

# DRAFT ENVIRONMENTAL IMPACT ASSESSMENT & ENVIRONMENT MANAGEMENT PLAN

FOR OBTAINING

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

“B1” CATEGORY (Cluster) – MINOR MINERAL – CLUSTER –PATTA LAND -  
**EXISTING QUARRY**




THIRU. K. VIJAY PERICHIYAPPAN ROUGH STONE AND GRAVEL QUARRY

Cluster Extent – 5.16.0Ha

**Project Proponent**

**Thiru.K. Vijay Perichiyappan**

S/o. K.N.Kandasamy,  
K.N. Charman Thottam, B.Karattupalayam,  
Gobichettipalayam Taluk, Erode District,  
Tamil Nadu - 638 457

PROJECT LOCATION	PROPOSED PRODUCTION
S.F.Nos. 347/1B & 347/2B, <b>Extent: 0.86.0Ha</b> of Elathur ‘A’ Village Nambiyur Taluk, Erode District	<b>Reserves:</b> 23,125m <sup>3</sup> of Rough stone,  Peak Production = 4,725m <sup>3</sup> of Rough Stone Proposed Depth = <b>28m bgl</b> (3m Gravel +25m Rough stone)
<b>ToR obtained vide</b> <b>Lr No. SEIAA-TN/F.No.10286/SEAC/ToR-1571/2023 Dated: 06.10.2023</b>	
<p style="text-align: center;"><b>Environmental Consultant</b></p> <p style="text-align: center;">GEO EXPLORATION AND MINING SOLUTIONS </p> <p style="text-align: center;">Old No. 260-B, New No. 17,            Advaitha Ashram Road, Alagapuram,            Salem – 636 004, Tamil Nadu, India</p> <p style="text-align: center;"> Accredited for sector 1 Cat ‘A’, sector 31 &amp; 38 Cat ‘B’   <b>Certificate No : NABET/EIA/2225/RA 0276</b></p> <p style="text-align: center;">Phone: 0427-2431989,            Email: infogeoexploration@gmail.com  <b>Web: www.gemssalem.com</b></p>	<p style="text-align: center;"><b>Laboratory</b></p> <p style="text-align: center;">GLOBAL LAB AND CONSULTANCY SERVICES</p> <p style="text-align: center;">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;"><b><u>Baseline Monitoring Period</u></b></p> <p style="text-align: center;"><b>October 2023 to December 2023</b></p>	
<p style="text-align: center;"><b>JANUARY 2024</b></p>	

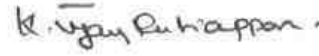
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## UNDERTAKING

I Thiru.K. Vijay Perichiyappan given undertaking that this EIA & EMP report prepared for our Rough stone and Gravel quarry situated in S.F.Nos. 347/1B & 347/2B of Elathur 'A' Village, Nambiyur Taluk, Erode District based on the ToR issued by the State Level Environmental Impact Assessment Authority (SEIAA), Tamil Nadu vide Letter No SEIAA-TN/F.No.10286/SEAC/ToR-1571/2023 Dated: 06.10.2023.

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



K.Vijay Perichiyappan

Place: Erode

Dated:

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## DECLARATION

I Dr. M.Ifthikhar Ahmed – EIA Co Ordinator declare that the EIA & EMP report for the Rough stone and Gravel quarry in S.F.Nos. 347/1B & 347/2B of Elathur 'A' Village, Nambiyur Taluk, Erode 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:

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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.

<b>PROPOSED QUARRY</b>					
<b>CODE</b>	<b>Name of the Owner</b>	<b>Village</b>	<b>S.F. Nos</b>	<b>Extent in Ha</b>	<b>Status</b>
P1	Thiru.K.Vijay Perichiyappan	Elathur 'A' Village	347/1B and 347/2B	0.86.0	Lr No. SEIAA-TN/F.No.10286/SEAC/To R-1571/2023 Dated: 06.10.2023
TOTAL EXTENT				0.86.0	
<b>EXISTING QUARRY</b>					
<b>CODE</b>	<b>Name of the Owner</b>	<b>Village</b>	<b>S.F. Nos</b>	<b>Extent in Ha</b>	<b>Status</b>
E-1	Thiru.P.Balaji	Karattupalayam "B" Village	246	4.30.0	30.06.2022 to 29.06.2027
TOTAL EXTENT				4.30.0	
<b>EXPIRED QUARRIES&amp; ABANDONED QUARRY</b>					
Ex-1	Thiru.N. Venkatachalam	Elathur 'A' Village	356/4,356/5, 356/6,359/1	2.58.7	24.01.2014 to 23.01.2019
TOTAL EXTENT				2.58.7	
<b>TOTAL CLUSTER EXTENT</b>				<b>5.16.0</b>	

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



**TERMS OF REFERENCE (ToR) COMPLIANCE**

Lr.No.SEIAA-TN/F.No.10286/SEAC/ToR-1571/2023 Dated: 06.10.2023

<b>TOR ADDITIONAL CONDITIONS</b>		
1	The PP shall furnish ownership details of all survey numbers in EIA report.	<b>Thiru.K.Vijay Perichiyappan</b> Rough stone and Gravel quarry S.F No. 347/1B & 347/2B
2	The PP shall submit Certified Compliance Report obtained from the office of the concerned IRO, MoEF & CC, Chennai and the PP shall furnish appropriate mitigating measures for the non-compliance items, if any.	Noted and agreed
3	The PP shall submit the 'Action Plan' on the issues raised during the Public Hearing with budgetary provisions for the same.	Noted and agreed
4	The PP shall submit the controlled blasting measures for reducing the impacts due to the blasting operation in the proposed quarries within 1 km of the proposed quarry.	This is existing quarry
5	The PP shall submit a 'Conceptual Mining Plan' indicating the accessible ramp from the surface to the pit bottom keeping the benches intact for the dimension as stipulated in the Approved Mining Plan.	Noted and agreed
6	The PP shall submit the nature of building/structures, occupants and their profession, etc located within 500 m radius of the proposed quarry.	Chapter-3 Socioeconomic environment- Structures map around 500m details of structures.
7	For securing the safety of persons employed in the mine, the PP shall carry out the scientific studies to assess the slope stability of the benches and quarry high walls existing in a limited area of 0.86 Ha specifying the slope stability remedial action plan, through anyone of the reputed Research and Academic Institutions - CSIR-Central Institute of Mining & Fuel Research / Dhanbad, NIRM/Bangalore, IIT-Madras, IIT (ISM)/Dhanbad and Anna University Chennai-CEG Campus, etc. A copy of such scientific study report detailing the slope stability action plan & stabilization measures shall be submitted to the SEIAA along with EIA/EMP.	Noted and agreed
<b>TOR ANNEXURE-1</b>		
1	In the case of existing/operating mines. a letter obtained from the concerned AD (Mines) shall be submitted and it shall include the following: (i) Original pit dimension (ii) Quantity achieved Vs EC Approved Quantity (iii) Balance Quantity as per Mineable Reserve calculated. (iv) Mined out Depth as on date Vs EC Permitted depth (v) Details of illegal/illicit mining (vi) Violation in the quarry during the past working. (vii) Quantity of material mined out outside the mine lease area (viii) Condition of Safety zone/benches (ix) Revised/Modified Mining Plan showing the benches of not exceeding 6 m height and ultimate depth of not exceeding 50m.	Existing Pit Dimension Pit I -92m (L) x 62m (W) x 13m(D) bgl Ultimate Pit Dimension 92m (L) x 60m (W) x 28m(D) bgl Year wise Production for 5years 23,125 m <sup>3</sup>  28m bgl (3m Gravel + 25m Rough Stone)  Lr.No. SEIAA-TN/F.No.3827/1 (a)/EC.No.2934/2015 dated 17.02.2016  Non-Violation during the past working this quarry.

2	Details of habitations around the proposed mining area and latest VAO certificate regarding the location of habitations within 300m radius from the periphery of the site.	VAO letter stating the details of habitations, temples etc., is enclosed as Annexure
3	The proponent is requested to carry out a survey and enumerate on the structures located within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m (v) 500m shall be enumerated with details such as dwelling houses with number of occupants. whether it belongs to the owner (or) not places of worship, industries, factories, sheds, etc with indicating the owner of the building, nature of construction, age of the building, number of residents, their profession and income, etc.	Chapter-3 Socioeconomic environment- Structures map around 500m details of structures.
4	The PP shall submit a detailed hydrological report indicating the impact of proposed quarrying operations on the waterbodies like lake, water tank, etc are located within 1 km of the proposed quarry.	The hydro-geological study was conducted to evaluate the possible impact on the ground water table. No significant impacts are anticipated on the water bodies around the project area. Details are discussed under Chapter No. 4
5	The Proponent shall carry out Bio diversity study through reputed institution and the same shall be included in EIA Report.	Biodiversity study has been carried out by Functional Area Expert by the NABET accredited consultant. The detailed study is given in the Chapter No.3
6	The DFO letter stating that the proximity distance of Reserve Forests, Protected Areas, Sanctuaries, Tiger reserve etc., up to a radius of 25 km from the proposed site.	Guttiyalattur R. F -13.14km-N
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.	The Rough Stone and Gravel quarry previously granted in the name of Thiru.K. Vijay Perichiyappan (Same applicant) for the period of five years from 04.03.2016 to 03.03.2021 of Elathur 'A' Village, Nambiyur Taluk (Formerly Gobichettipalayam Taluk), Erode District vide Rc.No.30118/2014/X-1, Dated: 04.03.2016. The lessee has obtained Environmental Clearance from the State Level Environment Impact Assessment Authority (SEIAA), Tamil Nadu vide letter No. SEIAA-TN/F.No.3827/1(a)/EC.No.2934/2015, Dated:17.02.2016
8	However, in case of the fresh/virgin quarries, 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.	For the first five years plan period the mining operation is proposed to carry out up to the depth of 28m bgl.  It is ensured that the slope stability will be carried out after 30m bgl.  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, Chapter No.10 Table No. 10.10 Page No.133

9	The PP shall furnish the affidavit stating that the blasting operation in the proposed quarry is carried out by the statutory competent person as per the MMR 1961 such as blaster, mining mate, mine foreman, II/I Class mines manager appointed by the proponent.	Proponent given Affidavit stating that the blasting 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 30 m from the blast site.	Noted and agreed
11	The EIA Coordinates shall obtain and furnish the details of quarry /quarries operated by the PP in the past, either in the same location or elsewhere in the state with video and Photographic evidences.	Noted and agreed. There are three quarries including this proposal in the cluster belongs to the Proponent Thiru.P.Balaji and Thiru.N.Venkatachalam
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	The lessee has obtained Environmental Clearance from the State Level Environment Impact Assessment Authority (SEIAA), Tamil Nadu vide letter No. SEIAA-TN/F.No.3827/1(a)/EC.No.2934/2015, Dated:17.02.2016
13	What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?	Existing Proposal Lease
14	Quantify of minerals mined out A. Highest production achieved in any one year B. Detail of approved depth of mining. C. Actual depth of the mining achieved earlier. D. Name of the person already mined in that leases area. E. If EC and CTO already obtained, the copy of the same shall be submitted. Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.	Peak Production = 4,725m <sup>3</sup> of Rough Stone Proposed Depth =28m bgl (3m Gravel +25m Roughstone) Existing : 92m (L) x 62m (W) x 13m(D) bgl letter No. SEIAA-TN/F.No.3827/1(a)/EC.No.2934/2015, Dated:17.02.2016
15	All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/Topo sheet, topographic sheet, geomorphology, lithology and geology of the mining lease area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).	Satellite imagery of the project area along with boundary coordinates is given in the Chapter No 2, Figure No.2.2, Page No.11. Geomorphology of the area is given in Chapter No 2, Figure No.2.9, Page No.21 Land use pattern of the project area is tabulated in the Chapter No.2. Table no 2.3, Pg.No.18 Land use pattern of the Study area is tabulated in the Chapter No.2, Table no 2.3, Pg.No.17.
16	The PP shall carry out Drone video survey covering the cluster, Green belt, fencing etc.,	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.	The area has been fenced and the photographs are given in the Chapter No.2, Figure No.2.1 Page No.11 No trees within the proposed excavation area, no transplantation is required. Water bodies near to the project site is given in the Chapter No.2 Table No.2.13 Page No.26
18	The Project Proponent shall provide the details of mineral reserves and mineable reserves, planned	The Total Mineable Reserves of Rough stone is 23,125 m <sup>3</sup>

	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.	Peak Production = 4,725m <sup>3</sup> of Rough Stone Details of Reserves and methodology of mining is given in the Chapter No.2 Page No.19
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.	Noted and agreed. Detailed under 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 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD / TWAD so as to assess the impacts on the wells due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided.	The hydro-geological study was conducted to evaluate the possible impact on the ground water table. No significant impacts are anticipated on the water bodies around the project area. Details of open wells and borewells within 1km radius along with water level is given in the Chapter No.3
21	The proponent shall furnish the baseline data for the environmental and ecological parameters with regard to surface water/ground water quality, air quality, soil quality & flora/fauna including traffic/vehicular movement study.	Baseline data 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 to assess the cumulative impact of the proposed project on the environment is prepared. The details of Baseline study are 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 air pollution, water pollution. & 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 No.7, Page No.112 to 122.
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 Cother 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 Land cover study within the radius of 10km is detailed in the Chapter No. 3 Page No.30 to 33.
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 are 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.	Proposed Transportation route with mitigation measures is given in the Chapter No.2 Page No.25
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 Page No.62
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 Page No.49 The budget for the mine closure is included in the Environmental Management plan in Chapter No.10 ,Table:10.10
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 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 and local school/college authorities. 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.	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 Table No.4.10
33	Taller/one year old Saplings raised in appropriate size of bags, preferably eco-friendly bags should be planted as per the advice of local forest authorities/botanist/Horticulturist with regard to site specific choices. The proponent shall earmark the greenbelt area with GPS coordinates all along the boundary of the project site with at least 3 meters wide and in between blocks in an organized manner.	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 Table No.4.10
34	A Disaster management Plan shall be prepared and included in the EIA/EMP Report.	Disaster management Plan is detailed in the Chapter No.7
35	A Risk Assessment and management Plan shall be prepared and included in the ELA/EMP Report.	A Risk Assessment and management Plan detailed in the Chapter No.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	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

	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.	The details of the population in the impact zone (within 500m radius) are detailed in the Chapter No.3, Page No.76
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 Page No.75
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 and Chapter-8 Project benefits.
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 Existing 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 Conditions besides attracting penal provisions in the Environment (Protection) Act, 1986.	Noted & agreed.

<b>ADDITIONAL CONDITIONS-Annexure-B</b>		
<b><i>Cluster Management committee</i></b>		
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.	Details chapter 7 salient features of quarry with existing 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..	Noted & agreed
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.	Noted & agreed
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.	Transport details in chapter-2
5	The committee shall deliberate on risk management plan pertaining to the cluster in a holistic manner especially during natural calamities like intense rain and the mitigation measures considering the inundation of the cluster and evacuation plan	Noted & agreed
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.	Noted & agreed
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.
<b><i>Impact study of mining</i></b>		
12	Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area covering the entire mine lease period as per precise area communication order issued from reputed research institutions on the following a) Soil health & bio-diversity b) Climate change leading to Droughts, Floods etc. c) Pollution leading to release of Greenhouse gases (GHG), rise in Temperature' & Livelihood of the local people.	Species Recommended for Plantation in chapter 3&10.

	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.	
<b>Agriculture &amp; Agro-Biodiversity</b>		
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 commit mentioned in EMP.	Details in Chapter 2,3 and 7
16	The Environmental Impact Assessment should study the biodiversity, the natural ecosystem, the soil micro flora. fauna and soil seed banks and suggest measures to maintain the natural Ecosystem.	Details in Chapter 3
17	Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.	Noted & agreed
18	The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands. Horticulture, Agriculture and livestock.	The project area is bounded by Existing quarries on the East and west side. Proponent proposed to erect green mesh along with fencing on the South side besides, Budgetary allocation given in the Chapter No. 10.
<b>Forest</b>		
19	The project proponent shall detail study on impact of mining on Reserve forests free ranging wildlife.	Noted and agreed, there is no reserve forest and wildlife in the buffer zone.
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
<b>Water Environment</b>		
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.	Hydro-geological study considering the contour map of the water table detailing Chapter-3
24	Erosion Control measures.	Noted & agreed
25	Detailed study shall be carried out in regard to impact of mining around the proposed mine lease	Details in Chapter 2



	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.	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.	Nearest agriculture activity is coconut plantation located North side of the project area. Proponent erected fencing in the previous lease period. The same will be reconstructed around the quarry pits
<b>Energy</b>		
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.
<b>Climate Change</b>		
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 int 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.
<b>Mine Closure Plan</b>		
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
<b>EMP</b>		
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
<b>Risk Assessment</b>		
37	To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining.	Detailed under Chapter 7
<b>Disaster Management Plan</b>		
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	Details in Study 7.3Disaster Management Plan in Chapter -7

	area communication order issued.	
<b>Others</b>		
39	The project proponent shall furnish VAO Certificate with reference to 300m radius regard to approved habitations. schools. Archaeological sites. Structures. railway lines, roads. Waterbodies such as streams, odai, vaari, canal, channel. river, lake pond, tank etc.,	Noted & agreed. Detailed under Chapter 3-Socioeconomic environment 50m structures map details.
40	As per the MoEF& CC office memorandum tr.No.22-65/2017-IA.III dated: 30.09.2020 and 20.10.2020the 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
<b>STANDARD TERMS OF REFERENCE</b>		
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.	<b>Not applicable.</b> This is not a violation category project. This proposal falls under B1 Category
2	A copy of the document in support of the fact that the Proponent is the rightful lessee of the mine should be given.	The applied land for quarrying is a Patta Land. Document is enclosed along with Approved Mining Plan as Annexure Volume 1.
3	All documents including approved mine plan, EIA and Public Hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and should be in the name of the lessee.	<b>Noted &amp; agreed.</b>
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.	<b>Map showing –</b> 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	The proponent has framed their Environmental Policy and the same is discussed in the Chapter No 10.1.

	of the prescribed operating process/procedures to bring into focus any infringement/deviation/violation of the environmental or forest norms/conditions? The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large, may also be detailed in the EIA Report.	
8	Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.	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 <sup>0</sup> 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.	<b>Noted &amp; agreed.</b> The study area considered for this study is 10 km radius and all data contained in the EIA report such as waste generation etc., is for the Life of the Mine / lease period.
10	Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.	Land use and land cover of the study area is discussed in Chapter No. 3. Land use plan of the project area showing pre-operational, operational and post-operational phases are discussed in Chapter No. 2, Table No 2.3
11	Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given	<b>Not Applicable.</b> 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.	<b>Not Applicable.</b> There is no Forest Land involved in the proposed project area. The proposed project area is a Patta land. Approved Mining Plan is enclosed as Annexure Volume 1.
13	Status of forestry clearance for the broken-up area and virgin forestland involved in the Project including deposition of net present value (NPV) and compensatory afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.	<b>Not Applicable.</b> The proposed project area does not involve any Forest Land.
14	Implementation status of recognition of forest rights under the Scheduled Tribes and other	<b>Not Applicable.</b>

	Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.	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.	Guttiyalattur R. F 13.14 km – North
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.	<b>Not Applicable.</b> 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	<b>Not Applicable.</b> Sathiyamangalam Tiger Reserve -13.3km – North
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.	<b>Not Applicable.</b> 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).	<b>Not Applicable.</b> 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	<b>Not Applicable.</b> 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.

	requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine lease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspects should be discussed in the Report.	
22	One season (non-monsoon) [i.e. March-May (Summer Season); October-December (post monsoon season); December-February (winter season)] primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.	Baseline Data were collected for Post monsoon Season (Oct 2023-Dec 2023) as per CPCB Notification and MoEF& CC Guidelines. Details in Chapter No. 3.
23	Air quality modelling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of vehicles for transportation of mineral. The details of the model used and input parameters used for modelling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map.	Air Quality Modelling for prediction of incremental GLC's of pollutant was carried out using AERMOD Model. Details in Chapter No. 4,
24	The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated.	Total Water Requirement for this project is given in the chapter No 2, Table No 2.13.
25	Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.	Water for dust suppression, greenbelt development and domestic use will be obtained from accumulated rainwater/seepage water in mine pits. Drinking water will be sourced from the approved water vendors, No 2, Table No 2.13.
26	Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.	The rain water collected in the pits after spell of rain will be used for greenbelt development and dust suppression.
27	Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided.	Impact Studies and Mitigation Measures of Water Quality discussed in Chapter No. 4.
28	Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working	The ground water table is at 70-65m below ground level.

	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 ultimate depth of this projects is 28m from the general ground profile.  Maximum depth is proposed in this EIA project is 28m.
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 277m AMSL Ultimate depth of the mine is 28m 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 is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines.	Infrastructure & other facilities will be provided to the Mine Workers after the grant of quarry lease and the same has been discussed in the Chapter No.2. .
33	Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.	Discussed in chapter No 2.
34	Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report.	Details in Chapter 10.
35	Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.	Details in Chapter 10.
36	Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the	Details in Chapter 4,

	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.	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/AMP report
39	Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.	No litigation is pending in any court against this project.
40	Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.	The proposed capital cost for Environmental Monitoring Programme is Rs 3,80,000/- and the recurring cost is Rs 76,000/- per annum. Details in Chapter 6.
41	The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.	Details in Chapter 10.
42	A Disaster management Plan shall be prepared and included in the EIA/EMP Report.	Details in Chapter 7.
43	Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.	Details in Chapter.8.
44	<b>Besides the above, the below mentioned general points are also to be followed: -</b>	
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	Noted & agreed.

	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.	Not applicable.
J	The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and sections and (iii) sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area.	Surface Plan – Figure No. 2.2. Geological Plan – Figure No 2.9. Working Plan – Figure No 2.9. Closure Plan – Figure No.2.10.



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## 1.INTRODUCTION

### 1.0 PREAMBLE

#### Project history: -

The project proponent Thiru.K. Vijay Perichiyappan applied for rough stone and Gravel quarry over an extent of 0.86.0 Ha in S.F.Nos. 347/1B & 347/2B of Elathur 'A' Village, Nambiyur Taluk, Erode District.

- Proponent applied for Rough stone and Gravel quarry lease on 05.05.2021
- Precise area communication letter was issued by the Deputy Director vide Rc.No. 442/Mines/2021, Dated:21.12.2022
- The Mining plan has been prepared by the Qualified person and got approval vide Letter Rc.No.442/Mines/2021, Dated:24.01.2023
- The Mining plan has been approved for the quantity of 23,125m<sup>3</sup> of rough stone up to the depth of 28m bgl for the period of five years.

As per the EIA Notification, 2006 and subsequent amendments and OM The proposal falls in the B1 Category (Cluster quarries - 1 proposal and 1 Existing quarry forming Cluster Category {Total Extent of the Cluster is 5.16.0Ha}- Cluster area calculated as per MoEF& CC Notification S.O. 2269(E) Dated 1<sup>st</sup> July 2016).

- Proponent applied for Terms of Reference vide Proposal No. SIA/TN/MIN/438772/2023, Dated:01/08/2023 and the ToR Was Granted vide Lr No. SEIAA-TN/F.No.10286/SEAC/ToR-1571/2023 Dated: 06.10.2023.

Based on the ToR Baseline Monitoring study has been carried out for one season i.e., **October to 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

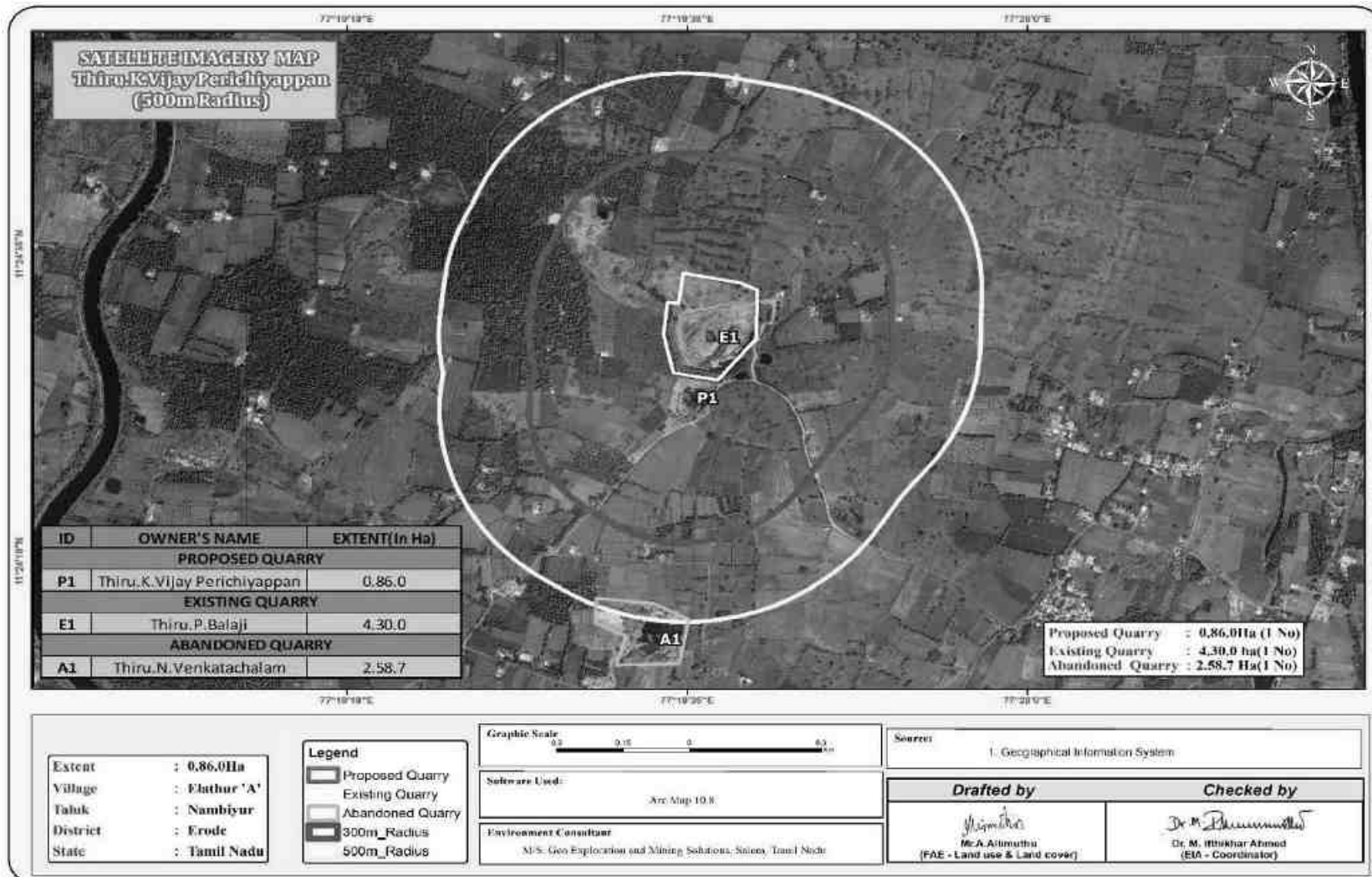
The Ministry of Environment and Forests, Govt. of India, through its EIA notification S.O. 1533(E) of 14<sup>th</sup> September 2006 and its subsequent amendments as per Gazette Notification S.O. 1889 of 20<sup>th</sup> April 2022, Mining Projects are classified under two categories i.e. A (>250 Ha) 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 project 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**

<b>Name of the Project Proponent</b>	<b>Thiru.K.Vijay Perichiyappan</b> Rough stone and Gravel quarry
<b>Address</b>	S/o. K.N.Kandasamy, K.N. Charman Thottam, B.Karattupalayam, Gobichettipalayam Taluk, Erode District – 638 457
<b>Mobile</b>	98428 82920 & 98658 10829
<b>Email</b>	vinovinoth829@gmail.com
<b>Status</b>	Individual

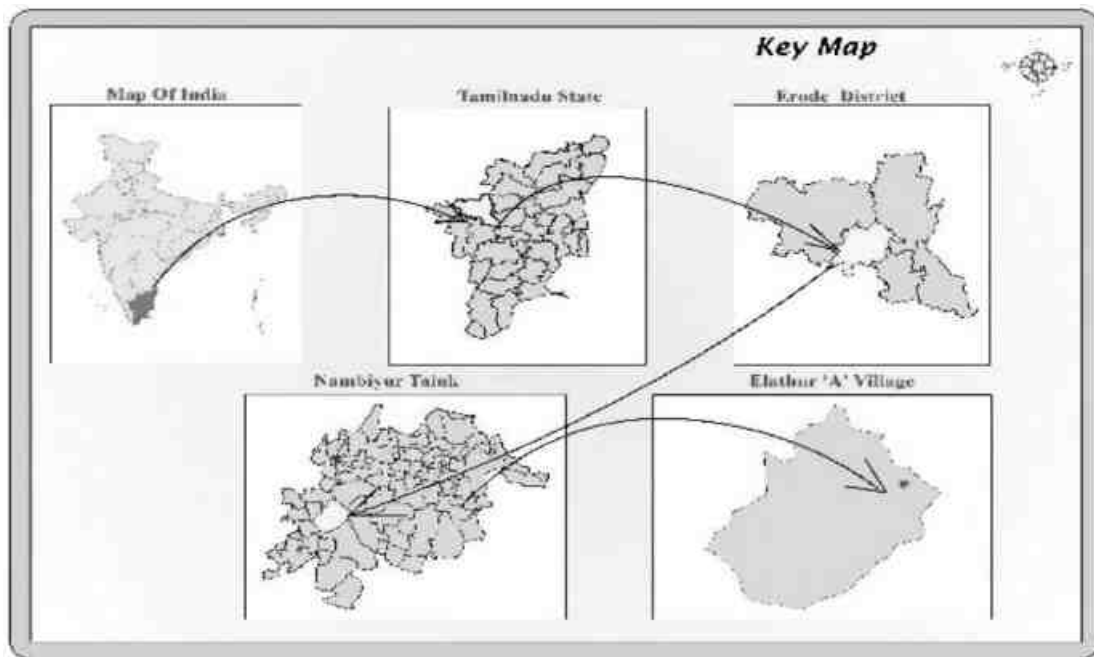
### 1.2.2 Identification of Project

**TABLE 1.2: SALIENT FEATURES OF THE PROPOSED PROJECT**

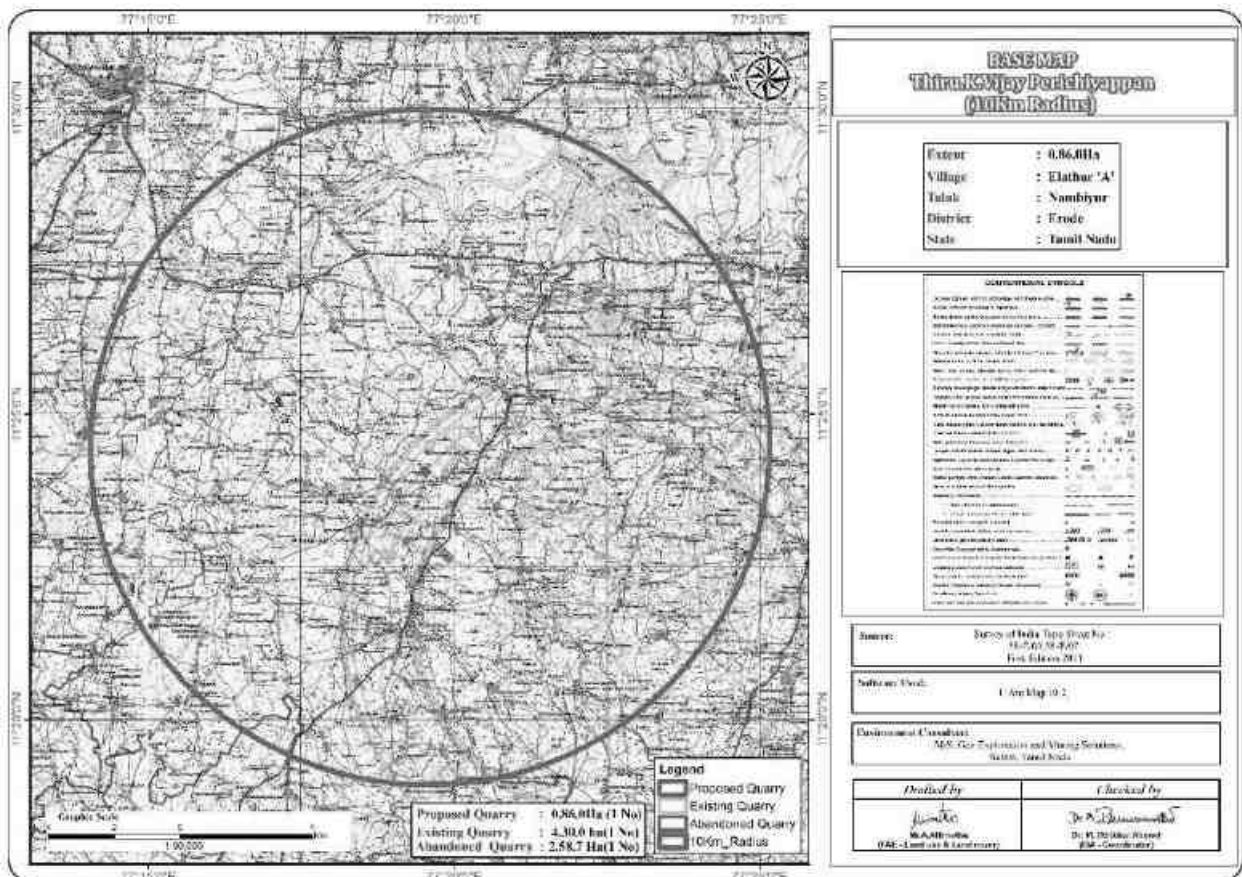
Name of the Project	<b>Thiru.K.Vijay Perichiyappan</b> Rough stone and Gravel quarry	
S.F. No.	347/1B & 347/2B	
Extent	0.86.0 ha	
Village Taluk and District	Elathur 'A' Village, Nambiyur Taluk, Erode District	
Land Type	Proponent own patta land	
Existing quarry operation	The Rough Stone and Gravel quarry previously granted in the name of Thiru.K. Vijay Perichiyappan (Same applicant) for the period of five years from 04.03.2016 to 03.03.2021 of Elathur 'A' Village, Nambiyur Taluk (Formerly Gobichettipalayam Taluk), Erode District vide Rc.No.30118/2014/X-1, Dated: 04.03.2016. The lessee has obtained Environmental Clearance from the State Level Environment Impact Assessment Authority (SEIAA), Tamil Nadu vide letter No. SEIAA-TN/F.No.3827/1(a)/EC.No.2934/2015, Dated:17.02.2016.	
Previous Environmental Clearance Letter copy	Lr.No. SEIAA-TN/F.No.3827/1 (a)/EC.No.2934/2015 dated 17.02.2016	
CTO (TNPCB Letter Copy)	F/0722PND/RS/DEE/TNPCB/PND/W/2016 Dated 01/03/2016	
CTO (Renewal) TNPCB Copy	F/0722PND/RS/DEE/TNPCB/PND/A/2017 Dated 20/03/2017	
Toposheet No	58 - E/07	
Latitude between	<b>11°24'21.3072"N to 11°24'25.3142"N</b>	
Longitude between	<b>77°19'33.2652"E to 77°19'37.2253"E</b>	
Elevation of the area	277m AMSL	
Lease period	5 Years	
Mining Plan period	5 years	
Proposed Depth of Mining	28m bgl (3m Gravel + 25m Rough Stone)	
	Rough Stone in m <sup>3</sup>	Gravel in m <sup>3</sup>
Geological Resources	1,35,278	936
Mineable Reserves	23,125	-
Year wise Production	23,125	-
Peak Production	4,725	-
Ultimate Pit Dimension	92m (L) x 60m (W) x 28m(D) bgl	
Existing Pit Dimension	92m (L) x 62m (W) x 13m(D) 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	



**FIGURE 1.2 LOCATION MAP OF THE PROJECT SITE**

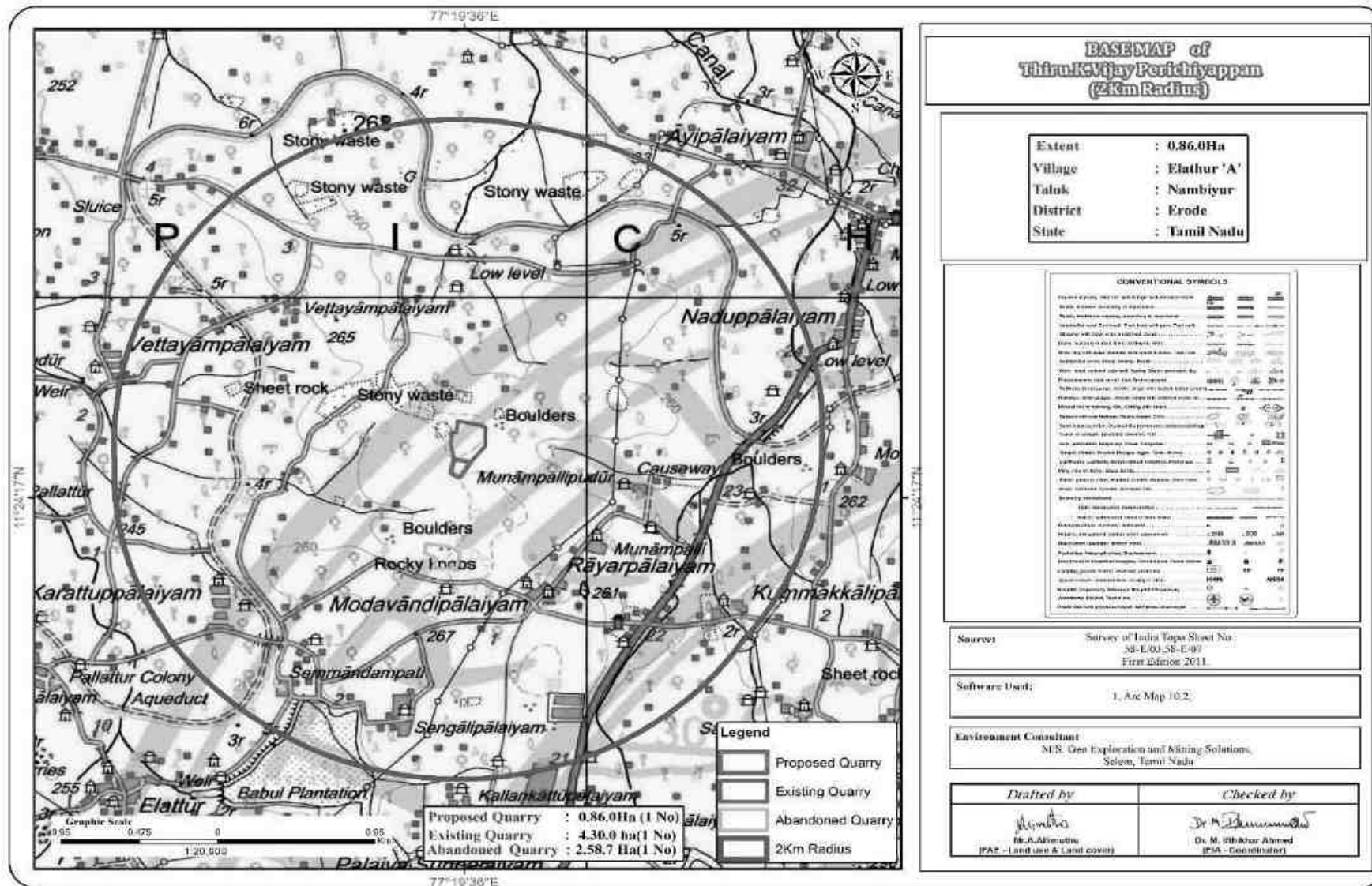


**FIGURE 1.3: TOPOSHEET MAP OF THE STUDY AREA 10 KM RADIUS**



Source: Survey of India Toposheet 58-E/03, 58E/07

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

- Proponent applied for Rough stone and Gravel quarry lease on 05.05.2021
- Precise area communication letter was issued by the Deputy Director vide Rc.No. 442/Mines/2021, Dated:21.12.2022
- The Mining plan has been prepared by the Qualified person and got approval vide Letter Rc.No.442/Mines/2021, Dated:24.01.2023
- The proposed project falls under “B1” Category as per Order Dated: 04.09.2018 & 13.09.2018 passed by Hon'ble National Green tribunal, New Delhi in O.A. No. 173 of 2018 & O.A. No, 186 of 2016 and MoEF& CC Office Memorandum F. No. L-11011/175/2018-IA-II (M) Dated: 12.12.2018
- Proponent applied for ToR for Environmental Clearance vide online Proposal No. SIA/TN/MIN/438772/2023, Dated:01/08/2023.

### SCOPING:

- The proposal was placed in 409<sup>th</sup>SEAC meeting held on 21.09.2023 and the committee recommended for issue of ToR.
- The proposal was considered in 660<sup>rd</sup> SEIAA meeting held on 06.10.2023 and issued ToR vide Lr No. SEIAA-TN/F.No.10286/SEAC/ToR-1571/2023 Dated: 06.10.2023.

### 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.10286/SEAC/ToR-1571/2023 Dated: 06.10.2023. 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 1<sup>st</sup> June and 1<sup>st</sup> 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 Post monsoon season (October 2023 to 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 <sub>10</sub> , PM <sub>2.5</sub> , SO <sub>2</sub> , NO <sub>2</sub>	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.10286/SEAC/ToR-1571/2023 Dated: 06.10.2023.

\*\*\*\*\*

## 2. PROJECT DESCRIPTION

### 2.0 GENERAL

The Proposed Rough Stone and Gravel Quarry requires Environmental Clearance. There are 1 proposed, and 1 existing quarry forming a cluster; calculated as per MoEF& CC Notification S.O. 2269(E) Dated 1<sup>st</sup> July 2016 and the total extent of cluster is 5.16.0 ha.

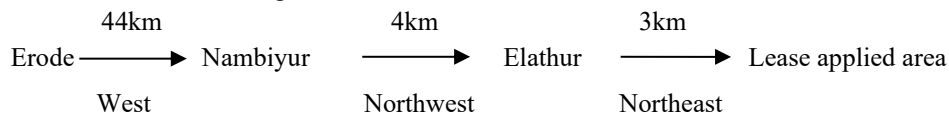
As the extent of cluster are more than 5 ha, the proposal falls under B1 Category as per the Order Dated: 04.09.2018 & 13.09.2018 passed by Hon'ble National Green Tribunal, New Delhi in O.A. No. 173 of 2018 & O.A. No, 186 of 2016 and MoEF& CC Office Memorandum F. No. L-11011/175/2018-IA-II (M) Dated: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

### LOCATION OF THE PROJECT

- The project site is located in Elathur 'A' Village, Nambiyur Taluk, Erode District.
- The lease applied area is located about 44.0km Northwest of Erode, 5.0km North of Nambiyur and 3.0km Notheast side of Elathur Village.



