 25.7.2022 of the Deputy Director of Geology and Mining, Krishnagiri and subject to further fulfillment of the conditions laid down under Tamil Nadu Minor Mineral Concession Rules, 1959 and Minor Mineral Conservation and Development Rule 2010.

[Signature]
DEPUTY DIRECTOR
Geology and Mining
Collectorate, Krishnagiri.

[Signature]
25/7/22

This Mining Plan is approved subject to the conditions & stipulations indicated in the Mining Plan Approval
Letter Roc. No. 508/2022 Dated 25.7.2022



குறிப்பாணை

பொருள் கனிமங்களும் குவாரிகளும் - சிறுகனிமம் - சாதாரண வகை கற்கள் - கிருஷ்ணகிரி மாவட்டம் - அரசு புறம்போக்கு புலங்களில் அமைந்துள்ள கற்குவாரிகள் - டெண்டர் / ஏலம் முறையில் குத்தகை வழங்குவது தொடர்பாக அரசிதழ் வெளியீடு - தேன்கனிக்கோட்டை வட்டம் - நாகமங்கலம் கிராமம் - புல எண்.629(பகுதி) 3.20.50 ஹெக்டேர் பரப்பில் 05.04.2022 அன்று டெண்டருடன் இணைந்த ஏலம் நடத்தப்பட்டது - ஏலத்தில் அதிகபட்ச குத்தகை தொகை குறிப்பிட்ட தி/ள்.SQUARE ENTERPRISES என்கிற நிறுவனத்திற்கு ஏலம் உறுதி செய்யப்பட்டது - விதிகளின்படி குத்தகை தொகை முழுவதும் செலுத்தப்பட்டது - குத்தகை உரிமம் வழங்கிட வேண்டி ஏற்பளிக்கப்பட்ட சுரங்கத் திட்டம் மற்றும் சுற்றுச் சூழல் ஆணைய முன் அனுமதி பெற்று சமர்ப்பிக்கக் கோருதல் - தொடர்பாக.

- பார்வை:
1. வட்டாட்சியர், தேன்கனிக்கோட்டை கடிதம் ந.க.எண்.273/2022/அ1 நாள்:21.01.2022.
 2. வருவாய் கோட்டாட்சியர் ஓசூர் அறிக்கை ந.க.எண்.103/2022/பி2 நாள்:04.02.2022.
 3. வன உயிரின காப்பாளர், ஓசூர் கடிதம் ந.க.எண்.261/2022/எல் நாள்:10.02.2022.
 4. கிருஷ்ணகிரி மாவட்ட புவியியல் மற்றும் சுரங்கத் துறை நில அளவர், தனி வருவாய் ஆய்வாளர் மற்றும் உதவி புவியியலாளர் (கனிமம்) புலதணிக்கை அறிக்கை நாள்:11.02.2022.
 5. கிருஷ்ணகிரி மாவட்ட அரசிதழ் சிறப்பு வெளியீடு எண்.15 நாள்:14.03.2022 மற்றும் எண்.20 நாள்:28.03.2022.
 6. தி இந்து செய்தி நாளிதழில் விளம்பரம் நாள்:17.03.2022.
 7. தி இந்து, தினகரன், தினமலர் மற்றும் காலகைத்திர் ஆகிய செய்தி நாளிதழ்களில் 29.03.2022 அன்று வெளியிடப்பட்ட மாவட்ட ஆட்சியரின் அறிவிக்கை.
 8. டெண்டர் விண்ணப்பம் எவரும் கோரவில்லை நாள்:04.04.2022.
 9. தி/ள்.SQUARE ENTERPRISES மற்றும் சண்முகம் ஆகியோரது ஏல விண்ணப்பங்கள் நாள்:05.04.2022.
 10. தி/ள்.SQUARE ENTERPRISES என்பவரது கடிதம் நாள்:19.04.2022.
 11. தொடர்புடைய ஆவணங்கள்.

பார்வையில் காணும் கடிதங்களின்பால் கனிவான கவனம் வேண்டப்படுகிறது.

2. கிருஷ்ணகிரி மாவட்டம், தேன்கனிக்கோட்டை வட்டம், நாகமங்கலம் கிராமம் அரசு புல எண்.629(பகுதி) 3.20.50 ஹெக்டேர் பரப்பில் அமைந்துள்ள சாதாரண கற்குவாரியை டெண்டர் / பொது ஏலத்திற்கு கொண்டு வர உரிய நில இருப்பு அறிக்கை வருவாய் கோட்டாட்சியரிடம் கோரப்பட்டதில், தேன்கனிக்கோட்டை வட்டாட்சியர், ஓசூர் வருவாய் கோட்டாட்சியர் மற்றும் கிருஷ்ணகிரி மாவட்ட புவியியல் மற்றும் சுரங்கத் துறை நில அளவர், தனி வருவாய் ஆய்வாளர் மற்றும் உதவி புவியியலாளர் (கனிமம்) ஆகியோர் தணிக்கை மேற்கொண்டு கிருஷ்ணகிரி மாவட்டம், தேன்கனிக்கோட்டை வட்டம், நாகமங்கலம் கிராமம் அரசு புறம்போக்கு தீ.ஏ.த.கல்லாங்குத்து புல எண்.629(பகுதி) 3.20.50 ஹெக்டேர் பரப்பு பூமியினை குத்தகை உரிமம் வழங்கிட விதிகளின்படி மேற்கண்ட புலம் தகுதி வாய்ந்தது என்பதால் டெண்டருடன் இணைந்த ஏலத்தின் மூலம் உரிமம் வழங்கிட பரிந்துரை செய்துள்ளனர். வன உயிரின காப்பாளர், ஓசூர் மேற்கண்ட புலங்கள் விதிகளின்படி அருகில் உள்ள காப்பு காடுகளுக்கு வரையறுக்கப்பட்ட பாதுகாப்பு தொலைவிற்கு அப்பால் அமைந்துள்ளதாக அறிக்கை அளித்துள்ளார்.

3. அதன் அடிப்படையில், கிருஷ்ணகிரி மாவட்டத்தில் அரசு புறம்போக்கு நிலங்களில் உள்ள சாதாரண கற்களை வெட்டியெடுத்துச் செல்ல உரிமம் வழங்க ஏதுவாக கிருஷ்ணகிரி மாவட்ட அரசிதழ் சிறப்பு வெளியீடு எண்.15 நாள்:14.03.2022 மற்றும் எண்.20 நாள்:28.03.2022-ன்படி பிரசுரம் செய்யப்பட்டது. அதன்படி 04.04.2022-ம் நாள் பிற்பகல் 05.00 மணிக்குள் மூடி முத்திரை இடப்பட்ட டெண்டர் மனுக்களை அளிக்க இறுதி நாளாக அறிவித்து, 05.04.2022 அன்று பொது ஏலம் நடத்தப்பட்டு டெண்டர் மனுக்கள் ஏலத்தில் கலந்து கொண்டவர்கள் முன்னிலையில் திறக்கப்பட்டன.

4. மேற்கண்ட அரசிதழில் விளம்பரம் செய்யப்பட்டிருந்த குவாரிப்பட்டியலில் வரிசை எண்.(27), தேன்கனிக்கோட்டை வட்டம், நாகமங்கலம் கிராமம், அரசு புறம்போக்கு (தீ.ஏ.த.கல்லாங்குத்து) புல எண்.629(பகுதி) 3.20.50 ஹெக்டேர் பரப்பில் உள்ள கற்குவாரிக்கு டெண்டர் / பொது ஏலத்தில் கலந்து கொண்டவர்களில் தி/ள்.SQUARE ENTERPRISES ஏலத்தில் கோரிய தொகை ரூ.1,65,00,000/- மாவட்ட ஆட்சித் தலைவர் அவர்களால் நிர்ணயம் செய்யப்பட்டிருந்த ஏலத் தொகையை விட அதிகமாக இருந்ததால் அவருக்கு ஏலம் ஊர்ஜிதம் செய்யப்பட்டது. மேற்கண்ட ஏலதாரர் மொத்த குத்தகை தொகையையும் விதிகளின்படி 19.04.2022-க்குள் செலுத்தியுள்ளார்.

5. எனவே, ஏலதாரர் குத்தகை தொகை முழுவதும் செலுத்திவிட்டபடியால், மேற்படி கற்குவாரி ஏலமானது விதிகளின்படி உயர்ந்தபட்ச ஏலம் கோரிய

தி/ள்.SQUARE ENTERPRISES என்பவருக்கு உறுதி செய்யப்படுகிறது. மேலும், மேற்படி நபருக்கு தேன்கனிக்கோட்டை வட்டம், நாகமங்கலம் கிராமம், அரசு புறம்போக்கு (தீ.ஏ.த.கல்லாங்குத்து) புல எண்.629(பகுதி) 3.20.50 ஹெக்டேர் பரப்பு புலத்தில் பத்து (10) ஆண்டுகளுக்கு குவாரி உரிமம் வழங்க ஏதுவாக 1959ம் வருடத்திய தமிழ்நாடு சிறுகனிம விதிகள், விதி எண்.41-ன்படி கீழ்க்கண்ட நிபந்தனைகளுடன் ஏற்பளிக்கப்பட்ட சுரங்கத் திட்டத்தினை 90 தினங்களுக்குள் சமர்ப்பிக்கவும், அதன் தொடர்ச்சியாக 1959ம் வருடத்திய தமிழ்நாடு சிறுகனிம விதிகள், விதி எண்.42-ன்படி மாவட்ட சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணைய இசைவு பெற்று சமர்ப்பிக்கும் பட்சத்தில் சாதாரண கற்குவாரி உரிமம் வழங்கப்படும் என்ற விவரம் இதன் மூலம் தெரிவிக்கப்படுகிறது.

நிபந்தனைகள்:

- 1959ம் வருடத்திய தமிழ்நாடு சிறுகனிம சலுகை விதிகள், அட்டவணை-II-ல் கண்டுள்ளபடி குவாரி செய்யப்படும் கனிமங்களுக்குரிய சீனியரேஜ் தொகை அவ்வப்போது செலுத்தி கனிமம் கொண்டு செல்லப்பட வேண்டும்.
- அருகிலுள்ள பட்டா நிலங்களுக்கு 7.5 மீட்டர், அரசு புறம்போக்கு புலங்களுக்கு 10 மீட்டர் மற்றும் இதர நிலையான அமைப்புகளுக்கு 50 மீட்டர் பாதுகாப்பு இடைவெளி விட்டு குவாரிப் பணி மேற்கொள்ள வேண்டும்.
- விதிகளின் படி ஏற்பளிக்கப்பட்ட சுரங்கத்திட்டத்தினை உரிய காலத்திற்குள் சமர்ப்பிக்க வேண்டும்.
- குவாரி உரிமம் வழங்க உள்ள பகுதிக்கு சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணையத்தின் முன் அனுமதி பெற்று சமர்ப்பிக்கும் பட்சத்தில் மட்டுமே குவாரி உரிமம் வழங்கப்படும்.

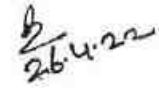
இணைப்பு: குத்தகை உரிமம் வழங்க
பரிந்துரைக்கப்பட்ட புல வரைபடம்.

ஓம்/- வி.ஜெய சந்திர பாணு ரெட்டி
மாவட்ட ஆட்சித் தலைவர்,
கிருஷ்ணகிரி.

// உண்மை நகல்// உத்தரவுபடி//


மாவட்ட ஆட்சியருக்காக,
கிருஷ்ணகிரி

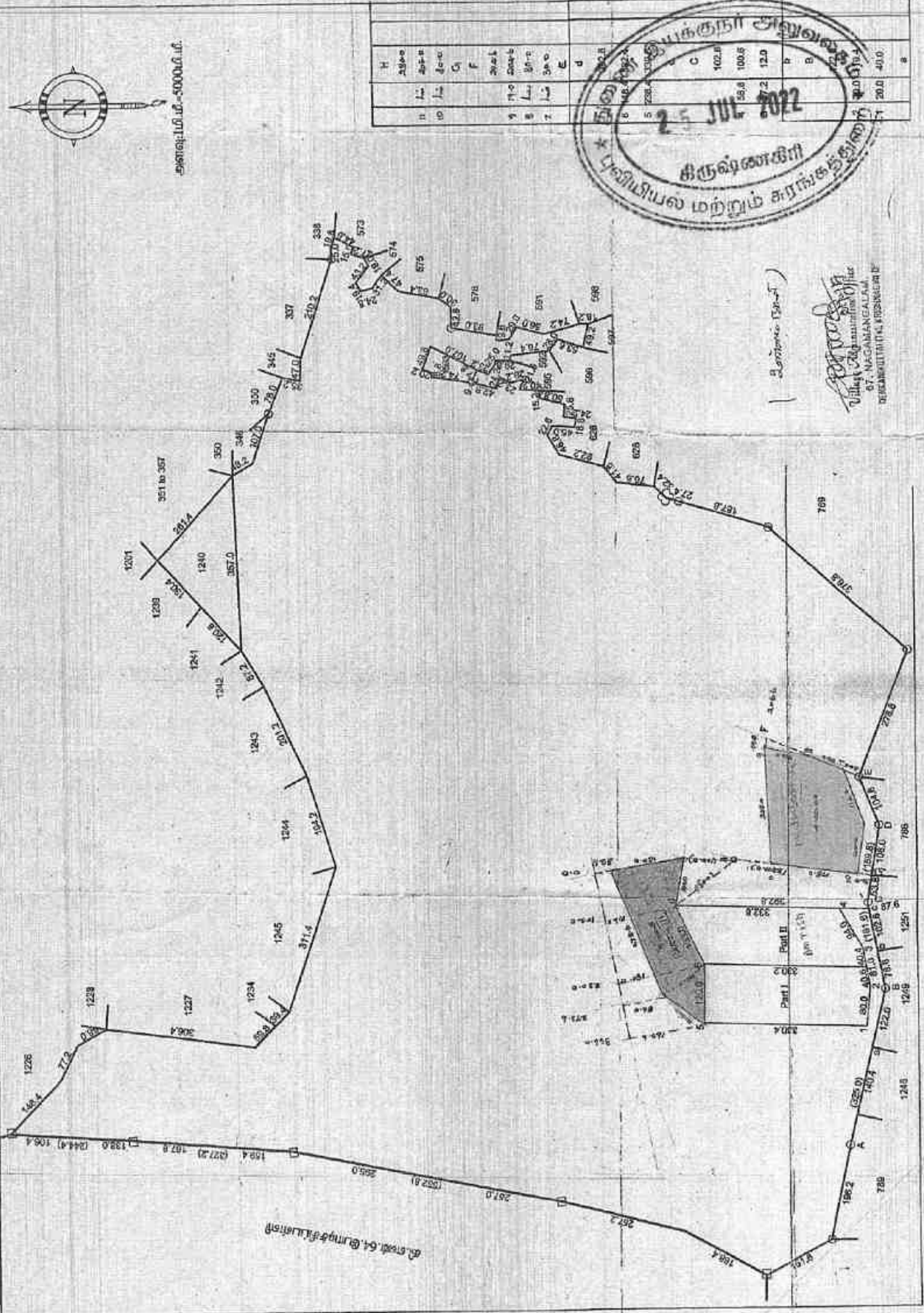
பெறுநர்:

தி/ள்.SQUARE ENTERPRISES, 
வரகானப்பள்ளி-கிராமம்,
நாகமங்கலம் அஞ்சல்,
தேன்கனிக்கோட்டை வட்டம் - 635113

நகல்: 1. இயக்குநர், புவியியல் மற்றும் சுரங்கத் துறை, சென்னை
2. தமிழ்நாடு மாநில சுற்றுச்சூழல் மதிப்பீட்டு ஆணையம், சென்னை.

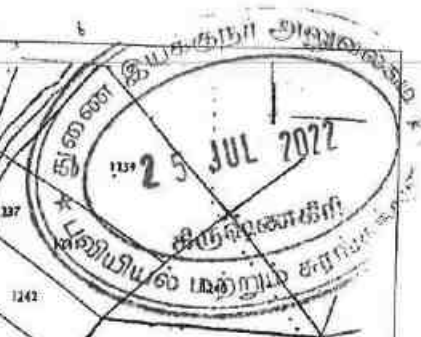
சமீபத்தில் : 67
 கிராமம் : நாகமங்கலம்
 பகுதி : சே. தஞ்சை 97

மரணி. I. b : திருவள்ளூர்
 வ. ம. I. b : தேவநகரம்
 400 ஏக்கர் : 629

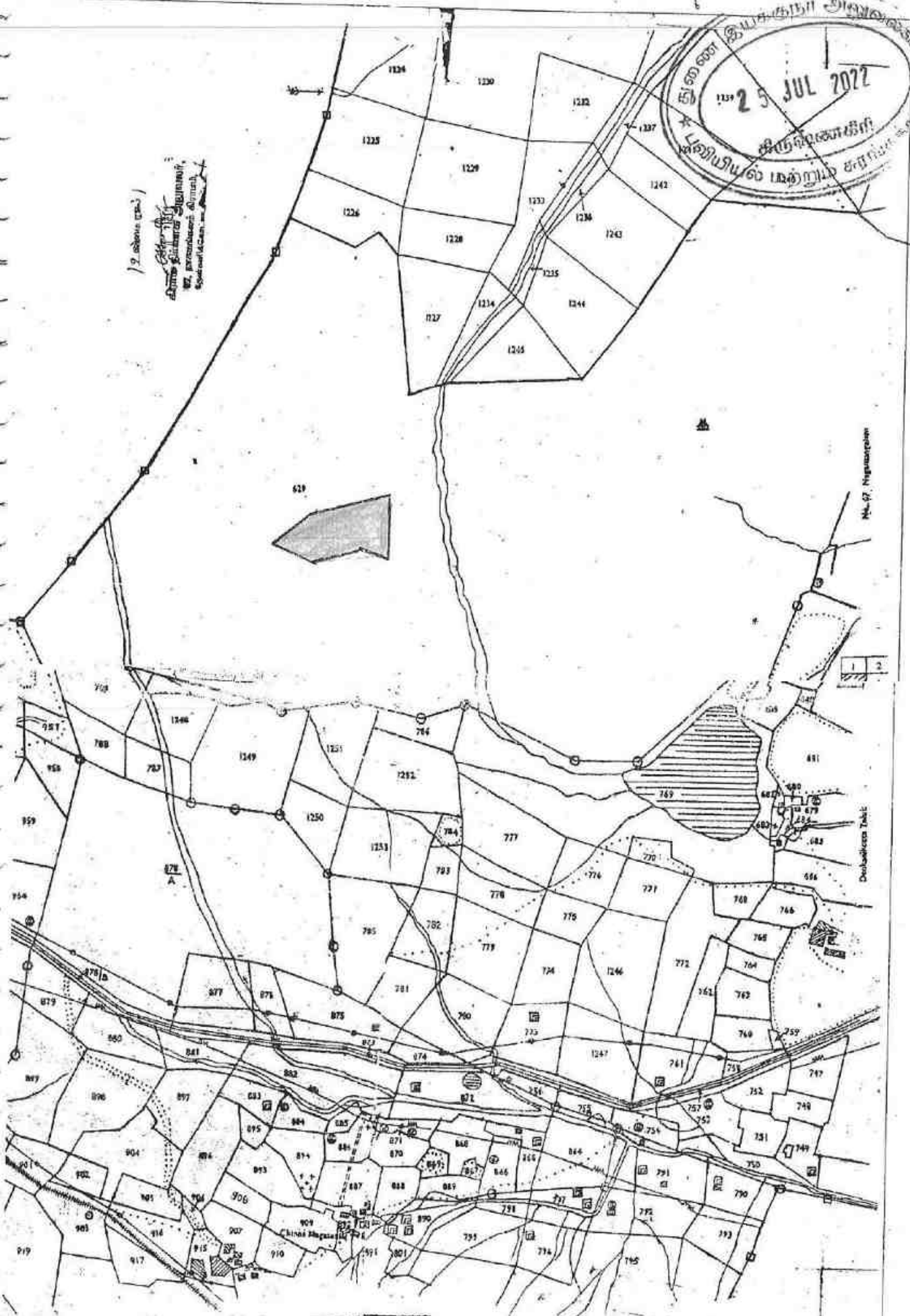


திருவள்ளூர் அலுவலகம்
 25 JUL 2022
 கிருஷ்ணசுனி
 புலியாடியில் மற்றும் கரங்குளத்தில்

சுமார் 100 மீ. - 5000 மீ. மீ.
 கிருஷ்ணசுனி
 புலியாடியில் மற்றும் கரங்குளத்தில்



9 above (p. 1)
Dharmapalan Sugumar,
W. Government, Dharmapalan,
S. Government, Dharmapalan.



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2022



கிருஷ்ணகிரி மாவட்ட அரசிதழ்

சிறப்பு வெளியீடு

ஆணையின்படி வெளியிடப்பட்டது



கிருஷ்ணகிரி, மார்ச் 14, 2022
[பிலவ, மாசி 30 - திருவள்ளூர் ஆண்டு 2053]

[எண் 15

மாவட்ட ஆட்சியர் அறிவிக்கை

[ந.க.எண். 180/2022/(கனிமம்), நாள்: 10.03.2022]

சாதாரண கற்குவாரி ஒப்பந்தப்புள்ளி (டெண்டர்) மற்றும் ஏலம் குறித்த அறிவிப்பு

டெண்டர் விண்ணப்பங்கள் பெற கடைசி நாள்	:	30.03.2022
		பிற்பகல் 05.00 மணி வரை
பொது ஏலம் நடைபெறும் நாள்	:	31.03.2022
		முற்பகல் 10.30 மணி முதல்

1. கிருஷ்ணகிரி மாவட்டத்தில் அரசு புறம்போக்கு நிலங்களில் அமைந்துள்ள சாதாரண கற்குவாரிகளிலிருந்து பொது உபயோக பயன்பாட்டிற்காக சாதாரண கற்களை வெட்டியெடுத்துச் செல்வதற்கு தனிநபர் மற்றும் தனியார் நிறுவனங்களுக்கு குவாரி குத்தகை உரிமம் வழங்க மூடி முத்திரையிடப்பட்ட ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பங்கள் வரவேற்கும் மற்றும் ஏல அறிவிப்பு.
2. 1959 ஆம் வருடத்திய தமிழ்நாடு சிறுகனிமச் சலுகை விதிகளின் விதி 8 உள்விதி (1)-ன்படி கிருஷ்ணகிரி மாவட்டத்தில் இவ்வறிக்கையுடன் இணைக்கப்பட்ட அட்டவணையில் குறிப்பிடப்பட்டுள்ள அரசு புறம்போக்கு நிலங்களில் அமைந்துள்ள சாதாரண கற்குவாரிகளிலிருந்து சாதாரணகற்களை குவாரி செய்து எடுத்துச் செல்ல டெண்டருடன் இணைந்த ஏல முறையில் குவாரி குத்தகை உரிமம் வழங்க மூடி முத்திரையிடப்பட்ட 03 பிரதிகள் கொண்ட டெண்டர் விண்ணப்பங்கள் கிருஷ்ணகிரி மாவட்ட ஆட்சியரால் வரவேற்கப்படுகின்றன.
3. இந்த அறிவிக்கையின்படி விண்ணப்பிக்கப்படும் ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பம் 1959 ஆம் வருடத்திய தமிழ்நாடு சிறுகனிமச் சலுகை விதிகளின் பின் இணைப்பு VI-ல் குறிப்பிடப்பட்டுள்ள படிவத்தில் இருக்க வேண்டும் மாதிரி விண்ணப்பப்படிவம் இந்த மாவட்ட அரசிதழ் சிறப்பு வெளியீட்டின் இணைப்பில் பிரசுரிக்கப்பட்டுள்ளது. இணைப்பில் பிரசுரிக்கப்பட்டுள்ள படிவம் VI-ன்படி பூர்த்தி செய்து அனுப்பப்படாத விண்ணப்பங்கள் ஏற்றுக் கொள்ளப்படமாட்டாது.
4. ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பங்களுடன் இணைத்து அனுப்பப்பட வேண்டிய இணைப்புகளின் விவரங்கள் மற்றும் குத்தகை நிபந்தனைகள் பற்றிய விவரங்கள் குறிப்பிடப்பட்டுள்ள அரசிதழ், கிருஷ்ணகிரி மாவட்ட ஆட்சியர் அலுவலகம், கிருஷ்ணகிரி புலியியல் மற்றும் சுரங்கத்துறை துணை இயக்குநர் அலுவலகம், கிருஷ்ணகிரி மாவட்டத்திலுள்ள அனைத்து சார் ஆட்சியர்/ வருவாய் கோட்டாட்சியர், வட்டாட்சியர் மற்றும் ஊராட்சி ஒன்றிய ஆணையர் அலுவலகங்களின் தகவல் பலகையில் விளம்பரம் செய்யப்படும்.



5. அட்டவணையில் குறிப்பிட்டுள்ள குவாரிகளின் குத்தகை காலமானது குத்தகை ஒப்பந்த பத்திரம் நிறைவேற்றப்பட்ட நாளிலிருந்து ஏற்கனவே குவாரி குத்தகை வழங்கப்பட்டு குத்தகை காலம் முடிவற்ற சாதாரண தற்குயிரி இனங்களுக்கு 05 ஆண்டுகளும், புதியதாக சேர்க்கப்பட்டுள்ள (virgin) ஏற்கனவே குவாரி மணி நடைபெறாத சாதாரண கற்குவாரி இனங்களுக்கு 10 ஆண்டுகளும் ஆகும்.
6. ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பதாரர் தனது விண்ணப்பத்தில் குவாரியின் மொத்த குத்தகை காலத்திற்குமான ஒரே தவணையில் செலுத்தத்தக்க குத்தகை தொகையை உரிய இடத்தில் எண்ணிலும் எழுத்திலும் தெளிவாக குறிப்பிட வேண்டும்.
7. மாவட்ட அரசிதழ் சிறப்பு வெளியீட்டின்படி அரசிதழில் கண்டுள்ள நிபந்தனைகளின்படி பூர்த்தி செய்யப்பட்ட ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பங்களை அனைத்து இணைப்புகளுடன் கவரில் வைத்து மூடி முத்திரையிட்டு துணை இயக்குநர், புவியியல் மற்றும் சுரங்கத்துறை, கிருஷ்ணகிரி என்ற விலாசமிட்டு நேரிலோ அல்லது ஒப்புரை பெறத்தக்க பதிவஞ்சல் மூலமாகவோ மாவட்ட ஆட்சியர் அலுவலக வளாக தரைதளத்தில் அறை எண்.30ல் உள்ள புவியியல் மற்றும் சுரங்கத்துறை, துணை இயக்குநர் அலுவலகத்தில் 2022ம் ஆண்டு மார்ச் திங்கள் 30-ம் நாள் மாலை 5.00 மணிக்குள் கிடைக்கும்படி அனுப்பப்பட வேண்டும். கவரின் மீது விண்ணப்பிக்கும் குவாரியின் விவரம் மற்றும் அட்டவணையில் குறிப்பிட்டுள்ள குவாரியின் வரிசை எண் போன்றவற்றை தவறாமல் குறிப்பிட வேண்டும்.
8. மேலே குறிப்பிட்ட காலக்கெடுவிற்குள் வரப்பெற்ற விண்ணப்பங்கள் மட்டும் ஏலம் நடைபெறும் நாளன்று ஆஜராகியிருக்கும் சம்பந்தப்பட்ட குவாரிக்கு விண்ணப்பித்துள்ள விண்ணப்பதாரர்கள் மற்றும் பொது ஏலத்தில் கலந்து கொள்பவர்கள் முன்னிலையில் அட்டவணைகளில் உள்ள குவாரிகளின் வரிசைகளின் முறையே முதலில் பொது ஏலமும் பின்னர் ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பங்கள் திறப்பும் மேற்கொள்ளப்படும்.
9. மேலே குறிப்பிட்ட நாளில் ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பங்கள் திறப்பதற்கு முன்னர் ஒவ்வொரு குவாரிக்கும் தனித்தனியே பொது ஏலம் விடப்படும். ஏல நடவடிக்கை முடிவு பெற்ற பின்பு சம்பந்தப்பட்ட குவாரிக்கு வரப்பெற்ற டெண்டர் விண்ணப்பங்கள் பிரித்து பரிசீலிக்கப்படும். டெண்டர் விண்ணப்பம் மூலம் கோரப்பட்டுள்ள உயர்ந்தபட்ச டெண்டர் தொகை அல்லது ஏலம் மூலம் கோரப்பட்ட உயர்ந்தபட்ச குத்தகை தொகை இதில் எது அதிகமோ அத்தொகையே சம்பந்தப்பட்ட குவாரிக்கான உயர்ந்தபட்ச குத்தகை தொகையாக எடுத்துக்கொள்ளப்பட்டு குவாரி குத்தகை உரிமம் வழங்குதல் சம்பந்தமாக நடவடிக்கைகள் மேற்கொள்ளப்படும்.
10. மேற்கண்டபடி வரப்பெறும் டெண்டர் / ஏல விண்ணப்பங்கள், 1959ஆம் ஆண்டு தமிழ்நாடு சிறுகனிமச் சலுகை விதிகள், கரங்கங்கள் மற்றும் கனிமங்கள் (மேம்படுத்துதல் மற்றும் முறைப்படுத்துதல்) சட்டம் 1957 மற்றும் இந்த ஏல அறிவிப்பில் குறிப்பிட்டுள்ள முக்கிய நிபந்தனைகளின்படி பரிசீலிக்கப்பட்டு அவற்றின்மீது தக்க ஆணைகள் பிறப்பிக்கப்படும்.
11. இந்த மாவட்ட அரசிதழ் அறிவிக்கை பிரசுரிக்கப்பட்ட பின்னரோ, குத்தகை உறுதி ஆணை பிறப்பிப்பதற்கு முன்னரோ, நிபந்தனைகளை மாற்றவோ அல்லது ரத்து செய்யவோ மற்றும் பட்டியலில் கண்டுள்ள எல்லா குவாரிகளின் குத்தகை உரிமம் கோரும் ஒப்பந்தப்புள்ளி மனுக்களை எக்காரணமும் கூறாமல் ரத்து செய்யவோ அல்லது மேற்படி மனுக்களை மூடி முத்திரையிடப்பட்ட உறைகளை திறக்கும் நாள் நேரம் மற்றும் ஏலம் நடத்தும் நாள் மற்றும் நேரம் ஆகியவைகளை தள்ளிவைக்கவோ நிறுத்திவைக்கவோ மாவட்ட ஆட்சியருக்கு முழு அதிகாரம் உண்டு. ஏதாவது காரணத்தினால் ஒத்திவைக்க நேர்ந்தால் அதற்கு மனுதாரர்கள் யாருக்கும் நஷ்டஈடு கோர உரிமை இல்லை.
12. விண்ணப்பதாரர் ஒவ்வொரு குவாரிக்கும் தனித்தனியே ஒரு ஒப்பந்தப்புள்ளி விண்ணப்பத்தை உரிய இணைப்புகளோடு அனுப்ப வேண்டும். ஒரே விண்ணப்பத்தில் ஒரு குவாரிக்கு மேல் பல குவாரிகளை குறிப்பிட்டு அனுப்பும் விண்ணப்பம் நிராகரிக்கப்படும்.



13. ஒப்பந்தப்புள்ளி விண்ணப்பம் அனுப்புவதற்கு முன்/ ஏலத்தில் கலந்து கொள்வதற்கு முன் இம்மாவட்ட அரசிதழ் அறிவிக்கையுடன் இணைக்கப்பட்டுள்ள பட்டியலில் கண்ட சம்பந்தப்பட்ட குவாரியை / குவாரிகளை விண்ணப்பதாரர் தனது சொந்த செலவிலேயே நேரில் பார்வையிட்டு பாதை வசதி கனிமத்தின் தரம் மற்றும் கனிமத்தின் இருப்பு அகியவற்றை ஆராய்ந்து பின்னர் குத்தகை உரிமம் கோரி விண்ணப்பிக்க வேண்டும் மற்றும் ஏலத்தில் கலந்து கொள்ளவேண்டும். ஆணை வழங்கப்பட்ட பின் குவாரி அமைந்துள்ள புல எண், பரப்பு, குவாரிகளின் நான்கு எல்லைகள், பாதை வசதி, கனிமத்தின் தரம் கனிமத்தின் இருப்புக்குறித்து எவ்வித தாவாவும் செய்ய குத்தகைதாரருக்கு உரிமை கிடையாது.
14. 1959-ஆம் வருடத்திய தமிழ்நாடு சிறுகனிம சலுகை விதிகளில் கண்டுள்ள அனைத்து சாராம்சங்களையும் மாவட்ட அரசிதழில் உள்ள அனைத்து நிபந்தனைகளையும் நன்கு தெரிந்து கொண்டபின் ஒப்பந்தப்புள்ளி விண்ணப்பங்களை உரிய இணைப்புகளோடு அனுப்பவேண்டும். விண்ணப்பம் அனுப்பிய பிறகு விதிகள் மற்றும் குத்தகை நிபந்தனைகள் பற்றி சரியாக தெரியாது என மனுதாரர் வாதிட்டால் அது ஏற்றுக்கொள்ளப்பட மாட்டாது.
15. ஒப்பந்தப்புள்ளி (டெண்டர்) மற்றும் ஏல நிபந்தனைகள் :
- 1) ஒவ்வொரு குவாரிக்கும் இந்த அரசிதழின் பிற்சேர்க்கையில் பிரசுரிக்கப்பட்டுள்ள இணைப்பு VI-ல் காணும் மாதிரி விண்ணப்ப படிவத்தின்படி தனித்தனி விண்ணப்பங்களில் விண்ணப்பிக்க வேண்டும்.
 - 2) நடப்பில் மாநில அளவில் ஒரு நபருக்கு அதிகபட்சம் இரண்டு குவாரிகளுக்கு மட்டுமே குத்தகை உரிமம் வழங்கப்படும்.
 - 3) இந்த அரசிதழின் அட்டவணையில் குறிப்பிட்டுள்ள குவாரிகளின் குத்தகை காலமானது, குத்தகை ஒப்பந்த பத்திரம் நிறைவேற்றப்பட்ட நாளிலிருந்து ஏற்கனவே குவாரி குத்தகை வழங்கப்பட்டு குத்தகை காலம் முடிவுற்ற சாதாரண கற்குவாரி இனங்களுக்கு 05 ஆண்டுகளும் பதியதாக சேர்க்கப்பட்டுள்ள சாதாரண கற்குவாரி இனங்களுக்கு (Virgin quarry) 10 ஆண்டுகளும் ஆகும். குத்தகை ஒப்பந்தப்பத்திரத்தில் குறிப்பிடப்படும் இறுதி நாளில் குத்தகை காலம் முடிவடையும், குத்தகை காலம் எக்காரணத்தைக்கொண்டும் நீட்டிக்கப்பட மாட்டாது.
 - 4) ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பத்துடன் கீழ்க்கண்டவற்றை இணைத்து அனுப்ப வேண்டும்.
 - (அ) திரும்ப வழங்க இயலாத விண்ணப்பக் கட்டணமாக ரூ.1500/-க்கான கேட்பு வரைவோலையை (டிமாண்ட் டிராப்ட்) ஏதேனும் ஒரு தேசிய மயமாக்கப்பட்ட வங்கியில் துணை இயக்குநர், புவியியல் மற்றும் சுரங்கத்துறை, கிருஷ்ணகிரி அவர்களின் பதவியின் பெயரில் பெற்று அல்லது அரசு கருவூலத்தில் செலுத்திய அசல் சலான் இணைக்க வேண்டும்.
 - (ஆ) பிணை வைப்புத்தொகை (Earnest money deposit) ரூ.25000/- (ரூபாய் இருபத்தைந்தாயிரம் மட்டும்)க்கான கேட்பு வரைவோலை ஏதேனும் ஒரு தேசியமயமாக்கப்பட்ட வங்கியில் துணை இயக்குநர், புவியியல் மற்றும் சுரங்கத்துறை, கிருஷ்ணகிரி அவர்களின் பதவியின் பெயரில் பெற்று இணைக்க வேண்டும். தனிநபர் பெயருக்கு எடுத்து கொடுக்கப்படும் வங்கி வரைவோலை ஏற்றுக்கொள்ளப்படமாட்டாது குத்தகை உரிமம் வழங்கப்படுபவர் செலுத்த வேண்டிய டெண்டர்/ ஏலத் தொகையில் இந்த தொகை பின்னர் சரி செய்து கொள்ளப்படும்.
 - (இ) ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பத்தில் குறித்துள்ள மொத்த குத்தகை தொகையில் 10 சதவீதத் தொகைக்கான கேட்பு வரைவோலை (டிமாண்ட் டிராப்ட்டை) துணை இயக்குநர், புவியியல் மற்றும் சுரங்கத்துறை, கிருஷ்ணகிரி அவர்களின் பதவியின் பெயரில் ஏதேனும் ஒரு தேசியமயமாக்கப்பட்ட வங்கியில் பெற்று இணைக்க வேண்டும்.



(FF) மாவட்ட வாரியாக கனிம வாரியாக விண்ணப்பதாரர் / ஏலதாரர் நேரடியாகவோ அல்லது பங்குதாரராகவோ தொடர்புள்ள குவாரிகள் பற்றிய கீழ்க்கண்ட விவரங்கள் அல்லது ஆணையறுதி ஆவணம் (அபிடவிட்) மூலம் தெரிவிக்க வேண்டும்.

1. விண்ணப்பதாரருக்கு கனிம குத்தகையுள்ள மாவட்ட ஆட்சியரால் வழங்கப்பட்ட செல்லத்தக்க சுரங்கவரி நிலுவை இல்லா சான்றிதழ் அல்லது சுரங்கவரி நிலுவை இல்லை என்பதற்கான ஆணையறுதி வாக்குமூலம் இணைக்கப்படவேண்டும்.
2. வருமான வரி செலுத்திய சான்றிதழ் அல்லது வருமானவரி பாக்கியில்லை என்பதற்கான ஆணையறுதி வாக்குமூலம் இணைக்கப்படவேண்டும்.
3. மற்றும்,
 - i) அனுபவத்திலிருக்கும் குவாரி குத்தகை அனுமதி பற்றி விவரம்
 - ii) ஏற்கனவே விண்ணப்பித்து இதுவரை அனுமதி வழங்கப்படாத குவாரி குத்தகை அனுமதி பற்றி விவரம்.
 - iii) தற்போது உடனிகழ்வாக விண்ணப்பிக்கும் குவாரி குத்தகை அனுமதி விவரம்
4. மேற்கண்ட ஆணையறுதி ஆவணங்களை ரூ.20/- மதிப்புள்ள முத்திரைத்தாளில் சான்று உறுதி அலுவலரிடம் (Notary Public) கையொப்பம் பெற்று பூர்த்தி செய்யப்பட்ட விண்ணப்பத்துடன் இணைத்து சமர்ப்பிக்கப்பட வேண்டும்.
- 5) ஏலத்தில் நேரடியாக கலந்து கொள்பவர்கள் பூர்த்தி செய்யப்பட்ட விண்ணப்பப்படிவம், திருப்பித்தரப்படாத விண்ணப்பக்கட்டணம் ரூ.1500/- மற்றும் பிணை வைப்புத்தொகை ரூ.25000/- ஆகியவற்றிற்கான கேட்பு வரைவோலைகள் (டிமாண்ட் டிராப்ட்) துணை இயக்குநர், புவியியல் மற்றும் சுரங்கத்துறை, கிருஷ்ணகிரி அவர்களின் பதவியின் பெயரில் ஏதேனும் ஒரு தேசியமயமாக்கப்பட்ட வங்கியில் பெற்று ஏலத்தில் நேரடியாக கலந்து கொள்வதற்கு முன்னர் ஏலம் நடத்தும் அலுவலரிடம் சமர்ப்பிக்க வேண்டும். மேலும் ஏலம் மூலம் கோரப்பட்ட உயர்ந்தபட்ச தொகை டெண்டர் மூலம் கோரப்பட்ட உயர்ந்த பட்ச தொகையைவிட அதிகமாக இருந்தால் ஏல முடிவு அறிவிப்பு செய்யப்பட்டவுடன் ஏலத்தொகையில் 10 சதவீதத் தொகையை உடன் ஏலம் நடத்தும் அலுவலரிடம் தேசிய மயமாக்கப்பட்ட ஏதேனும் ஒரு வங்கியில் பெறப்பட்ட கேட்பு வரைவோலையாகவோ அல்லது ரொக்க தொகையாகவோ செலுத்தி தக்க இரசீதுகள் பெற்றுக் கொள்ள வேண்டும்.
- 6) நேரில் விண்ணப்பங்கள் அளித்தால் அதைப்பெற்றுக் கொண்டதற்கான ஒப்புதல் கடிதம் அன்றைய தினமே வழங்கப்படும். தபால் மூலம் பெறப்படும் விண்ணப்பத்திற்கு ஒப்புதல் கடிதம் மூன்று தினங்களுக்குள் தபாலில் அனுப்பி வைக்கப்படும். டெண்டர் விண்ணப்பங்கள் மூடி முத்திரையிடப்பட்ட கவர்களில் மட்டுமே அனுப்பி வைக்கப்பட வேண்டும். கவரின் மேல்புறத்தில் விண்ணப்பதாரரின் பெயர் மற்றும் விலாசம் தெளிவாக குறிப்பிடப்பட வேண்டும். கவரின் இடது மூலையில் கனிமத்தின் பெயர், குவாரி அமைந்துள்ள கிராமம், புல எண், பரப்பு அரசிதழின் இணைப்பில் பிரசுரிக்கப்பட்டுள்ள குவாரிகளின் பட்டியலில் உள்ள வரிசை எண் ஆகியவற்றை தவறாமல் குறிப்பிடவேண்டும்.



- 7) மாவட்ட ஆட்சியரால் அல்லது அவரால் அங்கீகாரம் வழங்கப்பட்ட அலுவலரிடம் உள்ள வருமானப் பதிவேட்டில் விண்ணப்பதாரர்கள் / ஏலதாரர்கள் கையொப்பமிட்ட பின்னரே ஏல அறைக்குள் அனுமதிக்கப்படுவார்கள்.
- 8) ஏலம் மற்றும் ஒப்பந்தப்புள்ளியில் (டெண்டர்) கலந்து கொள்பவர் செலுத்தும் விண்ணப்பக்கட்டணத் தொகை ரூ.1500/- திருப்பித்தரப்படமாட்டாது. ஏலத்தில் நேரிடையாக பங்குபெறுபவர்கள் கொடுக்கும் விண்ணப்பத்தில் குத்தகை தொகையை குறிப்பிட தேவையில்லை. ஏற்கனவே டெண்டர் விண்ணப்பம் கொடுத்தவர்கள் ஏலத்தில் கலந்துகொள்ள முடியாவிடில் அவருக்குப்பதிலாக அவரால் நியமிக்கப்பட்ட வேறு ஒரு நபர் மட்டுமே நோட்டரிப்பளிக் முன்பு விண்ணப்பதாரர் மற்றும் நியமிக்கப்பட்ட நபர் கையெழுத்துக்கள் சான்றுபெறப்பட்ட உறுதிமொழி ஆவணம் (அபிடவிட்) தாக்கல் செய்வதின் பேரில் ஏலத்தில் கலந்து கொள்ள அனுமதிக்கப்படுவார்கள்.
- 9) ஒப்பந்தப்புள்ளி விண்ணப்படிவத்தில் மனு செய்யும் நபர்கள் தாங்கள் மனு செய்யும் குவாரிக்கு குத்தகை தொகையாக செலுத்த விரும்பும் தொகையை விண்ணப்பத்தில் குறிப்பிடாமல் இருந்தாலோ அல்லது விண்ணப்ப கட்டணம், பிணைவைப்புத் தொகை, அதிகபட்சமாக குறிப்பிடும் குத்தகை தொகையின் 10% தொகை ஆகியவற்றிற்கான வங்கி வரைவோலைகளை விண்ணப்பத்துடன் இணைக்காமல் இருந்தாலோ, விண்ணப்பத்தாளில் விண்ணப்பதாரர் தன் கையொப்பம் செய்யாமல் இருந்தாலோ 1959ஆம் வருடத்திய தமிழ்நாடு சிறுகனிம சலுகை விதிகளில் கூறப்பட்ட சுரங்கவரி பாக்கியின்மை சான்றிதழ், வருமானவரி பாக்கியின்மை சான்றிதழ் அல்லது இவைகளுக்காக வழங்கப்படும் ஆணை உறுதி ஆவணம் மற்றும் ஏற்கனவே மனுதாரர் நேரடியாகவோ பங்குதாரராகவோ உள்ள குவாரிகள் தொடர்பான உறுதிமொழி ஆவணம் ஆகியவற்றை இணைக்கப்படாமல் இருந்தாலோ மேற்படி ஒப்பந்தப்புள்ளி விண்ணப்பம் விதிகளின்படி நிராகரிக்கப்படும். மேற்குறிப்பிட்டவாறு விண்ணப்பம் நிராகரிக்கப்பட்ட ஒப்பந்தப்புள்ளி விண்ணப்பதாரர்களுக்கு ஒப்பந்தப்புள்ளிகள் திறக்கும் சமயத்தில் விண்ணப்பதாரர் ஆணையில் இருந்தால் மட்டும் விண்ணப்பதாரரிடம் தக்க ஒப்புதல் பெற்று வங்கிவரைவோலை திருப்பி வழங்கப்படும். ஒப்பந்தப்புள்ளி திறக்கும் சமயத்தில் ஆணையில் இல்லாத நபருக்கு பதிவுச்சல மூலம் வங்கி வரைவோலைகள் தனியே அனுப்பி வைக்கப்படும்.
- 10) ஒவ்வொரு குவாரிக்கும் பொது ஏலம் நடத்தி முடித்த பின்னர் சம்பந்தப்பட்ட குவாரிக்கான டெண்டர் விண்ணப்பங்கள் வருகை தந்திருக்கும் சம்பந்தப்பட்ட டெண்டர் விண்ணப்பதாரர்கள் மற்றும் ஏலதாரர்கள் அல்லது அவர்களது அதிகாரம் பெற்ற நபர்கள் முன்னிலையில் சம்பந்தப்பட்ட அதிகாரிகளால் திறக்கப்படும் ஒப்பந்தப்புள்ளி (டெண்டர்) திறக்கும் நேரத்தில் விண்ணப்பதாரர் அல்லது ஏலதாரர் அல்லது அங்கீகாரம் பெற்ற நபர் ஆணையில் இல்லாததற்கு மாவட்ட நிர்வாகம் பொறுப்பு அல்ல. இதன்பொருட்டு ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பம் திறப்பதோ ஏலம் நடத்துவதோ நிறுத்தி வைக்கப்படமாட்டாது.
- 11) அட்டவணையில் கண்ட ஒவ்வொரு குவாரிக்கும் வரப்பெற்ற மொத்த செல்லத்தக்க விண்ணப்பங்கள், விண்ணப்பதாரர்களின் பெயர்கள் ஒவ்வொரு விண்ணப்பதாரராலும் குறிப்பிடப்பட்ட அதிகபட்ச டெண்டர் தொகை ஆகியவற்றையும் அதிகபட்ச தொகைக்கு ஏலம் கேட்ட நபர் பெயர் மற்றும் அதிகபட்ச ஏலத்தொகை ஆகியவற்றையும் ஏலம் முடிவடைந்தவுடன் அறிவிக்கப்படும். ஏலத்தொகை, ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பத்தில் குறிப்பிடப்பட்டுள்ள குத்தகை (டெண்டர்) தொகையை விட குறைவாக இருந்து ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பங்கள் மூலமாக கோரப்படும் குத்தகை தொகைகள் ஒன்றுக்கும் மேற்பட்ட விண்ணப்பதாரர்களால் ஒரே மாதிரியாக குறிப்பிடப்பட்டிருந்தால் சம்பந்தப்பட்ட விண்ணப்பதாரர்களை மட்டும் அழைத்து சம்பந்தப்பட்ட குவாரிக்கு மட்டும் மறுகேட்பு மூலம் உயர் குத்தகை தொகை பெற நடவடிக்கை எடுக்கப்படும். அதிகபட்ச குத்தகைத் தொகை கோரும் நபர் அதிகபட்ச ஏலத்தொகை கோரிய நபராக அறிவிக்கப்படுவார். ஒவ்வொரு குவாரிக்கும் பெறப்பட்ட ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பங்களில் குறிப்பிடப்பட்டுள்ள அதிகபட்ச குத்தகைத்தொகை அல்லது பொது ஏலத்தின் மூலம் கேட்கப்படும் அதிகபட்ச குத்தகைத் தொகை இவற்றில் எது அதிகமோ அந்த தொகை மேற்கண்ட குவாரிக்கு கோரப்பட்ட அதிகபட்ச குத்தகை தொகை என அறிவிக்கப்பட்டு அதிகபட்ச குத்தகைத் தொகை குறிப்பிடவராக அறிவிக்கப்படுவார். அதிகபட்சத் தொகைக்கு டெண்டர்/ஏலம் மூலம் கேட்ட நபர் என உறுதி செய்யப்பட்டவுடன், டெண்டர்/ ஏலம்



கேட்ட நபர் அவரால் அதிகபட்சமாக கோரப்பட்ட தொகையில் பத்து சதவீத தொகையினை கேட்பு வரைவோலையாகவோ / பணமாகவோ உடனடியாக செலுத்திடவேண்டும். அவ்வாறு செலுத்தத் தவறும் பட்சத்தில் அவரது ஏலம் / டெண்டர் ரத்து செய்யப்பட்டு அவருக்கு அடுத்தபடியாக அதிகபட்சத்தொகை கேட்ட நபருக்கு வாய்ப்பளிக்கப்படும். அவரும் பத்து சதவீத தொகையினை செலுத்த தவறும் பட்சத்தில் இதே நடைமுறையை தொடர்ந்து நடத்துவது அல்லது மறு ஏலம் விட ஆணையிடுவது போன்றவை மாவட்ட ஆட்சியரின் இறுதி முடிவு மற்றும் அதிகார வரம்பிற்கு உட்பட்டதாகும். அதிகபட்ச ஏலம் / டெண்டர் கேட்ட நபரை தவிர மற்றவர்களுக்கு அவர் தாம் செலுத்திய பிணைவைப்பத்தொகை திரும்ப தரப்படும். ஏலம் / டெண்டர் உறுதி செய்யப்பட்ட நபர் மீதமுள்ள 90 சதவீத தொகையினை பதினைந்து (15) தினங்களுக்குள் செலுத்திவிட வேண்டும், தவறும் பட்சத்தில் ஏலம் / டெண்டர் ரத்து செய்யப்பட்டு அவர் செலுத்திய அனைத்து தொகைகளும் பறிமுதல் செய்து அரசு கணக்கில் சேர்க்கப்படும்.