**TABLE 2.1: SITE CONNECTIVITY**

Nearest Roadway	NH (948)- Coimbatore to Bengaluru Road - 13km – NW SH (15A) -Gobochettipalayam– Avinashi-1.5 km – South East
Nearest Village	Munampally– 915m – SE
Nearest Town	Nambiyur–5.0km – S
Nearest Railway Station	Tiruppur–30.5km – S
Nearest Airport	Coimbatore – 53.0km – SW
Seaport	Kochi –200.km – SW

Source: Survey of India Toposheet

**TABLE 2.2: CO-ORDINATES– PROJECT BOUNDARY**

Corner Nos.	Latitude	Longitude
1	11° 24' 21.3072"N	77° 19' 34.8189"E
2	11° 24' 22.2915"N	77° 19' 33.2652"E
3	11° 24' 23.8579"N	77° 19' 33.6294"E
4	11° 24' 25.3142"N	77° 19' 33.9783"E
5	11° 24' 24.6203"N	77° 19' 37.2253"E

6	11° 24' 22.8375"N	77° 19' 36.0245"E
7	11° 24' 21.5532"N	77° 19' 35.1595"E
<b>Datum: UTM-WGS84, Zone 43 North</b>		

Source: Approved Mining Plan

**FIGURE 2.1: TOPOGRAPHICAL VIEW OF PROJECT AREA**



Project Site

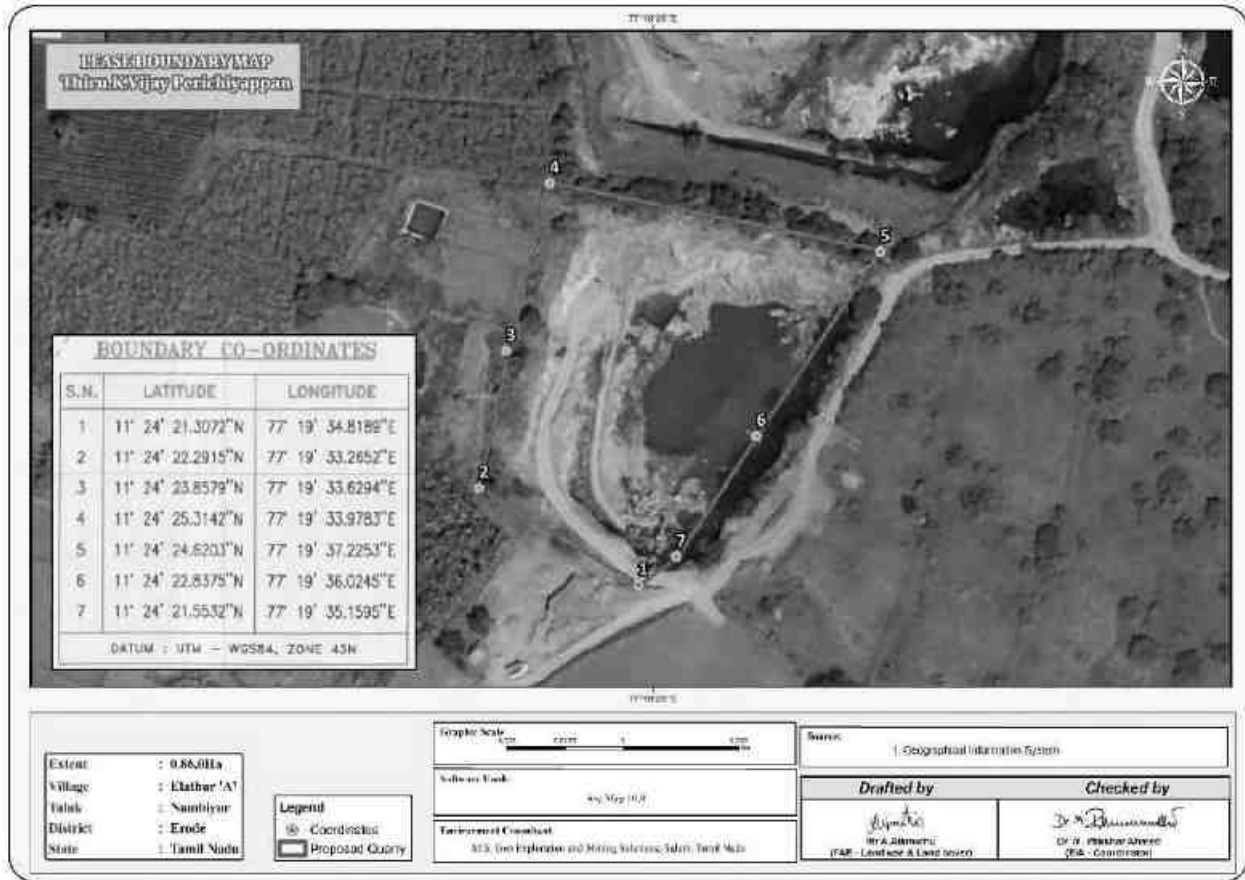


Crusher material stored temporarily in the project site



**Mine Lease Fencing Photographs**

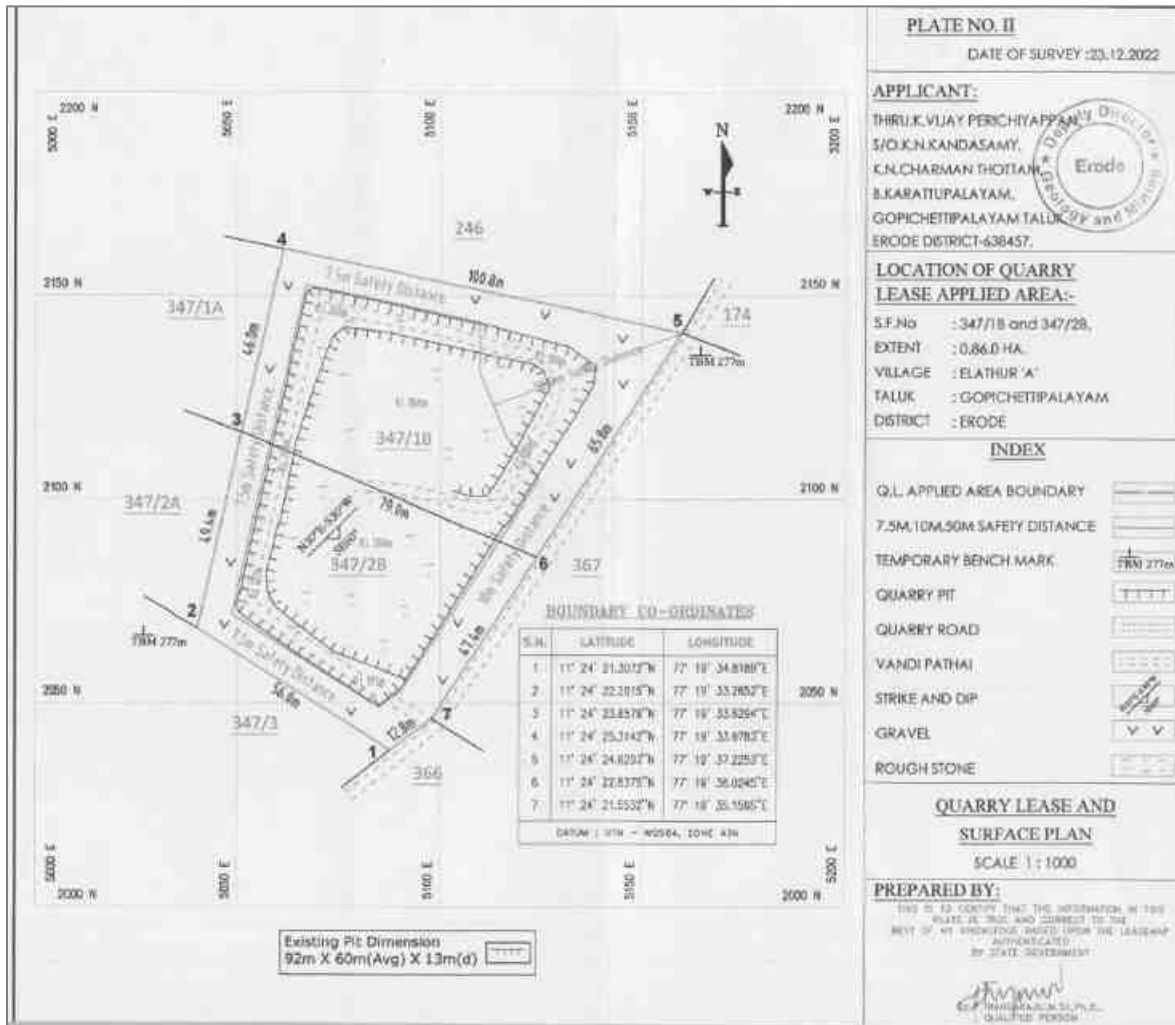
**FIGURE 2.2: GOOGLE IMAGE OF THE PROJECT AREA**



Source: Google Earth Imagery

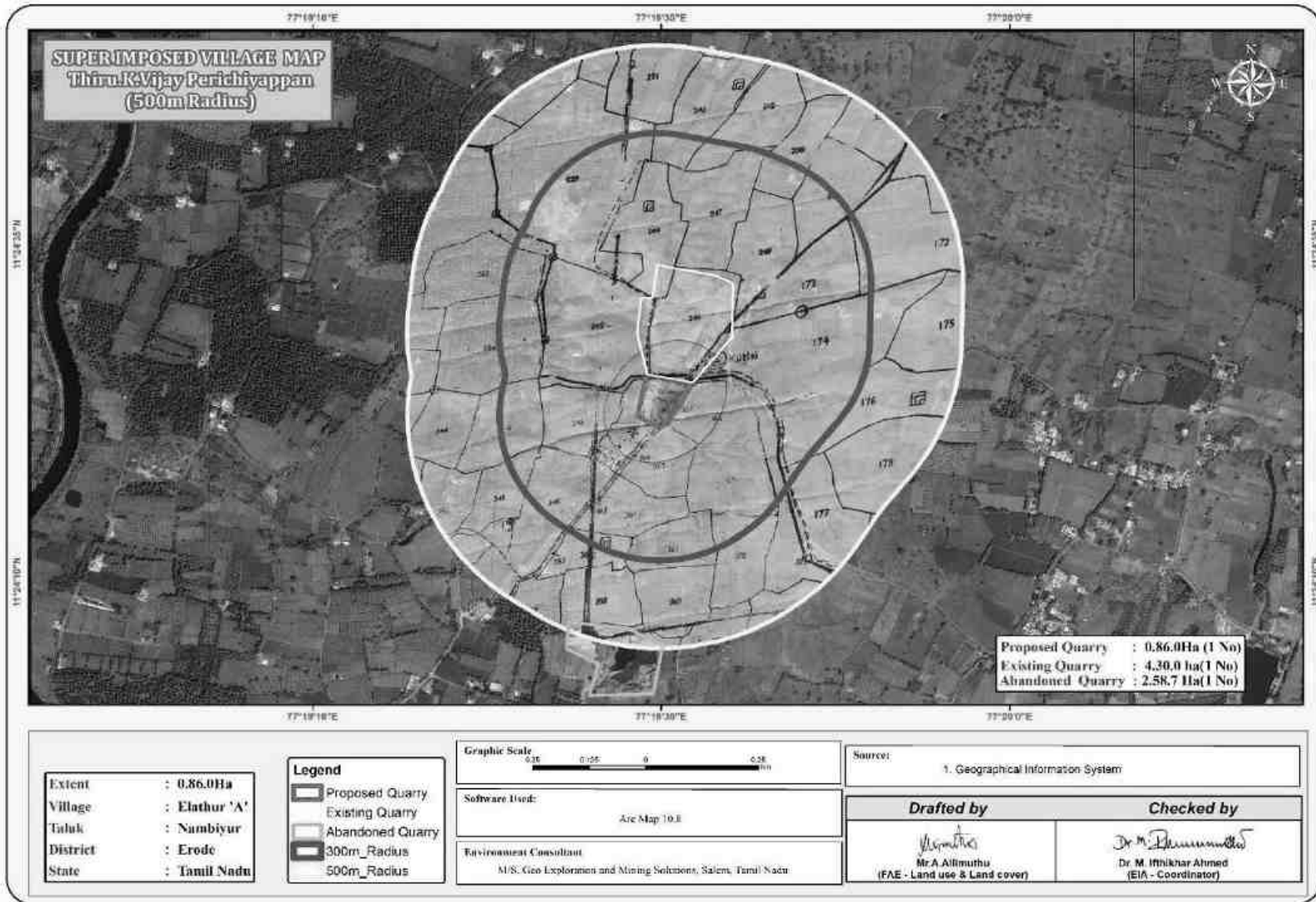
- ✓ A small puddle (Kuttai) is situated at S.F.No.174 in the North-Eastern side of the lease applied area, hence a safety distance of 50m is provided.

**FIGURE 2.3: QUARRY LEASE PLAN / SURFACE PLAN**



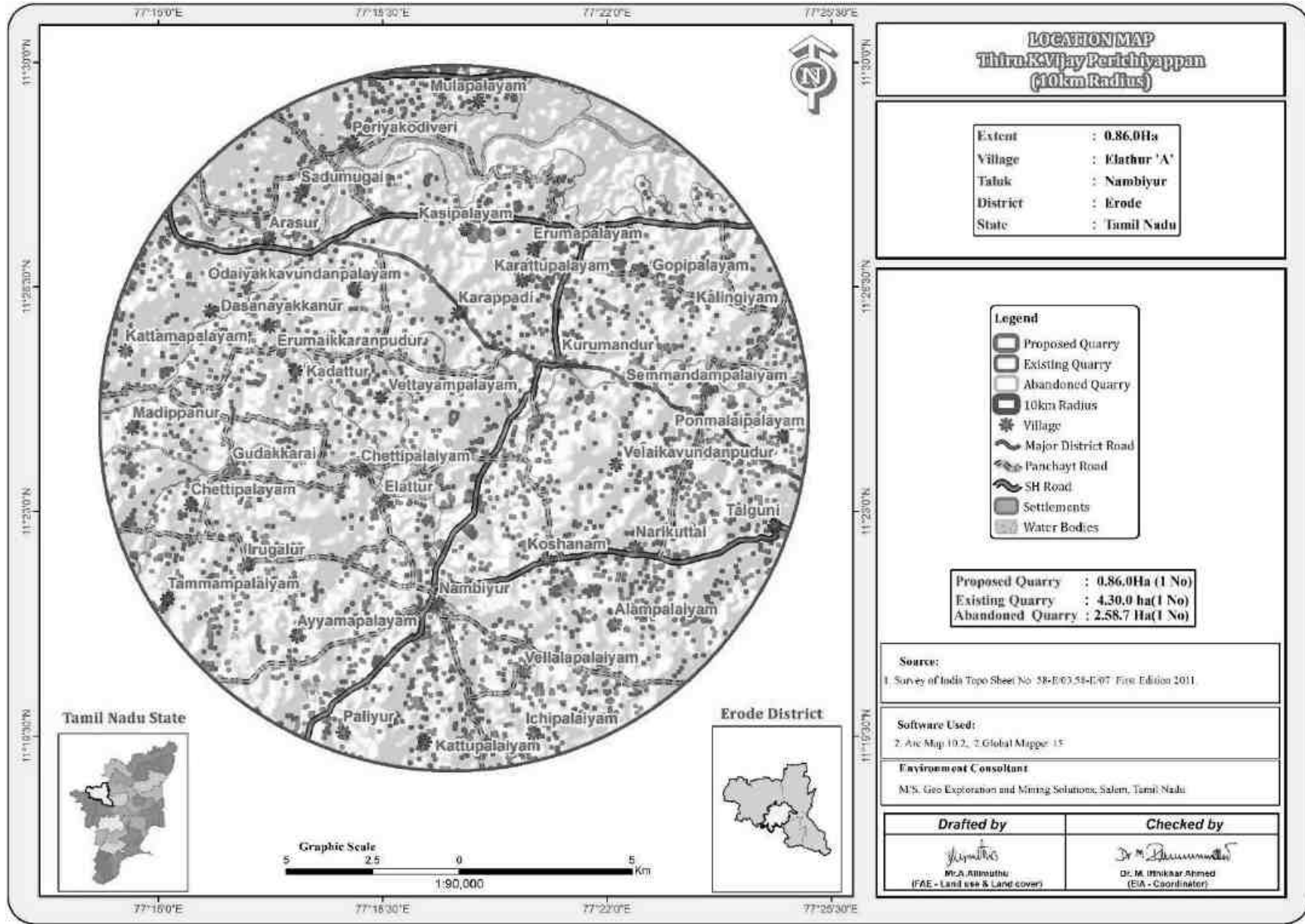
Source: Approved Mining Plan

**FIGURE 2.4: VILLAGE MAP SUPERIMPOSED ON GOOGLE EARTH IMAGE**

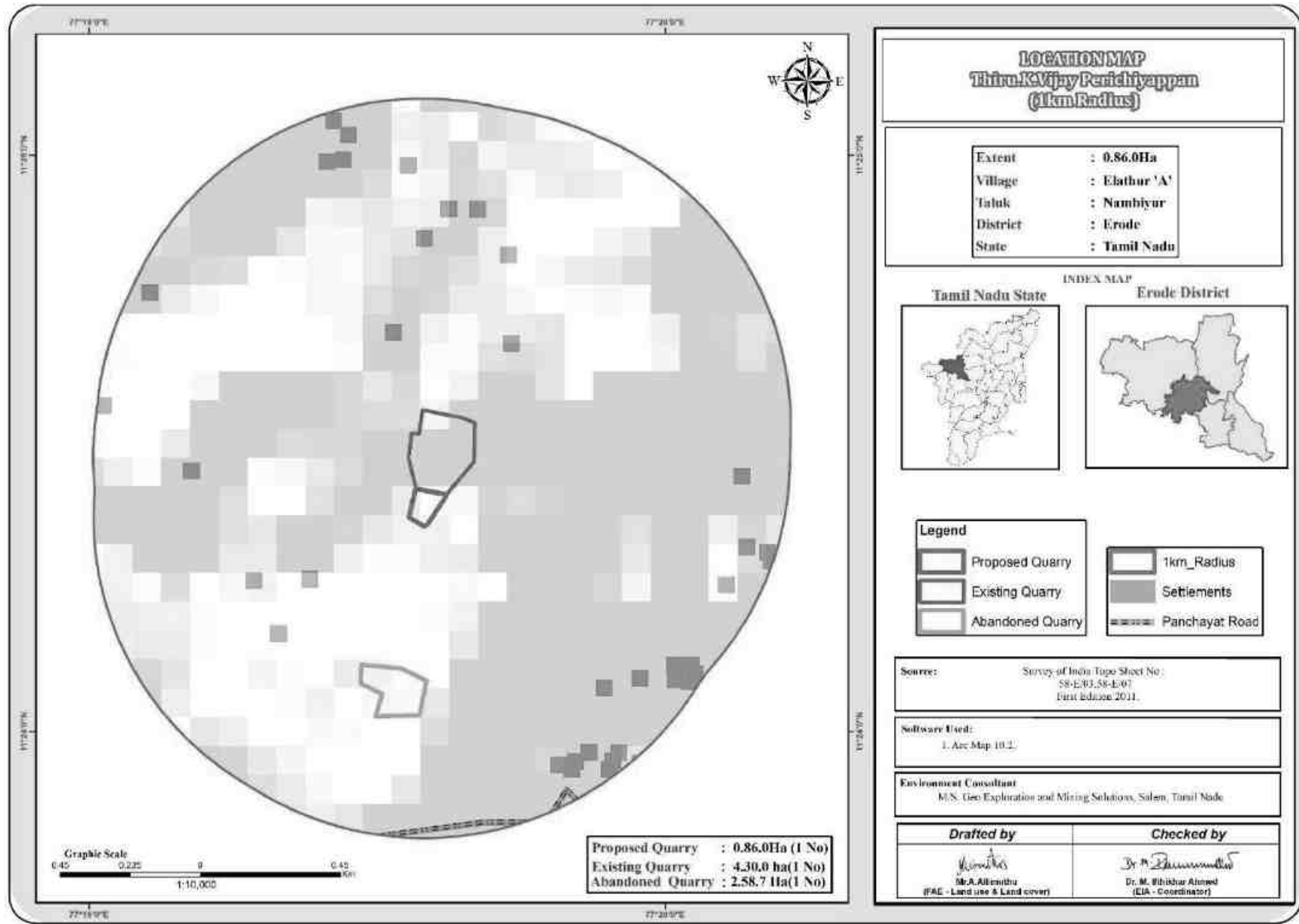




**FIGURE 2.5: IMAGE SHOWING SURFACE FEATURES AROUND 10 KM RADIUS**



**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	0.54.35	0.54.35
Infrastructure	Nil	0.01.00
Roads	0.01.00	0.02.00
Green Belt	Nil	0.26.25
Unutilized Area	0.30.65	0.02.40
<b>Grand Total</b>	<b>0.86.00</b>	<b>0.86.00</b>

Source: Approved Mining Plan

### 2.2.2 Size or Magnitude of Operation

**TABLE 2.4: RESOURCES AND RESERVES**

PARTICULARS	DETAILS	
	Rough Stone	Gravel in m <sup>3</sup>
Geological Resources	1,35,278	936
Mineable Reserves	23,125	-
Production for five-year plan period	23,125	-
Peak Production	4,725	-
Mining Plan Period / Lease Applied Period	5 Years	
Number of Working Days	300 Days	
Production per day	15	-
No of Lorry loads (6m <sup>3</sup> per load)	6	-
Total Depth of Mining	28m (3m Gravel + 25m Rough Stone) below ground level	

Source: Approved mining plan.

## GEOLOGY

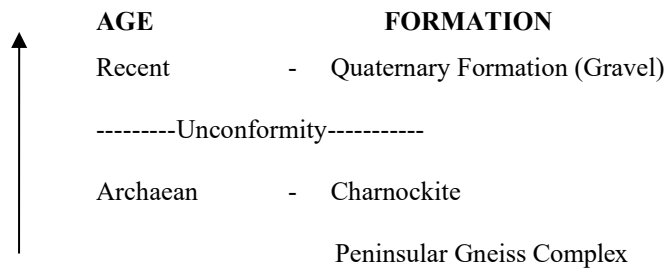
### 2.3.1 Regional Geology

The major part of the district is covered by metamorphosed crystalline rocks of the Charnockite Group and the Migmatite Complex of Archaean age. The area where the Charnockite Group of rocks is spread over comprises charnockite, pyroxene granulite, magnetite quartzites and younger basic dykes intruding into them.

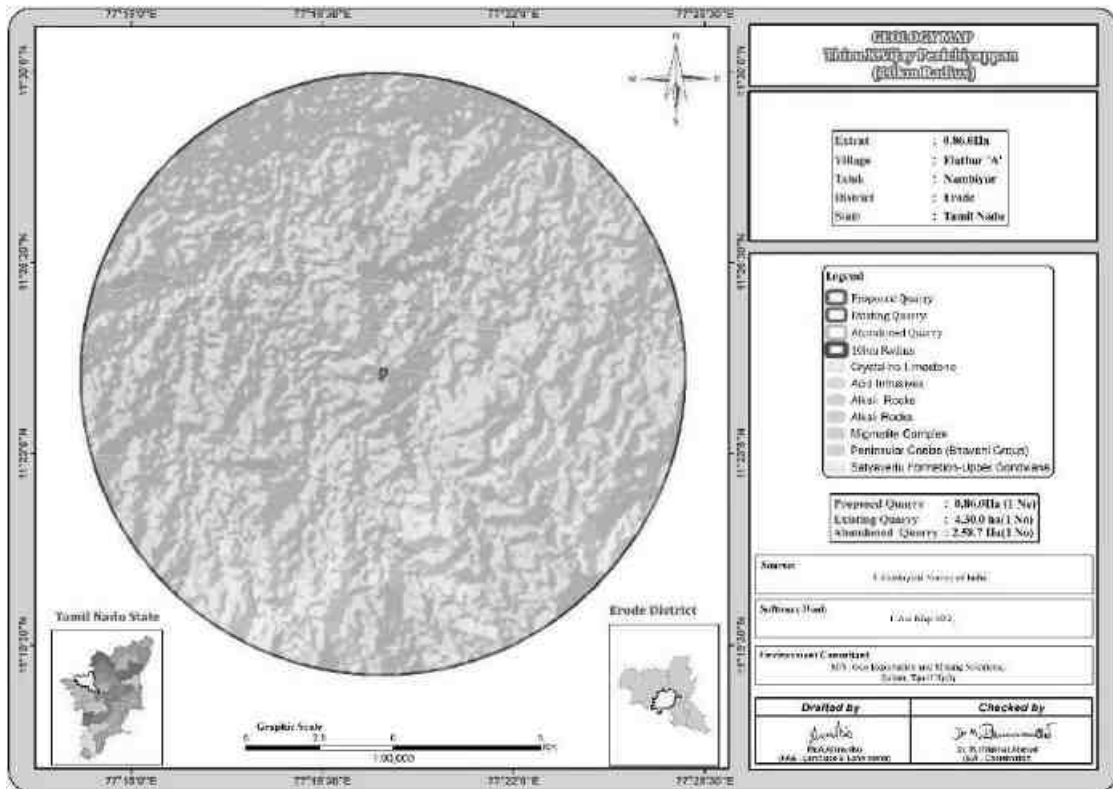
**The Migmatite Complex** comprising biotite gneisses, agmatitic gneisses, sub-augen gneiss, quartzo feldspathic gneisses and gneissic granites with pink permeation

Peninsular gneiss forms the oldest rock formations, in which the massive formation of Charnockite lies over with rich accumulation of recent quaternary formation. On regional scale of the Charnockite body is N30°E – S30°W with dipping towards SE60°.

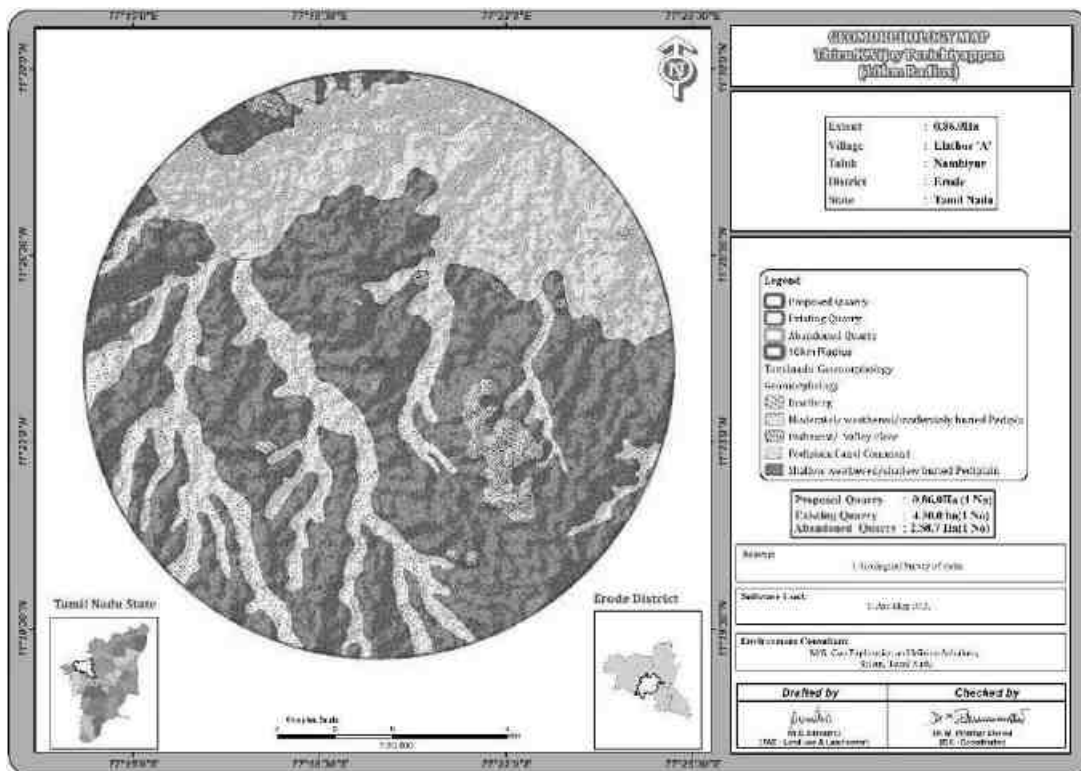
The general geological sequences of the rocks in this area are given below:



**FIGURE 2.7: REGIONAL GEOLOGY MAP**



**FIGURE 2.8: GEOMORPHOLOGY MAP**



## 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 <sup>3</sup>	Gravel m <sup>3</sup>
Geological Resource in m <sup>3</sup>	1,35,278	936
Mineable Resource in m <sup>3</sup>	23,125	-
Year wise production for five-year plan period	23,125	-

Source: Approved Mining Plan

**TABLE 2.6: YEAR-WISE PRODUCTION PLAN**

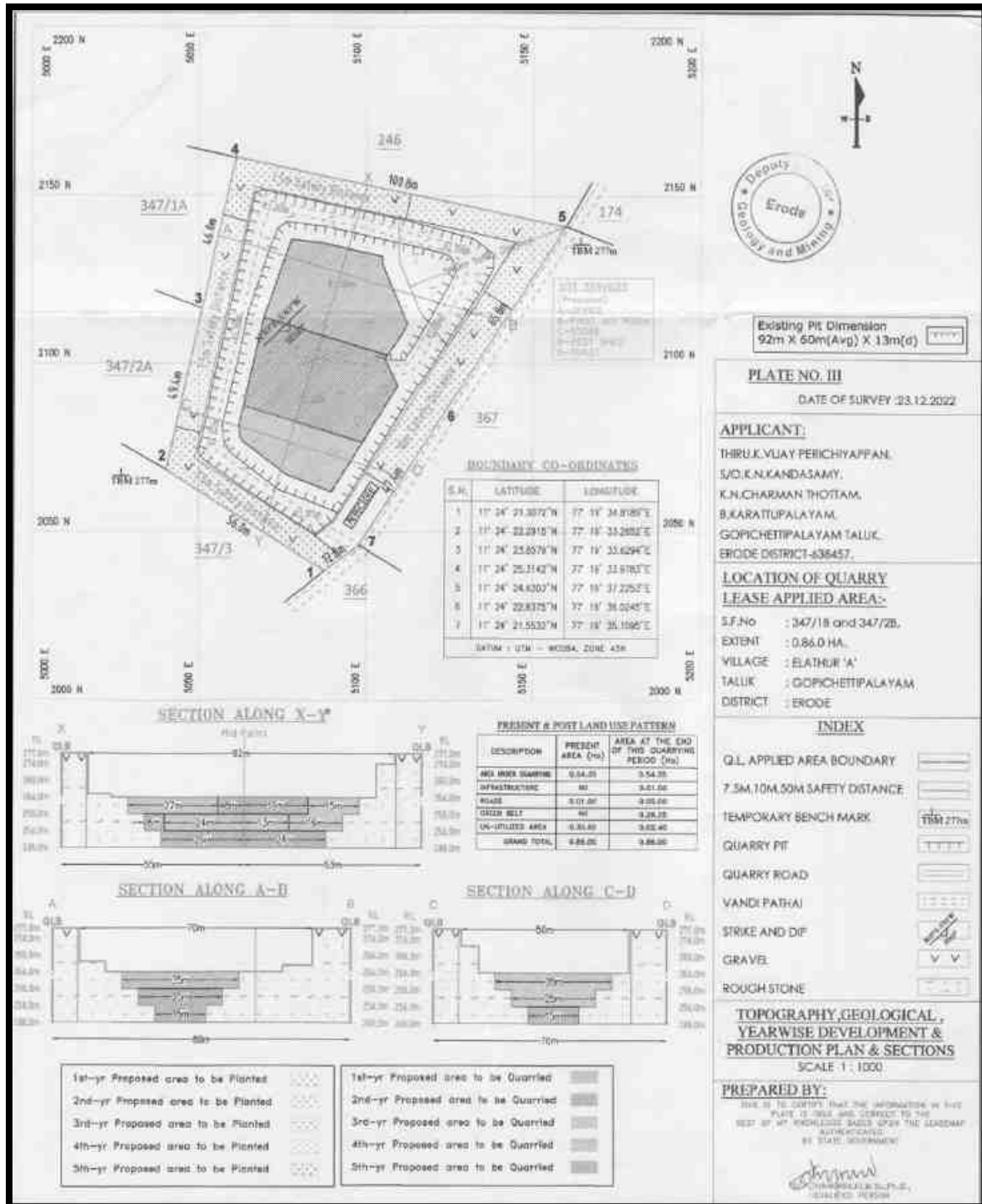
YEAR	ROUGH STONE (m <sup>3</sup> )
I	4725
II	4725
III	4625
IV	4625
V	4425
<b>TOTAL</b>	23,125

Source: Approved Mining Plan

### Disposal of Waste

The overburden in the form of Gravel formation. The Gravel was removed in previous quarry operation. The excavated Rough Stone (100%) will be directly loaded into Tippers to the needy customers. There is no Waste anticipated during this plan period hence, disposal of waste does not arise.

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



Source: Approved Mining Plan

### Conceptual Mining Plan/ Final Mine Closure Plan

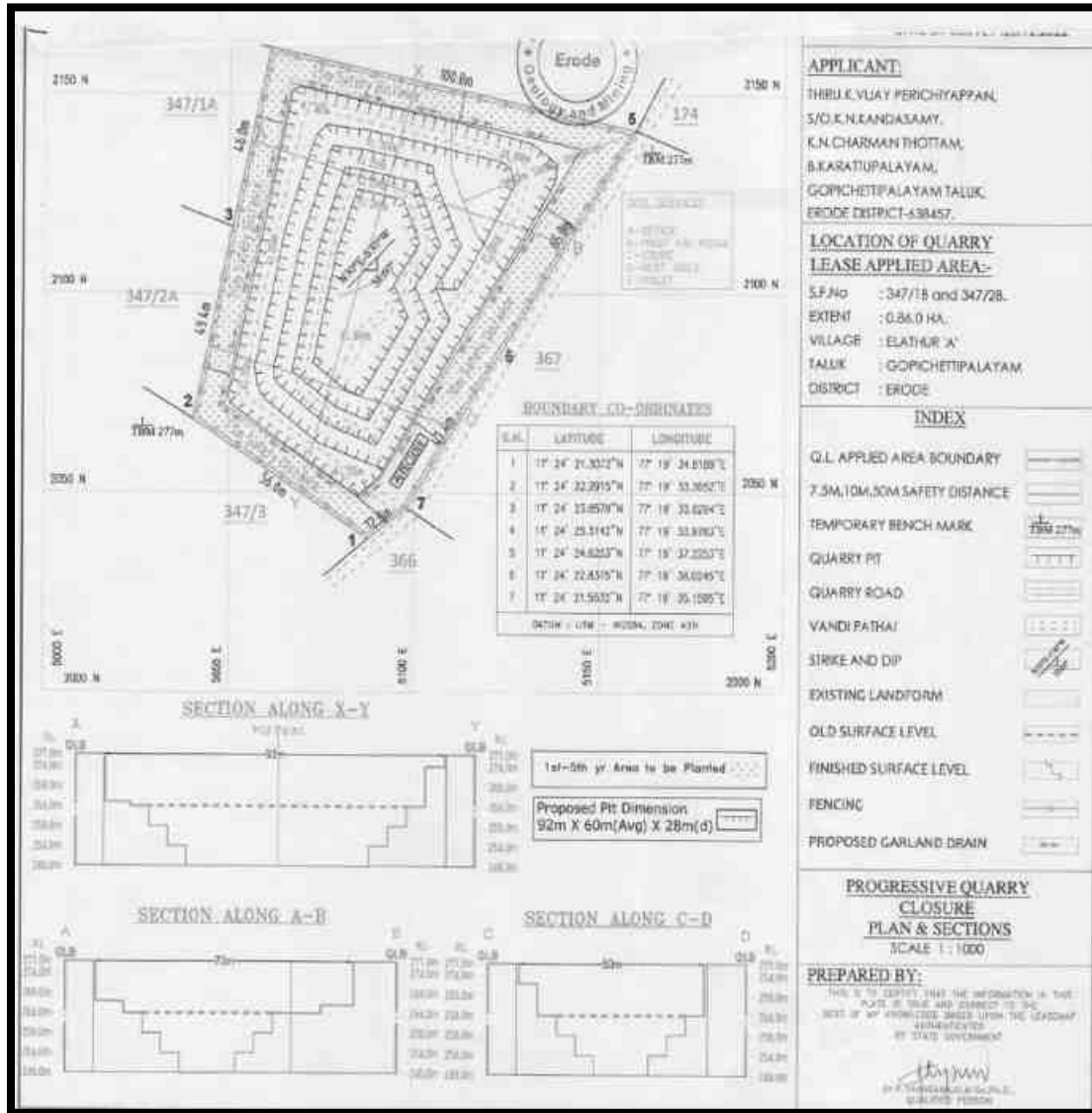
The ultimate pit size is designed based on certain practical parameters such as economical depth of mining, safety zones, permissible area, etc.

**TABLE 2.7: ULTIMATE PIT DIMENSION**

Pit	Length (Max) (m)	Width (Max) (m)	Depth (Max)
I	92	60	28m bgl

Source: Approved Mining Plan

**FIGURE 2.10: CLOSURE PLAN AND SECTIONS**



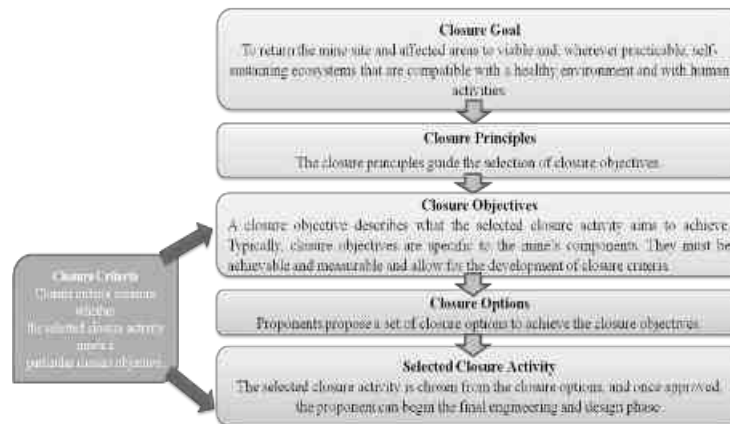
Source: Approved Mining Plan

- 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 1<sup>st</sup> 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: -

Blasting will be done as per details below: -

- Controlled blasting parameter: -
  - Spacing – 1.2m
  - Burden – 1.0 m
  - Depth of hole – 1.5m
  - Charge per hole – 0.5Kg
  - Powder factor – 6.0 tonnes/kg
  - Dia of hole – 30-32 mm

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

Volume of Rough Stone will be excavated from one hole	=	3 Tonnes
Total Volume from proposed quarry	=	23,125m <sup>3</sup>
	=	23,125/5
	=	4,625/300
	=	15.41* 2.6
	=	40 Tonnes per day
Therefore, Number of Holes per day	=	40/8
	=	5 Holes per day

Explosives per hole = ½ kg hence 2.5kg of Explosives will be utilized maximum 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 hammer	1	1.2m to 2.0m	Compressed air
2	Compressor	1	400psi	Diesel Drive
3	Excavator with Bucket and Rock Breaker	1	300 HP	Diesel Drive
4	Tipper	1	20 Tonnes	Diesel Drive

Source: Approved Mining Plan

**2.6 GENERAL FEATURES****2.6.1 Existing Infrastructures**

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

**2.6.2 Drainage Pattern**

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

**2.6.3 Traffic Density**

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

Traffic density measurements were performed at two locations

1. Panchayat Road & Elathur to Moonampalli Road
2. Panchayat Road & Kanavukkarai To Monnampalli 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	Elathur to Moonampalli Road	880m-SE	Approach Road
TS2	Monnampalli Road to Nadupalayam	1.8 km-NE	SH Road

Source: On-site monitoring by GEMS FAE & TM

**TABLE 2.10: EXISTING TRAFFIC VOLUME**

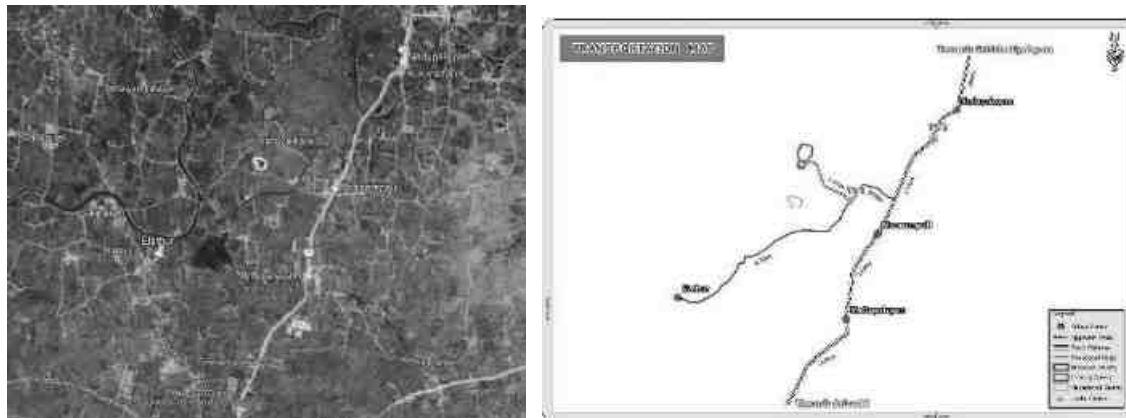
Station code	HMV		LMV		2/3 Wheelers		Total PCU
	No	PCU	No	PCU	No	PCU	
TS1	175	525	75	75	150	75	750
TS2	200	600	150	150	250	125	875

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	6	18

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

1. There is no crusher located in the study area.
2. Existing approach road is located on the south East side this road connecting in the study area location (Total Stretch of the approach road = 974m)
3. Elathur to Moonampalli Road connecting in the Panchayat Road (522) at a distance of 4km the total Stretch of the Transportation route is about 1 to 2km 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
Elathur to Moonampalli Road	750	18	768	1500
Monnampalli Road to Nadupalayam	875	18	893	1200

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

- Due to these projects the existing traffic volume will not exceed
- As per the IRC 1960 this existing 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	0.5KLD	From the existing pit or from the water vendors
Green Belt	0.3KLD	From the existing pit or from the water vendors
Sanitation & Drinking	0.2KLD	From the existing pit or from the water vendors.
Total	<b>1.0KLD</b>	

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 25m<sup>3</sup> of Broken up Rough stone per hour.

Peak production of Rough stone = 16m<sup>3</sup>

Type of machinery	Working hours	Average Diesel consumption/ Hour	Quantity of Diesel in Ltrs
Working hours of Excavator (Aprx)	16m <sup>3</sup> /25m <sup>3</sup> =0.64Hrs (Rough stone)	18 Ltrs	11.5
Compressor	Working hours per day 2 Hrs	8 Ltrs	16

Tippers, Motor pumps to drain water	Occasionally		20
<b>Total Diesel Consumption</b>			<b>47.5</b>

The Maximum diesel consumption is around 48Ltrs per day considering the peak production.

#### 2.7.4 Project Cost

The Environmental Management plan has been prepared considering the mode of working, Safety of the employees and Monitoring periods the total Cost is 24.08 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	2
Excavator Operator	1
Tipper driver	1
Helper	3
Cleaner & Co-operator	2
Security	1
<b>Total</b>	<b>12</b>

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 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	5 <sup>th</sup>	
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.

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### 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 to 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, – An accredited by ISO/IEC 17025:2017 (NABL) Laboratory.

#### 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 Post monsoon season i.e., October 2023 to 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 were collected by installation of Respiratory Dust Samplers (RDS) for Fugitive dust, PM<sub>10</sub> and SO<sub>2</sub>, NO<sub>x</sub> with gaseous attachments & Fine Dust Samplers (FDS) for PM<sub>2.5</sub> 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 (2 core & 4 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 (Oct 2023 – Dec 2023)	7 (1 core & 6 buffer)	IS 5182 Part 1-23 National Ambient Air Quality Standards, CPCB
*Noise Levels	Ambient Noise	Hourly observation for 24 Hours per location	7 (1 core & 6 buffer zone)	IS 9989 As per CPCB Guidelines
Ecology	Existing Flora and Fauna	Through field visit during the study period	Study Area	Primary Survey by Quadrant & Transect Study Secondary Data – Forest Working Plan
Socio Economic Aspects	Socio-Economic Characteristics, Population Statistics and Existing Infrastructure in the study area	Site Visit & Census Handbook, 2011	Study Area	Primary Survey, census handbook & need based assessments.

Source: On-site monitoring/sampling by 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

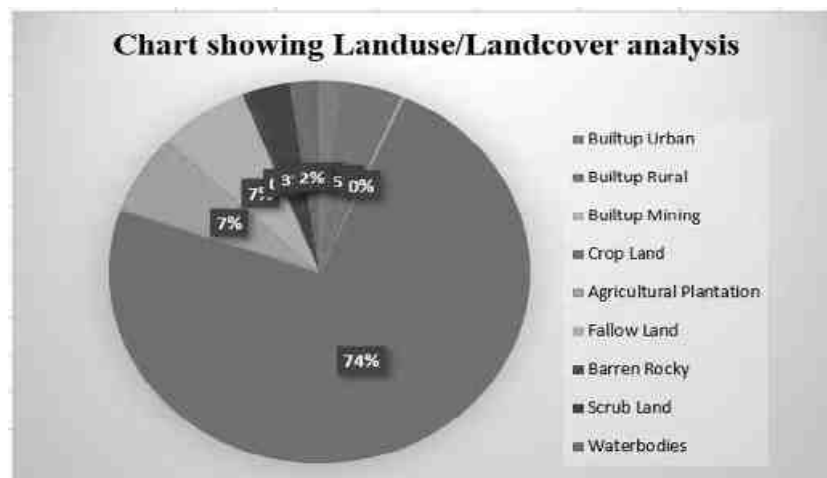
A visual interpretation technique has been adopted for land use classification based on the keys suggested in the chapter – V of the guidelines issued by NNRMS Bangalore & Level III classification with 1:50,000 scale for the preparation of land use mapping. Land use pattern of the area was studied through 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_HA	AREA_%
<b>BUILTUP</b>			
1	Builtup Urban	506.32	1.56
2	Builtup Rural	1565.95	4.83
3	Builtup Mining	70.90	0.22
<b>AGRICULTURAL LAND</b>			
4	Crop Land	23874.39	73.69
5	Agricultural Plantation	2219.69	6.85
6	Fallow Land	2231.94	6.89
<b>BARREN/WASTE LANDS</b>			
7	Barren Rocky	134.90	0.42
8	Scrub Land	1061.80	3.28
<b>WETLANDS/ WATER BODIES</b>			
9	Waterbodies	733.58	2.26
<b>TOTAL</b>		32399.48	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) 87.43% followed by Built-up Lands –6.40%, Scrub land– 3.28%, and Water bodies 2.26%.