12) (அ) சிறப்பு நிபந்தனைகள்:

- (i) இந்த டெண்டர் மற்றும் ஏலமுறையில் கலந்து கொள்ளும் விண்ணப்பதாரர்கள் அனைவரும் இந்திய அரசின் வருமான வரித்துறையினரால் வழங்கப்படும் நிரந்தர கணக்கு எண் (PAN - CARD) அட்டையை பெற்றிருக்க வேண்டும் அல்லது வருமான வரி துறையினரிடமிருந்து பெற்று சமர்ப்பிக்க வேண்டும்.
- (ii) இந்த நிரந்தர கணக்கு எண்ணை சமர்ப்பித்து டெண்டர் மற்றும் ஏலம் கோரும் தொகைக்கு 2% வருமான வரியை கிருஷ்ணகிரி மாவட்ட புவியியல் மற்றும் சுரங்கத்துறை, துணை இயக்குநர் அவர்களுக்கு வருமான வரித்துறையினரால் அளிக்கப்பட்டுள்ள TAN.No.CHED05905E-ன் கீழ் உரிய வருமானவரித்துறை செலுத்துச்சீட்டின் மூலம் செலுத்த வேண்டும்.
- (iii) மேலும் குத்தகை உரிமம் பெற்ற பின்னர் கனிமங்களை எடுத்துச் செல்ல போக்குவரத்து அனுமதி சீட்டுபெற ஒவ்வொரு முறையும் செலுத்துகின்ற சீனியரேஜ் தொகையின் மீது 2% வருமான வரி தொகை செலுத்தவேண்டும்.
- (iv) மேலும் குத்தகை உரிமம் பெற்ற பின்னர் கனிமங்களை எடுத்துச் செல்ல போக்குவரத்து அனுமதி சீட்டு பெற ஒவ்வொருமுறையும் செலுத்துகின்ற சீனியரிஜே தொகையின் மீது 10 சதவீத தொகையை கிருஷ்ணகிரி மாவட்ட கனிம அறக்கட்டளை நிதியாக கிருஷ்ணகிரி பாரத மாநில வங்கி (State Bank of India) கணக்கு எண்.37243080996-ல் செலவன் மூலம் செலுத்த வேண்டும்.
- (v) அரசாணை எண்.23 தொழில் (எம்.எம்.சி.1) துறை நாள்:23.02.2022-ன்படி பசுமை வரியாக உள்மாநிலங்களில் கனிமம் கொண்டு செல்வதற்கு சீனியரேஜ் தொகைக்கு 10 சதவீதம் அல்லது வெளி மாநிலங்களுக்கு கனிமம் கொண்டு செல்வதற்கு சீனியரேஜ் தொகைக்கு 20 சதவீதம் உரிய அரசு கணக்கில் செலுத்தி கனிமம் கொண்டு செல்லப்பட வேண்டும்.

- 13). குவாரி குத்தகை கோரி ஒரே ஒரு மறைமுக டெண்டர் மறு கொடுக்கப்பட்டு திறந்த முறை பொது ஏலத்தில் கலந்து கொள்ள யாரும் முன்வரவில்லையெனில், டெண்டர் தொகை அரசுக்கு ஆதாயமானது என்று உதவி / துணை இயக்குநர் (புவியியல் மற்றும் சுரங்கத்துறை) கருதினால், அந்த டெண்டர் மறுதாரருக்கு குவாரி குத்தகை வழங்க உதவி / துணை இயக்குநர் (புவியியல் மற்றும் சுரங்கத்துறை) ஒப்புதல் அளிக்கலாம். டெண்டர் தொகை அரசுக்கு ஆதாயமானதல்ல என்று உதவி / துணை இயக்குநர் (புவியியல் மற்றும் சுரங்கத்துறை) கருதும் பட்சத்தில், மறுவைத் தள்ளுபடி செய்து ஆணையிடப்பட்டு மறு ஏலத்தின் மூலம் குவாரி குத்தகை வழங்க மேல்நடவடிக்கை எடுக்க மாவட்ட ஆட்சியர்க்கு அதிகாரம் உண்டு.



- 14) மாண்புமிகு இந்திய உச்சநீதிமன்றம் வழக்கு எண் ஐ.ஏ 12-13/2012 எஸ்.எஸ்.பி (சி) எண். 19628-19629/2009 ஆகியவற்றின் மீது 27.02.2012 அன்று வழங்கியுள்ள ஆணைகளின்படியும், இந்திய அரசு சுற்றுச்சூழல் மற்றும் வனத்துறை குறிப்பாணை எண். எல்.11011/47/2011 - IA. II(M) நாள்: 18.05.2012ன்படியும், அரசாங்கம் எண் (எம்எஸ்)எண். 79, தொழில் (எம்எம்சி1) துறை நாள்: 06.04.2015ன்படி 1959ஆம் வருடத்திய தமிழ்நாடு சிறுகனிம சலுகை விதிகளில் திருத்தம் செய்யப்பட்டு சேர்க்கப்பட்ட விதிகள் எண். 41 மற்றும் 42-ன் படியும் அனைத்து சிறுகனிம குவாரிகளுக்கும் குவாரி குத்தகை வழங்கும் முன்பு புவியியல் மற்றும் சுரங்கத் துறை துணை இயக்குநரால் அங்கீகரிக்கப்பட்ட சுரங்கத்திட்டம் மற்றும் இந்திய அரசின் சுற்றுச்சூழல், வனம் மற்றும் பருவநிலை மாற்றம் அமைச்சகத்தால் வழங்கப்படும், மாநில சுற்றுச்சூழல் பாதிப்பு மதிப்பீட்டு ஆணையத்தின் / இசைவு ஆகியவற்றை பெற்று சமர்ப்பித்த பின்பு மட்டுமே குவாரி குத்தகை வழங்க முடியும். குவாரி பணி தொடங்குவதற்கு முன்பாக தமிழ்நாடு மாசு கட்டுப்பாட்டு வாரியத்தின் இசைவினை பெற்று சமர்ப்பிக்கும் பட்சத்தில் மட்டுமே குவாரி பணி தொடங்க அனுமதிக்கப்படும்.
- 15) அதிகபட்சத் தொகை கேட்ட நபருக்கு குவாரி குத்தகை உரிமம் உறுதி செய்யப்படுமாயின் அவருக்கு குவாரி குத்தகை உரிமம் வழங்கப்படவுள்ள குவாரியின் புல எண், பரப்பளவு, ஆகிய விவரங்கள் அடங்கிய அறிவிக்கை வழங்கப்பட்டு அங்கீகரிக்கப்பட்ட சுரங்கத்திட்டம், தமிழ்நாடு மாநில சுற்றுச்சூழல் பாதிப்பு மதிப்பீட்டு ஆணையத்தின்/ இந்திய அரசு சுற்றுச்சூழல் மற்றும் வனத்துறையின் தடையின்மை சான்று ஆகியவற்றை விதிகளின்படி உரிய காலத்திற்குள் சமர்ப்பிக்குமாறு தெரிவிக்கப்படும்.
- (அ) மேற்கண்ட அறிவிக்கை பெற்றுக்கொண்ட மனுதாரர் சுரங்கத்திட்டத்தை தகுதி வாய்ந்த நபர் (QP) மூலம் அரசு தெரிவித்துள்ள விதிகள் மற்றும் வழிகாட்டுதலின்படி தயாரித்து அறிவிக்கை பெறப்பட்ட நாளிலிருந்து மூன்று மாத காலத்திற்குள் கிருஷ்ணகிரி புவியியல் மற்றும் சுரங்கத்துறை துணை இயக்குநரிடம் அங்கீகாரம் பெற சமர்ப்பிக்க வேண்டும்.
- (ஆ) மேற்கண்ட மனுதாரர் கிருஷ்ணகிரி புவியியல் மற்றும் சுரங்கத்துறை துணை இயக்குநரால் அங்கீகாரம் வழங்கப்பட்ட சுரங்கத்திட்டத்தை இந்திய அரசு சுற்றுச்சூழல், வனம் மற்றும் பருவநிலை மாற்றம் அமைச்சகத்தின் மாநில சுற்றுச்சூழல் பாதிப்பு மதிப்பீட்டு ஆணையத்தின் முன்பு சமர்ப்பித்து தடையின்மை சான்று கோரி விண்ணப்பித்து தடையின்மை சான்றினை பெற்று சமர்ப்பிக்க வேண்டும்.
- (இ) காவேரி வடக்கு வனவிலங்கு சரணாலயம், தேசிய பூங்கா, யானைகளின் வலசை பாதை மற்றும் காப்பு காடுகளிலிருந்து பாதுகாப்பு இடைவெளி தூரத்திற்கு அப்பால் மட்டுமே குத்தகை உரிமம் வழங்க நடவடிக்கை எடுக்கப்பட்டுள்ளது. எனினும், அரசால் மாற்றி அமைக்கப்படும் பாதுகாப்பு இடைவெளி தூரத்திற்குள் குவாரி பகுதி வருவதாக பிற்காலத்தில் தெரியவந்தால் குத்தகை உரிமம் ரத்து செய்ய மேல்நடவடிக்கை தொடரப்படும்.
- (ஈ) அங்கீகரிக்கப்பட்ட சுரங்கத்திட்டம் முதல் ஐந்து ஆண்டு காலத்திற்கு மட்டுமே செல்லத்தக்கதாகும்.
- (உ) மேற்கண்ட ஆவணங்களை சமர்ப்பித்த பின்பு விதிகளின்படி மனுதாரருக்கு குவாரி குத்தகை வழங்கி ஆணையிடப்படும் அங்கீகரிக்கப்பட்ட சுரங்கத்திட்டம் மற்றும் தமிழ்நாடு மாநில சுற்றுச்சூழல் பாதிப்பு மதிப்பீட்டு ஆணையத்தின்/ இந்திய அரசு சுற்றுச்சூழல், வனம் மற்றும் பருவநிலை மாற்றம் அமைச்சகத்தின் தடையின்மை சான்று ஆகியவற்றை குறிப்பிட்ட காலக்கெடுவிற்குள் சமர்ப்பிக்க தவறினால் மனுதாரருக்கு மாவட்ட ஆட்சியர் முன்பு விசாரணைக்கு ஆஜராக வாய்ப்பளித்து விசாரணை நடத்தப்பட்டு ஏற்கனவே வழங்கப்பட்ட உத்தரவு ரத்து செய்ய நடவடிக்கை எடுக்கப்படும்.
- 16) மேற்கூறிய உத்தரவு கிடைக்கப் பெற்றவுடன் விண்ணப்பதாரர், ஆணையில் குறிப்பிடப்பட்ட காலக்கெடுவிற்குள் கீழ்க்கண்ட ஆவணங்களை குத்தகை ஒப்பந்த ஆவணம் நிறைவேற்றுவது தொடர்பாக துணை இயக்குநர், புவியியல் மற்றும் சுரங்கத்துறை, கிருஷ்ணகிரி அவர்களிடம் சமர்ப்பிக்க வேண்டும்.
- (அ) விண்ணப்பதாரரின் கையொப்பமிட்ட வரைவு குத்தகை ஒப்பந்தப்பத்திரம் மற்றும் வரைபடம்.



- (ஆ) அசல் குத்தகை ஒப்பந்தப்பத்திரம் தயார் செய்வதற்கு தேவையான நிதித்துறை சாரா முத்திரைத்தாள்.
- (இ) காப்புத் தொகைக்கான ஏலம் / டெண்டர் தொகையில் இருபது சதவீதம் (20%) அல்லது ரூ.10,000/-ம் இதில் எது அதிகமோ அதை செலுத்தியதற்கான அசல் செலுத்துச்சீட்டு (சீலன்)யும்.
- (ஈ) மொத்த குத்தகை பரப்பிற்கான பரப்புவரி செலுத்தியதற்கான அசல் சலான்.
- 17) அவ்வாறு குறிப்பிட்ட காலத்திற்குள் மேற்கண்ட ஆவணங்களை சமர்ப்பிக்க தவறினால் வழங்கப்பட்ட குத்தகை உரிமம் ரத்து செய்யப்பட்டு அவர் செலுத்திய அனைத்து தொகைகளும் விதிகளின்படி அரசுக்கு ஆதாயம் செய்து அரசு கணக்கில் சேர்க்கப்படும்.
- 18) மேற்கண்ட ஆவணங்களை ஒப்படைத்து குவாரி குத்தகை ஒப்பந்த ஆவணம் நிறைவேற்றிய பின்பே குவாரிப்பணியை தொடங்க வேண்டும். குவாரி குத்தகை ஆவணம் நிறைவேற்றமுன் குவாரிப்பணி செய்வது கண்டறியப்பட்டால் அது அனுமதியின்றி கனிமம் வெட்டியெடுத்ததாக கருதப்பட்டு தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 1959ன் விதி 36-அ-ன்படி உரிய நடவடிக்கை எடுக்கப்படுவதுடன் குற்றவியல் நடவடிக்கையும் எடுக்கப்படும்.
- 19) குவாரி குத்தகைக்காக கோரப்பட்ட மொத்த குத்தகை காலத்திற்குமான ஒரே தடவையில் மொத்தமாக செலுத்தப்படும் குத்தகைத் தொகை நீங்கலாக குத்தகைதாரர் மேற்படி குவாரியில் இருந்து எடுத்துச்செல்ல உத்தேசிக்கும் சிறுகனிமத்திற்கு 1959ம் ஆண்டைய தமிழ்நாடு சிறுகனிம சலுகை விதிகளின் அட்டவணை 2ல் குறிப்பிடப்பட்டுள்ள விகிதாச்சாரப்படி சீனியரேஜ் கட்டணத்தை செலுத்தி மொத்த இசைவாணைச்சீட்டு மற்றும் அனுப்புகைச் சீட்டு பெற்றுதான் சிறுகனிமத்தினை எடுத்துச் செல்ல வேண்டும். மேலும் அரசால் அவ்வப்போது திருத்தி நிர்ணயிக்கப்படும் சீனியரேஜ் தொகையை செலுத்தி அனுமதிச்சீட்டுப்பெற வேண்டும். மேலும் கனிமங்களை வெளியில் எடுத்துச் செல்ல போக்குவரத்து அனுமதிச்சீட்டு பெற ஒவ்வொரு முறையும் செலுத்துகின்ற சீனியரிஜே தொகையின் மீது 10 சதவீத தொகையை கிருஷ்ணிகிரி மாவட்ட கனிம அறக்கட்டளை நிதியாக கிருஷ்ணிகிரி பாரத மாநில வங்கி (State Bank of India) கணக்கு என்.37243080996-ல் செலான் மூலம் செலுத்த வேண்டும். மேலும் கூடுதலாக அரசால் நிர்ணயிக்கப்பட்ட பசமை வரியை உரிய அரசு கணக்கில் செலுத்தி அசல் சலான் சமர்ப்பிக்க வேண்டும்.
- 20) குத்தகைதாரர் ஒவ்வொரு மாதமும் குவாரிப்பணி செய்த தொழிலாளர்கள், குவாரி செய்த கனிமத்தின் அளவிற்குரிய கணக்குகளை பிரதி மாதம் ஐந்தாம் நாளுக்குள் துணை இயக்குநர் புவியியல் மற்றும் சுரங்கத்துறை, கிருஷ்ணிகிரி அவர்களுக்கு தணிக்கைக்கு ஆஜர் செய்ய வேண்டும்.
- 21) குவாரிகளுக்கு அருகில் உள்ள போக்குவரத்து சாலைகள், கிராம சாலைகள் குடியிருப்பு பகுதிகள் வீடுகள், வண்டிப்பாதைகள், மின் மற்றும் தொலைபேசி கம்பிகள், டிரான்ஸ்பார்மர்கள், ரயில்பாதைகள் பொதுப்பணித்துறை, வாய்க்கால், மதசம்பந்தமான வழிபாட்டுத்தலங்கள் மற்றும் இதர நிலையான அமைப்புகள் இவற்றிலிருந்து 1959ஆம் ஆண்டைய தமிழ்நாடு சிறுகனிம சலுகை விதிகளின்படி பாதுகாப்பு இடைவெளி விட்டு மீதமுள்ள இடத்திற்குள் தான் குவாரிப்பணி செய்யவேண்டும். பொதுமக்கள் உபயோகிக்கும் இடங்கள் குடியிருப்புக்கள் பட்டா நிலங்கள் அல்லது பொதுச் சொத்துக்கள் ஆகியவற்றிற்கு சேதம் ஏதும் ஏற்படாமல் குவாரிப்பணி செய்ய வேண்டும். குவாரி பணியால் சேதம் ஏதும் ஏற்பட்டால் அதற்கு குத்தகைதாரரே முழு பொறுப்பேற்று அதில் ஏற்படும் நட்டத்தை ஈடு செய்து தரவேண்டும்.
- 22) குத்தகைதாரர் மேற்குறிப்பிட்ட நிபந்தனைகள் அல்லாமல் 1959ஆம் ஆண்டைய தமிழ்நாடு சிறுகனிமச் சலுகை விதிகள், கனிமங்கள் மற்றும் சுரங்கங்கள் (மேம்படுத்துதல் மற்றும் முறைப்படுத்துதல்) சட்டம் 1957 மற்றும் இந்த அரசிதழில் குறிப்பிடப்பட்டுள்ள சிறப்பு நிபந்தனைகள் மற்றும் அரசால் அவ்வப்போது கொண்டுவரப்படும் ஆணைகளும் விதிகளும் கட்டுப்படுத்தும்.



- 23) இவ்விதிகளின்கீழ் வழங்கப்படும் குவாரிகளின் குத்தகை காலம் எக்காரணத்தைக் கொண்டும் குத்தகை வழங்கப்படும் காலத்திற்கு மேல் நீட்டிக்கப்படவோ அல்லது குத்தகை காலம் பூர்த்திக்கப்படவோ மாட்டாது. குத்தகை காலம் முடிந்தபின் குத்தகைதாரர்கள் குத்தகைக்கு விடப்பட்ட பகுதிகளில் எவ்விதமான உரிமையும் கொண்டிருக்காது. மேலும், குத்தகை காலம் முடிந்தபின் மேற்கண்ட புலத்தை அரசுக்கு திரும்ப ஒப்படைத்து அதற்கான சான்றிதழை கிராம நிர்வாக அலுவலரிடம் பெற்று வட்டாட்சியர் வாயிலாக மாவட்ட ஆட்சியருக்கு தெரிவிக்க வேண்டும்.
- 24) 14 வயதுக்குட்பட்ட குழந்தை தொழிலாளர்களை குவாரிப்பணியில் ஈடுபடுத்தக்கூடாது.
- 25) இந்த அரசிதழில் குவாரி குத்தகை உரிமத்திற்காக அறிவிக்கப்பட்டிருக்கும் பட்டியலில் உள்ள குத்தகை விடப்படும் குவாரிகளை டெண்டர் / ஏலம் நடைபெறுவதற்கு முன்பாக நிறுத்தி வைக்கவோ, நீக்கவோ, புதியதாக சேர்க்கவோ குவாரி பரப்பளவை மாற்றவோ, மாவட்ட ஆட்சியருக்கு அதிகாரம் உண்டு.
- 26) நிர்வாக சூழல் காரணமாக டெண்டர் மற்றும் ஏலத்தை ரத்து செய்ய மாவட்ட ஆட்சியருக்கு அதிகாரம் உண்டு.
- 27) செய்தித்தாள் மூலமாகவோ, மாவட்ட அரசிதழ் மூலமாகவோ, அறிவிப்பு செய்யப்படாத குவாரிகளுக்கு ஏதாவது ஒப்பந்தப்பள்ளி விண்ணப்பங்கள் கிடைக்கப் பெற்றால் அவையாவும் முதிர்ச்சி அடையாத விண்ணப்பமாக கருதப்பட்டு உடனடியாக நிராகரிக்கப்படும். குறித்த காலக்கெடுவிற்குள் வந்து சேராத விண்ணப்பங்கள் காலவரையறை கடந்த விண்ணப்பமாக கருதப்பட்டு அவையாவும் நிராகரிக்கப்படும், நிராகரிக்கப்பட்ட விண்ணப்பங்களின் விண்ணப்ப கட்டணம் தவிர பிற வங்கி வரைவோலைகள் மட்டும் விண்ணப்பதாரருக்கு திரும்ப அனுப்பி வைக்கப்படும்.
- 28) 1959-ஆம் வருடத்திய தமிழ்நாடு சிறுகனிம சலுகை விதிகள் அட்டவணைப் படிவம்-1ல் கண்ட ஒப்பந்தப்பத்திரத்தில் தேவையான அளவிற்கு நிபந்தனைகளை புதியதாக சேர்க்கவோ, நீக்கவோ மாற்றி அமைக்கவோ அரசுக்கு அதிகாரம் உண்டு, குத்தகை பத்திரம் ஏற்படுத்தியபின்பு புல எண் மற்றும் குவாரி செய்ய ஒதுக்கப்பட்ட பரப்புக்குறித்து எவ்வித தாவாவும் செய்ய குத்தகைதாரருக்கு உரிமை கிடையாது.
- 29) குத்தகை ஒப்பந்தப்பத்திரத்தை புலவரைபடத்துடன் சொத்து மாற்றுக்கைச் சட்டம் 1882-ன் பிரிவு 107ன் கீழ் குத்தகைதாரர் தனது சொந்த செலவில் பதிவுசெய்து பதிவு செய்த ஒப்பந்தப்பத்திரத்தினை கிருஷ்ணகிரி புவியியல் மற்றும் சரங்கத்துறை துணை இயக்குநர் அலுவலகத்தில் உடன் ஒப்படைக்க வேண்டும்.
- 30) தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 1959-ன் விதி 36(1)ல் வரையறுக்கப்பட்டுள்ளவாறு அருகிலுள்ள குடியிருப்புகளுக்கு பாதுகாப்பு இடைவெளியாக 300 மீட்டரும் கிராம சாலைகளுக்கு 10 மீட்டரும் இதர சாலைகள் கட்டிடங்கள், வழிபாட்டு தலங்கள், மின்கம்பி பாதைகள், தொலைபேசி பாதைகள், புகைவண்டிப்பாதைகள், டிரான்ஸ்பார்மர்கள், ஆறு, ஏரி, குளம், குட்டை மற்றும் இதர பொது சொத்துக்கள் ஆகியவற்றிற்கு பாதுகாப்பு இடைவெளியாக 50 மீட்டரும் விட்டு மீதமுள்ள இடத்திற்குள்ள்தான் குவாரிப்பணி செய்யப்படவேண்டும். புராதன சின்னங்களுக்கு தொல்லியல் துறையால் வரையறுக்கப்பட்டுள்ள பாதுகாப்பு இடைவெளி விட்டும் குவாரிப்பணி செய்ய வேண்டும். விதிகளின்படி தொல்லியல் சின்னங்களுக்கு 500 மீட்டர் பாதுகாப்பு இடைவெளி விட்டும், வனவிலங்கு சரணாலயம், தேசிய பூங்கா, யானைகளின் வலசை பாதை மற்றும் காப்புக்காடுகளுக்கு ஒரு கிலோ மீட்டர் பாதுகாப்பு இடைவெளிவிட்டும் குவாரி பணி செய்ய வேண்டும். பொதுமக்கள் உபயோகிக்கும் இடங்களான குடியிருப்புக்கள் பட்டா நிலங்கள் மற்றும் இதர பொதுசொத்துக்கள் ஆகியவற்றிற்கு சேதம் ஏதும் நேரிட்டால் அதற்கு குத்தகைதாரரே முழுபொறுப்பேற்று அதில் ஏற்படும் நட்டத்தை ஈடுசெய்து தரவேண்டும்.
- 31) நிர்வாக காரணம் மற்றும் பொது நலனை கருத்தில் கொண்டு குத்தகைக்கு விடப்பட்ட பரப்பினை பின்னர் குறைத்து நிர்ணயிக்கவும், குவாரி குத்தகையை ரத்து செய்யவும் அரசுக்கு அதிகாரம் உண்டு.



- 32) குத்தகைதாரர் 1959ஆம் வருடத்திய தமிழ்நாடு சிறுகனிம சலுகை விதிகளின்படியும் முரப்பட்ட அரகிதழில் கண்டுள்ள நிபந்தனைகளின்படியும் ஒப்பந்தப்பத்திர நிபந்தனைகளின்படியும் நடந்து கொள்ளப்பட்டிருப்பது உறுதுவாக அறியப்படுகிறது. குத்தகைகாலத்தில் சட்டதிட்டங்கள் மற்றும் குவாரி குத்தகை நிபந்தனைகளுக்கு ஒப்பந்த விதிகளுக்கு முரண்பட்டு குத்தகைதாரர் நடந்து கொண்டால் குத்தகை ரத்துச் செய்யப்படுவதுடன் காப்புத்தொகை மற்றும் அவர் செலுத்திய அனைத்து தொகைகளும் அரசுக்கு பறிமுதல் செய்யப்படும். அக்குவாரிக்கு மீண்டும் குவாரி குத்தகை வழங்க நடவடிக்கை மேற்கொள்ளப்படும்.
- 33) குவாரி குத்தகை வழங்கப்பட்ட இடத்தில் சாதாரண கற்களை குவாரி செய்வதில் ஏற்படக்கூடிய நஷ்டங்களுக்கு அரசால் எவ்வித நஷ்டஈடும் வழங்கப்பட மாட்டாது.
- 34) வழங்கப்பட்ட குத்தகை உரிமத்திற்கு பொதுமக்கள் மற்றும் அரசு துறை மூலம் கடுமையான ஆட்சேபம் இருப்பின் பொது நன்மையை கருதி குத்தகையை ரத்துச் செய்ய நேரிட்டால் அதனால் ஏற்படும் இழப்பிற்கு ஈடுகோர குத்தகைதாரருக்கு உரிமை இல்லை.
- 35) குத்தகைதாரர் குவாரியை வேறு யாருக்கும் மாற்றவோ உள்ளகுத்தகைக்கு விடவோ கூடாது. அப்படி ஏதாவது செய்திருப்பது தெரிய வந்தால் மேற்படி குத்தகை ரத்துச்செய்யப்படுவதுடன் குத்தகைதாரர் செலுத்திய தொகையும் அரசுக்கு ஆதாயம் செய்யப்படும்.
- 36) குத்தகைதாரர், புவியியல் மற்றும் சுரங்கத்துறை, துணை இயக்குநர் அலுவலகத்தில் அரசு குறிப்பிட்ட படிவத்தில் அனுப்புகைச் சீட்டுக்களை அச்சிட்டு சமர்ப்பிக்க வேண்டும். குத்தகைதாரர் சிறுகனிமம் எடுத்து செல்லும் வாகனத்துடன் அனுப்புகைச் சீட்டு கொடுத்து அனுப்ப வேண்டும். இந்நடைச்சீட்டை இரு பிரதிகள் அச்சிட்டு வரிசை எண்ணிட்டு தாங்கள் உத்தேசமாக எடுக்க இருக்கும் வேலைகளுக்கு வேலை ஒன்றுக்கு ஒரு சீட்டு வீதம் கணக்கிட்டு அதற்குரிய சீனியரேஜ் தொகையினை செலுத்திய பின்னர், கிருஷ்ணகிரி புவியியல் மற்றும் சுரங்கத்துறை, துணை இயக்குநரிடம் அனுப்புகைச்சீட்டு மற்றும் மொத்த இசைவாணைச் சீட்டு ஆகியவற்றில் உரிய முத்திரையும் கையொப்பமும் பெற்றபின்பே பயன்படுத்த வேண்டும்.
- 37) ஒப்புதல் பெறப்படாத அனுப்புகைச்சீட்டுடன் கனிமம் கொண்டு செல்லும் வாகனங்கள் அதிலுள்ள சிறுகனிமத்தை முறையற்ற வகையில் எடுத்துச்செல்வதாக கருதப்பட்டு உரிய சட்டத்தின்படி உரிய அலுவலர்களால் கைப்பற்றப்பட்டு அபராதம் விதிக்கப்படும்.
- 38) புவியியல் மற்றும் சுரங்கத்துறை அலுவலர்கள், காவல் துறையினர் அல்லது வருவாய்த்துறை அலுவலர்கள் முதலானோர் தணிக்கை செய்யும்போது உரிய கணக்குகள் மற்றும் அனுப்புகைச் சீட்டு முதலானவைகளை குவாரி குத்தகை உரிமம் பெற்ற குத்தகைதாரர் காண்பிக்க வேண்டும்.
- 39) அரசு அலுவலர்கள் தணிக்கை செய்யும் போது சிறுகனிமங்கள் கொண்டு செல்லும் வாகனங்களை தணிக்கைக்கு உட்படுத்த வாகன ஓட்டுனர்களை குத்தகைதாரர்கள் அறிவுறுத்த வேண்டும்.
- 40) அனுப்புகைச்சீட்டில் உள்ள கலங்கள் பூர்த்தி செய்யப்படாமலோ அல்லது தவறாக எழுதப்பட்டு வாகனங்களுக்கு கொடுக்கப்பட்டிருந்தாலோ சிறுகனிமம் கொண்டு செல்லும் வாகன உரிமையாளருக்கு அபராதம் மற்றும் குற்றவியல் நடவடிக்கை எடுக்கப்படும். மேலும், குவாரி குத்தகையை ரத்து செய்ய நடவடிக்கை மேற்கொள்ளப்படும்.
- 41) குத்தகைதாரர் ஒவ்வொரு நாளும் குவாரியில் எவ்வளவு சிறுகனிமங்கள் வெட்டி எடுக்கப்பட்டது என்பதையும் எந்த அளவு கனிமங்கள் லாரி, வண்டி மூலம் வெளியே அனுப்பப்பட்டது என்ற விவரத்தையும் காட்டும் பதிவேடு பராமரிக்க வேண்டும். குவாரி குத்தகை சம்பந்தமான இதர பதிவேடுகளை பராமரிக்க வேண்டும்.



- 42) அரசு மற்றும் மாவட்ட ஆட்சியரால் குவாரி குத்தகை உரிமம் சம்பந்தமாக ஏற்படுத்தப்பட்டுள்ள மற்றும் அவ்வப்போது ஏற்படுத்தப்படும் சட்ட திட்டங்களுக்கும், நிபந்தனைகளுக்கும் குத்தகைதாரர் கட்டுப்பட்டு நீடக்க வேண்டும். குத்தகை காலத்திலோ அல்லது அதற்குபின்னரோ கிராமம் தவறி குத்தகையை பயன்படுத்தியதினால் ஏற்படும் சகல நஷ்டங்களுக்கும் குத்தகைதாரர்கள் பொறுப்பேற்க வேண்டும். இதற்காக விதிக்கப்படும் அபராதம் மற்றும் குற்றவியல் நடவடிக்கைக்கு கட்டுப்பட்டு நடக்க வேண்டும்.
- 43) குத்தகை நிபந்தனை மீறப்பட்டால் குத்தகையை ரத்துச் செய்யவோ செய்யப்பட்ட தவறுகளுக்கு குத்தகைதாரருக்கு தண்டனை விதிக்கவோ கிரிமினல் வழக்குதொடரவோ அரசுக்கு அதிகாரம் உண்டு. குத்தகை ரத்துச் செய்யப்பட்டால் காப்புத்தொகை உள்பட அனைத்து தொகைகளும் அரசுக்கு ஆதாயம் செய்யப்படும். வழங்கப்பட்ட குத்தகை உரிமத்தை எக்காரணத்திற்காவது ரத்துச்செய்யும் பட்சத்தில் அதனால் ஏற்படும் எவ்விட நஷ்டங்களுக்கும் அரசு பொறுப்பல்ல. குத்தகை எடுத்தவர் எந்த காரணத்தை முன்னிட்டும் தனக்கு இழப்பு ஏற்பட்டால் நஷ்டஈடு கேட்கக்கூடாது.
- 44) குத்தகை எடுத்தவர் குத்தகையை அனுபவிக்காமல் விட்டாலும், செலுத்தப்பட்ட குத்தகை தொகை எக்காரணத்தை முன்னிட்டும் திரும்ப வழங்கப்படமாட்டாது.
- 45) குவாரிகளின் எல்லைகள் பற்றி பிரச்சினைகள் ஏற்பட்டால் மாவட்ட ஆட்சியரின் தீர்ப்பே இறுதியானது.
- 46) கற்குவாரி குத்தகை உரிமம் வழங்கப்பட்ட பின்னர் அக்கற்குவாரியின் ஏதாவது ஒரு பகுதியில் வரலாற்று முக்கியத்துவம் வாய்ந்த புராதானக்கால கல்வெட்டுக்கள், சிற்ப வடிவமைப்புகள் போன்றவைகள் காணப்பட்டால் அது குறித்து அரசுக்கு தகவல் தரவேண்டும். மேலும், அப்பகுதியில் கற்கள் உடைப்பது நிறுத்தப்பட்டு அப்புராதன சின்னங்கள் பாதுகாக்கப்பட வேண்டும்.
- 47) டெண்டரில் கோரப்படும் புல எண்களின் பேரில் எவையேனும் நீதிமன்றத்தின் ஆணை / தடையாணை முதலானவை நீதிமன்றத்தில் பெறப்பட்டதாக தெரியவந்தால் அவைகள் மீது குத்தகை உரிமம் வழங்குவதில் மாவட்ட ஆட்சியரின் முடிவே இறுதியானது.
- 48) குத்தகைதாரர் குத்தகை வழங்கப்பட்ட குவாரி முகப்பில் குவாரியின் புல எண் பரப்பு குத்தகைதாரர் பெயர் குத்தகை வழங்கப்பட்ட செயல்முறை ஆணை எண் குத்தகை தொகை, குத்தகை காலம் போன்ற விவரங்கள் குறிக்கப்பட்ட தகவல் பலகையை தனது சொந்த செலவில் வைத்து குத்தகை காலம் முழுதும் பராமரிக்க வேண்டும்.
- 49) குத்தகைதாரர் குவாரியின் எல்லைகளை தெளிவாக தெரியும்படி வண்ணமிட்ட எல்லைக் கற்களை (DGPS) முறையில் அளவீடு செய்து ஊன்றி அடையாளமிட்ட பின்பே குவாரி செய்ய வேண்டும். எல்லை கற்களை குத்தகை காலம் முழுவதும் தனது சொந்த செலவில் நன்கு பராமரிக்க வேண்டும்.
- 50) குத்தகைக்கு வழங்கப்பட்ட கற்குவாரிகளில் சாதாரண கற்கள், கட்டுக்கல், சக்கை கற்கள், ஜல்லி கற்கள் ஆகியவைகளை மட்டுமே குவாரி செய்ய வேண்டும். அயல் நாட்டிற்கு ஏற்றுமதி செய்வதற்கும் மெருகு ஏற்றுமதிக்கும் பயன்படும் வடிவமைக்கப்பட்ட கற்களை உற்பத்தி செய்யக் கூடாது.
- 51) குவாரியில் வெடி வைத்து கற்களை உடைக்க அங்கீகாரம் பெற்ற வெடிபொருள் விற்பனையாளரிடம் (Licenced Explosive Dealer) வெடிபொருட்களை கொள்முதல் செய்து சான்று பெற்ற வெடி வெடிப்பவரைக் (Licenced shot Firer) கொண்டு அனைத்து பாதுகாப்பு நிபந்தனைகளையும் கடைபிடித்து வெடிகளை வெடிக்க வைக்க வேண்டும்.
- 52) குவாரியில் சாதாரண ஏர் கம்பர்சர்களை கொண்டு துளையிட்டு வெடிவைக்க வேண்டும். ஆழ்துளை கிணறு உபகரணங்களை (Rig Bore) கொண்டு துளையிட்டு வெடிவைக்கக்கூடாது. அருகிலுள்ள விவசாய நிலங்கள், பொதுச்சொத்துக்கள் மற்றும் பொதுமக்கள் ஆகியோருக்கு எவ்வித பாதிப்பும் ஏற்படாமல் குவாரி பணி செய்ய வேண்டும்.



- 53) அரசு / ஆணையர் புவியியல் மற்றும் சுரங்கத்துறை மற்றும் மாவட்ட ஆட்சியரால் இது தொடர்பாக ஏற்படுத்தப்பட்டுள்ள மற்றும் அவ்வப்போது ஏற்படுத்தப்படும் சட்டதிட்டங்களுக்கும் நிபந்தனைகளுக்கும் குத்தகைதாரர் கட்டுப்பாடு நடக்க வேண்டும்.
- 54) 1961ஆம் ஆண்டின் மெட்டாலிபெரஸ் மைன்ஸ் ரெகுலேஷன்ஸ், 1936 ஆம் ஆண்டின் சம்பளம் வழங்குதல் சட்டம், 1884 ஆம் ஆண்டின் இந்திய வெடிபொருட்கள் சட்டம், 1864 ஆம் ஆண்டு குறைந்தபட்ச ஊதியச்சட்டம் ஆகியவற்றிற்கு உட்பட்டு குத்தகைதாரர் கனிமங்கள் வெட்டி எடுத்து வெளியேற்ற வேண்டும்.
- 55) குவாரியில் வேலை செய்யும் தொழிலாளர்கள் மற்றும் இதர நபர்களுக்கு விபத்து ஏற்படின் அதற்கான முழுப் பொறுப்பையும் குத்தகைதாரரே ஏற்க வேண்டும். அதற்கு எவ்வகையிலும் அரசு பொறுப்பாகாது. மேலும், குவாரி தொழிலாளர்களை அரசின் காப்பீட்டு திட்டத்திலும் தொழிலாளர் நல வாரியத்தில் பதிவு செய்திடல் வேண்டும்.
- 56) குவாரி தொடர்பான அனைத்து பணிகளும் சுற்றுச்சூழல் இசைவாணையில் தெரிவிக்கப்பட்ட காலத்தில் மட்டுமே செயல்படுத்தப்பட வேண்டும்.
- 57) சாதாரண கற்குவாரி உரிமம் தொடர்பான டெண்டர் / ஏலம் உறுதி செய்யப்பட்ட விண்ணப்பதாரர் உரிய குவாரி குத்தகை பகுதிக்கு மாவட்ட வன அலுவலர், கிருஷ்ணகிரி / ஓசூர் அவர்களிடமிருந்து தடையின்மை சான்று பெற்று சமர்ப்பிக்க வேண்டும்.
- 58) அங்கீகரிக்கப்பட்ட சுரங்க திட்டத்தின்படி குவாரி பணி செய்யப்பட வேண்டும் குத்தகை காலத்தில் அங்கீகரிக்கப்பட்ட சுரங்க திட்டத்தில் குறிப்பிட்ட அளவை விட அதிகமான கனிமத்தை குவாரி செய்ய வேண்டியிருப்பின், திருத்தப்பட்ட சுரங்க திட்டம் சமர்ப்பித்து அங்கீகாரம் பெற்று அதற்கான சுற்றுச் சூழல் தடையின்மை சான்று சமர்ப்பித்த பின்பே அதனை செய்ய வேண்டும்.
- 59) குவாரி ஆரம்பிப்பது தொடர்பான அறிவிப்பை (Notice of opening) இந்திய அரசு பெங்களூரு மண்டல சுரங்க பாதுகாப்பு துறை இயக்குநர் அவர்களுக்கு சமர்ப்பிக்க வேண்டும்.
- 60) குவாரியில் அங்கீகாரம் பெற்ற மைன்ஸ் மேனேஜர்/மைன்ஸ் மேட்/பிளாஸ்டர் ஆகியோர்களை பணியமர்த்திய பின்பே குவாரிப் பணியை தொடங்க வேண்டும்.
- 61) குவாரிப் பகுதியில் மைன்ஸ் மேட் கண்காணிப்பிலேயே வெடிவைத்து வெடிக்கும் பணியை செய்ய வேண்டும்.
- 62) குவாரிப் பகுதியில் விபத்து ஏதும் ஏற்பட்டால் அதனை உடனடியாக இந்திய அரசு பெங்களூரு மண்டல சுரங்க பாதுகாப்பு துறை இயக்குநர் அவர்களுக்கும் கிருஷ்ணகிரி மாவட்ட ஆட்சியர் அவர்களுக்கும் தெரிவிக்க வேண்டும்.