The total mining area within the study area is 70.90 ha i.e., 0.22%. The cluster area of 5.16.0 ha contributes about 0.07% of the total mining area within the study area. This small percentage of Mining Activities shall not have any significant impact on the environment.

### **3.1.2 Topography**

The project area is almost plain terrain having gentle slope towards South side, the North side of the area is existing Rough stone and Gravel quarry. The Southwest side of the area is casted up to the maximum 0.5m to utilize temporary storage of Crushed materials.

### **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.

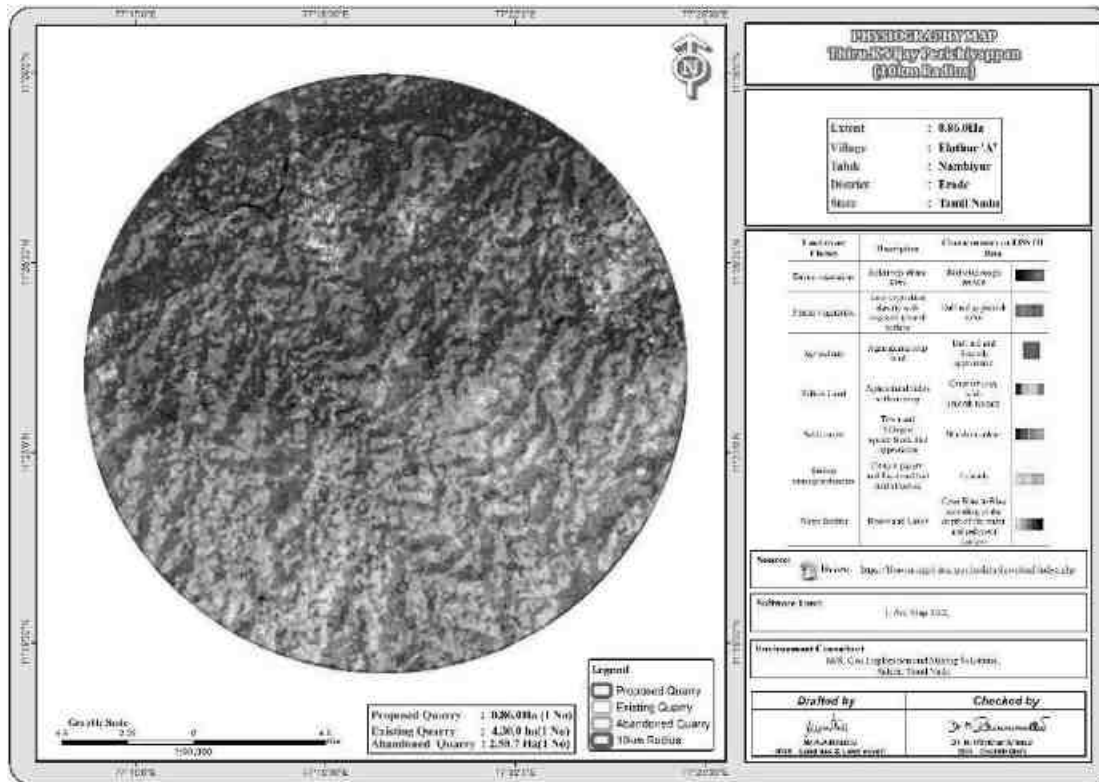
### **3.1.4 Seismic Sensitivity**

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.

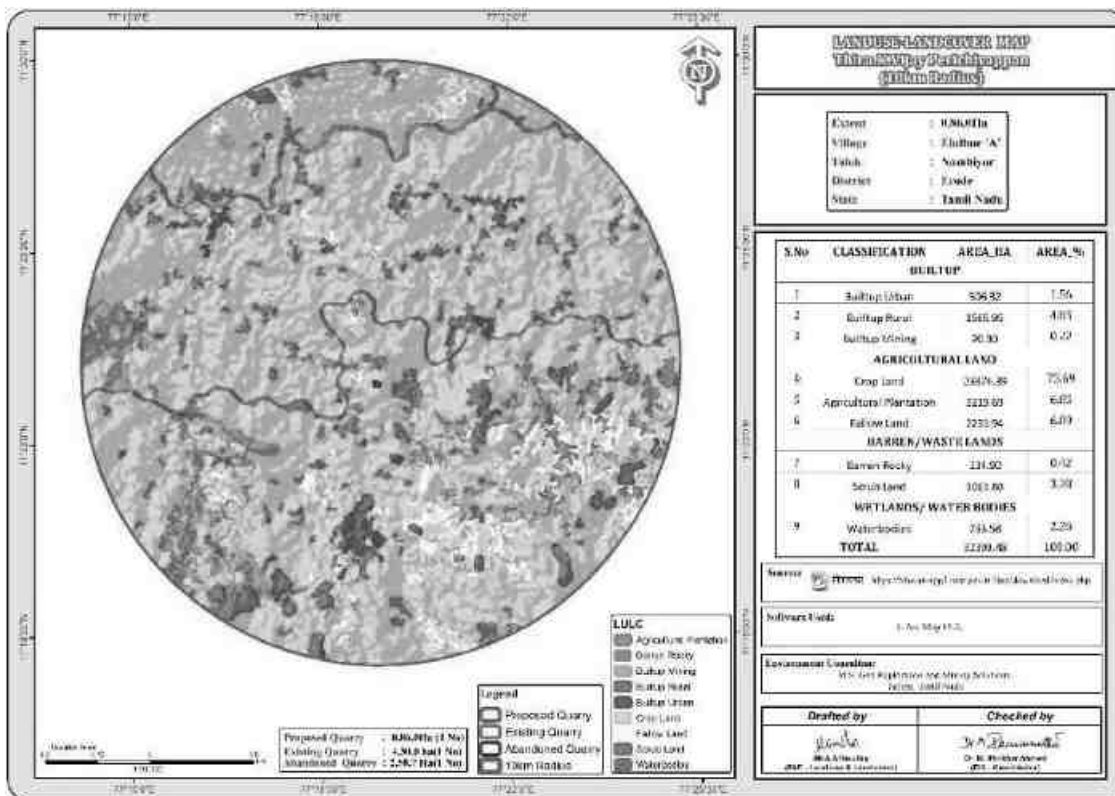
### **3.1.5 Environmental Features in the Study Area**

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	Vellode Birds Sanctuary	39km – SE
2	Reserved Forest	GuttiyalatturR. F	13.14 km – North
3	Tiger Reserve/ Elephant Reserve/ Biosphere Reserve	Sathiyamangalam Tiger Reserve	13.3 km – North
4	Critically Polluted Areas	Coimbatore - SIDCO Industrial Estate	Around 63.5 km – South West
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

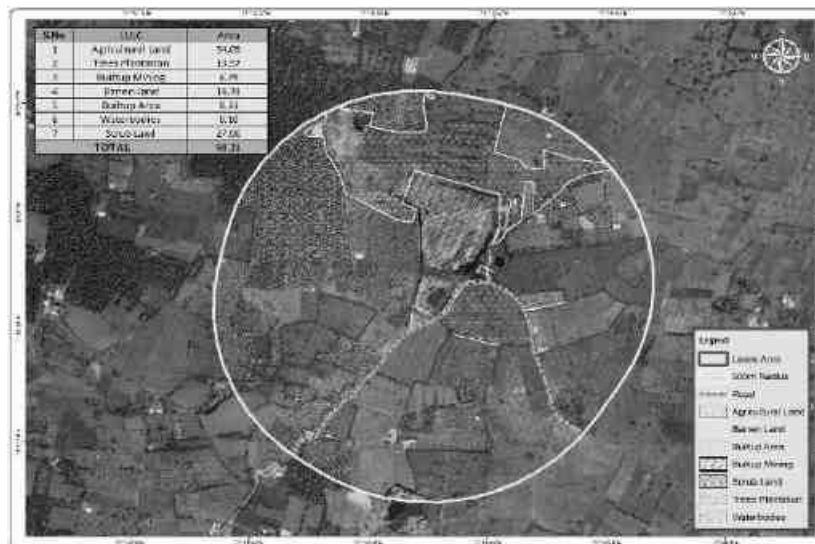
Source: Survey of India Toposheet

**TABLE 3.4: NEARBY WATER BODIES FROM THE PROPOSED PROJECT SITE**

Sl.No	NAME	DISTANCE & DIRECTION
1	Kuttai	30m NE
2	Vettampalayam Canal	1.2Km_W
3	Odai	1.2Km_NE
4	Elathur Periyakulam Lake	1.6Km_SW
5	Bhavani River	6.5Km_NW

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 Agriculture land (34.05ha) followed by Tree Plantation and Scrub land, Barren land 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	LocationCode	Monitoring Locations	Distance & Direction	Coordinates
1	S-1	Core Zone	Project Area	11°24'25.08"N77°19'34.06"E
2	S-2	Munnampalli	1.3km SE	11°23'49.88"N 77°20'0.09"E
3	S-3	Odayagoundanpalayam	4.6km NW	11°26'27.73"N77°17'58.00"E
4	S-4	Vellaikovilpalayam	4.4km SE	11°22'28.84"N 77°21'0.25"E
5	S-5	Sanarudal	3.5km West	11°24'17.73"N77°17'31.99"E
6	S-6	Poosariyur	6km East	11°24'51.03"N77°22'48.59"E

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

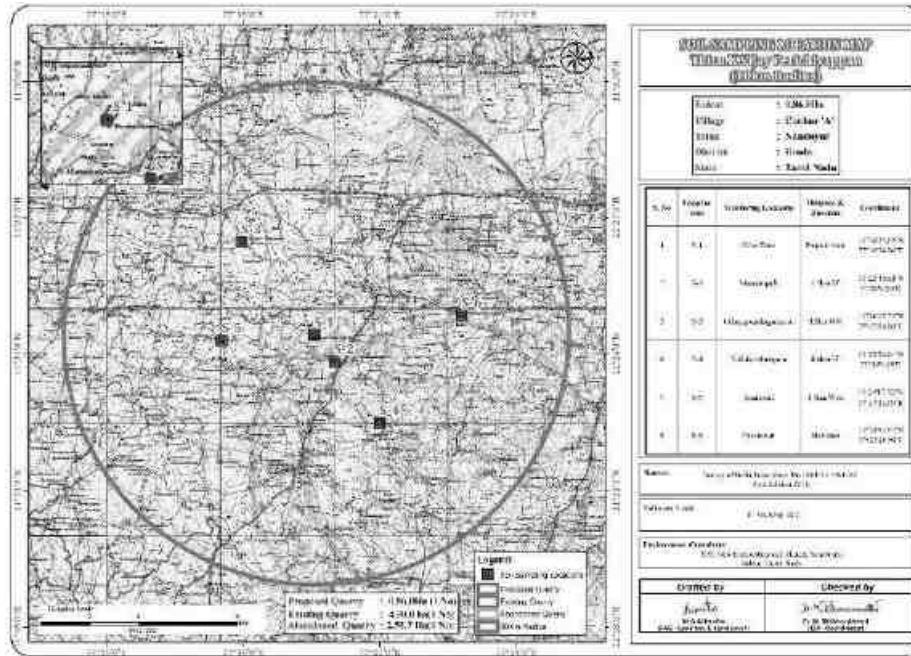
Source: On-site monitoring/sampling by Global Lab and Consultancy Services in association with GEMS

#### Soil Testing Result –

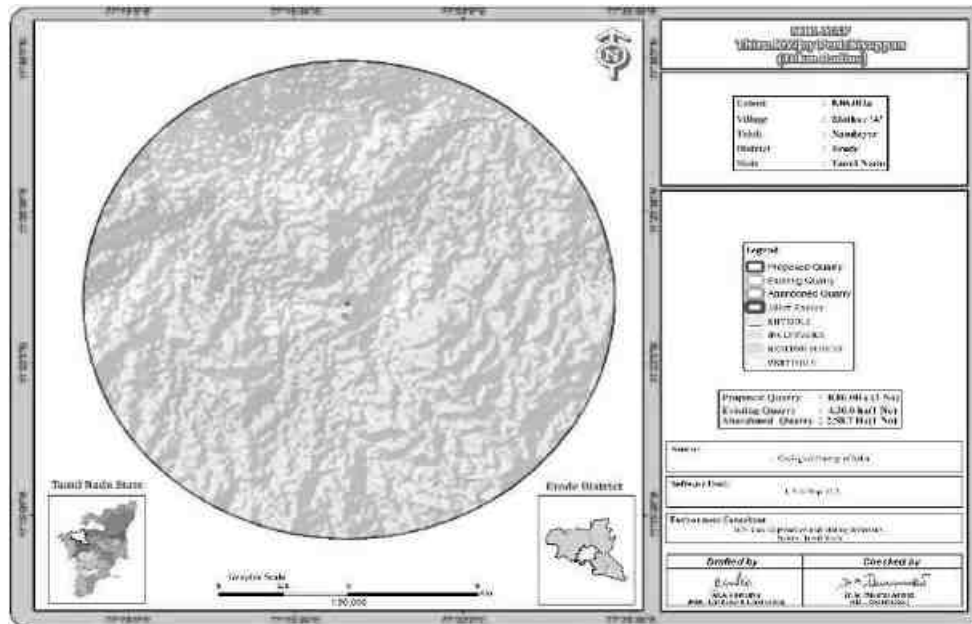
The samples were analysed as per the standard methods prescribed in “Soil Chemical Analysis (M.L. Jackson, 1967) & Department of Agriculture, Cooperation & Farmers Welfare, Ministry of Agriculture & Farmers Welfare, Government of India”. The important properties analysed for soil are bulk density, porosity, 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	S-1 Core Zone (Project Site)	S-2 Munnampalli	S-3 Odaiyagounda npalayam	S-4 Vellaikovilpala yam	S-5 Sanarudal	S-6 Poosariyur
1	Organic Matter	GLCS/SOP/S/003	%	0.93	1.4	2.56	1.2	1.5	1.72
2	pH	IS 2720 (Part 26)	-	8.43	8.58	7.83	8.04	8.38	8.39
3	Specific Electrical Conductivity	IS 14767	µS/cm	396	473	342	514	719	486
4	Available Phosphorous	GLCS/SOP/S/005	mg/kg	13.3	10.6	15.0	16.3	13.7	15
5	Available Potassium	GLCS/SOP/S/026	meq/l	1.23	1.57	1.04	0.93	1.92	1.3
6	Exchangeable Calcium (as Ca)	GLCS/SOP/S/020	meq/100g	6.4	5.6	5.8	4.8	7.6	8
7	Exchangeable Magnesium (as Mg)	GLCS/SOP/S/021	meq/100g	5.2	7.0	7.0	7	6.6	6.6
8	Sulphate as SO <sub>4</sub>	GLCS/SOP/S/009	mg/100g	13.0	9.2	10.8	12	19	14.4
9	Chloride	GLCS/SOP/S/004	meq/l	4.1	5.2	6.4	5.7	4.7	5.1
10	Cation Exchange Capacity	GLCS/SOP/S/024	meq/100g	16.3	16.7	16.5	17	16.9	16.3
11	Bulk Density	GLCS/SOP/S/017	g/cc	1.004	1.03	1.01	1.006	1.01	1.009
12	Texture: Sand	GLCS/SOP/S/015	%	29.5	33.35	33.5	30	36.75	34.65
13	Texture: Silt	GLCS/SOP/S/015	%	38.9	38.75	38.0	40	35	38.10
14	Texture: Clay	GLCS/SOP/S/015	%	31.6	27.9	28.5	30	28.25	27.25
15	Water Holding Capacity	GLCS/SOP/S/016	%	49.6	51.2	51.4	49.8	47.6	48
16	Available Nitrogen as N	GLCS/SOP/S/029	kg/hc	389	414	338.7	364	263	338.7
17	Permeability	By Permeameter	%	42.3	43.6	48.2	50.4	46.3	50.4
18	Exchangeable Manganese	USEPA Method	mg/kg	20.6	21.2	24.5	38	BDL (DL :0.5)	13.4
19	Exchangeable Zinc	USEPA Method	mg/kg	52.0	52.6	51.5	52	38	34.3
20	Cadmium as Cd	USEPA Method	mg/kg	23.5	25.6	26.0	25	21	34.8
21	Chromium as Cr	USEPA Method	mg/kg	47.0	35.0	46.5	43	22	29.3
22	Copper as Cu	USEPA Method	mg/kg	21.1	3.4	18.0	24	11	17.9
23	Lead as Pb	USEPA Method	mg/kg	0.98	BDL (DL : 0.5)	1.5	BDL (DL :0.5)	1.9	0.99
24	Iron as Fe	USEPA Method	mg/kg	55.4	48.0	55.5	18.4	42.3	40.7
25	Organic Carbon	USEPA 6010D	mg/kg	0.54	0.81	1.48	0.67	0.87	1
26	Boron as B	GLCS/SOP/S/003	%	4.9	5.4	4.5	6.5	9.6	7

Source: Sampling Results by Global Lab and Consultancy Services Lab.

**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 (27.25 %31.6%) Sandy Loam Soil and Bulk Density of Soils in the study area varied between 1.006– 1.03 g/cc. The Water Holding Capacity of the soil samples is found to be medium i.e., ranging from 47.6 – 51.4 %.

**Chemical Characteristics –**

- The nature of soil is slightly alkaline to strongly alkaline with pH range 7.83 to 8.58
- The available Nitrogen content range between 263 to 414 kg/hc
- The available Phosphorus content range between 10.6 to 16.3mg/kg
- The available Potassium range between 0.93 mg/kg to 1.92 meg/l

**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:

Bhavani 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

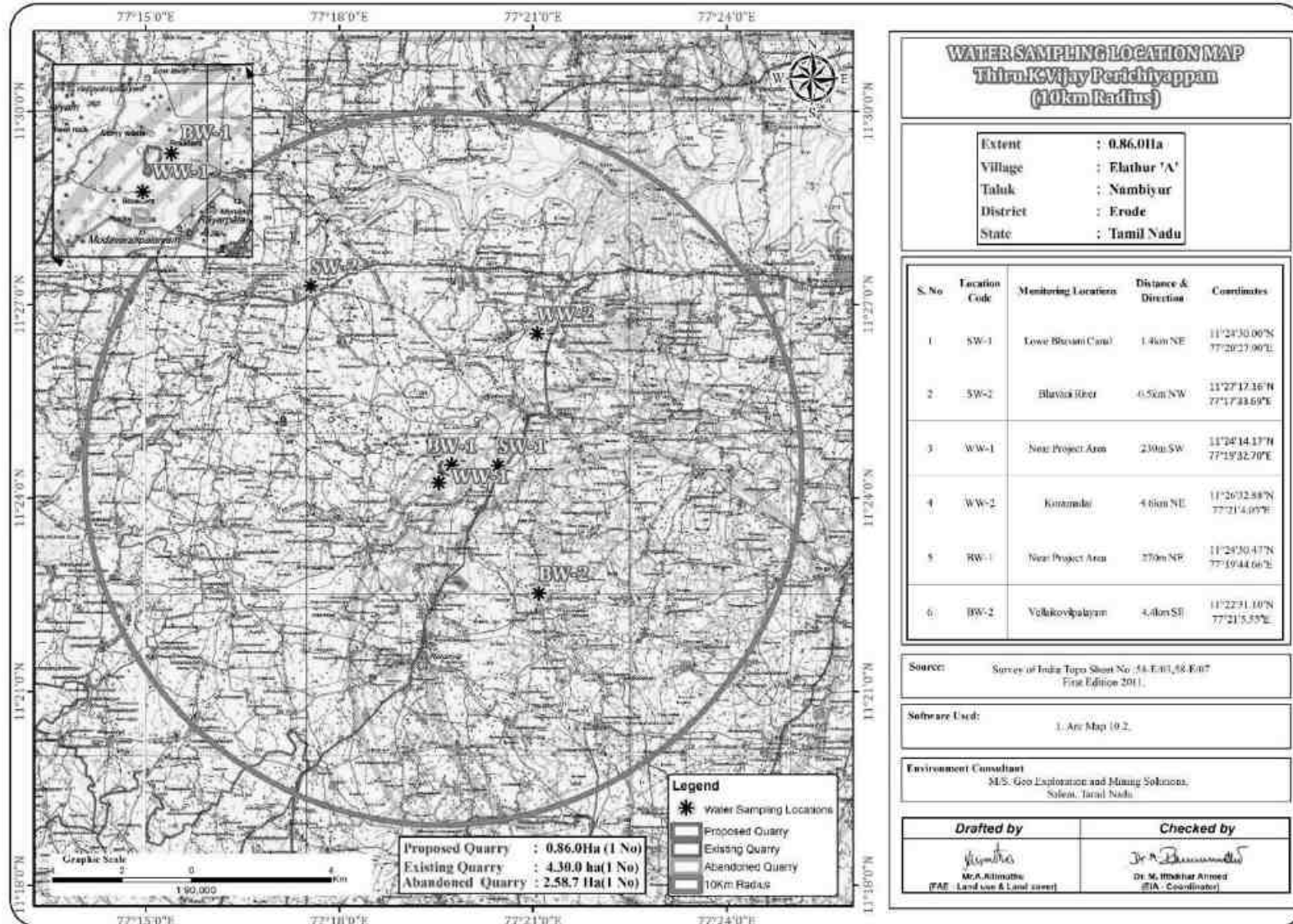
Two (2) surface water and Four (4) ground water samples were collected from the study area and were analysed for physio-chemical, heavy metals and bacteriological parameters in order to assess the effect of mining and other activities on surface and ground water. The samples were analysed as per the 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
<b>SURFACE WATER</b>				
1	SW-1	Lowe Bhavani Canal	1.4km NE	11°24'30.00"N 77°20'27.90"E
2	SW-2	Bhavani River	6.5km NW	11°27'17.16"N 77°17'33.69"E
<b>GROUND WATER</b>				
3	WW-1	Near Project Area	230m SW	11°24'14.17"N 77°19'32.70"E
4	WW-2	Koramadai	4.6km NE	11°26'32.88"N 77°21'4.05"E
5	BW-1	Near Project Area	270m NE	11°24'30.47"N 77°19'44.66"E
6	BW-2	Vellaikovilpalayam	4.4km SE	11°22'31.10"N 77°21'5.55"E

Source: On-site monitoring/sampling by Global Lab and Consultancy Services Lab 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-Koramadai	BW1-Near Near Project area	BW2-Vellaikovilpala yam
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 PART11	-	7.58	7.47	7.9	7.62
4	Conductivity	IS 3025 PART14	µs/cm	1615	1148	989	1062
5	Turbidity	IS 3025 PART10	NTU	<1	<1	<1	<1
6	Total Dissolved Solids	IS 3025 PART16	mg/l	1050	746	643	690
7	Total Alkalinity as CaCO <sub>3</sub>	IS 3025 PART 23	mg/l	410	380	300	290
8	Total Hardness as CaCO <sub>3</sub>	IS 3025 PART 21	mg/l	380	360	350	340
9	Calcium as Ca	IS 3025 PART40	mg/l	72	72	80	76
10	Magnesium as Mg	IS 3025 PART 46	mg/l	49	44	36	36
11	Chloride as Cl <sup>-</sup>	IS 3025 PART 32	mg/l	190	105	90	120
12	Sulphate as SO <sub>4</sub> <sup>-</sup>	IS 3025 PART24	mg/l	33	46	130	102
13	Iron as Fe	IS 3025 PART 53	mg/l	0.13	0.2	BDL(DL:0.1)	0.4
14	Boron as B	IS 3025 PART 57	mg/l	BDL(DL:0.1)	BDL(DL:0.1)	BDL(DL:1.0)	BDL(DL:0.1)
15	Free Residual Chlorine as Cl <sub>2</sub>	IS 3025 PART 26	mg/l	BDL(DL:1.0)	BDL(DL:1.0)	BDL(DL:1.0)	BDL(DL:1.0)
16	Fluoride as F	GLCS/SOP/W/015	mg/l	0.14	0.13	0.3	0.2
17	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)
18	Nitrate as NO <sub>3</sub>	IS 3025 PART 34	mg/l	BDL(DL :2.0)	BDL(DL :2.0)	BDL(DL:2.0)	BDL(DL:2.0)
19	Total Suspended Solids	IS 3025 PART 17	mg/l	BDL(DL:2)	BDL(DL:2.0)	BDL(DL:2.0)	BDL(DL:2.0)
20	Phenolic Compounds	IS 3025 PART 43	mg/l	BDL(DL:0.1)	BDL(DL:0.1)	BDL(DL:0.1)	BDL(DL:0.1)
21	Anionic Detergents	IS 13428	mg/l	BDL(DL:0.05)	BDL(DL:0.05)	BDL(DL:0.05)	BDL(DL:0.05)
22	Cyanide	IS 3025 PART 27	mg/l	BDL(DL:0.02)	BDL(DL:0.02)	BDL(DL:0.02)	BDL(DL:0.02)
23	Sulphide	GLCS/SOP/W/66	mg/l	BDL(DL:1.0)	BDL(DL:1.0)	BDL(DL:1.0)	BDL(DL:1.0)
24	Copper as Cu	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)	BDL(DL:0.01)	BDL(DL:0.01)	BDL(DL:0.01)
25	Mercury (Hg)	GLCS/SOP/W/62	mg/l	BDL(DL:0.002)	BDL(DL:0.002)	BDL(DL:0.002)	BDL(DL:0.002)
26	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)
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	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)
29	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)
30	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)
31	Total Chromium as Cr	GLCS/SOP/W/62	mg/l	BDL(DL:0.1)	BDL(DL:0.1)	BDL(DL:0.1)	BDL(DL:0.1)
32	Barium as Ba	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)	BDL(DL:0.01)	BDL(DL:0.01)	BDL(DL:0.01)
33	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)
34	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)
35	Ammonia as NH <sub>3</sub>	IS 3025 PART 34	mg/l	BDL(DL:1.0)	BDL(DL:1.0)	BDL(DL:1.0)	BDL(DL:1.0)
36	Total Coliforms	IS 15185	Per 100ml	Absent	Absent	Absent	Absent
36	<i>Escherichia coli</i>	IS 15185	Per 100ml	Absent	Absent	Absent	Absent

Source: On-site monitoring/sampling by Global Lab and Consultancy Services Lab in association with GEMS

**TABLE 3.10: SURFACE WATER SAMPLING RESULTS**

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	SW-1 Lower Bhavani Canal	SW-2 Bhavani River
1	Color	IS 3025 PART 4	Hazen	10	8
2	Odor	IS 3025 PART 5	-	Agreeable	Agreeable
3	pH	IS 3025 PART11	-	8.24	7.68
4	Conductivity	IS 3025 PART14	µs/cm	2980	2648
5	Turbidity	IS 3025 PART10	NTU	20	10
6	Total Dissolved Solids	IS 3025 PART16	mg/l	1988	1721
7	Total Alkalinity as CaCO <sub>3</sub>	IS 3025 PART 23	mg/l	780	540
8	Total Hardness as CaCO <sub>3</sub>	IS 3025 PART 21	mg/l	860	610
9	Calcium as Ca	IS 3025 PART40	mg/l	168	124
10	Magnesium as Mg	IS 3025 PART 46	mg/l	107	73
11	Chloride as Cl <sup>-</sup>	IS 3025 PART 32	mg/l	605	340
12	Sulphate as SO <sub>4</sub> <sup>2-</sup>	IS 3025 PART24	mg/l	184	136
13	Iron as Fe	IS 3025 PART 53	mg/l	0.32	0.36
14	Boron as B	IS 3025 PART 57	mg/l	BDL(DL:0.1)	BDL(DL:0.1)
15	Free Residual Chlorine as Cl <sub>2</sub>	IS 3025 PART 26	mg/l	BDL(DL:1.0)	BDL(DL:1.0)
16	Fluoride as F	GLCS/SOP/W/015	mg/l	0.24	0.24
17	Manganese as Mn	IS 3025 PART 59	mg/l	BDL(DL:0.1)	BDL(DL:0.1)
18	Nitrate as NO <sub>3</sub>	IS 3025 PART 34	mg/l	BDL(DL:2.0)	BDL(DL:2.0)
19	Dissolved Oxygen	IS 3025 PART 38	mg/l	4.1	4.8
20	Bio-Chemical Oxygen Demand	IS 3025 PART 44	mg/l	18	6
21	Chemical Oxygen Demand	IS 3025 PART 58	mg/l	52	24
22	Ammonia as NH <sub>3</sub>	IS 3025 PART 34	mg/l	BDL(DL:1.0)	BDL(DL:1.0)
23	Total Suspended Solids	IS 3025 PART 17	mg/l	12	7
24	Phenolic Compounds	IS 3025 PART 43	mg/l	BDL(DL:0.1)	BDL(DL:0.1)
25	Anionic Detergents	IS 13428	mg/l	BDL(DL:0.05)	BDL(DL:0.05)
26	Cyanide	IS 3025 PART 27	mg/l	BDL(DL:0.02)	BDL(DL:0.02)
27	Sulphide	GLCS/SOP/W/66	mg/l	BDL(DL:1)	BDL(DL:1)
28	Copper as Cu	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)	BDL(DL:0.01)
29	Mercury (Hg)	GLCS/SOP/W/62	mg/l	BDL(DL:0.002)	BDL(DL:0.002)
30	Cadmium as Cd	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)	BDL(DL:0.01)
31	Selenium	GLCS/SOP/W/62	mg/l	BDL(DL:0.002)	BDL(DL:0.002)
32	Aluminium as Al	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)	BDL(DL:0.01)
33	Lead as Pb	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)	BDL(DL:0.01)
34	Zinc as Zn	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)	BDL(DL:0.01)
35	Total Chromium as Cr	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)	BDL(DL:0.01)
36	Barium as Ba	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)	BDL(DL:0.01)
37	Molybdenum as Mo	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)	BDL(DL:0.01)
38	Arsenic as As	GLCS/SOP/W/62	mg/l	BDL(DL:0.002)	BDL(DL:0.002)
39	Total Coliforms	IS 1622	MPN/100ml	60	40
40	<i>Escherichia coli</i>	Total Coliforms Organism MPN/100ml shall be 50 or less	MPN/100ml	<2	<2

Source: On-site monitoring/sampling by Global Lab and Consultancy Services Lab in association with GEMS

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### 3.2.4 Interpretation & Conclusion

#### Surface Water

The pH varied from 7.68 to 8.24 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 1721 to 1988 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 340–605mg/l. Nitrates varied from BDL (DL 2.0) while sulphates varied from 136 to 184mg/l.

#### Ground Water

The pH of the water samples collected ranged from 7.47 to 7.9 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 643–1050mg/l in all samples. Total hardness varied between 340– 380mg/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 28m (3m Gravel + 25m Rough stone) below ground level.

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

In general, the ground water movement is based on the gradient i.e., 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 7 borewells.

The average water level in the open well is varies from = 11.47m to 12.07m bgl

The water level in the bore well is varies from = 55.54m to 56.14m 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 70m 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.

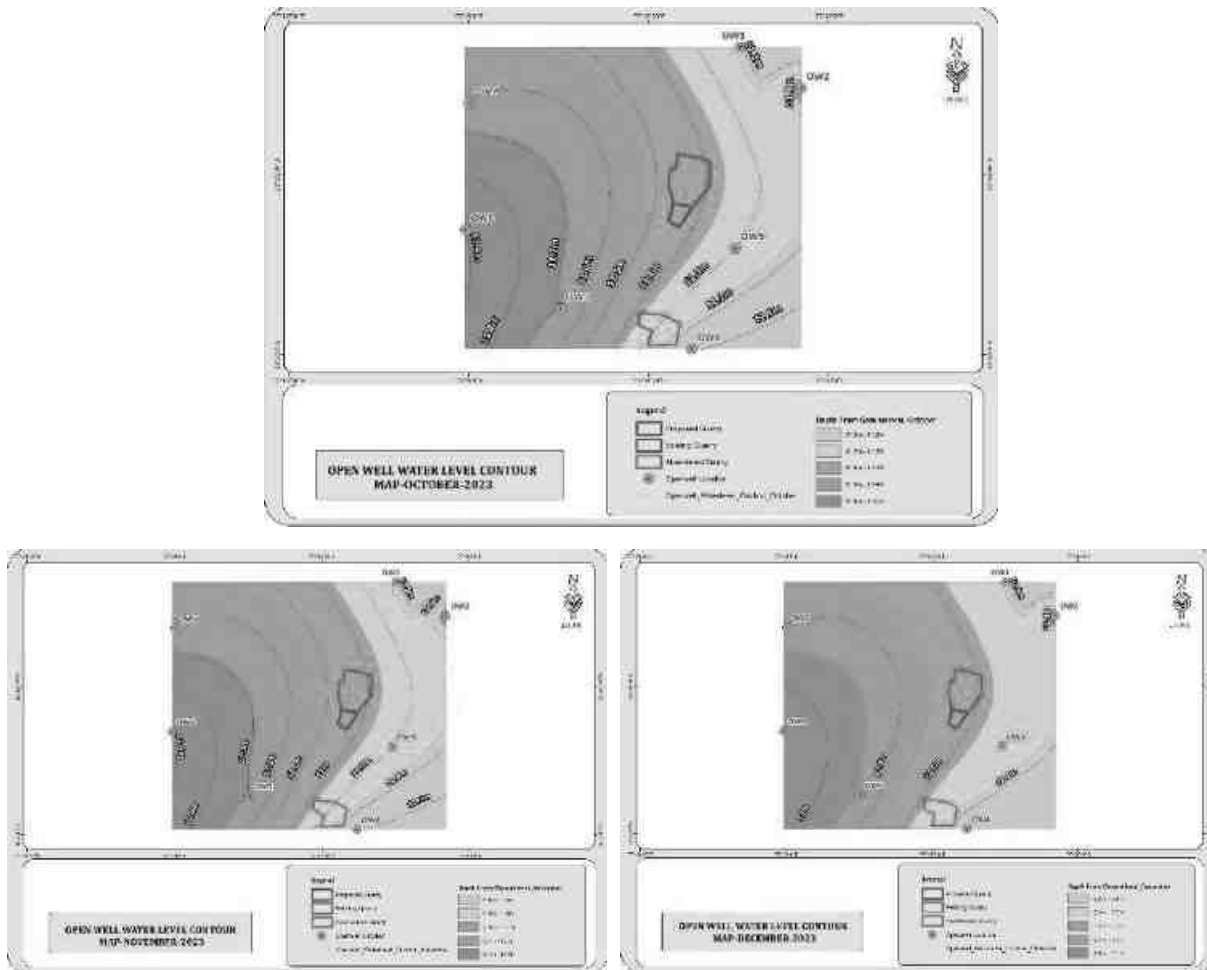
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**TABLE 3.11: POST MONSOON SEASON WATER LEVEL OF OPEN WELLS 1 KM RADIUS**

S.NO	LABEL	LONGITUDE	LATITUDE	Oct-23	Nov-23	Dec-23
1	OW-1	11° 24' 51.24"N	77° 19' 45.05"E	11.2	11.8	12.4
2	OW-2	11° 24' 44.39"N	77° 19' 55.29"E	11.5	12.1	12.7
3	OW-3	11° 24' 17.74"N	77° 19' 44.35"E	11.3	11.9	12.5
4	OW-4	11° 24' 00.94"N	77° 19' 37.13"E	11.1	11.7	12.3
5	OW-5	11° 24' 07.75"N	77° 19' 15.22"E	11.7	12.3	12.9
6	OW-6	11° 24' 20.83"N	77° 18' 59.40"E	11.9	12.5	13.1
7	OW-7	11° 24' 41.90"N	77° 19' 00.07"E	11.6	12.2	12.8

Source: Onsite monitoring data

**FIGURE 3.9: OPEN WELL CONTOUR MAP OCT-DEC 2023**

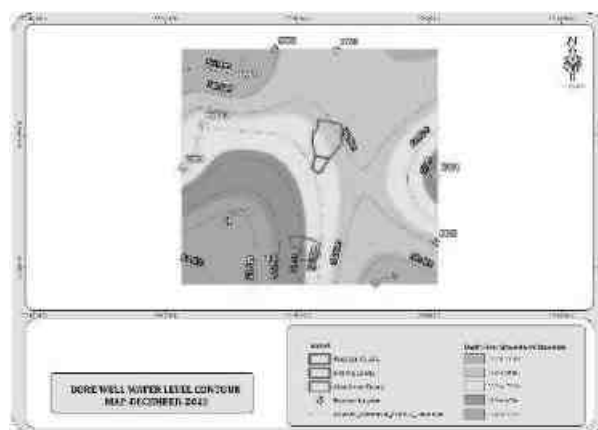
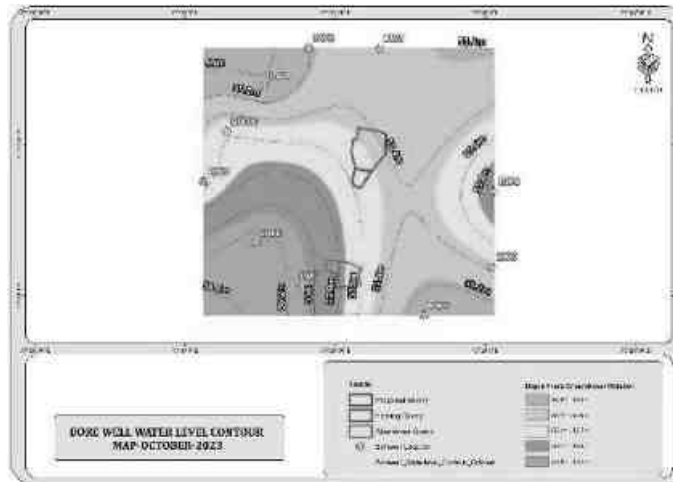


**TABLE 3.12: POST MONSOON SEASON WATER LEVEL OF BOREWELLS 1 KM RADIUS**

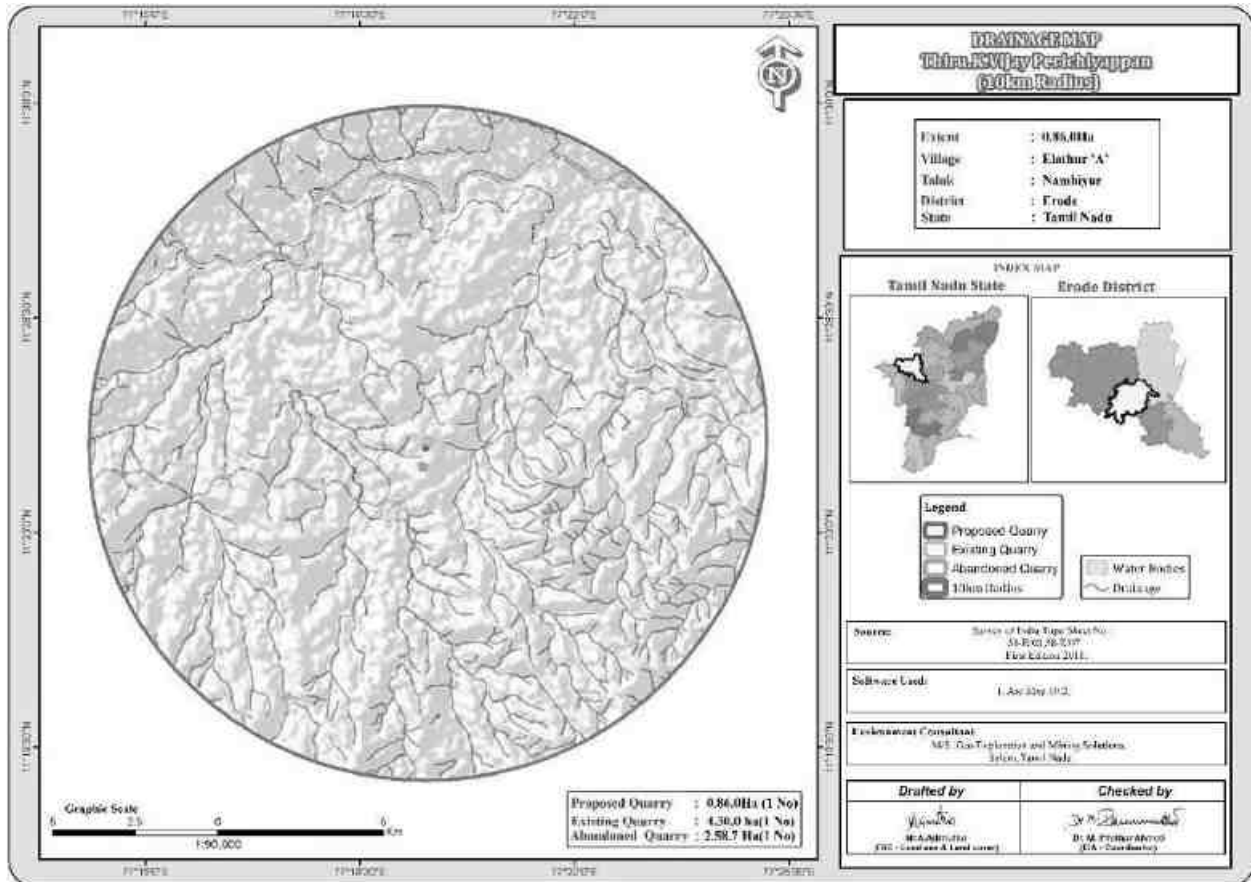
S.NO	LABEL	LONGITUDE	LATITUDE	Oct-23	Nov-23	Dec-23
1	BW-1	11° 24' 41.75"N	77° 19' 15.83"E	55	55.6	56.2
2	BW-2	11° 24' 49.35"N	77° 19' 24.73"E	55.2	55.8	56.4
3	BW-3	11° 24' 49.18"N	77° 19' 38.81"E	55.3	55.9	56.5
4	BW-4	11° 24' 20.69"N	77° 20' 01.75"E	55.9	56.5	57.1
5	BW-5	11° 24' 05.60"N	77° 20' 01.27"E	55.4	56	56.6
6	BW-6	11° 23' 56.08"N	77° 19' 47.74"E	55.1	55.7	56.3
7	BW-7	11° 24' 01.90"N	77° 19' 23.35"E	56.1	56.7	57.3
8	BW-8	11° 24' 10.43"N	77° 19' 14.25"E	56.3	56.9	57.5
9	BW-9	11° 24' 22.65"N	77° 19' 03.67"E	55.5	56.1	56.7
10	BW-10	11° 24' 32.60"N	77° 19' 08.30"E	55.6	56.2	56.8

Source: Onsite monitoring data

**FIGURE 3.10: BOREWELL CONTOUR MAP – MARCH 2023**



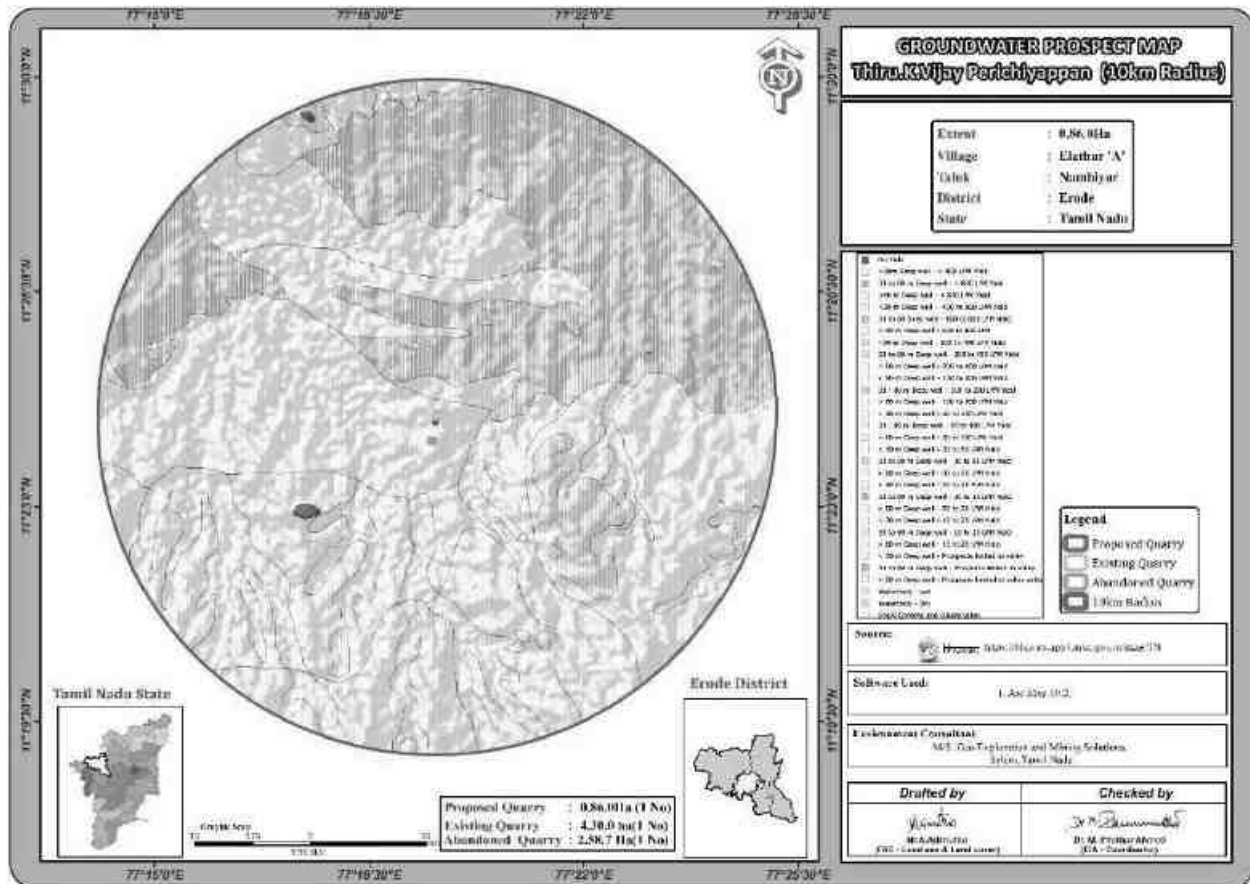
**FIGURE 3.11: DRAINAGE MAP AROUND 10 KM RADIUS FROM PROJECT SITE**



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



**FIGURE 3.12: GROUND WATER PROSPECT MAP**



**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.

$$\rho_a = \frac{GAV}{I}$$

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  $10^{12}$  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,

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

$\rho_r$  = Resistivity of Rocks

$\rho_w$  = Resistivity of water in pores of rock

$F$  = Formation Factor

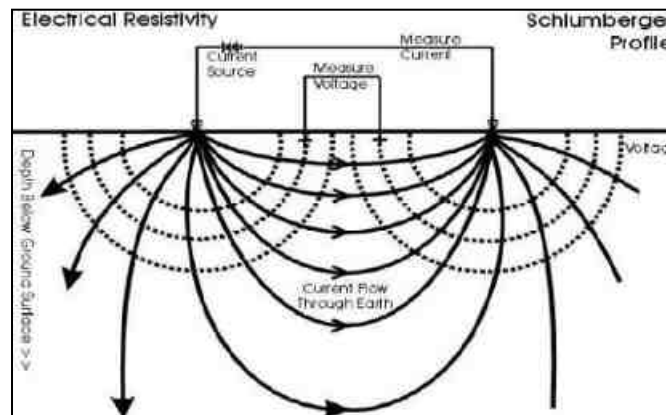
$\emptyset$  = Fractional pore volume

$A$  = 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 ratio can be enhanced by  $\sqrt{N}$  where  $N$  is the number of stacked readings. This SSR meter in which running averages of measurements  $[1, (1+2)/2, (1+2+3)/3 \dots (1+2\dots+16)/16]$  up to the chosen stacks are displayed and the final average is stored automatically, in memory utilizing the principles of stacking to achieve the benefit of high signals to noise ratio. Based on these above significations the signal stacking resistivity meter was used for (VES) Vertical Electric Resistivity Sounding.

### RESISTIVITY SURVEY PROFILE



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

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### 3.2.5.3 Data Presentation

It was inferred that the low resistance encountered at the depth between 70-65m. The maximum depth proposed out of proposed projects 28m BGL. Hence there is no possibilities of water table intersection during the entire mine life period besides it is also inferred topographically that there are no major water bodies intersecting the project area.

### 3.2.5.4 Geophysical Data Interpretation

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

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

## 3.3 AIR ENVIRONMENT

The existing ambient air quality of the area is important for evaluating the impact of mining activities on the ambient air quality.

The baseline studies on air environment include identification of specific air pollution parameters and their existing levels in ambient air. The ambient air quality with respect to the study zone of 10 km radius around the cluster forms the baseline information. The prime objective of the baseline air quality study was to establish the existing ambient air quality of the study area. These will also be useful for assessing the conformity to standards of the ambient air quality during the operation of proposed projects in cluster.

### 3.3.1 Meteorology & Climate

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

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

#### Climate

- The climate here is tropical. During the winter season, there is a significant decrease in precipitation levels within Erode as compared to the summer months. Köppen and Geiger classify this climate as Aw. The average temperature in Erode is 27.3 °C | 81.2 °F. About 802 mm | 31.6 inch of precipitation falls annually.
- The region of Erode is characterized by a temperate climate, and the summer season presents some challenges in terms of precise categorization. The most favoured period for a visit is during the months of January, February, July, August, September, October, November, December.

- The driest month is January, with 6 mm | 0.2 inch of rain. The month of October experiences the highest amount of precipitation, with an average value of 150 mm | 5.9 inch.
- April is the warmest month of the year. The temperature in April averages 31.1 °C | 87.9 °F. The month of December is characterized by the lowest temperatures, which have an average reading of 24.5 °C | 76.0 °F.

Source: <https://en.climate-data.org/asia/india/tamil-nadu/erode-3878/>

## Rainfall

**TABLE 3.13: RAINFALL DATA**

Actual Rainfall in mm					Normal Rainfall in mm
2017	2018	2019	2020	2021	
776.7	772.7	664.2	629.5	1010.1	721.4

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

**TABLE 3.14: METEOROLOGICAL DATA RECORDED AT SITE**

S.No	Parameters		Oct-2023	Nov-2023	Dec-2023
1	Temperature (°C)	Max	28.31	26	25.87
		Min	24.83	23.36	19.81
		Avg	26.57	24.68	22.84
2	Relative Humidity (%)	Avg	73.03	83.97	79.15
3	Wind Speed (m/s)	Max	4.12	2.92	3.84
		Min	0.91	1.29	1.77
		Avg	2.51	2.10	2.80
4	Cloud Cover (OKTAS)		0-8	0-8	0-8
5	Wind Direction		ENE,E	ENE, NE	ENE,SE

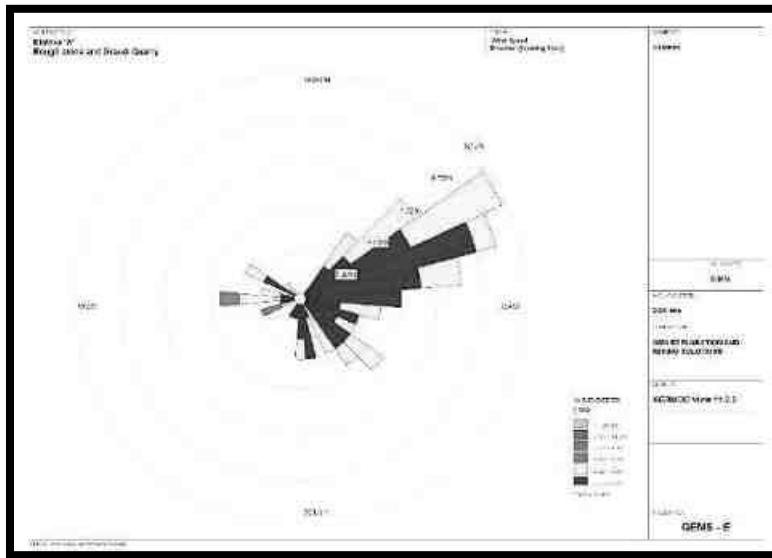
Source: On-site monitoring/sampling by Global Lab and Consultancy Services in association with GEMS

### Correlation between Secondary and Primary Data

The average rainfall over the period of five years 770.64m. The meteorological data collected at the site is almost similar to that of secondary data collected from IMD Erode\_Agro. A comparison of site data generated during the three months with that of IMD, Erode\_Agro

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 SE

**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,SE
2. Wind velocity readings were recorded between 0.50 to 3.60m/s
3. Calm conditions prevail of about 0% of the monitoring period
4. Temperature readings ranging from 19.81 to 28.31 °C
5. Relative humidity ranging from 73.03 to 83.97 %
6. The monitoring was carried out continuously for three months.

**3.3.2 Methodology and Objective**

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

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

**3.3.3 Sampling and Analytical Techniques**

**TABLE 3.15: METHODOLOGY AND INSTRUMENT USED FOR AAQ ANALYSIS**

Parameter	Method	Instrument
PM2.5	Gravimetric Method Beta attenuation Method	Fine Particulate Sampler Make – Thermo Environmental Instruments – TEI 121

PM10	Gravimetric Method Beta attenuation Method	Respirable Dust Sampler Make –Thermo Environmental Instruments – TEI 108
SO2	IS-5182 Part II (Improved West & Gaeke method)	Respirable Dust Sampler with gaseous attachment
NOx	IS-5182 Part II (Jacob & Hochheiser modifiedmethod)	Respirable Dust Sampler with gaseous attachment
Free Silica	NIOSH – 7601	Visible Spectrophotometry

Source: Sampling Methodology followed by Global Lab and Consultancy Services Lab & CPCB Notification

**TABLE 3.16: NATIONAL AMBIENT AIR QUALITY STANDARDS**

Sl.No.	Pollutant	Time Weighted Average	Concentration in ambient air	
			Industrial, Residential, Rural & other areas	Ecologically Sensitive area (Notified by Central Govt.)
1	Sulphur Dioxide ( $\mu\text{g}/\text{m}^3$ )	Annual Avg.* 24 hours**	50.0 80.0	20.0 80.0
2	Nitrogen Dioxide ( $\mu\text{g}/\text{m}^3$ )	Annual Avg. 24 hours	40.0 80.0	30.0 80.0
3	Particulate matter (size less than $10\mu\text{m}$ ) PM10 ( $\mu\text{g}/\text{m}^3$ )	Annual Avg. 24 hours	60.0 100.0	60.0 100.0
4	Particulate matter (size less than $2.5\mu\text{m}$ ) PM2.5 ( $\mu\text{g}/\text{m}^3$ )	Annual Avg. 24 hours	40.0 60.0	40.0 60.0

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

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

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

### 3.3.4 Frequency & Parameters for Sampling

Ambient air quality monitoring has been carried out with a frequency of two samples per week at eight (8) locations, adopting a continuous 24 hourly (3 shift of 8-hour) schedule for the period March – May 2023. The baseline data of ambient air has been generated for PM<sub>10</sub>, PM<sub>2.5</sub>, Sulphur Dioxide (SO<sub>2</sub>) & Nitrogen Dioxide (NO<sub>2</sub>) 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	11°24'21.50"N 77°19'34.76"E
2	AAQ-2	Munnampalli	1.3km SE	11°23'49.42"N 77°20'1.38"E
3	AAQ-3	Odayagoundanpalayam	4.6km NW	11°26'27.16"N 77°18'0.50"E
4	AAQ-4	Vellaikovilpalayam	4.4km SE	11°22'28.98"N 77°21'2.26"E
5	AAQ-5	Koramadai	4.6km NE	11°26'33.83"N 77°20'58.54"E

6	AAQ-6	Sanarudal	3.5km West	11°24'14.33"N 77°17'36.59"E
7	AAQ-7	Poosariyur	6km East	11°24'53.30"N 77°22'47.34"E

Source: On-site monitoring/sampling by Global Lab and Consultancy Services Lab in association with GEMS.

FIGURE 3.14: AIR QUALITY MONITORING PHOTOGRAPHS



FIGURE 3.15: AMBIENT AIR QUALITY LOCATIONS AROUND 10 KM RADIUS

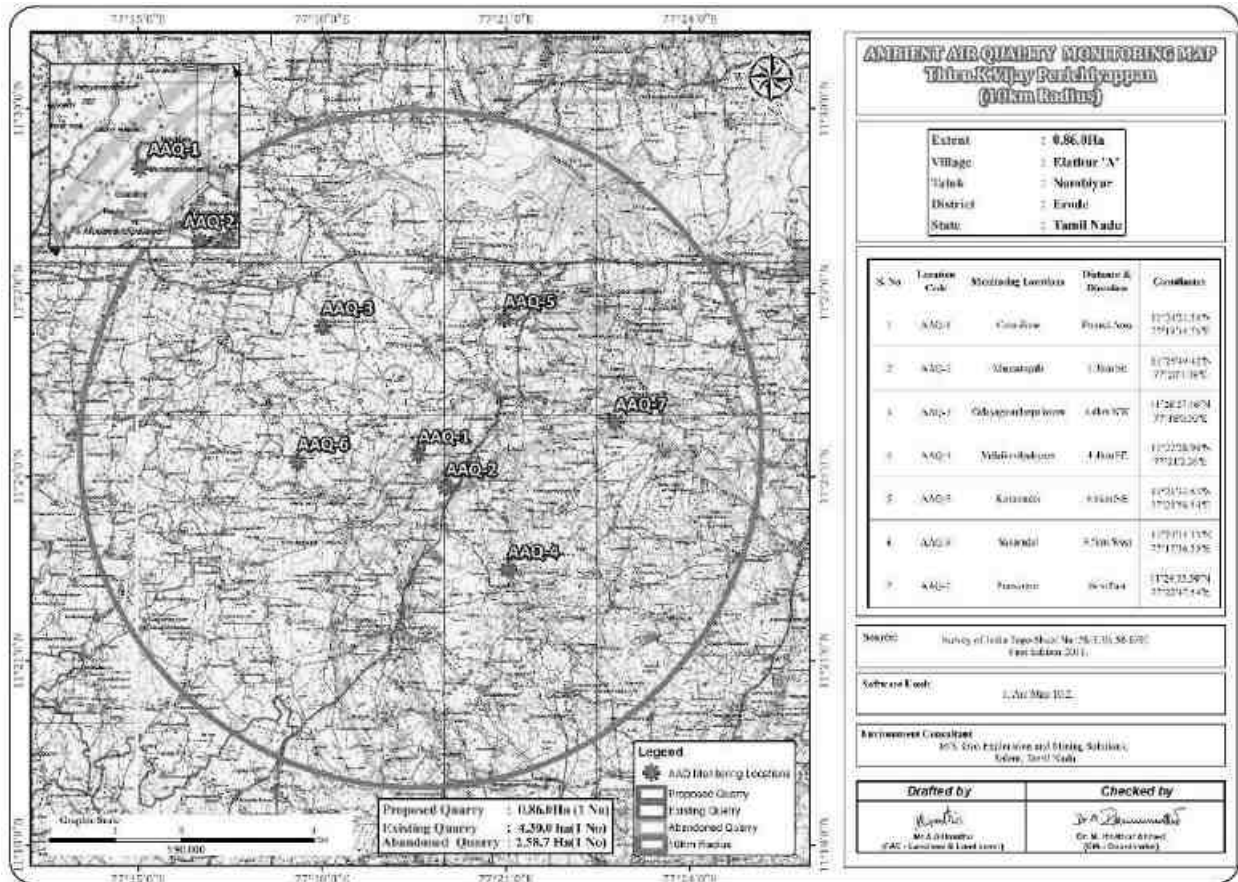


TABLE 3.18: SUMMARY OF AAQ 1 to AAQ 7

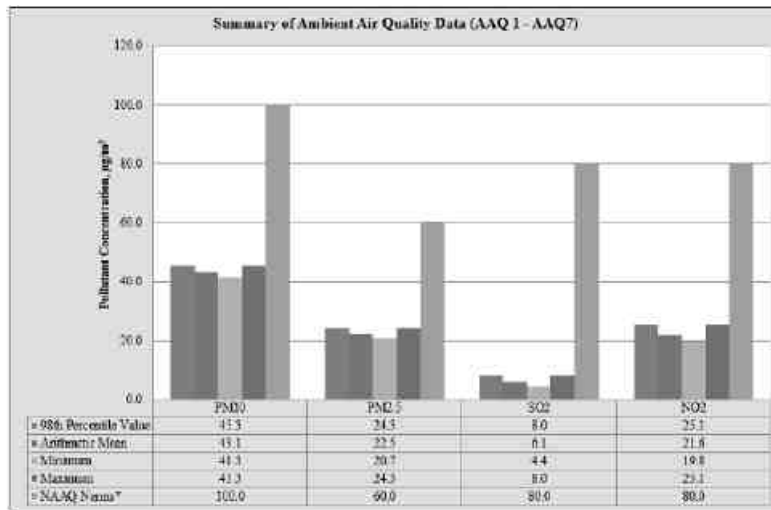
PM10	AAQ1 Core Zone	AAQ2 Munnampalli	AAQ3 Odayagoundan palayam	AAQ4 Vellaikovil palayam	AAQ5 Koramadai	AAQ6 Sanarudal	AAQ7 Poosariyur
Arithmetic Mean	42.0	42.6	42.9	42.3	42.9	42.9	43.2
Minimum	40.3	39.2	41.5	39.2	41.6	41.5	41.6
Maximum	44.0	46.5	45.3	45.2	45.4	44.9	45.1
<b>NAAQ Norms</b>	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>PM2.5</b>	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7
<b>Arithmetic Mean</b>	21.7	22.3	22.0	22.0	42.9	42.9	22.3
<b>Minimum</b>	19.9	20.3	20.0	20.0	20.0	20.0	20.5
<b>Maximum</b>	24.1	24.5	23.7	24.9	24.1	23.7	24.1
<b>NAAQ Norms</b>	60.0	60.0	60.0	60.0	60.0	60.0	60.0
<b>SO2</b>	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7
<b>Arithmetic Mean</b>	6.0	5.5	5.9	5.7	5.8	5.3	5.6
<b>Minimum</b>	4.1	4.1	4.1	4.4	4.1	4.1	4.1
<b>Maximum</b>	7.2	6.7	8.4	7.3	7.6	7.5	7.6
<b>NAAQ Norms</b>	80.0	80.0	80.0	80.0	80.0	80.0	80.0
<b>NO2</b>	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7
<b>Arithmetic Mean</b>	21.0	21.1	20.9	21.4	21.1	20.8	20.8
<b>Minimum</b>	19.1	17.4	19.5	20.1	19.5	17.2	17.3
<b>Maximum</b>	22.8	25.1	23.1	25.1	25.8	24.4	23.8
<b>NAAQ Norms</b>	80.0	80.0	80.0	80.0	80.0	80.0	80.0



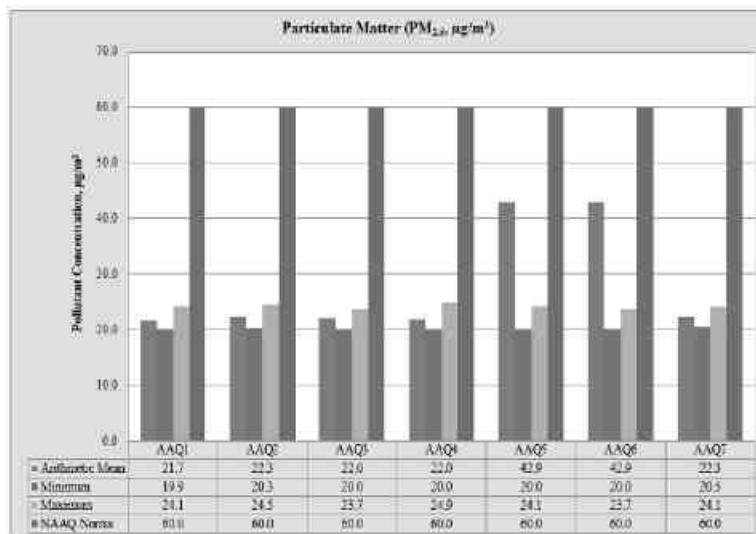
**TABLE 3.19: ABSTRACT OF AMBIENT AIR QUALITY DATA**

1	Parameter	PM10	PM2.5	SO <sub>2</sub>	NO <sub>2</sub>
2	No. of Observations	260	260	260	260
3	98 <sup>th</sup> Percentile Value	45.3	24.3	8.0	25.1
4	Arithmetic Mean	43.1	22.5	6.1	21.6
5	Geometric Mean	43.1	22.5	6.0	21.5
6	Standard Deviation	1.3	1.2	1.1	1.6
7	Minimum	41.3	20.7	4.4	19.8
8	Maximum	45.3	24.3	8.0	25.1
9	<b>NAAQ Norms*</b>	<b>100.0</b>	<b>60.0</b>	<b>80.0</b>	<b>80.0</b>
	% Values exceeding Norms*	0.0	0.0	0.0	0.0

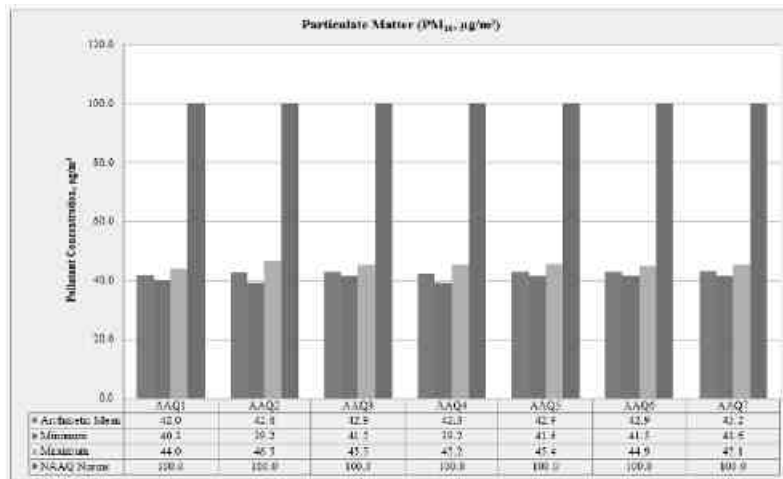
**FIGURE 3.16: BAR DIAGRAM OF SUMMARY OF AAQ 1 – AAQ7**



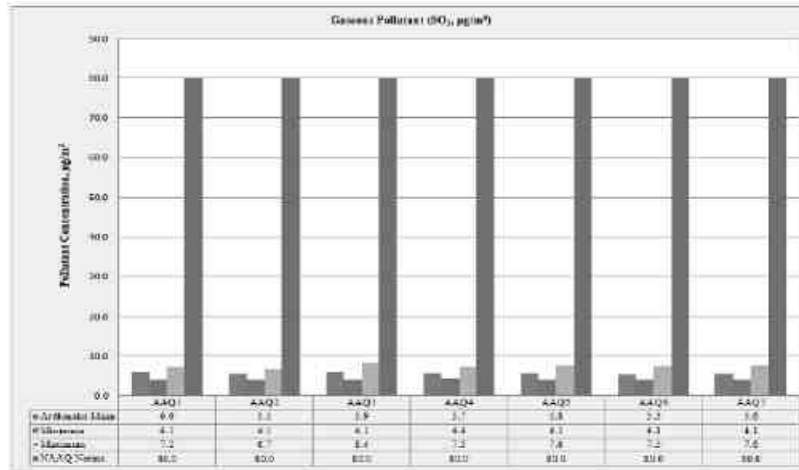
**FIGURE 3.17: BAR DIAGRAM OF PARTICULATE MATTER PM<sub>2.5</sub>**



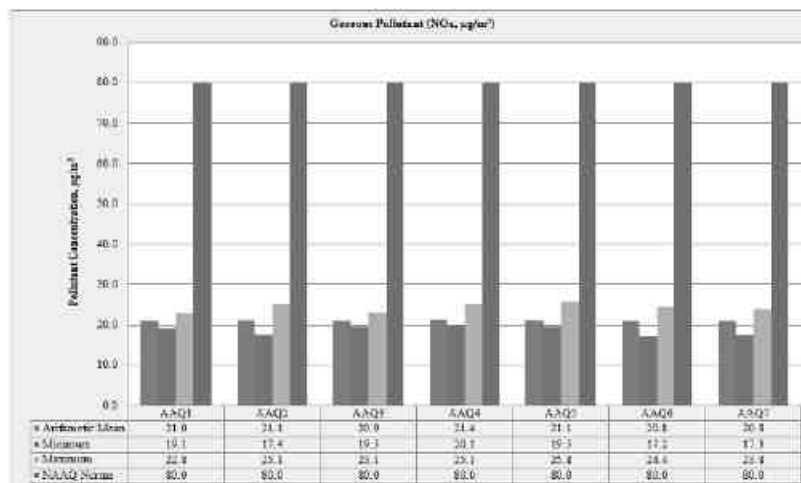
**FIGURE 3.18: BAR DIAGRAM OF PARTICULATE MATTER PM<sub>10</sub>**



**FIGURE 3.19: BAR DIAGRAM OF GASEOUS POLLUTANT SO<sub>2</sub>**



**FIGURE 3.20: BAR DIAGRAM OF GASEOUS POLLUTANT NO<sub>x</sub>**



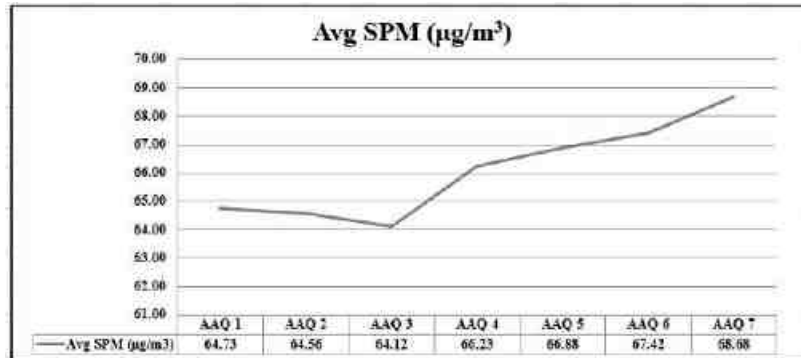
**3.3.7 FUGITIVE DUST EMISSION –**

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

**TABLE 3.20: FUGITIVE DUST SAMPLE VALUES IN  $\mu\text{g}/\text{m}^3$**

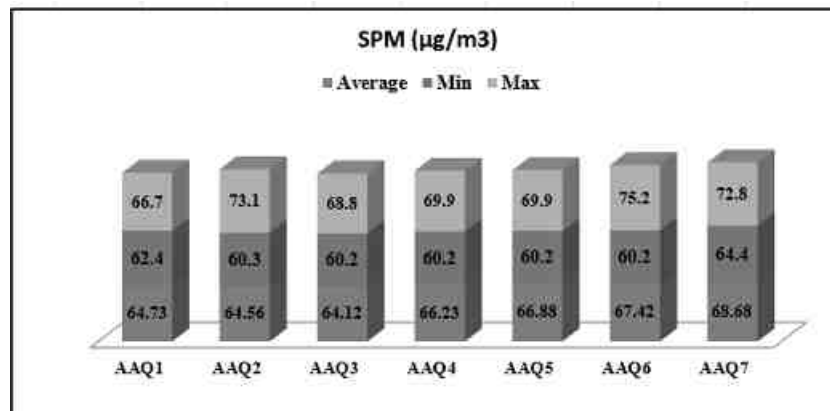
SPM ( $\mu\text{g}/\text{m}^3$ )	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7
<b>Average</b>	64.73	64.56	64.12	66.23	66.88	67.42	68.68
<b>Min</b>	62.4	60.3	60.2	60.2	60.2	60.2	64.4
<b>Max</b>	66.7	73.1	68.8	69.9	69.9	75.2	72.8

**FIGURE 3.21: LINE DIAGRAM OF AVERAGE SPM VALUES**



Source: Calculations from Lab Analysis Reports

**FIGURE 3.22: BAR DIAGRAM OF SPM VALUES**



**3.3.6 Interpretations & Conclusion**

As per monitoring data,  $\text{PM}_{10}$  ranges from  $39.2 \mu\text{g}/\text{m}^3$  to  $46.5 \mu\text{g}/\text{m}^3$ ,  $\text{PM}_{2.5}$  data ranges from  $19.9 \mu\text{g}/\text{m}^3$  to  $24.9 \mu\text{g}/\text{m}^3$ ,  $\text{SO}_2$  ranges from  $4.1 \mu\text{g}/\text{m}^3$  to  $8.4 \mu\text{g}/\text{m}^3$  and  $\text{NO}_2$  data ranges from  $17.2 \mu\text{g}/\text{m}^3$  to  $25.8 \mu\text{g}/\text{m}^3$ . 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 Eight (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	N-1	Core Zone	Project Area	11°24'22.13"N 77°19'34.11"E
2	N-2	Munnampalli	1.3km SE	11°23'49.73"N 77°20'1.27"E
3	N-3	Odayagoundanpalayam	4.6km NW	11°26'26.79"N 77°18'1.22"E
4	N-4	Vellaikovilpalayam	4.4km SE	11°22'29.16"N 77°21'2.09"E
5	N-5	Koramadai	4.6km NE	11°26'33.68"N 77°20'58.53"E
6	N-6	Sanarudal	3.5km West	11°24'14.88"N 77°17'36.70"E
7	N-7	Poosariyur	6km East	11°24'53.87"N 77°22'47.00"E

Source: On-site monitoring/sampling by Global Lab and Consultancy Services Lab in association with GEMS.

#### 3.4.2 Method of Monitoring

Digital Sound Level Meter was used for the study. All reading was taken on the 'A-Weighting' frequency network, at a height of 1.5 meters from ground level. The sound level meter does not give a steady and consistent reading and it is quite difficult to assess the actual sound level over the entire monitoring period. To mitigate this shortcoming, the Continuous Equivalent Sound level, indicated by  $L_{eq}$ , 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,

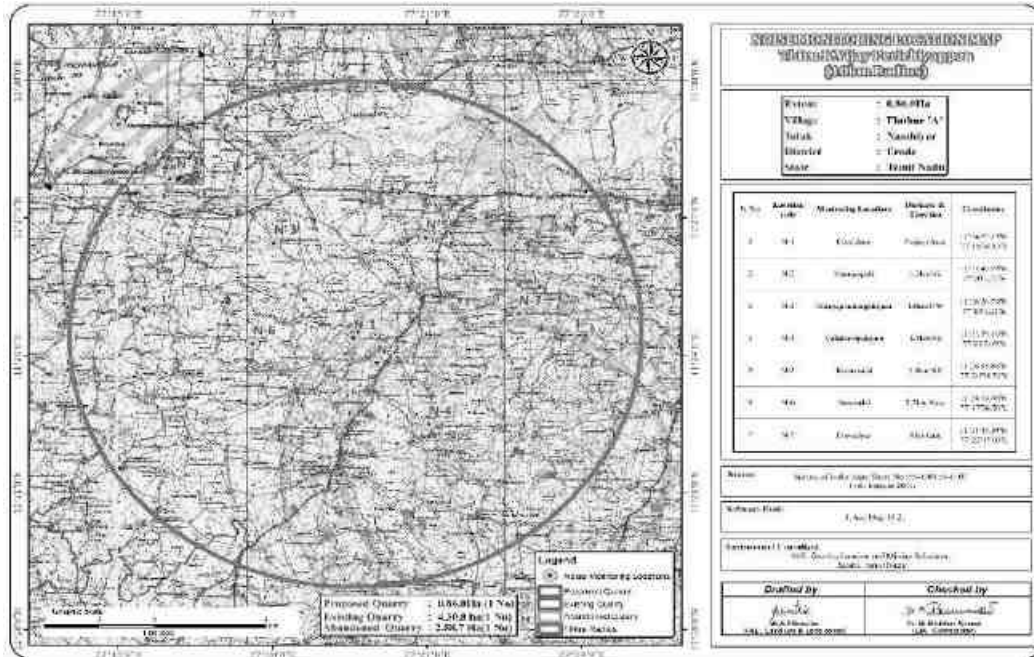
$$L_{eq} = 10 \log L / T \sum (10L_n/10)$$

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.

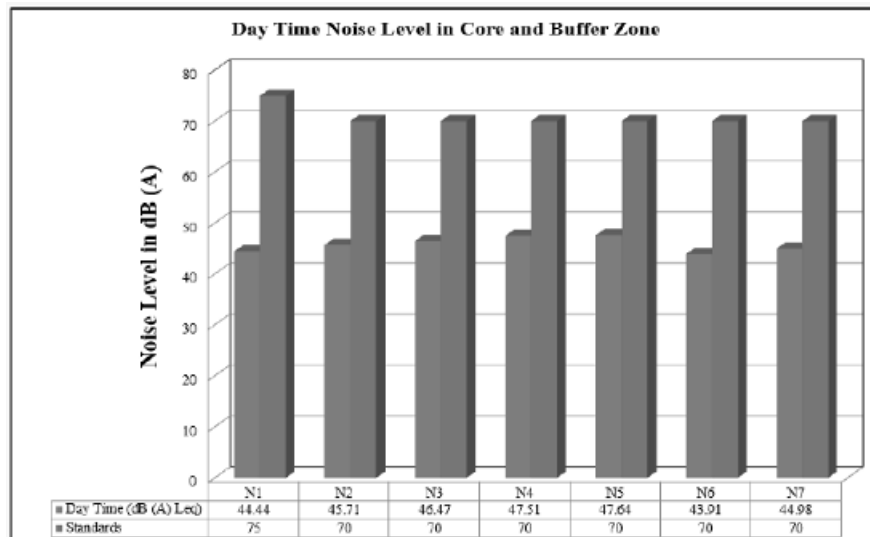
Night time: 22:00 hours to 6.00 hours.

**TABLE 3.22: AMBIENT NOISE QUALITY RESULT**

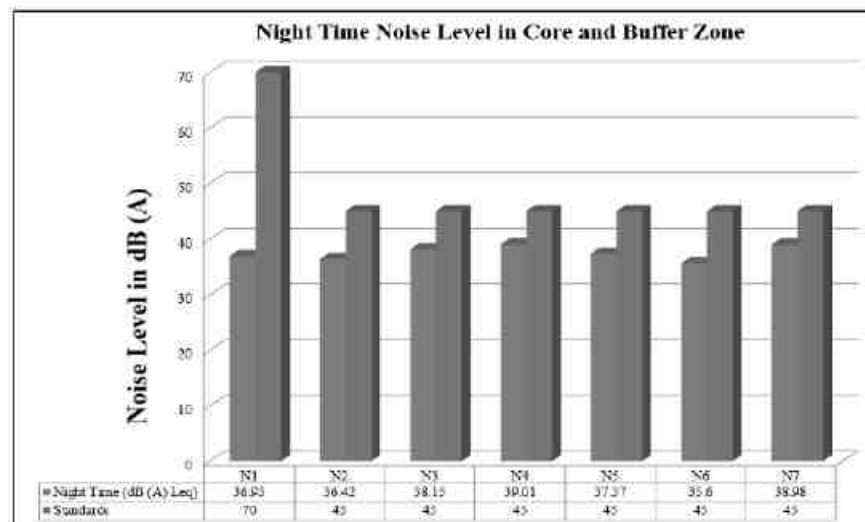
S. No	Locations	Noise level (dB (A) Leq)		Ambient Noise Standards
		Day Time	Night Time	
1	Core Zone	44.44	36.93	<b>Industrial</b> Day Time- 75 dB (A) Night Time- 70 dB (A)
2	Munnampalli	45.71	36.42	
3	Odayagoundanpalayam	46.47	38.15	
4	Vellaikovilpalayam	47.51	39.01	
5	Koramadai	47.64	37.37	<b>Residential</b> Day Time– 55 dB (A) Night Time- 45 dB (A)
6	Sanarudal	43.91	35.60	
7	Poosariyur	44.98	38.98	

Source: On-site monitoring/sampling by Global Lab and Consultancy Services Lab 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 44.44 dB (A) Leq and during night time were from 36.93 dB (A) Leq. Noise levels recorded in buffer zone during day time were from 43.91 to 47.64 dB (A) Leq and during night time were from 35.6 to 39.01dB (A)Leq. Thus, the noise level for Industrial and Residential area meets the requirements of CPCB.

### 3.5. Biological Environment

#### 3.5.1. Study area Ecology

The core area extent of **0.86.0 Ha** of Rough stone and gravel quarry has an impact on diversity of flora and fauna of the surrounding area. But present work was carried out on detailed study of the impacts of Rough stone and gravel 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 flat terrain. The following methods were applied during the baseline study of flora, fauna, and diversity assessment.

#### 3.5.2. Objectives of Biological Studies

- a) To study the likely impact of the proposed mining project on the local biodiversity and to suggest mitigation measures, if required, for vulnerable biota.
- b) Undertake intensive field survey to assess the status of floral & faunal component in different habitats in the core and buffer areas of the project site.
- c) Identification and listing of flora and fauna which are important as per the Wildlife (Protection) Act 1972.
- d) 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.
- e) To identify the impacts of mining on agricultural lands and how it affects.
- f) Proper collection of information about wildlife Sanctuaries/ national parks/ biosphere reserves of the project area.
- g) Devise management & conservation measures for biodiversity.

#### 3.5.3. Methodology of Sampling

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

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

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

Direct observations and bird calls were used for bird documentation. Same transects were used for counting butterflies. Opportunistic observations were made for Amphibians, reptiles and ordimates. The 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 of 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 of the data. Counts were conducted while there is no heavy rain, mist or strong wind.

### **3.5.4.2. Modified Pollard Walk – for Butterflies**

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

### **3.5.4.3. Visual Encounter Survey (VES) - reptiles and amphibians**

VES is a time-constrained sampling technique (Campbell and Christman, 1982; Corn and Bury, 1990). It needs a systematic search through an area or habitat for a prescribed time period (Campbell and Christman, 1982). The result of VES is measured against the time spent for 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 for trees, Shrubs, and herbs respectively.

#### 3.5.5.1. Flora Composition in the Core Zone

Taxonomically a total of 31 species belonging to 17 families have been recorded from the core mining lease area. It is exhibiting plain topography. Based on habitat classification of the enumerated plants the majority of species were Herbs 14, followed by Trees 7, Shrubs 4, Grasses 3, and Climbers/Creepers 1. Details of flora with the scientific name were mentioned in Table No. 3.53. The result of the core zone of flora studies shows that Fabaceae and Poaceae and Lamiaceae are the main dominating species in the study area mentioned in Table No.3.23. No species were found as a threatened category (Table No. 3.23).