அட்டவணை - சாதாரண கற்குவாரி பட்டியல்

(i.) கிருஷ்ணகிரி வருவாய் கோட்டம்

கிருஷ்ணகிரி வட்டம்

வ. எண்	கிராமம்	புல எண்கள்	மொத்த பரப்பு	குவாரி குத்தகை வழங்கும் பரப்பு	வகைப்பாடு	குத்தகை உரிமம் காலம்
(1)	(2)	(3)	(4)	(5)	(6)	(7)
			(ஹெக்டேர்)	(ஹெக்டேர்)		
1	ஜீஞ்சுப்பள்ளி	169(பகுதி)	8.56.00	2.00.00	தீ.ஏ.த.பாறை	10
2	ஜீஞ்சுப்பள்ளி	197/2(பகுதி)	1.77.00	1.20.00	தீ.ஏ.த தரிசு	10



(1)	(2)	(3)	13 (4) (ஹெக்டேர்)	(5) (ஹெக்டேர்)	(6) தீ.ஏ.த பாறை	(7) சதுரங்கு
3	பில்லனகுப்பம்	278	2.08.50	2.08.50	தீ.ஏ.த பாறை	10
			பர்கூர் வட்டம்			
4	சூலாமலை	54 (பகுதி-3)	16.45.0	1.40.00	தீ.ஏ.த பாறை	10 2.19
			(ii) ஓசூர் வருவாய் கோட்டம்.			
			ஓசூர் வட்டம்			
5	பஞ்சாட்சிபுரம்	603/1 (பகுதி-சி)	21.20.50	1.30.00	தீ.ஏ.த தரிசு	5
6	பஞ்சாட்சிபுரம்	603/1 (பகுதி-டி)	21.20.50	2.00.00	தீ.ஏ.த தரிசு	5 2.00
7	கோபனப்பள்ளி	220/1 (பகுதி-1)	16.76.00	3.00.00	தீ.ஏ.த தரிசு	10 4.10
8	கோபனப்பள்ளி	220/1 (பகுதி-2)	16.76.00	3.00.00	தீ.ஏ.த தரிசு	10
9	கோபனப்பள்ளி	220/1 (பகுதி-3)	16.76.00	3.00.00	தீ.ஏ.த தரிசு	10
10	கோபனப்பள்ளி	220/1 (பகுதி-4)	16.76.00	2.00.00	தீ.ஏ.த தரிசு	10
11	கோபனப்பள்ளி	381 (பகுதி-1)	4.61.50	1.30.00	தீ.ஏ.த தரிசு	10
12	கோபனப்பள்ளி	381 (பகுதி-2)	4.61.50	1.50.00	தீ.ஏ.த தரிசு	10
			சூளகிரி வட்டம்			
13	காமல்தொட்டி	616/3 (பகுதி-2)	7.66.50	2.75.00	தீ.ஏ.த தரிசு	5
14	காமல்தொட்டி	653/1(பகுதி)	7.56.00	3.35.00	தீ.ஏ.த தரிசு	5
15	காமல்தொட்டி	754 & 760 (பகுதி-6)	36.46.50	4.00.00	தீ.ஏ.த மலை	10
16	வெங்கடேசபுரம்	86-(பகுதி-1)	60.80.00	2.50.00	தீ.ஏ.த கரடு	5
17	வெங்கடேசபுரம்	86-(பகுதி-2)	60.80.00	2.00.00	தீ.ஏ.த கரடு	10
18	வெங்கடேசபுரம்	86-(பகுதி-3)	60.80.00	2.00.00	தீ.ஏ.த கரடு	5
19	பி.எஸ்.திம்மசந்திரம்	88/1 (பகுதி-3)	12.79.00	4.50.00	தீ.ஏ.த பாறை	10



(1)	(2)	(3)	14 (4) (ஹெக்டேர்)	(5) (ஹெக்டேர்)	(6) கிருஷ்ணகிரி	
20	தோரிப்பள்ளி	72(பகுதி) 87/1(பகுதி)	9.71.00 8.77.00	0.65.00 0.95.00	தீ.ஏ.த பாறை	10
			மொத்தம்	1.60.00		
21	துப்புகானப்பள்ளி	420-(பகுதி-1)	46.61.00	4.00.00	தீ.ஏ.த கரடு	10
22	துப்புகானப்பள்ளி	420-(பகுதி-3)	46.61.00	4.60.00	தீ.ஏ.த கரடு	10
23	துப்புகானப்பள்ளி	420-(பகுதி-4)	46.61.00	4.50.00	தீ.ஏ.த கரடு	10
24	சென்னப்பள்ளி	327/1 (பகுதி-1)	38.78.00	2.45.00	தீ.ஏ.த கரடு	10
25	சென்னப்பள்ளி	327/1 (பகுதி-2)	38.78.00	2.45.00	தீ.ஏ.த கரடு	10
தேன்கனிக்கோட்டை வட்டம்						
26	தாரவேந்திரம்	320/1 (பகுதி)	2.23.00	1.70.50	தீ.ஏ.த தரிசு	10
27	நாகமங்கலம்	629 (பகுதி)	188.50.00	3.20.50	தீ.ஏ.த கல்லாங் குத்து	10

கிருஷ்ணகிரி,
10-03-2022.

வி. ஜெய சந்திர பானுரெட்டி,
மாவட்ட ஆட்சியர்,
கிருஷ்ணகிரி மாவட்டம்.

தமிழ்நாடு எழுதுபொருள் மற்றும் அச்சுத்துறை ஆணையரால் சேலம் அரசினர் கிளை அச்சகத்தில் அச்சிடப்பட்டு மாவட்ட ஆட்சியரால் வெளியிடப்பட்டது.

15

இணைப்பு - I

பின் இணைப்பு VI

டெண்டர் விண்ணப்பம் / குவாரி குத்தகை உரிமம் வழங்குவதற்கான விண்ணப்பம்
(மூன்று பிரதிகளில் சமர்ப்பிக்கப்பட வேண்டும்)

விடுநர்

பெறுநர்

துணை இயக்குநர்,
புவியியல் மற்றும் சுரங்கத் துறை,
மாவட்ட ஆட்சியரகம்,
கிருஷ்ணகிரி.

அய்யா,

கிருஷ்ணகிரி மாவட்ட அரசிதழ் (சிறப்பு வெளியீடு) எண்.

நாள்

2022 திசைசரியில் வெளியிட்ட

நாள் 2022ன் படி இத்துடன் தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 1959 விதி 8-ன் கீழ் எனது / எங்களது
விண்ணப்பத்தினை சமர்ப்பிக்கின்றேன் / சமர்ப்பிக்கின்றோம்.

தமிழ்நாடு சிறு கனிம சலுகை விதிகள் 1959 விதி 8-ன் கீழ் குவாரி குத்தகை உரிமம் வழங்கும் படி நான்
கேட்டுக்கொள்கிறேன் / நாங்கள் கேட்டுக்கொள்கிறோம்

தேவையான விவரங்கள் கீழே கொடுக்கப்பட்டுள்ளது

1) விண்ணப்பதாரர் பெயர் மற்றும் முழு முகவரி :

2) விண்ணப்பதாரர்

அ) 1) தனிநபரா ? :

2) தனிப்பட்ட நிறுவனமா ? :

3) நிறுவனமா அல்லது கழகமா ? :

ஆ) தனிநபரானால் விண்ணப்பதாரர்
எந்த நாட்டைச் சார்ந்தவர் ? :

இ) தனிப்பட்ட நிறுவனமானால் /
கழகமானால் மேற்கண்ட
நிறுவனத்தின் / கழகத்தின்
இயக்குநர்களின் தாய் நாட்டை பற்றிய
விவரம் (எழுத்துப் பூர்வ ஆதாரங்கள்)
இணைக்கப்பட வேண்டும்)





16

- 3) பிணை வைப்புத்தொகை செலுத்திய விவரம் கேட்பு வரைவோலையின் எண் மற்றும் நாள் / வங்கி வரைவோலை இணைக்கப்பட வேண்டும் : ரூ.
- 4) விண்ணப்பதாரரால் கீழ்க்கண்ட இனங்களுக்கு ஆணை உறுதி ஆவணம் (அபிடலிட்) இணைக்கப்பட்டுள்ளதா? :
- 5) விண்ணப்பதாரர் குவாரி செய்ய விரும்பும் சிறுகனிமத்தின் பெயர் மற்றும் விவரம் :
- 6) குவாரி குத்தகை உரிமம் கோரும் காலம் :
- 7) விண்ணப்பிக்கும் இடத்தின் மொத்த பரப்பளவு :
- 8) டெண்டர் விண்ணப்பம் அல்லது விண்ணப்பம் செய்யப்படும் இடத்தின் விவரம் :
- மாவட்டம் :
- வட்டம் :
- கிராமம் :
- புல எண் :
- பரப்பளவு (ஹெக்டேரில்) :
- 9) குத்தகை உரிமம் பெறுவதற்கு விண்ணப்பதாரரால் செலுத்தப்படவுள்ள அதிக பட்ச ஒரு தடவை குவாரி குத்தகை தொகை (எண்ணாலும் எழுத்தாலும் எழுத்தப்பட வேண்டும்) :
- 10) ஏற்கனவே தமிழ்நாட்டில் குவாரி குத்தகை உரிமம் பெற்ற இடத்தின் விவரம் :
- 11) (அ) குவாரிகளுக்கு உரிய நிலுவை செலுத்துதல் தொடர்பாக கரங்க நிலுவை இல்லா சான்று இணைக்கப்பட்டுள்ளதா? :
- (ஆ) விண்ணப்பிக்கும் நாளில் குத்தகை உரிமம் ஏதும் விண்ணப்பதாரருக்கு இல்லை எனில் அதற்கு உண்டான ஆணை உறுதி ஆவணம் இணைக்கப்பட்டுள்ளதா? :

- 12) விண்ணப்பதாரரால் அளிக்கப்படும் வேறு ஏதேனும் கூடுதல் விவரங்கள்

என்னால் / எங்களால் மேலே கொடுக்கப்பட்ட விவரங்கள் அனைத்தும் உண்மை. நான்/ நாங்கள் அரசு / மாவட்ட ஆட்சியர், மாவட்ட வன அலுவலர் ஆகியவர்களால் கேட்கப்படும் இதர விவரங்கள் மற்றும் பிணை வைப்பு தொகையினை அளிக்க சம்மதிக்கின்றேன் / சம்மதிக்கிறோம். தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 1959-ன் கீழ் குத்தகை உரிமம் வழங்க உள்ள விதிகள் மற்றும் குவாரி செய்ய கொடுக்கப்பட்ட இதர நிபந்தனைகள் அனைத்தையும் தெரிந்து கொண்டேன் / கொண்டோம் என உறுதி அளிக்கின்றேன் / அளிக்கின்றோம். மேலும் எந்த சூழ்நிலையிலும் மேற்கண்ட குத்தகை உரிம இடத்திலிருந்து ஏற்றுமதிக்கு ஏற்ற அல்லது அறுத்து மெருகேற்றுவதற்கு (Polish) உகந்த பரிமாணமுள்ள கற்கள் (Dimension stone) மற்றும் பலகை கற்கள் (Slabs) வெட்டியெடுக்க மாட்டேன் / மாட்டோம் என உறுதி அளிக்கின்றேன் / அளிக்கின்றோம்.

நாள் :

தங்கள் உண்மையுள்ள.

இடம் :

விண்ணப்பதாரரின் கையொப்பம்



தமிழ்நாடு தமில்நாடு TAMILNADU ரூ. 100 /

30.3.2022

SQUARE ENTERPRISES

Varaganapalli;

CP 907016

S. Ezhilarasi

S.EZHILARASI

S.V.L. No:8/2008/KGI

RAYAKOTTAI-635 116

KRISHNAGIRI-(DI).

PARTNERSHIP DEED

SQUARE ENTERPRISES

This deed is partnership is made on this the 30th day of March 2022 between:-

1. Sri, R.CHANDRAN S/o Rajanna (Aadhar No - 3259 6609 1019) aged about 34 years, residing at No 2/439,Varaganapalli Village, Nagamangalam Post, Denkanikottai Taluk, Krishnagiri District - 635 113 (hereinafter called the Party of FIRST PART),

AND

2. Sir, AMBA DATT BHATT S/o Paruwa Bhatt (Aadhar No - 6502 5410 6713) aged about 35 years, residing at Varaganapalli Village, Nagamangalam Post, Denkanikottai Taluk, Krishnagiri District - 635 113 (hereinafter called the Party of SECOND PART),

Witnesseth as under:

R. Chandran

AMBA



தமிழ்நாடு தமில்நாடு TAMILNADU

SQUARE ENTERPRISES

Varaganapalli

CP 907017

S. Ezhilarasi
S.V.L. No:8/2008/KGI
RAYAKOTTAI-635 116
KRISHNAGIRI-(Dt).



--2--

Whereas the parties of the above Two parts have mutually agreed to enter into a partnership for doing Business in the name and style of "SQUARE ENTERPRISES" Varaganapalli Village, Nagamangalam Post, Denkanikottai Taluk, Krishnagiri District - 635 113. With effect from today i.e. from 30th MARCH 2022 and agreed to record the terms and conditions in writing and this partnership Deed is entered on the following lines.

Now this Deed witnesseth as follows:

1. NAME

The name of the partnership business shall be "SQUARE ENTERPRISES"

R. Chandran

AMBA



தமிழ்நாடு தமில்நாடு TAMILNADU ரூ: 100 /

CP 907018

SQUARE ENTERPRISES

Varaganapalli

S. E. J.
S. EZHILARASI
S.V.L. No: 8/2008/KGI
RAYAKOTTAI-635 116
KRISHNAGIRI-(Dt).



--3--

2. DATE OF COMMENCEMENT

The date of commencement of business by the partnership is 30.03.2022

3. REGISTERED OFFICE

The registered office of the partnership business shall be at Varaganapalli Village, Nagamangalam Post, Denkanikottai Taluk, Krishnagiri District - 635 113. and /or shall be shifted to any other place/s and shall have branches at any place/s as the partners may decide from time to time for easy operation of the business.

R. Chandran

AMBA



4. BUSINESS

The partnership shall do the business of quarrying, polishing, trading and export of Blocks and Blue Metals, Raising contact, Hiring of the Earth moving machineries, Lorries, purchase and sale of Land, and land developing activities, RMC, Concrete products, soiled Blocks, wet mix and Bitumen plants, warehouse, and other related activates.

5. CAPITAL.

The Capital of the business shall be monies standing to the credit of the partners from time to time and the monies standing in the Capital Accounts and in the Current Accounts of the partners shall carry interest at the rate of 12% p.a.

6. MANAGEMENT.

Both the partners shall look after the day to-day affairs of the business and actively engaged in the conduct of the business. All the policy decisions shall be taken by mutual consent of both the Partners.

The party of the First part **Mr. R.CHANDRAN** shall have the powers to represent the partnership Firm in various Government and other Departments and can sign in all applications and papers on behalf of the Firm. He has the powers to participate in tenders, purchase and sale of movable/immovable properties in the name of the Firm entering into agreements and finalise the terms and conditions for the purpose of the partnership firm and for this purpose can sing in necessary papers on behalf of the firm.

7. BORROWING FOR THE FIRM.

The party of the First Part shall raise loans on behalf of the firm from Banks /Financial Institutions/ outsiders and such loans taken for the Partnership by him shall be binding on the firm.

8. BANK ACCOUNTS

The partnership shall open its Bank Account with any Bank/s and the same shall be operated by the party of the **First Part Mr. R.CHANDRAN** individually.

R. Chandran

AMBA



9. PROFIT SHARING

The Net Profit / Loss of the partnership after providing for all expenses including partners' Salary and Interest shall be shared among the partners as shown below:

Party of the First part	: 75%
Party of the Second part	: 25%

10. SALARY.

The remuneration of the partners shall be as follows:

Party of the First part	: Rs. 25,000/- p.m
Party of the Second part	: Rs. 10,000/- p.m

The remuneration fixed can be received at any time during the financial year depending upon the volume and profit of the business with the mutual consent of the partners. The book profit shall be calculated as per Section 40 (b) of the Income tax Act, 1961.

11. CLOSURE OF YEARLY ACCOUNTS.

The Accounts of the partnership shall be struck on **31st March every year.**

12. DURATION.

The duration of the partnership is "AT WILL", determinable by any partner giving a month's notice in writing to the other partner.

13. DISSOLUTION.

The death or retirement of a partner shall not dissolve the Firm. On death of a partner, the share of the deceased partners shall be transferred to his legal heirs.

14. ARBITRATION

Any dispute arising out of the conduct of this business shall be referred to arbitration as laid down by Indian Arbitration Act.

R. Chandran

AMBA



15. APPLICABILITY OF PARTNERSHIP ACT

All other Aspects for which no separate Clause has been provided in the partnership Deed, the provisions of Indian Partnership Act, 1932 shall apply.

In whiteness whereof, the parties hereto have signed this deed on the day, month and year first above mentioned.

R. Chandran

AMBA

WITNESSES:

1. ^{CPV} C. RAJAMANI S/o Chennappan, 1/465-B. Rahamath colony
Rajkothai. - 635116.
- 2.

V. A. S.

V. AMARAJ S/o L. Vijayalingam 2/188 A Kottavauz Village
Chandrapuram post, Nandampalli taluk Thirupattur - District. 635651

இந்திய அரசாங்கம்
Government of India
Rajanna D
CHANDRAN RAJANNA



பிறந்த தேதி DOB - 10/12/1988
தொழில் இலக்கம்

3259 6609 1019



- சாதாரண மனிதனின் அதிகாரம்



தொழில் இலக்கம்
பெயர்
பெயர்
பெயர்
பெயர்

Unified Identification Authority of India



3259 6609 1019

1947
1800 300 1847

help@uidai.gov.in

www.uidai.gov.in

आयकर विभाग
INCOME TAX DEPARTMENT
R CHANDRAN




भारत सरकार
GOVT. OF INDIA

RAJANNA

10/12/1988
Permanent Account Number

AZZPC8739Q


Signature



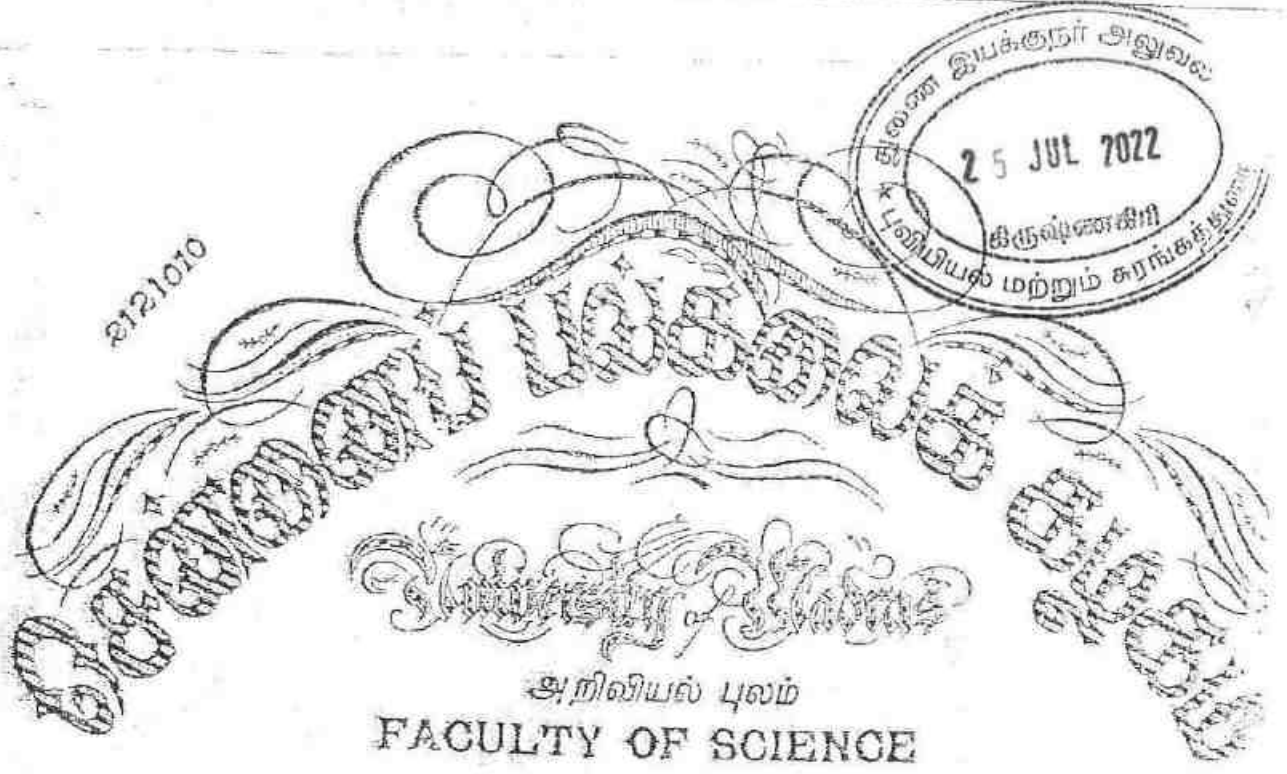
18102013

इस कार्ड के खोने/पाने पर कृपया सूचित करें/जोटाएं।
आयकर पैन सेवा इकाई, एन एन डी एल
5 वीं मंजिल, मंत्री स्ट्रीटिंग,
प्लॉट नं. 341, सर्वे नं. 997/8,
मॉडल कॉलोनी, दीप बंगला चौक के पास,
पुणे - 411 016.

If this card is lost / someone's lost card is found,
please inform / return to :

Income Tax PAN Services Unit, NSDL
5th Floor, Mantri Sterling,
Plot No. 341, Survey No. 997/8,
Model Colony, Near Deep Bungalow Chowk,
Pune - 411 016.

Tel: 91-20-2721 8080, Fax: 91-20-2721 8081
e-mail: tininfo@nsdl.co.in



சென்னைப் பல்கலைக் கழகப் பேரவை..... 1994
 ஆண்டு..... ஏப்ரல்..... மாணம் தடக்கு..... கனிமவியல்..... கோவில்
 பெ. சங்கராசு..... என்பவர்..... முதல்..... வகுப்பில்
 இயக்கி இயற்றினார் என்று தக்க சான்றுகள் சான்றளித்தபடி அறிவியல் நிறைஞர்
 என்னும் பட்டத்தை அவருக்குப் பல்கலைக் கழக இலாசக்கிளைமுனை வழங்கி விட்டது.

The Senate of the UNIVERSITY OF MADRAS hereby
 makes known that..... *To. Thangaraju*.....
 has been admitted to the Degree of Master of Science, he/she
 having been certified by duly appointed Examiners to be qualified
 to receive the same in..... *Geology*..... and was placed in the
First..... Class, at the Examination held in April 1994



Given under the seal of the University,

சென்னை, செப்பாதி
 சென்னை, Madras
 25-01-1999


F. J. [Signature]
 அனைத்து இயக்குநர்
 அலுவலகம்

GOVERNMENT OF INDIA
 MINISTRY OF LABOUR AND REHABILITATION
 OFFICE OF THE DIRECTOR GENERAL OF MINES SAFETY

Certificate of Practical experience granted by the Manager to a candidate for a Manager's /
 Surveyor's / Foreman's / Over man's / Sirdar's / Mate's / Shot firer's / Blaster's Certificate of
 competency (Restricted) examination under the Metalliferous Mines Regulations 1957.

I T.VENKATARAJAGOPALAN being the Mines Agent of M/S.LIMENAPH
 CHEMICALS, RAJAPALAYAM OF LIMESTONE PRODUCTS (Thenmalai
 Limestone Mine) do hereby certify that Thiru P.THANGARAJU, son of
 S.PERIASAMY (whose signature is appended) worked as a Geologist in the above mine
 from 02.05.1994 to 30.12.1999. 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.



 (Signature with date and official Seal)
 [T.VENKATARAJAGOPALAN]

Mines Agent:

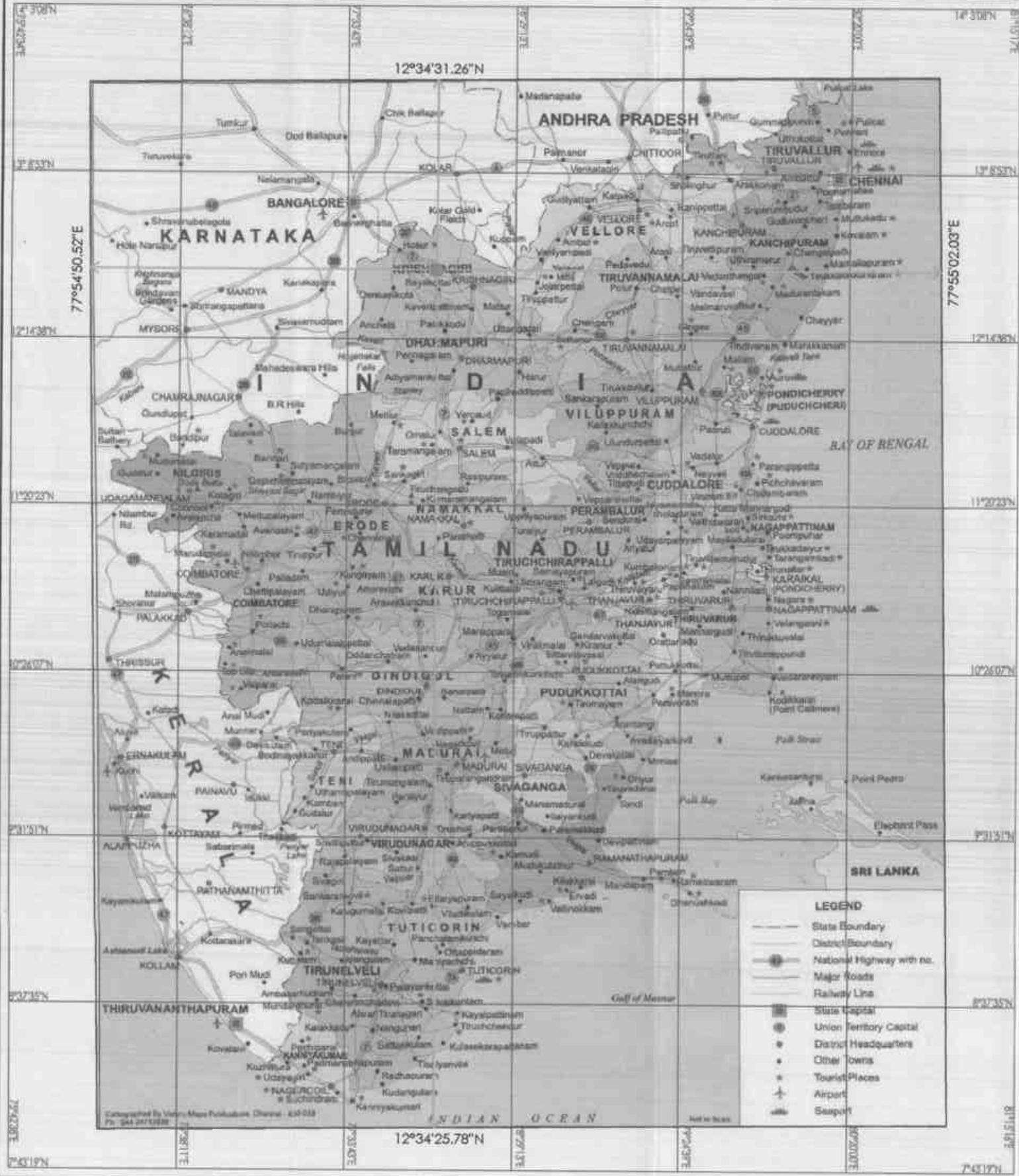
P.O. : ARUKANGULAM

District : TIRUNELVELI

State : TAMIL NADU


 (Signature of Candidate)

(State name of Mineral) : LIMESTONE



INDEX

Q.L.APPLIED AREA : ●
 TOPO SHEET NO. : 57-H / 14

LATITUDE : 12°34'25.78"N to 12°34'31.26"N
 LONGITUDE : 77°54'50.52"E to 77°55'02.03"E

APPLICANT :
 TVL SQUARE ENTERPRISES,
 VARAKANPALLI VILLAGE,
 NAGAMANGALAM POST,
 THENKANIKOTTAI TALUK,
 KRISHNAGIRI DISTRICT - 635 113.

LOCATION OF Q.L.APPLIED AREA:
 S.F.No : 629 (PART),
 EXTENT : 3.20.5 Ha,
 VILLAGE : NAGAMANGALAM,
 TALUK : THENKANIKOTTAI,
 DISTRICT : KRISHNAGIRI,
 STATE : TAMIL NADU.

PLATE NO - I
 DATE OF SURVEY : 15.06.2022

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 LEASE MAP
 AUTHENTICATED BY STATE GOVERNMENT

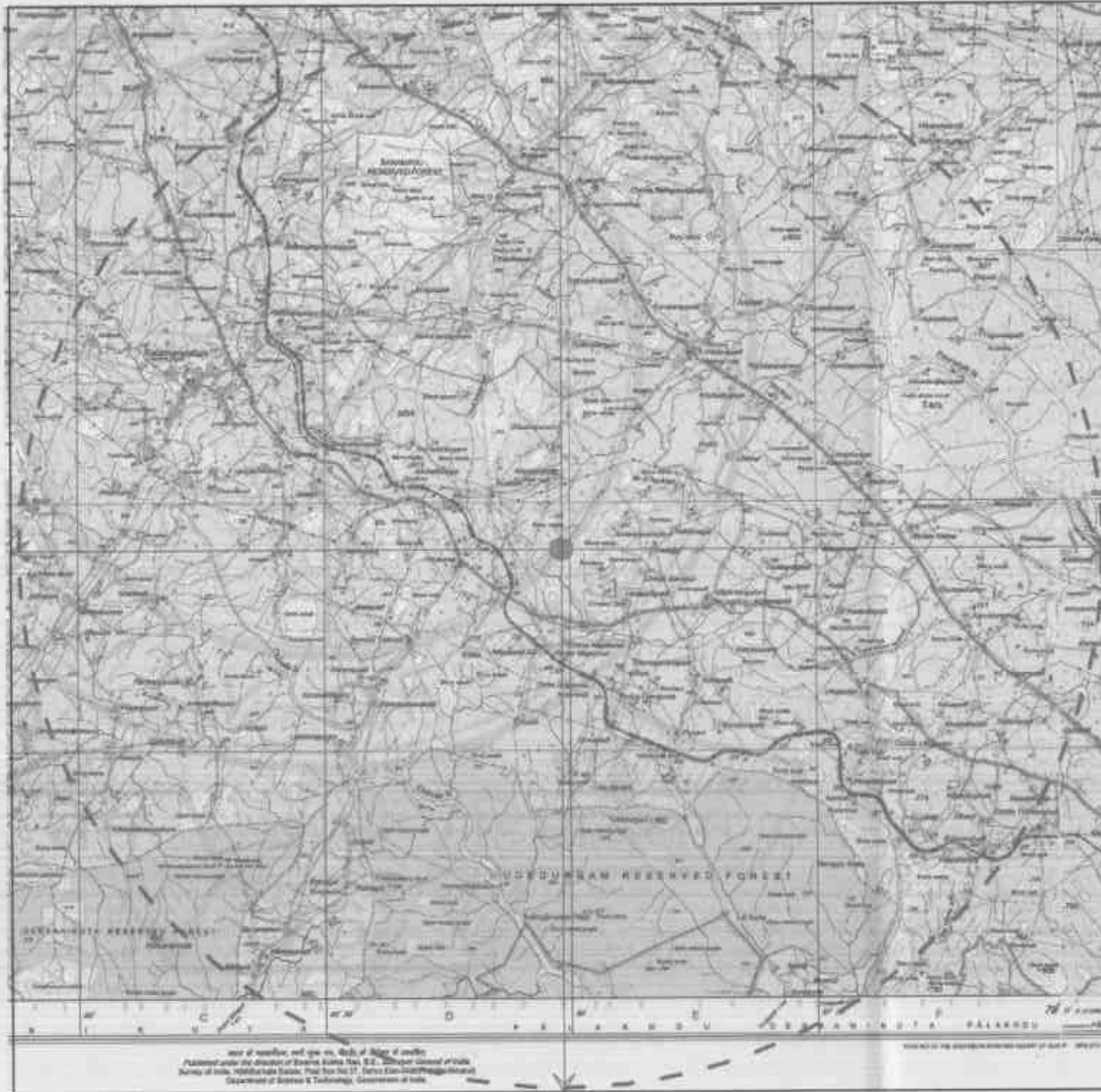
[Signature]
 D.P. NAGAMANGALAM, M.Sc, Ph.D.,
 QUALIFIED PERSON



12° 39' 56.38"N

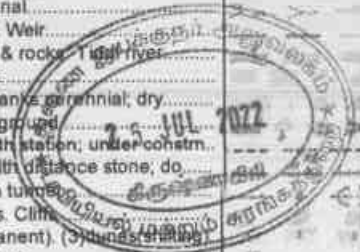
77° 49' 19.52"E

78° 00' 33.00"E



12° 29' 00.66"N

Express highway; with toll; with bridge; with distance stone.....	
Roads metalled; according to importance.....	
Roads; dry with carriage-way; according to importance.....	
Unmetalled road. Cart-track. Pack-track with pass. Foot-path.....	
Streams; with track in bed; undefined. Canal.....	
Dams; masonry or rock-filled; earthwork. Weir.....	
River; dry with water channel; with island & rocks. Tidal river.....	
Submerged rocks. Shoal. Swamp. Reeds.....	
Wells: lined; unlined. Tubewell. Spring. Tank. Perennial; dry.....	
Embankments: road or rail; tank. Broken ground.....	
Railways, broad gauge: double: single with station; under constn.....	
Railways, other gauges: double, single with distance stone; do.....	
Mineral line or tramway. Kiln. Cutting with tunnel.....	
Contours with sub-features. Rocky slopes. Cliffs.....	
Sand features: (1) flat (2) sand-hills(permanent) (3) sand-hills.....	
Towns or Villages: inhabited; deserted. Fort.....	
Huts: permanent; temporary. Tower. Antiquities.....	
Temple. Chhatri. Church. Mosque. Idgah. Tomb. Graves.....	
Lighthouse. Lightship. Buoys: lighted; unlighted. Anchorage.....	
Mine. Vine on trellis. Grass. Scrub.....	
Palms: palmyra; other. Plantain. Conifer. Bamboo. Other trees.....	
Areas: cultivated; Wooded. Surveyed trees.....	
Boundary, international.....	
Boundary, state: demarcated; undemarcated.....	
Boundary, district, subdivision, tahsil or taluk; forest.....	
Boundary pillars: surveyed; unlocated.....	
Heights, triangulated: station: point: approximate.....	
Bench-mark: geodetic; tertiary, canal.....	
Post office. Telegraph office. Overhead tank.....	
Rest house or inspection bungalow. Circuit house. Police station.....	
Camping Ground. Forest reserved; protected.....	
Spaces names: administrative; locality or tribal.....	
Hospital. Dispensary. Veterinary. Hospital/Dispensary.....	
Aerodrome. Helipad. Tourist site.....	
Powerline: with pylons surveyed; with poles unsurveyed.....	



APPLICANT :

TVI, SQUARE ENTERPRISES,
VARAKANPALLI VILLAGE,
NAGAMANGALAM POST,
THENKANIKOTTAI TALUK,
KRISHNAGIRI DISTRICT - 635 113.

LOCATION OF Q.L. APPLIED AREA:

S.F.No : 629 (PART),
EXTENT : 3.20.5 Ha,
VILLAGE : NAGAMANGALAM,
TALUK : THENKANIKOTTAI,
DISTRICT : KRISHNAGIRI,
STATE : TAMIL NADU.

PLATE NO - I-A

DATE OF SURVEY : 15.06.2022

**TOPO SKETCH OF QUARRY LEASE
APPLIED AREA FOR 10Km RADIUS**

SCALE. 1:1,00,000

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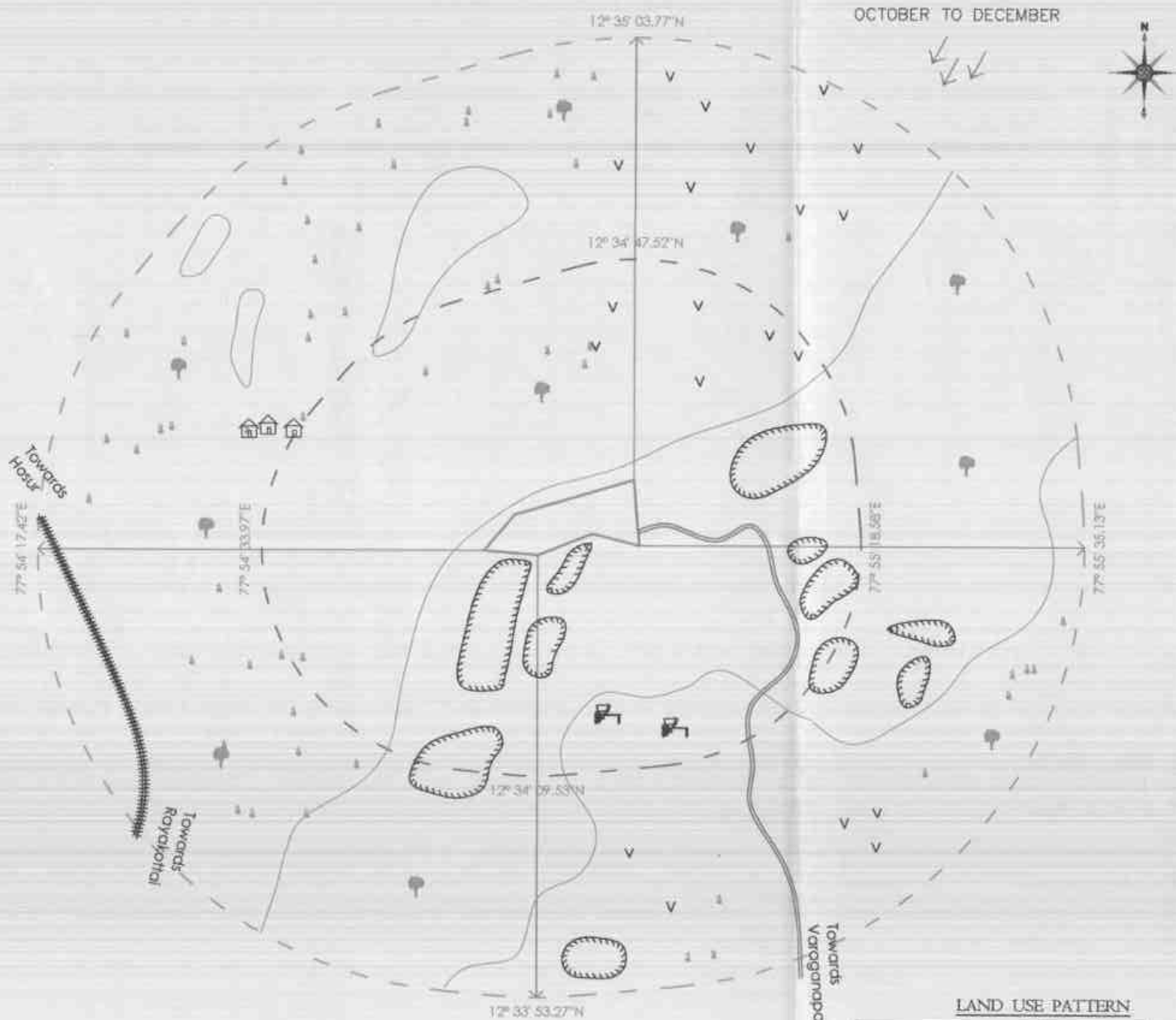
D. P. NARAYANA RAJU, M.Sc, Ph.D.,
QUALIFIED PERSON

TOPO SHEET NO. : 57-H /14

LATITUDE : 12°34'25.78"N to 12°34'31.26"N
LONGITUDE : 77°54'50.52"E to 77°55'02.03"E

10km RADIUS :

Q.L. APPLIED AREA 108 A :



OCTOBER TO DECEMBER



- Q.L. APPLIED AREA
- 1 KM RADIUS
- 500m RADIUS
- SEASONAL AGRICULTURE LAND
- TREES & COCONUT FARM
- HABITATION
- QUARRY PIT & CRUSHER UNIT
- WIND DIRECTION
- PANCHAYAT ROAD
- APPROACH ROAD
- BARREN LAND
- ELEVATED AREA

APPLICANT :

M. SQUARE ENTERPRISES,
VARAKANPALLI VILLAGE,
NAGAMANGALAM POST,
THENKANIKOTTAI TALUK,
KRISHNAGIRI DISTRICT - 635 113.

LOCATION OF Q.L. APPLIED AREA:

S.F.No : 629 (PART),
EXTENT : 3.20.5 Ha,
VILLAGE : NAGAMANGALAM,
TALUK : THENKANIKOTTAI,
DISTRICT : KRISHNAGIRI,
STATE : TAMIL NADU.

PLATE NO - I-B

DATE OF SURVEY : 15.06.2022

ENVIRONMENTAL & LAND USE PLAN

SCALE: 1:10,000

PREPARED BY :

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[Signature]
DR. P. THIRUKANARAJU, M.Sc., Ph.D.,
QUALIFIED PERSON

TOPO SHEET NO. : 57-H /14

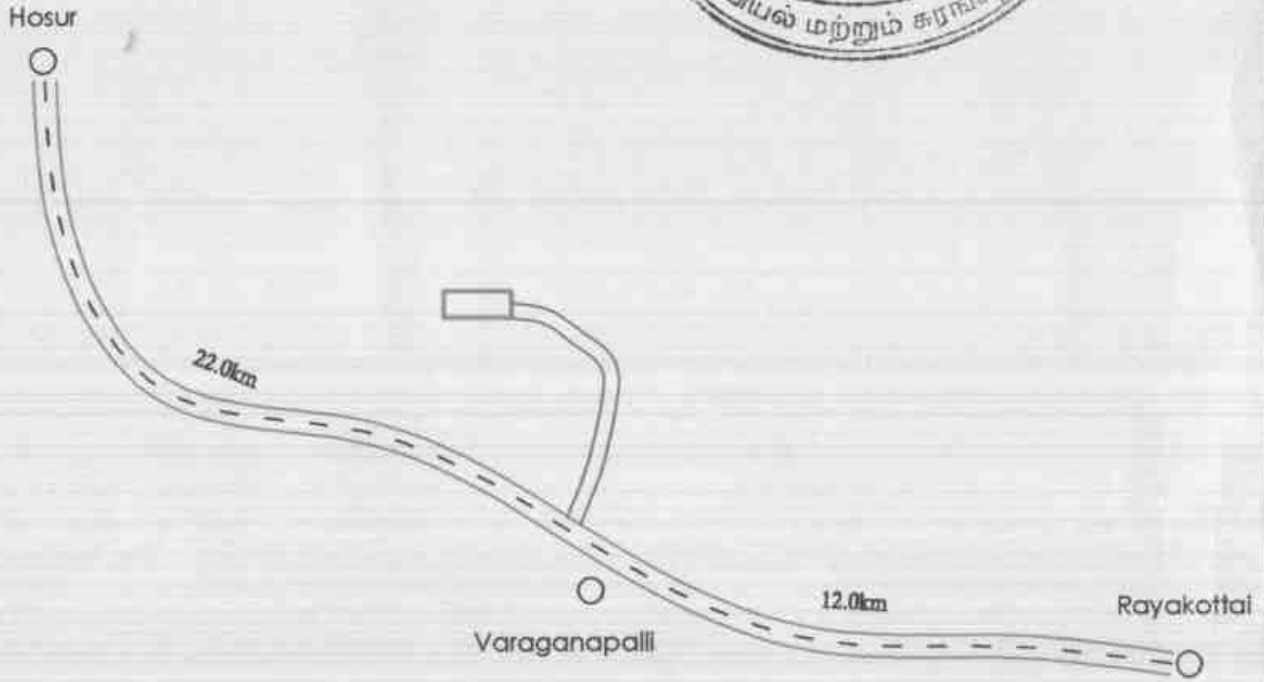
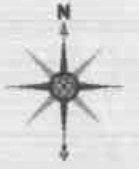
LATITUDE : 12°34'25.78"N to 12°34'31.26"N
LONGITUDE : 77°54'50.52"E to 77°55'02.03"E

DESCRIPTION	PERCENTAGE	INDEX
QUARRY PITS & CRUSHER	(05%)	
TREES	(06%)	
SEASONAL AGRI LAND	(33%)	
ROADS	(07%)	
HABITATION	(03%)	
BARREN LAND	(18%)	
ELEVATED AREA	(28%)	
TOTAL	100%	

JULY TO SEPTEMBER

PLATE NO : I-C

ROUTE MAP



INDEX

LEASE APPLIED AREA

NATIONAL HIGHWAY

APPROACH ROAD

APPLICANT :

M. SQUARE ENTERPRISES,
VARAKANPALLI VILLAGE,
NAGAMANGALAM POST,
THENKANIKOTTAI TALUK,
KRISHNAGIRI DISTRICT - 635 113.

LOCATION OF Q.L.A. AREA:

S.F.No : 629 (PART),
EXTENT : 3.20.5 Ha,
VILLAGE : NAGAMANGALAM,
TALUK : THENKANIKOTTAI,
DISTRICT : KRISHNAGIRI,
STATE : TAMIL NADU.

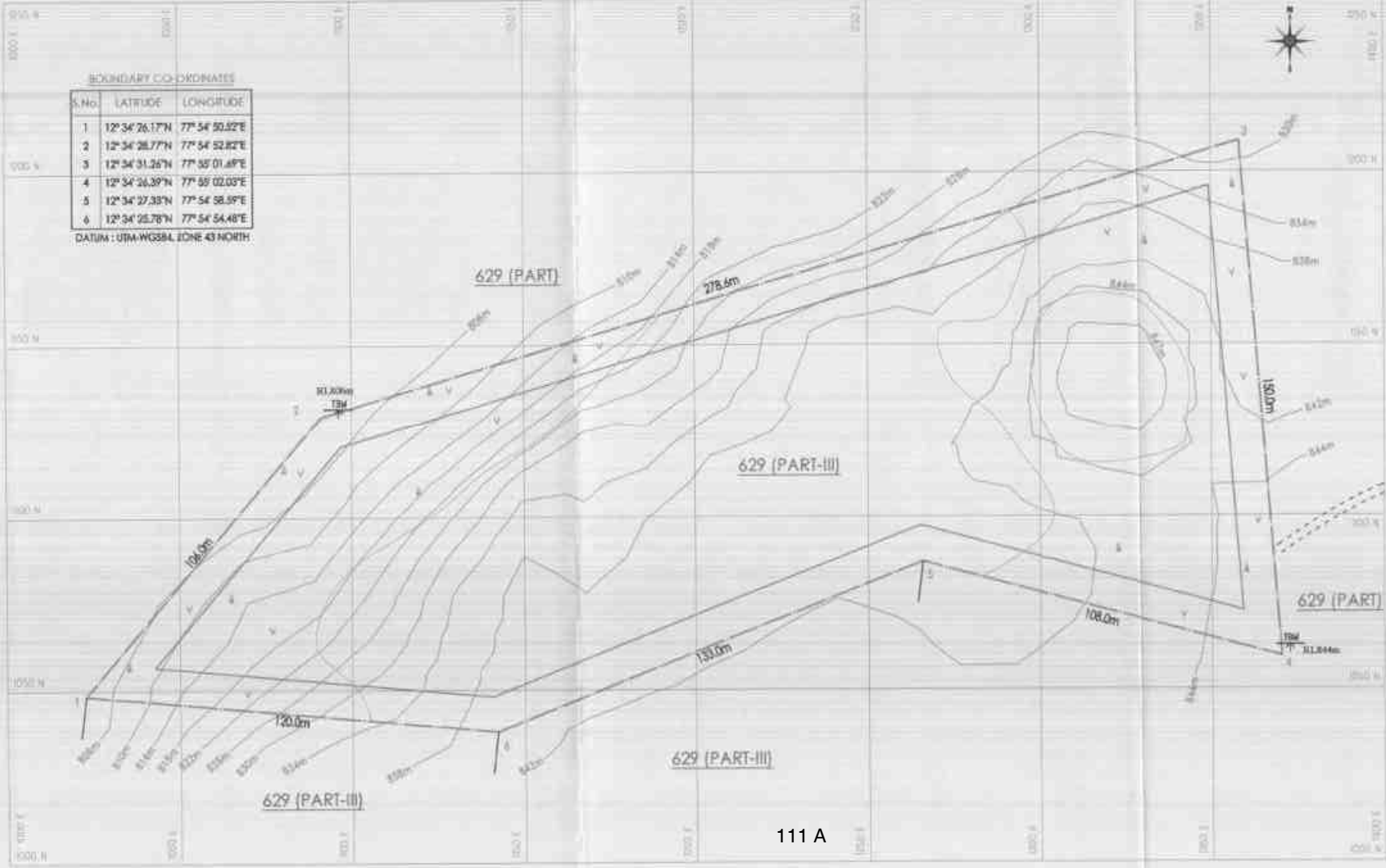
SCALE :

NOT TO SCALE

PREPARED BY:

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D. P. HANUMANTHOJU, M.Sc, Ph.D.,
QUALIFIED PERSON



BOUNDARY CO-ORDINATES

S.No	LATITUDE	LONGITUDE
1	12° 34' 26.17" N	77° 54' 50.02" E
2	12° 34' 28.77" N	77° 54' 52.82" E
3	12° 34' 31.25" N	77° 55' 01.65" E
4	12° 34' 34.39" N	77° 55' 02.03" E
5	12° 34' 27.33" N	77° 54' 58.59" E
6	12° 34' 25.78" N	77° 54' 54.48" E

DATUM : UTM-WGS84, ZONE 43 NORTH

- BOUNDARY BENCHMARK
- TOP SOIL
- SHRUBS
- APPROACH ROAD
- OUTCROP
- CONTOUR

APPLICANT :
 M. SQUARE ENTERPRISES,
 VARAKAMPALLI VILLAGE,
 NAGAMANGALAM POST,
 THENKANKOTTAI TALUK,
 KRISHNAGIRI DISTRICT - 625 112.

LOCATION OF Q.L. APPLIED AREA:
 S.F.No : 629 (PART),
 EXTENT : 3.20.5 Ha.,
 VILLAGE : NAGAMANGALAM,
 TALUK : THENKANKOTTAI,
 DISTRICT : KRISHNAGIRI,
 STATE : TAMIL NADU.

PLATE NO - II
 DATE OF SURVEY : 15.06.2022

**QUARRY LEASE PLAN &
 SURFACE PLAN**
 SCALE: 1:1000

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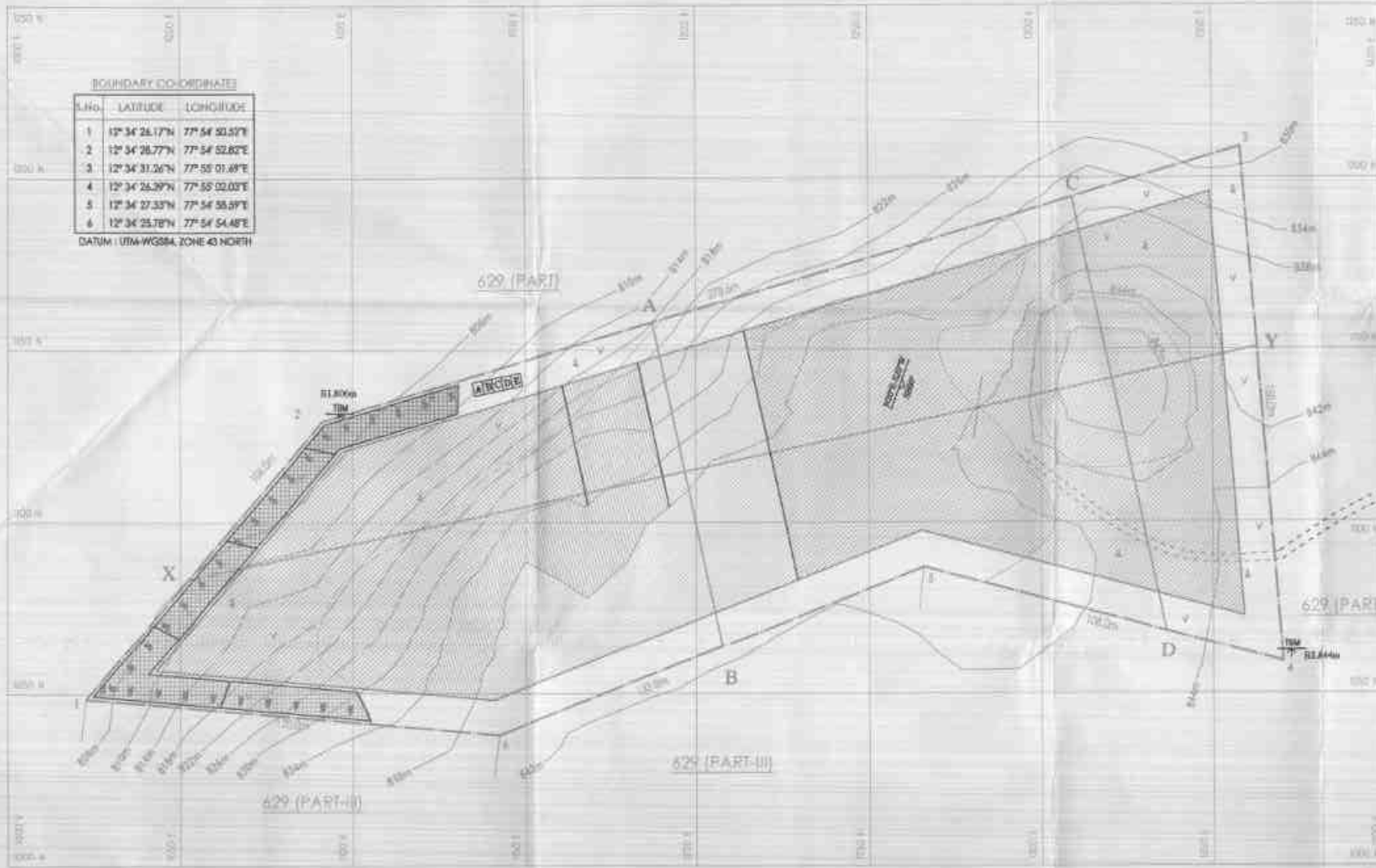
M. MANGALAM M.S.P.N.S.,
 QUALIFIED PERSON

25 JUL 2022

BOUNDARY COORDINATE

S.No.	LATITUDE	LONGITUDE
1	12° 34' 26.17" N	77° 54' 20.57" E
2	12° 34' 26.77" N	77° 54' 52.82" E
3	12° 34' 31.06" N	77° 55' 01.69" E
4	12° 34' 26.39" N	77° 55' 02.03" E
5	12° 34' 27.33" N	77° 54' 55.97" E
6	12° 34' 25.78" N	77° 54' 54.48" E

DATUM : UTM-WGS84, ZONE 43 NORTH



INDEX

	Q.L. APPLIED AREA BOUNDARY
	10m SAFETY DISTANCE
	TEMPORARY BENCH MARK
	TOP SOIL
	ROUGHSTONE
	STRIKE & DIP
	SHRUBS
	QUARRY HAUL ROAD
	APPROACH ROAD
	DEPTH OF ESTIMATION
	OUTCROP
	CONTOUR

APPLICANT :
 TVI SQUARE ENTERPRISES,
 VARAKANPALLI VILLAGE,
 NAGAMANGALAM POST,
 THENKANIKOTTA TALUK,
 KRISHNAGIRI DISTRICT - 635 113.

LOCATION OF Q.L. APPLIED AREA:
 S.F.No : 629 (PART),
 EXTENT : 3.20.5 Ha,
 VILLAGE : NAGAMANGALAM,
 TALUK : THENKANIKOTTA,
 DISTRICT : KRISHNAGIRI,
 STATE : TAMIL NADU.

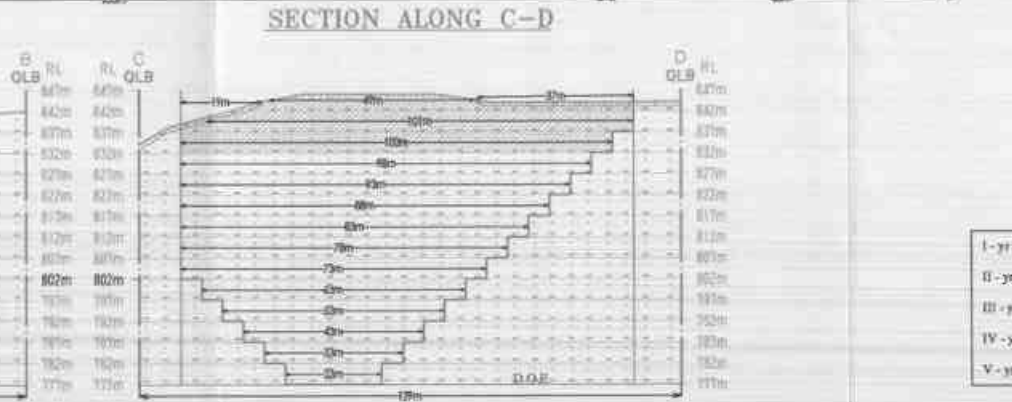
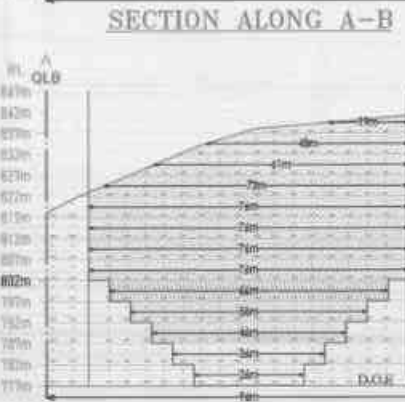
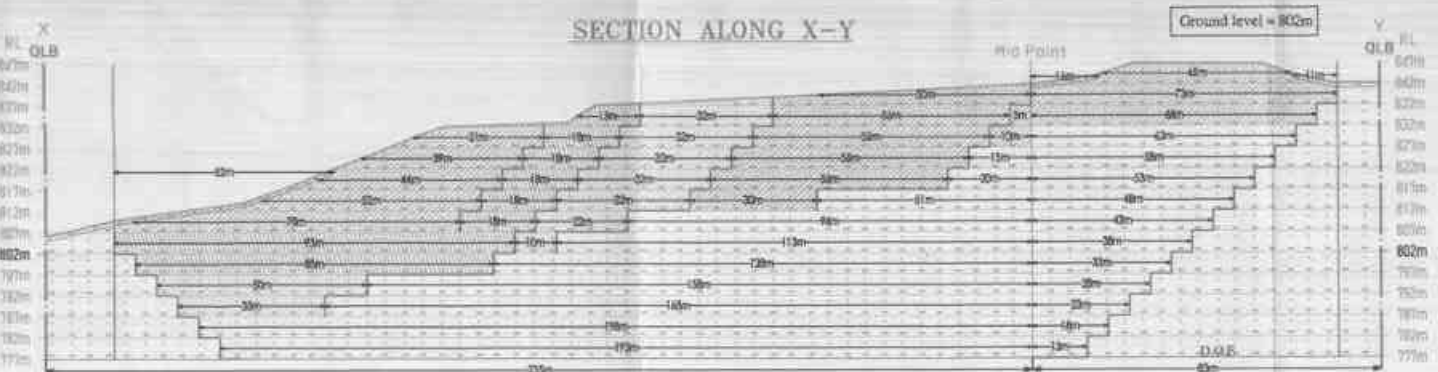
PLATE NO - III-A
 DATE OF SURVEY : 15.06.2022

**TOPOGRAPHY, GEOLOGICAL PLAN,
 FIRST FIVE YEARWISE
 DEVELOPMENT & PRODUCTION
 PLAN & SECTIONS**

SCALE : 1:1000

PREPARED BY :
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 AUTHENTICATED BY STATE GOVERNMENT

[Signature]
 S. P. RAMANATHAN, P.E.,
 QUALIFIED PERSON



SITE SERVICES (Proposed)

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

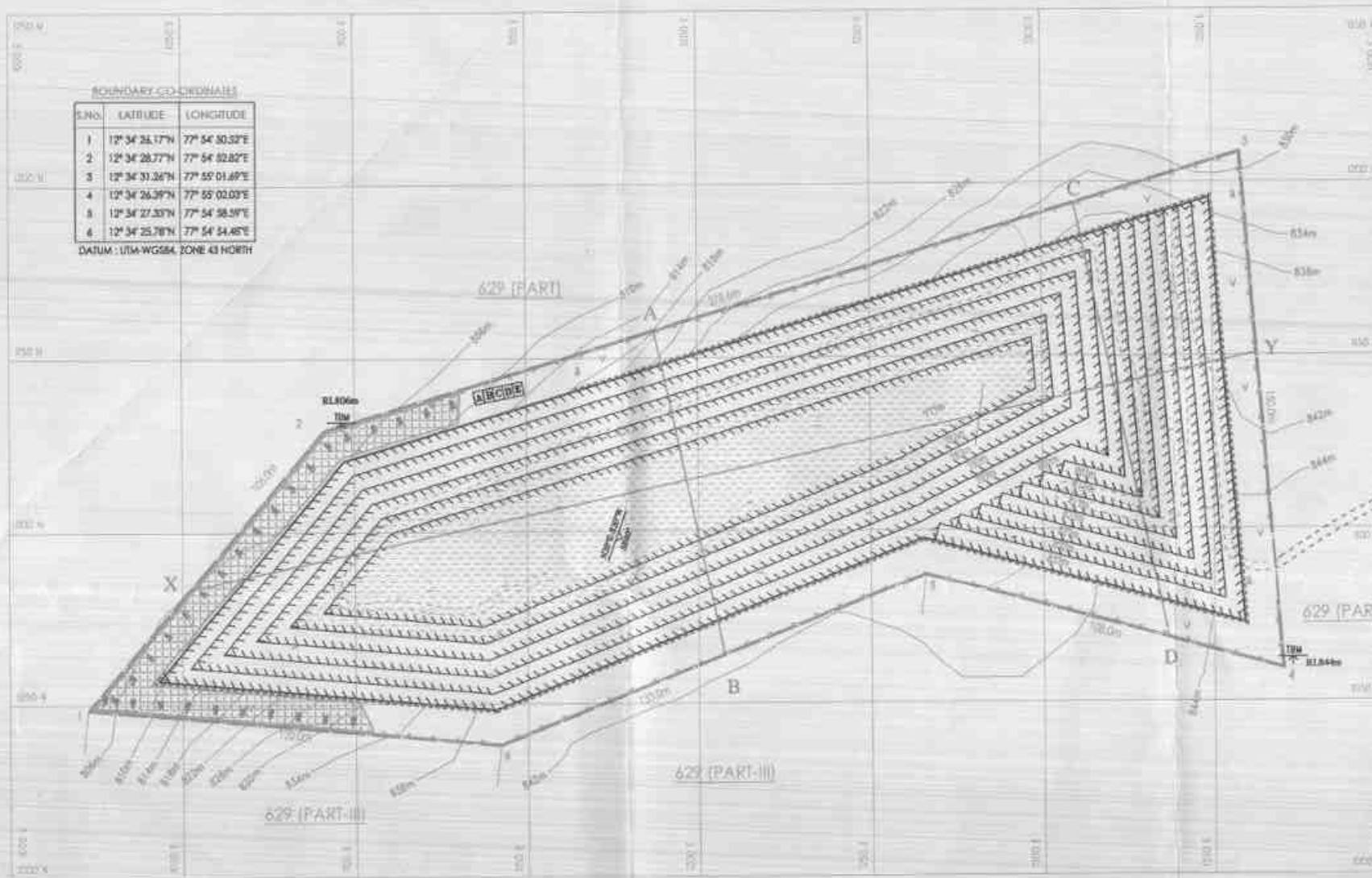
I - yr Proposed area to be Placed	
II - yr Proposed area to be Placed	
III - yr Proposed area to be Placed	
IV - yr Proposed area to be Placed	
V - yr Proposed area to be Placed	

I - yr Proposed area to be Quarried	
II - yr Proposed area to be Quarried	
III - yr Proposed area to be Quarried	
IV - yr Proposed area to be Quarried	
V - yr Proposed area to be Quarried	

BOUNDARY CO-ORDINATES

S.NO.	LATITUDE	LONGITUDE
1	12° 34' 24.17" N	77° 54' 30.32" E
2	12° 34' 28.77" N	77° 54' 32.82" E
3	12° 34' 33.26" N	77° 55' 01.69" E
4	12° 34' 26.39" N	77° 55' 02.03" E
5	12° 34' 27.53" N	77° 54' 58.59" E
6	12° 34' 25.78" N	77° 54' 54.85" E

DATUM : UTM-WGS84, ZONE 43 NORTH



SITE SERVICES

- A - OFFICE
- B - REST ROOM
- C - FEED AND WATER
- D - MUST BE BUILT
- E - TOILET

INDEX

- Q.L. APPLIED AREA BOUNDARY
- 10m SAFETY DISTANCE
- TEMPORARY BENCH MARK
- V V TOP SOIL
- ROUGHSTONE
- STRIKE & DIP
- QUARRY PIT
- SHRUBS
- QUARRY HAUL ROAD
- APPROACH ROAD
- IV Y PLANTATION
- OUT CROP
- CONTOUR
- BARBED WIRE FENCING
- EXISTING LAND FORM
- PROPOSED GARLAND DRAIN
- OLD SURFACE LEVEL
- FINISHED SURFACE LEVEL
- RAIN WATER STORAGE

APPLICANT :

TVL SQUARE ENTERPRISES,
VARAKANPALLI VILLAGE,
NAGAMANGALAM POST,
THENKANKOTAI TALLUK,
KRISHNAGIRI DISTRICT - 635 113.

LOCATION OF Q.L. APPLIED AREA :

S.F.No : 629 (PART),
EXTENT : 3.205 Ha,
VILLAGE : NAGAMANGALAM,
TALLUK : THENKANKOTAI,
DISTRICT : KRISHNAGIRI,
STATE : TAMIL NADU.

PLATE NO - IV

DATE OF SURVEY : 15.06.2022

**PROGRESSIVE QUARRY CLOSURE
PLAN & SECTIONS**

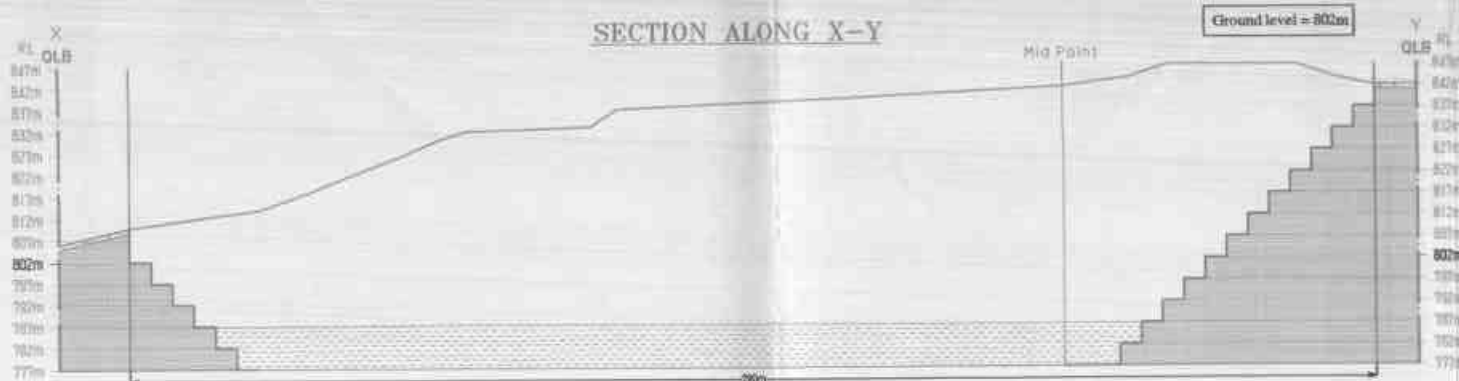
SCALE : 1:1000

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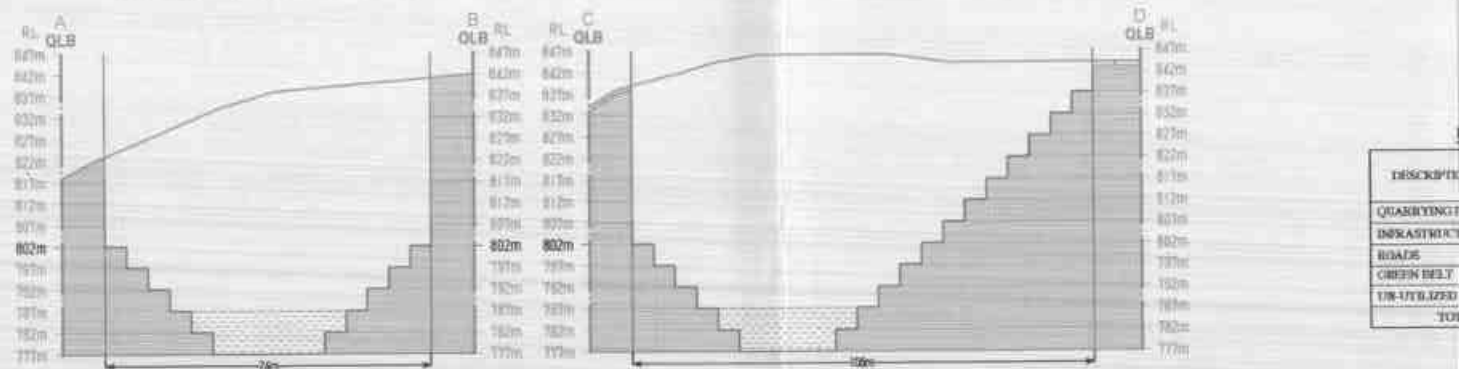
[Signature]
G.P. NAGARAJAN, M.S., P.S.,
QUALIFIED PERSON

SECTION ALONG X-Y



SECTION ALONG A-B

SECTION ALONG C-D



Proposed Pit Dimension (max)
= 290m X 108m X 70m (d)
(Depth AGL=45m ; BGL=25m)

LAND USE PATTERN

DESCRIPTION	PRESENT AREA (Ha)	AREA AT THE END OF THIS QUARRYING PERIOD (Ha)
QUARRYING PIT	Nil	2.383
INFRASTRUCTURE	Nil	0.010
ROADS	Nil	0.020
GREEN BELT	Nil	0.200
UN-UTILIZED AREA	0.203	0.580
TOTAL	0.203	3.205

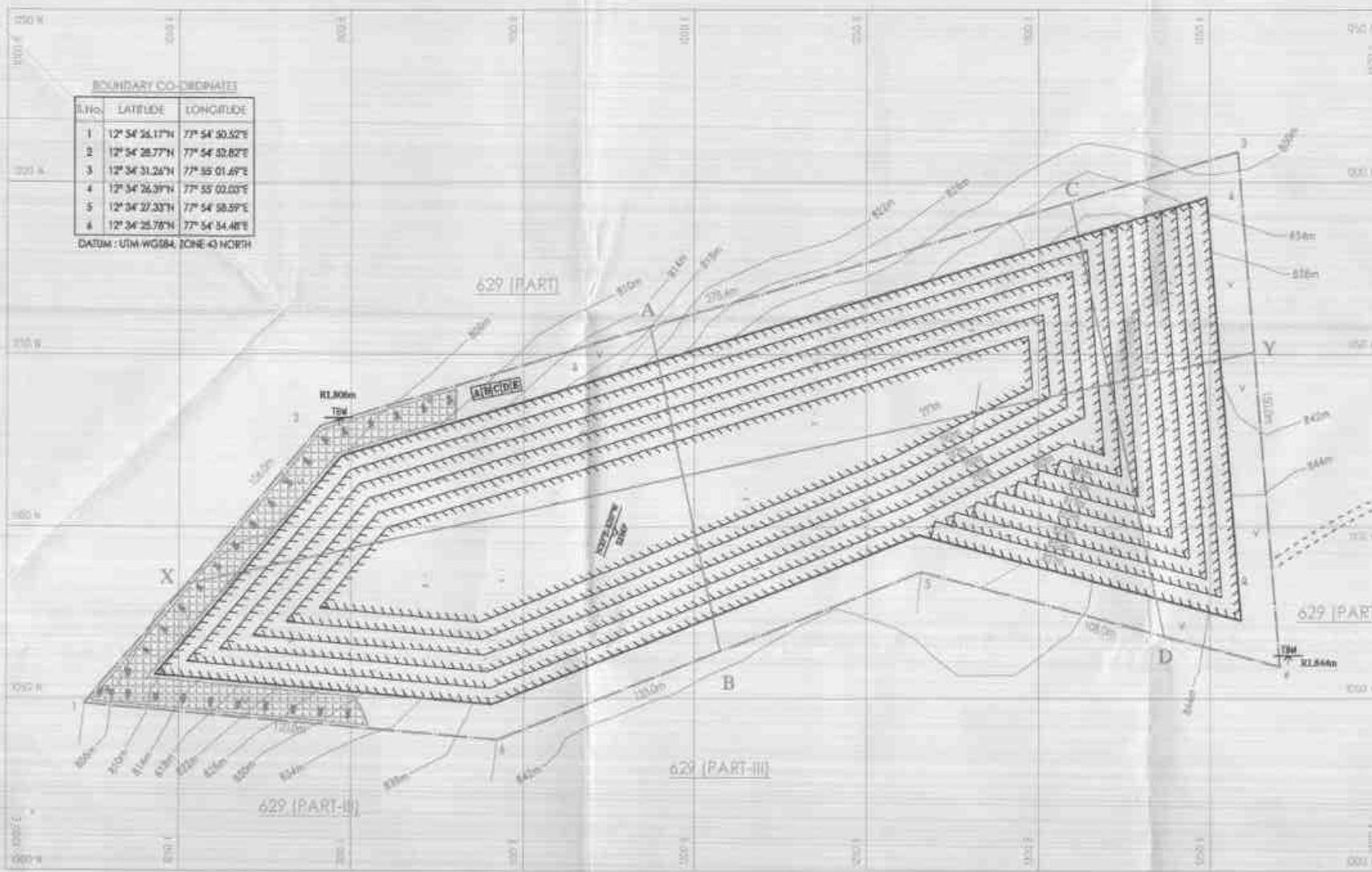


SITE SERVICES
 A - OFFICE
 B - SITE BENCH
 C - POINT A/B/C/D/E
 D - POINT S/SHOLEY
 E - SHOLEY

BOUNDARY CO-ORDINATES

S.No.	LATITUDE	LONGITUDE
1	12° 54' 26.17"N	77° 54' 30.32"E
2	12° 54' 28.77"N	77° 54' 32.82"E
3	12° 54' 31.26"N	77° 55' 01.47"E
4	12° 54' 26.37"N	77° 55' 02.03"E
5	12° 54' 27.33"N	77° 54' 58.39"E
6	12° 54' 25.78"N	77° 54' 34.48"E

DATUM : UTM WGS84, ZONE 43 NORTH



INDEX

- Q.L. APPLIED AREA BOUNDARY
- 10m SAFETY DISTANCE
- TEMPORARY BENCH MARK
- TOP SOIL
- ROUGHSTONE
- STRIKE & DIP
- QUARRY PIT
- SHRUBS
- QUARRY HAUL ROAD
- APPROACH ROAD
- 1-V Yr PLANTATION
- OUT CROP
- CONTOUR

APPLICANT :
 M. SQUARE ENTERPRISES,
 VARAKAMPALLI VILLAGE,
 NAGAMANGALAM POST,
 THENKANIKOTTA TALUK,
 KRISHNAGIRI DISTRICT - 635 113.

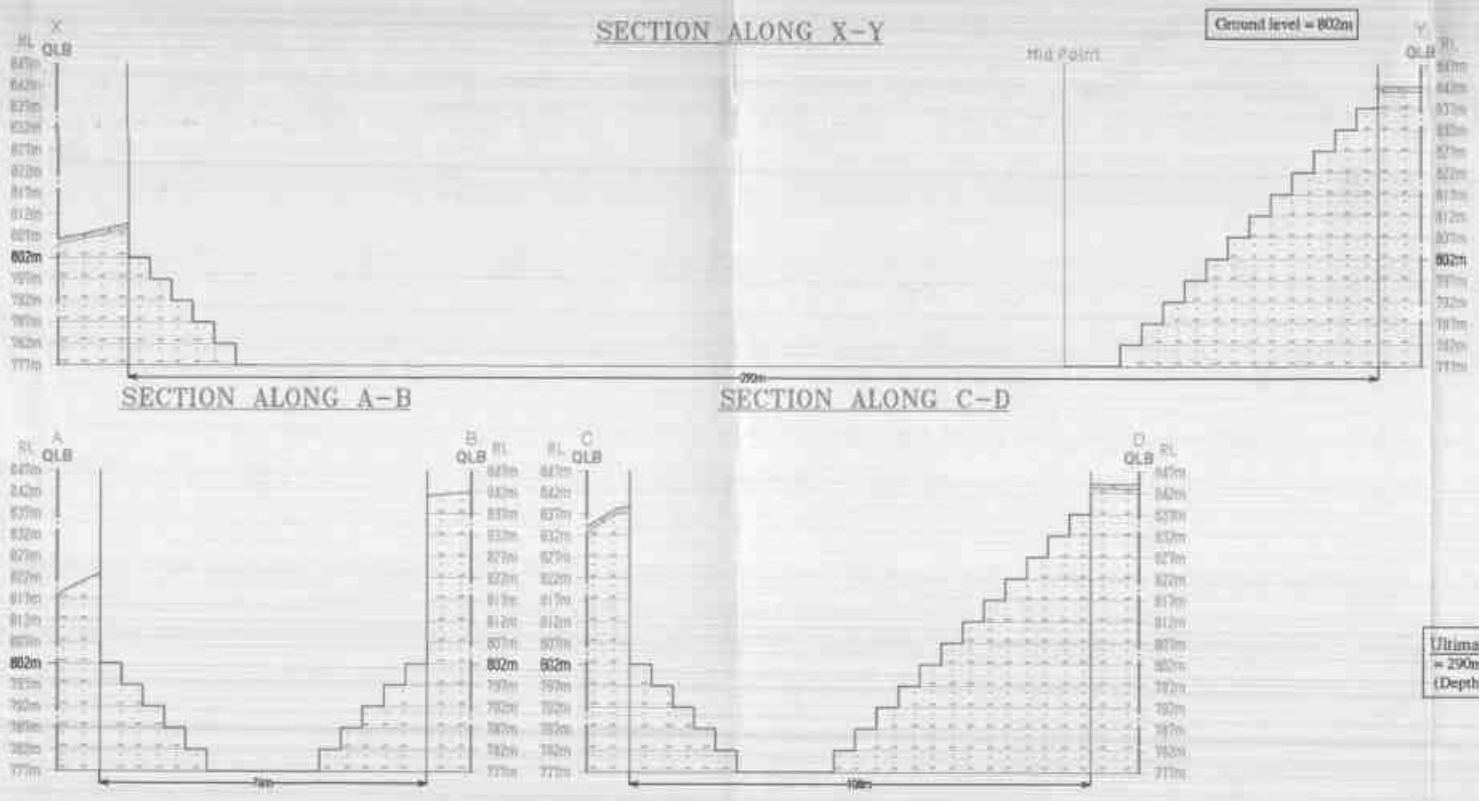
LOCATION OF Q.L. APPLIED AREA :
 S.F.No : 629 (PART),
 EXTENT : 3.20.5 Ho,
 VILLAGE : NAGAMANGALAM,
 TALUK : THENKANIKOTTA,
 DISTRICT : KRISHNAGIRI,
 STATE : TAMIL NADU.

PLATE NO - V
 DATE OF SURVEY : 15.06.2022

CONCEPTUAL PLAN & SECTIONS
 SCALE: 1:1000

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[Signature]
 S.P. THIRUMALASAMY,
 QUALIFIED PERSON



Ultimate Pit Dimension (max)
 = 290mX108mX70m(d)
 (Depth: AGL=4.5m ; BGL=25m)

HYDROGEOLOGICAL REPORT FOR

Rough Stone Quarry Over an extent of 3.20.5Ha of Government land

in S.F.No.629 (Part) of Nagamangalam Village,

Denkanikottai Taluk, Krishnagiri District,

Tamil Nadu State.

HYDROGEOLOGICAL REPORT FOR
NAGAMANGALAM ROUGH STONE QUARRY

1. INTRODUCTION

Name of the Applicant with Address-

Name of the applicant : **Tvl. Square Enterprises**
Address : Varaganapalli Village,
Nagamangalam Post,
Denkanikottai Taluk,
Krishnagiri District.
Pin Code : 635 113
Mobile No : +91 94448 95079
Aadhaar No : 3259 6609 1019
Email ID : rajnandhunisha@gmail.com

Details of the Area-

Land Classification : Government Poramboke Land
Survey No : 629 (Part)
Extent in Hectares : 3.20.5Ha
Village : Nagamangalam
Taluk : Denkanikottai
District : Krishnagiri

The Client requires detailed information on Ground Water Occurrences at Proposed Project Site of Rough Stonequarry. The objective of the present study is to assess the availability of groundwater and comment on aspects of depth to potential aquifers, aquifer availability and type, possible yields and water quality. For this purpose all available hydrogeological information of the areas has been analyzed, and a geophysical survey was done.

The investigations involved hydrogeological, geophysical field investigations and a detailed study in which the available relevant geological and hydrogeological data were collected, analyzed, collated and evaluated within the context of the Client's requirements. The data sources consulted were mainly:

- a) Central Ground Water Board (CGWB) Data
- b) State & District Geological and Hydrogeological Reports and Maps.

c) Technical reports of the area by various organizations.

2. SCOPE OF THE WORKS –

The scope of works includes:

- ❖ Site visits to familiarize with the project areas. Identify any issues that might impact the Ground Water Scenario due to proposed mining activities.
- ❖ To obtain, study and synthesize background information including the geology, hydrogeology and existing borehole data, for the purpose of improving the quality of assessment and preparing comprehensive hydrogeological reports,
- ❖ To carry out hydrogeological evaluation and geophysical investigations in the selected sites in order to determine potential for groundwater at project site.
- ❖ To prepare hydrogeological survey reports in conformity with the provisions of the rules and procedure outlined by the Central Ground Water Board (CGWB), by Assessment of water quality and potential infringement of National standards, Assessment of availability of groundwater and Impact of proposed activity on aquifer, water quality and other abstractors.

3. BACKGROUND INFORMATION

Location

The area is marked in the Survey of India, Topo Sheet No. **57 - H/14**. The area is between the Latitudes of **12°36'14.45"N to 12°36'21.97"N** and Longitudes **77°53'57.46"E to 77°54'07.76"E** on WGS datum-1984.

4. GEOMORPHOLOGY

Krishnagiri district forms part of the upland plateau region with many hill ranges and undulating plains. The western part of the district has hill ranges of Mysore plateau with a chain of undulating hills and deep valleys extending in NNE-SSW direction. The plains of the district have an average elevation of 488m msl. The plateau region along the western boundary and the northwestern part of the district has an average elevation of 914mmsl. The Guthrayan Durg with an elevation of 1395m msl is the highest peak in the district.

Soils

Soils have been classified into Black soil, mixed soil, red loamy soil, gravelly and sandy soils. Red loamy and sandy soils are predominant in Hosur taluk. Vast stretches of loam soils and black soils occur in Krishnagiri district.

Rainfall

The district receives the rain under the influence of both southwest and northeast monsoons. The normal annual rainfall over the district varies from about 750 to about 900 mm. It is the minimum around Hosur (767.7 mm) and Rayakottai (768.0 mm) in the northern and central parts of the district. It gradually increases towards west and east and is the maximum around Denkanikotai (910.7 mm) in the western part.

The climate of Krishnagiri district is comparatively more pleasant than that of the surrounding districts due to general dryness of atmosphere and appreciable drop in temperature in the monsoon season. The year may be divided into four seasons namely dry season from January to March, summer season April and May, southwest monsoon season from June to Sept. and northeast monsoon season from October to December.

Climate

During summer season (April to May) the maximum temperature is about 37°C, and the mean daily minimum temperature of about 25°C in the plains. There is a gradual decrease of both day and night temperatures from June onwards till December, when the mean daily maximum temperature is about 30°C and the mean daily min. is about 19°C in plains.

The day temperature increases gradually from January onwards. The lowest temperature is reached in January when the mean daily minimum is about 19°C. However, in higher areas i.e., Hosur, Thally and Krishnagiri taluks day and night temperature is lower by about 2 to 3°C. In these areas weather is comparatively pleasant round the year.

5. GEOLOGY

Regional Geology of Krishnagiri District-

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

The Khondalite Group includes garnet sillimanite gneiss and quartzite which occur as small patches. The migmatite complex includes garnetiferous quartzofeldspathic gneiss and hornblende-biotite gneiss, the former exposed on the western part of the district. The Sathyamangalam Group includes fuchsite quartzite, sillimanite mica schist and amphibolites.

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

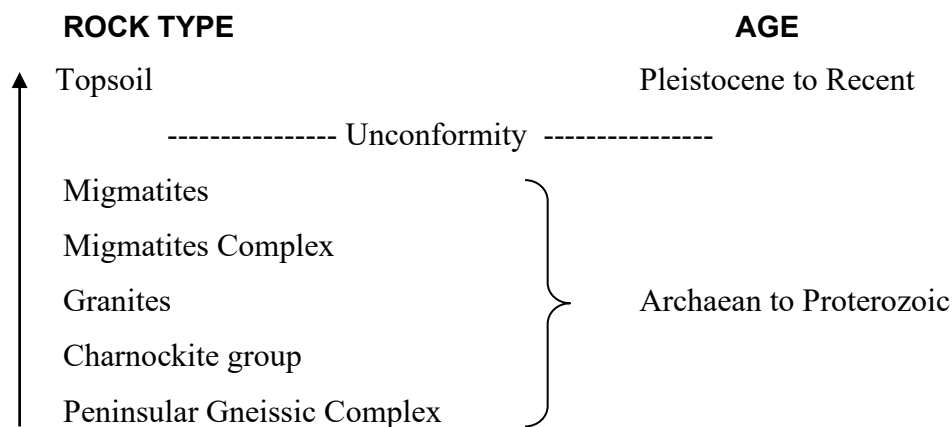
The Charnockite Group occupies a major part of the south-west portion of this district with small bands of Garnetiferous quartzo-feldspathic gneiss, Granite gneiss and dolerite dykes. The North-East and Northern part of the District mainly consist of granite gneiss with small patches of Pink Migmatite, hornblende-biotite gneiss and dolerite dykes. The Eastern part of the district consists of Epidote-Hornblende Gneiss, Ultra Mafics, Syenite and Carbonatite.

The Alkaline Complex is represented by epidote-hornblende gneiss, ultramafics, syenite and carbonatite and these are distributed in the eastern part of the district. Innumerable basic dykes and felsites, quartz, barites and pegmatite veins form part of the Alkali Complex.

STRUCTURAL SETTINGS OF KRISHNAGIRI DISTRICT:

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

Order of super position:-



6. GEOPHYSICAL INVESTIGATION METHODS

A variety of methods are available to assist in the assessment of geological sub-surface conditions. The main emphasis of the fieldwork undertaken was to determine the thickness and composition of the sub-surface formations and to identify water-bearing zones. This information was principally obtained in the field using, and vertical electrical soundings (VES). The VES probes the resistivity layering below the site of measurement. This method is described below.

Resistivity Method

Vertical electrical soundings (VES) were carried out to probe the condition of the sub-surface and to confirm the existence of deep groundwater. The VES investigates the resistivity layering below the site of measurement.

Basic Principles

The electrical properties of rocks in the upper part of the earth's crust are dependent upon the lithology, porosity, and the degree of pore space saturation and the salinity of the pore water. Saturated rocks have lower resistivity than unsaturated and dry rocks. The higher the porosity of the saturated rock, or the higher the salinity of the saturating fluids, the lower is the resistivity. The presence of clays and conductive minerals also reduces the resistivity of the rock.

The resistivity of earth materials can be studied by measuring the electrical potential distribution produced at the earth's surface by an electric current that is passed through the earth. Current is moved through the subsurface from one current electrode to the other and the potential difference is recorded as the current passes. From this information, resistivity values of various layers are acquired and layer thickness can be identified.

The apparent resistivity values determined are plotted as a log function versus the log of the spacing between the electrodes. These plotted curves identify thickness of layers. If there are multiple layers (more than 2), the acquired data is compared to a master curve to determine layer thickness.

This method is least influenced by lateral in-homogeneities and capable of providing higher depth of investigation.

The resistance R of a certain material is directly proportional to its length L and cross-sectional area A , expressed as:

$$R = R_s * L/A \text{ (in Ohm)}$$

Where R_s is known as the specific resistivity (characteristic of the material and independent of its shape or size)

With Ohm's Law,

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

Where dV is the potential difference across the resistor and I is the electric current through the resistor. The specific resistivity may be determined by:

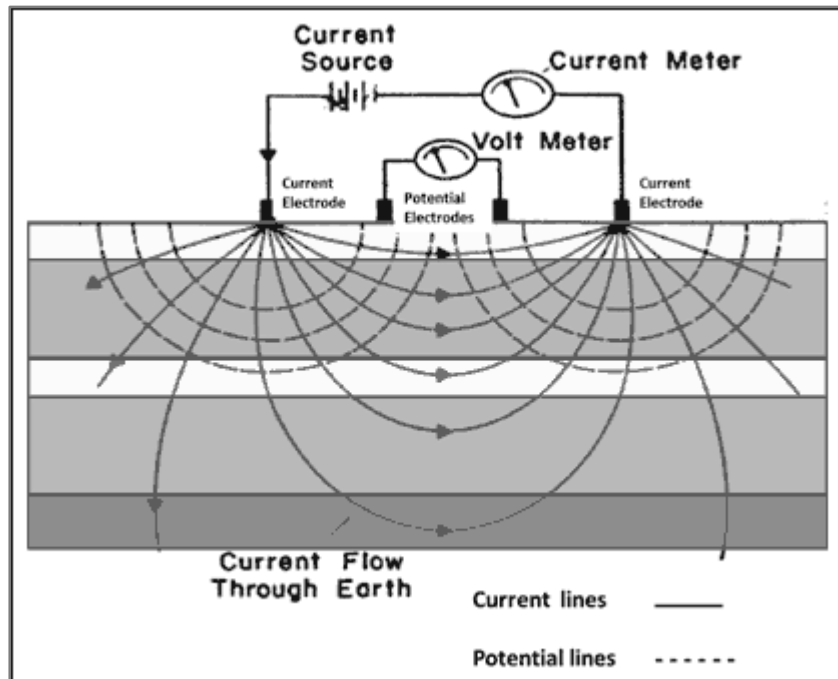
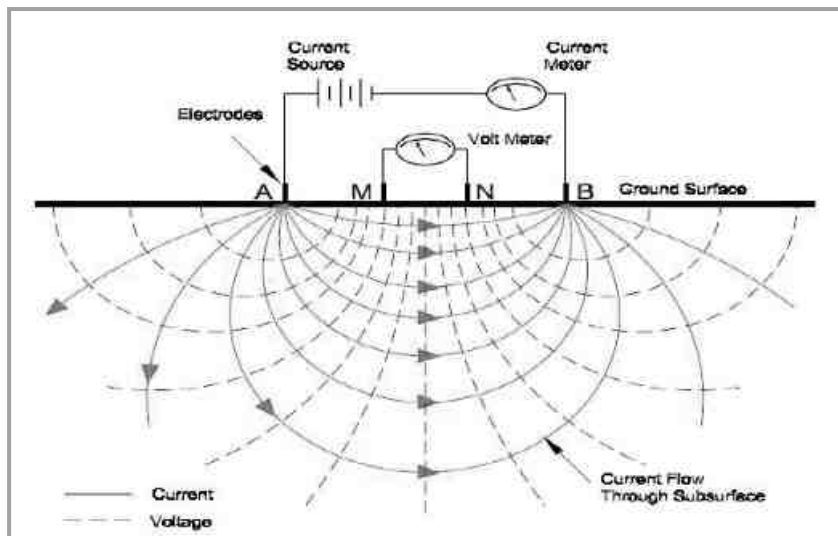
$$R_s = (A/L) * (dV/I) \text{ (in Ohm m)}$$

Vertical Electrical Sounding (VES)

When carrying out a resistivity sounding, current is led into the ground by means of two electrodes. With two other electrodes, situated near the center of the array, the potential field generated by the current is measured. From the observations of the current strength and the potential difference, and taking into account the electrode separations, the ground resistivity can be determined. During resistivity sounding, the separation between the

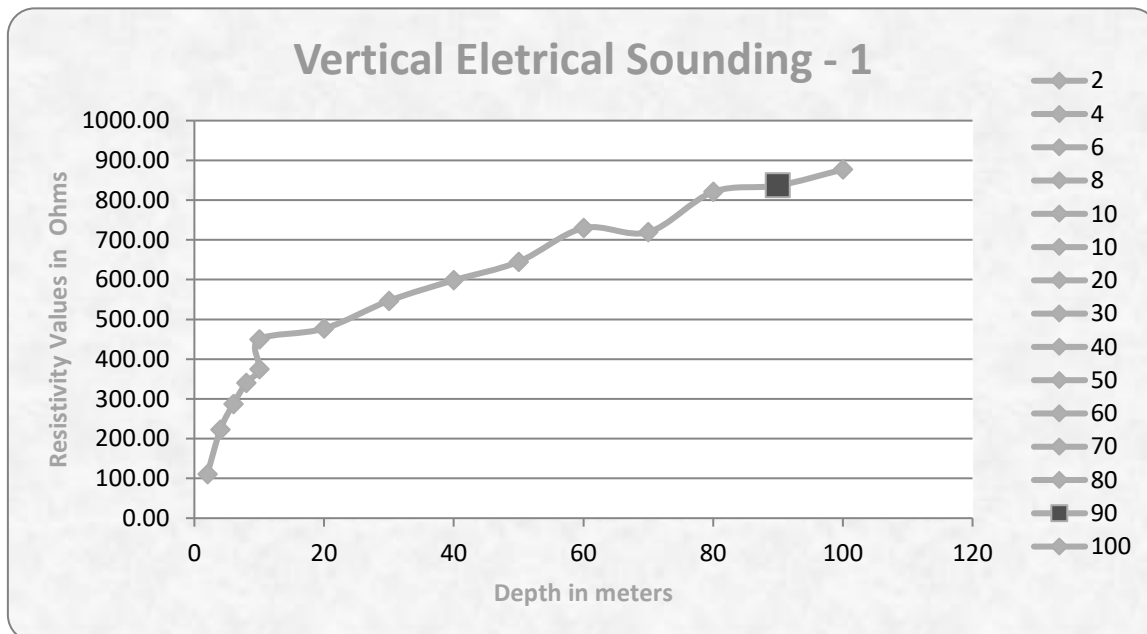
electrodes is step-wise increased (known as a Schlumberger Array), thus causing the flow of current to penetrate greater depths. When plotting the observed resistivity values against depth on double logarithmic paper, a resistivity graph is formed, which depicts the variation of resistivity with depth. This graph can be interpreted with the aid of a computer, and the actual resistivity layering of the subsoil is obtained. The depths and resistivity values provide the hydro geologist with information on the geological layering and thus the occurrence of groundwater.