**Table No: 3.23. Flora in the Core zone of Elathur 'A' Village, Rough stone and Gravel quarry, Nambiyur Taluk, Erode District.**

Sl. No	English Name	Vernacular Name	Scientific Name	Family Name
<b>Trees</b>				
1.	Neem	Vembu	<i>Azadirachta indica</i>	Meliaceae
2.	Mesquite	Mullumaram	<i>Prosopis juliflora</i>	Fabaceae
3.	Millettia pinnata	Pongamoiltree	<i>Pongamia pinnata</i>	Fabaceae
4.	Pala indigo	Pala maram	<i>Wrightia tinctoria</i>	Apocynaceae
5.	Indian gooseberry	Nelli	<i>Emblica officinalis</i>	Phyllanthaceae
6.	White Bark Acacia	Vela maram	<i>Vachellialeucophloea</i>	Fabaceae
7.	Banyan tree	Alamaram	<i>Ficus benghalensis</i>	Moraceae
<b>Shrubs</b>				
1.	Milk Weed	Erukku	<i>Calotropis gigantea</i>	Apocynaceae
2.	Avaram	Avarai	<i>Senna auriculata</i>	Fabaceae
3.	Lantana	Unni chedi	<i>Lantana camara</i>	Verbenaceae
4.	Night shade plan	Sundaika	<i>Solanum torvum</i>	Solanaceae
<b>Herbs</b>				
1.	Common leucas	Thumbai	<i>Leucas aspera</i>	Lamiaceae
2.	Devil's thorn	Nerunji	<i>Tribulus terrestris</i>	Zygophyllales
3.	Asthma-plant	Amman pacharisi	<i>Euphorbia hirta</i>	Euphorbiaceae
4.	Pignut	Nattapoochedi	<i>Hyptissuaveolens</i>	Lamiaceae
5.	Common Wire weed	Arivalmanaipoondu	<i>Sida acuta</i>	Malvaceae
6.	Fish poison	Kolinchi	<i>Tephrosia purpurea</i>	Fabaceae
7.	Flannel Weed	Sidamutti	<i>Sida cordifolia</i>	Malvaceae
8.	Carrot grass	Partiniyam	<i>Parthenium hysterophorus</i>	Asteraceae
9.	Indian Catmint Plant	Pei viratti	<i>Anisomelesmalabarica</i>	Lamiaceae
10.	Indian mallow	Thuthi	<i>Abutilon indicum</i>	Meliaceae
11.	Common nut sedge	Korai	<i>Cyperus rotundus</i>	Cyperaceae
12.	Indian doab	Arugampul	<i>Cynodondactylon</i>	Poaceae
13.	Ban Tulsi	Melakai poondu	<i>Croton bonplandianus</i>	Euphorbiaceae
14.	Coat buttons	Thatha poo	<i>Tridax procumbens</i>	Asteraceae
<b>Creepers /Climbers</b>				
1	Stemmed vine	Perandai	<i>Cissus quadrangularis</i>	Vitaceae
<b>Grass</b>				
1.	Eragrostis	Pullu	<i>Eragrostisferruginea</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



a. *Azadirachta indica*



b. *Calotropis gigantea*



c. *Leucaena leucocephala*



d. *Datura stramonium*



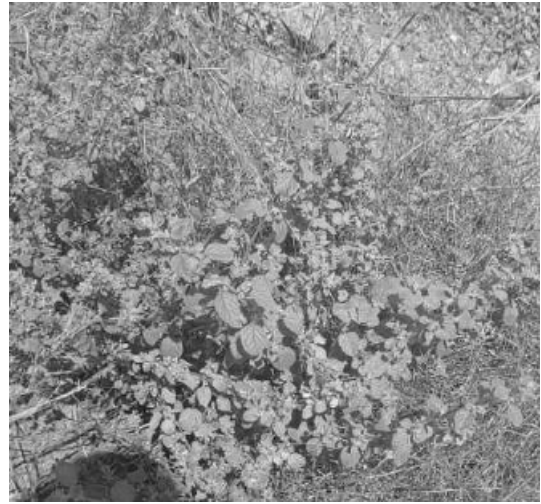
e. *Wrightia tinctoria*



f. *Abutilon indicum*



g. *Tridax procumbens*



h. *Hyptis suaveolens*



i. *Parthenium hysterophorus*



j. *Tephrosia purpurea*



k. *Prosopis juliflora*



l. *Lantana camara*

**Fig No: 3.33. Flora species observation in the Core zone area**

**Table No: 3.24. Flora in the Buffer zone of Elathur 'A' Village, Rough stone and Gravel quarry, Nambiyur Taluk, Erode District.**

Sl.No.	English Name	Vernacular Name	Scientific Name	Resource use type *(E,M,EM)
<b>Trees</b>				
1.	Millettia pinnata	Pongamoiltree	<i>Pongamia pinnata</i>	E
2.	Tamarind	Puliyamaram	<i>Tamarindus indica</i>	EM
3.	Asian Palmyra palm	Panai maram	<i>Borassus flabellifer</i>	E
4.	Wild Date Palm	Pericham	<i>Phoenix sylvestris</i>	E
5.	Coconut	Thennaimaram	<i>Cocos nucifera</i>	EM
6.	River tamarind	Savunda	<i>Leucaenaleucocephala</i>	E
7.	Indian siris	Vaagai	<i>Albizia lebbek</i>	E
8.	Lemon	Ezhumuchaipalam	<i>Citrus lemon</i>	EM
9.	Mango	Manga	<i>Mangifera indica</i>	E
10.	Banyan tree	Alamaram	<i>Ficus benghalensis</i>	E
11.	Common jujube	Elanthai	<i>Zizyphus jujuba</i>	M
12.	Neem or Indian lilac	Vembu	<i>Azadirachta indica</i>	M
13.	Creamy Peacock flower	Vadanarayani	<i>Delonixelata</i>	M
14.	Mesquite	Sema Karuvelam	<i>Prosopis juliflora</i>	E
15.	Beauty leaf	Punnai	<i>Calophylluinophyllum</i>	M
16.	Madras Thorn	Kodukapuli	<i>Pithecellobium dulce</i>	E
17.	Castor oil plant	Amanakku	<i>Ricinus communis</i>	M
18.	Gum arabic tree	Karuvelam	<i>Acacia nilotica</i>	NE
19.	Flame-of-the-forest	Neruppu Kondrai	<i>Delonix regia</i>	E
20.	False ashoka	Asoka maram	<i>Polyalthia longifolia</i>	E
21.	Mesquite	Seemaikaruvelam	<i>Prosopis julifera</i>	E
22.	Monkey pod tree	Thungumoonchi	<i>Samanea saman</i>	E
23.	Orchid tree	Cem-mantarai	<i>Bauhinia variegata</i>	E
24.	Bitter Albizia	Arappu	<i>Albizia amara</i>	M
25.	Giant thorny bamboo	Perumungil	<i>Bambusabambos</i>	M
26.	Wood-apple	Vilamaram	<i>Limoniacidissima</i>	M
27.	Orange jessamine	Venkarai	<i>Murrayapaniculata</i>	E
28.	Singapore Cherry	Thenpazham	<i>Muntingiacalabura</i>	M
29.	Kassod Tree	ManjalKonnai	<i>Cassia siamea</i>	M
30.	Black plum	Navalmaram	<i>Sygygiumcumini</i>	EM
31.	Eucalyptus	Eucalyptus	<i>Eucalyptus globules</i>	EM
32.	Custard apple	Seethapazham	<i>Annona squamosa</i>	E

33.	Copperpod	Iyal Vaagai	<i>Copperpod</i>	E
34.	Acacia Nilotica	Karuvelammaram	<i>Vachellianilotica</i>	M
35.	Indian gooseberry	Nelli	<i>Emblica officinalis</i>	EM
36.	Henna	Marudaani	<i>Lawsoniainermis</i>	EM
37.	Sacred fig	Arasan	<i>Ficus religiosa</i>	E
38.	Indian mulberry	Nuan	<i>Morinda tinctoria</i>	E
39.	Teak	Thekku	<i>Tectona grandis</i>	E
40.	Papaya	Pappalimaram	<i>Carica papaya</i>	EM
41.	Yellow Orchid Tree	Thiruvathi	<i>Bauhinia tomentosa</i>	E
42.	Indian cork tree	Maramalli	<i>Millingtoniahortensi</i>	E
43.	Peepal	Arasanmaram	<i>Ficus religiosa</i>	M
44.	Indian fir tree	Nettilinkam	<i>Polylathia longifolia</i>	E
45.	Guava	Koyya	<i>Psidium guajava</i>	EM
46.	Curry tree	Velipparuthi	<i>Murrayakoenigii</i>	EM
47.	Bamboo	Moonghil	<i>Bambusabambo</i>	E
48.	Drumstick tree	Murunga maram	<i>Moringa oleifera</i>	EM
49.	Indian almond	Padam maram	<i>Terminalia catappa</i>	EM
50.	Mesquite	Velikathanmaram	<i>Prosopis juliflora</i>	M
51.	Portia tree	Poovarasam	<i>Thespesia populnea</i>	E
<b>Shrubs</b>				
1.	Avaram	Avarai	<i>Senna auriculata</i>	M
2.	Night shade plan	Sundaika	<i>Solanum torvum</i>	EM
3.	Lantana	Unnichedi	<i>Lantana camara</i>	M
4.	Bellyache bush	Kattamanaku	<i>Jatropha gossypifolia</i>	M
5.	Rough cocklebu	Ottarachedi	<i>Xanthium strumarium</i>	M
6.	Triangular spruge	Chaturakalli	<i>Euphorbia antiquorum</i>	NE
7.	Pinwheelflower	Nanthivattai	<i>Tabernaemontanadivaricata</i>	M
8.	Indian jujube	Elanthai	<i>Ziziphus mauritiana</i>	M
9.	Coffee senna	Kattuttakarai	<i>Senna occidentalis</i>	M
10.	Rosy Periwinkle	Nithyakalyani	<i>Cathranthus roseus</i>	M
11.	Chinese chaste tree	Nochi	<i>Vitex negundo</i>	E
12.	Bush Morning Glory	NeyvelikKattamanakku	<i>Ipomoea carnea</i>	E
13.	Yellow elder	Manjarali	<i>Tecoma stans</i>	M
14.	Chinese chastetree	Nochi	<i>Vitex negundo</i>	M
15.	Water spinach	Nalikam	<i>Ipomoea aquatica</i>	E
16.	Indian Oleander	Arali	<i>Nerium indicum</i>	M
17.	Shoe flower	Chemparuthi	<i>Hibiscu rosa-sinensis</i>	EM

18.	Puriging nut	Kattamanakku	<i>Jatropha curcas</i>	EM
19.	Columnar Cactus	Sappathikalli	<i>Cereus pterogonus</i>	M
20.	Thorn apple	Oomathai	<i>Datura stramonium</i>	E
21.	Century plant	Anaikathalai	<i>Agave americana</i>	M
22.	Jackal jujube	Sooraipazham	<i>Ziziphus oenopolia</i>	M
23.	Prickly pear	Nagathali	<i>Opuntia dillenii</i>	M
24.	Chinese hibiscus	Chembaruthi	<i>Hibiscus rosa sinensis</i>	M
25.	Indian mallow	Thuthi	<i>Abutilon indicum</i>	M
26.	Flame of the Woods	Idlipoo	<i>Xoracoccinea</i>	M
27.	Peacock Flower	Mayil Kontai	<i>Caesalpinia pulcherrima</i>	M
28.	Datura metel	Uumaththai	<i>Datura metel</i>	NE
29.	Milk Weed	Erukku	<i>Calotropis gigantea</i>	M
30.	Cassava	Maravallikizhangu	<i>Manihot esculenta</i>	EM
31.	Hopbush	Virali	<i>Dodonaeaviscosa</i>	E
32.	Paper flower	Kahitha poo	<i>Bougainvillea glabra</i>	M
33.	Tiger nail	Eli verandi	<i>Martynia annua</i>	M
<b>Herbs</b>				
1.	Prickly chaff flower	Nayuruv	<i>Achyranthes aspera</i>	M
2.	Tridax daisy	Vectukaayapoond	<i>Tridax procumbens</i>	M
3.	Indian Copperleaf	Kuppaimeni	<i>Acalypha indica</i>	M
4.	Indian doab	Arugampul	<i>Cynodondactylon</i>	E
5.	Indian Catmint Plant	Pei viratti	<i>Anisomelesmalabarica</i>	M
6.	Cleome viscosa	Nai kadugu	<i>Celomeviscosa</i>	M
7.	Porcupine flower	Shemmuli	<i>Barleriaprionitis</i>	E
8.	Mexican Fireplant	Paaperuki	<i>Euphorbia heterophylla</i>	M
9.	Common Wireweed	Arivalmanaipoond	<i>Sida acuta</i>	M
10.	Punarnava	Mukkirattai	<i>Boerhaaviadiffusa</i>	EM
11.	Mexican prickly poppy	Kudiyotti	<i>Argemone mexicana</i>	M
12.	Common leucas	Thumbai	<i>Leucas aspera</i>	M
13.	Ban Tulsi	Melakai poond	<i>Croton bonplandianus</i>	M
14.	Licorice weed	Kallurukki	<i>Scoparia dulcis</i>	M
15.	Chay root	Chaaya ver	<i>Oldenlandiaumbellata</i>	M
16.	Slender dwarf morning-glory	Vittunu-k-kiranti	<i>Evolvulusalsinoides</i>	M
17.	Spiny amaranth	Mullukeerai	<i>Amaranthus spinosus</i>	M
18.	Cracker plant	Tapas kaaya	<i>Ruellia tuberosa</i>	M
19.	Flannel Weed	Sidamutti	<i>Sida cordifolia</i>	M
20.	Green amaranth	Mulai keerai	<i>Amaranthus viridis</i>	M

21.	Marsh barbel	Neermulli	<i>Hygrophila auriculata</i>	M
22.	Yellow-fruit nightshade	Kandakathirika	<i>Solanum surattense</i>	M
23.	Shameplant	Thottachenunki	<i>Mimosa pudica</i>	M
24.	Common Purslane	Paruppukeerai	<i>Portulaca oleracea</i>	M
25.	Water willow	Kodakasalai	<i>Justicia procumbens</i>	M
26.	Threadstem carpetweed	Parpatakam	<i>Mollugocerviana</i>	M
27.	Perennial Water Primrose	Muyalkathu Ilai	<i>Ludwigia perennis</i>	M
28.	Node Flower	Kumattikkirai	<i>Allmanianodiflora</i>	M
29.	Sessile Joyweed	Ponnankanni	<i>Alternanthera sessilis</i>	M
30.	Asthma-plant	Ammanpacharisi	<i>Euphorbia hirta</i>	M
31.	Pignut	Nattapoochedi	<i>Hyptissuaveolens</i>	M
32.	Holy basil	Thulasi	<i>Ocimumtenuiflorum</i>	M
33.	Pink Blumea	Suvatrumullangi	<i>Blumeamollis</i>	M
34.	Madagascar Periwinkle	Nithykalyani Podi	<i>Catharanthus roseus</i>	E
35.	Asian spiderflower	Naaikaduku	<i>Cleome viscosa L</i>	M
36.	<i>Digeria muricata</i>	Thoiyakeerai	<i>Digeria muricata</i>	EM
37.	Carrot grass	Partiniyam	<i>Parthenium hysterophorus</i>	NE
38.	Europeanblack nightshade	Manathakkali	<i>Solanumnigrum</i>	EM
39.	Mountain knotgrass	Thengaipookirai	<i>Aerva lanata</i>	M
40.	Ash Fleabane	Puvangkuruntal	<i>Vernonia cinerea</i>	M
41.	Bindii	Nerunchi	<i>Tribulus terrestris</i>	M
42.	Fish poison	Kolinchi	<i>Tephrosia purpurea</i>	M
43.	Chrysanthemum	Samanthi Poo	<i>Chrysanthemum</i>	E
44.	East Indian globe thistle	Kottakarantjai	<i>Sphaeranthus indicus</i>	M
45.	Tomato	Thakkali	<i>Solanum lycopersicum</i>	EM
46.	False daisy	Karisalankanni	<i>Eclipta alba</i>	M
47.	Sessile Joyweed	Ponnakanni	<i>Alternanthera sessilis</i>	M
48.	Chilli	Milakai	<i>Capsicum annum</i>	EM
49.	Red Spiderling	Mukirattai	<i>Boerhaviadiffusa</i>	M
50.	Aloe	Katrashai	<i>Aloe vera</i>	M
51.	Eggplant	Kathrikkai	<i>Solanum melongena</i>	EM
52.	Coat buttons	Thatha poo	<i>Tridax procumbens</i>	M
53.	Indian mint	Karpuravalli	<i>Coleus amboinicus</i>	EM
54.	Aloe barbadensis	Katrashai	<i>Aloe vera</i>	EM
<b>Climber/ Creeper</b>				
1.	Stemmed vine	Perandai	<i>Cissus quadrangularis</i>	M
2.	Wild bitter	Pavarkai	<i>Momordica charantia</i>	EM

3.	Pointed gourd	Kovakkai	<i>Trichosanthes dioica</i>	EM
4.	Balloon vine	Mudakkathan	<i>Cardiospermum helicacabum</i>	M
5.	Ivy gourd	Kovai	<i>Coccinia grandis</i>	M
6.	Asian pigeonwings	Sangu poo	<i>Clitoriaternatea</i>	M
7.	Bottle Guard	Sorakkai	<i>Lagenaria siceraria</i>	EM
8.	Wild Water Lemon	Siru Punaikkali	<i>Passiflora foetida</i>	M
9.	Ground Spurge	Sithrapaalavi	<i>Euphorbia prostrata</i>	EM
10.	Madras Pea Pumpkin	Musu musu	<i>Mukiamaderaspatena</i>	M
<b>Grass</b>				
1.	Jungle rice	KuthiraivaalKattuarusi	<i>Echinochloacolona</i>	NE
2.	Mauritian Grass	Moongilpul	<i>Apludamutica</i>	NE
3.	Swollen Windmill Grass	Kondai Pul	<i>Chloris barbata</i>	NE
4.	Needle Grass	Thodappam	<i>Aristida adscensionis</i>	E
5.	Eragrostis	Pullu	<i>Eragrostisferruginea</i>	E
6.	Needle Grass	-	<i>Aristida funiculata</i>	NE
7.	Windmill grass	Chevvarakupul	<i>Chloris barbata</i>	NE
8.	Sugarcane	Karumbu	<i>Saccharum</i>	E

Sources: Species observation in the field study and secondary data



### 3.5.6. Flora Composition in the Buffer Zone

Similar habitats may be found in the buffer area as well, although there is a wider variety of plants there than in the core zone area. The proposed project site there are 156 species in the buffer zone study area in total, based on records. The floral (156) varieties among them Trees 51, Herbs 54, Shrubs 33, Climbers/ Creepers 10, and Grasses 8, 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.3.24. 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 3.25 and their % distribution is shown in Figure 3.34.

**Table 3.25: Number of floral life forms in the Study Area**

S. No	Plant Life Form	Number of Species
1	Trees	51
2	Shrubs	33
3	Herbs	54
4	Climber/Creepers	10
6	Grasses	8
Total No. of Species		156

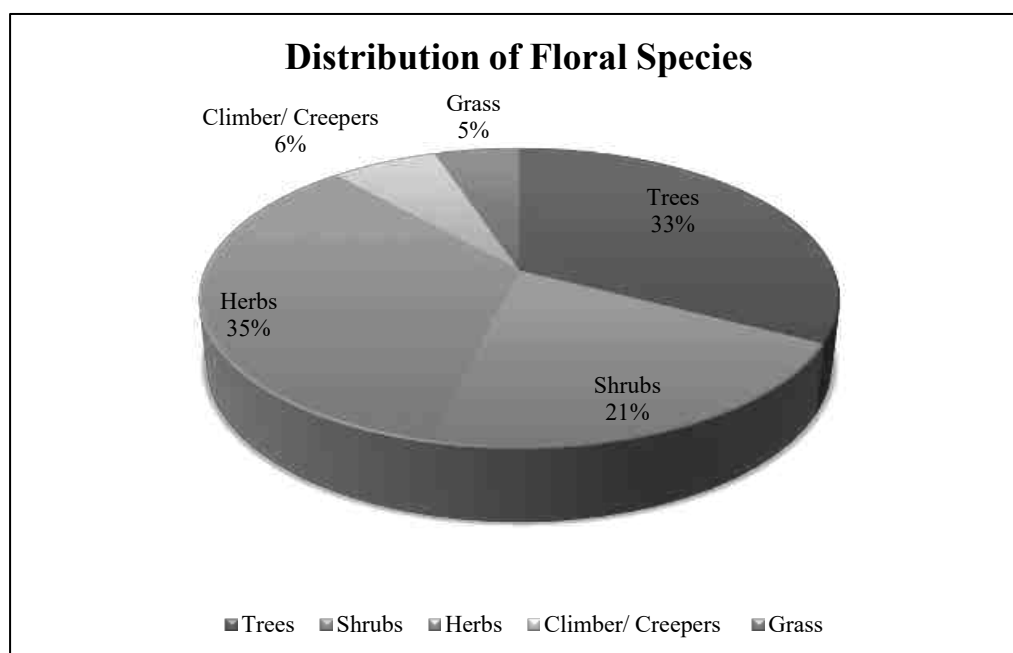


Fig No. 3.34: Diagram showing % distribution of floral life forms



a. *Calotropis gigantea*



b. *Azadirachta indica*



c. *Lantana camara*



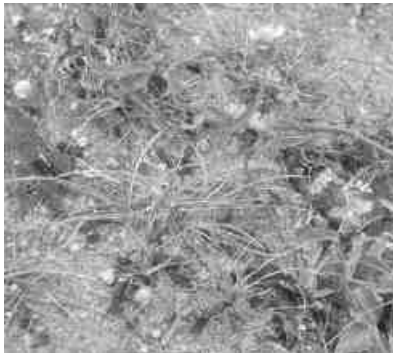
d. *Nerium indicum*



e. *Emblica officinalis*



f. *Annona reticulata*



g. *Tridax procumbens*



h. *Borassus flabellifer*



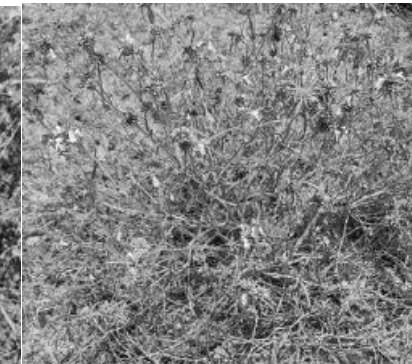
i. *Tribulus terrestris*



j. *Tamarindus indica*



k. *Jatropha curcas*



l. *Leucas aspera*



m.Ocimum tenuiflorum



n.Euphorbia hirta



o.Croton bonplandianus



P.Cocos nucifera



q.Thespesia populnea



r.Euphorbia antiquorum



s.Solanum nigrum



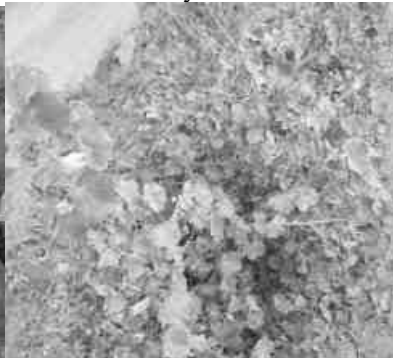
t.Phoenix sylvestris



u.Prosopis juliflora



V.Solanum torvum



w.Abutilon indicum



x.Morinda tinctoria



Y.Hibiscu rosa-sinensis



z.Ficus benghalensis



a.Mangifera indica

Fig No: 3.35. Flora species observation in the Buffer zone area

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

There are neither reserved (RF) nor protected (PF) forests either in the mine lease area or in the buffer zone. Thus, no forest land is involved in any manner. Hence, no certificate from the Forest department is required. There are no impacts due to this mining activity.

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

There are neither forests nor forest dwellers nor forest-dependent communities in the mine lease area. There shall be no forest-impacted families (PF) or people (PP). Thus, the rights of Traditional Forest Dwellers will not be compromised on account of the project.

### 3.6. Fauna

The 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.

#### 3.6.1. Fauna Composition in the Core Zone

**Core Zone:** During the study, it was found that the faunal diversity in the core site was limited to Butterflies, insects, and some species of mammals & reptiles among them numbers Insects 8, Reptiles 6, Mammals 3, and Avian 9. The core site has avifauna species like crow, Black drongo, Koel, etc. None of these species are threatened or endemic in the study area and surroundings. There is no Schedule I species and 13 species are under Schedule IV according to the Indian Wildlife Act 1972. There are no critically endangered, endangered, vulnerable, and endemic species were observed.

There are no critically endangered, endangered, vulnerable and endemic species were observed. Details of fauna in core zone with the scientific name were mentioned in Table No. 3.56.

**Table No: 3.26. Fauna in the Core zone of Elathur 'A' Village, Rough stone and Gravel quarry, Nambiyur Taluk, Erode District**

SI. No	Common Name	Scientific Name	Schedule list WLPC 1972
<b>Insects</b>			
1.	Common Tiger	<i>Danaus genutia</i>	NL
2.	Red-veined darter	<i>Sympetrum fonscolombii</i>	NL
3.	Tawny coster	<i>Danaus chrysippus</i>	Schedule IV
4.	House fly	<i>Musca domestica</i>	-
5.	Dragonfly	<i>Agriansp</i>	-
6.	Striped tiger	<i>Danaus plexippus</i>	Schedule IV
7.	Grey pansy	<i>Junoniaatlites</i>	LC
8.	Common Tiger	<i>Danaus genutia</i>	LC
<b>Reptiles</b>			
1.	Oriental garden lizard	<i>Calotes versicolor</i>	NL
2.	Green vine snake	<i>Ahaetulla nasuta</i>	Schedule IV
3.	Oriental garden lizard	<i>Calotes versicolor</i>	NL
4.	Rat snake	<i>Ptyas mucosa</i>	Sch IV (Part II)
5.	Indian forest skink	<i>Sphenomorphus indicus</i>	NL
6.	House lizards	<i>Hemidactylus flaviviridis</i>	Schedule IV
<b>Mammals</b>			
1.	Indian Field Mouse	<i>Mus booduga</i>	Schedule IV
2.	Asian Small Mongoose	<i>Herpestes javanicus</i>	Schedule (Part II)
3.	Squirrel	<i>Funambulus palmarum</i>	Schedule IV
<b>Aves</b>			
1.	Rose-ringed parakeet	<i>Psittaculakrameri</i>	Schedule IV
2.	Common myna	<i>Acridotheres tristis</i>	NL
3.	Blue-rock pigeon	<i>Colombalivia</i>	Schedule IV
4.	Yellow wagtail	<i>Motacilla flava</i>	Schedule IV
5.	Pond heron	<i>Ardeolagrayii</i>	Schedule IV
6.	Asian koel	<i>Eudynamysscolopacea</i>	Schedule IV
7.	Koel	<i>Eudynamys</i>	Schedule IV
8.	Black drongo	<i>Dicrurus macrocercus</i>	Schedule IV
9.	House crow	<i>Corvus splendens</i>	NL

(Sources: Species observation in the field study)

### 3.6.2. Fauna Composition in the Buffer Zone

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

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

The list of Mammals (\*directly sighted animals & Secondary data) is given in table No.3.26. The list of bird species recorded during the field survey and literature from the study area are given in Table 3.27. The list of reptilian species recorded during the field survey and literature from the study area is given in Table 3.28. The list of insect species recorded during the field survey and literature from the study area are given in Table 3.29. The list of Butterflies species recorded during the field survey and literature from the study area are given in Table 3.30. 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 66 species recorded were from the buffer zone area. Based on habitat classification the majority of species were birds 30, followed by Butterflies 12, Reptiles 10, Insects 5, Mammals 5, and Amphibians 4. There are five Schedule II species, two species are under the schedule III and forty-nine species are under Schedule IV according to the Indian Wildlife Act 1972. A total of 30 species of bird were sighted in the study area. There are no critically endangered, endangered, vulnerable, and endemic species were observed. There are no impacts on nearby fauna species.

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

**Table 3.27. List of Fauna & Their Conservation Status,  
Mammals: (\*directly sighted animals & Secondary data)**

SI. No	Scientific Name	Common Name/English Name	Schedule list wildlife Protection act 1972
1.	<i>Rattus norvegicus</i>	Brown rat	Schedule IV
2.	<i>Funambulus palmarum</i>	Indian palm squirrel	Schedule IV
3.	<i>Herpestes javanicus</i>	Asian Small Mongoose	Schedule (Part II)
4.	<i>Lepus nigricollis</i>	Indian hare	Schedule (Part II)
5.	<i>Mus booduga</i>	Indian Field Mouse	Schedule IV

**Table 3.28. Listed birds**

SI. No	Scientific Name	Common Name/English Name	Schedule list wildlife Protection act 1972
1.	<i>Turdoides striata</i>	Jungle babbler	Schedule IV
2.	<i>Saxicoloides fulicatus</i>	Indian robin	Schedule IV
3.	<i>Eudynamis</i>	Asian Koel	Schedule IV
4.	<i>Bubulcus ibis</i>	Cattle egret	Schedule IV
5.	<i>Columbidae</i>	Rock pigeon	Schedule IV
6.	<i>Acridotheres tristis</i>	Common myna	Schedule IV
7.	<i>Corvus splendens</i>	House crow	Schedule IV
8.	<i>Pycnonotus cafer</i>	Red Vented Bulbul	Schedule IV
9.	<i>Merops orientalis</i>	Small Bee Eater	Schedule IV
10.	<i>Cinnyris asiaticus</i>	Purple sunbird	Schedule IV
11.	<i>Hierococcyx varius</i>	Common hawk-cuckoo	Schedule IV
12.	<i>Passer domesticus</i>	House sparrow	Schedule IV
13.	<i>Alcedo atthis</i>	Small blue Kingfisher	Schedule IV
14.	<i>Psittacula krameri</i>	Rose-ringed parakeet	Schedule IV

15.	<i>Cypsiurusbalasiensis</i>	Asian Palm Swift	Schedule IV
16.	<i>Coturnix coturnix</i>	Common quail	Schedule IV
17.	<i>Ardeolagrayii</i>	Pond herons	Schedule IV
18.	<i>Dicrurusmacrocerus</i>	Black drongo	Schedule IV
19.	<i>Picidae</i>	Woodpecker bird	Schedule IV
20.	<i>Ploceusphilippines</i>	Weaver bird	Schedule IV
21.	<i>Dicrurusmacrocerus</i>	Two-tailed Sparrow	Schedule IV
22.	<i>Dicruruslongicaudatus</i>	Grey drongo	Schedule IV
23.	<i>Francolinuspondicerianus</i>	Grey Francolin	Schedule IV
24.	<i>Tringaglareola</i>	Wood Sandpiper	Schedule IV
25.	<i>Meropsphilippinus</i>	Blue-Tailed Bee Eater	Schedule IV
26.	<i>Coracias benghalensis</i>	Indian Roller	Schedule IV
27.	<i>Hirundo rustica</i>	Common Swallow	Schedule IV
28.	<i>Orthotomussutorius</i>	Common Tailor Bird	NL
29.	<i>Cinnyris asiaticus</i>	Purple Sunbird	NL
30.	<i>Dinopiumbenghalense</i>	Lesser Golden Backed Woodpecker	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 either spotted or reported from the study area.**

(\*indicates direct observations &amp; Secondary data)

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>Mabuyacarinatus</i>	Common skink	NL
8.	<i>Viperarusseli</i>	Russell's viper	Sch II (Part II)
9.	<i>Nerodia piscator</i>	Fresh water snake	Sch III (Part II)
10.	<i>Groemydabijuga</i>	Fresh water tortoise	Sch III (Part II)

**Table 3.30. List of insects either spotted or reported from the study area**

SI. No	Scientific Name	Common Name/English Name	Schedule list wildlife Protection act 1972
1.	<i>Apis cerana</i>	Indian honey bee	-
2.	<i>Hamitermessilvestri</i>	Termite	NE
3.	<i>Hieroglyphussp</i>	Grasshopper	NL
4.	<i>CamponotusVicusin</i>	Ant	NL
5.	<i>Ceratogomphus pictus</i>	Dragonfly	-

**Table.3.31. List of Butterflies reported from the study area**

SI. No	Scientific Name	Common Name/English Name	Schedule
1.	<i>Suastusgremius</i>	Indian palm bob	Schedule IV
2.	<i>Papilio polytes</i>	Common Mormon	Schedule IV
3.	<i>Pachlioptaaristolochiaee</i>	Common rose	Schedule IV
4.	<i>Euremalaeta</i>	Spotless grass yellow	Schedule IV
5.	<i>Danaus genutia</i>	Common Tiger	Schedule IV
6.	<i>Catopsiliapomona</i>	Common emigrant	Schedule IV
7.	<i>Colotisdanae</i>	Crimson tip	Schedule IV
8.	<i>Euploea core</i>	Common Indian crow	Schedule IV
9.	<i>Papilio demoleus</i>	Lime Butterfly	Schedule IV
10.	<i>Junoniahierta</i>	Yellow Pansy	Schedule IV
11.	<i>Junoniaiphita</i>	Chocolate Pansy	Schedule IV
12.	<i>Euploeasylvester</i>	Double-branded Black Crow	Schedule IV

### 3.6.3. Aquatic Ecology

Mining activities will not have an impact on aquatic ecosystems because no effluent discharge from the Limestone mine is planned. There are no natural perennial surface water bodies, such as marshes, rivers, streams, lakes, or agricultural sites, inside the mining lease area. The study region contains a few seasonal bodies of water. There is no aquatic flora and, aquatic fauna. Hence, it does not harbour any significant aquatic life. Therefore, the project is not likely to affect the aquatic ecology. Aquatic weeds are found to be growing everywhere in 10 km radius area, in every water bog, pond, etc. Typha angustata can be found growing all along the drains of villages, small water-logged depressions, and agricultural fields lacking water but containing enough moisture to support its growth. And where water is present, Eichhornia crassipes has taken its roots and covers the entire water surface by its sprawl and invasion.



### 3.6.3.1. Objectives of Aquatic Studies

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

### 3.6.3.2. Macrophytes

The macrophytes observed within the study area are tabulated in Table 3.32.

**Table No.3.32. Description of Macrophytes**

Sl.No	Scientific name	Common Name	Vernacular Name (Tamil)	IUCN Red List of Threatened Species
1.	<i>Eichorniacrassipe</i>	Water hyacinth	Agayatamarai	NA
2.	<i>Aponogetonnatans</i>	Floating lace plant	Kottikizhnagu	NA
3.	<i>Nymphaea nouchali</i>	Blue water lily	Nellambal	LC
4.	<i>Typha angustifolia</i>	Sambu	Narrowleaf cattail	LC
5.	<i>Carexcruciata</i>	Cross Grass	Koraipullu	NA
6.	<i>Cyperus exaltatus</i>	Tall Flat Sedge	Koraikizhangu	LC

**Sources: Species observation in the field study**

### 3.6.3.3. Aquatic Faunal Diversity

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

**Table no. 3.33. Amphibians Observed/Recorded from the Study Area**

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

### 3.6.3.4. Other Aquatic Fauna

#### 3.6.3.4.1. Fishes

The study area has low aquatic diversity, with few types of fish living. The species of fish reported during the primary visit are Rohu, Catla, Catfish, etc. Species of fish reported in the study area are given in table 3.64.

**Table 3.34. Based on Actual Sighting, based on inputs from locals and Perused from Secondary Data**

S.No	Scientific name	Common name	Family
1.	<i>Puntius sophore</i>	Ponthia	Cyprinidae
2.	<i>CatlaCatla</i>	Catla	Cyprinidae
3.	<i>Lepidopuscaudatus</i>	Silver scabbardfish	Trichiuridae
4.	<i>Siluriformes</i>	Catfish	-
5.	<i>Labeorohita</i>	Rohu	Cyprinidae
6.	<i>Electrophorus electricus</i>	Eel fish	Gymnotidae

**Sources: Species observation in the field study**

### 3.6.4. Findings/Results

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

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**Records of threatened species in the area**

No threatened species were observed

**Endangered Species as per Wildlife (Protection) Act**

No Endangered fauna was recorded in the project area.

**Endemic Species of the Project areas**

No endemic species were observed in the project area.

**Migratory species of the Project areas**

No migratory fauna observed in project area.

**Migratory corridors and Flight paths**

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

**Breeding and spawning grounds**

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

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

There are no National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar sites, Tiger/Elephant Reserves/(existing as well as proposed) within 10 km of the mine lease area. There are no protected forests within the project area. Hence submission of clearance from the National Board of Wildlife does not arise.

There is no endangered, endemic and RET Species. There is no Schedule I species in study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] The proposed project is not going to have any direct or indirect adverse impact on the species mentioned above.

**3.7. Conclusion**

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

### 3.6 SOCIO ECONOMIC ENVIRONMENT

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

#### STRUCTURE STUDY IN 500m RADIUS

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

**TABLE 3.35: STRUCTURES IN 500m RADIUS**

0-50m radius – No Structures							
50 – 100m radius – No Structures							
100-200m – 2 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. 140m - SW	Shed	Agriculture shed	Farm house	Nil	No	Yes	Agriculture products
2. 160m-NW	Storage shed	Agriculture shed	Farm house	Nil	No	Yes	Agriculture products
200 – 300m – 5Nos							
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 Nos of Farm houses 270m-NE	Concrete houses	Farm house and occasional residence	Agriculture	4 Nos	No	Yes	Farm houses occasionally used for the staying purpose. Utilized for the storage of agriculture goods.
2. Mines shed -250m-NE	Concrete houses	Mine workers residence	Industry	NIL	NIL	Yes	Mine workers and occupant.
3. 280m-NW	Shed	Agriculture shed	Farm house	Nil	No	Yes	Agriculture products
4. 240m—E 270m-E	Shed	Agriculture shed	Farm house	Nil	No	Yes	Agriculture products
5. 290m-SE	Motor shed	Agriculture shed	Farm house	Nil	No	Yes	Agriculture products
300 – 500m –							
340m-NE	Motor Shed	Agriculture shed	Farm house	Nil	No	Yes	Agriculture products
360m-NE 320m-S 370m-SW	Tiled House	Farming house	Residential	Tiled	No	Yes	4 persons occupant and one person female house wife
340m	Cattle shed	Agriculture	Farm house	Nil	No	Yes	Agriculture

400m-SW	Farm house	Farming house	Residential	Tiled	No	Yes	2 persons occupant for farming land
420m-SW 440m-SW 490m-W	Tiled House	Farming house	Residential	Tiled	No	Yes	3 persons occupant and one person female house wife
420m-SW 490m-W	Shed	Agriculture shed	Farm house	Nil	No	Yes	Agriculture products
460m-NE	Temporary Shed	Agriculture	Electric/motor shed	Nil	No	Yes	Agriculture products

**FIGURE 3.26: 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

Erode District lies on the extreme north of Tamil Nadu. It is bounded mostly by Karnataka State and also River Palar covers pretty long distance. To the East lies Namakkal and Karur Districts. Dindigal District is its immediate neighbour to the South and on the West, it has Coimbatore and Nilgiri Districts, as its boundaries. Thus, Erode District is essentially a land-locked area having no sea-cost of its own. Erode District situated at between 10 36" and 11 58" North Latitude and between 76 49" and 77 58" East Longitude. <https://erode.nic.in/about-district/>

Now Erode District consists of 10 taluks viz., Erode, Modakkurichi, Kodumudi, Perundurai, Bhavani, Anthiyur, Gobichettipalayam, Sathyamangalam, Thalavadi and Nambiyur. There are 4 Municipalities in the district viz., Sathyamangalam, Bhavani, Gobichettipalayam, and Punjai Puliampatti. The other four Municipalities in the

district viz. Periasemur, Kasipalayam, Surampatti and Veerappanchatram have been merged recently with Erode Corporation. There are 42 Town Panchayats, 230 Village Panchayats and 375 Revenue Villages. There are 14 Community Development Blocks in the district.

### **Minerals**

Though the district cannot boast of great mineral wealth, it has a few varied items of significance. Both opaque and translucent varieties of fine quality of Feldspar is found abundantly in Erode taluk. Mica and Muscovite occur in Vairamangalam near Bhavani and near Punjai Puliampatti respectively. Asbestos is found to occur in a few places of Bhavani and Perundurai. Doddan Combai forest in Gobichettipalayam is bestowed with rich iron ore. This ore is found to be of very fine quality and rich in metal. Traces of gold also have been found in a few auriferous veins in Gobichettipalayam.

### **3.6.4 Study area:**

#### **ELATHUR VILLAGE**

Elathur is a municipality in Kopichettipalayam circle in Erode district in the Indian state of Tamil Nadu. The municipality consists of 18 hamlets. Erode is 58 km from Elathur municipality on the Nambiar - Sathyamangalam road; Gopichettipalayam is 25 km to its east; Sathyamangalam 22 km to the west; Nambiar is 3 kms to the south.

Elathur is a Town Panchayat city in district of Erode, Tamil Nadu. The Elathur city is divided into 15 wards for which elections are held every 5 years. The Elathur Town Panchayat has population of 7,827 of which 3,876 are males while 3,951 are females as per report released by Census India 2011.

Elathur Town Panchayat has total administration over 2,404 houses to which it supplies basic amenities like water and sewerage. It is also authorize to build roads within Town Panchayat limits and impose taxes on properties coming under its jurisdiction.

#### **Elathur 2023 - 2024 Population**

Current estimated population of Elathur Town Panchayat in 2024 is approximately 11,000. The schedule census of 2021 for Elathur city is postponed due to covid. We believe new population census for Elathur city will be conducted in 2024 and same will be updated once it's done. The current data for Elathur town are estimated only but all 2011 figures are accurate.

#### **Sex Ratio of Elathur Village -Census 2011**

Population of Children with age of 0-6 is 660 which is 8.43 % of total population of Elathur (TP). In Elathur Town Panchayat, Female Sex Ratio is of 1019 against state average of 996. Moreover, Child Sex Ratio in Elathur is around 908 compared to Tamil Nadu state average of 943.

#### **Literacy of Elathur Village**

Literacy rate of Elathur city is 60.85 % lower than state average of 80.09 %. In Elathur, Male literacy is around 71.84 % while female literacy rate is 50.18 %

<b>Population</b>	<b>Area (Ha)</b>	<b>Density (P/Ha)</b>	<b>Sex Ratio</b>	<b>Literacy</b>
7827	8.13	963	1019	60.85%

**TABLE 3.36: ELATHUR VILLAGE CENSUS 2011 DATA**

Description	Census 2011 Data
Town Name	Elathur
Civic Type	TP
Tehsil Name	GOBICHETTIPALAYAM
District Name	ERODE
State Name	TAMIL NADU
Total Population	7827
Total Area	8.13 (Ha)
Total No of House Holds	2404
Total Male Population	3876
Total Female Population	3951
0-6 Age group Total Population	660
0-6 Age group Male Population	346
0-6 Age group Female Population	314
Total Person Literates	4361
Total Male Literates	2536
Total Female Literates	1825
Total Person Illiterates	3466
Total Male Illiterates	1340
Total Female Illiterates	2126
Scheduled Cast Persons	1421
Scheduled Cast Males	734
Scheduled Cast Females	687
Scheduled Tribe Persons	0
Scheduled Tribe Males	0
Scheduled Tribe Females	0

Source: <https://etrace.in/census/town/elathur-tamil-nadu-803526/>

#### **Worker's profile of Elathur Village**

Out of total population, 4,386 were engaged in work or business activity. Of this 2,571 were males while 1,815 were females. In census survey, worker is defined as person who does business, job, service, and cultivator and labour activity. of total 4386 working population, 84.09 % were engaged in Main Work while 15.91 % of total workers were engaged in Marginal Work.

**TABLE 3.37 ELATHUR WORKING POPULATION ---CENSUS 2011**

<b>Workers</b>	<b>Total</b>	<b>Male</b>	<b>Female</b>
Total Workers	4386	2571	1815
Main Workers	3688	2201	1487
Main Workers Cultivators	1088	606	482
Agriculture Labourer	1142	553	589
Household Industries	105	44	61
Other Workers	1353	998	355
Marginal Workers	698	370	328
Non Working Persons	3441	1305	2136

Source: <https://etrace.in/census/town/elathur-tamil-nadu-803526/>

**TABLE 3.38: POPULATION DATA OF STUDY AREA**

Sno	Name	TRU	No of House Holds	Total Population	Male	Female	SC Population	ST Population	Total Literate Population	Male Literate	Female Literate
1	Akkaraikodiveri	Rural	739	2263	1115	1148	1074	4	1425	777	648
2	Singiripalayam	Rural	290	889	448	441	48	0	612	338	274
3	Alukuli	Rural	2163	6974	3508	3466	2191	0	3989	2263	1726
4	Pariyur	Rural	742	2265	1126	1139	447	1	1352	767	585
5	Vellalalayam	Rural	1743	5596	2747	2849	446	0	3717	2047	1670
6	Nanjaigopi	Rural	549	1758	905	853	538	0	1037	598	439
7	Pulavakalipalayam	Rural	1715	5125	2586	2539	1155	3	3405	1929	1476
8	Kullampalayam	Rural	975	3089	1521	1568	210	3	2156	1180	976
9	Nathipalayam	Rural	430	1385	702	683	381	0	821	483	338
10	Modachur	Rural	2339	7666	3846	3820	846	0	5115	2880	2235
11	Kalingiyam	Rural	2994	9722	4844	4878	1344	0	6101	3433	2668
12	Kottupullampalayam	Rural	1910	6083	3060	3023	1305	0	3674	2124	1550
13	Karattupalayam	Rural	2419	7835	3935	3900	2314	0	4362	2507	1855
14	Odayagoundanpalayam	Rural	593	1874	940	934	641	0	1253	685	568
15	Kadathur	Rural	1329	4171	2072	2099	823	3	2438	1404	1034
16	Sundakkampalayam	Rural	1339	4134	2013	2121	1021	1	2328	1314	1014
17	Gudakkarai	Rural	1019	3289	1610	1679	903	0	1998	1158	840
18	Andipalayam	Rural	615	2025	1045	980	359	0	1253	729	524
19	Kurumandur	Rural	1291	4190	2035	2155	710	0	2575	1423	1152
20	Ayalur	Rural	1850	5980	3050	2930	991	0	3349	1991	1358
21	Nagadevampalayam	Rural	1526	4873	2456	2417	1204	0	2742	1567	1175
22	Kadukkampalayam	Rural	804	2467	1229	1238	967	0	1452	851	601
23	Chandrapuram	Rural	511	1597	826	771	156	0	937	574	363
24	Vellankovil	Rural	1931	6144	3075	3069	1029	1	3825	2197	1628
25	Siruvalur	Rural	2576	7923	3982	3941	896	0	4839	2784	2055
26	Talguni	Rural	562	1693	856	837	367	0	971	567	404
27	Koshanam	Rural	2321	7397	3705	3692	1612	5	4479	2628	1851
28	Irugalur	Rural	204	614	315	299	102	0	398	240	158
29	Anjanur	Rural	1351	4302	2194	2108	996	0	2274	1363	911
30	<b>Elathur (TP)</b>	Urban	2404	7827	3876	3951	1421	0	4361	2536	1825
	<b>Total</b>		<b>41234</b>	<b>131150</b>	<b>65622</b>	<b>65528</b>	<b>26497</b>	<b>21</b>	<b>79238</b>	<b>45337</b>	<b>33901</b>

Source: www.censusindia.gov.in



**TABLE 3.39: WORKERS PROFILE OF STUDY AREA**

Sno	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	Akkaraikodiveri	1412	787	625	1391	783	608	120	871	369	851
2	Singiripalayam	509	301	208	495	297	198	109	242	135	380
3	Alukuli	4016	2361	1655	3712	2217	1495	296	2175	1065	2958
4	Pariyur	1159	718	441	871	579	292	34	311	490	1106
5	Vellalalayam	3039	1852	1187	2664	1685	979	403	752	1456	2557
6	Nanjaigopi	1088	616	472	887	511	376	229	547	100	670
7	Pulavakalipalayam	3125	1745	1380	2895	1641	1254	647	1479	689	2000
8	Kullampalayam	1753	1041	712	1654	1001	653	471	412	718	1336
9	Nathipalayam	795	487	308	787	484	303	213	236	307	590
10	Modachur	4211	2622	1589	4128	2600	1528	409	1235	2181	3455
11	Kalingiyam	5716	3321	2395	5435	3240	2195	1060	2305	1987	4006
12	Kottupullampalayam	3754	2168	1586	3384	1978	1406	759	1605	979	2329
13	Karattupalayam	4891	2727	2164	4691	2638	2053	1563	1783	1275	2944
14	Odayagoundanpalayam	1314	688	626	1262	665	597	65	1096	90	560
15	Kadathur	2681	1489	1192	2348	1293	1055	919	998	417	1490
16	Sundakkampalayam	2801	1458	1343	2559	1348	1211	627	1570	311	1333
17	Gudakkarai	2073	1114	959	1704	945	759	600	672	365	1216
18	Andipalayam	1370	735	635	1205	661	544	394	606	167	655
19	Kurumandur	2419	1358	1061	2085	1179	906	493	732	818	1771
20	Ayalur	3850	2104	1746	3671	2041	1630	943	1196	1187	2130
21	Nagadevampalayam	3320	1712	1608	3126	1657	1469	854	1594	551	1553
22	Kadukkampalayam	1533	843	690	1498	832	666	425	675	369	934
23	Chandrapuram	1095	586	509	1085	580	505	468	399	193	502
24	Vellankovil	3501	2057	1444	3296	1997	1299	763	1086	1199	2643
25	Siruvalur	4775	2733	2042	4265	2526	1739	1018	1600	1516	3148
26	Talguni	1050	607	443	915	536	379	264	236	330	643
27	Koshanam	4715	2628	2087	3999	2275	1724	1238	988	1608	2682
28	Irugalur	369	209	160	368	209	159	77	186	102	245
29	Anjanur	2818	1539	1279	2629	1464	1165	738	1044	798	1484
30	Elathur (TP)	4386	2571	1815	3688	2201	1487	1088	1142	1353	3441

Source: www.censusindia.gov.in

**TABLE 3.40: 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	Akkaraikodiveri	1	2	1	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
2	Singiripalayam	1	2	1	2	1	2	1	2	2	2	2	2	2	1	2	1	2	1	2	2	2	2	2	2
3	Alukuli	1	2	1	2	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	1	2	2	2	2
4	Pariyur	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
5	Vellalalayam	2	2	1	2	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
6	Nanjaigopi	1	2	1	2	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
7	Pulavakalipalayam	1	1	1	1	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
8	Kullampalayam	2	2	1	1	1	1	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2
9	Nathipalayam	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
10	Modachur	1	2	1	2	1	2	2	2	2	2	2	2	2	1	2	2	2	2	2	1	2	2	2	2
11	Kalingiyam	1	2	1	1	1	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2
12	Kottupullampalayam	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
13	Karattupalayam	1	2	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
14	Odayagoundanpalayam	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
15	Kadathur	2	2	1	2	1	1	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
16	Sundakkampalayam	1	1	1	1	1	1	2	2	2	2	2	1	2	1	2	2	2	2	2	1	2	2	2	2
17	Gudakkarai	1	2	1	1	1	1	1	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2
18	Andipalayam	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
19	Kurumandur	1	2	1	2	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
20	Ayalur	2	1	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
21	Nagadevampalayam	1	1	1	1	1	1	2	2	2	2	2	1	2	1	2	2	2	2	2	1	2	2	2	2
22	Kadukkampalayam	1	2	1	1	1	1	1	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2
23	Chandrapuram	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	Vellankovil	2	2	1	2	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
25	Siruvalur	1	1	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
26	Talguni	1	1	1	1	1	1	2	2	2	2	2	1	2	1	2	2	2	2	2	1	2	2	2	2
27	Koshanam	1	2	1	2	1	1	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
28	Irugalur	1	1	1	1	1	1	2	2	2	2	2	1	2	1	2	2	2	2	2	1	2	2	2	2
29	Anjanur	1	1	1	1	1	1	2	2	2	2	2	1	2	1	2	2	2	2	2	1	2	2	2	2
30	Elathur (TP)	1	1	1	2	1	1	1	2	1	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 3.41: 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	Akkaraikodiveri	0	0	1	0	0	0	0	0	0	0	0	b
2	Singiripalayam	0	0	1	0	0	0	0	0	0	0	0	b
3	Alukuli	0	1	1	1	1	0	0	1	0	0	1	b
4	Pariyur	0	0	0	0	0	0	0	0	0	0	0	c
5	Vellalalayam	0	1	0	0	0	0	0	0	0	0	0	c
6	Nanjaigopi	0	0	1	0	0	0	0	0	0	0	0	c
7	Pulavakalipalayam	0	0	1	0	0	0	0	0	0	0	0	c
8	Kullampalayam	0	0	1	0	0	0	0	0	0	0	0	a
9	Nathipalayam	0	0	0	0	0	0	0	0	0	0	0	b
10	Modachur	0	1	1	1	1	0	0	1	0	0	1	b
11	Kalingiyam	0	0	1	1	0	0	0	0	0	0	0	a
12	Kottupullampalayam	0	0	0	0	0	0	0	0	1	0	0	c
13	Karattupalayam	0	0	1	0	0	0	0	0	1	0	0	c
14	Odayagoundanpalayam	0	0	1	0	0	0	0	0	1	0	0	c
15	Kadathur	0	0	1	0	0	0	0	0	0	0	0	b
16	Sundakkampalayam	0	0	3	0	0	0	0	0	0	0	0	a
17	Gudakkarai	0	1	1	0	0	0	0	0	3	0	0	b
18	Andipalayam	0	0	3	0	0	0	0	0	0	0	0	b
19	Kurumandur	0	0	1	0	0	0	0	0	1	0	0	b
20	Ayalur	0	0	1	0	0	0	0	0	0	0	0	b
21	Nagadevampalayam	0	0	0	0	0	0	0	0	1	0	0	c
22	Kadukkampalayam	0	0	1	0	0	0	0	0	1	0	0	c
23	Chandrapuram	0	0	1	0	0	0	0	0	1	0	0	c
24	Vellankovil	0	1	1	0	0	0	0	0	0	0	0	b
25	Siruvalur	0	0	3	0	0	0	0	0	0	0	0	a
26	Talguni	0	0	1	0	0	0	0	0	3	0	0	b
27	Koshanam	0	0	3	0	0	0	0	0	0	0	0	b
28	Irugalur	0	0	1	0	0	0	0	0	1	0	0	b
29	Anjanur	0	0	1	0	0	0	0	0	0	0	0	b
30	Elathur (TP)	1	1	1	0	0	0	0	0	0	0	0	b

Abbreviations: CHC-Community Health Centre; TBC-TB Clinic; VH- Vetrernity 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

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### 3.6.6 Recommendation and Suggestion

- The main activities in the area are agriculture, quarry operation and Crushing units there are 2 Numbers of quarries operated in the region.
- There is no Crushers operating within 500m and the demand of Rough stone 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 12 Nos of peoples will be benefitted directly due to employment and more than 20 Nos of peoples and Crushers will be benefitted through this project
- As part of CER activities proponent intends to spend Rs 5 Laksh for the improvement of School sanitation facilities, Greenbelt development and other needs.
- At the end of the life of the mine the mined-out pit will act as temporary reservoir, the collected rain water in the mine pit may utilized for the nearby agriculture lands.