Vertical Electrical Sounding Methods



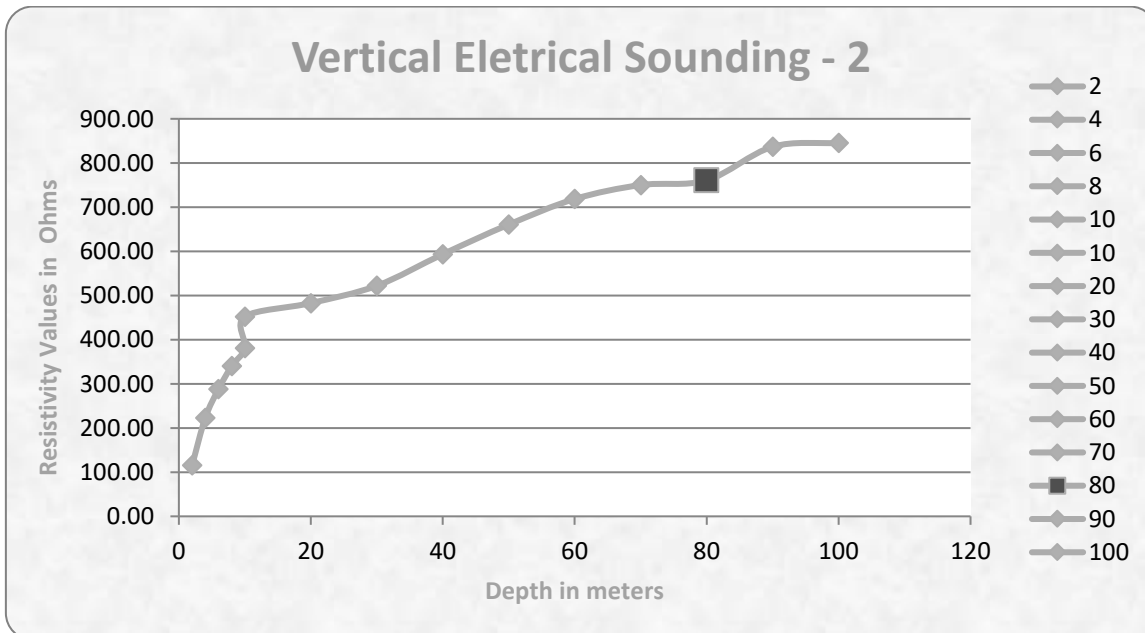
Vertical Electrical Sounding data's and Diagram

Vertical Electrical Sounding - 1					
GPS Coordinates - 12°36'14.35"N 77°47'27.30"E					
S.No	Ab/2(m)	Mn/2(m)	Geometrical Factor (G)	Resistance Value in Ohms	Apparent Resistance in Ohms
1	2	1	4.71	23.56	110.97
2	4	1	23.55	9.45	222.55
3	6	1	54.95	5.23	287.39
4	8	1	98.91	3.44	340.25
5	10	1	155.45	2.41	374.63
6	10	5	23.55	19.10	449.81
7	20	5	117.75	4.05	476.89
8	30	5	274.75	1.99	546.75
9	40	5	494.55	1.21	598.41
10	50	5	777.15	0.83	645.03
11	60	5	1122.55	0.65	729.66
12	70	5	1530.75	0.47	719.45
13	80	5	2001.75	0.41	820.72
14	90	5	2535.55	0.33	836.73
15	100	5	3132.15	0.28	877.00



◆ A vertical electrical Sounding Graph diagram purple level is fracture zone.

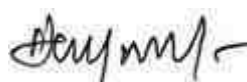
Vertical Electrical Sounding - 2					
GPS Coordinates - 12°36'14.32"N 77°47'30.19"E					
S.No	Ab/2(m)	Mn/2(m)	Geometrical Factor (G)	Resistance Value in Ohms	Apparent Resistance in Ohms
1	2	1	4.71	24.50	115.40
2	4	1	23.55	9.46	222.78
3	6	1	54.95	5.24	287.94
4	8	1	98.91	3.44	340.25
5	10	1	155.45	2.45	380.85
6	10	5	23.55	19.20	452.16
7	20	5	117.75	4.10	482.78
8	30	5	274.75	1.90	522.03
9	40	5	494.55	1.20	593.46
10	50	5	777.15	0.85	660.58
11	60	5	1122.55	0.64	718.43
12	70	5	1530.75	0.49	750.07
13	80	5	2001.75	0.38	760.67
14	90	5	2535.55	0.33	836.73
15	100	5	3132.15	0.27	845.68



◆ A vertical electrical Sounding Graph diagram purple level is fracture zone.

7. Conclusions –

Based on the available information and the geophysical investigations it is concluded that the project area is considered to have medium groundwater potential. Productive aquifers are expected at depth of 85m to 90m where minor fractures are observed and shallow aquifers are expected above 75m to 80m BGL. The ultimate pit limit as per the approved mining plan depth is 70m (45m AGL + 25m BGL) which will have no impact on the Ground Water.



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அனுப்புதல்

திருமதி. வெ.மணிமொழி, M.A.,
வட்டாட்சியர்,
தேன்கணிக்கோட்டை.

பெறுதல்

துணை இயக்குநர்,
புவியியல் மற்றும் சுரங்கத்துறை,
கிருஷ்ணகிரி.

ந.க.1662/2017 (பி3) நாள். 21.2.2018.

அய்யா,

பொருள்: கனிமங்களும் குவாரிகளும் - கிருஷ்ணகிரி மாவட்டம் -
தேன்கணிக்கோட்டை வட்டம் - இராயக்கோட்டை உள்வட்டம் -
நாகமங்கலம் கிராமம் - புல எண்.629 (பகுதி-3) விஸ்தீரணம் 188.50.0
ஹெக்டேர் நிலத்தில் 3.20.5 ஹெக்டேர் பரப்பு - கல்லாங்குத்து (தீ.ஏ.த)
கொண்ட அரசு புறம்போக்கு நிலத்தில் கட்டிடம் (ம) சாலைக்கு
தேவைப்படும் சாதாரண கற்கள் வெட்டி எடுக்க டெண்டர் மற்றும்
பொது ஏலம் குத்தகை உரிமம் வழங்க - புலத்தணிக்கை மற்றும்
நிலஉடமை அறிக்கை சமர்ப்பித்தல் - தொடர்பாக.

பார்வை:1. துணை இயக்குநர், புவியியல் மற்றும் சுரங்கத்துறை கிருஷ்ணகிரி
அவர்களின் ந.க. 72 / 2017 (கனிமம்) நாள்.02.01.2018

2. மண்டல துணைவட்டாட்சியர் மற்றும் இராயக்கோட்டை
வருவாய் ஆய்வாளரின் அறிக்கை நாள். 30.01.2018.


65/23/18

கிருஷ்ணகிரி மாவட்டம், தேன்கணிக்கோட்டை வட்டம், இராயக்கோட்டை உள்வட்டம்,
நாகமங்கலம் கிராம புல எண்.629 (பகுதி-3) விஸ்தீரணம் 188.50.0 ஹெக்டேர் நிலப்பரப்பில்
3.20.50 ஹெக்டேர் கல்லாங்குத்து (தீ.ஏ.த) வகைப்பாடு கொண்ட அரசு புறம்போக்கு நிலத்தில்
கட்டிடம் மற்றும் சாலைக்கு தேவைப்படும் சாதாரண கற்கள் வெட்டி எடுக்க டெண்டர் மற்றும்
பொது ஏலம் மூலம் குத்தகை விடுவது தொடர்பாக எனது புலத்தணிக்கை மற்றும் நிலஉடமை
அறிக்கையினை கீழ்க்கண்டவாறு சமர்ப்பித்துக்கொள்கிறேன்.

கிருஷ்ணகிரி மாவட்டம், தேன்கணிக்கோட்டை வட்டம், இராயக்கோட்டை உள்வட்டம்,
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கல்லாங்குத்து (தீ.ஏ.த) வகைப்பாடு கொண்ட அரசு புறம்போக்கு நிலமாகும். தற்போது டெண்டர்
விடும் 3.20.50 ஹெக்டேர் பரப்பு கொண்ட புலத்திற்கு அணுகுபாதை வசதி உள்ளது.

2018

தேன்கணிக்கோட்டை வட்டாட்சியரின் தணிக்கை குறிப்பு

தணிக்கை நாள்: 31.01.2018.

கிருஷ்ணகிரி மாவட்டம், தேன்கணிக்கோட்டை வட்டம், இராயக்கோட்டை உள்வட்டம், நாகமங்கலம் கிராம புல எண்.629 (பகுதி-3) விஸ்தீரணம் 188.50.0 ஹெக்டேர் நிலப்பரப்பில் 3.20.50 ஹெக்டேர் கல்லாங்குத்து (தீ.ஏ.த) வகைப்பாடு கொண்ட அரசு புறம்போக்கு நிலத்தில் கட்டிடம் மற்றும் சாலைக்கு தேவைப்படும் சாதாரண கற்கள் வெட்டி எடுக்க டெண்டர் மற்றும் பொது ஏலம் மூலம் குத்தகை உரிமம் வழங்க 31.01.2018 அன்று புலத்தணிக்கை மேற்கொள்ளப்பட்டது. தணிக்கையின் போது தேன்கணிக்கோட்டை மண்டல துணைவட்டாட்சியர், வட்ட சார் ஆய்வாளர், வருவாய் ஆய்வாளர், நில அளவர் மற்றும் கிராம நிர்வாக அலுவலர் ஆகியோர் உடனிருந்தனர்.

கிருஷ்ணகிரி மாவட்டம், தேன்கணிக்கோட்டை வட்டம், இராயக்கோட்டை உள்வட்டம், நாகமங்கலம் கிராமம் புல எண்.629 (பகுதி-3) விஸ்தீரணம் 188.50.0 ஹெக்டேர் நிலப்பரப்பு கல்லாங்குத்து (தீ.ஏ.த) வகைப்பாடு கொண்ட அரசு புறம்போக்கு நிலமாகும். மனுதாரர் குவாரி குத்தகை கோரும் 3.20.50 ஹெக்டேர் பரப்பு கொண்ட குவாரி குத்தகை விடும் புலத்திற்கு அணுகுபாதை வசதி உள்ளது.

புல எண். 629 (பகுதி-3)க்கு செக்குபந்தி

கிழக்கு	:	புல எண்.629ன் மீதி நிலம்
மேற்கு	:	புல எண்.629ன் மீதி நிலம்
வடக்கு	:	புல எண்.629ன் மீதி நிலம்
தெற்கு	:	புல எண்.629ன் மீதி நிலம்

குவாரி குத்தகை உரிமம் விடும் புலமானது குடியிருப்பு பகுதிகளிலிருந்து 500மீட்டர் சுற்றளவுக்கு மேல் உள்ளது. மேற்படி புலங்கள் வழியாக உயர்வழுத்த மற்றும் தாழ்வழுத்த மின்கம்பிகள் எதுவும் செல்லவில்லை. மதவழிபாடு சின்னங்கள் மரங்கள் மற்றும் புராதான சின்னங்கள் ஏதுமில்லை. மேற்கண்ட புலங்களில் விலையுயர்ந்த கட்டிடங்கள் மற்றும் மரங்கள் ஏதும் இல்லை. மேலும் மேற்படி புலமானது கோவில் நிலமோ, ஆதிதிராவிடர் நிபந்தனைக்குட்பட்ட நிலமோ இல்லை. 50 மீட்டருக்குள் ஆறு, ஓடை போன்ற நீர் நிலை ஆதாரங்கள் ஏதும் இல்லை, கிராம தடையாணை புத்தகத்தில் இடம் பெறவில்லை எனவும், மேற்படி புலங்களில் குவாரி பணி செய்ய அனுமதி வழங்குவதால் பொதுமக்களுக்கு எந்தவொரு இடையூறும் இல்லை என புலத்தணிக்கையில் தெரிகிறது.

எனவே நாகமங்கலம் கிராமம் புல எண்.629 (பகுதி-3) விஸ்தீரணம் 188.50.0 ஹெக்டேர் நிலப்பரப்பில் 3.20.50 ஹெக்டேர் கல்லாங்குத்து (தீ.ஏ.த) வகைப்பாடு கொண்ட அரசு புறம்போக்கு நிலத்தில் கட்டிடம் மற்றும் சாலைக்கு தேவைப்படும் சாதாரண கற்கள் வெட்டி எடுக்க டெண்டர் மற்றும் பொது ஏலம் மூலம் குத்தகை உரிமம் வழங்கலாம்.

31.1.2018
வட்டாட்சியர்,
தேன்கணிக்கோட்டை.

தேன்கனிக்கோட்டை மண்டல துணைவட்டாட்சியரின் தணிக்கை குறிப்பு

தணிக்கை நாள்: 30.01.2018.

கிருஷ்ணகிரி மாவட்டம், தேன்கனிக்கோட்டை வட்டம், இராயக்கோட்டை உள்வட்டம், நாகமங்கலம் கிராம புல எண்.629 (பகுதி-3) விஸ்தீரணம் 188.50.0 ஹெக்டேர் நிலப்பரப்பில் 3.20.50 ஹெக்டேர் கல்லாங்குத்து (தீ.ஏ.த) வகைப்பாடு கொண்ட அரசு புறம்போக்கு நிலத்தில் கட்டிடம் மற்றும் சாலைக்கு தேவைப்படும் சாதாரண கற்கள் வெட்டி எடுக்க டெண்டர் மற்றும் பொது ஏலம் மூலம் குத்தகை உரிமம் வழங்க 31.01.2018 அன்று புலத்தணிக்கை மேற்கொள்ளப்பட்டது. தணிக்கையின் போது வட்ட சார் ஆய்வாளர், வருவாய் ஆய்வாளர், நில அளவர் மற்றும் கிராம நிர்வாக அலுவலர் ஆகியோர் உடனிருந்தனர்.

கிருஷ்ணகிரி மாவட்டம், தேன்கனிக்கோட்டை வட்டம், இராயக்கோட்டை உள்வட்டம், நாகமங்கலம் கிராமம் புல எண்.629 (பகுதி-3) விஸ்தீரணம் 188.50.0 ஹெக்டேர் நிலப்பரப்பு கல்லாங்குத்து (தீ.ஏ.த) வகைப்பாடு கொண்ட அரசு புறம்போக்கு நிலமாகும். மனுதாரர் குவாரி குத்தகை கோரும் 3.20.50 ஹெக்டேர் பரப்பு கொண்ட குவாரி குத்தகை விடும் புலத்திற்கு அணுகுபாதை வசதி உள்ளது.

புல எண். 629 (பகுதி-3)க்கு செக்குபந்தி

கிழக்கு	:	புல எண்.629ன் மீதி நிலம்
மேற்கு	:	புல எண்.629ன் மீதி நிலம்
வடக்கு	:	புல எண்.629ன் மீதி நிலம்
தெற்கு	:	புல எண்.629ன் மீதி நிலம்

குவாரி குத்தகை உரிமம் விடும் புலமானது குடியிருப்பு பகுதிகளிலிருந்து 500மீட்டர் சுற்றளவுக்கு மேல் உள்ளது. மேற்படி புலங்கள் வழியாக உயர்வழுத்த மற்றும் தாழ்வழுத்த மின்கம்பிகள் எதுவும் செல்லவில்லை. மதவழிபாடு சின்னங்கள் மரங்கள் மற்றும் புராதான சின்னங்கள் ஏதுமில்லை. மேற்கண்ட புலங்களில் விலையுயர்ந்த கட்டிடங்கள் மற்றும் மரங்கள் ஏதும் இல்லை. மேலும் மேற்படி புலமானது கோவில் நிலமோ, ஆதிதீராவிடர் நிபந்தனைக்குட்பட்ட நிலமோ இல்லை. 50 மீட்டருக்குள் ஆறு, ஓடை போன்ற நீர் நிலை ஆதாரங்கள் ஏதும் இல்லை, கிராம தடையாணை புத்தகத்தில் இடம் பெறவில்லை எனவும், மேற்படி புலங்களில் குவாரி பணி செய்ய அனுமதி வழங்குவதால் பொதுமக்களுக்கு எந்தவொரு இடையூறும் இல்லை என புலத்தணிக்கையில் தெரிகிறது.

எனவே நாகமங்கலம் கிராமம் புல எண்.629 (பகுதி-3) விஸ்தீரணம் 188.50.0 ஹெக்டேர் நிலப்பரப்பில் 3.20.50 ஹெக்டேர் கல்லாங்குத்து (தீ.ஏ.த) வகைப்பாடு கொண்ட அரசு புறம்போக்கு நிலத்தில் கட்டிடம் மற்றும் சாலைக்கு தேவைப்படும் சாதாரண கற்கள் வெட்டி எடுக்க டெண்டர் மற்றும் பொது ஏலம் மூலம் குத்தகை உரிமம் வழங்கலாம்.


மண்டல துணைவட்டாட்சியர்,
தேன்கனிக்கோட்டை

பெறுதல்

வட்டாட்சியர்

தேன்கணிக்கோட்டை

அய்யா,

பொருள்: கனிமங்களும் குவாரிகளும் - கிருஷ்ணகிரி மாவட்டம் - தேன்கணிக்கோட்டை வட்டம் - இராயக்கோட்டை உள்வட்டம் - நாகமங்கலம் கிராமம் - புல எண்.629 (பகுதி-3) விஸ்தீரணம் 188.50.0 ஹெக்டேர் நிலத்தில் 3.20.5 ஹெக்டேர் பரப்பு - கல்லாங்குத்து (தீ.ஏ.த) கொண்ட அரசு புறம்போக்கு நிலத்தில் கட்டிடம் (ம) சாலைக்கு தேவைப்படும் சாதாரண கற்கள் வெட்டி எடுக்க டெண்டர் மற்றும் பொது ஏலம் குத்தகை உரிமம் வழங்க - புலத்தணிக்கை மற்றும் நிலஉடமை அறிக்கை சமர்ப்பித்தல் - தொடர்பாக.

பார்வை: தேன்கணிக்கோட்டை வட்டாட்சியர் அவர்களின் தொலைப்பேசி தகவல் நாள்: 30.01.2017

கிருஷ்ணகிரி மாவட்டம், தேன்கணிக்கோட்டை வட்டம், இராயக்கோட்டை உள்வட்டம், நாகமங்கலம் கிராம புல எண்.629 (பகுதி-3) விஸ்தீரணம் 188.50.0 ஹெக்டேர் நிலப்பரப்பில் 3.20.50 ஹெக்டேர் கல்லாங்குத்து (தீ.ஏ.த) வகைப்பாடு கொண்ட அரசு புறம்போக்கு நிலத்தில் கட்டிடம் மற்றும் சாலைக்கு தேவைப்படும் சாதாரண கற்கள் வெட்டி எடுக்க டெண்டர் மற்றும் பொது ஏலம் மூலம் குத்தகை உரிமம் விடும் புலத்தின் மீது விசாரணை மற்றும் எனது அறிக்கையினை கீழ்க்கண்டவாறு சமர்ப்பித்துக்கொள்கிறேன்.

கிருஷ்ணகிரி மாவட்டம், தேன்கணிக்கோட்டை வட்டம், இராயக்கோட்டை உள்வட்டம், நாகமங்கலம் கிராமம் புல எண்.629 (பகுதி-3) விஸ்தீரணம் 188.50.0 ஹெக்டேர் நிலப்பரப்பு கல்லாங்குத்து (தீ.ஏ.த) வகைப்பாடு கொண்ட அரசு புறம்போக்கு நிலமாகும். தற்போது டெண்டர் விடும் 3.20.50 ஹெக்டேர் பரப்பு கொண்ட புலத்திற்கு அணுகுபாதை வசதி உள்ளது.

மேற்படி புலங்களில் குவாரிப்பணி நடைபெறப்போவது தொடர்பாக 14.01.2018 அன்று "அ1" விளம்பரம் நாகமங்கலம் கிராமத்தில் செய்யப்பட்டது. நாளதுவரை பொதுமக்களிடமிருந்து எந்தவிதமான ஆட்சேபனைகளும் வரப்பெறவில்லை.

67. நாகமங்கலம் கிராம நிர்வாக அலுவலர் வாக்குமூலம்

ஆஜர்,

கிருஷ்ணகிரி மாவட்டம், தேன்கனிக்கோட்டை வட்டம், இராயக்கோட்டை உள்வட்டம், நாகமங்கலம் கிராம புல எண்.629 (பகுதி-3) விஸ்தீரணம் 188.50.0 ஹெக்டேர் நிலப்பரப்பில் 3.20.50 ஹெக்டேர் கல்லாங்குத்து (தீ.ஏ.த) வகைப்பாடு கொண்ட அரசு புறம்போக்கு நிலத்தில் கட்டிடம் மற்றும் சாலைக்கு தேவைப்படும் சாதாரண கற்கள் வெட்டி எடுக்க டெண்டர் மற்றும் பொது ஏலம் மூலம் குத்தகை உரிமம் விடுவது தொடர்பாக விசாரணை என தெரிந்துக் கொண்டேன்..

கிருஷ்ணகிரி மாவட்டம், தேன்கனிக்கோட்டை வட்டம், இராயக்கோட்டை உள்வட்டம், நாகமங்கலம் கிராமம் புல எண்.629 (பகுதி-3) விஸ்தீரணம் 188.50.0 ஹெக்டேர் நிலப்பரப்பு கல்லாங்குத்து (தீ.ஏ.த) வகைப்பாடு கொண்ட அரசு புறம்போக்கு நிலமாகும். தற்போது டெண்டர் விடும் 3.20.50 ஹெக்டேர் பரப்பு கொண்ட புலத்திற்கு அணுகுபாதை வசதி உள்ளது.

மேற்படி புலங்களில் குவாரிப்பணி நடைபெறப்போவது தொடர்பாக 14.01.2018 அன்று "அ1" விளம்பரம் நாகமங்கலம் கிராமத்தில் செய்யப்பட்டது. நாளதுவரை பொதுமக்களிடமிருந்து எந்தவிதமான ஆட்சேபனையும் வரப்பெறவில்லை.

குவாரி குத்தகை விடும் புலமானது குடியிருப்பு பகுதிகளிலிருந்து 500 மீட்டர் சுற்றளவுக்கு மேல் உள்ளது. மேற்படி புலங்கள் வழியாக உயர்வழுத்த மற்றும் தாழ்வழுத்த மின்கம்பிகள் எதுவும் செல்லவில்லை. மதவழிபாடு சின்னங்கள் மரங்கள் மற்றும் புராதான சின்னங்கள் ஏதுமில்லை. மேற்கண்ட புலங்களில் விலையுயர்ந்த கட்டிடங்கள் மரங்கள் ஏதும் இல்லை. மேற்படி புலமானது கோவில் நிலமோ, ஆதிதிராவிடர் நிபந்தனைக்குட்பட்ட நிலமோ இல்லை. 50 மீட்டருக்குள் ஆறு, ஓடை போன்ற நீர் நிலை ஆதாரங்கள் ஏதும் இல்லை, கிராம தடையாணை புத்தகத்தில் இடம் பெறவில்லை எனவும், மேற்படி புலங்களில் குவாரி பணி செய்ய அனுமதி வழங்குவதால் பொதுமக்களுக்கு எந்தவொரு இடையூறும் இல்லை என புலத்தணிக்கையில் தெரிகிறது.

எனவே நாகமங்கலம் கிராமம் புல எண்.629 (பகுதி-3) விஸ்தீரணம் 188.50.0 ஹெக்டேர் நிலப்பரப்பில் 3.20.50 ஹெக்டேர் கல்லாங்குத்து (தீ.ஏ.த) வகைப்பாடு கொண்ட அரசு புறம்போக்கு நிலத்தில் கட்டிடம் மற்றும் சாலைக்கு தேவைப்படும் சாதாரண கற்கள் வெட்டி எடுக்க டெண்டர் மற்றும் பொது ஏலம் மூலம் குத்தகை உரிமம் வழங்கலாம் என்பதை பணிவுடன் தெரிவித்துக்கொள்கிறேன்.

// படித்துப் பார்த்தேன் சா//

//என்முன்பாக//

REVENUE INSPECTOR
RAYAKOTTAI
DENKANIKOTTAI (TK), KRISHNAGIRI Dt

67/18
Revenue Office
67/18 NAGAMANGALAM,
DENKANIKOTTAI (TK), KRISHNAGIRI Dt

67. நாகமங்கலம் கிராம பொதுமக்கள் வாக்குமூலம்

ஆஜர்,

கிருஷ்ணகிரி மாவட்டம், தேன்கனிக்கோட்டை வட்டம், இராயக்கோட்டை உள்வட்டம், நாகமங்கலம் கிராம புல எண்.629 (பகுதி-3) விஸ்தீரணம் 188.50.0 ஹெக்டேர் நிலப்பரப்பில் 3.20.50 ஹெக்டேர் கல்லாங்குத்து (தீ.ஏ.த) வகைப்பாடு கொண்ட அரசு புறம்போக்கு நிலத்தில் கட்டிடம் (ம) சாலைக்கு தேவைப்படும் சாதாரண கற்கள் வெட்டி எடுக்க டெண்டர் மற்றும் பொது ஏலம் மூலம் குத்தகை உரிமம் விடுவது தொடர்பாக விசாரணை என தெரிந்துக் கொண்டோம்.

கிருஷ்ணகிரி மாவட்டம், தேன்கனிக்கோட்டை வட்டம், இராயக்கோட்டை உள்வட்டம், நாகமங்கலம் கிராமம் புல எண்.629 (பகுதி-3) விஸ்தீரணம் 188.50.0 ஹெக்டேர் நிலப்பரப்பு கல்லாங்குத்து (தீ.ஏ.த) வகைப்பாடு கொண்ட அரசு புறம்போக்கு நிலமாகும். தற்போது டெண்டர் விடும் 3.20.50 ஹெக்டேர் பரப்பு கொண்ட புலத்திற்கு அணுகுபாதை வசதி உள்ளது.

குவாரி டெண்டர் விடும் புலமானது குடியிருப்பு பகுதிகளிலிருந்து 500 மீட்டர் சுற்றளவுக்கு மேல் உள்ளது. புலங்கள் வழியாக உயர்வழுத்த மற்றும் தாழ்வழுத்த மின் கம்பிகள் எதுவும் செல்லவில்லை. மதவழிபாடு சின்னங்கள், மரங்கள் மற்றும் புராதான சின்னங்கள் ஏதுமில்லை. மேற்கண்ட புலங்களில் விலையுயர்ந்த கட்டிடங்கள் ஏதும் இல்லை. மேற்படி புலமானது கோவில் நிலமோ, ஆதிதிராவிடர் நிபந்தனைக்குட்பட்ட நிலமோ இல்லை. 50 மீட்டருக்குள் ஆறு, ஓடை போன்ற நீர் நிலை ஆதாரங்கள் ஏதும் இல்லை, கிராம தடையாணை புத்தகத்தில் இடம் பெறவில்லை எனவும், மேற்படி புலங்களில் குவாரி பணி செய்ய டெண்டர் வழங்குவதால் பொதுமக்களுக்கு எந்தவொரு இடையூறும் இல்லை. எனவே நாகமங்கலம் கிராமம் புல எண்.629 (பகுதி-3) விஸ்தீரணம் 188.50.0 ஹெக்டேர் நிலப்பரப்பில் 3.20.50 ஹெக்டேர் கல்லாங்குத்து (தீ.ஏ.த) வகைப்பாடு கொண்ட அரசு புறம்போக்கு நிலத்தில் கட்டிடம் மற்றும் சாலைக்கு தேவைப்படும் சாதாரணகற்கள் வெட்டி எடுக்க, டெண்டர் மற்றும் பொது ஏலம் மூலம் சாதாரண கற்கள் வெட்டி எடுக்க குத்தகை உரிமம் வழங்க எவ்வித ஆட்சேபணை இல்லை என பணிவுடன் தெரிவித்துக்கொள்கிறோம்.

//என்முன்பாக//

REVENUE OFFICER
RAVANKOTTAI
DENKANIKOTTAI (TR), KRISHNAGIRI Dt

//படிக்க கேட்டோம் சா/ரி
// படித்து பார்த்தோம் சரி//

K. சசல் உம்
KN Ramani
K. S. S. S.
முனைவர்.

A-1 கவர்ன்மென்ட்டார் வசத்திலிருக்கும் நிலத்துக்காக செய்து கொள்ளப்பட்ட விண்ணப்பத்தை குறித்த அறிக்கை:-

நாகமங்கலம் கிராமத்தைச் சேர்ந்த கீழ் கண்ட ஷேட்யூலில் காட்டப்பட்டிருக்கும் கல்லாங்குத்து புறம்போக்கு நிலத்தில் கட்டிடம் மற்றும் சாலைக்கு தேவைப்படும் சாதாரணகற்கள் வெட்டி எடுக்க, டெண்டர் மற்றும் பொது ஏலம் மூலம் சாதாரண கற்கள் வெட்டி எடுக்க குத்தகை உரிமம் வழங்குவது தொடர்பாக இதனால் அறிக்கையிடப்படுகிறது. மேற்படி நிலங்களை ஒப்படை செய்யக்கூடாதென்று ஆட்சேபிப்பவர்கள் இந்த அறிக்கை பிரசித்தம் செய்யப்படும் தேதியிலிருந்து 15 தினங்கள் கொண்ட கால அளவுக்குள் மேற்படி கிராமத்தின் கிராம நிர்வாக அலுவலரிடம் தங்களுடைய ஆட்சேபனைகளைத் தெரிவிக்க வேண்டும்.

ஷேட்யூல்

புலத்தின் எண்கள்	விஸ்தீரணம் ஹெக்டேர்		தீர்வை		எல்லைகள்
	ஏக்கர்	செண்ட்	ரூ.	பை	
629 (பகுதி-3)	7	91			கிழக்கு: புல எண்.629ன் மீதி நிலம் மேற்கு : புல எண்.629ன் மீதி நிலம் வடக்கு: புல எண்.629ன் மீதி நிலம் தெற்கு : புல எண்.629ன் மீதி நிலம்

தேதி: 14.1.2017

மேற்படி அறிக்கையானது மேலே கண்ட தேதியன்று தண்டோரா போட்டுப் பிரசித்தப்பட்டதென்றும் மேற்படி கிராமச் சாவடியிலும் சம்மந்தப்பட்ட நிலங்களில் காட்டி வைக்கப்பட்டதென்றும் உறுதி மொழி கூறப்படுகிறது.

- 1) K.N. ராமன்
- 1) K.O. சுவாமி

R. Ramasubramanian
 S. Suralakshmi
 REVENUE INSPECTOR
 RAYAKOTTAI
 DENKANIKOTTAI (TK), KRISHNAGIRI Dt

(Signature)
 67. NAGAMANGALAM,
 DENKANIKOTTAI (TK), KRISHNAGIRI Dt

தென் கன்னடம் ஜில்லாவின் விஷயத்திலும் இந்த அடியிற்கண்ட நமுணாவுக்கு அடியிற்கண்ட மூலமாய் பிரசித்தம் செய்யப்பட்டதென்றும் ரெஜிஸ்டாரான கைப்பற்றுதாரர்களிடத்திலும் மேற்படி நிலம் விஷயமால் சும்பு கதந்திரங்களுடைய வாலவர்க்கத்தார்களிடத்திலும் அந்த நிலத்தில் மூலகோணிதாரர்களிடத்திலும் அந்த நிலத்தின் சிவாஹிஜமா அனுபோகதாரர்களிடத்திலும் மரவரி ஏற்பாட்டின் பிரகாரம் அந்த நிலத்திலே மரங்களை கைப்பற்றி வைத்திருப்பவர்களிடத்திலும் அல்லது அந்த நிலத்திலுள்ள ஒரு கிணற்றின் தண்ணீரை சாகுபடிக்கு பயிச்சிக் கொண்டிருப்பவர்களிடத்திலும் மேற்படி அறிக்கை சேர்ப்பிக்கப்படுகிறதென்றும் உறுதிமொழிகூறப்படுகிறது.

1	2	3	4	5	6	7	8	9	10	11	12
3	626 பா ர	ய	...	8-3	8	2	15	0 22 5	0 48	17 ரா. அக்கையம் மாள். 1145 கோ. கோபாலப்பா (1), ரா. அக்கையம் மாள் (2).	சதுர கிணறு
4	-பா ர	ய	...	8-3	8	2	15	0 03-0	0 06		
1	627-பா ர	ய	...	8-2	7	2	77	0 10-0	0 28	216 கோ. கோபாலப்பா. 17 ரா. அக்கையம் மாள்.	
2	-பா ர	ய	...	8-2	7	2	77	0 04-5	0 12		
3	-பா ர	ய	...	8-2	7	2	77	0 33-0	0 91	216 கோ. கோபாலப்பா. 17 ரா. அக்கையம் மாள்.	
4	-பா ர	ய	...	8-2	7	2	77	0 30-0	0 83		
5	-பா ர	ய	...	8-2	7	2	77	0 50-0	1 39	804 மு. முனுசாமி.	
								1 27-5	3 53		
1	628-பா அ	யுற	...	...	...	...	...	0 20-5	...	474 மா. திம்மராயப்பா. 602 உ. முனிசாமி.	வாரி. வட்டக் கிணறு-1
2	-2பா ர	ய	...	8-4	10	1	09	0 54-0	0 59		
3	-2பா ர	ய	...	8-4	10	1	09	0 13-0	0 14	0 87-5	0 73
...	629	அ தி. ஏ த	...	...	...	...	...	188 50-0	...	...	...
1	630-1பா ர	ய	...	8-2	7	2	77	0 08-5	0 24	475 கா. திம்மக்காள். 475 கா. திம்மக்காள்.	கல்லாந் குத்து.
2	-பா அ	யுற	...	...	...	...	...	0 14-0	...		
3	-பா ர	ய	...	8-2	7	2	77	0 10-5	0 29	475 கா. திம்மக்காள். 475 கா. திம்மக்காள்.	ஒடை பூஸ்தி பாறை
4	-பா ர	ய	...	8-2	7	2	77	1 27-5	3 54		
								1 60-5	4 07	(செல்லாமை)	
1	631-பா ர	ய	...	8-1	6	3	39	0 05-5	0 19	1375 1375 Village Administration Office 67. NAGAMANGALAM, DEUKANKOTTAI (TK), KRISHNAGIRI	
2	-பா ர	ய	...	8-1	6	3	39	0 37-5	1 26		

*. விலரப்படையைப் பார்க்கவும்.

நத்தம நிவர்த்த தட அபயே பார்க்கவும்

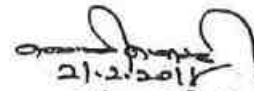
15395
சி. எண். 67.


மேற்படி புலங்களில் குவாரிப்பணி நடைபெறப்போவது தொடர்பாக 14.01.2018 அன்று "அ1" விளம்பரம் நாகமங்கலம் கிராமத்தில் செய்யப்பட்டது. நாளதுவரை பொதுமக்களிடமிருந்து எந்தவிதமான ஆட்சேபனையும் வரப்பெறவில்லை.

குவாரி குத்தகை விடும் புலமானது குடியிருப்பு பகுதிகளிலிருந்து 500 மீட்டர் சுற்றளவுக்கு மேல் உள்ளது. மேற்படி புலங்கள் வழியாக உயர்வழுத்த மற்றும் தாழ்வழுத்த மின்கம்பிகள் எதுவும் செல்லவில்லை. மதவழிபாடு சின்னங்கள் மரங்கள் மற்றும் புராதான சின்னங்கள் எதுமில்லை. மேற்கண்ட புலங்களில் விலையுயர்ந்த கட்டிடங்கள் மற்றும் மரங்கள் ஏதும் இல்லை. மேற்படி புலமானது கோவில் நிலமோ, ஆதிதிராவிடர் நிபந்தனைக்குட்பட்ட நிலமோ இல்லை. 50 மீட்டருக்குள் ஆறு, ஓடை போன்ற நீர் நிலை ஆதாரங்கள் ஏதும் இல்லை, கிராம தடையாணை புத்தகத்தில் இடம் பெறவில்லை எனவும், மேற்படி புலங்களில் குவாரி பணி செய்ய அனுமதி வழங்குவதால் பொதுமக்களுக்கு எந்தவொரு இடையூறும் இல்லை என மண்டல துணை வட்டாட்சியரின் அறிக்கை மற்றும் வருவாய் ஆய்வாளரின் அறிக்கை மூலம் தெரிகிறது.

எனவே நாகமங்கலம் கிராமம் புல எண்.629 (பகுதி-3) விஸ்தீரணம் 188.50.0 ஹெக்டேர் நிலப்பரப்பில் 3.20.50 ஹெக்டேர் கல்லாங்குத்து (கீ.ஏ.த) வகைப்பாடு கொண்ட அரசு புறம்போக்கு நிலத்தில் மட்டும் கட்டிடங்கள் மற்றும் சாலைகளுக்கு தேவைப்படும் ஐல்லி கற்கள் வெட்டி எடுக்க, டெண்டர் மற்றும் பொது ஏலம் மூலம் குத்தகை உரிமம் வழங்க பரிந்துரை செய்யலாம் என்றும், இத்துடன் மண்டல துணை வட்டாட்சியரின் தணிக்கை குறிப்பு, வருவாய் ஆய்வாளரின் அறிக்கை, கிராம நிர்வாக அலுவலர் வாக்குமூலம், கிராம கணக்கு நகல், பொதுமக்கள் வாக்குமூலம், ஆகியவற்றை இணைத்தனுப்பியுள்ளேன் என்பதை பணிவுடன் தெரிவித்துக்கொள்கிறேன்.

இணைப்பு: மேற்கண்டவாறு


21.2.2018
வட்டாட்சியர்,
தேன்கனிக்கோட்டை.


21-2-18



குமிழ்நாடு தமிழ்நாடு TAMIL NADU 01-12-2022
Shaichaitranya Explosives
Denkanikottai.

08AC 483310
G. Mariappan
L.No. 8/2021/KGI
Stamp Vendor
Denkanikottai.

DEED OF AGREEMENT

THIS AGREEMENT ENTERED INTO AT **NAGAMANGALAM** VILLAGE ON DAY OF **1 DECEMBER 2022** Between

M/s. SHAICHAITRANYA EXPLOSIVES, No.133/6.2nd Floor, Opp. Taluk Office, Denkanikottai, Krishnagiri Dist, 635107. Herein after referred to as part of the **First Part**.

AND

SQUARE ENTERPRISES, Varaganapalli Village, Nagamangalam Post, Denkanikottai Taluk, Krishnagiri Dist- TN-635 113. (Hereinafter referred to as the **"LEASE HOLDER"**) Herein after referred to as part of the **Second Part**.

SQUARE ENTERPRISES, Survey no.629(Part) , Varaganapalli Village, Nagamangalam Post, Denkanikottai Taluk, Krishnagiri Dist-TN-635 113. (Hereinafter referred to as the **"SITE ADDRESS"**)

For **SHAICHAITRANYA EXPLOSIVES**

K. Thangam
Managing Partner

P. Chandrasekar

Whereas, the above terms first party and second party shall mean and include wherever the context permit their legal heir, successors, representatives, administrators and assigns, etc.,

Whereas the second party is the holder for contract for drilling/blasting and excavation works, obtained from lease holder SQUARE ENTERPRISES, who have in-turn obtained quarry lease for carrying out quarrying and carrying away of Minor Minerals in lands referred the Survey NO.629(Part), over extent 3.20.50 hectares in Nagamangalam(VI), Denkanikottai(TK), Krishnagiri (DT) in the sub registration district of Denkanikottai from government of TN under lease agreement registered with the sub-registrar Denkanikottai, Krishnagiri Dt. Lease holder SQUARE ENTERPRISES is contractors for rough stone and jelly.

Whereas for extracting boulder blocks from the said quarries, on certain occasions rocks have to be blast with explosives materials and for possession of the explosive materials and for using them, a licence and the Indian Explosives Act and Indian Explosives rules 2008, issued by competent authority is necessary and the first part the holder of explosives Licence bearing No. **E/SC/TN/22/755(E114440)**, issued by the joint chief controller of explosives Nagpur & Vellore and they are authorised and entitled to make supply and use of explosives for blasting rocks in quarries mentioned by Short fire, DGMS approved blasters having valid licence: The second party approached the party of first to assist him in extraction of boulders from the lease quarries as mentioned above by using blasting materials as and when required under the licence issued to him by the competent authority and the first party having valid licence.

After the complete approval from the government, I'm ready to proceed he work order.

Now the agreement witnesses as follows:

1. It is agreed that the first party shall supply the explosives to the party of second part, under his licence for blasting of rocks in the aforesaid licenced quarry, as per the provisions of mines act 1952
2. The second party shall place the requirement of explosives and accessories, depending on the sites requirement, holes drilled, etc and the explosives used by competent mining personnel's/authority like mines manager, mines foreman, etc., appointed by the mine owner as per the provisions of mines act of 1952. After completion of blasting operations by the competent personnel's, left out or unused

For SHAICHAITRANYA EXPLOSIVES

K. N. N. N.
Managing Partner

R. Chandran

explosives will be returned to the magazine on the same day, from where the supply was effected.

3. The party of second is solely responsible for using the explosives and accessories in the leased areas and survey No's, where mining lease has been obtained. The responsibility of the first party ceases once the explosives are delivered at the site and thereafter plays a supportive role, in assisting in the blasting operation of the quarry, under the and guidance of competent personnel's appointed by the quarry owner, as per the provisions of mines act. the mine owner shall appoint competent mining personnel's for carrying out mining & quarrying operations, include blasting operations in the quarry, as per the provisions of mines act of 1952. The explosives will used and handled by blasters and mining personnel's appointed by the mine owner all said aspects will be scrupulously followed by the competent authorities, as per the provisions of mines act 1952 and explosives rules 2008.

4. The party of first will charge GST, as per the GST act and the second part will pay GST amount as per the bills. Bills will be settled promptly on fortnight basis by Cheque, NEFT/RTGS by the party of second, as mutually agreed

5. This agreement shall be in force until the expiry of the licence of the first party from the date of the agreement and is subjected to renewal of such terms and conditions, as may be mutually agreed upon.

In witnesses the parties herein have set their hands to this agreement on this day month and year finally mentioned above in the presence of the following

Place : Varaganapalli Village

Date : 01/12/2022

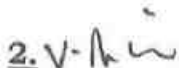
For SHAICHAITRANYA EXPLOSIVES


Managing Partner



WITNESSES

1.  C. RAJAM s/o Chennappan, Rayko Hari - 635116.

2. 

V. AMALRAJ
s/o L. Vijayalingam A. Kottavuz, village Chandrapuram Thirupattur



GOVERNMENT OF INDIA
MINISTRY OF COMMERCE & INDUSTRY
PETROLEUM AND EXPLOSIVES SAFETY ORGANISATION(PESO)
(Formerly Department of Explosives)
 No.3, Vth East Cross Road
 Gandhi Nagar Vellore 632006
 Tele: 2242513

Email: dyccevellore@explosives.gov.in

No:E/SC/TN/22/755(E114440)

Dated : 11/03/2022

To,

M/s.Shaichaitranya Explosives,
 Door No. 2nd Floor 133/6 Denkanikottai Govt Boys Higher Sec School Road, Opp.Taluk Office, Denkanikottai
 Taluk, Krishagiri Dist
 Town/Village - Panchapalli
 Distt. KRISHNAGIRI, State. Tamil Nadu, Pincode-636812

Subject: Possession for Use of Explosives from magazine at Survey No.:119/1B, Village/Town. Vedampatti, Nammandahalli, Distt. DHARMAPURI, State Tamil Nadu Licence No.: E/SC/TN/22/755(E114440) granted in Form LE-3 of Explosives Rules, 2008 -Endorsement regarding

Sir(s),

Reference memo No.: E/SC/TN/22/755(E114440) Dated 11/03/2022 from Joint Chief Controller of Explosives, South Circle, Chennai and inspection of the subject premises by an officer of this organization on 10/03/2022.

The subject licence No. E/SC/TN/22/755(E114440) valid upto 31st March 2024 duly endorsed as required under Rule 107(3) of the Explosives Rules 2008 is forwarded herewith.

For further renewal of licence, please submit following documents so as to reach this office on or before 31/03/2024.

- 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.
- 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)
 - 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)
 - 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.

Yours faithfully,

(Dr. Dasharath Laxman Kamble)
 Controller of Explosives
 Controller of Explosives, Vellore
 Vellore
 विस्फोटक नियंत्रक, वेल्लूर
 Controller of Explosives, Vellore

अनुज्ञापि प्ररूप एल. ई.-3 | LICENCE FORM LE-3

(विस्फोटक नियम, 2008 की अनुसूची 4 के भाग 1 के अनुच्छेद 3(क) से (घ) देखिए।)
(See article 3(a) to (d) of Part 1 of Schedule IV of Explosives Rules, 2008)

मात्र उपयोग के लिए एक समय पर वर्ग 1, 2, 3, 4, 5 या वर्ग 7 के विस्फोटक या किसी मैगजीन में वर्ग 6 के विस्फोटक रखने के लिए अनुज्ञापि
Licence to possess (c) for use, explosives of class 1, 2, 3, 4, 5, 6 or 7 in a magazine

अनुज्ञापि सं. (Licence No.): E/SC/TN/22/755(E114440)
वार्षिक फीस रूपए (Annual Fee Rs): 9300/-

1. Licence is hereby granted to

M/s. Shaichaitranya Explosives (अधिभोगी / Occupier: K.Ramesh), Door No. 2nd Floor 133/6 Denkanikottai Govt Boys Higher Sec School Road, Opp Taluk Office, Denkanikottai Taluk, Krishnagiri Dist, Town/Village - Panchapalli, District-KRISHNAGIRI, State-Tamil Nadu, Pincode - 636812



को अनुज्ञापि अनुदत्त की जाती है।

2 अनुज्ञापिधारी की प्रास्थिति | Status of licensee: Partnership Firm

3 अनुज्ञापि निम्नलिखित प्रयोजनों के लिए विधिमाम्य है।
Licence is valid only for the following purpose.