#### **Apart from the following general activities will be conducted**

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

### 3.6.7 Summary &Conclusion

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

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## 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

- 0.54.35 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 0.54.35Ha 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 be benefitted by the supply of water
- About 520 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
- 1.0 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.
- Wastewater discharge from mine will be treated in settling tanks before using for dust suppression and tree plantation purposes.
- De-silting will be carried out before and immediately after the monsoon season.

### 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 PM<sub>10</sub>& PM<sub>2.5</sub> and emissions of Sulphur dioxide (SO<sub>2</sub>) & Oxides of Nitrogen (NO<sub>x</sub>) due to excavation/loading equipment and vehicles plying on haul roads are the cause of air pollution in the project area.

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

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

### AERMOD Software.

Prediction of impacts on air environment has been carried out taking into consideration cumulative production all the quarries fall in the Cluster. Air environment and net increase in emissions by Open pit source modelling in AERMOD Software AERMOD 12.

#### 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-EmissionEstimation Technique Manual, for Mining AP-42, to arrive at possible emissions to theatmosphere 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.

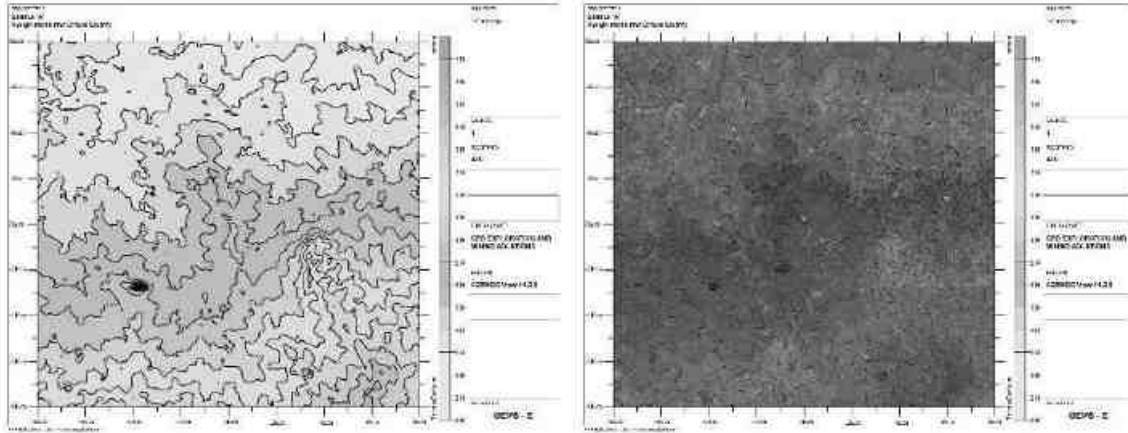
Impact was predicted over the distance of 10 km around the source to assess the impact at each receptor separately at the various locations and maximum incremental GLC value at the project site. Maximum impact of PM<sub>10</sub> was observed close to the source due to low to moderate wind speeds. Incremental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

**TABLE 4.1: ESTIMATED EMISSION RATE**

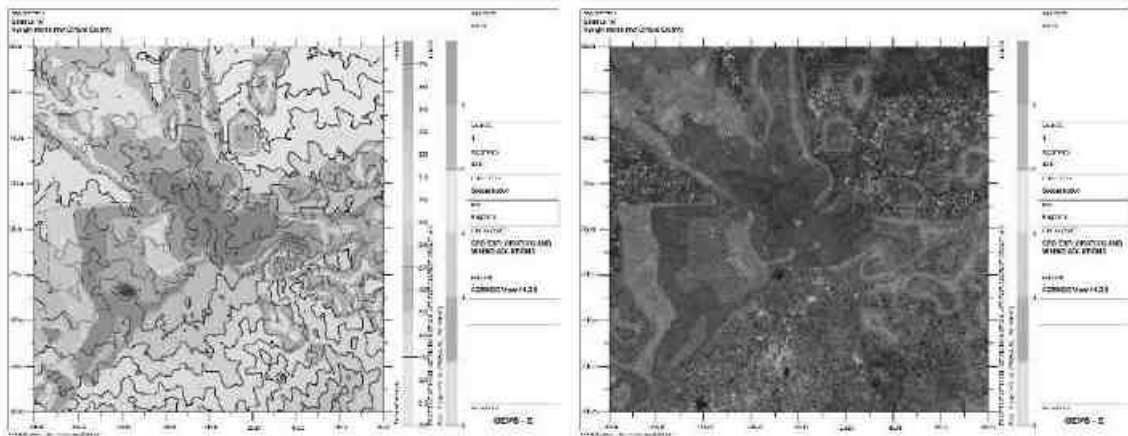
PM <sub>10</sub>			
Activity	Source type	Value	Unit
Drilling	Point Source	0.041355639	g/s
Blasting	Point Source	0.000029261	g/s
Mineral Loading	Point Source	0.032709700	g/s
Haul Road	Line Source	0.002482893	g/s/m
Overall Mine	Area Source	0.035916273	g/s
So2	Area Source	4.80626E-05	g/s
Nox	Area Source	0.000001000	g/s



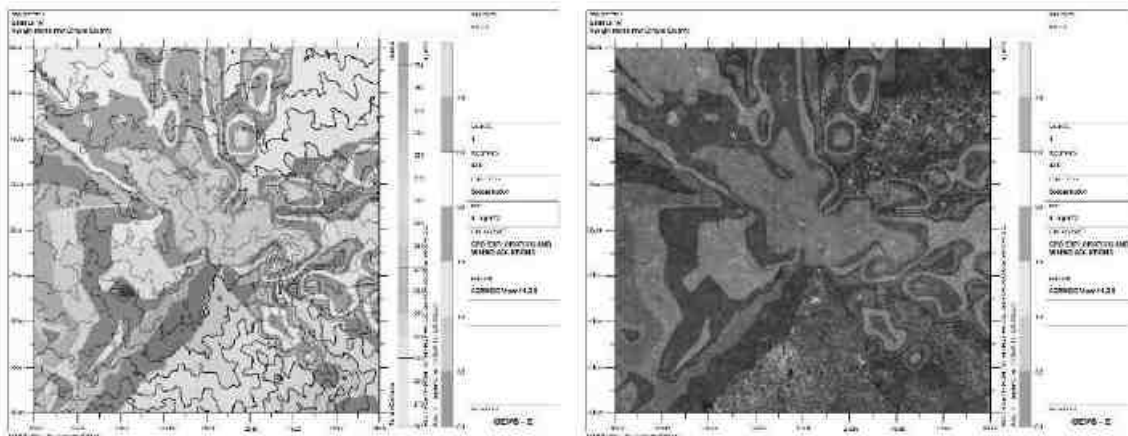
**FIGURE 4.1: AERMOD TERRAIN MAP**



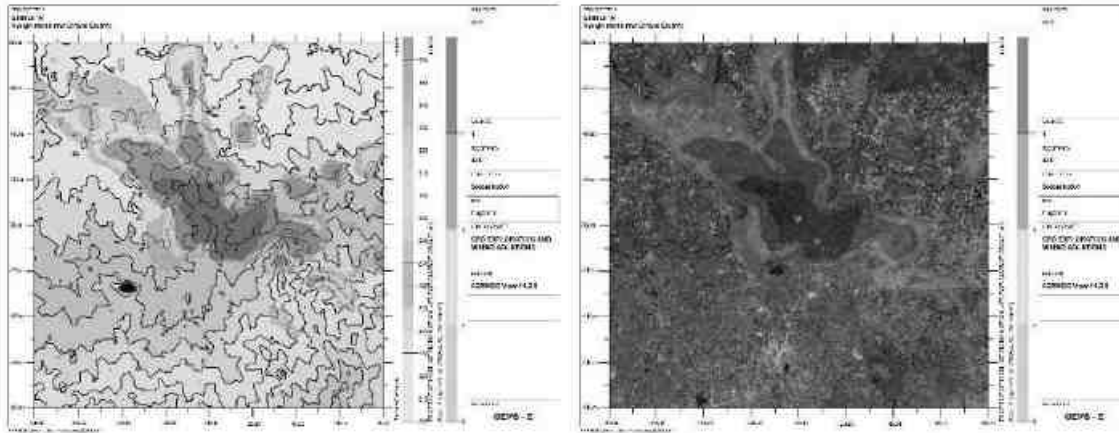
**FIGURE 4.2: PREDICTED INCREMENTAL CONCENTRATION OF PM<sub>10</sub>**



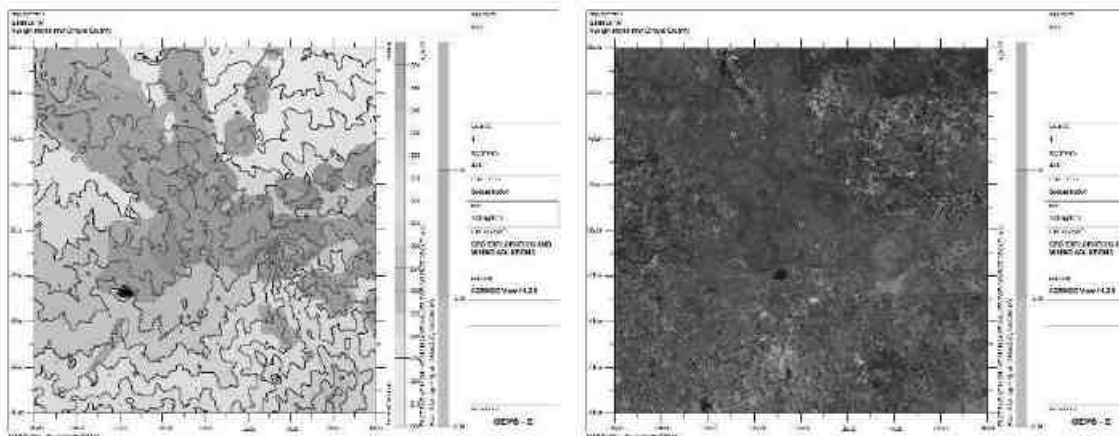
**FIGURE 4.3: PREDICTED INCREMENTAL CONCENTRATION OF PM<sub>25</sub>**



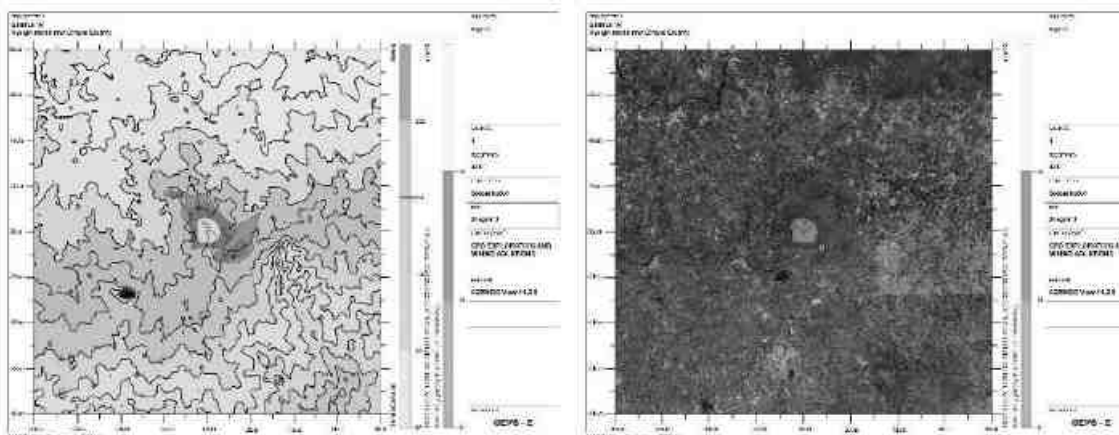
**FIGURE 4.4: PREDICTED INCREMENTAL CONCENTRATION OF NO<sub>x</sub>**



**FIGURE 4.5: PREDICTED INCREMENTAL CONCENTRATION OF SO<sub>2</sub>**



**FIGURE 4.6: PREDICTED INCREMENTAL CONCENTRATION OF FUGITIVE DUST**



### 4.3.2.1 Model Results

The post project Resultant Concentrations of PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>&NO<sub>x</sub> (GLC) is given in Table below:

**TABLE 4.2: INCREMENTAL & RESULTANT GLC OF PM<sub>10</sub>**

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline PM <sub>10</sub> (µg/m <sup>3</sup> )	Incremental value of PM <sub>10</sub> due to mining (µg/m <sup>3</sup> )	Total PM <sub>10</sub> (µg/m <sup>3</sup> )
AAQ1	11°24'21.50"N 77°19'34.76"E	-7	-44	42.0	9.79	51.8
AAQ2	11°23'49.42"N 77°20'1.38"E	806	-1047	42.6	9.22	51.8
AAQ3	11°26'27.16"N 77°18'0.50"E	-2890	3838	42.9	7.82	50.8
AAQ4	11°22'38.18"N 77°20'55.23"E	2451	-3255	42.3	2	44.3
AAQ5	11°26'32.40"N 77°20'52.60"E	2370	4003	42.9	1.12	44.1
AAQ6	11°24'14.33"N 77°17'36.59"E	-3624	-272	42.9	4.15	47.1
AAQ7	11°24'49.05"N 77°22'51.53"E	6005	805	43.2	0	43.2

**TABLE 4.3: INCREMENTAL & RESULTANT GLC OF PM<sub>2.5</sub>**

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline PM <sub>2.5</sub> (µg/m <sup>3</sup> )	Incremental value of PM <sub>2.5</sub> due to mining (µg/m <sup>3</sup> )	Total PM <sub>2.5</sub> (µg/m <sup>3</sup> )
AAQ1	11°24'21.50"N 77°19'34.76"E	-7	-44	21.7	4.82	26.5
AAQ2	11°23'49.42"N 77°20'1.38"E	806	-1047	22.3	4.3	26.6
AAQ3	11°26'27.16"N 77°18'0.50"E	-2890	3838	22.0	3.78	25.8
AAQ4	11°22'38.18"N 77°20'55.23"E	2451	-3255	22.0	1.72	23.7
AAQ5	11°26'32.40"N 77°20'52.60"E	2370	4003	42.9	1.24	44.2
AAQ6	11°24'14.33"N 77°17'36.59"E	-3624	-272	42.9	2.5	45.4
AAQ7	11°24'49.05"N 77°22'51.53"E	6005	805	22.3	0.61	22.9

**TABLE 4.4: INCREMENTAL & RESULTANT GLC OF SO<sub>2</sub>**

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline SO <sub>2</sub> (µg/m <sup>3</sup> )	Incremental value due to mining (µg/m <sup>3</sup> )	Total SO <sub>2</sub> (µg/m <sup>3</sup> )
AAQ1	11°24'21.50"N 77°19'34.76"E	-7	-44	6.0	1.29	7.3
AAQ2	11°23'49.42"N 77°20'1.38"E	806	-1047	5.5	1.21	6.7
AAQ3	11°26'27.16"N 77°18'0.50"E	-2890	3838	5.9	1	6.9
AAQ4	11°22'38.18"N 77°20'55.23"E	2451	-3255	5.7	0	5.7
AAQ5	11°26'32.40"N 77°20'52.60"E	2370	4003	5.8	0	5.8
AAQ6	11°24'14.33"N 77°17'36.59"E	-3624	-272	5.3	0.33	5.7
AAQ7	11°24'49.05"N 77°22'51.53"E	6005	805	5.6	0	5.6

**TABLE 4.5: INCREMENTAL & RESULTANT GLC OF NO<sub>x</sub>**

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline NO <sub>x</sub> (µg/m <sup>3</sup> )	Incremental value due to mining (µg/m <sup>3</sup> )	Total NO <sub>x</sub> (µg/m <sup>3</sup> )
AAQ1	11°24'21.50"N 77°19'34.76"E	-7	-44	21.0	7.77	28.8
AAQ2	11°23'49.42"N 77°20'1.38"E	806	-1047	21.1	7.19	28.3
AAQ3	11°26'27.16"N 77°18'0.50"E	-2890	3838	20.9	3	23.9
AAQ4	11°22'38.18"N 77°20'55.23"E	2451	-3255	21.4	0	21.4
AAQ5	11°26'32.40"N 77°20'52.60"E	2370	4003	21.1	0	21.1
AAQ6	11°24'14.33"N 77°17'36.59"E	-3624	-272	20.8	0	20.8
AAQ7	11°24'49.05"N 77°22'51.53"E	6005	805	20.8	0	20.8

**TABLE 4.6: INCREMENTAL & RESULTANT GLC OF FUGITIVE DUST**

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline Fugitive ( $\mu\text{g}/\text{m}^3$ )	Incremental value due to mining ( $\mu\text{g}/\text{m}^3$ )	Total Fugitive Dust ( $\mu\text{g}/\text{m}^3$ )
AAQ1	10°54'25.78"N 77° 4'8.34"E	51	1	64.73	21	85.7
AAQ2	10°54'11.51"N 77° 4'29.65"E	703	-442	64.56	0	64.6
AAQ3	10°54'37.41"N 77° 2'20.12"E	-3257	358	64.12	0	64.1
AAQ4	10°55'16.54"N 77° 6'30.52"E	4398	1572	66.23	0	66.2
AAQ5	10°52'18.84"N 77° 3'39.38"E	-835	-3924	66.88	0	66.9
AAQ6	10°52'35.83"N 77° 5'56.31"E	3352	-3396	67.42	0	67.4
AAQ7	10°57'3.71"N 77° 4'38.09"E	963	4885	68.68	0	68.7

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, SO<sub>2</sub> & NO<sub>x</sub> respectively. By adopting suitable mitigation measures, the pollutant levels in the atmosphere can be further being controlled.

#### 4.3.4. Mitigation Measures

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

##### Advantages of Wet Drilling: -

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

##### Blasting –

- Establish time of blasting to suit the local conditions and water sprinkling on blasting face
- Avoid blasting i.e., when temperature inversion is likely to occur and strong wind blows towards residential areas
- Controlled blasting includes Adoption of suitable explosive charge and short delay detonators, adequate stemming of holes at collar zone and restricting blasting to a particular time of the day i.e. at the time lunch hours, controlled charge per hole as well as charge per round of hole
- Before loading of material water will be sprayed on blasted material
- Dust mask will be provided to the workers and their use will be strictly monitored

##### Haul Road & Transportation –

- Water will be sprinkled on haul roads twice a day to avoid dust generation during transportation
- Transportation of material will be carried out during day time and material will be covered with tarpaulin
- The speed of tippers plying on the haul road will be limited below 20 km/hr to avoid generation of dust.
- Water sprinkling on haul roads & loading points will be carried out twice a day
- Main source of gaseous pollution will be from vehicle used for transportation of mineral; therefore, weekly maintenance of machines improves combustion process & makes reduction in the pollution.
- The un-metalled haul roads will be compacted weekly before being put into use.
- Over loading of tippers will be avoided to prevent spillage.

- It will be ensured that all transportation vehicles carry a valid PUC certificate
- Grading of haul roads and service roads to clear accumulation of loose materials

#### **Green Belt –**

- 540 trees will be planted along the safety barrier located in the leased area to prevent dust generation due to movement of tippers/trucks.
- Some trees will be planted along village road and nearby schools.

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

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

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

Where:

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

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

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

#### **4.4.1 Anticipated Impact**

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

- Source data
- Receptor data
- Attenuation factor

Source data has been computed 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)	48.2	48.2	48.9	49.3	45.4	43.2	43.99
Incremental Value dB(A)	47.30	42.60	30.56	27.04	28.06	27.04	26.48
Total Predicted Noise level dB(A)	46.30	49.26	48.96	49.33	45.48	43.30	44.07

The incremental noise level is found within the range of 47.3 dB (A) in Core Zone and 25.29 – 42.6 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)

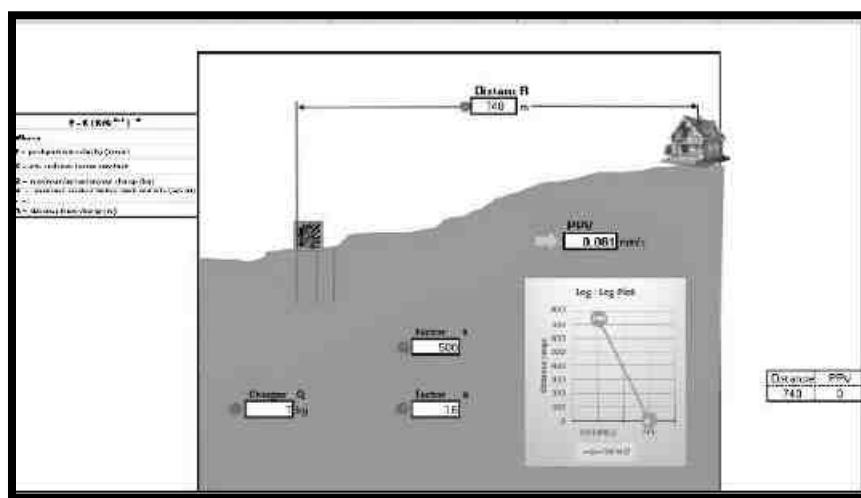
B = constant related to the rock and site (usually 1.6)

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	7	740-E	0.061

**FIGURE 4.6: GROUND VIBRATION PREDICTION**



From the above graph, the charge per blast of 7kg is well below the Peak Particle Velocity of 8 mm/s as per Directorate General of Mines Safety for safe level criteria through Circular No. 7 dated 29/8/1997. But the all the

project proponent ensures 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 competent person employed. However, as per statutory requirement control measures will be adopted to avoid the impacts due to ground vibrations and fly rocks due to blasting.

#### 4.4.3.1 Mitigation Measures

- It is proposed to carry out blasting operation 20kg per round so that the vibration will be minimal
- The mining operation will be carried out without deep hole drilling, 25mm small diactridge will be utilized for the blasting
- The blasting operations in the project site without deep hole drilling and blasting using delay detonators, which reduces the ground vibrations;
- Proper quantity of explosive, suitable stemming materials and appropriate delay system will be adopted to avoid overcharging and for safe blasting;
- Adequate safe distance from blasting will be maintained as per DGMS guidelines;
- Blasting shelter will be provided as per DGMS guidelines;
- Blasting operations will be carried out only during day time;
- The charge per delay will be minimized and preferably a greater number of delays will be used per blasts;
- During blasting, other activities in the immediate vicinity will be temporarily stopped;
- Drilling parameters like depth, diameter and spacing will be properly designed to give proper blast;
- A fully trained explosives blast man (Mining Mate, Mines Foreman, 2<sup>nd</sup>Class Mines Manager/ 1<sup>st</sup>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

### Impact on the Biological Environment

Environmental impact studies are required for systematic identification, qualification, and interpretation of the anticipated changes. The main environmental problems associated with mining activities are deforestation, land degradation (change in topography, soil erosion), visual intrusion, disturbance to the hydrological system, and water, air, and noise pollution which ultimately impact the floral and faunal status of the project area. However, the occurrence and magnitude of these impacts entirely depend on project location, mode of operation, and adoption of the latest technologies.

#### 4.5.1. Impact Identification and Evaluation

In general, impact prediction methods argue that the foremost step in impact appraisal must consider and identify project actions that are likely to bring significant changes in the project environment. The present study determined to predict the likely impacts of the Proposed Rough and Gravel Quarry mining Project in the surrounding environment with a specific focus on biological attributes covering



habitats/ecosystems and associated biodiversity. Likely impacts identified were categorized into different levels like direct or primary and indirect or secondary impacts based on the influence of sources of impacts.

There is no National Park or Wildlife Sanctuary in the study area. In addition, No Biosphere Reserves, Wildlife corridors, or, Tiger / Elephant reserves within 10 km of the project area. No Schedule-I species were found in the buffer zone of the proposed project area during the biodiversity assessment.

#### **4.5.2. Impact on Flora**

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

##### **4.5.2.1. Anticipated Impact on agricultural land associated with flora**

1. There are no impacts on the nearby agricultural land due to this mining activity.
2. None of the plants will be cut during the operational phase of the mine.
3. There shall be negligible air emissions or effluents from the project site. During the loading of the truck, dust generation will be likely. This shall be a temporary effect and not anticipated to affect the surrounding vegetation significantly.

Most of the land in the buffer area is undulating terrain with croplands, grass patches, and small shrubs. Hence, there will be no effect on the flora of the region.

#### **4.5.3 Mitigation Measures**

##### **4.5.3.1. General Guidelines for Green Belt Development**

In selecting plant species for green belt and plantation purposes in and around the proposed mine lease area native species, fruit-bearing trees, medicinal plants, and dense canopy trees should be selected. These species should be tolerant to pollution levels as per Bio- Geography zones of India.

After the operation of mining production capacity, Green belt, and Plantation species should be in accordance with the Terms and Conditions of the Environmental Clearance Green belt is created not only for the purpose of protecting sensitive areas or maintaining the ecological balance but because they also act as efficient biological filters or sinks for particulate and gaseous emissions, generated by vehicular movements and various industrial and mining activities.

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

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

The project site should have land to develop a greenbelt in and around the limits of the mine, along roads, and another vacant area. 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.

**Table No. 4.10. List of plant species proposed for Greenbelt development**

S. No	Scientific name	Tamil Name
1	<i>Aegle marmelos</i>	Vilvamaram
2	<i>Albizia lebbek</i>	Vaagai maram
3	<i>Cassia fistula</i>	Konrai tree
4	<i>Lannea coromandelica</i>	Othiyam
5	<i>Limoniaacidissima</i>	Vila maram
6	<i>Syzygiumcumini</i>	Naval maram
7	<i>Toona ciliata</i>	Santhana Vembu
8	<i>Ficus hispida</i>	Aththimaram
9	<i>Borassus flabellifer</i>	Panai-maram

**Table No. 4.11. Species suitable for abatement of noise and dust pollution**

S. No	Botanical name	Common name
1	<i>Azadirachta indica</i>	Vembhumaram
2	<i>Ficus religiosa</i>	Arasan maram
3	<i>Ficus hispida</i>	Aththimaram
4	<i>Bombax ceiba</i>	Mul Elavu
5	<i>Syzygiumcumini</i>	Naval maram
6	<i>Tamarindus indica</i>	Puliyamaram
7	<i>Mangifera indica</i>	Manga maram
8	<i>Harwickiabinata</i>	Anjan maram
9	<i>Delonix regia</i>	Neruppu Kondrai
10	<i>Cassia Fistula</i>	Sara Kondrai

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

#### 4.5.4. Anticipated Impact on Fauna

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

##### 4.5.4.1. Measures for protection and conservation of wildlife species

- Topsoil has a large number of seeds of native plant species in the mining area.
- 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.
- Plantation around the mine area will help in creating habitats for small faunal species and create a better environment for various fauna. Creating and developing awareness for nature and wildlife in the adjoining villages.

#### 4.5.5. 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 is no impact on fish habitats and the food WEB/ food chain in the water body and Reservoir. There are a few seasonal water bodies located away from the proposed project site (10 km radius). Aquatic biodiversity is observed in the study area. Please refer the clause No.3.6.3. The project is not likely to affect the aquatic ecology.

**Table No: 4.12. General Impacts vs. Mitigation Matrix**

Particulars	Issues	Reason/Status in relation to the mine site	Reference/Method	Suggestions
Species	Rare/ Endangered/ Threatened species	Not reported	Field observation, interviews of local people	<b>Nil</b>
	Endemic Species	No endemic species of any flora, fauna or wildlife are present in the study area.	Field survey, Literature review	<b>Nil</b>
Important Natural Habitats	Protected Areas	No National Park, Wildlife Sanctuary, Tiger reserve, and Biosphere Reserve falls in the 10-km radius study area	ENVIS, Government of Tamil Nadu protected area website, Google Earth, Project Maps, etc.	<b>Nil</b>
	Important Bird Areas	No Important Bird Areas are falling in the 10-km radius area for Migratory Bird Habitat	ENVIS Centre on Wildlife & Protected Areas, Important Bird Area in India, IBA Book (Birdlife International)	<b>Nil</b>
	Ramsar site	No Ramsar sites present in the surrounding area region	Ramsar Web site	<b>Nil</b>
	Wetlands of National Importance	Nil	ENVIS Centre on Wildlife & Protected Areas, Wetlands directory of Government of India	<b>Nil</b>
	Wetlands of International Importance	Nil	Nil	<b>Nil</b>
	Wildlife Corridors	No Wildlife Corridor is falling in 10 km radius project study area	Protected Areas, Consultation with local naturalists & and authenticated location map.	<b>Nil</b>

Eco-sensitive zone identified by the government	No Eco-sensitive zone is falling 10 km radius project study area	ENVIS, Consultation with local naturalists & authenticated location map	Nil
Forest Areas	No Reserve Forest is falling in 10 km radius project study area	ENVIS, Government of Tamil Nadu protected area website, Google Earth, Project Maps, etc.	NIL, Applicant will create the green belt plantation on the periphery of mine sites.
Water bodies	Nil	Project Map and local maps, Google Earth	Ensure minimum destruction during in operation phase.
Breeding/nesting areas	No breeding/Nesting site are falling in the study area	Literature Survey Project Map and local maps, Google Earth	NIL

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, Casuarina and Pongamia pinnata, etc. will be planted along the Lease boundary and avenue plantation will be carried out in the project site. Greenbelt development Plan is given in

**TABLE 4.13: GREENBELT DEVELOPMENT PLAN**

Plantation Details	Required	No. of trees provided	1 <sup>st</sup> Year
No of plants	450	540	540
Yearly	100%	120%	100%

## 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

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## 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.

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## 4.9 MINE CLOSURE

The ultimate depth of the mine is 28m bgl and the life of the mine is 5 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 0.54.35Ha 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 discharges 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.

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### 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.

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## **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 no Crushers within the radius of 1km. Most of the quarries in the regions are abandoned and Existing 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 area shave 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.

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## 6. ENVIRONMENTAL MONITORING PROGRAMME

### 6.0 GENERAL

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

### 6.1 METHODOLOGY OF MONITORING MECHANISM

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

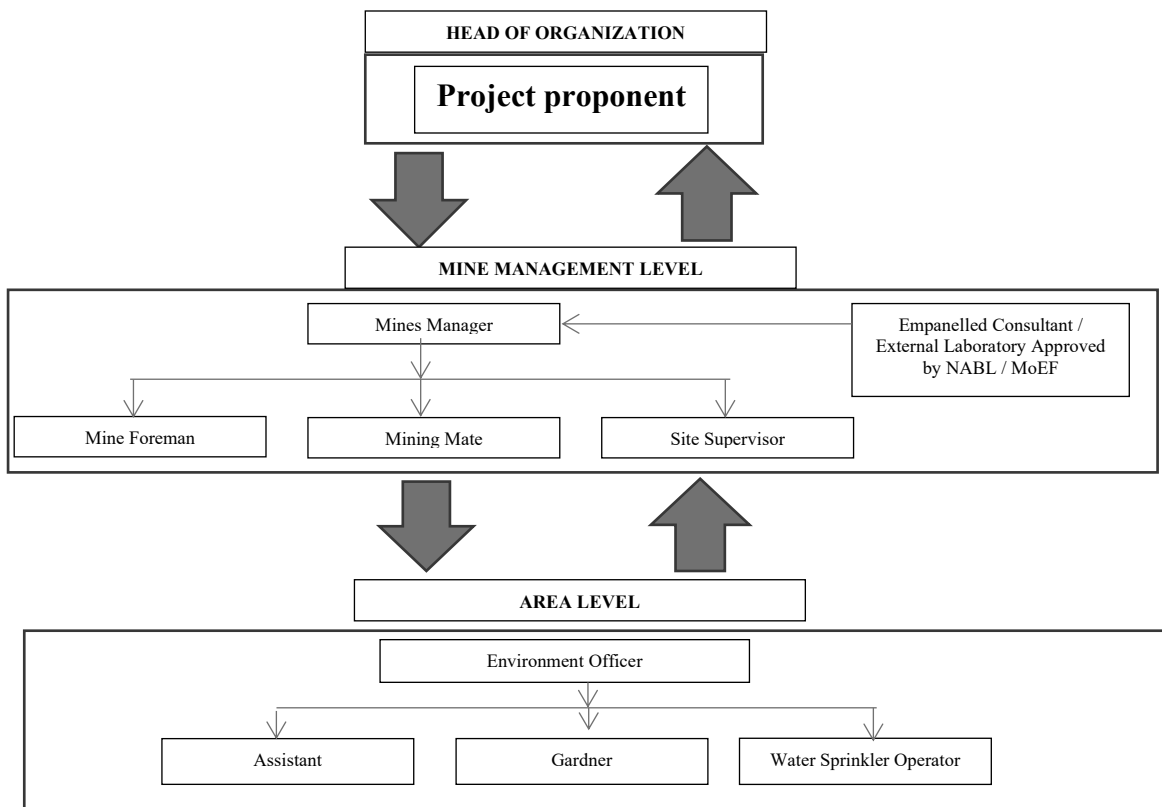
An Environment monitoring cell (EMC) will be constituted to monitor the implementation of EMP and other environmental protection measures in all the proposed quarries.

The responsibilities of this cell will be:

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

The environmental monitoring cell will co-ordinate all monitoring programs at site and data thus generated will be regularly furnished to the State regulatory agencies as compliance status reports. The sampling and analysis report of the monitored environmental attributes will be submitted to the Tamil Nadu Pollution Control Board (TNPCB) at a frequency of half-yearly and yearly by each proposed project proponent. The half-yearly reports are submitted to Ministry of Environment and Forest, Regional Office and SEIAA as well.

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

**FIGURE 6.1: PROPOSED ENVIRONMENTAL MONITORING CELL**

## 6.2 IMPLEMENTATION SCHEDULE OF MITIGATION MEASURES

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

**TABLE 6.1 IMPLEMENTATION SCHEDULE**

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

### 6.3 MONITORING SCHEDULE AND FREQUENCY

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

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

The details of monitoring are detailed in Table 6.2

**TABLE 6.2: PROPOSED MONITORING SCHEDULE POST EC**

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 <sub>2.5</sub> , PM <sub>10</sub> , SO <sub>2</sub> and NO <sub>x</sub> .
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 3,80,000/- per annum for Proposed Project.

**TABLE 6.3 ENVIRONMENT MONITORING PROGRAM BUDGET**

PROPOSAL			
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		
<b>Total</b>		<b>Rs 76,000/-</b>	<b>Rs 76,000/-</b>

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 31<sup>st</sup> 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 &amp; 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 &amp; 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 &amp; 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

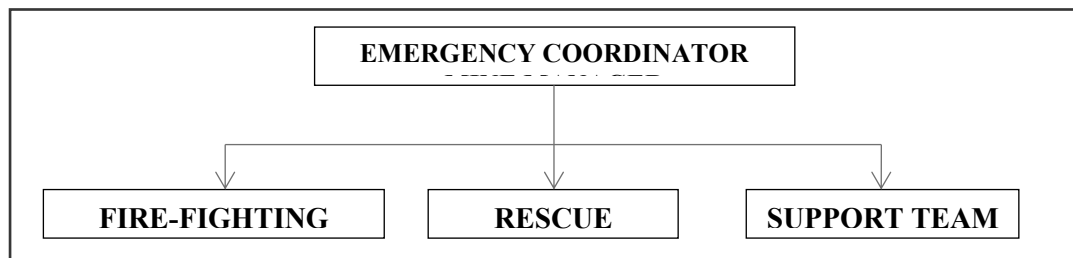
The Disaster Management Plan is aimed to ensure safety of life, protection of environment, protection of installation, restoration of production and salvage operations in this same order of priorities.

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
<b>FIRE-FIGHTING TEAM</b>	
Team Leader/ Emergency Coordinator (EC)	Mines Manager
Team Member	Mines Foreman
Team Member	Mining Mate
<b>RESCUE TEAM</b>	
Team Leader/ Emergency Coordinator (EC)	Mines Manager
Team Member/ Incident Controller (IC)	Environment Officer
Team Member	Mining Foreman
<b>SUPPORT TEAM</b>	
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 <sub>2</sub> type, foam type, dry chemical powder type
Fuel Storage Area	CO <sub>2</sub> type, foam type, dry chemical powder type, Sand bucket
Office Area	Dry chemical type, foam type

### Alarm system to be followed during disaster –

On receiving the message of disaster from Site Controller, fire-fighting team, the mine control room attendant will sound siren wailing for 5 minutes. Incident controller will arrange to broadcast disaster message through public address system. On receiving the message of "Emergency Over" from Incident Controller the emergency control room attendant will give "All Clear Signal", by sounding alarm straight for 2 minutes.

## 7.4 CUMULATIVE IMPACT STUDY

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

**TABLE 7.4: LIST OF QUARRIES WITHIN 500 METER RADIUS**

PROPOSED QUARRIES					
CODE	Name of the Owner	Village	S.F. Nos	Extent in Ha	Status
P1	Thiru.K.Vijay Perichiyappan	Elathur 'A' Village	347/1B and 347/2B	0.86.0	Lr No. SEIAA-TN/F.No.10286/SEAC/To R-1571/2023 Dated: 06.10.2023
TOTAL EXTENT				0.86.0	
EXISTING QUARRIES					
CODE	Name of the Owner	Village	S.F. Nos	Extent in Ha	Status
E-1	Thiru.P.Balaji	Karattupalayam "B" Village	246	4.30.0	30.06.2022 to 29.06.2027
TOTAL EXTENT				4.30.0	
EXPIRED QUARRIES & ABANDONED QUARRIES					
Ex-1	Thiru.N. Venkatachalam	Elathur 'A' Village	356/4,356/5, 356/6,359/1	2.58.7	24.01.2014 to 23.01.2019
TOTAL EXTENT				2.58.7	
TOTAL CLUSTER EXTENT				5.16.0	

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

**TABLE 7.5: SALIENT FEATURES OF PROPOSAL “P1”**

Name of the Project	<b>Thiru.K.Vijay Perichiyappan</b> Rough stone and Gravel quarry	
S.F. No.	347/1B & 347/2B	
Extent	0.86.0 ha	
Village Taluk and District	Elathur ‘A’ Village, Nambiyur Taluk, Erode District	
Land Type	Proponent own patta land	
Existing quarry operation	The Rough Stone and Gravel quarry previously granted in the name of Thiru.K. Vijay Perichiyappan (Same applicant) for the period of five years from 04.03.2016 to 03.03.2021 of Elathur ‘A’ Village, Nambiyur Taluk (Formerly Gobichettipalayam Taluk), Erode District vide Rc.No.30118/2014/X-1, Dated: 04.03.2016. The lessee has obtained Environmental Clearance from the State Level Environment Impact Assessment Authority (SEIAA), Tamil Nadu vide letter No. SEIAA-TN/F.No.3827/1(a)/EC.No.2934/2015, Dated:17.02.2016.	
Previous Environmental Clearance Letter copy	Lr.No. SEIAA-TN/F.No.3827/1 (a)/EC.No.2934/2015 dated 17.02.2016	
CTO (TNPCB Letter Copy)	F/0722PND/RS/DEE/TNPCB/PND/W/2016 Dated 01/03/2016	
CTO (Renewal) TNPCB Copy	F/0722PND/RS/DEE/TNPCB/PND/A/2017 Dated 20/03/2017	
Toposheet No	58 - E/07	
Latitude between	<b>11°24'21.3072"N to 11°24'25.3142"N</b>	
Longitude between	<b>77°19'33.2652"E to 77°19'37.2253"E</b>	
Elevation of the area	277m AMSL	
Lease period	5 Years	
Mining Plan period	5 years	
Proposed Depth of Mining	28m bgl (3m Gravel + 25m Rough Stone)	
	Rough Stone in m <sup>3</sup>	Gravel in m <sup>3</sup>
Geological Resources	1,35,278	936
Mineable Reserves	23,125	-
Year wise Production	23,125	-
Peak Production	4,725	-
Ultimate Pit Dimension	92m (L) x 60m (W) x 28m(D) bgl	
Existing Pit Dimension	92m (L) x 62m (W) x 13m(D) 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 a Plain terrain. The area has gentle sloping towards South side and altitude of the area is 289m (max) above from Mean Sea level. The area is covered by 3m thickness of Gravel and followed by Massive Charnockite which is clearly inferred from the existing quarry pit.	
Machinery proposed	Jack Hammer	1 No
	Compressor	1 No
	Excavator with Bucket and Rock Breaker	1 No
	Tipper	1 No
Blasting Method	Controlled Blasting Method by shot hole drilling and small dia of 25mm slurry explosive are proposed to be used for shattering and heaving effect for removal and winning of Rough Stone. No deep hole drilling is proposed.	
Proposed Manpower Deployment	12 Nos	
Project Cost	Rs. 20,28,000/-	
EMP Cost	Rs.3,80,000/-	
Total Project cost	Rs.24,08,000/-	

CER Cost	Rs.5,00,000/-	
Nearby Water Bodies	Kuttai-30m NE Vettampalayam Canal-1.2Km_W Odai-1.2Km_NE Elathur Periyakulam Lake-1.6Km_SW Bhavani River-6.5Km_NW	
Greenbelt Development Plan	Proposed to plant 450Nos 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	1.0 KLD	
Nearest Habitation	740m – East	
Nearest Reserve Forest	Guttiyalattur R. F	13.14 km – North
Nearest Wild Life Sanctuary	Sathiyamangalam Tiger Reserve	13.3km – North
	Vellode Birds Sanctuary	39km – SE

Source: Approved Mining Plan

**TABLE 7.6: SALIENT FEATURES OF PROPOSAL “E1”**

Name of the Quarry	Thiru.P.Balaji Rough Stone & Gravel Quarry		
Toposheet No	57 – E/07		
Latitude between	11°24'24.60"N to 11°24'33.48"N		
Longitude between	77°19'33.20"E to 79°19'40.19"E		
Geological Resources	Rough Stone in m <sup>3</sup>	Weathered Rock (m <sup>3</sup> )	Gravel m <sup>3</sup>
	16,52,300	61,808	61,808
Mineable Reserves	Rough Stone in m <sup>3</sup>	Weathered Rock (m <sup>3</sup> )	Gravel m <sup>3</sup>
	7,67,740	42,894	47,490
Yearwise Production	Rough Stone in m <sup>3</sup>	Weathered Rock (m <sup>3</sup> )	Gravel m <sup>3</sup>
	4,19,060	42,894	47,490
Ultimate Pit Dimension	236(L)* 159(W)*44(D)		
Method of Mining	Opencast Mechanized Mining Method involving drilling and blasting		
Machinery proposed	Jack Hammer	10 Nos	
	Compressor	3 No	
	Hydraulic Excavator	3 No	
	Tipper	6 Nos	
Proposed Manpower Deployment	47		
Project Cost	Rs.1,07,05,000/-		
CER Cost	Rs.5,00,000		

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 7.16& 7.17.

**TABLE 7.7: CUMULATIVE PRODUCTION LOAD OF ROUGH STONE**

Quarry	Production for five-year plan period	Per Year Production in m <sup>3</sup>	Per Day Production in m <sup>3</sup>	Number of Lorry Load Per Day
P1	23,125	4,625	15	3
<b>Total</b>	<b>23,125</b>	<b>4,625</b>	<b>15</b>	<b>3</b>
E1	4,19,060	83,812	279	47
<b>Total</b>	<b>4,19,060</b>	<b>83,812</b>	<b>279</b>	<b>47</b>
<b>Grand Total</b>	<b>4,42,185</b>	<b>88,437</b>	<b>294</b>	<b>50</b>

**TABLE 7.8: CUMULATIVE PRODUCTION LOAD OF GRAVEL**

Quarry	Production for five-year plan period	Per Year Production in m <sup>3</sup>	Per Day Production in m <sup>3</sup>	Number of Lorry Load Per Day
P1	-	-	-	-
<b>Total</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
PROPOSED PRODUCTION OF TOPSOIL				
E1	47,490	9,498	32	5
<b>Total</b>	<b>47,490</b>	<b>9,498</b>	<b>32</b>	<b>5</b>
<b>Grand Total</b>	<b>47,490</b>	<b>9,498</b>	<b>32</b>	<b>5</b>

**TABLE 7.9: CUMULATIVE PRODUCTION LOAD OF WEATHERED ROCK**

Quarry	Production during five-year plan period	Per Year Production in m <sup>3</sup>	Per Day Production in m <sup>3</sup>	Number of Lorry Load Per Day
E1	42,894	8,579	29	5
<b>Total</b>	<b>42,894</b>	<b>8,579</b>	<b>29</b>	<b>5</b>

On a cumulative basis considering the proposed quarries, it can be seen that the overall production of Rough Stone is 15m<sup>3</sup> per day with a capacity of 3trips of Rough Stone per day from the cluster.

**Note:** Per day production of Rough Stone is calculated for 5 Years Lease 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 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 <sub>10</sub>	Drilling	Point Source	0.041355639	g/s
	Blasting	Point Source	0.000029261	g/s
	Mineral Loading	Point Source	0.032709700	g/s
	Haul Road	Line Source	0.002482893	g/s/m
	Overall Mine	Area Source	0.035916273	g/s
Estimated Emission Rate for SO <sub>2</sub>	Overall Mine	Area Source	4.80626E-05	g/s
Estimated Emission Rate for NO <sub>x</sub>	Overall Mine	Area Source	0.000001000	g/s

EMISSION ESTIMATION FOR QUARRY "E1"				
	Activity	Source type	Value	Unit
Estimated Emission Rate for PM <sub>10</sub>	Drilling	Point Source	0.042734841	g/s
	Blasting	Point Source	0.000034477	g/s
	Mineral Loading	Point Source	0.033069352	g/s
	Haul Road	Line Source	0.002482977	g/s/m
	Overall Mine	Area Source	0.042966357	g/s
Estimated Emission Rate for SO <sub>2</sub>	Overall Mine	Area Source	5.60564E-05	g/s
Estimated Emission Rate for NO <sub>x</sub>	Overall Mine	Area Source	0.000001745	g/s

Source: Emission Calculation

**TABLE 7.11: INCREMENTAL & RESULTANT GLC WITHIN CLUSTER**

PM <sub>10</sub> in µg/m <sup>3</sup>	
Background	42.0
Incremental	9.79
Resultant	51.8
NAAQ Norms	<b>100 µg/m<sup>3</sup></b>
PM <sub>2.5</sub> in µg/m <sup>3</sup>	
Background	21.7
Incremental	4.82
Resultant	26.5
NAAQ Norms	<b>60 µg/ m<sup>3</sup></b>
So <sub>2</sub> in µg/m <sup>3</sup>	
Background	6.0
Incremental	1.29
Resultant	7.3
NAAQ Norms	<b>80 µg/ m<sup>3</sup></b>
No <sub>2</sub> in µg/m <sup>3</sup>	
Background	21.0
Incremental	7.77
Resultant	28.8
NAAQ Norms	<b>80 µg/ m<sup>3</sup></b>

### Noise Environment –

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

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

$$L_{p2} = L_{p1} - 20 \log (r_2/r_1) - Ae_{1,2}$$

Where:

$L_{p1}$  &  $L_{p2}$  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.

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

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

Source data has been computed 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	48.2	47.3	46.3	55
Habitation Near E1	36.5	48.1	48.4	

Source: Lab Monitoring Data

The incremental noise level is found within the range of 45.3–50.0dB (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), dated19.09.2006 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 6 Mines within cluster are anticipated due to operation of Mining Machines like Excavators, drilling and blasting, transportation vehicles, etc. However, the major source of ground vibration from the all the 6 mines is blasting. The major impact of the ground vibrations is observed on the domestic houses located in the villages nearby the mine lease area. The kuchha houses are more prone to cracks and damage due to the vibrations induced by blasting whereas RCC framed structures can withstand more ground vibrations. Apart from this, the ground vibrations may develop a fear factor in the nearby settlements 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	740m – South East
Habitation Near E1	334m – South East

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

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

Where –

V = peak particle velocity (mm/s)

K = site and rock factor constant

Q = maximum instantaneous charge (kg)

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

R = distance from charge (m)

**TABLE 7.14: GROUND VIBRATIONS AT MINES**

Location ID	Maximum Charge in kgs	Nearest Habitation in m	PPV in m/ms
P1	7	370m-NW	0.061

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 MINES**

Location ID	Project Cost	CER
P1	Rs.24,08,000/-	Rs.5,00,000
<b>Total</b>	<b>Rs.24,08,000/-</b>	<b>Rs.5,00,000</b>

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

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

**TABLE 7.16: EMPLOYMENT BENEFITS FROM MINES**

Description	Employment
P1	12
<b>Total</b>	<b>12</b>
E1	18
<b>Total</b>	<b>18</b>
<b>Grand Total</b>	<b>30</b>

A total of 12 people will get employment due to 1 proposed mine in cluster and 18 people are already employed at existing mines.

**TABLE 7.17: GREENBELT DEVELOPMENT BENEFITS FROM 2MINES**

CODE	No of Trees proposed to be planted	Survival %	Area Covered Sq.m	Name of the Species
P1	540	100%	The safety zone along the boundary barrier has been identified to be utilized for Greenbelt development	Neem, Pongamia pinnata, Casuarina, etc.,
<b>Total</b>	<b>540</b>			
E1	2580			
<b>Total</b>	<b>2580</b>			
<b>G.Total</b>	<b>3,120</b>			

Based on the Proposed Mining Plans it's anticipated that there shall growth of native species of Neem, Pinnata Casuarina, etc., in the Cluster at a rate of 3,120 Trees Planted over a period of 5 Years.

## 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**

<b>Sl.No.</b>	<b>Activity</b>	<b>Responsibility</b>
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

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## 8.PROJECT BENEFITS

### 8.0 GENERAL

The Proposed Project for Quarrying Rough Stone and Gravel at Elathur 'A' Village aims to produce 23,125m<sup>3</sup> Rough Stone over a period of 5 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 12persons for carrying out mining operations and give preference to the local people in providing employment in the three proposed quarries in the cluster. In addition, there will be opportunity for indirect employment to many people in the form of contractual jobs, business opportunities, service facilities etc. the economic status of the local people will be enhanced due to mining project.

### 8.2 SOCIO-ECONOMIC WELFARE MEASURES PROPOSED

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

### 8.3 IMPROVEMENT IN PHYSICAL INFRASTRUCTURE

The proposed quarries are located in Elathur 'A' Village, Nambiyur Taluk, Erode 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 Elathur 'A' 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"> <li>• Renovation/ Construction of Existing Toilet</li> <li>• Providing Environmental Related books to the school Library</li> <li>• Carrying out plantation and maintenance in the school Ground</li> <li>• Any other requirements in consultation with the school Head master</li> </ul>	Rs 5,00,000/-

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## **9. ENVIRONMENTAL COST BENEFIT ANALYSIS**

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

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## **10.ENVIRONMENTAL MANAGEMENT PLAN**

### **10.0. GENERAL**

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

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

### **10.1. ENVIRONMENTAL POLICY**

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

#### **The Proponent Thiru.K.Vijay Perichiyappan 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
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- 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 mine office. The quarrying operation is proposed up to a depth of 28 m 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 540nos. of saplings is proposed to be planted for the Mining plan period in safety barrier of applied mine lease area. 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**

Plantation Details	Required	No. of trees provided	1 <sup>st</sup> Year
No of plants	430	540	540
Yearly	100%	120%	100%

- ✓ From the total numbers of 520 trees, 220 trees can be planted in two rows at 3m spacing within the safety barrier.
- ✓ The remaining 320 trees are proposed to be planted on village roads and schools.

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 PLANTATION**

S.No	Botanical Name	Local Name
1	<i>Aegle marmelos</i>	Vilvamaram
2	<i>Albizia lebbbeck</i>	Vaagai maram
3	<i>Cassia fistula</i>	Konrai tree
4	<i>Lannea coromandelica</i>	Othiyam
5	<i>Limoniaacidissima</i>	Vila maram
6	<i>Syzygiumcumini</i>	Naval maram
7	<i>Toona ciliata</i>	Santhana Vembu
8	<i>Ficus hispida</i>	Aththimaram
9	<i>Borassus flabellifer</i>	Panai-maram

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 <sup>st</sup> Year	2 <sup>nd</sup> Year	3 <sup>rd</sup> Year	4 <sup>th</sup> Year	5 <sup>th</sup> 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

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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
<b>Air Environment</b>	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	8600	8600
	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 - 1 Units	25000	2500
	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 - 1 Units	5000	250
	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	17200
	Installing wheel wash system near gate of quarry	Installation + Maintenance + Supervision	50000	20000
<b>Noise Environment</b>	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	60125
<b>Waste Management</b>	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
<b>Mine Closure</b>	1. Progressive Closure Activity - Surface Runoff managment	Provision for garland drain @ Rs. 10,000/- per Hectare with maintenance of Rs. 5,000/- per annum	8600	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	172000	10000
	3. Progressive Closure Activity Green belt development - 500 trees per one hectare - Proposal for 540 Trees - (240 Inside Lease Area & 2800 Outside Lease Area)	Site clearance, preparation of land, digging of pits / trenches, soil amendmets, transplantation of saplings @ 200 per plant (capital) for plantation inside the lease area and @ 30 per plant maintenance (recurring)	48000	7200

		Avenue Plantation @ 300 per plant (capital) for plantation outside the lease area and @ 30 per plant maintenance (recurring)	84000	8400
	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	38550	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	208125	0
<b>Implementation of EC, Mining Plan &amp; DGMS Condition</b>	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) - 12 Employees	48000	12000
	Health check up for workers will be provisioned	IME & PME Health checkup @ Rs. 1000/- per employee	0	12000
	First aid facility will be provided	Provision of 2 Kits per Hectare @ Rs. 2000/-	0	1720
	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	43000	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 <sup>st</sup> Class / 2 <sup>nd</sup> 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
<b>CER</b>	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
<b>TOTAL</b>			<b>1902200</b>	<b>1111995</b>

\*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 5 years** for the peak production capacity of **4,725m<sup>3</sup> of Rough stone**.



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<b>Year Wise Break Up</b>	
1st Year	₹ 30,14,195
2nd Year	₹ 11,67,595
3rd Year	₹ 12,25,974
4th Year	₹ 12,87,273
5th Year	₹ 13,90,187

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.

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## 11. SUMMARY AND CONCLUSION

This EIA & EMP report prepared for the proposed Rough stone and Gravel quarry project located in S.F.Nos. 347/1B & 347/2B of Elathur 'A' Village, Nambiyur Taluk, Erode District belongs to Thiru.K. Vijay Perichiyappan. the Project falls in the Cluster category consist of 1 Proposed, 1 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–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 12 people directly in the proposed projects and indirectly around 5 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 Elathur 'A' Rough Stone and Gravel Cluster Quarry (Extent – 0.86.0 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](http://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	<b>Dr. M. Ifthikhar Ahmed</b>	<b>In-house</b>	<b>1 38</b>	<b>A B</b>	WP GEO SC	B A A
2	Mr. A. Allimuthu	In-house	-	-	LU	B
3	Mr. A. Jagannathan	In-house	-	-	AP SHW NV	B B A
4	Mr. N. Senthilkumar	Empanelled	38 28	B B	AQ WP RH	B B A
5	Mr.P.Panneer Selvam	In-house			EB	B
6	Mrs.Sasikala.T	In-house	-	-	SE	B
7	Mr.Jayaraj.L	In-house	-	-	HG	B
8	Mr. Santhosh kumar.M	In-house	-	-	GEO	B

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 Elathur 'A' Rough Stone & Gravel Cluster Quarry Project over an Extent of 0.86.0ha in Elathur 'A' Village, Nambiyur Taluk, Erode 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:




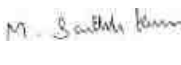
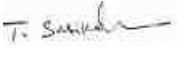


Period of Involvement: **Oct 2023 to till date**



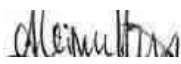




**Associated Team Member with EIA Coordinator:**

1. **Mr. R.Sakthivel**
2. **Mr.M.Shaik Nawas**



**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"> <li>▪ Identification of different sources of air pollution due to the proposed mine activity</li> <li>▪ Prediction of air pollution and propose mitigation measures / control measures</li> </ul>	Mr. A. Jagannathan	
2	WP	<ul style="list-style-type: none"> <li>▪ Suggesting water treatment systems, drainage facilities</li> <li>▪ Evaluating probable impacts of effluent/waste water discharges into the receiving environment/water bodies and suggesting control measures.</li> </ul>	Dr. M. Ifthikhar Ahmed	
3	HG	<ul style="list-style-type: none"> <li>▪ Interpretation of ground water table and predict impact and propose mitigation measures.</li> <li>▪ Analysis and description of aquifer Characteristics</li> </ul>	Mr.Jayaraj.L	
4	GEO	<ul style="list-style-type: none"> <li>▪ Field Survey for assessing the regional and local geology of the area.</li> <li>▪ Preparation of mineral and geological maps.</li> <li>▪ Geology and Geo morphological analysis/description and Stratigraphy/Lithology.</li> </ul>	Mr.M.Santhosh kumar	
5	SE	<ul style="list-style-type: none"> <li>▪ Revision in secondary data as per Census of India, 2011.</li> <li>▪ Impact Assessment &amp; Preventive Management Plan</li> <li>▪ Corporate Environment Responsibility.</li> </ul>	Mrs. Sasikala.T	

Draft EIA/ EMP Report

6	EB	<ul style="list-style-type: none"> <li>Collection of Baseline data of Flora and Fauna.</li> <li>Identification of species labelled as Rare, Endangered and threatened as per IUCN list.</li> <li>Impact of the project on flora and fauna.</li> <li>Suggesting species for greenbelt development.</li> </ul>	Mr.Panneer Selvam	
7	RH	<ul style="list-style-type: none"> <li>Identification of hazards and hazardous substances</li> <li>Risks and consequences analysis</li> <li>Vulnerability assessment</li> <li>Preparation of Emergency Preparedness Plan</li> <li>Management plan for safety.</li> </ul>	Mr. N. Senthilkumar	
8	LU	<ul style="list-style-type: none"> <li>Construction of Land use Map</li> <li>Impact of project on surrounding land use</li> <li>Suggesting post closure sustainable land use and mitigative measures.</li> </ul>	Mr. A. Allimuthu	
9	NV	<ul style="list-style-type: none"> <li>Identify impacts due to noise and vibrations</li> <li>Suggesting appropriate mitigation measures for EMP.</li> </ul>	Mr. A. Jagannathan	
10	AQ	<ul style="list-style-type: none"> <li>Identifying different source of emissions and propose predictions of incremental GLC using AERMOD.</li> <li>Recommending mitigations measures for EMP</li> </ul>	Mr. N. Senthilkumar	
11	SC	<ul style="list-style-type: none"> <li>Assessing the impact on soil environment and proposed mitigation measures for soil conservation</li> </ul>	Dr. M. Ifthikhar Ahmed	
12	SHW	<ul style="list-style-type: none"> <li>Identify source of generation of non-hazardous solid waste and hazardous waste.</li> <li>Suggesting measures for minimization of generation of waste and how it can be reused or recycled.</li> </ul>	Mr. A. Jagannathan	

**LIST OF TEAM MEMBERS ENGAGED IN THIS PROJECT**

Sl.No.	Name	Functional Area	Involvement	Signature
1	Mr. R.Sakthivel	LU	<ul style="list-style-type: none"> <li>Site Visit with FAE</li> <li>Assisting FAE in preparation of land use maps</li> <li>Provide inputs &amp; Assisting FAE with soil conservation methods and identifying impacts</li> </ul>	
2	Mr. Shaik Nawas.M	NV	<ul style="list-style-type: none"> <li>Site Visit with FAE</li> <li>Assist FAE and provide inputs on impacts due to proposed mine activity and suggest mitigation measures</li> <li>Assist FAE with prediction modelling</li> </ul>	

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**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 Rough Stone & Gravel Quarry Project over an Extent of 0.86.0ha in Elathur 'A' Village, Nambiyur Taluk, Erode 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**

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# **ANNEXURE**

## **THIRU. K. VIJAY PERICHIYAPPAN ROUGH STONE AND GRAVEL QUARRY**

**S.F.Nos. 347/1B & 347/2B**

Elathur 'A' Village, Nambiyur Taluk, Erode District

**EXTENT = 0.86.0Ha**

ToR obtained

Lr No.SEIAA-TN/F.No.10286/SEAC/ToR-1571/2023 Dated: 06.10.2023

### **Project Proponent**

**Thiru.K. Vijay Perichiyappan**

S/o. K.N.Kandasamy,

K.N. Charman Thottam,

B.Karattupalayam,

Gobichettipalayam Taluk,

Erode District,

Tamil Nadu - 638 457

## LIST OF ANNEXURES

<b>Annexures</b>	<b>DESCRIPTION</b>	<b>PAGE NOS</b>
<b>P1- Thiru.K.Vijay Perichiyappan</b>	COPY OF TERMS OF REFERENCE	1A - 22A
	COPY OF 500M RADIUS QUARRIES DETAILS LETTER	23A - 24A
	COPY OF MINING PLAN APPROVED LETTER	25A - 26A
	COPY OF APPROVED MINING PLAN WITH PLATES	27A – 98A
	COPY OF ADDITIONAL DOCUUMENT	99A - 136A
<b>E1- Thiru.P.Balaji</b>	COPY OF ENVIRONMENTAL CLEARANCE	137A - 167A
	COPY OF BASE LINE MONITORING DATA	168A – 241A
	COPY OF CONSULTANT ACCREDITATION CERTIFICATE	242A



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.10286/SEAC/ToR-1571/2023 Dated:06.10.2023.**

To

Thiru. K.Vijay Perichiyappan  
S/o. K.N.Kandasamy,  
K.N. Charman Thottam,  
B.Karattupalayam,  
Gobichettipalayam Taluk,  
Erode District – 638 457

Sir / Madam,

**Sub:** SEIAA, Tamil Nadu – Terms of Reference with public Hearing (ToR) for the Proposed Rough stone & Gravel Quarry over an extent of 0.86.0Ha at SF.No. 347/1B & 347/2B of Elathur 'A' Village, Nambiyur Taluk, Erode District, Tamil Nadu by Thiru. K.Vijay Perichiyappan - 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/438772/2023, dated:01.08.2023.  
2. Your application submitted for Terms of Reference dated:04.08.2023.  
4. Minutes of the 409<sup>th</sup> SEAC meeting held on 21.09.2023.  
5.Minutes of the 660<sup>th</sup> SEIAA meeting held on 06.10.2023.

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

The proponent, Thiru.K.Vijay Perichiyappan has submitted application for Terms of Reference (ToR) in Form-I, Pre- Feasibility report Proposed Rough stone & Gravel Quarry over an extent of 0.86.0Ha at SF.No. 347/1B & 347/2B of Elathur 'A' Village, Nambiyur Taluk, Erode District, Tamil Nadu.

  
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**Discussion by SEAC and the Remarks:-**

Proposed Rough stone & Gravel Quarry over an extent of 0.86.0Ha at SF.No. 347/1B & 347/2B of Elathur 'A' Village, Nambiyur Taluk, Erode District, Tamil Nadu by Thiru. K.Vijay Perichiyappan - For Terms of Reference.

(SIA/TN/MIN/438772/2023, Dated:01.08.2023)

The proposal was placed in the 409<sup>th</sup> SEAC Meeting held on 21.09.2023. The details of the project furnished by the proponent are given on the website (parivesh.nic.in).

**The SEAC noted the following:**

1. The Project Proponent, Thiru.K.Vijay Perichiyappan has applied for Terms of Reference for the Proposed Rough stone & Gravel Quarry over an extent of 0.86.0Ha at SF.No. 347/1B & 347/2B of Elathur 'A' Village, Nambiyur Taluk, Erode District, Tamil Nadu.
2. The project/activity is covered under Category "BI" of Item 1(a) " Mining of mineral of the Schedule to the EIA Notification, 2006.
3. Earlier EC Issued by SEIAA-TN vide Lr. No. SEIAA-TN/F.No.3827/1(a)/Ec.No.2934/2015, Dated:17.02.2016.
4. The lease period is for 5 years. The mining plan is for the period of five years & the production should not exceed 23,125m<sup>3</sup> of rough stone with an ultimate depth of mining is 28m BGL (3m Gravel + 25m Rough stone). The annual peak production is 4,725m<sup>3</sup> of rough stone.

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

1. The PP shall furnish ownership details of all survey numbers in EIA report.
2. The PP shall submit Certified Compliance Report obtained from the office of the concerned IRO, MoEF & CC, Chennai and the PP shall furnish appropriate mitigating measures for the non-compliance items, if any.
3. The PP shall submit the 'Action Plan' on the issues raised during the Public Hearing with budgetary provisions for the same.
4. The PP shall submit the controlled blasting measures for reducing the impacts due to the blasting operation in the proposed quarries within 1 km of the proposed quarry.
5. The PP shall submit a 'Conceptual Mining Plan' indicating the accessible ramp from the

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surface to the pit bottom keeping the benches intact for the dimension as stipulated in the Approved Mining Plan.


6. The PP shall submit the nature of buildings/structures, occupants and their profession, etc located within 500 m radius of the proposed quarry.
7. For securing the safety of persons employed in the mine, the PP shall carry out the scientific studies to assess the slope stability of the benches and quarry high walls existing in a limited area of 0.86 Ha specifying the **slope stability remedial action plan**, through anyone of the reputed Research and Academic Institutions - CSIR-Central Institute of Mining & Fuel Research / Dhanbad, NIRM/Bangalore, IIT-Madras, IIT (ISM)/Dhanbad and Anna University Chennai-CEG Campus, etc. A copy of such scientific study report detailing the slope stability action plan & stabilization measures shall be submitted to the SEIAA along with EIA/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:
  - (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

  
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- indicating the owner of the building, nature of construction, age of the building, number of residents, their profession and income, etc.
4. The PP shall submit a detailed hydrological report indicating the impact of proposed quarrying operations on the waterbodies like lake, water tanks, etc are located within 1 km of the proposed quarry.
  5. The Proponent shall carry out Bio diversity study through reputed Institution and the same shall be included in EIA Report.
  6. The DFO letter stating that the proximity distance of Reserve Forests, Protected Areas, Sanctuaries, Tiger reserve etc., up to a radius of 25 km from the proposed site.
  7. In the case of proposed lease in an existing (or old) quarry where the benches are not formed (or) partially formed as per the approved Mining Plan, the Project Proponent (PP) shall the PP shall carry out the scientific studies to assess the slope stability of the working benches to be constructed and existing quarry wall, by involving any one of the reputed Research and Academic Institutions - CSIR-Central Institute of Mining & Fuel Research / Dhanbad, NIRM/Bangalore, Division of Geotechnical Engineering-IIT-Madras, NIT-Dept of Mining Engg, Surathkal, and Anna University Chennai-CEG Campus. The PP shall submit a copy of the aforesaid report indicating the stability status of the quarry wall and possible mitigation measures during the time of appraisal for obtaining the EC.
  8. However, in case of the fresh/virgin quarries, the Proponent shall submit a conceptual 'Slope Stability Plan' for the proposed quarry during the appraisal while obtaining the EC, when the depth of the working is extended beyond 30 m below ground level.
  9. The PP shall furnish the affidavit stating that the blasting operation in the proposed quarry is carried out by the statutory competent person as per the MMR 1961 such as blaster, mining mate, mine foreman, II/I Class mines manager appointed by the proponent.
  10. The PP shall present a conceptual design for carrying out only controlled blasting operation involving line drilling and muffle blasting in the proposed quarry such that 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.

  
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12. If the proponent has already carried out the mining activity in the proposed mining lease area after 15.01.2016, then the proponent shall furnish the following details from AD/DD, mines,
  13. What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?
  14. Quantity of minerals mined out.
    - Highest production achieved in any one year
    - Detail of approved depth of mining.
    - Actual depth of the mining achieved earlier.
    - Name of the person already mined in that leases area.
    - If EC and CTO already obtained, the copy of the same shall be submitted.
    - Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.
  15. All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/Topo sheet, topographic sheet, geomorphology, lithology and geology of the mining lease area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).
  16. The PP shall carry out Drone video survey covering the cluster, green belt, fencing, etc.,
  17. The proponent shall furnish photographs of adequate fencing, green belt along the periphery including replantation of existing trees & safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan.
  18. The Project Proponent shall provide the details of mineral reserves and mineable reserves, planned production capacity, proposed working methodology with justifications, the anticipated impacts of the mining operations on the surrounding environment, and the remedial measures for the same.
  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

  
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- with the collected water level data for both monsoon and non-monsoon seasons from the PWD / TWAD so as to assess the impacts on the wells due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided.
21. The proponent shall furnish the baseline data for the environmental and ecological parameters with regard to surface water/ground water quality, air quality, soil quality & flora/fauna including traffic/vehicular movement study.
  22. The Proponent shall carry out the Cumulative impact study due to mining operations carried out in the quarry specifically with reference to the specific environment in terms of soil health, biodiversity, air pollution, water pollution, climate change and flood control & health impacts. Accordingly, the Environment Management plan should be prepared keeping the concerned quarry and the surrounding habitations in the mind.
  23. Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.
  24. Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.
  25. Details of the land for storage of Overburden/Waste Dumps (or) Rejects outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be provided.
  26. Proximity to Areas declared as 'Critically Polluted' (or) the Project areas which attracts the court restrictions for mining operations, should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the TNPCB (or) Dept. of Geology and Mining should be secured and furnished to the effect that the proposed mining activities could be considered.
  27. Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.
  28. Impact on local transport infrastructure due to the Project should be indicated.

  
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29. A tree survey study shall be carried out (nos., name of the species, age, diameter etc.,) both within the mining lease applied area & 300m buffer zone and its management during mining activity.
30. A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.
31. As a part of the study of flora and fauna around the vicinity of the proposed site, the EIA coordinator shall strive to educate the local students on the importance of preserving local flora and fauna by involving them in the study, wherever possible.
32. The purpose of Green belt around the project is to capture the fugitive emissions, carbon sequestration and to attenuate the noise generated, in addition to improving the aesthetics. A wide range of indigenous plant species should be planted as given in the appendix-I in consultation with the DFO, State Agriculture University. The plant species with dense/moderate canopy of native origin should be chosen. Species of small/medium/tall trees alternating with shrubs should be planted in a mixed manner.
33. Taller/one year old Saplings raised in appropriate size of bags, preferably ecofriendly bags should be planted as per the advice of local forest authorities/botanist/Horticulturist with regard to site specific choices. The proponent shall earmark the greenbelt area with GPS coordinates all along the boundary of the project site with at least 3 meters wide and in between blocks in an organized manner
34. A Disaster management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.
35. A Risk Assessment and management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.
36. Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.
37. Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.

  
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38. The Socio-economic studies should be carried out within a 5 km buffer zone from the mining activity. Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.
39. Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.
40. Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.
41. If any quarrying operations were carried out in the proposed quarrying site for which now the EC is sought, the Project Proponent shall furnish the detailed compliance to EC conditions given in the previous EC with the site photographs which shall duly be certified by MoEF&CC, Regional Office, Chennai (or) the concerned DEE/TNPCB.
42. The PP shall prepare the EMP for the entire life of mine and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine.
43. Concealing any factual information or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this Terms of Conditions besides attracting penal provisions in the Environment (Protection) Act, 1986.

**Appendix -I**  
**List of Native Trees Suggested for Planting**

No	Scientific Name	Tamil Name	Tamil Name
1	<i>Aegle marmelos</i>	Vilvam	விவம்
2	<i>Admanthura pavonina</i>	Marjadi	மரஜாடி
3	<i>Albizia lebbek</i>	Vaagai	வாகை
4	<i>Albizia amara</i>	Uai	உயி
5	<i>Bauhinia purpurea</i>	Manduarai	மண்டூரை
6	<i>Bauhinia racemosa</i>	Aathi	அத்தி
7	<i>Bauhinia tonkinog</i>	Irayalathi	இரையலத்தி
8	<i>Buchanania axillaris</i>	Kattuma	கட்டும்மா
9	<i>Borassus flabellifer</i>	Panai	பனை
10	<i>Butea monosperma</i>	Murukkamaram	முருக்கமரம்
11	<i>Buxax colba</i>	Bayu, Sevvilavu	பையு
12	<i>Calophyllum inophyllum</i>	Pituvai	பிடுவாய்
13	<i>Cassia fistula</i>	Sarakondrai	சரகண்டிரை
14	<i>Cassia roxburghii</i>	Sengondrai	செங்கண்டிரை
15	<i>Chloroxylon swietenia</i>	Puramaram	புரம்மரம்
16	<i>Cochlospermum religiosum</i>	Kongu, Marjallavu	கங்கு, மரஜல்லாவு
17	<i>Cordia dichotoma</i>	Nannali	நன்னாலை
18	<i>Crateva adansonii</i>	Mavalungum	மாவலுங்கும
19	<i>Dillenia indica</i>	Uva, Usha	உவா
20	<i>Dillenia pentagyna</i>	StruUva, Sitruzha	சுருஉவா
21	<i>Diopyros sebuanum</i>	Narungali	நாருங்கலை
22	<i>Diopyros schloroxylon</i>	Vaganai	வகை
23	<i>Ficus amplissima</i>	Kallthu	கல்த்து
24	<i>Hibiscus tiliaceus</i>	Aatrupoovaranu	அத்ரூபூவரணு
25	<i>Hardwickia binata</i>	Aacha	அச்சா
26	<i>Holoptelia integrifolia</i>	Aayili	அயிலி
27	<i>Lannea coromandelica</i>	Othuan	ஒதுவான்
28	<i>Lagerstroemia speciosa</i>	Poo Marudha	பூ மரூதா
29	<i>Lepisanthus tetraplylla</i>	Neikorisumaram	நைகரிசுமரம்
30	<i>Limonia acidissima</i>	Vila maran	வில்மரம்
31	<i>Litsea glutinosa</i>	Pumpattai	பும்பட்டை
32	<i>Mallotica longifolia</i>	Iluppai	இலுப்பை
33	<i>Mimilera luxandra</i>	UlakkaiPaalai	உலக்கைபாலை
34	<i>Nimacops oleugi</i>	Magizhamaram	மகிழ்மரம்
35	<i>Mitrasyna parvifolia</i>	Kadambu	கடம்பு
36	<i>Morinda pubescens</i>	Nuna	நுனா
37	<i>Morinda citrifolia</i>	Vellai Nuna	வலைநுனா
38	<i>Phacelia sylvestris</i>	Eechai	ஏச்சை
39	<i>Pongamia pinnat</i>	Pungam	புங்கம்

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40	<i>Premna mollissima</i>	Muruu	முறுறு
41	<i>Premna serratifolia</i>	Naramarai	நாரமரையி
42	<i>Premna tomentosa</i>	Malipoovarasu	மலிபூவரசு
43	<i>Propolis cinerea</i>	Varai marai	வரையி மரையி
44	<i>Pterocarpus marsupium</i>	Vengai	வேங்கை
45	<i>Pterospermum canescens</i>	Venuangu, Tada	வேணாங்கு, தாடா
46	<i>Pterospermum xylocarpum</i>	Polavu	பொலாவு
47	<i>Putranjiva roxburghii</i>	Karpala	கர்பலா
48	<i>Salvadora persica</i>	Ugaa Marai	உகாய் மரையி
49	<i>Sapindus emarginatus</i>	Marupuraru, Soappikai	மரபுரூர், சோப்பிகையி
50	<i>Sarcococca</i>	Asoca	அசோகா
51	<i>Strobilus asper</i>	Piray marai	பிரைய மரையி
52	<i>Strychnos nuxvomica</i>	Yetta	யெட்டா
53	<i>Strychnos potatorum</i>	Therthang Kottai	தேர்த்தாங்கு கோட்டையி
54	<i>Syzygium cumini</i>	Navai	நாவையி
55	<i>Terminalia ballaria</i>	Thaundi	தாண்டி
56	<i>Terminalia arjuna</i>	Ven marudhu	வேண மரடறு
57	<i>Taona cilata</i>	Sandhana venbu	சாந்தானா வேண்பு
58	<i>Theophasia populnea</i>	Puvarasu	புவராசு
59	<i>Walsuratrifoliata</i>	valpura	வால்புரா
60	<i>Wrightia tinctoria</i>	Veppalai	வேப்பலையி
61	<i>Pithecolobium dulce</i>	Kodukkapuli	கோடுக்காபுலியி

### Discussion by SEIAA and the Remarks:-

The proposal was placed in the 660<sup>th</sup> Authority meeting held on 06.10.2023. The authority noted that this proposal was placed for appraisal in 409<sup>th</sup> meeting of SEAC held on 21.09.2023, 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) along with Public Hearing** under cluster for undertaking the combined Environment Impact Assessment Study and preparation of separate Environment Management Plan subject to the conditions as recommended by SEAC & normal conditions in addition to the conditions in 'Annexure B' of this minute.

### 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.

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5. The committee shall deliberate on risk management plan pertaining to the cluster in a holistic manner especially during natural calamities like intense rain and the mitigation measures considering the inundation of the cluster and evacuation plan.
6. The Cluster Management Committee shall form Environmental Policy to practice sustainable mining in a scientific and systematic manner in accordance with the law. The role played by the committee in implementing the environmental policy devised shall be given in detail.
7. The committee shall furnish action plan regarding the restoration strategy with respect to the individual quarry falling under the cluster in a holistic manner.
8. The committee shall furnish the Emergency Management plan within the cluster.
9. The committee shall deliberate on the health of the workers/staff involved in the mining as well as the health of the public.
10. The committee shall furnish an action plan to achieve sustainable development goals with reference to water, sanitation & safety.
11. The committee shall furnish the fire safety and evacuation plan in the case of fire accidents.

#### **Impact study of mining**

12. Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area covering the entire mine lease period as per precise area communication order issued from reputed research institutions on the following
  - a) Soil health & soil biological, physical land chemical features .
  - b) Climate change leading to Droughts, Floods etc.
  - c) Pollution leading to release of Greenhouse gases (GHG), rise in Temperature, & Livelihood of the local people.
  - d) Possibilities of water contamination and impact on aquatic ecosystem health.
  - e) Agriculture, Forestry & Traditional practices.
  - 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.

  
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15. Details of type of vegetations including no. of trees & shrubs within the proposed mining area and. If so, transplantation of such vegetations all along the boundary of the proposed mining area shall committed mentioned in EMP.
16. The Environmental Impact Assessment should study the biodiversity, the natural ecosystem, the soil micro flora, fauna and soil seed banks and suggest measures to maintain the natural Ecosystem.
17. Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.
18. The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands, Horticulture, Agriculture and livestock.

#### **Forests**

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

#### **Water Environment**

23. Hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) so as to assess the impacts on the nearby waterbodies due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided, covering the entire mine lease period.
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.

  
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27. The project proponent shall study and furnish the details on potential fragmentation impact on natural environment, by the activities.
28. The project proponent shall study and furnish the impact on aquatic plants and animals in water bodies and possible scars on the landscape, damages to nearby caves, heritage site, and archaeological sites possible land form changes visual and aesthetic impacts.
29. The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components.
30. The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites.

#### **Energy**

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

#### **Climate Change**

32. The Environmental Impact Assessment shall study in detail the carbon emission and also suggest the measures to mitigate carbon emission including development of carbon sinks and temperature reduction including control of other emission and climate mitigation activities.
33. The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock.

#### **Mine Closure Plan**

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

#### **EMP**

35. Detailed Environment Management Plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued.
36. The Environmental Impact Assessment should hold detailed study on EMP with budget for Green belt development and mine closure plan including disaster management plan.

#### **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 &

  
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around the proposed mine lease area due to the proposed method of mining activity & its related activities covering the entire mine lease period as per precise area communication order issued.

#### **Others**

39. The project proponent shall furnish VAO certificate with reference to 300m radius regard to approved habitations, schools, Archaeological sites, Structures, railway lines, roads, water bodies such as streams, odai, vaari, canal, channel, river, lake pond, tank etc.
40. As per the MoEF& CC office memorandum F.No.22-65/2017-IA.III dated: 30.09.2020 and 20.10.2020 the proponent shall address the concerns raised during the public consultation and all the activities proposed shall be part of the Environment Management Plan.
41. The project proponent shall study and furnish the possible pollution due to plastic and microplastic on the environment. The ecological risks and impacts of plastic & microplastics on aquatic environment and fresh water systems due to activities, contemplated during mining may be investigated and reported.

#### **A. STANDARD TERMS OF REFERENCE**

- 1) Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification 1994 came into force, w.r.t. the highest production achieved prior to 1994.
- 2) A copy of the document in support of the fact that the Proponent is the rightful lessee of the mine should be given.
- 3) All documents including approved mine plan, EIA and Public Hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and should be in the name of the lessee.
- 4) All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/ topo sheet, topographic sheet, geomorphology and geology of the area should be provided. 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.

  
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- 6) Details about the land proposed for mining activities should be given with information as to whether mining conforms to the land use policy of the State; land diversion for mining should have approval from State land use board or the concerned authority.
- 7) It should be clearly stated whether the proponent Company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA Report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/violation of the environmental or forest norms/ conditions? The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large, may also be detailed in the EIA Report.
- 8) Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.
- 9) The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc. should be for the life of the mine / lease period.
- 10) Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.
- 11) Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.
- 12) Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area. In the event of any 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.

  
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- 13) Status of forestry clearance for the broken up area and virgin forestland involved in the Project including deposition of Net Present Value (NPV) and Compensatory Afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.
- 14) Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.
- 15) The vegetation in the RF / PF areas in the study area, with necessary details, should be given.
- 16) A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted.
- 17) Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/ Elephant Reserves/(existing as well as proposed), if any, within 10 km of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished.
- 18) A detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled-I fauna found in the study area, the necessary plan along with budgetary provisions for their conservation should be prepared in consultation with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost.
- 19) Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravali Range', (attracting court restrictions for mining operations), should also be 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

  
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under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).

- 21) R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine lease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspects should be discussed in the Report.
- 22) One season (non-monsoon) [i.e. March-May (Summer Season); October-December (post monsoon season) ; December-February (winter season)]primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.
- 23) Air quality modeling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of Vehicles for transportation of mineral. The details of the model used and input parameters used for modeling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the 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

  
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- given. Details of rainwater harvesting proposed in the Project, if any, should be provided.
- 27) Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided.
  - 28) Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter-alia, shall include details of the aquifers present and impact of mining activities on these aquifers. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.
  - 29) Details of any stream, seasonal or otherwise, passing through the lease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be brought out.
  - 30) Information on site elevation, working depth, groundwater table etc. Should be provided both in AMSL and bgl. A schematic diagram may also be provided for the same.
  - 31) A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the Project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The details of plantation already done should be given. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution.
  - 32) Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines.
  - 33) Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.
  - 34) Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report.

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

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

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

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

1. Project name and location (Village, District, State, Industrial Estate (if applicable)).
2. Process description in brief, specifically indicating the gaseous emission, liquid effluent and solid and hazardous wastes.
3. Measures for mitigating the impact on the environment and mode of discharge or disposal.
4. Capital cost of the project, estimated time of completion.
5. The proponent shall furnish the contour map of the water table detailing the number of wells located around the site and impacts on the wells due to mining activity.
6. A detailed study of the lithology of the mining lease area shall be furnished.

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

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

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

- a. A note confirming compliance of the TOR, with cross referencing of the relevant sections / pages of the EIA report should be provided.
- b. All documents may be properly referenced with index, page numbers and continuous page numbering.
- c. Where data are presented in the report especially in tables, the period in which the data were collected and the sources should be indicated.
- d. While preparing the EIA report, the instructions for the proponents and instructions for the consultants issued by MoEF & CC vide O.M. No. J-11013/41/2006-IA.II (I) dated 4th August, 2009, which are available on the website of this Ministry should also be followed.
- e. The consultants involved in the preparation of EIA/EMP report after accreditation with Quality Council of India (QCI)/National Accreditation Board of Education and Training (NABET) would need to include a certificate in this regard in the EIA/EMP reports prepared by them and data provided by other organization/Laboratories including their status of approvals etc. In this regard circular no F. No.J -11013/77/2004-IA-II(I) dated 2<sup>nd</sup> December, 2009, 18<sup>th</sup> March 2010, 28<sup>th</sup> May 2010, 28<sup>th</sup> June 2010, 31<sup>st</sup> December 2010 & 30<sup>th</sup> 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 willtake

  
MEMBER SECRETARY  
SEIAA-TN

further necessary action for obtaining environmental clearance in accordance with the procedure prescribed under the EIA Notification, 2006.

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

  
MEMBER SECRETARY  
SEIAA-TN

**Copy to:**

1. The Additional Chief Secretary to Government, Environment & Forests Department, Govt. of Tamil Nadu, Fort St. George, Chennai - 9
2. The Chairman, Central Pollution Control Board, Parivesh Bhavan, CBD Cum-Office Complex, East Arjun Nagar, New Delhi 110032.
3. The Member Secretary, Tamil Nadu Pollution Control Board, 76, Mount Salai, Guindy, Chennai-600 032.
4. The APCCF (C), Regional Office, MoEF & CC (SZ), 34, HEPC Building, 1<sup>st</sup> & 2<sup>nd</sup> Floor, Cathedral Garden Road, Nungambakkam, Chennai -34.
5. Monitoring Cell, IA Division, Ministry of Environment, Forests & CC, Paryavaran Bhavan, CGO Complex, New Delhi 110003
6. The District Collector, Erode District.
7. Stock File.