4 अनुज्ञापि विस्फोटकों के निम्नलिखित किस्मों, प्रकार और मात्रा के लिए विधिमाम्य है।
Licence is valid for the following kinds and quantity of explosives: -- (क) (a)

possess for use of Nitrate Mixture, Safety Fuse, Detonating Fuse,
Ordinary/Electric/Non Electric Detonators. - के उपयोग के लिए

क्र Sr. No.	नाम और विवरण Name and Description	वर्ग और प्रभाग Class & Division	उप-प्रभाग Sub-division	मात्रा किसी एक समय में Quantity at any one time
1.	Nitrate Mixture	2.0	0	3950 Kg.
2.	Safety Fuse	6.1	0	10000 Mtrs
3.	Detonating Fuse	6.2	0	40000 Mtrs
4.	Ordinary/Electric/Non Electric Detonators	6.3	0	44000 Nos.

3 times
as above.

(ख) किसी एक कैलेंडर मास में खरीदे जाने वाले विस्फोटक की मात्रा [अनुच्छेद 3(ख) और (ग) के अधीन अनुज्ञापि के लिए]
(b) Quantity of explosives to be purchased in a calendar month [applicable for licence under article 3(b) and (c)]:

5 निम्नलिखित रेखाचित्र (रेखाचित्रों) से अनुज्ञापि परिसर की पुष्टि होती है।
The licensed premises shall conform to the following drawing(s).

रेखाचित्र क्र. (Drawing No.) E/SC/TN/22/755(E114440)
दिनांक (Dated) 04/02/2022

6 अनुज्ञापि परिसर निम्नलिखित पते पर स्थित है। The licensed premises are situated at following address:

Survey No. H19/1B, ग्राम (Town/Village) Vedampatti, Nammandal, पुलिस थाना (Police Station): Panchapalli
जिला (District) DHARMAPURI राज्य (State) Tamil Nadu
दूरभाष (Phone) ई मेल (E-Mail)

पिनकोड (Pincode) 636812
फैक्स (Fax)

7 अनुज्ञापि परिसर में निम्नलिखित सुविधाएं अंतर्बैह हैं।
The licensed premises consist of following facilities.

Dist Collector, Krishnagiri proceedings No.G.O.(3D) No.3. dt.7.1.2018 valid for 20 years

8 अनुज्ञापि समय - समय पर यथासंशोधित विस्फोटक अधिनियम, 1884 और उसके अधीन विरचित विस्फोटक नियम, 2004 के उपबंधों, शर्तों और अतिरिक्त शर्तों और निम्नलिखित उपाबंधों के अधीन रहते हुए अनुदत्त की जाती है।

The licence is granted subject to the provision of Explosives Act 1884 as amended from time to time and the Explosives Rules, 2008 framed there under and the conditions, additional conditions and the following Annexures:

- उपर्युक्त क्रम से 5 में यथा कथित रेखाचित्र (स्थान, सन्निर्माण संबंधी और अन्य विवरण दर्शित करते हुए)।
Drawings (showing site, constructional and other details) as stated in serial No. 5 above.
- अनुज्ञापि प्राधिकारी द्वारा हस्ताक्षरित इस अनुज्ञापि की शर्तों और अतिरिक्त शर्तों।
Conditions and Additional Conditions of this licence signed by the licensing authority.
- दूरी प्ररूप DE-2 | Distance Form DE-2.

9 यह अनुज्ञापि तारीख 31 मार्च 2024 तक विधिमाम्य रहेगी। This licence shall remain valid till 31st day of March 2024.

यह अनुज्ञापि, अधिनियम या उसके अधीन विरचित नियमों या अनुसूची V के भाग 4 के प्रति निर्दिष्ट सेट-VII के अधीन तथा उपवर्णित इस अनुज्ञापि की शर्तों का अधिकमण करने या यदि अनुज्ञापि परिसर योजना या उससे संलग्न उपबंध में दर्शित विवरण के अनुरूप नहीं पाए जाने पर निलंबित या प्रतिरुद्ध की जा सकती है, जहां वह लागू हो।
This licence is liable to be suspended or revoked for any violation of the Act or Rules framed there under or the conditions of this licence as set forth under Set VII, wherever applicable, referred to in Part 4 of Schedule V or if the licensed premises are not found conforming to the description shown in the plans and Annexure attached hereto.

तारीख | The Date - 04/02/2022

संयुक्त मुख्य विस्फोटक नियंत्रक | Joint Chief Controller of Explosives
South Circle, Chennai

नवीनीकरण के पड़ाकन के लिए स्थान
Space for Endorsement of Renewal

नवीकरण की तारीख
Date of Renewal

समाप्ति की तारीख
Date of Expiry

अनुज्ञापन प्राधिकारी के हस्ताक्षर और स्टाम्प
Signature of licensing authority and stamp

कानूनी चेतावनी : विस्फोटकों को गलत ढंग से चलाने या उनका दुरुपयोग विधि के अधीन गंभीर दंडिक अपराध होगा।
Statutory Warning : Mishandling and misuse of explosives shall constitute serious criminal offence under the law.

Note :- This is system generated document does not require physical signature. Applicant may take printout for their records.



Cert No. FR 5326

भारत सरकार/Government of India
 खान अधिनियम, 1952/Mines Act, 1952
 खान परीक्षा बोर्ड/Board of Mining Examinations
 खान फोरमैन सक्षमता प्रमाण-पत्र
 (केवल ओपेनकास्ट खानों तक सीमित)
 (Restricted to mines having opencast workings only)
MINE FOREMAN'S CERTIFICATE OF COMPETENCY
 (धात्विकीय खान विनियम, 1961 के अन्तर्गत)
 (Under the Metalliferous Mines Regulations, 1961)

श्री **कालीमुथु ए** सुपुत्र **अल्लिमुथु**
 जिनकी जन्म तिथि 15.07.1971 है, को विहित अर्हताएं एवं अनुभव
 प्राप्त करने का सन्तोषजनक प्रमाण प्रस्तुत करने एवं नवम्बर 2019 में आयोजित विहित परीक्षा में उत्तीर्ण
 होने पर एतद्वारा केवल ओपेनकास्ट धात्विकीय खान के लिए फोरमैन प्रमाण-पत्र प्रदान किया जाता है। यह
 प्रमाण पत्र दिनांक 09 जनवरी 2020 से प्रभावी है।

Shri **KALIMUTHU A** son of **ALLIMUTHU**
 born on **15 JULY 1971** having given satisfactory evidence of
 possessing the prescribed qualifications and experience and having passed the examination held in
NOVEMBER 2019 is hereby granted **MINE FOREMAN'S CERTIFICATE OF COMPETENCY**
 for metalliferous mine having opencast workings only. This certificate is effective from
09.01.2020

Signature

सचिव परीक्षा बोर्ड
 Secretary
 Board of Mining
 Examinations


Signature

अध्यक्ष
 खान परीक्षा बोर्ड
 Chairman
 Board of Mining
 Examinations

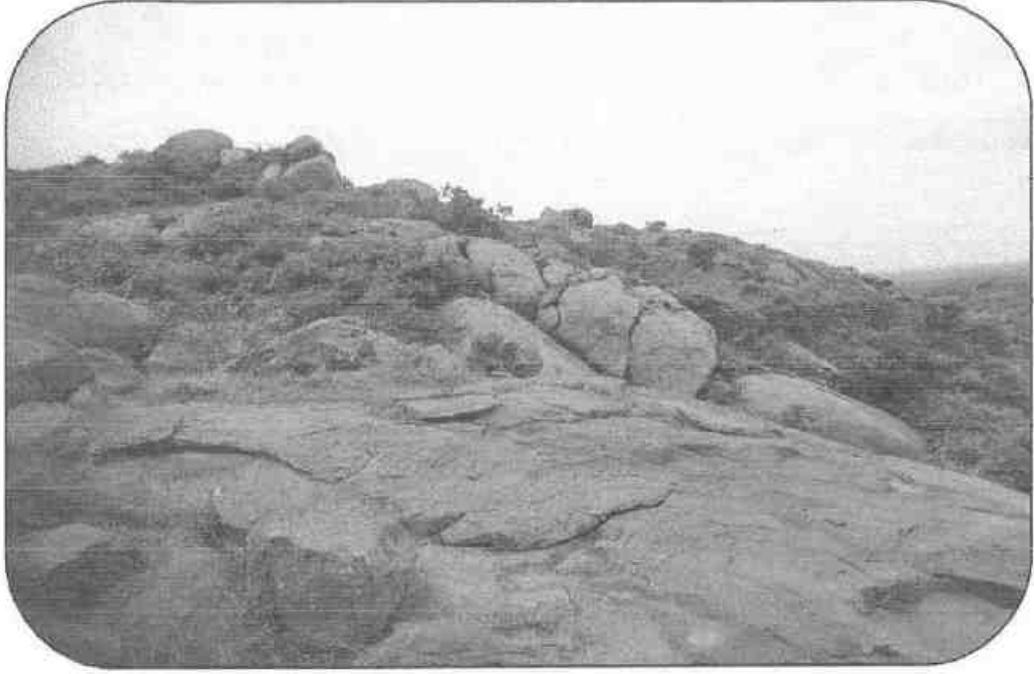
Sign and Sealed
Signature

சான்று

கிருஷ்ணகிரி மாவட்டம், தேன்கனிக்கோட்டை வட்டம், இராயக்கோட்டை உள்வட்டம், நாகமங்கலம் கிராம புல எண்: 629 (பகுதி)-ல் பரப்பு: 3.20.5 ஹெக்டேர் நிலம் தீ.ஏ.த (கல்லாங்குத்து) அரசு புறம்போக்கு என்று உள்ளது. மேற்படி நிலத்தை சுற்றி 300 மீட்டர் சுற்றளவில் கிராமநத்தமோ, குடியிருப்புகளோ, கோவில்களோ, பள்ளிக்கூடம் மற்றும் புராதான சின்னங்கள் ஏதும் இல்லை என்று சான்று அளிக்கப்படுகிறது.


ADMINISTRATIVE OFFICER
67, NAGAMANGALAM,
Venkanikottai (T), Krishnagiri (Dt.)

TOPOGRAPHICAL VIEW OF NAGAMANGALM ROUGH STONE
QUARRY LEASE APPLIED AREA



Name of the Applicant : **Tvl. Square Enterprises,**
Address : Varaganapalli Village,
Nagamangalam Post,
Denkanikottai Taluk,
Krishnagiri District - 635 113

LOCATION DETAILS

Extent : 3.20.5 Ha
S.F.No. : 629 (Part)
Village : Nagamangalam
Taluk : Denkanikottai
District : Krishnagiri
State : Tamil Nadu

For Tvl. Square Enterprises,

R. Chandran
R. Chandran
(Partner)

[Signature]
(Village Administrative Officer)
கிராம நிர்வாக அலுவலர்
67. நாகமங்கலம் (கிராமம்),
தேன்கனிக்கோட்டை (வட்டம்).

From
Thiru M.Kandan, M.Sc.,
Deputy Director,
Geology and Mining,
Collectorate,
Krishnagiri.

To
Thiru .Faldu Chimanlal Monanbhai
S/o Mohanbhai
Door No 2/198 C, Varaganapalli
village, Nagamangalam post,
Denkanikottai Taluk,
Krishnagiri District

Sir,

Roc. 82/2012/Mines-2 dated .04.2015.

Sub: Mines and Minerals - Minor Mineral - Rough stone -
Krishnagiri District - Denkanikottai Taluk - Nagamangalam
Village - Government land - S.F 629 part 1 - over an extent of
4.00.0 Hect - quarry lease for rough stone granted to Thiru
Faldu Chimanlal Monanbhai S/o Mohanbhai Door No 2/198
C Varaganapalli village Nagamangalam post Denkanikottai
Taluk Krishnagiri District - Draft Mining Plan submitted -
Mining Plan approved - reg

Ref: 1.The Commissioner of Geology and Mining i/c, Chennai -32
letter RC No. 3868/Lc/2012 dated 19.11.2012.
2. This office memorandum in Rc of even number dated
15.04.2015.
3. Thiru .Faldu Chimanlal Monanbhai letter dated 21.04.2015


In the reference 3rd cited Thiru Faldu Chimanlal Monanbhai S/o
Mohanbhai Door No 2/198 C Varaganapalli village Nagamangalam post
Denkanikottai Taluk Krishnagiri District has submitted draft Mining Plan for
approval for the proposed grant of Rough stone quarry lease over an extent of
4.00.0 Hects in Government land in S.F.No. 629 (part 1) of Nagamangalam village,
Denkanikottai Taluk, Krishnagiri District for a period of 10 years under the
provisions of Rule 8 (1) of Tamil Nadu Minor Mineral Concession Rules, 1959.

The Mining Plan submitted by Thiru Faldu Chimanlal Monanbhai has been
scrutinized as per the guide lines/ Instructions issued by the Commissioner of
Geology and Mining, Chennai-32 in the reference first cited. The mining plan is
prepared in accordance with the guide lines/ instructions issued and tallies with
the field conditions.

Hence as per the guide lines/ instructions issued by the Commissioner of
Geology and Mining, Chennai, the said mining plan is hereby approved subject to
the following conditions.

- i) That the mining plan is approved without prejudice to any other law
applicable to the quarry lease from time to time whether such laws
are made by the Central Government, State Government or any other
authority.

- ii) This approval of the mining plan does not in any way imply the approval of the Government in terms of any other provisions of Mines and Minerals (Development and Regulation) Act 1957, or any other connected laws including Forest (Conservation) Act 1957, or any other connected Laws industry Forest (Conservation) Act 1980, Forest Conservation Rules 1981 Environment protection Act 1980, Indian Explosive Act 1884 (Central Act IV of 1884) and the rules made There under, Minor Mineral Conservation and Development Rules, and The Tamil Nadu Minor Mineral Concession rules, 1959.
- iii) That the mining plan is approved without prejudice to any other order or directions from any court of competent jurisdiction.
- iv) As per the District Collector, Krishnagiri memorandum in Roc. No. 82/2012/Mines-1 dated 15.04.2015 the following special conditions are incorporated in the approved mining plan.
- 1) A safety zone of 7.5mts should be left out for the adjacent patta lands.
 - 2) A safety zone of 10mts should be left out for the Government land.
- v) The applicant should get prior clearance from the State level Environment Impact Assessment Authority, Chennai -15 and should submit it to the District Collector, Krishnagiri.


Deputy Director,
Geology and Mining,
Krishnagiri.

9/2/15
Copy submitted to: 1. The Chairman, State Level Environment Impact Assessment Authority, 3rd panagal maligai, No.1 Jeenes Road, Saidapet, Chennai -15.
2. The Commissioner of Geology and Mining, Guindy, Chennai -32.

From
Thiru M.Kandan, M.Sc.,
Deputy Director,
Geology and Mining,
Collectorate,
Krishnagiri.

To
Thiru Amrish S/o Krishnappa
Door No 2/56 Varaganapalli village,
Nagamangalam post,
Denkanikottai Taluk, Krishnagiri
District

Roc. 83/2012/Mines-2 dated .04.2015.

Sir,

Sub: Mines and Minerals - Minor Mineral - Rough stone -
Krishnagiri District - Denkanikottai Taluk - Nagamangalam
Village - Government land - S.F 629 part 2 - over an extent of
4.00.0 Hect - quarry lease for rough stone granted to Thiru
Amrish S/o Krishnappa Door No 2/56 Varaganapalli village
Nagamangalam post Denkanikottai Taluk Krishnagiri District
Krishnagiri District - Draft Mining Plan submitted - Mining
Plan approved - reg

Ref: 1. The Commissioner of Geology and Mining i/c, Chennai -32
letter RC No. 3868/Lc/2012 dated 19.11.2012.
2. This office memorandum in Rc of even number dated
15.04.2015.
3. Thiru Amrish letter dated 21.04.2015


In the reference 3rd cited Thiru Amrish S/o Krishnappa Door No 2/56
Varaganapalli village Nagamangalam post Denkanikottai Taluk Krishnagiri
District has submitted draft Mining Plan for approval for the proposed grant of
Rough stone quarry lease over an extent of 4.00.0 Hects in Government land in
S.F.No. 629 (part 2) of Nagamangalam village, Denkanikottai Taluk, Krishnagiri
District for a period of 10 years under the provisions of Rule 8 (1) of Tamil Nadu
Minor Mineral Concession Rules, 1959.

The Mining Plan submitted by Thiru Amrish has been scrutinized as per the
guide lines/ Instructions issued by the Commissioner of Geology and Mining,
Chennai-32 in the reference first cited. The mining plan is prepared in accordance
with the guide lines/ instructions issued and tallies with the field conditions.

Hence as per the guide lines/ instructions issued by the Commissioner of
Geology and Mining, Chennai, the said mining plan is hereby approved subject to
the following conditions.

- i) That the mining plan is approved without prejudice to any other law
applicable to the quarry lease from time to time whether such laws
are made by the Central Government, State Government or any other
authority.

- ii) This approval of the mining plan does not in any way imply the approval of the Government in terms of any other provisions of Mines and Minerals (Development and Regulation) Act 1957, or any other connected laws including Forest (Conservation) Act 1957, or any other connected Laws industry Forest (Conservation) Act 1980, Forest Conservation Rules 1981 Environment protection Act 1980, Indian Explosive Act 1884 (Central Act IV of 1884) and the rules made There under, Minor Mineral Conservation and Development Rules, and The Tamil Nadu Minor Mineral Concession rules, 1959.
- iii) That the mining plan is approved without prejudice to any other order or directions from any court of competent jurisdiction.
- iv) As per the District Collector, Krishnagiri memorandum in Roc. No. 83/2012/Mines-1 dated 15.04.2015 the following special conditions are incorporated in the approved mining plan.
- 1) A safety zone of 7.5mts should be left out for the adjacent patta lands.
 - 2) A safety zone of 10mts should be left out for the Government land.
- ✓ The applicant should get prior clearance from the State level Environment Impact Assessment Authority, Chennai -15 and should submit it to the District Collector, Krishnagiri.


Deputy Director,
Geology and Mining,
Krishnagiri.

Copy
Copy submitted to: 1. The Chairman, State Level Environment Impact Assessment Authority, 3rd panagal maligai, No.1 Jeenes Road, Saidapet, Chennai -15.
2. The Commissioner of Geology and Mining, Guindy, Chennai -32.



Committed to Precision

LABORATORY | CONSULTANCY | SUSTAINABILITY

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E-Mail: lab@glcs.in

Web: www.glcs.in

SUMMARY REPORT

Issued To	Tvl Square Enterprises, Varaganapalli village, Nagamangalam post, Denkanikottai Taluk, Krishnagiri District – 635113.		
Site Location	Lease Area : 3.20.5 Ha S.F.No.629(Part), Nagamangalam village, Denkanikottai Taluk, Krishnagiri District.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ 1 – Core Zone (Project Area)
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/5856,5863,6270, 6277, 6608, 6615, 6921,6928, 7178, 7185,7488, 7495, 7764,7771, 8063,8070,8485,8492,8819, 8826, 9183,9190,9495,9502,9763,9770		
Location Coordinates	12° 34' 27.37"N 77° 55' 1.05"E		
Report Date	08.01.2024		

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)
04.10.2023	9.00am – 9.00am	44.0	23.7	5.2	17.7	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
05.10.2023	9.10am– 9.10am	42.4	24.5	5.7	19.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
11.10.2023	11.00am - 11.00am	49.2	23.7	9.6	21.5	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
12.10.2023	11.10am - 11.10am	43.7	23.3	BDL(DL:4.0)	21.1	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
18.10.2023	11.00am - 11.00am	41.9	22.5	4.4	19.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
19.10.2023	11.10am - 11.10am	44.1	22.0	BDL(DL:4.0)	21.0	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
25.10.2023	11.00am - 11.00am	42.8	21.2	BDL(DL:4.0)	21.2	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
26.10.2023	11.10am - 11.10am	41.2	22.0	4.9	21.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
1.11.2023	11.30am - 11.30am	41.2	20.4	5.7	21.9	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
2.11.2023	11.40am - 11.40am	43.0	22.0	6.7	22.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
8.11.2023	09.00am - 09.00am	41.8	20.8	BDL(DL:4)	20.6	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
9.11.2023	9.10am - 9.10am	42.4	22.0	6.1	19.1	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
15.11.2023	11.30am -11.30am	41.1	20.4	BDL(DL:4)	20.1	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
16.11.2023	11.40am -11.40am	41.1	20.8	BDL(DL:4)	20.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
21.11.2023	11.00am - 11.00am	42.3	21.2	BDL(DL:4)	20.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
22.11.2023	11.10am - 11.10am	40.5	20.4	7.0	19.6	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
29.11.2023	11.00am - 11.00am	41.1	21.2	5.2	21.3	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
30.11.2023	11.40am - 11.40am	41.9	21.6	7.2	20.9	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
6.12.2023	11.00am - 11.00am	40.8	20.0	BDL(DL:4)	21.2	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
7.12.2023	11.10am - 11.10am	41.2	20.4	BDL(DL:4)	20.3	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
13.12.2023	10.15am - 10.15am	42.0	21.6	BDL(DL:4)	21.9	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
14.12.2023	10.25am - 10.25am	40.0	20.4	4.6	20.6	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
20.12.2023	11.00am - 11.00am	40.8	20.4	4.1	22.7	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
21.12.2023	11.10am - 11.10am	44.2	23.3	4.9	20.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
27.12.2023	11.00am - 11.00am	42.0	20.4	BDL(DL:4)	20.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
28.12.2023	11.40am - 11.40am	41.6	20.8	4.9	20.5	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
NAAQ* Standard		<100	<60	<80	<80	<100	<400	<4

Note: BDL: Below Detection Limit; DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.



[Signature]
Authorised Signatory

L. SUDHAPRIYA
Technical Manager



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GLOBAL LAB AND CONSULTANCY SERVICES

S.F.No.92/3A2, Geetha Nagar,

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SUMMARY REPORT

Issued To	Tvl Square Enterprises, Varaganapalli village, Nagamangalam post, Denkanikottai Taluk, Krishnagiri District – 635113.		
Site Location	Lease Area : 3.20.5 Ha S.F.No.629(Part), Nagamangalam village, Denkanikottai Taluk, Krishnagiri District.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ 1 – Core Zone (Project Area)
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/5856,5863,6270, 6277, 6608, 6615, 6921,6928, 7178, 7185,7488, 7495, 7764,7771, 8063,8070,8485,8492,8819, 8826, 9183,9190,9495,9502,9763,9770		
Location Coordinates	12° 34' 27.37"N 77° 55' 1.05"E		
Report Date	08.01.2024		

Date	Period. hrs	Ni (ng/m ³)	As (ng/m ³)	Benzene (µg/m ³)	BaP (ng/m ³)	Pb (µg/m ³)
04.10.2023	9.00am – 9.00am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
05.10.2023	9.10am– 9.10am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
11.10.2023	11.00am- 11.00am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
12.10.2023	11.10am- 11.10am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
18.10.2023	11.00am- 11.00am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
19.10.2023	11.10am- 11.10am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
25.10.2023	11.00am- 11.00am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
26.10.2023	11.10am- 11.10am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
1.11.2023	11.30am- 11.30am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
2.11.2023	11.40am- 11.40am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
8.11.2023	09.00am- 09.00am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
9.11.2023	9.10am - 9.10am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
15.11.2023	11.30am -11.30am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
16.11.2023	11.40am -11.40am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
21.11.2023	1.00am - 11.00am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
22.11.2023	11.10am- 11.10am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
29.11.2023	11.00am- 11.00am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
30.11.2023	11.40am- 11.40am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
6.12.2023	11.00am- 11.00am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
7.12.2023	11.10am- 11.10am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
13.12.2023	9.00am - 9.00am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
14.12.2023	9.10am - 9.10am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
20.12.2023	11.00am- 11.00am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
21.12.2023	11.10am- 11.10am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
27.12.2023	11.00am- 11.00am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
28.12.2023	11.40am- 11.40am	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.

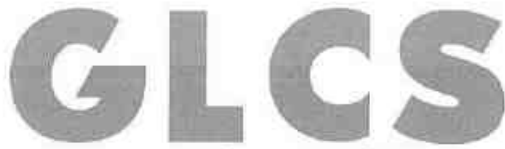


*****End of Report*****

Page 2 of 2

Authorised Signatory

L. SUDHAPRIYA
Technical Manager



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S.F.No.92/3A2, Geetha Nagar,

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SUMMARY REPORT

Issued To	Tvl Square Enterprises, Varaganapalli village, Nagamangalam post, Denkanikottai Taluk, Krishnagiri District – 635113.		
Site Location	Lease Area : 3.20.5 Ha S.F.No. 629(Part), Nagamangalam village, Denkanikottai Taluk, Krishnagiri District.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ 2 – Near Crusher
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/5857,5864, 6271,6278, 6609,6616,6922,6929, 7179, 7186, 7489,7496,7765,7772,8064, 8071,8486,8493, 8820,8827, 9184,9191,9496,9503,9764,9771		
Location Coordinates	12° 34' 14.45"N 77° 55' 2. 61"E		
Report Date	08.01.2024		

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)
04.10.2023	9.20am - 9.20am	41.7	24.1	BDL(DL:4)	23.1	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
05.10.2023	9.30am - 9.30am	43.8	20.4	6.8	19.2	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
11.10.2023	11.15am - 11.15am	45.9	22.9	BDL(DL:4)	24.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
12.10.2023	11.25am - 11.25am	44.9	22.0	5.0	23.6	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
18.10.2023	11.15am - 11.15am	42.8	21.6	2.2	19.5	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
19.10.2023	11.25am - 11.25am	42.7	20.8	6.8	21.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
25.10.2023	11.25am - 11.25am	41.8	22.0	4.9	21.9	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
26.10.2023	11.15am - 11.15am	43.8	21.2	5.4	20.6	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
1.11.2023	11.50am - 11.05am	42.9	21.6	4.4	20.9	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
2.11.2023	12.00pm - 12.00pm	41.8	22.5	5.9	20.3	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
8.11.2023	9.20am - 9.20am	43.2	23.3	6.8	18.9	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
9.11.2023	9.30am - 9.30am	42.5	21.6	4.7	19.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
15.11.2023	11.45am - 11.45am	44.3	23.7	5.2	20.1	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
16.11.2023	12.00pm - 12.00pm	45.2	24.9	4.4	20.9	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
21.11.2023	11.15am - 11.15am	45.9	25.4	BDL(DL:4)	19.7	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
22.11.2023	11.25am - 11.25am	43.8	22.5	5.7	19.9	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
29.11.2023	11.10am - 11.10am	42.3	22.5	4.2	21.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
30.11.2023	12.00pm - 12.00pm	45.5	24.5	7.0	19.5	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
6.12.2023	11.15am - 11.15am	44.7	24.9	5.4	21.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
7.12.2023	11.25am - 11.25am	45.0	24.5	4.4	19.9	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
13.12.2023	10.35am - 10.35am	46.0	25.4	BDL(DL:4)	20.5	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
14.12.2023	10.40am - 10.40am	46.6	25.8	6.2	20.2	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
20.12.2023	11.15am - 11.15am	46.6	24.1	8.3	24.5	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
21.12.2023	11.25am - 11.25am	46.9	26.2	8.8	24.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
27.12.2023	11.10am - 11.10am	46.9	24.9	6.0	21.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
28.12.2023	12.00pm - 12.00pm	46.8	25.7	6.7	21.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
NAAQ* Standard		<100	<60	<80	<80	<100	<400	<4

Note: BDL: Below Detection Limit; DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.



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SUMMARY REPORT

Issued To	Tvl Square Enterprises, Varaganapalli village, Nagamangalam post, Denkanikottai Taluk, Krishnagiri District – 635113.		
Site Location	Lease Area : 3.20.5 Ha S.F.No.629(Part), Nagamangalam village, Denkanikottai Taluk, Krishnagiri District.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ2 – Near Crusher
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/5857,5864, 6271,6278, 6609,6616,6922,6929, 7179, 7186, 7489,7496,7765,7772,8064, 8071,8486,8493, 8820,8827, 9184,9191,9496,9503,9764,9771		
Location Coordinates	12°34' 14.45"N 77°55' 2. 61"E		
Report Date	08.01.2024		

Date	Period. hrs	Ni (ng/m ³)	As (ng/m ³)	C6H6 (µg/m ³)	BaP (ng/m ³)	Pb (µg/m ³)
04.10.2023	9.20am - 9.20am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
05.10.2023	9.30am - 9.30am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
11.10.2023	11.15am - 11.15am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
12.10.2023	11.25am - 11.25am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
18.10.2023	11.15am - 11.15am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
19.10.2023	11.25am - 11.25am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
25.10.2023	11.25am - 11.25am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
26.10.2023	11.15am - 11.15am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
1.11.2023	11.50am - 11.05am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
2.11.2023	12.00pm - 12.00pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
8.11.2023	9.20am - 9.20am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
9.11.2023	9.30am - 9.30am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
15.11.2023	11.45am - 11.45am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
16.11.2023	12.00pm - 12.00pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
21.11.2023	11.15am - 11.15am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
22.11.2023	11.25am - 11.25am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
29.11.2023	11.10am - 11.10am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
30.11.2023	12.00pm - 12.00pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
6.12.2023	11.15am - 11.15am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
7.12.2023	11.25am - 11.25am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
13.12.2023	9.20am - 9.20am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
14.12.2023	9.30am - 9.30am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
20.12.2023	11.15am - 11.15am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
21.12.2023	11.25am - 11.25am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
27.12.2023	11.10am - 11.10am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
28.12.2023	12.00pm - 12.00pm	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.



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*****End of Report*****

Page 2 of 2

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SUMMARY REPORT

Issued To	Tvl Square Enterprises, Varaganapalli village, Nagamangalam post, Denkanikottai Taluk, Krishnagiri District – 635113.		
Site Location	Lease Area : 3.20.5 Ha S.F.No. 629(Part), Nagamangalam village, Denkanikottai Taluk, Krishnagiri District.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ3 – Nagamangalam
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/5858,5865, 6272,6279,6610, 6617,6923, 6930,7180,7187,7490,7497, 7766,7773, 8065,8072,8487,8494,8821,8828,9185,9192,9497,9504,9765,9772		
Location Coordinates	12° 34' 4.25"N 77° 56' 27. 44"E		
Report Date	08.01.2024		

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)
04.10.2023	9.45am - 9.45am	43.1	21.6	4.1	19.2	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
05.10.2023	9.55am - 9.55am	42.8	21.6	BDL(DL:4)	18.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
11.10.2023	11.40am - 11.40am	44.3	23.3	BDL(DL:4)	21.0	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
12.10.2023	11.50am - 11.50am	43.3	23.3	7.1	20.2	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
18.10.2023	11.45am - 11.45am	42.7	23.3	6.0	19.1	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
19.10.2023	11.50am - 11.50am	42.5	21.6	BDL(DL:4)	23.2	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
25.10.2023	11.45am - 11.45am	41.2	22.5	4.9	21.6	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
26.10.2023	11.50am - 11.50am	42.0	22.5	4.6	20.3	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
1.11.2023	12.15pm - 12.15pm	41.6	22.0	6.0	22.3	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
2.11.2023	12.25pm - 12.25pm	41.2	21.6	6.0	21.6	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
8.11.2023	9.45am - 9.45am	41.9	22.5	BDL(DL:4)	20.0	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
9.11.2023	9.55am - 9.55am	44.0	24.1	BDL(DL:4)	19.6	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
15.11.2023	12.15pm - 12.15pm	42.6	22.5	7.3	21.2	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
16.11.2023	12.25pm - 12.25pm	43.0	22.5	7.2	21.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
21.11.2023	11.40am - 11.40am	43.7	22.5	4.7	19.3	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
22.11.2023	11.50am - 11.50am	42.2	21.6	5.2	21.1	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
29.11.2023	12.15pm - 12.15pm	43.4	21.6	7.0	20.0	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
30.11.2023	12.25pm - 12.25pm	43.1	22.5	6.5	19.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
6.12.2023	11.40am - 11.40am	42.6	21.6	4.6	21.5	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
7.12.2023	11.50am - 11.50am	42.4	22.0	6.2	21.0	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
13.12.2023	11.00am - 11.00am	42.8	22.5	7.2	21.5	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
14.12.2023	11.05am - 11.05am	42.0	21.6	7.3	21.3	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
20.12.2023	11.40am - 11.40am	42.9	22.4	4.8	21.9	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
21.12.2023	11.50am - 11.50am	42.6	22.5	6.7	21.1	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
27.12.2023	12.15pm - 12.15pm	43.3	22.5	5.7	21.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
28.12.2023	12.25pm - 12.25pm	42.6	21.2	5.2	21.6	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
NAAQ* Standard		<100	<60	<80	<80	<100	<400	<4

Note: BDL: Below Detection Limit; DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.



[Signature]
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SUMMARY REPORT

Issued To	Tvl Square Enterprises, Varaganapalli village, Nagamangalam post, Denkanikottai Taluk, Krishnagiri District – 635113.		
Site Location	Lease Area : 3.20.5 Ha S.F.No.629(Part), Nagamangalam village, Denkanikottai Taluk, Krishnagiri District.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ3 - Nagamangalam
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/5858,5865, 6272,6279,6610, 6617,6923, 6930,7180,7187,7490,7497, 7766,7773, 8065,8072,8487,8494,8821,8828,9185,9192,9497,9504,9765,9772		
Location Coordinates	12° 34' 4.25"N 77° 56' 27. 44"E		
Report Date	08.01.2024		

Date	Period. hrs	Ni (ng/m ³)	As (ng/m ³)	C6H6 (µg/m ³)	BaP (ng/m ³)	Pb (µg/m ³)
04.10.2023	9.45am - 9.45am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
05.10.2023	9.55am - 9.55am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
11.10.2023	11.40am - 11.40am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
12.10.2023	11.50am - 11.50am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
18.10.2023	11.45am - 11.45am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
19.10.2023	11.50am - 11.50am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
25.10.2023	11.45am - 11.45am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
26.10.2023	11.50am - 11.50am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
1.11.2023	12.15pm - 12.15pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
2.11.2023	12.25pm - 12.25pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
8.11.2023	9.45am - 9.45am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
9.11.2023	9.55am - 9.55am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
15.11.2023	12.15pm - 12.15pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
16.11.2023	12.25pm - 12.25pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
21.11.2023	11.40am - 11.40am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
22.11.2023	11.50am - 11.50am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
29.11.2023	12.15pm - 12.15pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
30.11.2023	12.25pm - 12.25pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
6.12.2023	11.40am - 11.40am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
7.12.2023	11.50am - 11.50am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
13.12.2023	9.45am - 9.45am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
14.12.2023	9.55am - 9.55am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
20.12.2023	11.40am - 11.40am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
21.12.2023	11.50am - 11.50am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
27.12.2023	12.15pm - 12.15pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
28.12.2023	12.25pm - 12.25pm	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.



Authorised Signatory

*****End of Report*****

Page 2 of 2

L. SUDHAPRIYA
Technical Manager

SUMMARY REPORT

Issued To	Tvl Square Enterprises, Varaganapalli village, Nagamangalam post, Denkanikottai Taluk, Krishnagiri District – 635113.		
Site Location	Lease Area : 3.20.5 Ha S.F.No. 629(Part), Nagamangalam village, Denkanikottai Taluk, Krishnagiri District.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ4 - Kadudhanapalli
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/5859,5866, 6273,6280,6611, 6618, 6924, 6931,7181,7188, 7491,7498,7767,7774, 8066,8073,8488,8495, 8822,8829, 9186,9193,9498,9505,9766,9773		
Location Coordinates	12° 35' 36.96"N 77° 52' 35. 21"E		
Report Date	08.01.2024		

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)
04.10.2023	10.15am - 10.15am	43.2	22.9	7.9	18.1	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
05.10.2023	10.25am - 10.25am	45.0	24.1	BDL(DL:4)	25.0	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
11.10.2023	12.15pm - 12.15pm	45.8	24.1	BDL(DL:4)	24.0	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
12.10.2023	12.25pm - 12.25pm	45.3	22.5	BDL(DL:4)	21.0	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
18.10.2023	12.15pm - 12.15pm	43.5	22.9	6.3	22.0	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
19.10.2023	12.30pm - 12.30pm	42.4	22.5	5.5	21.3	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
25.10.2023	12.25pm - 12.25pm	44.5	21.6	6.2	21.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
26.10.2023	12.15pm - 12.15pm	45.5	24.5	4.6	20.7	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
1.11.2023	12.45pm - 12.45pm	42.8	23.3	4.9	21.6	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
2.11.2023	12.50pm - 12.50pm	42.8	20.8	4.6	20.1	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
8.11.2023	10.15am - 10.15am	43.7	23.7	7.6	20.5	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
9.11.2023	10.25am - 10.25am	41.9	22.0	6.1	19.7	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
15.11.2023	12.15pm - 12.15pm	42.3	21.2	7.0	20.1	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
16.11.2023	01.00pm - 01.00pm	42.4	21.6	4.9	20.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
21.11.2023	12.15pm - 12.15pm	42.3	23.3	7.3	18.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
22.11.2023	12.20pm - 12.20 pm	41.0	20.4	4.9	21.9	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
29.11.2023	12.45pm - 12.45pm	41.4	22.0	4.2	20.7	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
30.11.2023	12.50pm - 12.50pm	42.3	21.5	6.0	20.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
6.12.2023	12.15pm - 12.15pm	43.7	22.5	6.0	21.6	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
7.12.2023	12.25pm - 12.25pm	41.3	21.6	6.5	21.1	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
13.12.2023	11.20am - 11.20am	42.9	21.2	4.4	22.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
14.12.2023	11.30am - 11.30am	43.8	23.3	BDL(DL:4)	20.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
20.12.2023	12.15pm - 12.15pm	42.3	21.6	7.0	21.6	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
21.12.2023	12.25pm - 12.25pm	43.1	23.7	7.8	21.6	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
27.12.2023	12.45pm - 12.45pm	41.8	20.8	4.4	20.3	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
28.12.2023	12.50pm - 12.50pm	43.1	22.8	5.9	24.5	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
NAAQ* Standard		<100	<60	<80	<80	<100	<400	<4

Note: BDL: Below Detection Limit; DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.



(Signature)
Authorised Signatory

SUMMARY REPORT

Issued To	Tvl Square Enterprises, Varaganapalli village, Nagamangalam post, Denkanikottai Taluk, Krishnagiri District – 635113.		
Site Location	Lease Area : 3.20.5 Ha S.F.No.629(Part), Nagamangalam village, Denkanikottai Taluk, Krishnagiri District.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ4- Kadudhanapalli
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/5859,5866, 6273,6280,6611, 6618, 6924, 6931,7181,7188, 7491,7498,7767,7774, 8066,8073,8488,8495, 8822,8829, 9186,9193,9498,9505,9766,9773		
Location Coordinates	12° 35' 36.96"N 77° 52'35. 21"E		
Report Date	08.01.2024		

Date	Period. hrs	Ni (ng/m ³)	As (ng/m ³)	C6H6 (µg/m ³)	BaP (ng/m ³)	Pb (µg/m ³)
04.10.2023	10.15am - 10.15am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
05.10.2023	10.25am - 10.25am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
11.10.2023	12.15pm - 12.15pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
12.10.2023	12.25pm - 12.25pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
18.10.2023	12.15pm - 12.15pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
19.10.2023	12.30pm - 12.30pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
25.10.2023	12.25pm - 12.25pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
26.10.2023	12.15pm - 12.15pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
1.11.2023	12.45pm - 12.45pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
2.11.2023	12.50pm - 12.50pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
8.11.2023	10.15am - 10.15am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
9.11.2023	10.25am - 10.25am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
15.11.2023	12.15pm - 12.15pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
16.11.2023	01.00pm - 01.00pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
21.11.2023	12.15pm - 12.15pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
22.11.2023	12.20pm - 12.20 pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
29.11.2023	12.45pm - 12.45pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
30.11.2023	12.50pm - 12.50pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
6.12.2023	12.15pm - 12.15pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
7.12.2023	12.25pm - 12.25pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
13.12.2023	10.15am - 10.15am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
14.12.2023	10.25am - 10.25am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
20.12.2023	12.15pm - 12.15pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
21.12.2023	12.25pm - 12.25pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
27.12.2023	12.45pm - 12.45pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
28.12.2023	12.50pm - 12.50pm	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.



Authorised Signatory

*****End of Report*****
Page 2 of 2

L. SUDHAPRIYA
Technical Manager



Committed to Precision

LABORATORY | CONSULTANCY | SUSTAINABILITY

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SUMMARY REPORT

Issued To	Tvl Square Enterprises, Varaganapalli village, Nagamangalam post, Denkanikottai Taluk, Krishnagiri District – 635113.		
Site Location	Lease Area : 3.20.5 Ha S.F.No. 629(Part), Nagamangalam village, Denkanikottai Taluk, Krishnagiri District.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ5 - Agaram
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/5860,5867, 6274,6281, 6612, 6619,6925,6932, 7182, 7189, 7492,7499, 7768,7775, 8067,8075,8489,8496,8823,8830,9187,9194,9499,9506,9767,9774		
Location Coordinates	12° 36' 53.34"N 77° 57' 19. 80"E		
Report Date	08.01.2024		

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)
04.10.2023	10.35am - 10.35am	44.2	23.7	7.1	20.6	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
05.10.2023	10.40am - 10.40am	44.0	22.0	6.3	20.0	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
11.10.2023	12.45pm - 12.45pm	43.6	22.0	8.4	18.1	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
12.10.2023	12.50pm - 12.50pm	44.3	24.1	BDL(DL:4)	22.5	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
18.10.2023	12.45pm - 12.45pm	45.7	24.5	4.2	21.9	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
19.10.2023	12.55pm - 12.55pm	44.2	20.4	4.9	21.9	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
25.10.2023	12.50pm - 12.50pm	41.9	20.8	5.7	21.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
26.10.2023	12.45pm - 12.45pm	41.6	20.4	4.4	20.9	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
1.11.2023	1.15pm - 1.15pm	42.5	22.5	4.1	21.2	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
2.11.2023	1.25pm - 1.25pm	43.1	21.2	4.9	20.5	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
8.11.2023	10.35am - 10.35am	44.4	21.6	5.4	20.6	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
9.11.2023	10.40am - 10.40am	43.0	23.7	5.4	21.6	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
15.11.2023	1.15pm - 1.15pm	43.1	22.5	4.6	20.6	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
16.11.2023	1.25pm - 1.25pm	42.0	21.2	5.4	20.5	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
21.11.2023	12.45pm - 12.45pm	43.1	22.8	7.0	19.5	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
22.11.2023	12.50pm - 12.50pm	43.3	23.7	6.0	20.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
29.11.2023	1.15pm - 1.15pm	43.6	23.7	BDL(DL:4)	19.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
30.11.2023	1.25pm - 1.25pm	41.2	20.4	BDL(DL:4)	20.1	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
6.12.2023	12.45pm - 12.45pm	42.7	22.8	7.2	20.1	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
7.12.2023	12.50pm - 12.50pm	43.0	22.5	5.2	19.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
13.12.2023	11.45am - 11.45am	43.3	23.7	4.1	22.2	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
14.12.2023	11.50am - 11.50am	41.8	21.2	5.7	21.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
20.12.2023	12.45pm - 12.45pm	43.3	21.6	4.4	21.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
21.12.2023	12.50pm - 12.50pm	43.1	21.6	5.4	21.0	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
27.12.2023	1.15pm - 1.15pm	43.0	21.6	4.1	21.6	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
28.12.2023	1.25pm - 1.25pm	43.0	22.0	6.7	21.5	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
NAAQ* Standard		<100	<60	<80	<80	<100	<400	<4

Note: BDL: Below Detection Limit; DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.



(Signature)
Authorised Signatory

GLOBAL LAB AND CONSULTANCY SERVICES



Committed to Precision

LABORATORY | CONSULTANCY | SUSTAINABILITY

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SUMMARY REPORT

Issued To	Tvl Square Enterprises, Varaganapalli village, Nagamangalam post, Denkanikottai Taluk, Krishnagiri District – 635113.		
Site Location	Lease Area : 3.20.5 Ha S.F.No.629(Part), Nagamangalam village, Denkanikottai Taluk, Krishnagiri District.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ5 - Agaram
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/5860,5867, 6274,6281, 6612, 6619,6925,6932, 7182, 7189, 7492,7499, 7768,7775, 8067,8075,8489,8496,8823,8830,9187,9194,9499,9506,9767,9774		
Location Coordinates	12° 36' 53.34"N 77° 57' 19. 80"E		
Report Date	08.01.2024		

Date	Period. hrs	Ni (ng/m ³)	As (ng/m ³)	C6H6 (µg/m ³)	BaP (ng/m ³)	Pb (µg/m ³)
04.10.2023	10.35am - 10.35am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
05.10.2023	10.40am - 10.40am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
11.10.2023	12.45pm - 12.45pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
12.10.2023	12.50pm - 12.50pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
18.10.2023	12.45pm - 12.45pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
19.10.2023	12.55pm - 12.55pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
25.10.2023	12.50pm - 12.50pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
26.10.2023	12.45pm - 12.45pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
1.11.2023	1.15pm - 1.15pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
2.11.2023	1.25pm - 1.25pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
8.11.2023	10.35am - 10.35am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
9.11.2023	10.40am - 10.40am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
15.11.2023	1.15pm - 1.15pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
16.11.2023	1.25pm - 1.25pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
21.11.2023	12.45pm - 12.45pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
22.11.2023	12.50pm - 12.50pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
29.11.2023	1.15pm - 1.15pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
30.11.2023	1.25pm - 1.25pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
6.12.2023	12.45pm - 12.45pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
7.12.2023	12.50pm - 12.50pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
13.12.2023	10.35am - 10.35am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
14.12.2023	10.40am - 10.40am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
20.12.2023	12.45pm - 12.45pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
21.12.2023	12.50pm - 12.50pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
27.12.2023	1.15pm - 1.15pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
28.12.2023	1.25pm - 1.25pm	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.



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*****End of Report*****
Page 2 of 2

L. SUDHAPRIYA
Technical Manager



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SUMMARY REPORT

Issued To	Tvl Square Enterprises, Varaganapalli village, Nagamangalam post, Denkanikottai Taluk, Krishnagiri District – 635113.		
Site Location	Lease Area : 3.20.5 Ha S.F.No. 629(Part), Nagamangalam village, Denkanikottai Taluk, Krishnagiri District.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ6 - Konasandram
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/5861,5868, 6275, 6282,6613, 6620, 6926, 6933,7183, 7190,7493,7500,7769,7776, 8068,8075,8490, 8497, 8824,8831,9188,9195,9500,9507,9768,9775		
Location Coordinates	12° 33' 0.94"N 77° 52'40. 09"E		
Report Date	08.01.2024		

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)
04.10.2023	11.00am - 11.00am	43.7	22.9	7.8	18.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
05.10.2023	11.10am - 11.10am	45.2	24.5	BDL(DL:4)	20.5	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
11.10.2023	1.15pm - 1.15pm	44.8	22.9	BDL(DL:4)	19.7	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
12.10.2023	1.25pm - 1.25pm	44.6	24.5	BDL(DL:4)	19.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
18.10.2023	1.15pm - 1.15pm	43.4	23.7	7.1	19.5	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
19.10.2023	1.30pm - 1.30pm	43.0	21.6	6.8	20.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
25.10.2023	1.25pm - 1.25pm	43.7	21.2	4.6	21.5	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
26.10.2023	1.15pm - 1.15pm	42.6	23.3	6.0	21.1	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
1.11.2023	1.15pm - 1.15pm	41.4	22.8	BDL(DL:4)	20.3	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
2.11.2023	1.50pm - 1.50pm	43.8	22.5	5.4	20.9	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
8.11.2023	11.00am - 11.00am	42.7	24.1	7.6	19.5	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
9.11.2023	11.10am-11.10am	43.6	20.8	BDL(DL:4)	19.9	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
15.11.2023	1.45pm - 1.45pm	42.4	21.6	BDL(DL:4)	20.9	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
16.11.2023	1.50pm - 1.50pm	42.3	21.2	6.7	20.9	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
21.11.2023	1.15pm - 1.15pm	41.2	22.5	4.4	21.1	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
22.11.2023	1.25pm - 1.25pm	43.7	22.0	BDL(DL:4)	19.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
29.11.2023	1.45pm - 1.45pm	45.1	24.1	BDL(DL:4)	21.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
30.11.2023	1.50pm - 1.50pm	43.5	22.5	5.4	20.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
6.12.2023	1.15pm - 1.15pm	44.2	22.4	4.9	21.2	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
7.12.2023	1.25pm - 1.25pm	42.1	21.6	5.7	20.6	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
13.12.2023	12.00pm - 12.00pm	42.5	21.6	6.4	21.5	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
14.12.2023	12.10pm - 12.10pm	41.4	20.0	5.4	21.6	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
20.12.2023	1.15pm - 1.15pm	41.6	22.5	7.2	22.1	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
21.12.2023	1.25pm - 1.25pm	43.5	23.7	7.2	21.5	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
27.12.2023	1.45pm - 1.45pm	44.5	24.5	4.6	19.2	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
28.12.2023	1.50pm - 1.50pm	42.3	23.3	7.2	21.7	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
NAAQ* Standard		<100	<60	<80	<80	<100	<400	<4

Note: BDL: Below Detection Limit; DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.



Ammy
Authorised Signatory

L. SUDHAPRIYA
Technical Manager



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SUMMARY REPORT

Issued To	Tvl Square Enterprises, Varaganapalli village, Nagamangalam post, Denkanikottai Taluk, Krishnagiri District – 635113.		
Site Location	Lease Area : 3.20.5 Ha S.F.No.629(Part), Nagamangalam village, Denkanikottai Taluk, Krishnagiri District.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ6 - Konasandram
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/5861,5868, 6275, 6282,6613, 6620, 6926, 6933,7183, 7190,7493,7500,7769,7776, 8068,8075,8490, 8497, 8824,8831,9188,9195,9500,9507,9768,9775		
Location Coordinates	12°33' 0.94"N 77°52'40. 09"E		
Report Date	08.01.2024		

Date	Period. hrs	Ni (ng/m ³)	As (ng/m ³)	C6H6 (µg/m ³)	BaP (ng/m ³)	Pb (µg/m ³)
04.10.2023	11.00am - 11.00am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
05.10.2023	11.10am - 11.10am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
11.10.2023	1.15pm - 1.15pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
12.10.2023	1.25pm - 1.25pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
18.10.2023	1.15pm - 1.15pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
19.10.2023	1.30pm - 1.30pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
25.10.2023	1.25pm - 1.25pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
26.10.2023	1.15pm - 1.15pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
1.11.2023	1.15pm - 1.15pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
2.11.2023	1.50pm - 1.50pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
8.11.2023	11.00am - 11.00am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
9.11.2023	11.10am-11.10am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
15.11.2023	1.45pm - 1.45pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
16.11.2023	1.50pm - 1.50pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
21.11.2023	1.15pm - 1.15pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
22.11.2023	1.25pm - 1.25pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
29.11.2023	1.45pm - 1.45pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
30.11.2023	1.50pm - 1.50pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
6.12.2023	1.15pm - 1.15pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
7.12.2023	1.25pm - 1.25pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
13.12.2023	11.00am - 11.00am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
14.12.2023	11.10am-11.10am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
20.12.2023	1.15pm - 1.15pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
21.12.2023	1.25pm - 1.25pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
27.12.2023	1.45pm - 1.45pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
28.12.2023	1.50pm - 1.50pm	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.



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*****End of Report*****

Page 2 of 2

L. SUDHAPRIYA
Technical Manager



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SUMMARY REPORT

Issued To	Tvl Square Enterprises, Varaganapalli village, Nagamangalam post, Denkanikottai Taluk, Krishnagiri District – 635113.		
Site Location	Lease Area : 3.20.5 Ha S.F.No. 629(Part), Nagamangalam village, Denkanikottai Taluk, Krishnagiri District.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ7 – U.Puram
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/5862,5869, 6276, 6283, 6614,6621, 6927,6934,7184,7191,7494,7501,7770,7777, 8069,8076,8491, 8498,8825, 8832,9189,9196,9501,9508,9769, 9776		
Location Coordinates	12° 32' 47.41"N 77° 56' 9.22"E		
Report Date	08.01.2024		

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)
04.10.2023	11.20am - 11.20am	45.2	21.6	8.2	21.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
05.10.2023	11.30am - 11.30am	43.9	22.5	7.9	19.3	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
11.10.2023	1.45pm - 1.45pm	42.3	23.7	10.0	24.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
12.10.2023	1.55pm - 1.55pm	45.4	23.3	6.0	21.2	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
18.10.2023	1.45pm - 1.45pm	41.5	22.9	6.3	21.3	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
19.10.2023	2.00pm - 2.00pm	42.1	22.0	5.2	23.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
25.10.2023	1.45pm - 1.45pm	44.9	22.5	5.2	20.9	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
26.10.2023	1.55pm - 1.55pm	43.8	23.7	4.1	21.0	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
1.11.2023	1.55pm - 1.55 pm	43.8	23.7	4.1	21.0	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
2.11.2023	2.15pm - 2.15pm	42.1	21.2	7.0	21.7	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
8.11.2023	2.30pm - 2.30 pm	42.3	23.3	5.4	20.7	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
9.11.2023	11.20am - 11.20am	41.5	20.4	4.7	19	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
15.11.2023	2.20pm - 2.20pm	43.2	21.6	4.7	21.0	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
16.11.2023	2.30pm - 2.30 pm	42.8	21.2	6.7	21.0	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
21.11.2023	1.45pm - 1.45pm	42.7	23.7	BDL(DL:4)	20.3	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
22.11.2023	1.55pm - 1.55pm	42.5	22.4	5.4	20.1	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
29.11.2023	1.15pm - 1.15pm	42.6	22.5	4.9	19.1	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
30.11.2023	2.30pm - 2.30pm	44.6	23.7	6.2	21.5	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
6.12.2023	1.45pm - 1.45pm	43.1	24.1	BDL(DL:4)	19.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
7.12.2023	1.55pm - 1.55pm	43.6	23.7	BDL(DL:4)	21.0	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
13.12.2023	12.20pm - 12.20pm	43.0	24.1	4.9	21.2	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
14.12.2023	12.30pm - 12.30pm	43.7	22.5	5.2	22.1	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
20.12.2023	1.45pm - 1.45pm	42.0	20.8	5.7	21.3	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
21.12.2023	2.00pm - 2.00pm	42.2	22.5	6.5	22.0	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
27.12.2023	2.15pm - 2.15pm	41.2	20.4	5.4	21.0	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
28.12.2023	2.30pm - 2.30pm	42.5	21.6	BDL(DL:4)	20.7	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
NAAQ* Standard		<100	<60	<80	<80	<100	<400	<4

Note: BDL: Below Detection Limit; DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.



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SUMMARY REPORT

Issued To	Tvl Square Enterprises, Varaganapalli village, Nagamangalam post, Denkanikottai Taluk, Krishnagiri District – 635113.		
Site Location	Lease Area : 3.20.5 Ha S.F.No.629(Part), Nagamangalam village, Denkanikottai Taluk, Krishnagiri District.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQU.Puram
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/5862,5869, 6276, 6283, 6614,6621, 6927,6934,7184,7191,7494,7501,7770,7777, 8069,8076,8491, 8498,8825, 8832,9189,9196,9501,9508,9769, 9776		
Location Coordinates	12°34' 47.41"N 77°56' 9. 22"E		
Report Date	08.01.2024		

Date	Period. hrs	Ni (ng/m ³)	As (ng/m ³)	C6H6 (µg/m ³)	BaP (ng/m ³)	Pb (µg/m ³)
04.10.2023	11.20am - 11.20am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
05.10.2023	11.30am - 11.30am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
11.10.2023	1.45pm - 1.45pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
12.10.2023	1.55pm - 1.55pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
18.10.2023	1.45pm - 1.45pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
19.10.2023	2.00pm - 2.00pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
25.10.2023	1.45pm - 1.45pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
26.10.2023	1.55pm - 1.55pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
1.11.2023	1.55pm - 1.55 pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
2.11.2023	2.15pm - 2.15pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
8.11.2023	2.30pm - 2.30 pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
9.11.2023	11.20am - 11.20am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
15.11.2023	2.20pm - 2.20pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
16.11.2023	2.30pm - 2.30 pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
21.11.2023	1.45pm - 1.45pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
22.11.2023	1.55pm - 1.55pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
29.11.2023	1.15pm - 1.15pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
30.11.2023	2.30pm - 2.30pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
6.12.2023	1.45pm - 1.45pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
7.12.2023	1.55pm - 1.55pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
13.12.2023	11.20am - 11.20am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
14.12.2023	11.30am - 11.30am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
20.12.2023	1.45pm - 1.45pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
21.12.2023	1.55pm - 1.55pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
27.12.2023	2.15pm - 2.15pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
28.12.2023	2.30pm - 2.30pm	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.



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*****End of Report*****
Page 2 of 2

L. SUDHAPRIYA
Technical Manager

TEST REPORT
ULR-TC606023000007349F

Report Number: GLCS/TR/5870/2023-24

Report Date: 30.11.2023

Issued To: Tvl. Square Enterprises, Varaganapalli Village, Nagamangalam Post, Denkanikottai Taluk, Krishnagiri District, 635 113.		Site Address: Lease Area:3.20.5 Ha S.F.Nos.629 (Part) Nagamangalam Village, Denkanikottai Taluk, Krishnagiri District.		
Attention	-	Sampling Condition	Good - Active	
TRF No	3457	Sampled by	Laboratory	
Sample Name	Noise Level Monitoring	Sampling Method	GLCS/SOP/N/014	
Sample Description	Sound Pressure Level	Sample Code	GLCS/ 5870	
Sampling Time	Every 60 minutes	Sample Receipt Date	07.10.2023	
Sampling Date	04.10.2023 – 05.10.2023	Date of Analysis	07.10.2023	
		Date of Completion	26.10.2023	
Location Name	AN1 – Core Zone	Location Co-ordinates	12°34'27.63"N 77°54'59.60"E	
S. No	Time(Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)
1	06:00	33.5	44.8	42.10
2	07:00	35.5	46.1	43.45
3	08:00	37.1	46.5	43.96
4	09:00	41.5	50.6	48.09
5	10:00	40.6	52.2	49.48
6	11:00	41.5	50.6	48.09
7	12:00	40.6	51.6	48.92
8	13:00	40.2	52.8	50.02
9	14:00	39.8	54.5	51.63
10	15:00	40.7	51.8	49.11
11	16:00	41.9	52.6	49.94
12	17:00	39.5	49.5	46.90
13	18:00	37.5	43.8	41.70
14	19:00	34.8	45.5	42.84

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Page 1 of 2

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 14 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 issuance only and within the limits of client instructions. The authenticity of the test reports issued by us can be verified by submitting an E-mail request with report number and report date along with report copy.

TEST REPORT ULR-TC606023000007349F

Report Number: GLCS/TR/5870/2023-24

Report Date: 30.11.2023

Issued To: Tvl.Square Enterprises, Varaganapalli Village, Nagamangalam Post, Denkanikottai Taluk, Krishnagiri District, 635 113.		Site Address: Lease Area:3.20.5 Ha S.F.Nos.629 (Part) Nagamangalam Village, Denkanikottai Taluk, Krishnagiri District.		
Attention	-	Sampling Condition	Good - Active	
TRF No	3457	Sampled by	Laboratory	
Sample Name	Noise Level Monitoring	Sampling Method	GLCS/SOP/N/014	
Sample Description	Sound Pressure Level	Sample Code	GLCS/ 5870	
Sampling Time	Every 60 minutes	Sample Receipt Date	07.10.2023	
Sampling Date	04.10.2023 – 05.10.2023	Date of Analysis	07.10.2023	
		Date of Completion	26.10.2023	
Location Name		Location Co-ordinates	12°34'27.63"N 77°54'59.60"E	
AN1 – Core Zone				
S. No	Time(Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)
15	20.00	35.6	41.2	39.25
16	21.00	35.8	38.1	37.10
17	22.00	34.1	39.5	37.59
18	23.00	32.4	40.1	37.77
19	0.00	33.1	39.5	37.39
20	1.00	30.6	37.4	35.21
21	2.00	30.5	39.4	36.92
22	3.00	31.4	38.2	36.01
23	4.00	30.8	35.5	33.76
24	5.00	31.4	36.9	34.97
		Day Mean dB(A)		45.79
		Night Mean dB(A)		36.20

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L. SUDHAPRIYA
Technical Manager



*****End of Report*****
Page 2 of 2

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BRANCH OFFICES: CHENNAI (Mobile : 70944 53636) & COIMBATORE (Mobile : 70944 54646)

TEST REPORT ULR-TC606023000007350F

Report Number: GLCS/TR/5871/2023-24

Report Date: 30.11.2023

Issued To: Tvl. Square Enterprises, Varaganapalli Village, Nagamangalam Post, Denkanikottai Taluk, Krishnagiri District, 635 113.		Site Address: Lease Area: 3.20.5 Ha S.F.Nos.629 (Part) Nagamangalam Village, Denkanikottai Taluk, Krishnagiri District.		
Attention	-	Sampling Condition	Good - Active	
TRF No	3457	Sampled by	Laboratory	
Sample Name	Noise Level Monitoring	Sampling Method	GLCS/SOP/N/014	
Sample Description	Sound Pressure Level	Sample Code	GLCS/ 5871	
Sampling Time	Every 60 minutes	Sample Receipt Date	07.10.2023	
Sampling Date	04.10.2023 – 05.10.2023	Date of Analysis	07.10.2023	
		Date of Completion	26.10.2023	
Location Name	AN2 – Near Crusher	Location Co-ordinates	12°34'14.86"N 77°55'2.87"E	
S. No	Time(Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)
1	06:25	33.6	37.1	35.69
2	07:25	34.1	39.5	37.59
3	08:25	40.1	48.5	46.08
4	09:25	41.5	50.9	48.36
5	10:25	40.6	51.2	48.55
6	11:25	42.2	53.3	50.61
7	12:25	41.6	54.2	51.42
8	13:25	40.9	51.7	49.04
9	14:25	42.3	53.9	51.18
10	15:25	41.9	52.8	50.13
11	16:25	39.5	51.4	48.66
12	17:25	38.7	50.5	47.77
13	18:25	36.6	47.1	44.46
14	19:25	35.5	46.6	43.91

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Page 1 of 2


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L. SUDHAPRIYA
Technical Manager

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TEST REPORT ULR-TC606023000007350F

Report Number: GLCS/TR/5871/2023-24

Report Date: 30.11.2023

Issued To: Tvl.Square Enterprises, Varaganapalli Village, Nagamangalam Post, Denkanikottai Taluk, Krishnagiri District, 635 113.		Site Address: Lease Area:3.20.5 Ha S.F.Nos.629 (Part) Nagamangalam Village, Denkanikottai Taluk, Krishnagiri District.	
Attention	-	Sampling Condition	Good - Active
TRF No	3457	Sampled by	Laboratory
Sample Name	Noise Level Monitoring	Sampling Method	GLCS/SOP/N/014
Sample Description	Sound Pressure Level	Sample Code	GLCS/ 5871
Sampling Time	Every 60 minutes	Sample Receipt Date	07.10.2023
Sampling Date	04.10.2023 – 05.10.2023	Date of Analysis	07.10.2023
		Date of Completion	26.10.2023
Location Name		Location Co-ordinates	12°34'14.86"N 77°55'2.87"E
AN2 – Near Crusher			
S. No	Time(Hrs)	Min dB(A)	Max dB(A)
15	20.25	34.5	45.7
16	21.25	34.1	44.1
17	22.25	33.6	39.8
18	23.25	32.5	38.1
19	0.25	31.5	37.4
20	1.25	31.9	36.5
21	2.25	32.4	37.1
22	3.25	31.9	36.3
23	4.25	30.5	35.8
24	5.25	31.4	36.9
		Day Mean dB(A)	46.12
		Night Mean dB(A)	36.05

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*****End of Report*****

Page 2 of 2

L. SUDHAPRIYA
Technical Manager

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TEST REPORT ULR-TC606023000007351F

Report Number: GLCS/TR/5872/2023-24

Report Date: 30.11.2023

Issued To: Tvl.Square Enterprises, Varaganapalli Village, Nagamangalam Post, Denkanikottai Taluk, Krishnagiri District, 635 113.		Site Address: Lease Area:3.20.5 Ha S.F.Nos.629 (Part) Nagamangalam Village, Denkanikottai Taluk, Krishnagiri District.		
Attention		Sampling Condition		Good - Active
TRF No		Sampled by		Laboratory
Sample Name		Sampling Method		GLCS/SOP/N/014
Sample Description		Sample Code		GLCS/ 5872
Sampling Time		Sample Receipt Date		07.10.2023
Sampling Date		Date of Analysis		07.10.2023
		Date of Completion		26.10.2023
Location Name		Location Co-ordinates		12°34'4.60"N 77°56'27.38"E
S. No	Time(Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)
1	06:55	32.5	39.8	37.53
2	07:55	37.4	46.6	44.08
3	08:55	38.2	47.5	44.97
4	09:55	39.9	52.1	49.34
5	10:55	42.5	53.5	50.82
6	11:55	41.8	54.1	51.34
7	12:55	39.8	55.5	52.61
8	13:55	41.7	53.6	50.86
9	14:55	39.6	52.1	49.33
10	15:55	38.5	52.5	49.66
11	16:55	37.5	51.5	48.66
12	17:55	41.4	50.9	48.35
13	18:55	37.5	46.6	44.09
14	19:55	36.5	43.8	41.53



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L. SUDHAPRIYA
Technical Manager

Page 1 of 2

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TEST REPORT
ULR-TC606023000007351F

Report Number: GLCS/TR/5872/2023-24

Report Date: 30.11.2023

Issued To: Tvl.Square Enterprises, Varaganapalli Village, Nagamangalam Post, Denkanikottai Taluk, Krishnagiri District, 635 113.		Site Address: Lease Area:3.20.5 Ha S.F.Nos.629 (Part) Nagamangalam Village, Denkanikottai Taluk, Krishnagiri District.		
Attention	-	Sampling Condition	Good - Active	
TRF No	3457	Sampled by	Laboratory	
Sample Name	Noise Level Monitoring	Sampling Method	GLCS/SOP/N/014	
Sample Description	Sound Pressure Level	Sample Code	GLCS/ 5872	
Sampling Time	Every 60 minutes	Sample Receipt Date	07.10.2023	
Sampling Date	04.10.2023 – 05.10.2023	Date of Analysis	07.10.2023	
		Date of Completion	26.10.2023	
Location Name	AN3 – Nagamangalam	Location Co-ordinates	12°34'4.60"N 77°56'27.38"E	
S. No	Time(Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)
15	20.55	37.4	43.5	41.44
16	21.55	35.2	40.1	38.31
17	22.55	33.6	37.1	35.69
18	23.55	31.5	37.5	35.46
19	0.55	32.7	39.1	36.99
20	1.55	31.4	37.5	35.44
21	2.55	30.6	37.4	35.21
22	3.55	30.9	36.6	34.62
23	4.55	31.4	39.1	36.77
24	5.55	31.4	37.8	35.69
			Day Mean dB(A)	45.80
			Night Mean dB(A)	35.73

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*****End of Report*****

Page 2 of 2

L. SUDHAPRIYA
Technical Manager

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TEST REPORT
ULR-TC606023000007352F

Report Number: GLCS/TR/5873/2023-24

Report Date: 30.11.2023

Issued To: Tvl. Square Enterprises, Varaganapalli Village, Nagamangalam Post, Denkanikottai Taluk, Krishnagiri District, 635 113.		Site Address: Lease Area: 3.20.5 Ha S.F. Nos. 629 (Part) Nagamangalam Village, Denkanikottai Taluk, Krishnagiri District.		
Attention	-	Sampling Condition	Good - Active	
TRF No	3457	Sampled by	Laboratory	
Sample Name	Noise Level Monitoring	Sampling Method	GLCS/SOP/N/014	
Sample Description	Sound Pressure Level	Sample Code	GLCS/ 5873	
Sampling Time	Every 60 minutes	Sample Receipt Date	07.10.2023	
Sampling Date	04.10.2023 – 05.10.2023	Date of Analysis	07.10.2023	
		Date of Completion	26.10.2023	
Location Name	AN4 – Kadudhanapalli	Location Co-ordinates	12°35'37.08"N 77°52'35.43"E	
S. No	Time(Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)
1	06:20	31.5	35.9	34.23
2	07:20	36.1	43.5	41.22
3	08:20	39.5	44.5	42.68
4	09:20	40.1	50.9	48.24
5	10:20	41.6	52.5	49.83
6	11:20	42.1	51.9	49.32
7	12:20	43.6	55.6	52.86
8	13:20	42.5	54.1	51.38
9	14:20	43.5	56.3	53.51
10	15:20	41.37	53.4	50.67
11	16:20	39.5	55.2	52.31
12	17:20	40.1	53.6	50.78
13	18:20	40.5	54.1	51.28
14	19:20	39.5	50.2	47.54

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Page 1 of 2


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L. SUDHAPRIYA
Technical Manager

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TEST REPORT ULR-TC606023000007352F

Report Number: GLCS/TR/5873/2023-24

Report Date: 30.11.2023

Issued To: Tvl. Square Enterprises, Varaganapalli Village, Nagamangalam Post, Denkanikottai Taluk, Krishnagiri District, 635 113.		Site Address: Lease Area: 3.20.5 Ha S.F.Nos.629 (Part) Nagamangalam Village, Denkanikottai Taluk, Krishnagiri District.		
Attention	-	Sampling Condition	Good - Active	
TRF No	3457	Sampled by	Laboratory	
Sample Name	Noise Level Monitoring	Sampling Method	GLCS/SOP/N/014	
Sample Description	Sound Pressure Level	Sample Code	GLCS/ 5873	
Sampling Time	Every 60 minutes	Sample Receipt Date	07.10.2023	
Sampling Date	04.10.2023 – 05.10.2023	Date of Analysis	07.10.2023	
		Date of Completion	26.10.2023	
Location Name		Location Co-ordinates	12°35'37.08"N 77°52'35.43"E	
S. No	Time(Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)
15	20.20	38.1	48.5	45.87
16	21.20	36.6	46.6	44.00
17	22.20	35.8	45.5	42.93
18	23.20	34.5	40.2	38.22
19	0.20	35.6	39.5	37.97
20	1.20	32.3	36.6	34.96
21	2.20	30.4	35.5	33.66
22	3.20	31.6	36.2	34.48
23	4.20	32.5	37.8	35.91
24	5.20	31.2	36.3	34.46
		Day Mean dB(A)	45.80	
		Night Mean dB(A)	35.73	

Global Lab and Consultancy Services




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*****End of Report*****

Page 2 of 2

L. SUDHAPRIYA
Technical Manager

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TEST REPORT
ULR-TC606023000007353F

Report Number: GLCS/TR/5874/2023-24

Report Date: 30.11.2023

Issued To: Tvl. Square Enterprises, Varaganapalli Village, Nagamangalam Post, Denkanikottai Taluk, Krishnagiri District, 635 113.		Site Address: Lease Area: 3.20.5 Ha S.F.Nos.629 (Part) Nagamangalam Village, Denkanikottai Taluk, Krishnagiri District.		
Attention	-	Sampling Condition	Good - Active	
TRF No	3457	Sampled by	Laboratory	
Sample Name	Noise Level Monitoring	Sampling Method	GLCS/SOP/N/014	
Sample Description	Sound Pressure Level	Sample Code	GLCS/ 5874	
Sampling Time	Every 60 minutes	Sample Receipt Date	07.10.2023	
Sampling Date	05.10.2023 – 06.10.2023	Date of Analysis	07.10.2023	
		Date of Completion	26.10.2023	
Location Name	AN5 – Agaram	Location Co-ordinates	12°36'53.45"N 77°57'19.54"E	
S. No	Time(Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)
1	06:00	32.5	38.4	36.38
2	07:00	35.6	43.6	41.23
3	08:00	39.5	46.5	44.28
4	09:00	41.1	52.9	50.17
5	10:00	42.5	54.5	51.76
6	11:00	42.5	55.1	52.32
7	12:00	41.6	53.6	50.86
8	13:00	40.6	51.4	48.74
9	14:00	40.9	52.6	49.87
10	15:00	41.5	52.3	49.64
11	16:00	39.5	55.1	52.21
12	17:00	37.8	49.5	46.77
13	18:00	36.6	47.5	44.83
14	19:00	36.1	47.1	44.42

For Global Lab and Consultancy Services




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Page 1 of 2

L. SUDHAPRIYA
Technical Manager

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TEST REPORT ULR-TC606023000007353F

Report Number: GLCS/TR/5874/2023-24

Report Date: 30.11.2023

Issued To: Tvl. Square Enterprises, Varaganapalli Village, Nagamangalam Post, Denkanikottai Taluk, Krishnagiri District, 635 113.		Site Address: Lease Area: 3.20.5 Ha S.F.Nos.629 (Part) Nagamangalam Village, Denkanikottai Taluk, Krishnagiri District.		
Attention	-	Sampling Condition	Good - Active	
TRF No	3457	Sampled by	Laboratory	
Sample Name	Noise Level Monitoring	Sampling Method	GLCS/SOP/N/014	
Sample Description	Sound Pressure Level	Sample Code	GLCS/ 5874	
Sampling Time	Every 60 minutes	Sample Receipt Date	07.10.2023	
Sampling Date	05.10.2023 – 06.10.2023	Date of Analysis	07.10.2023	
		Date of Completion	26.10.2023	
Location Name		Location Co-ordinates	12°36'53.45"N 77°57'19.54"E	
S. No	Time(Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)
15	20.00	35.5	46.3	43.64
16	21.00	33.6	44.7	42.01
17	22.00	32.8	43.5	40.84
18	23.00	31.4	41.1	38.53
19	0.00	30.9	38.2	35.93
20	1.00	32.5	37.4	35.61
21	2.00	30.5	35.2	33.46
22	3.00	31.4	36.3	34.51
23	4.00	31.6	36.3	34.56
24	5.00	31.9	37.1	35.24
			Day Mean dB(A)	46.82
			Night Mean dB(A)	36.74

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*****End of Report*****

Page 2 of 2

L. SUDHAPRIYA
Technical Manager

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TEST REPORT ULR-TC606023000007354F

Report Number: GLCS/TR/5875/2023-24

Report Date: 30.11.2023

Issued To: Tvl.Square Enterprises, Varaganapalli Village, Nagamangalam Post, Denkanikottai Taluk, Krishnagiri District, 635 113.		Site Address: Lease Area:3.20.5 Ha S.F.Nos.629 (Part) Nagamangalam Village, Denkanikottai Taluk, Krishnagiri District.		
Attention	-	Sampling Condition	Good - Active	
TRF No	3457	Sampled by	Laboratory	
Sample Name	Noise Level Monitoring	Sampling Method	GLCS/SOP/N/014	
Sample Description	Sound Pressure Level	Sample Code	GLCS/ 5875	
Sampling Time	Every 60 minutes	Sample Receipt Date	07.10.2023	
Sampling Date	05.10.2023 – 06.10.2023	Date of Analysis	07.10.2023	
		Date of Completion	26.10.2023	
Location Name	AN6 – Konasandram	Location Co-ordinates	12°33'1.07"N 77°52'40.17"E	
S. No	Time(Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)
1	06:30	35.6	40.4	38.63
2	07:30	37.4	42.8	40.89
3	08:30	41.6	49.5	47.14
4	09:30	40.9	51.7	49.04
5	10:30	42.5	53.2	50.54
6	11:30	44.1	55.9	53.17
7	12:30	43.6	54.1	51.46
8	13:30	40.5	51.7	49.01
9	14:30	42.8	53.6	50.94
10	15:30	41.9	54.1	51.34
11	16:30	42.6	53.6	50.92
12	17:30	38.5	49.9	47.19
13	18:30	39.1	48.5	45.96
14	19:30	38.4	47.1	44.64

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L. SUDHAPRIYA
Technical Manager

Page 1 of 2

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TEST REPORT
ULR-TC606023000007354F

Report Number: GLCS/TR/5875/2023-24

Report Date: 30.11.2023

Issued To: Tvl.Square Enterprises, Varaganapalli Village, Nagamangalam Post, Denkanikottai Taluk, Krishnagiri District, 635 113.		Site Address: Lease Area:3.20.5 Ha S.F.Nos.629 (Part) Nagamangalam Village, Denkanikottai Taluk, Krishnagiri District.	
Attention	-	Sampling Condition	Good - Active
TRF No	3457	Sampled by	Laboratory
Sample Name	Noise Level Monitoring	Sampling Method	GLCS/SOP/N/014
Sample Description	Sound Pressure Level	Sample Code	GLCS/ 5875
Sampling Time	Every 60 minutes	Sample Receipt Date	07.10.2023
Sampling Date	05.10.2023 – 06.10.2023	Date of Analysis	07.10.2023
		Date of Completion	26.10.2023
Location Name	AN6 – Konasandram	Location Co-ordinates	12°33'1.07"N 77°52'40.17"E
S. No	Time(Hrs)	Min dB(A)	Max dB(A)
15	20.30	37.6	46.2
16	21.30	35.6	43.6
17	22.30	34.1	43.7
18	23.30	33.2	42.1
19	0.30	30.6	40.1
20	1.30	33.9	37.4
21	2.30	32.4	38.4
22	3.30	31.4	36.9
23	4.30	30.9	36.1
24	5.30	32.1	38.5
			Leq dB(A)
			43.75
			41.23
			41.14
			39.62
			37.55
			35.99
			36.36
			34.97
			34.24
			36.39
			47.24
			37.50
			Day Mean dB(A)
			Night Mean dB(A)

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*****End of Report*****
Page 2 of 2

L. SUDHAPRIYA
Technical Manager

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TEST REPORT

ULR-TC606023000007355F

Report Number: GLCS/TR/5876/2023-24

Report Date: 30.11.2023

Issued To: Tvl. Square Enterprises, Varaganapalli Village, Nagamangalam Post, Denkanikottai Taluk, Krishnagiri District, 635 113.		Site Address: Lease Area:3.20.5 Ha S.F.Nos 629 (Part) Nagamangalam Village, Denkanikottai Taluk, Krishnagiri District.		
Attention	-	Sampling Condition	Good - Active	
TRF No	3457	Sampled by	Laboratory	
Sample Name	Noise Level Monitoring	Sampling Method	GLCS/SOP/N/014	
Sample Description	Sound Pressure Level	Sample Code	GLCS/ 5876	
Sampling Time	Every 60 minutes	Sample Receipt Date	07.10.2023	
Sampling Date	05.10.2023 – 06.10.2023	Date of Analysis	07.10.2023	
		Date of Completion	26.10.2023	
Location Name	AN7 – U.Puram	Location Co-ordinates	12°32'47.16"N 77°56'9.12"E	
S. No	Time(Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)
1	06:00	33.5	36.9	35.52
2	07:00	36.6	40.1	38.69
3	08:00	38.1	46.3	43.90
4	09:00	41.5	42.1	41.81
5	10:00	42.2	43.5	42.90
6	11:00	42.6	53.1	50.46
7	12:00	44.3	55.6	52.90
8	13:00	41.5	54.2	51.42
9	14:00	42.6	52.9	50.28
10	15:00	39.5	51.1	48.38
11	16:00	41.4	53.4	50.66
12	17:00	41.9	52.7	50.04
13	18:00	38.5	50.1	47.38
14	19:00	37.1	49.5	46.73

For Global Lab and Consultancy Services



Page 1 of 2


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L. SUDHAPRIYA
 Technical Manager

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TEST REPORT
ULR-TC606023000007355F

Report Number: GLCS/TR/5876/2023-24

Report Date: 30.11.2023

Issued To: Tvl.Square Enterprises, Varaganapalli Village, Nagamangalam Post, Denkanikottai Taluk, Krishnagiri District, 635 113.		Site Address: Lease Area:3.20.5 Ha S.F.Nos.629 (Part) Nagamangalam Village, Denkanikottai Taluk, Krishnagiri District.		
Attention	-	Sampling Condition	Good - Active	
TRF No	3457	Sampled by	Laboratory	
Sample Name	Noise Level Monitoring	Sampling Method	GLCS/SOP/N/014	
Sample Description	Sound Pressure Level	Sample Code	GLCS/ 5876	
Sampling Time	Every 60 minutes	Sample Receipt Date	07.10.2023	
Sampling Date	05.10.2023 – 06.10.2023	Date of Analysis	07.10.2023	
		Date of Completion	26.10.2023	
Location Name	AN7 – U.Puram	Location Co-ordinates	12°32'47.16"N 77°56'9.12"E	
S. No	Time(Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)
15	20.00	35.6	48.2	45.42
16	21.00	35.7	46.3	43.65
17	22.00	35.1	45.4	42.78
18	23.00	34.2	40.2	38.16
19	0.00	32.9	38.9	36.86
20	1.00	31.2	37.5	35.40
21	2.00	32.6	36.6	35.05
22	3.00	31.4	36.1	34.36
23	4.00	32.8	36.4	34.96
24	5.00	31.2	35.6	33.93
Day Mean dB(A)				46.05
Night Mean dB(A)				37.24

For Global Lab and Consultancy Services


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*****End of Report*****

Page 2 of 2

L. SUDHAPRIYA
Technical Manager



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BRANCH OFFICES: CHENNAI (Mobile : 70944 53636) & COIMBATORE (Mobile : 70944 54646)

TEST REPORT

ULR-TC606023000006759F

Report Number: GLCS/TR/5877/2023-24(1)


Report Date: 09.11.2023

Issued To : Tvl.Square Enterprises, Varaganapalli Village, Nagamangalam Post, Denkanikottai Taluk, Krishnagiri District, 635 113.		Site Address : Lease Area:3.20.5 Ha. S.F.Nos.629 (Part) Nagamangalam Village, Denkanikottai Taluk, Krishnagiri District.	
Attention	Mr.Raja	Sample Receipt Condition	Ambient – Good
Customer Ref No	3457	Sample Quantity	2 kg
Sample Name	Soil -1	Sampled by	Laboratory
Sample Description	-	Sampling Method	GLCS/SOP/S/014
Sample Code	GLCS / 5877	Sample Receipt Date	07.10.2023
Location Name	Project Area	Date of Analysis	07.10.2023
Sampling Date	06.10.2023	Date of Completion	26.10.2023
Location Coordinates	12 34'28.07"N 77 55'0.15"E		

Sl. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Organic Matter	GLCS/SOP/S/003	%	2.41
2	pH	IS 2720	-	7.83
3	Specific Electrical Conductivity	IS 14767	µS/cm	360
4	Available Phosphorous	GLCS/SOP/S/005	mg/kg	13.7
5	Available Potassium	GLCS/SOP/S/026	meq/l	0.87
6	Exchangeable Calcium (as Ca)	GLCS/SOP/S/020	meq/100g	6.8

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L. SUDHAPRIYA
Technical Manager

Page 1 of 2

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TEST REPORT

ULR-TC606023000006759F

Report Number: GLCS/TR/5877/2023-24(1)

Report Date: 09.11.2023

SI. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
7	Exchangeable Magnesium (as Mg)	GLCS/SOP/S/021	meq/100g	1.8
8	Sulphate as SO ₄	GLCS/SOP/S/009	mg/100g	42.5
9	Cation Exchange Capacity	GLCS/SOP/S/024	meq/100g	16.7
10	Bulk Density	GLCS/SOP/S/017	g/cc	1.18
11	Texture - Sand	GLCS/SOP/S/015	%	29.37
12	Texture - Silt	GLCS/SOP/S/015	%	39.46
13	Texture - Clay	GLCS/SOP/S/015	%	31.17
14	Water Holding Capacity	GLCS/SOP/S/016	%	52
15	Available Nitrogen as N	GLCS/SOP/S/029	Kg/ha	238
16	Chloride as (Cl) in Saturation Extract	GLCS/SOP/S/004	meq/l	4.3

For Global Lab and Consultancy Services




Authorised Signatory

L. SUDHAPRIYA
Technical Manager

*****End of Report*****

Page 2 of 2

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TEST REPORT

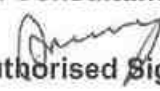
Report Number: GLCS/TR/5877/2023-24(2)

Report Date: 09.11.2023

Issued To : Tvl.Square Enterprises, Varaganapalli Village, Nagamangalam Post, Denkanikottai Taluk, Krishnagiri District, 635 113.		Site Address : Lease Area:3.20.5 Ha. S.F.Nos.629 (Part) Nagamangalam Village, Denkanikottai Taluk, Krishnagiri District.	
Attention	Mr.Raja	Sample Receipt Condition	Ambient – Good
Customer Ref No	3457	Sample Quantity	2 kg
Sample Name	Soil -1	Sampled by	Laboratory
Sample Description	-	Sampling Method	GLCS/SOP/S/014
Sample Code	GLCS / 5877	Sample Receipt Date	07.10.2023
Location Name	Project Area	Date of Analysis	07.10.2023
Sampling Date	07.10.2023	Date of Completion	26.10.2023
Location Coordinates	12 34'28.07"N 77 55'0.15"E		

Sl. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Texture	GLCS/SOP/S/015	-	Sandy Clay Loom
2	Permeability	By Permeameter	%	45.6
3	Manganese	USEPA Method	mg/kg	14.73
4	Zinc	USEPA Method	mg/kg	5.4
5	Cadmium as Cd	USEPA Method	mg/kg	2.45
6	Chromium as Cr	USEPA Method	mg/kg	9
7	Copper as Cu	USEPA Method	mg/kg	1.96
8	Lead as Pb	USEPA Method	mg/kg	0.49
9	Iron as Fe	USEPA Method	mg/kg	42
10	Organic Carbon	GLCS/SOP/S/003	%	1.4
11	Boron as B	USEPA Method	mg/kg	4.17

For Global Lab and Consultancy Services



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*****End of Report*****

Page 1 of 1

 L. SUDHAPRIYA
 Technical Manager

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TEST REPORT

ULR-TC606023000006760F

Report Number: GLCS/TR/5878/2023-24(1)

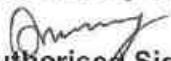
Report Date: 09.11.2023

Issued To : Tvl. Square Enterprises, Varaganapalli Village, Nagamangalam Post, Denkanikottai Taluk, Krishnagiri District, 635 113.		Site Address : Lease Area: 3.20.5 Ha. S.F. Nos. 629 (Part) Nagamangalam Village, Denkanikottai Taluk, Krishnagiri District.	
Attention	Mr. Raja	Sample Receipt Condition	Ambient – Good
Customer Ref No	3457	Sample Quantity	2 kg
Sample Name	Soil - 2	Sampled by	Laboratory
Sample Description	-	Sampling Method	GLCS/SOP/S/014
Sample Code	GLCS / 5878	Sample Receipt Date	07.10.2023
Location Name	Nagamangalam	Date of Analysis	07.10.2023
Sampling Date	07.10.2023	Date of Completion	26.10.2023
Location Coordinates	12 34'0.17"N 77 56'27.06"E		

Sl. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Organic Matter	GLCS/SOP/S/003	%	1.33
2	pH	IS 2720	-	8.13
3	Specific Electrical Conductivity	IS 14767	µS/cm	430
4	Available Phosphorous	GLCS/SOP/S/005	mg/kg	13.8
5	Available Potassium	GLCS/SOP/S/026	meq/l	0.93
6	Exchangeable Calcium (as Ca)	GLCS/SOP/S/020	meq/100g	5.6

For Global Lab and Consultancy Services




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Page 1 of 2

L. SUDHAPRIYA
Technical Manager

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TEST REPORT

ULR-TC606023000006760F

Report Number: GLCS/TR/5878/2023-24(1)

Report Date: 09.11.2023

Sl. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
7	Exchangeable Magnesium (as Mg)	GLCS/SOP/S/021	meq/100g	2.8
8	Sulphate as SO ₄	GLCS/SOP/S/009	mg/100g	50.8
9	Cation Exchange Capacity	GLCS/SOP/S/024	meq/100g	15.7
10	Bulk Density	GLCS/SOP/S/017	g/cc	1.08
11	Texture Sand	GLCS/SOP/S/015	%	28.13
12	Texture Silt	GLCS/SOP/S/015	%	43.62
13	Texture Clay	GLCS/SOP/S/015	%	28.25
14	Water Holding Capacity	GLCS/SOP/S/016	%	48.6
15	Available Nitrogen as N	GLCS/SOP/S/029	Kg/ha	200.7
16	Chloride as (Cl) in Saturation Extract	GLCS/SOP/S/004	meq/l	5.4

For Global Lab and Consultancy Services


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*****End of Report*****

Page 2 of 2



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TEST REPORT

Report Number: GLCS/TR/5878/2023-24(2)

Report Date: 09.11.2023

Issued To : Tvl.Square Enterprises, Varaganapalli Village, Nagamangalam Post, Denkanikottai Taluk, Krishnagiri District, 635 113.		Site Address : Lease Area:3.20.5 Ha.S.F.Nos.629 (Part) Nagamangalam Village, Denkanikottai Taluk,Krishnagiri District.	
Attention	Mr.Raja	Sample Receipt Condition	Ambient – Good
Customer Ref No	3457	Sample Quantity	2 kg
Sample Name	Soil -2	Sampled by	Laboratory
Sample Description	-	Sampling Method	GLCS/SOP/S/014
Sample Code	GLCS / 5878	Sample Receipt Date	07.10.2023
Location Name	Nagamangalam	Date of Analysis	07.10.2023
Sampling Date	07.10.2023	Date of Completion	26.10.2023
Location Coordinates	12 34'0.17"N 77 56'27.06"E		

Sl. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Texture	GLCS/SOP/S/015	-	Sandy Clay Loom
2	Permeability	By Permeameter	%	45.2
3	Manganese	USEPA Method	mg/kg	BDL(DL:0.5)
4	Zinc	USEPA Method	mg/kg	4.5
5	Cadmium as Cd	USEPA Method	mg/kg	1.25
6	Chromium as Cr	USEPA Method	mg/kg	6.5
7	Copper as Cu	USEPA Method	mg/kg	2.37
8	Lead as Pb	USEPA Method	mg/kg	BDL(DL:0.5)
9	Iron as Fe	USEPA Method	mg/kg	17.2
10	Organic Carbon	GLCS/SOP/S/003	%	0.77
11	Boron as B	USEPA Method	mg/kg	5.12

For Global Lab and Consultancy Services



[Signature]
Authorised Signatory

*****End of Report*****

Page 1 of 1

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 14 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-TC606023000006761F

Report Number: GLCS/TR/5879/2023-24(1)

Report Date: 09.11.2023

Issued To : Tvl. Square Enterprises, Varaganapalli Village, Nagamangalam Post, Denkanikottai Taluk, Krishnagiri District, 635 113.		Site Address : Lease Area:3.20.5 Ha.S.F.Nos.629 (Part) Nagamangalam Village, Denkanikottai Taluk,Krishnagiri District.	
Attention	Mr.Raja	Sample Receipt Condition	Ambient – Good
Customer Ref No	3457	Sample Quantity	2 kg
Sample Name	Soil - 3	Sampled by	Laboratory
Sample Description	-	Sampling Method	GLCS/SOP/S/014
Sample Code	GLCS / 5879	Sample Receipt Date	07.10.2023
Location Name	Kadudhanapalli	Date of Analysis	07.10.2023
Sampling Date	07.10.2023	Date of Completion	26.10.2023
Location Coordinates	12 35'38.22"N 77 52'35.97"E		

SI. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Organic Matter	GLCS/SOP/S/003	%	1.6
2	pH	IS 2720	-	8.32
3	Specific Electrical Conductivity	IS 14767	µS/cm	470
4	Available Phosphorous	GLCS/SOP/S/005	mg/kg	18.4
5	Available Potassium	GLCS/SOP/S/026	meq/l	1.16
6	Exchangeable Calcium (as Ca)	GLCS/SOP/S/020	meq/100g	6.4



For Global Lab and Consultancy Services

Authorised Signatory

Page 1 of 2

L. SUDHAPRIYA
Technical Manager

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TEST REPORT

ULR-TC606023000006761F

Report Number: GLCS/TR/5879/2023-24(1)

Report Date: 09.11.2023

Sl. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
7	Exchangeable Magnesium (as Mg)	GLCS/SOP/S/021	meq/100g	3.4
8	Sulphate as SO ₄	GLCS/SOP/S/009	mg/100g	57.4
9	Cation Exchange Capacity	GLCS/SOP/S/024	meq/100g	13.89
10	Bulk Density	GLCS/SOP/S/017	g/cc	1.1
11	Texture Sand	GLCS/SOP/S/015	%	46.24
12	Texture Silt	GLCS/SOP/S/015	%	32.14
13	Texture Clay	GLCS/SOP/S/015	%	21.62
14	Water Holding Capacity	GLCS/SOP/S/016	%	42.6
15	Available Nitrogen as N	GLCS/SOP/S/029	Kg/ha	175.6
16	Chloride as (Cl) in Saturation Extract	GLCS/SOP/S/004	meq/l	6.2

For Global Lab and Consultancy Services


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*****End of Report*****

Page 2 of 2



L. SUDHAPRIYA
Technical Manager

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183A

TEST REPORT

Report Number: GLCS/TR/5879/2023-24(2)

Report Date: 09.11.2023

Issued To : Tvl.Square Enterprises, Varaganapalli Village, Nagamangalam Post, Denkanikottai Taluk, Krishnagiri District, 635 113.		Site Address : Lease Area:3.20.5 Ha.S.F.Nos.629 (Part) Nagamangalam Village, Denkanikottai Taluk,Krishnagiri District.	
Attention	Mr.Raja	Sample Receipt Condition	Ambient – Good
Customer Ref No	3457	Sample Quantity	2 kg
Sample Name	Soil - 3	Sampled by	Laboratory
Sample Description	-	Sampling Method	GLCS/SOP/S/014
Sample Code	GLCS / 5879	Sample Receipt Date	07.10.2023
Location Name	Kadudhanapalli	Date of Analysis	07.10.2023
Sampling Date	07.10.2023	Date of Completion	26.10.2023
Location Coordinates	12 35'38.22"N 77 52'35.97"E		

SI. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Texture	GLCS/SOP/S/015	-	Sandy Clay Loom
2	Permeability	By Permeameter	%	44.9
3	Manganese	USEPA Method	mg/kg	19.7
4	Zinc	USEPA Method	mg/kg	14
5	Cadmium as Cd	USEPA Method	mg/kg	2.74
6	Chromium as Cr	USEPA Method	mg/kg	10.5
7	Copper as Cu	USEPA Method	mg/kg	3.5
8	Lead as Pb	USEPA Method	mg/kg	3.5
9	Iron as Fe	USEPA Method	mg/kg	32.4
10	Organic Carbon	GLCS/SOP/S/003	%	0.93
11	Boron as B	USEPA Method	mg/kg	3.5

For Global Lab and Consultancy Services



[Signature]
Authorised Signatory

*****End of Report*****

Page 1 of 1

L. SUDHAPRIYA
Technical Manager

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TEST REPORT

ULR-TC606023000006762F

Report Number: GLCS/TR/5880/2023-24(1)

Report Date: 09.11.2023

Issued To : Tvl. Square Enterprises, Varaganapalli Village, Nagamangalam Post, Denkanikottai Taluk, Krishnagiri District, 635 113.		Site Address : Lease Area:3.20.5 Ha.S.F.Nos.629 (Part) Nagamangalam Village, Denkanikottai Taluk,Krishnagiri District.	
Attention	Mr. Raja	Sample Receipt Condition	Ambient – Good
Customer Ref No	3457	Sample Quantity	2 kg
Sample Name	Soil - 4	Sampled by	Laboratory
Sample Description	-	Sampling Method	GLCS/SOP/S/014
Sample Code	GLCS / 5880	Sample Receipt Date	07.10.2023
Location Name	Agaram	Date of Analysis	07.10.2023
Sampling Date	07.10.2023	Date of Completion	26.10.2023
Location Coordinates	12 36'53.29"N 77 57'19.33"E		

SI. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Organic Matter	GLCS/SOP/S/003	%	1.26
2	pH	IS 2720	-	8.52
3	Specific Electrical Conductivity	IS 14767	µS/cm	460
4	Available Phosphorous	GLCS/SOP/S/005	mg/kg	14.6
5	Available Potassium	GLCS/SOP/S/026	meq/l	1.29
6	Exchangeable Calcium (as Ca)	GLCS/SOP/S/020	meq/100g	7.4



For Global Lab and Consultancy Services


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Page 1 of 2

L. SUDHAPRIYA
Technical Manager

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TEST REPORT

ULR-TC606023000006762F

Report Number: GLCS/TR/5880/2023-24(1)

Report Date: 09.11.2023

SI. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
7	Exchangeable Magnesium (as Mg)	GLCS/SOP/S/021	meq/100g	3.6
8	Sulphate as SO ₄	GLCS/SOP/S/009	mg/100g	52.2
9	Cation Exchange Capacity	GLCS/SOP/S/024	meq/100g	14.2
10	Bulk Density	GLCS/SOP/S/017	g/cc	1.06
11	Texture Sand	GLCS/SOP/S/015	%	35
12	Texture Silt	GLCS/SOP/S/015	%	44
13	Texture Clay	GLCS/SOP/S/015	%	21
14	Water Holding Capacity	GLCS/SOP/S/016	%	45.4
15	Available Nitrogen as N	GLCS/SOP/S/029	Kg/ha	225.8
16	Chloride as (Cl) in Saturation Extract	GLCS/SOP/S/004	meq/l	6.3

For Global Lab and Consultancy Services


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*****End of Report*****

Page 2 of 2

L. SUDHAPRIYA
Technical Manager

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TEST REPORT

Report Number: GLCS/TR/5880/2023-24(2)

Report Date: 09.11.2023

Issued To : Tvl.Square Enterprises, Varaganapalli Village, Nagamangalam Post, Denkanikottai Taluk, Krishnagiri District, 635 113.		Site Address : Lease Area:3.20.5 Ha.S.F.Nos.629 (Part) Nagamangalam Village, Denkanikottai Taluk,Krishnagiri District.	
Attention	Mr.Raja	Sample Receipt Condition	Ambient – Good
Customer Ref No	3457	Sample Quantity	2 kg
Sample Name	Soil - 4	Sampled by	Laboratory
Sample Description	-	Sampling Method	GLCS/SOP/S/014
Sample Code	GLCS / 5880	Sample Receipt Date	07.10.2023
Location Name	Agaram	Date of Analysis	07.10.2023
Sampling Date	07.10.2023	Date of Completion	26.10.2023
Location Coordinates	12 36'53.29"N 77 57'19.33"E		

Sl. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Texture	GLCS/SOP/S/015	-	Sandy Clay Loom
2	Permeability	By Permeameter	%	44.6
3	Manganese	USEPA Method	mg/kg	15.5
4	Zinc	USEPA Method	mg/kg	7
5	Cadmium as Cd	USEPA Method	mg/kg	2.35
6	Chromium as Cr	USEPA Method	mg/kg	19.7
7	Copper as Cu	USEPA Method	mg/kg	6.6
8	Lead as Pb	USEPA Method	mg/kg	2.1
9	Iron as Fe	USEPA Method	mg/kg	17.8
10	Organic Carbon	GLCS/SOP/S/003	%	0.73
11	Boron as B	USEPA Method	mg/kg	3.3



For Global Lab and Consultancy Services

L. Sudhapriya
Authorised Signatory

*****End of Report*****

Page 1 of 1

L. SUDHAPRIYA
Technical Manager

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TEST REPORT

ULR-TC606023000006763F

Report Number: GLCS/TR/5881/2023-24(1)

Report Date: 09.11.2023

Issued To : Tvl. Square Enterprises, Varaganapalli Village, Nagamangalam Post, Denkanikottai Taluk, Krishnagiri District, 635 113.		Site Address : Lease Area:3.20.5 Ha. S.F.Nos.629 (Part) Nagamangalam Village, Denkanikottai Taluk, Krishnagiri District.	
Attention	Mr. Raja	Sample Receipt Condition	Ambient – Good
Customer Ref No	3457	Sample Quantity	2 kg
Sample Name	Soil - 5	Sampled by	Laboratory
Sample Description	-	Sampling Method	GLCS/SOP/S/014
Sample Code	GLCS / 5881	Sample Receipt Date	07.10.2023
Location Name	Konasandram	Date of Analysis	07.10.2023
Sampling Date	06.10.2023	Date of Completion	26.10.2023
Location Coordinates	12 33'1.49"N 77 52'39.90"E		

Sl. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Organic Matter	GLCS/SOP/S/003	%	1.53
2	pH	IS 2720	-	8.61
3	Specific Electrical Conductivity	IS 14767	µS/cm	420
4	Available Phosphorous	GLCS/SOP/S/005	mg/kg	16.1
5	Available Potassium	GLCS/SOP/S/026	meq/l	0.88
6	Exchangeable Calcium (as Ca)	GLCS/SOP/S/020	meq/100g	8.4

For Global Lab and Consultancy Services



Page 1 of 2


Authorised Signatory

L. SUDHAPRIYA
Technical Manager

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TEST REPORT

ULR-TC606023000006763F

Report Number: GLCS/TR/5881/2023-24(1)

Report Date: 09.11.2023

SI. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
7	Exchangeable Magnesium (as Mg)	GLCS/SOP/S/021	meq/100g	5
8	Sulphate as SO ₄	GLCS/SOP/S/009	mg/100g	58.6
9	Cation Exchange Capacity	GLCS/SOP/S/024	meq/100g	15.37
10	Bulk Density	GLCS/SOP/S/017	g/cc	1.16
11	Texture Sand	GLCS/SOP/S/015	%	48.73
12	Texture Silt	GLCS/SOP/S/015	%	28.37
13	Texture Clay	GLCS/SOP/S/015	%	22.9
14	Water Holding Capacity	GLCS/SOP/S/016	%	51.2
15	Available Nitrogen as N	GLCS/SOP/S/029	Kg/ha	238.4
16	Chloride as (Cl) in Saturation Extract	GLCS/SOP/S/004	meq/l	6.8

For Global Lab and Consultancy Services


Authorised Signatory

*****End of Report*****

Page 2 of 2



L. SUDHAPRIYA
Technical Manager

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TEST REPORT

Report Number: GLCS/TR/5881/2023-24(2)

Report Date: 09.11.2023

Issued To : Tvl.Square Enterprises, Varaganapalli Village, Nagamangalam Post, Denkanikottai Taluk, Krishnagiri District, 635 113.		Site Address : Lease Area:3.20.5 Ha.S.F.Nos.629 (Part) Nagamangalam Village, Denkanikottai Taluk,Krishnagiri District.	
Attention	Mr.Raja	Sample Receipt Condition	Ambient – Good
Customer Ref No	3457	Sample Quantity	2 kg
Sample Name	Soil - 5	Sampled by	Laboratory
Sample Description	-	Sampling Method	GLCS/SOP/S/014
Sample Code	GLCS / 5881	Sample Receipt Date	07.10.2023
Location Name	Konasandram	Date of Analysis	07.10.2023
Sampling Date	04.10.2023	Date of Completion	26.10.2023
Location Coordinates	12 33'1.49"N 77 52'39.90"E		

SI. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Texture	GLCS/SOP/S/015	-	Sandy Clay Loom
2	Permeability	By Permeameter	%	45.7
3	Manganese	USEPA Method	mg/kg	14.9
4	Zinc	USEPA Method	mg/kg	18.9
5	Cadmium as Cd	USEPA Method	mg/kg	1.74
6	Chromium as Cr	USEPA Method	mg/kg	19.2
7	Copper as Cu	USEPA Method	mg/kg	3.5
8	Lead as Pb	USEPA Method	mg/kg	0.25
9	Iron as Fe	USEPA Method	mg/kg	16.2
10	Organic Carbon	GLCS/SOP/S/003	%	0.89
11	Boron as B	USEPA Method	mg/kg	1.74



For Global Lab and Consultancy Services

(Signature)
Authorised Signatory

*****End of Report*****

Page 1 of 1

L. SUDHAPRIYA
Technical Manager

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TEST REPORT

ULR-TC606023000006764F

Report Number: GLCS/TR/5882/2023-24(1)

Report Date: 09.11.2023

Issued To : Tvl.Square Enterprises, Varaganapalli Village, Nagamangalam Post, Denkanikottai Taluk, Krishnagiri District, 635 113.		Site Address : Lease Area:3.20.5 Ha.S.F.Nos.629 (Part) Nagamangalam Village, Denkanikottai Taluk,Krishnagiri District.	
Attention	Mr.Raja	Sample Receipt Condition	Ambient – Good
Customer Ref No	3457	Sample Quantity	2 kg
Sample Name	Soil - 6	Sampled by	Laboratory
Sample Description	-	Sampling Method	GLCS/SOP/S/014
Sample Code	GLCS / 5882	Sample Receipt Date	07.10.2023
Location Name	Kommepalli	Date of Analysis	07.10.2023
Sampling Date	06.10.2023	Date of Completion	26.10.2023
Location Coordinates	12 37'59.49"N 77 54'19.92"E		

Sl. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Organic Matter	GLCS/SOP/S/003	%	1.39
2	pH	IS 2720	-	8.06
3	Specific Electrical Conductivity	IS 14767	µS/cm	378
4	Available Phosphorous	GLCS/SOP/S/005	mg/kg	15.1
5	Available Potassium	GLCS/SOP/S/026	meq/l	0.8
6	Exchangeable Calcium (as Ca)	GLCS/SOP/S/020	meq/100g	7.2

For Global Lab and Consultancy Services


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Page 1 of 2

L. SUDHAPRIYA
Technical Manager

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TEST REPORT

ULR-TC606023000006764F

Report Number: GLCS/TR/5882/2023-24(1)

Report Date: 09.11.2023

SI. No	TEST PARAMETERS	TEST METHOD	UNIT	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	73.7
9	Cation Exchange Capacity	GLCS/SOP/S/024	meq/100g	13
10	Bulk Density	GLCS/SOP/S/017	g/cc	1.13
11	Texture Sand	GLCS/SOP/S/015	%	27.5
12	Texture Silt	GLCS/SOP/S/015	%	47.5
13	Texture Clay	GLCS/SOP/S/015	%	25
14	Water Holding Capacity	GLCS/SOP/S/016	%	55.6
15	Available Nitrogen as N	GLCS/SOP/S/029	Kg/ha	200.7
16	Chloride as (Cl) in Saturation Extract	GLCS/SOP/S/004	meq/l	5.8

For Global Lab and Consultancy Services



*****End of Report*****

Page 2 of 2


Authorised Signatory

L. SUDHAPRIYA
Technical Manager

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TEST REPORT

Report Number: GLCS/TR/5882/2023-24(2)

Report Date: 09.11.2023

Issued To : Tvl. Square Enterprises, Varaganapalli Village, Nagamangalam Post, Denkanikottai Taluk, Krishnagiri District, 635 113.		Site Address : Lease Area:3.20.5 Ha.S.F.Nos.629 (Part) Nagamangalam Village, Denkanikottai Taluk,Krishnagiri District.	
Attention	Mr.Raja	Sample Receipt Condition	Ambient – Good
Customer Ref No	3457	Sample Quantity	2 kg
Sample Name	Soil - 6	Sampled by	Laboratory
Sample Description	-	Sampling Method	GLCS/SOP/S/014
Sample Code	GLCS / 5882	Sample Receipt Date	07.10.2023
Location Name	Kommepalli	Date of Analysis	07.10.2023
Sampling Date	06.10.2023	Date of Completion	26.10.2023
Location Coordinates	12 37'59.49"N 77 54'19.92"E		

Sl. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Texture	GLCS/SOP/S/015	-	Sandy Clay Loom
2	Permeability	By Permeameter	%	44.8
3	Manganese	USEPA Method	mg/kg	15.2
4	Zinc	USEPA Method	mg/kg	24.9
5	Cadmium as Cd	USEPA Method	mg/kg	1.74
6	Chromium as Cr	USEPA Method	mg/kg	28.9
7	Copper as Cu	USEPA Method	mg/kg	8.2
8	Lead as Pb	USEPA Method	mg/kg	2.74
9	Iron as Fe	USEPA Method	mg/kg	31.4
10	Organic Carbon	GLCS/SOP/S/003	%	0.81
11	Boron as B	USEPA Method	mg/kg	2

For Global Lab and Consultancy Services



(Signature)
Authorised Signatory

*****End of Report*****

Page 1 of 1

L. SUDHAPRIYA
Technical Manager

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TEST REPORT

ULR-TC606023000006765F

Report Number: GLCS/TR/5883/2023-24(1)

Report Date: 09.11.2023

Issued To : <i>Tvl.Square Enterprises,</i> <i>Varaganapalli Village,</i> <i>Nagamangalam Post,</i> <i>Denkanikottai Taluk,</i> <i>Krishnagiri District, 635 113.</i>		Site Address : <i>Lease Area:3.20.5 Ha.</i> <i>S.F.Nos.629 (Part)</i> <i>Nagamangalam Village,</i> <i>Denkanikottai Taluk,</i> <i>Krishnagiri District.</i>	
Attention	<i>Mr.Raja</i>	Sample Receipt Condition	Good
TRF No.	3457	Sample Quantity	2liters
Sample Name	Well Water -1	Sampled by	Laboratory
Sample Description	Liquid	Sampling Method	GLCS/SOP/W/028
Location	Project Site	Date of Analysis	07.10.2023
Sample Code	GLCS /5883	Date of Completion	25.10.2023
Sample Receipt Date	07.10.2023		
Location Coordinates	12° 34' 15.95"N 77° 55' 29.02"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	-	7.62
4	Electrical Conductivity	IS 3025 PART 14	µS/cm	2328
5	Turbidity	IS 3025 PART 10	NTU	<1
6	Total Dissolved Solids	IS 3025 PART 16	mg/l	1513
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



Page 1 of 3


Authorised Signatory

L. SUDHAPRIYA
Technical Manager

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TEST REPORT

ULR-TC606023000006765F

Report Number: GLCS/TR/5883/2023-24(1)

Report Date: 09.11.2023

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
8	Total Alkalinity	IS 3025 PART 23	mg/l	680
9	Total Hardness as CaCO ₃	IS 3025 PART 21	mg/l	840
10	Calcium as Ca	IS 3025 PART 40	mg/l	184
11	Magnesium as Mg	IS 3025 PART 46	mg/l	92
12	Chloride as Cl ⁻	IS 3025 PART 32	mg/l	246
13	Sulphate as SO ₄ ⁻	IS 3025 PART 24	mg/l	79
14	Iron as Fe	IS 3025 PART 53	mg/l	0.72
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	0.76
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


Authorised Signatory

Page 2 of 3



L. SUDHAPRIYA
Technical Manager

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TEST REPORT

ULR-TC606023000006765F

Report Number: GLCS/TR/5883/2023-24(1)

Report Date: 09.11.2023

Issued To : Tvl.Square Enterprises, Varaganapalli Village, Nagamangalam Post, Denkanikottai Taluk, Krishnagiri District, 635 113.		Site Address : Lease Area:3.20.5 Ha. S.F.Nos.629 (Part) Nagamangalam Village, Denkanikottai Taluk, Krishnagiri District.	
Attention	Mr.Raja	Sample Receipt Condition	Good
TRF No.	3457	Sample Quantity	300 ml
Sample Name	Well Water-1	Sampled by	Laboratory
Sample Description	Liquid	Sampling Method	GLCS/M/SOP-05
Sample Code	GLCS /5883	Date of Analysis	07.10.2023
Sample Receipt Date	07.10.2023	Date of Completion	09.10.2023
Location Coordinates	12° 34' 15.95"N 77° 55' 29.02"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



*****End of Report*****

Page 3 of 3


Authorised Signatory
L. DINESHKUMAR
Technical Manager-Microbiology

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TEST REPORT

Report Number: GLCS/TR/5883/2023-24(2)

Report Date: 09.11.2023

Issued To : Tvl.Square Enterprises, Varaganapalli Village, Nagamangalam Post, Denkanikottai Taluk, Krishnagiri District, 635 113.		Site Address : Lease Area:3.20.5 Ha. S.F.Nos.629 (Part) Nagamangalam Village, Denkanikottai Taluk, Krishnagiri District.	
Attention	Mr.Raja	Sample Receipt Condition	Good
TRF No.	3457	Sample Quantity	2liters
Sample Name	Well Water-1	Sampled by	Laboratory
Sample Description	Liquid	Sampling Method	GLCS/SOP/W/028
Location	Project Site	Date of Analysis	07.10.2023
Sample Code	GLCS /5883	Date of Completion	25.10.2023
Sample Receipt Date	07.10.2023		
Location Coordinates	12° 34' 15.95"N		
	77° 55'29.02"E		

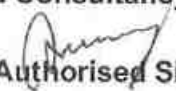
Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Arsenic as As	GLCS/SOP/W/62	mg/l	BDL(DL:0.002)
2	Ammonia (NH ₃)	IS 3025 PART 34	mg/l	BDL(DL:1.0)
3	Zinc as Zn	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
4	Aluminium as Al	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
5	Cadmium as Cd	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
6	Molybdenum 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)

Note : BDL – Below Detection Limit, DL – Detection Limit; BLQ- Below Limit of Quantification, LOQ – Limit of Quantification .



Page 1 of 2

For Global Lab and Consultancy Services


 Authorised Signatory

 L. SUDHAPRIYA
 Technical Manager

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TEST REPORT

Report Number: GLCS/TR/5883/2023-24(2)

Report Date: 09.11.2023

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
9	Barium as Ba	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
10	Anionic Surfactants	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 as Cr	GLCS/SOP/W/62	mg/l	BDL(DL:0.1)
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)

Note : BDL – Below Detection Limit, DL – Detection Limit; BLQ- Below Limit of Quantification, LOQ – Limit of Quantification .

For Global Lab and Consultancy Services


 Authorised Signatory


*****End of Report*****
Page 2 of 2

L. SUDHAPRIYA
Technical Manager

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TEST REPORT

ULR-TC606023000006766F

Report Number: GLCS/TR/5884/2023-24(1)

Report Date: 09.11.2023

Issued To : Tvl.Square Enterprises, Varaganapalli Village, Nagamangalam Post, Denkanikottai Taluk, Krishnagiri District, 635 113.		Site Address : Lease Area:3.20.5 Ha. S.F.Nos.629 (Part) Nagamangalam Village, Denkanikottai Taluk, Krishnagiri District.	
Attention	Mr.Raja	Sample Receipt Condition	Good
TRF No.	3457	Sample Quantity	2liters
Sample Name	Well Water - 2	Sampled by	Laboratory
Sample Description	Liquid	Sampling Method	GLCS/SOP/W/028
Location	U. Kothapalli	Date of Analysis	07.10.2023
Sample Code	GLCS /5884	Date of Completion	25.10.2023
Sample Receipt Date	07.10.2023		
Location Coordinates	12° 33' 5.67"N 77° 56' 20.36"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	-	7.49
4	Electrical Conductivity	IS 3025 PART 14	µS/cm	2450
5	Turbidity	IS 3025 PART 10	NTU	<1
6	Total Dissolved Solids	IS 3025 PART 16	mg/l	1592
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


Authorised Signatory

Page 1 of 3

L. SUDHAPRIYA
Technical Manager

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TEST REPORT

ULR-TC606023000006766F

Report Number: GLCS/TR/5884/2023-24(1)

Report Date: 09.11.2023

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
8	Total Alkalinity	IS 3025 PART 23	mg/l	580
9	Total Hardness as CaCO ₃	IS 3025 PART 21	mg/l	790
10	Calcium as Ca	IS 3025 PART 40	mg/l	148
11	Magnesium as Mg	IS 3025 PART 46	mg/l	102
12	Chloride as Cl ⁻	IS 3025 PART 32	mg/l	355
13	Sulphate as SO ₄ ²⁻	IS 3025 PART 24	mg/l	105
14	Iron as Fe	IS 3025 PART 53	mg/l	0.65
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	0.67
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


Authorised Signatory



Page 2 of 3

L. SUDHAPRIYA
Technical Manager

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TEST REPORT

ULR-TC606023000006766F

Report Number: GLCS/TR/5884/2023-24(1)

Report Date: 09.11.2023

Issued To : Tvl.Square Enterprises, Varaganapalli Village, Nagamangalam Post, Denkanikottai Taluk, Krishnagiri District, 635 113.		Site Address : Lease Area:3.20.5 Ha. S.F.Nos.629 (Part) Nagamangalam Village, Denkanikottai Taluk, Krishnagiri District.	
Attention	Mr.Raja	Sample Receipt Condition	Good
TRF No.	3457	Sample Quantity	300 ml
Sample Name	Well Water-2	Sampled by	Laboratory
Sample Description	Liquid	Sampling Method	GLCS/M/SOP-05
Sample Code	GLCS /5884	Date of Analysis	07.10.2023
Sample Receipt Date	07.10.2023	Date of Completion	09.10.2023
Location Coordinates	12° 33' 5.67"N 77° 56' 20.36"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


Authorised Signatory

L. DINESHKUMAR
Technical Manager-Microbiology

*****End of Report*****

Page 3 of 3

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TEST REPORT

Report Number: GLCS/TR/5884/2023-24(2)

Report Date: 09.11.2023

Issued To : Tvl.Square Enterprises, Varaganapalli Village, Nagamangalam Post, Denkanikottai Taluk, Krishnagiri District, 635 113.		Site Address : Lease Area:3.20.5 Ha. S.F.Nos.629 (Part) Nagamangalam Village, Denkanikottai Taluk, Krishnagiri District.	
Attention	Mr.Raja	Sample Receipt Condition	Good
TRF No.	3457	Sample Quantity	2liters
Sample Name	Well Water-2	Sampled by	Laboratory
Sample Description	Liquid	Sampling Method	GLCS/SOP/W/028
Location	V.Kothapalli		
Sample Code	GLCS /5884	Date of Analysis	07.10.2023
Sample Receipt Date	07.10.2023	Date of Completion	25.10.2023
Location Coordinates	12° 33' 5.67"N		
	77° 56' 20.36"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)

Note : BDL – Below Detection Limit, DL – Detection Limit; BLQ- Below Limit of Quantification, LOQ – Limit of Quantification .



Page 1 of 2

For Global Lab and Consultancy Services

[Signature]
Authorised Signatory

L. SUDHAPRIYA
Technical Manager

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TEST REPORT

Report Number: GLCS/TR/5884/2023-24(2)

Report Date: 09.11.2023

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
9	Barium as Ba	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
10	Anionic Surfactants	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 as Cr	GLCS/SOP/W/62	mg/l	BDL(DL:0.1)
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)

Note : BDL – Below Detection Limit, DL – Detection Limit; BLQ- Below Limit of Quantification, LOQ – Limit of Quantification .

For Global Lab and Consultancy Services


Authorised Signatory

*****End of Report*****

Page 2 of 2

L. SUDHAPRIYA
Technical Manager



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TEST REPORT

ULR-TC606023000006767F

Report Number: GLCS/TR/5885/2023-24(1)

Report Date: 09.11.2023

Issued To :

Tvl.Square Enterprises,
Varaganapalli Village,
Nagamangalam Post,
Denkanikottai Taluk,
Krishnagiri District, 635 113.

Site Address :

Lease Area:3.20.5 Ha.
S.F.Nos.629 (Part)
Nagamangalam Village,
Denkanikottai Taluk,
Krishnagiri District.

Attention	Mr.Raja	Sample Receipt Condition	Ambient – Good
Customer Ref No	3457	Sample Quantity	2Liters
Sample Name	Surface Water -1	Sampled by	Laboratory
Sample Description	Liquid	Sampling Method	GLCS/SOP/W/028
Sample Code	GLCS /5885	Sample Receipt Date	07.10.2023
Location Name	Tank Near Armadpuram	Date of Analysis	07.10.2023
Sampling Date	07.10.2023	Date of Completion	25.10.2023
Location Coordinates	12° 37' 2.45"N 77° 54' 48.36"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	-	7.36
4	Electrical Conductivity	IS 3025 PART14	µS/cm	3108
5	Turbidity	IS 3025 PART10	NTU	4
6	Total Dissolved Solids	IS 3025 PART16	mg/l	2020
7	Total Alkalinity as CaCO ₃	IS 3025 PART 23	mg/l	720
8	Total Hardness as CaCO ₃	IS 3025 PART 21	mg/l	990
9	Calcium as Ca	IS 3025 PART40	mg/l	216

For Global Lab and Consultancy Services




Authorised Signatory

Page 1 of 3

L. SUDHAPRIYA
Technical Manager

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TEST REPORT

ULR-TC606023000006767F

Report Number: GLCS/TR/5885/2023-24(1)

Report Date: 09.11.2023

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
10	Magnesium as Mg	IS 3025 PART 46	mg/l	109
11	Chloride as Cl ⁻	IS 3025 PART 32	mg/l	424
12	Sulphate as SO ₄ ⁻	IS 3025 PART24	mg/l	264
13	Iron as Fe	IS 3025 PART 53	mg/l	0.72
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	0.53
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	Dissolved Oxygen	IS 3025 PART 38	mg/l	6
20	Bio-Chemical Oxygen Demand @ 27°C for 3 days	IS 3025 PART 44	mg/l	6
21	Chemical Oxygen Demand	IS 3025 PART 58	mg/l	20
22	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




Authorised Signatory

Page 2 of 3

L. SUDHAPRIYA
Technical Manager

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TEST REPORT

ULR-TC606023000006767F

Report Number: GLCS/TR/5885/2023-24(1)

Report Date: 09.11.2023

Issued To : Tvl.Square Enterprises, Varaganapalli Village, Nagamangalam Post, Denkanikottai Taluk, Krishnagiri District, 635 113.		Site Address : Lease Area:3.20.5 Ha. S.F.Nos.629 (Part) Nagamangalam Village, Denkanikottai Taluk, Krishnagiri District.	
Attention	Mr.Raja	Sample Receipt Condition	Good
Customer Ref No	3457	Sample Quantity	500 ml
Sample Name	Surface Water 1	Sampled by	Laboratory
Sample Description	Liquid	Sampling Method	GLCS/M/SOP-05
Sample Code	GLCS / 5885	Sample Receipt Date	07.10.2023
Location Name	Tank Near Armadpuram	Date of Analysis	07.10.2023
Sampling Date	07.10.2023	Date of Completion	11.10.2023
Location Coordinates	12° 37' 2.45"N 77° 54' 48.36"E		

Sl. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS	LIMITS
1	Total Coliforms	IS 1622	MPN/100ml	<2	Total Coliforms Organism MPN/100ml shall be 50 or less
2	<i>Escherichia coli</i>	IS 1622	MPN/100ml	<2	

Note: MPN- Most Probable Number. Limits - Tolerance limit as per TNPCB norms.

For Global Lab and Consultancy Services




Authorized 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 14 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/5885/2023-24(2)

Report Date: 09.11.2023

Issued To : Tvl.Square Enterprises, Varaganapalli Village, Nagamangalam Post, Denkanikottai Taluk, Krishnagiri District, 635 113.		Site Address : Lease Area:3.20.5 Ha. S.F.Nos.629 (Part) Nagamangalam Village, Denkanikottai Taluk, Krishnagiri District.	
Attention	Mr.Raja	Sample Receipt Condition	Ambient – Good
Customer Ref No	3457	Sample Quantity	2Liters
Sample Name	Surface Water 1	Sampled by	Laboratory
Sample Description	Liquid	Sampling Method	GLCS/SOP/W/028
Sample Code	GLCS / 5885	Sample Receipt Date	07.10.2023
Location Name	Tank Near Armadpuram	Date of Analysis	07.10.2023
Sampling Date	07.10.2023	Date of Completion	25.10.2023
Location Coordinates	12° 37' 2.45"N 77° 54'48.36"E		

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Total Suspended Solids	IS 3025 PART 17	mg/l	BDL(DL:2)
2	Phenolic Compounds	IS 3025 PART 43	mg/l	BDL(DL:0.1)
3	Anionic Surfactants	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 as Cr	GLCS/SOP/W/62	mg/l	BDL(DL:0.1)
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



*****End of Report*****

Page 1 of 1

Authorised Signatory

L. SUDHAPRIYA
Technical Manager

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TEST REPORT

ULR-TC606023000006768F

Report Number: GLCS/TR/5886/2023-24(1)

Report Date: 09.11.2023

Issued To : Tvl.Square Enterprises, Varaganapalli Village, Nagamangalam Post, Denkanikottai Taluk, Krishnagiri District, 635 113.		Site Address : Lease Area:3.20.5 Ha. S.F.Nos.629 (Part) Nagamangalam Village, Denkanikottai Taluk, Krishnagiri District.	
Attention	Mr.Raja	Sample Receipt Condition	Ambient – Good
Customer Ref No	3457	Sample Quantity	2Liters
Sample Name	Surface Water -2	Sampled by	Laboratory
Sample Description	Liquid	Sampling Method	GLCS/SOP/W/028
Sample Code	GLCS /5886	Sample Receipt Date	07.10.2023
Location Name	Nanjappan Kodigai Eri	Date of Analysis	07.10.2023
Sampling Date	07.10.2023	Date of Completion	25.10.2023
Location Coordinates	12° 36' 11.29"N 77° 51' 20.99"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	-	7.93
4	Electrical Conductivity	IS 3025 PART14	µS/cm	1786
5	Turbidity	IS 3025 PART10	NTU	<1
6	Total Dissolved Solids	IS 3025 PART16	mg/l	1160
7	Total Alkalinity as CaCO ₃	IS 3025 PART 23	mg/l	470
8	Total Hardness as CaCO ₃	IS 3025 PART 21	mg/l	670
9	Calcium as Ca	IS 3025 PART40	mg/l	136

For Global Lab and Consultancy Services



(Signature)
Authorised Signatory

Page 1 of 3

L. SUDHAPRIYA
Technical Manager

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TEST REPORT

ULR-TC606023000006768F

Report Number: GLCS/TR/5886/2023-24(1)

Report Date: 09.11.2023

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
10	Magnesium as Mg	IS 3025 PART 46	mg/l	80
11	Chloride as Cl ⁻	IS 3025 PART 32	mg/l	187
12	Sulphate as SO ₄ ⁻	IS 3025 PART24	mg/l	185
13	Iron as Fe	IS 3025 PART 53	mg/l	0.5
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	0.36
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	Dissolved Oxygen	IS 3025 PART 38	mg/l	8
20	Bio-Chemical Oxygen Demand @ 27°C for 3 days	IS 3025 PART 44	mg/l	9
21	Chemical Oxygen Demand	IS 3025 PART 58	mg/l	28
22	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



Page 2 of 3


Authorised Signatory

L. SUDHAPRIYA
Technical Manager

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TEST REPORT

ULR-TC606023000006768F

Report Number: GLCS/TR/5886/2023-24(1)

Report Date: 09.11.2023

Issued To : Tvl.Square Enterprises, Varaganapalli Village, Nagamangalam Post, Denkanikottai Taluk, Krishnagiri District, 635 113.		Site Address : Lease Area:3.20.5 Ha. S.F.Nos.629 (Part) Nagamangalam Village, Denkanikottai Taluk, Krishnagiri District.	
Attention	Mr.Raja	Sample Receipt Condition	Good
Customer Ref No	3457	Sample Quantity	500 ml
Sample Name	Surface Water 2	Sampled by	Laboratory
Sample Description	Liquid	Sampling Method	GLCS/M/SOP-05
Sample Code	GLCS / 5886	Sample Receipt Date	07.10.2023
Location Name	Nanjappan Kodigai Eri	Date of Analysis	07.10.2023
Sampling Date	07.10.2023	Date of Completion	11.10.2023
Location Coordinates	12° 36' 11.29"N 77° 51' 20.99"E		

Sl. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS	LIMITS
1	Total Coliforms	IS 1622	MPN/100ml	<2	Total Coliforms Organism MPN/100ml shall be 50 or less
2	<i>Escherichia coli</i>	IS 1622	MPN/100ml	<2	

Note: MPN- Most Probable Number. Limits - Tolerance limit as per TNPCB norms.

For Global Lab and Consultancy Services




Authorised Signatory
L. DINESHKUMAR
Technical Manager-Microbiology

*****End of Report*****

Page 3 of 3

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TEST REPORT

Report Number: GLCS/TR/5886/2023-24(2)

Report Date: 09.11.2023

Issued To : Tvl. Square Enterprises, Varaganapalli Village, Nagamangalam Post, Denkanikottai Taluk, Krishnagiri District, 635 113.		Site Address : Lease Area:3.20.5 Ha. S.F.Nos.629 (Part) Nagamangalam Village, Denkanikottai Taluk, Krishnagiri District.	
Attention	Mr.Raja	Sample Receipt Condition	Ambient – Good
Customer Ref No	3457	Sample Quantity	2Liters
Sample Name	Surface Water 2	Sampled by	Laboratory
Sample Description	Liquid	Sampling Method	GLCS/SOP/W/028
Sample Code	GLCS / 5886	Sample Receipt Date	07.10.2023
Location Name	Nanjappan Kodigai Eri	Date of Analysis	07.10.2023
Sampling Date	07.10.2023	Date of Completion	25.10.2023
Location Coordinates	12° 36' 11.29"N 77° 51'20.99"E		

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Total Suspended Solids	IS 3025 PART 17	mg/l	7
2	Phenolic Compounds	IS 3025 PART 43	mg/l	BDL(DL:0.1)
3	Anionic Surfactants	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 as Cr	GLCS/SOP/W/62	mg/l	BDL(DL:0.1)
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.



*****End of Report*****

Page 1 of 1

For Global Lab and Consultancy Services

Authorised Signatory

L. SUDHAPRIYA
Technical Manager

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TEST REPORT

ULR-TC606023000006769F

Report Number: GLCS/TR/5887/2023-24(1)

Report Date: 09.11.2023

Issued To : Tvl.Square Enterprises, Varaganapalli Village, Nagamangalam Post, Denkanikottai Taluk, Krishnagiri District, 635 113.		Site Address : Lease Area:3.20.5 Ha. S.F.Nos.629 (Part) Nagamangalam Village, Denkanikottai Taluk, Krishnagiri District.	
Attention	Mr.Raja	Sample Receipt Condition	Good
TRF No.	3457	Sample Quantity	2liters
Sample Name	Borewell Water -1	Sampled by	Laboratory
Sample Description	Liquid	Sampling Method	GLCS/SOP/W/028
Location	Nagamangalam	Date of Analysis	07.10.2023
Sample Code	GLCS /5887	Date of Completion	25.10.2023
Sample Receipt Date	07.10.2023		
Location Coordinates	12° 33' 54.40"N 77° 56'22.01"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	-	7.84
4	Electrical Conductivity	IS 3025 PART 14	µS/cm	2341
5	Turbidity	IS 3025 PART 10	NTU	<1
6	Total Dissolved Solids	IS 3025 PART 16	mg/l	1516
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


Authorised Signatory

L. SUDHAPRIYA
Technical Manager



Page 1 of 3

212 A

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TEST REPORT

ULR-TC606023000006769F

Report Number: GLCS/TR/5887/2023-24(1)

Report Date: 09.11.2023

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
8	Total Alkalinity	IS 3025 PART 23	mg/l	690
9	Total Hardness as CaCO ₃	IS 3025 PART 21	mg/l	910
10	Calcium as Ca	IS 3025 PART 40	mg/l	172
11	Magnesium as Mg	IS 3025 PART 46	mg/l	117
12	Chloride as Cl ⁻	IS 3025 PART 32	mg/l	266
13	Sulphate as SO ₄ ⁻	IS 3025 PART 24	mg/l	224
14	Iron as Fe	IS 3025 PART 53	mg/l	0.39
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	0.47
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


Authorised Signatory



Page 2 of 3

L. SUDHAPRIYA
Technical Manager

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TEST REPORT

ULR-TC606023000006769F

Report Number: GLCS/TR/5887/2023-24(1)

Report Date: 09.11.2023

Issued To : Tvl.Square Enterprises, Varaganapalli Village, Nagamangalam Post, Denkanikottai Taluk, Krishnagiri District, 635 113.		Site Address : Lease Area:3.20,5 Ha. S.F.Nos.629 (Part) Nagamangalam Village, Denkanikottai Taluk, Krishnagiri District.	
Attention	Mr.Raja	Sample Receipt Condition	Good
TRF No.	3457	Sample Quantity	300 ml
Sample Name	Borewell Water-1	Sampled by	Laboratory
Sample Description	Liquid	Sampling Method	GLCS/M/SOP-05
Sample Code	GLCS /5887	Date of Analysis	07.10.2023
Sample Receipt Date	07.10.2023	Date of Completion	09.10.2023
Location Coordinates	12° 33' 54.40"N 77° 56' 22.01"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



*****End of Report*****

Page 3 of 3


Authorised Signatory
L. DINESHKUMAR
Technical Manager-Microbiology

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TEST REPORT

Report Number: GLCS/TR/5887/2023-24(2)


Report Date: 09.11.2023

Issued To : Tvl.Square Enterprises, Varaganapalli Village, Nagamangalam Post, Denkanikottai Taluk, Krishnagiri District, 635 113.		Site Address : Lease Area:3.20.5 Ha. S.F.Nos.629 (Part) Nagamangalam Village, Denkanikottai Taluk, Krishnagiri District.	
Attention	Mr.Raja	Sample Receipt Condition	Good
TRF No.	3457	Sample Quantity	2liters
Sample Name	Borewell Water - 2	Sampled by	Laboratory
Sample Description	Liquid	Sampling Method	GLCS/SOP/W/028
Location	Nagamangalam	Date of Analysis	07.10.2023
Sample Code	GLCS /5887	Date of Completion	25.10.2023
Sample Receipt Date	07.10.2023		
Location Coordinates	12° 33' 54.40"N 77° 56'22.01"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)

Note : BDL – Below Detection Limit, DL – Detection Limit; BLQ- Below Limit of Quantification, LOQ – Limit of Quantification .

For Global Lab and Consultancy Services



Authorised Signatory

Page 1 of 2


L. SUDHAPRIYA
Technical Manager

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TEST REPORT

Report Number: GLCS/TR/5887/2023-24(2)

Report Date: 09.11.2023

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
9	Barium as Ba	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
10	Anionic Surfactants	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 as Cr	GLCS/SOP/W/62	mg/l	BDL(DL:0.1)
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)

Note : BDL – Below Detection Limit, DL – Detection Limit; BLQ- Below Limit of Quantification, LOQ – Limit of Quantification .

For Global Lab and Consultancy Services


Authorised Signatory

L. SUDHAPRIYA
Technical Manager

*****End of Report*****
Page 2 of 2



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TEST REPORT

ULR-TC606023000006770F

Report Number: GLCS/TR/5888/2023-24(1)

Report Date: 09.11.2023

Issued To : Tvl. Square Enterprises, Varaganapalli Village, Nagamangalam Post, Denkanikottai Taluk, Krishnagiri District, 635 113.		Site Address : Lease Area:3.20.5 Ha. S.F.Nos.629 (Part) Nagamangalam Village, Denkanikottai Taluk, Krishnagiri District.	
Attention	Mr. Raja	Sample Receipt Condition	Good
TRF No.	3457	Sample Quantity	2liters
Sample Name	Borewell Water - 2	Sampled by	Laboratory
Sample Description	Liquid	Sampling Method	GLCS/SOP/W/028
Location	Konasandram	Date of Analysis	07.10.2023
Sample Code	GLCS /5888	Date of Completion	25.10.2023
Sample Receipt Date	07.10.2023		
Location Coordinates	12° 32' 59.05"N 77° 52' 39.77"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	-	7.59
4	Electrical Conductivity	IS 3025 PART 14	µS/cm	2618
5	Turbidity	IS 3025 PART 10	NTU	<1
6	Total Dissolved Solids	IS 3025 PART 16	mg/l	1702
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



Page 1 of 3


Authorised Signatory

L. SUDHAPRIYA
Technical Manager

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TEST REPORT

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Report Number: GLCS/TR/5888/2023-24(1)

Report Date: 09.11.2023

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
8	Total Alkalinity	IS 3025 PART 23	mg/l	660
9	Total Hardness as CaCO ₃	IS 3025 PART 21	mg/l	1020
10	Calcium as Ca	IS 3025 PART 40	mg/l	248
11	Magnesium as Mg	IS 3025 PART 46	mg/l	97
12	Chloride as Cl ⁻	IS 3025 PART 32	mg/l	453
13	Sulphate as SO ₄ ⁻	IS 3025 PART 24	mg/l	157
14	Iron as Fe	IS 3025 PART 53	mg/l	0.12
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	0.34
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


Authorised Signatory



Page 2 of 3

L. SUDHAPRIYA
Technical Manager

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TEST REPORT

ULR-TC606023000006770F

Report Number: GLCS/TR/5888/2023-24(1)

Report Date: 09.11.2023

Issued To : Tvl.Square Enterprises, Varaganapalli Village, Nagamangalam Post, Denkanikottai Taluk, Krishnagiri District, 635 113.		Site Address : Lease Area:3.20.5 Ha. S.F.Nos.629 (Part) Nagamangalam Village, Denkanikottai Taluk, Krishnagiri District.	
Attention	Mr.Raja	Sample Receipt Condition	Good
TRF No.	3457	Sample Quantity	300 ml
Sample Name	Borewell Water-2	Sampled by	Laboratory
Sample Description	Liquid	Sampling Method	GLCS/M/SOP-05
Sample Code	GLCS /5888	Date of Analysis	07.10.2023
Sample Receipt Date	07.10.2023	Date of Completion	09.10.2023
Location Coordinates	12° 32' 59.05"N 77° 52' 39.77"E		

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



*****End of Report*****
Page 3 of 3


Authorised Signatory
L. DINESHKUMAR
Technical Manager-Microbiology

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TEST REPORT

Report Number: GLCS/TR/5888/2023-24(2)

Report Date: 09.11.2023

Issued To : Tvl.Square Enterprises, Varaganapalli Village, Nagamangalam Post, Denkanikottai Taluk, Krishnagiri District, 635 113.		Site Address : Lease Area:3.20.5 Ha. S.F.Nos.629 (Part) Nagamangalam Village, Denkanikottai Taluk, Krishnagiri District.	
Attention	Mr.Raja	Sample Receipt Condition	Good
TRF No.	3457	Sample Quantity	2liters
Sample Name	Borewell Water - 2	Sampled by	Laboratory
Sample Description	Liquid	Sampling Method	GLCS/SOP/W/028
Location	Konasandram	Date of Analysis	07.10.2023
Sample Code	GLCS /5888	Date of Completion	25.10.2023
Sample Receipt Date	07.10.2023		
Location Coordinates	12° 32' 59.05"N 77° 52' 39.77"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)

Note : BDL – Below Detection Limit, DL – Detection Limit; BLQ- Below Limit of Quantification, LOQ – Limit of Quantification .

For Global Lab and Consultancy Services



Page 1 of 2

(Signature)
Authorised Signatory

L. SUDHAPRIYA
Technical Manager

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TEST REPORT

Report Number: GLCS/TR/5888/2023-24(2)

Report Date: 09.11.2023

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
9	Barium as Ba	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
10	Anionic Surfactants	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 as Cr	GLCS/SOP/W/62	mg/l	BDL(DL:0.1)
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)

Note : BDL – Below Detection Limit, DL – Detection Limit; BLQ- Below Limit of Quantification, LOQ – Limit of Quantification .

For Global Lab and Consultancy Services



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*****End of Report*****

Page 2 of 2

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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.