From

Thiru. K. Ramesh, M.Sc.,  
Deputy Director,  
Geology and Mining,  
Erode

To

Thiru. K. Vijayperichiyappan,  
S/o. K.N. Kandasamy,  
K.N. Charman thottam,  
B. Karattupalayam,  
Gobichettipalayam Taluk - 638 457.

**R.c. No. 442/ Mines / 2021 dated: 14.03.2023.**

Sub: Mines and Minerals – Minor Mineral – Rough Stone and Gravel- Erode District - Nambiyur Taluk - Elathur 'A' Village- S.F.Nos. 347/1B and 347/2B - Over an Extent of 0.86.0 Hectares of patta land- Quarry lease for Rough Stone and Gravel- Application preferred by Thiru. K. Vijayperichiyappan - Precise area communicated - further details requested - furnished regarding.

- Ref: 1. Application for Rough Stone and Gravel quarry permission preferred by Thiru. K. Vijayperichiyappan, S/o. K.N. Kandasamy dated: 05.05.2021.
2. G.O. Ms. No. 79 / Industries (MMC 1) Department dated 06.04.2015.
3. The Deputy Director, Geology and Mining, Erode letter R.C. No. 442/Mines/2021 dated 21.12.2022.
4. Mining Plan submitted by Thiru. K. Vijayperichiyappan letter dated 18.01.2023.
5. This office even Lr.No. dated. 24.01.2023 (Mining Plan approved)
6. Thiru.K.Vijayperichiyappan, S/o. K.N. Kandasamy letter dated 10.03.2023.

\*\*\*\*\*

In the reference 6<sup>th</sup> cited above, the applicant Thiru. K. Vijayperichiyappan has requested to furnish details of other quarry leases of expired, existing and proposed within 500m radius from the proposed rough stone and gravel lease over an extent of 0.86.0 Hect in S.F. No 347/1B and 347/2B Elathur 'A' Village of Nambiyur Taluk, Erode District.

As requested by the applicant, the details of existing, proposed and expired quarries situated within a radius of 500 meters from the subject area and existing pit details in the proposed area as per the mining plan are furnished as follows:-

1. Existing quarries:

SNo	Name of the Applicant	S.F.Nos	Extent(Hect)	Lease Period
1.	P. Balaji	246	4.30.0 Hect	30.06.2022 to 29.06.2027

2. Proposed quarries :


Sl.No	Name of the Applicant	S.F.Nos	Extent (Hect)	Remarks
1.	K. Vijayperichiyappan	347/1B and 347/2B	0.86.0	Renewal

3. Lease expired and abandoned quarries:

SNo	Name of the Applicant	S.F.Nos	Extent(Hect)	Lease Period
1.	N. Venkatachalam	356/4, 356/5, 356/6, 359/1	2.58.7 Hect	24.1.2014 to 23.1.2019

The quarry pit found in the area in the following dimensions

L                      W                      D  
92 m x              62 m x              13 m

  
Deputy Director,  
Geology and Mining,  
Erode  
14/03/23

Copy to :

State Level Environment Impact Assessment Authority-Tamil Nadu,  
3<sup>rd</sup> Floor, Panagal Maaligai,  
No.1 Jeenis Road, Saidapet.  
Chennai-15

From

Thiru. K. Ramesh, M.Sc.,  
Deputy Director,  
Geology and Mining,  
Erode

To

Thiru. K. Vijayperichiyappan,  
S/o. K.N. Kandasamy,  
K.N. Charman thottam,  
B. Karattupalayam,  
Gobichettipalayam Taluk - 638 457.

**R.c. No. 442 / Mines / 2021 dated: 24.01.2023.**

Sub: Mines and Minerals - Minor Mineral - Rough Stone and Gravel- Erode District - Nambiyur Taluk - Elathur 'A' Village- S.F.Nos. 347/1B and 347/2B - Over an Extent of 0.86.0 Hectares of patta land- Quarry lease for Rough Stone and Gravel- Application preferred by Thiru. K. Vijayperichiyappan - Precise area communicated for the proposed grant of quarry lease - Mining Plan Submitted for approval - Approved - regarding.

- Ref: 1. Application for Rough Stone and Gravel quarry permission preferred by Thiru. K. Vijayperichiyappan, S/o. K.N. Kandasamy dated: 05.05.2021.
2. G.O. Ms. No. 79 / Industries (MMC 1) Department dated 06.04.2015.
3. The Deputy Director, Geology and Mining, Erode letter R.C. No. 442/Mines/2021 dated 21.12.2022.
4. Mining Plan submitted by Thiru. K. Vijayperichiyappan letter dated 18.01.2023.

\*\*\*\*\*



Thiru. K. Vijayperichiyappan has preferred an application for the grant of Rough Stone and Gravel quarry lease over an extent of 0.86.0 Hectare of Patta land in S.F.Nos 347/1B and 347/2B of Elathur 'A' Village, Nambiyur Taluk, Erode District vide the reference 1<sup>st</sup> cited and the precise area has been communicated to the applicant vide the reference 3<sup>rd</sup> cited with a direction to submit the approved mining plan and Environmental Clearance.

As directed, the applicant has submitted three copies of mining plan for approval vide the reference 4<sup>th</sup> cited. The Mining Plan has been verified in detail and found that it has been prepared in accordance with the guidelines / instructions issued by the Commissioner of Geology and Mining in letter RC. No. 3868 / LC / 2012 dated 19.11.2012.

Therefore in exercise of the powers conferred under Rule 41(2) of Tamil Nadu Minor Mineral Concession Rules, 1959, read with G.O. (Ms). No.79 / Industries (MMC 1) Department dated 06.04.2015, the mining plan is hereby approved, subject to the following conditions:

- (i) The mining plan is approved without prejudice to any other Law applicable to the quarry lease from time to time whether such laws are made by the Central Government, State Government or any other authority.
- (ii) This approval of the mining plan does not in any way convey the approval of the Government in terms or any other provisions of the Mines and Minerals (Development and Regulation) Act, 1957, or any other connected laws including Forest (Conservation) Act, 1980, Forest Conservation Rules, 1981, Environment Protection Act, 1980, Explosives Act, 1884 (Central Act IV of 1884) Minor Mineral Concession and Development Rules, 2010 and the Rules made there under and the Tamil Nadu Minor Mineral Concession Rules, 1959.
- (iii) The mining plan is approved without prejudice to any other order or direction from any court of competent jurisdiction.
- (iv) The validity of the mining plan is co-terminus with the lease period.
- (v) Quarrying shall be done in accordance with the approved Mining Plan and that the mining plan is approved without prejudice to any other law applicable to the quarry lease from time to time whether such laws are made by the Central Government, State Government or any other authority.
- (vi) If anything is found to be concealed as required by the Mines Act in the contents of the Mining Plan and the proposal for rectification has not been made, the approval shall be deemed to have been withdrawn with immediate effect.
- (vii) A safety distance of 7.5 meters shall be provided for the patta lands situated adjacent to the applied area.
- (viii) A safety distance of 10 meters shall be provided for the Government cart track on the Eastern side of the lease applied area.
- (ix) A safety distance of 50 meters shall be provided for the Kuttai in S.F. No 174 on the Northeastern side of the lease applied area.

Encl.: Approved Mining Plan.

  
Deputy Director,  
Geology and Mining,  
Erode  
  
24.01.23



**MINING PLAN AND PROGRESSIVE QUARRY  
CLOSURE PLAN FOR ELATHUR 'A'  
ROUGH STONE AND GRAVEL QUARRY**

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

**Patta Lands / Lease Period = Five Years**

IN  
**LOCATION OF THE QUARRY LEASE APPLIED AREA**

EXTENT	:	0.86.0 Ha
S.F.NOS	:	347/1B & 347/2B
VILLAGE	:	ELATHUR 'A'
TALUK	:	NAMBIYUR
DISTRICT	:	ERODE
STATE	:	TAMIL NADU

FOR

**APPLICANT**

**Thiru.K.Vijay Perichiyappan,**  
S/o. K.N.Kandasamy,  
K.N. Charman Thottam,  
B.Karattupalayam,  
Gobichettipalayam Taluk,  
Erode District – 638 457.

**PREPARED BY**

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

No.17, Advaita Ashram Road,  
Alagapuram, Salem - 636 004.  
Cell: 94422 78601 & 94433 56539.  
E-Mail: infogeoexploration@gmail.com



**K.Vijay Perichiyappan,**  
S/o. K.N.Kandasamy,  
K.N. Charman Thottam,  
B.Karattupalayam,  
Gobichettipalayam Taluk,  
Erode District – 638 457.

**CONSENT LETTER FROM THE APPLICANT**

The Mining Plan and Progressive Quarry Closure Plan in Respect of Elathur 'A' Rough Stone and Gravel Quarry lease applied area over an extent of 0.86.0 Hectares of patta lands in S.F.Nos. 347/1B & 347/2B of Elathur 'A' Village, Nambiyur Taluk, Erode District, Tamil Nadu State has been prepared by

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

Qualified Person

I request to the Deputy Director, Department of Geology and Mining, Erode 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.,**

No. 17, Advaita Ashram Road,

Alagapuram, Salem – 636 004.

Cell: 94422 78601 & 94433 56539.

I hereby undertake that all the modifications, if any made in the Mining Plan by the Qualified Person may be deemed to have been made with my knowledge and consent and shall be acceptable to me and binding on me in all respects.

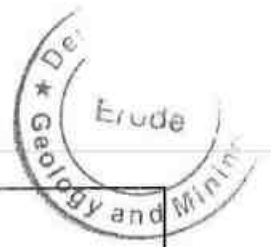
Signature of the Applicant

*K. Vijay Perichiyappan*

K.Vijay Perichiyappan

Place: Erode

Date: 22.12.2022



**K.Vijay Perichiyappan,**  
S/o. K.N.Kandasamy,  
K.N. Charman Thottam,  
B.Karattupalayam,  
Gobichettipalayam Taluk,  
Erode District – 638 457.

**DECLARATION OF THE APPLICANT**

The Mining Plan and Progressive Quarry Closure Plan in Respect of Elathur 'A' Rough Stone and Gravel Quarry lease applied area over an extent of 0.86.0 Hectares of patta lands in S.F.Nos. 347/1B & 347/2B of Elathur 'A' Village, Nambiyur Taluk, Erode District, Tamil Nadu State has been prepared in full consultation with me.

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

Signature of the Applicant

*K. Vijay Perichiyappan*

K.Vijay Perichiyappan

Place: Erode

Date: 22.12.2022





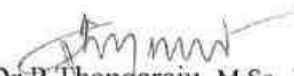
## CERTIFICATE

Certified that I, **Dr.P.THANGARAJU**, M.Sc., Ph.D., having an office at Regd. Off. No. 17, Advaita Ashram Road, Alagapuram, Salem – 636 004, holding a Post Graduate 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 prepare this Mining Plan and Progressive Quarry Closure Plan in Respect of Elathur ‘A’ Rough Stone and Gravel Quarry in S.F.Nos. 347/1B & 347/2B over an extent of 0.86.0 Ha of Patta lands in Elathur ‘A’ Village, Nambiyur Taluk, Erode District, Tamilnadu State for Thiru.K.Vijay Perichiyappan, S/o. K.N.Kandasamy, residing at K.N. Charman Thottam, B.Karattupalayam, Gobichettipalayam Taluk, Erode District – 638 457. 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.

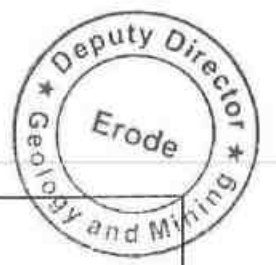
Signature of the Qualified Person

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

Place: Salem

Date: 24.12.2022





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

**CERTIFICATE FROM THE QUALIFIED PERSON**


This is to certify that the Provisions of Prepared under Rules 41 & 42 as Amended in Tamil Nadu Minor Mineral Concession Rules, 1959. The preparation of Mining Plan and Progressive Quarry Closure Plan for Elathur 'A' Rough Stone and Gravel Quarry in S.F.Nos. 347/1B & 347/2B over an extent of 0.86.0 Ha of Patta lands in Elathur 'A' Village, Nambiyur Taluk, Erode District, Tamil Nadu State has been prepared for

**Thiru.K.Vijay Perichiyappan,**  
S/o. K.N.Kandasamy,  
K.N. Charman Thottam,  
B.Karattupalayam,  
Gobichettipalayam Taluk,  
Erode District – 638 457.

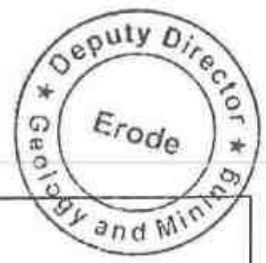
Whenever specific permissions/ exemptions/ relaxations and approvals are required, the Applicant will approach the concerned authorities of the Deputy Director, Department of Geology and Mining, Erode District, Tamil Nadu for such permissions/ exemptions/ relaxations and approvals.

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: 24.12.2022



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

**CERTIFICATE FROM THE QUALIFIED PERSON**

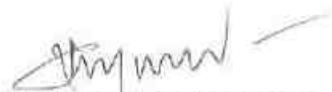
Certified that the Provisions of Mines Act, Rules and Regulations or Orders made there under have been observed in the preparation of Mining Plan and Progressive Quarry Closure Plan for Elathur 'A' Rough Stone and Gravel Quarry in S.F.Nos. 347/1B & 347/2B over an extent of 0.86.0 Ha of Patta lands in Elathur 'A' Village, Nambiyur Taluk, Erode District, Tamil Nadu State has been prepared for

**Thiru.K.Vijay Perichiyappan,**  
S/o. K.N.Kandasamy,  
K.N. Charman Thottam,  
B.Karattupalayam,  
Gobichettipalayam Taluk,  
Erode District – 638 457.

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

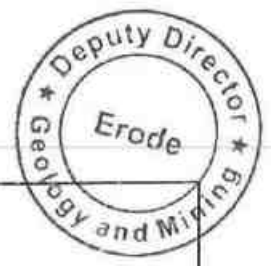
It is also certified that information furnished in the Mining Plan are true and correct to the best of my knowledge.

Signature of the Qualified Person

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

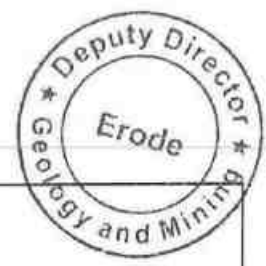
Place: Salem

Date: 24.12.2022



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### **LIST OF ANNEXURES**

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### **LIST OF PLATES**

<b>S. No.</b>	<b>Description</b>	<b>Plate No.</b>
1.	Location Plan	I
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**MINING PLAN ALONG WITH PROGRESSIVE QUARRY CLOSURE PLAN  
FOR ELATHUR 'A' ROUGH STONE AND GRAVEL QUARRY OVER AN  
EXTENT OF 0.86.0 Ha IN ELATHUR 'A' VILLAGE, NAMBIYUR TALUK,  
ERODE DISTRICT, TAMILNADU STATE**

(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 Environmental Management plan is prepared for **Thiru.K.Vijay Perichiyappan**, S/o. K.N.Kandasamy, K.N. Charman Thottam, B.Karattupalayam, Gobichettipalayam Taluk, Erode District – 638 457.

The applicant applied for Rough Stone and Gravel quarry over an extent of 0.86.0 Hectares of patta lands in S.F.Nos. 347/1B & 347/2B of Elathur 'A' Village, Nambiyur Taluk, Erode District, Tamil Nadu State under Rule 19 (1) (b), 20, 22 of Tamil Nadu Minor Mineral Concession Rules, 1959.

The application was processed by the Deputy Director, Department of Geology and Mining, Erode District and passed a precise area Communication letter vide **Rc.No.442/Mines/2021, Dated:21.12.2022** to submit an approved Mining Plan and obtain Environmental Clearance from the SEIAA, Tamil Nadu with the conditions to provide:

1. The applicant should submit the approved mining plan and Environmental Clearance for the grant of Rough Stone and Gravel quarry lease for over an extent of 0.86.0 Hectares of patta lands in S.F.Nos. 347/1B & 347/2B of Elathur 'A' Village, Nambiyur Taluk, Erode District.
2. Quarrying should be carried out leaving a safety distance of 10m to the Government Poramboke Cart Track on the East side of the lease applied area.
3. Quarrying should be carried out leaving a safety distance of 50m to the Kuttai in S.F.No. 174 on the Northeast side of the lease applied area.
4. Quarrying should be carried out leaving a safety distance of 7.5m to the surrounding patta lands of the lease applied area.

In order to ensure compliance of the order of the Honorable Supreme Court Dated: 27.02.2012 in I.A.No.12-13 of 2011 in Special Leave Petition SLP (C) No 19628-19629/2009, it has been now decided that all mining projects of minor minerals including their renewal irrespective of sizes of the lease would hence forth require prior environmental clearance mining project within the lease applied area up to less than 100Ha including projects or minor mineral with lease applied area less than 5Ha

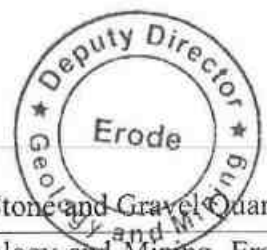


would be treated as category B as defined in the EIA notification 2006 and will be considered by the state notified by MoEF as prescribed procedure under EIA notification 2006.

In the above circumstances the applicant through his consultant is hereby preparing the mining plan along with Progressive Quarry Closure Plan for approval and subsequent submission of Form-I, Form-1M and Pre-feasibility report to obtain environmental clearance from the SEIAA, Tamil Nadu, Rough Stone and Gravel quarry. This mining plan is prepared by considering the Rules 41 & 42 as Amended in Tamil Nadu Minor Mineral Concession Rules, 1959 and as per the EIA Notification 2006 and its subsequent Amendment and judgments till 2022.

**Short Notes of Mining plan:**

- a. Village Panchayat - Elathur 'A'
- b. Panchayat Union - Elathur
- c. The Geological Resources are **1,35,278m<sup>3</sup>** of Rough Stone and **936m<sup>3</sup>** of Gravel in the entire area.
- d. The Total Mineable Reserves are **23,125m<sup>3</sup>** of Rough Stone in the entire area. The Gravel was removed in previous quarry operation.
- e. The proposed quantity of reserves/ (level of production) to be mined are **23,125m<sup>3</sup>** of Rough Stone for five years in the entire area.
- f. Total extent of the lease applied area is about 0.86.0 Ha.
- g. Topography of the area = The area is a Plain topography
- h. Proposed Depth of mining = 28m (3m Gravel + 25m Rough Stone) below ground level.
- i. This Mining Plan period = Five years
- j. It is a fresh lease application but, the applied area has been considered quarrying operation earlier. The quarry lease was previously granted in the favour of **Thiru.K.Vijay Perichiyappan**, over an extent of 0.86.0 Hectares of Patta lands in S.F.Nos. 347/1B & 347/2B of Elathur 'A' Village, Nambiyur Taluk (Formerly Gobichettipalayam Taluk), Erode District vide **Rc.No.30118/2014/X-1, Dated: 04.03.2016** for the period of five years from 04.03.2016 to 03.03.2021 for quarrying of Rough Stone and Gravel. The lessee has obtained Environmental Clearance from the State Level Environment Impact Assessment Authority, Tamil Nadu vide letter No. **SEIAA-TN/F.No.3827/1(a)/EC.No.2934/2015, Dated:17.02.2016**. The applicant has again applied a quarry lease on 05.05.2021, over an extent of 0.86.0 Hectares of Patta lands in S.F.Nos. 347/1B & 347/2B of Elathur 'A' Village, Nambiyur Taluk, Erode District for the period of five years. The application was



meritoriously processed by the Deputy Director, Department of Geology and Mining, Erode District and recommended the quarry lease for the period of five years.

- k. The maximum dimension of the **existing quarry pit** is given table below (Refer Plate No. II and III).

Table – 1

Length (m) (Max)	Width (m) (Avg)	Depth(m) (Max)
92	62	13

- 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 quarry operation.
- o. The existing road from the main road to quarry is in good condition and the same will be maintained and utilized for Transportation of quarry materials and machineries.
- p. There is No Export of this Rough Stone and Gravel.
- 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 and places of worships is marked and enclosed as Plate No. IA and IB.
- r. The lease applied area is about 0.86.0Ha bounded by seven corners; the corners are designated as 1-7 clock-wise from the Southern corner and the Co – ordinates for all the corners are clearly marked in the Quarry Lease Plan 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 and marked in the Topography, Geological Plan and section enclosed as Plate No. III.
- t. General conditions will not applicable for the proposed area. The area applied for lease is 10Km away from the,
- Interstate Boundary,*
  - Protected area under wild life protection ACT, 1972,*
  - Critically polluted areas as identified by CPCB,*
  - Notified Eco sensitive areas.*





Mining Plan and PQCP

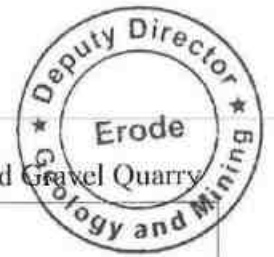
Elathur 'A' Rough Stone and Granite Quarry

- u. There is no wastage anticipated during this quarry operation. Hence waste dump is not proposed in the lease applied area.
- v. Around 12 employees are deploying in the quarrying operation.
- w. Total Cost of the project is about **Rs.24,57,000/-**.
- x. Infrastructures around the quarry lease applied area:

Table – 2

Particulars	Location	Approximate aerial distance from lease applied area.
Nearest Post Office	Elathur	3.0km – SW
Nearest School	Molapalayam	2.0km – E
Nearest Dispensary	Elathur	3.0km – SW
Nearest Town	Nambiyur	5.0km – S
Nearest Police Station	Nambiyur	5.0km – S
Nearest Govt. Hospital	Nambiyur	5.0km – S
Nearest D.S.P. Office	Gobichettipalayam	13.0km – NE
Nearest Railway Station	Uthukuli	31.0km – SE
Nearest Airport	Coimbatore	52.0km – SW
Nearest Seaport	Kochi	200.km – SW
District Head quarters	Erode	44.0km – SE



**2.0 GENERAL INFORMATION**

**2.1 a) Name of the Applicant :** Thiru.K.Vijay Perichiyappan  
 : S/o. K.N.Kandasamy

**b) Address of the Applicant (With Phone No and Aadhaar No.)**

Address : K.N. Charman Thottam,  
 B.Karattupalayam,  
 Gobichettipalayam Taluk,  
 Erode District.  
 Pin Code : 638 457  
 Mobile No : 98428 82920 & 98658 10829  
 Aadhaar No : 6932 9410 1544  
 E-mail : [vinovinoth829@gmail.com](mailto:vinovinoth829@gmail.com)

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

The applicant is an individual.

**2.2 a) Mineral which the Applicant intends to mine:**

The Applicant intends to quarry Rough Stone and Gravel only.

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

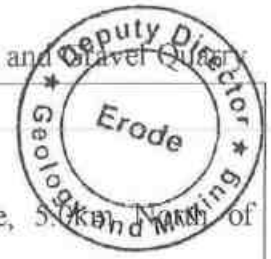
The precise area communication letter was received from the Deputy Director, Department of Geology and Mining, Erode District vide **Rc.No. 442/Mines/2021, Dated:21.12.2022** to submit an approved mining plan and Environmental Clearance from the SEIAA, Tamil Nadu.

**c) Period of permission / lease to be granted:**

Five Years.

**d) Name and address of the Qualified Person preparing the mining plan:**

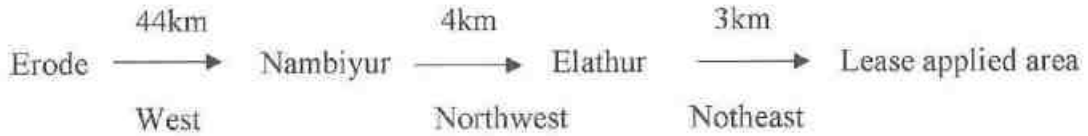
Name : **Dr.P.Thangaraju, M.Sc., Ph.D.,**  
 Qualified Person  
 Address : No.17, Advaita Ashram Road,  
 Alagapuram, Salem – 636 004.  
 Mobile : 94422 78601 & 94433 56539  
 Telephone No. : 0427- 2431989  
 Email : [infogeoexploration@gmail.com](mailto:infogeoexploration@gmail.com)



**3.0 LOCATION**

**a) Details of the area with location map:**

The lease applied area is located about 44.0km Northwest of Erode, 5.0km Northwest of Nambiyur and 3.0km Notheast side of Elathur Village.



**Location Map of the Lease Applied area**

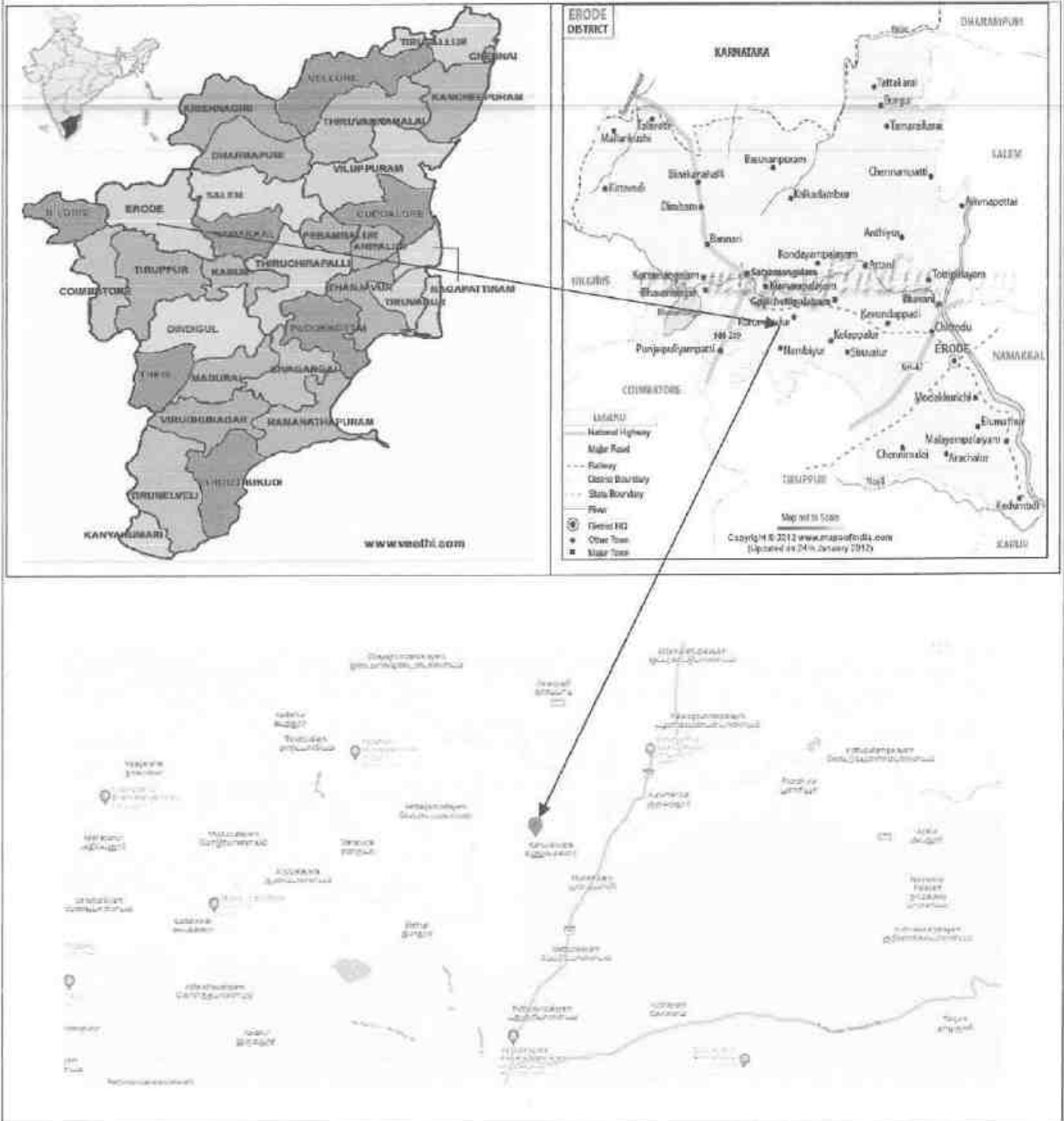




Table - 3

District	Taluk	Village	S.F.No.	Area (Ha)	Patta No.	Classification
Erode	Nambiyur	Elathur 'A'	347/1B	0.49.0	1525	Patta land (Refer Annexure Nos. IV to VI)
			347/2B	0.37.0		
			<b>Total</b>	<b>0.86.0</b>	-	

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

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

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

It is a Patta land, registered in the name of the applicant (Thiru.K.Vijay Perichiyappan). Refer the Patta copy as Annexure No. IV.

**d) Toposheet No. with latitude and longitude:**

The lease applied area falls in the Toposheet No: 58 - E/07 Latitude between: 11°24'21.3072"N to 11°24'25.3142"N and Longitude between: 77°19'33.2652"E to 77°19'37.2253"E on WGS datum-1984. Please refer the Plate Nos. I to II.

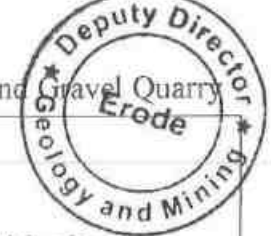
**e) Existence of public road / Railway line, if any nearby and approximate distance:**

The approach road is situated on the Eastern side of the area which is connects to the Munampally - Elathur Road at a distance 750m on the Southwest side of the area.

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

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

The Nearest Railway line is Erode - Coimbatore which is located about 29km on the Southeastern side of the 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 a Plain terrain. The area has gentle sloping towards South side and altitude of the area is 277m (max) above from Mean Sea level. The area is covered by 3m thickness of Gravel and followed by Massive Charnockite which is clearly inferred from the existing quarry pit. The Water level in the surrounding area is 70m in summer and at 65m in rainy seasons below general ground profile which is observed from the nearby bore wells. Average annual rainfall is about 721mm.

**Topographical View of Elathur 'A' Rough Stone and Gravel**

**Quarry lease applied area**



Peninsular gneiss forms the oldest rock formations, in which the massive formation of Charnockite lies over with rich accumulation of recent quaternary formation. On regional scale of the Charnockite body is N30°E – S30°W with dipping towards SE60°.

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

↑	<b>AGE</b>	<b>FORMATION</b>
	Recent	- Quaternary Formation (Gravel)
	-----Unconformity-----	
	Archaean	- Charnockite
		Peninsular Gneiss Complex

**4.2 Details of exploration already carried out if any:**

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

Geological Survey of India has carried out detailed mapping in Erode 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 existing quarry pit.

**4.3 Estimation of Reserves:****a) Geological reserves with geological sections on a scale of 1:1000 / 1:2000**

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

Totally three sections have been drawn, one section is drawn Length wise as (X-Y) and other two cross sections are drawn Width wise as (A-B & C-D) to cover the maximum area considered for lease.

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

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

The Geological Resources of Rough Stone and Gravel are calculated up to a maximum depth of 28m [3m Gravel + 25m Rough Stone] below from the general ground level. The total Geological Resources are calculated by sectional method and the resources are estimated after depletion of existing quarry pit. The total available geological resources are given below.

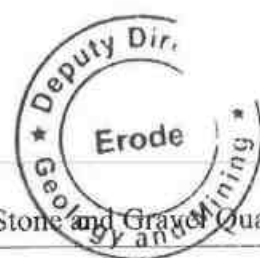


Table-4

GEOLOGICAL RESOURCES						
Section	Bench	Length (m)	Width (m)	Depth (m)	Geological Resources of Rough Stone (m <sup>3</sup> )	Gravel (m <sup>3</sup> )
XY-AB	I	8	19	3		456
	II	8	19	5	760	
	III	8	19	4	608	
	III	15	89	1	1335	
	IV	55	89	5	24475	
	V	55	89	5	24475	
	VI	55	89	5	24475	
<b>Total</b>					<b>76128</b>	<b>456</b>
XY-CD	I	8	20	3		480
	II	14	25	5	1750	
	III	14	25	5	1750	
	IV	53	70	5	18550	
	V	53	70	5	18550	
	VI	53	70	5	18550	
	<b>Total</b>					<b>59150</b>
<b>Grand Total</b>					<b>135278</b>	<b>936</b>

The Geological Resources of Gravel : 936m<sup>3</sup>

The Geological Resources of Rough Stone : 1,35,278m<sup>3</sup>

**Existing Pit Dimension:**

The lease applied area has been quarried in earlier the existing pit dimensions are follows:

Table-5

Length (m) (Max)	Width (m) (Avg)	Depth(m) (Max)
92	62	13

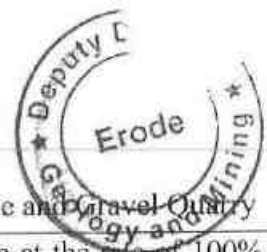
**Available Mineable Reserves:**

The available mineable reserves are calculated after leaving the safety distance, Bench loss and existing pit.

Table - 6

MINEABLE RESERVES					
Section	Bench	Length (m)	Width (m)	Depth (m)	Mineable Reserves of Rough Stone (m <sup>3</sup> )
XY-AB	IV	35	35	5	6125
	V	30	25	5	3750
	VI	25	15	5	1875
<b>Total</b>					<b>11750</b>
XY-CD	IV	34	35	5	5950
	V	29	25	5	3625
	VI	24	15	5	1800
<b>Total</b>					<b>11375</b>
<b>Grand Total</b>					<b>23125</b>





The mineable reserves have been computed as **23,125m<sup>3</sup>** of Rough Stone at the rate of 100% recovery upto a depth of 28m (3m Gravel + 25m Rough Stone) below from the general ground level for a period of five years. The Gravel was removed in previous quarry operation.

## **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. The slope of the bench should not more than 60° from the horizontal.

However, as far as the quarrying of Rough Stone is concerned, observance of the provisions of Regulation 106(2) (b) is available with Director General of Mines Safety. If the lessee intends to modify the dimensions of benches, relaxation and permission are available with Director General of Mines Safety under 106 (2) (b) of Metalliferous Mines Regulations, 1961. In such a scenario if there is any drastic change in the Resources and Reserves a modified plan will be submitted to the concerned authority for necessary relaxation, clearance and permission. This relaxation will be applied and obtained after the execution of lease/Commencement of quarry operation.

### **5.2. Mode of working (mechanized, semi mechanized, manual):**

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

The quarry operation involves shallow jack hammer drilling, slurry explosives in blasting, excavation, Loading and transportation of Rough Stone to the needy crusher.

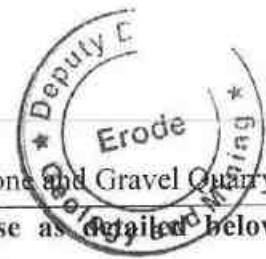
The production of Rough Stone in this quarry involves the following method which is typical for Rough Stone quarrying in contrast to other major mineral mining.

Splitting of rock mass of considerable volume from the parent rock mass by jackhammer drilling and 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 bench height is proposed 5.0 meter vertical bench the width of the bench is not less than the Height.



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

The overburden in the form of Gravel formation. The Gravel was removed in previous quarry operation. The excavated Rough Stone will be directly loaded into tippers to the needy customers. The Composite year wise Development and production plan and sections indicating the Pit lay out, Green belt development are shown in Plate No-III.

#### Year wise Development and Production

Table - 7

YEARWISE RESERVES						
Year	Section	Bench	Length (m)	Width (m)	Depth (m)	Recoverable Reserves of Rough Stone (m <sup>3</sup> )
I	XY-AB	IV	27	35	5	4725
	<b>Total</b>					<b>4725</b>
II	XY-AB	IV	8	35	5	1400
	XY-CD	IV	19	35	5	3325
	<b>Total</b>					<b>4725</b>
III	XY-CD	IV	15	35	5	2625
		V	16	25	5	2000
	<b>Total</b>					<b>4625</b>
IV	XY-CD	V	13	25	5	1625
	XY-AB	V	24	25	5	3000
	<b>Total</b>					<b>4625</b>
V	XY-AB	V	6	25	5	750
		VI	25	15	5	1875
	XY-CD	VI	24	15	5	1800
	<b>Total</b>					<b>4425</b>
<b>Grand Total</b>						<b>23125</b>

The Recoverable reserves have been computed as **23,125m<sup>3</sup>** of Rough Stone at the rate of 100% recovery upto a depth of 28m (3m Gravel + 25m Rough Stone) below ground level for a period of five years. The Gravel was removed in previous quarry operation.

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, Chennai region by submitting relevant documents, appropriate safety plans and its Mitigation measures.





**Mining Plan and PQCP**

Elathur 'A' Rough Stone and Gravel Quarry

One lorry load	=	6m <sup>3</sup> (approx.)
Total No of Working days	=	300 Days per year
Total quantity to be removed in this five years plan period	=	23,125m <sup>3</sup>
Hence total Lorry loads per day	=	23,125m <sup>3</sup> / 6m <sup>3</sup>
	=	3,854 Lorry loads
	=	3,854 / 5 years
	=	771 / 300 days
Rough Stone	=	<b>2 – 3 Lorry loads per day</b>

Working hours = 8.30 am to 5.30 pm (with 12.30-1.30 P.M. 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.

**I. DRILLING MACHINE:**

Table – 8

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

**II. EXCAVATION & LOADING EQUIPMENT:**

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

**III. HAULAGE WITHIN THE MINE & TRANSPORT EQUIPMENT:**

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

**5.6. Disposal of Overburden/Waste:**

The overburden in the form of Gravel formation. The Gravel was removed in previous quarry operation. The excavated Rough Stone (100%) will be directly loaded into Tippers to the needy customers. There is no Waste anticipated during this plan period hence, disposal of waste does not arise.



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

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

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

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

Table – 9

Ultimate Pit Dimension (maximum)		
Length (m) (Max)	Width (m) (Avg)	Depth(m) (Max)
92	60	28m below ground level

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

There is no waste anticipated during the entire life of quarry. Hence, backfilling is not possible in this quarry. After completion of quarry operation, the 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 pit will be fenced with barbed wire fencing to prevent inadvertent entry of public and cattle (Refer Plate No. IV).

**6.0 BLASTING**

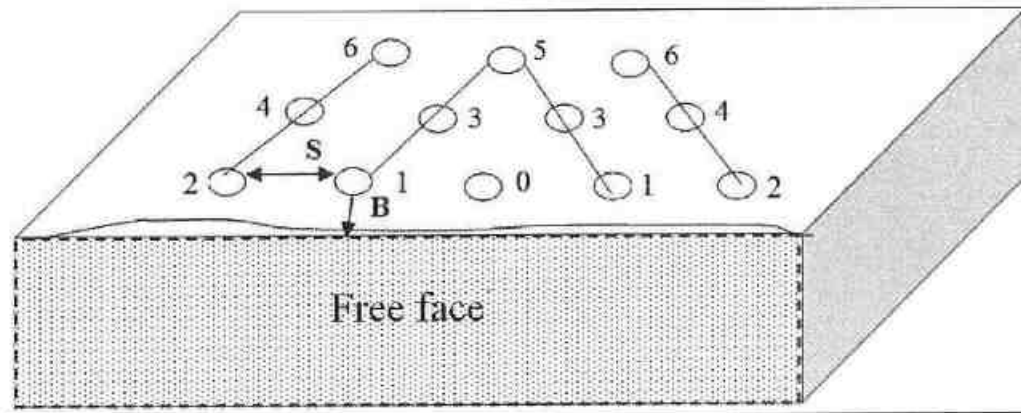
**6.1 Blasting pattern:**

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 blasting of shattering effect for loosening the Rough Stone.

Drilling and blasting parameters are as follows:

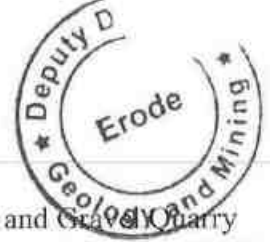
Depth of Each hole	:	1.5m
Diameter of hole	:	30-32mm
Spacing between holes	:	1.2m
Burden for hole	:	1.0m
Pattern of hole	:	Zigzag – Multi-rows
Inclination of holes	:	80° from horizontal
Use of delay detonators	:	25 millisecond relays
Detonating fuse	:	“Detonating” Cord

**BLASTING PATTERN DRAWING**



**Staggered “V” Pattern of Blasting Design**

<b>Spacing</b>	<b>=</b>	<b>1.2m</b>
<b>Burden</b>	<b>=</b>	<b>1.0m</b>
<b>Depth of the hole</b>	<b>=</b>	<b>1.5m</b>
<b>No of holes proposed per day=</b>		<b>14 Holes</b>



**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.

**6.3 Measures proposed to minimize ground vibration due to blasting:**

The quarry is situated more than 300m away 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 heaving 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	= 14 Holes
Yield	= 40 Tons
Powder factor	= 6 Tons/Kg of explosives
Total explosive required	= 7 Kg-Slurry explosives
Charge/ hole	= 0.5 Kg
Blasting at day time only	= 12.00 – 12.30 P.M. (whenever required)

**6.4 Storage and safety measures to be taken while blasting:**

The applicant will engage authorized explosive agency to carry out the small amount of blasting and it will be supervised by competent and statutory foreman/Permit Mines Manager. The explosives agencies should be having the valid Blaster certificate. He will blast holes in the quarry site. After the completion of Blasting the explosives Agencies will take it out back the remaining quantity of Explosives. The magazine is available at the quarry site to temporarily store the 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 about 70m in summer season and 65m in Rainy season which is observed from the existing private boreholes. The lease applied area is fully covered by Massive Charnockite formation and it is revealed from the adjacent quarries. 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 – 10

Type	Distance & Direction	Location
Bore Well	140m Southwest side	11°24'18.67"N 77°19'30.56"E

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

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

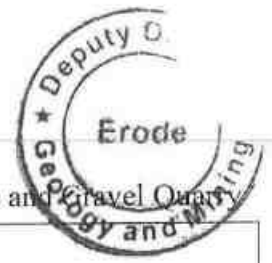
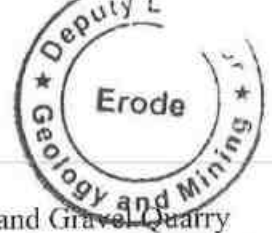
**8.0 OTHER PERMANENT STRUCTURES (also shown in the map)**

Table – 11

S. No.	Salient Features Present around site	Prescribed safety distance	If any present within Prescribed distance it's actual distance and direction from the area
8.1	Railways, Highways	50m	None of the above situated within 50m radius. Nearest National Highway – Coimbatore to Bengaluru Road (NH-948) - 13km – Northwest side Nearest State Highway - Cheyur to Erode-Sathyamangalam Road (SH-15A) - 2km – Southeast side Nearest Major District Road – Perundurai to Maccanamcombai (MD-357) – 2km - Northeast side
8.2	Water Bodies (River, Pond, Lake, Odai, Canal)	50m	Kuttai is situated in S.F.No.174 on the Northeast side of the lease applied area, hence 50m safety distance has been provided. There is no other River, Pond, Lake, Odai, Canal located within 50m radius of the lease area.
8.3	Village Road	10m	No village road is passing within 10m radius on the lease area.
8.4	Habitation / Village	300m	There is no approved habitation within 300m radius from the lease area (Refer Plate No I-B).
8.5	Archaeological / historical monuments	500m	There are no Archaeological / historical monuments within 500m radius from the lease area.
8.6	Places of worships	500m	There is no place of worships within the radius of 500m from the lease area.
8.7	Housing area, EB line (HT & LT Line)	50m	There is no Housing area, EB line (HT & LT Line) within the radius of 50m from the lease area.

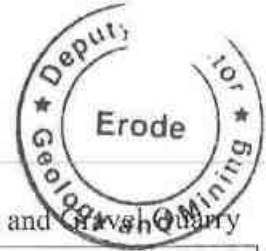


Mining Plan and PQCP

Elathur 'A' Rough Stone and Gravel Quarry

8.8	Adjacent Patta lands / Govt. Land	7.5m/10m	Direction	Classification	Safety Distance
			North	Patta land	7.5m
			Northeast	Kuttai	50m
			East	Government Poramboke Cart Track	10m
			South	Patta land	7.5m
			West	Patta land	7.5m
			(Refer Plate No. II).		
8.9	Boundaries of the permitted area	7.5m/10m	The boundaries of the permitted areas are as follows: North - S.F.No. 246 East - S.F.Nos. 367 & 366 South - S.F.No. 347/3 West - S.F.Nos. 347/2A & 347/1A (Refer Plate No. II).		
8.10	Reserve forest	60m	There is no reserved forest / forest / social forest / wild life sanctuary etc., within radius of 60m of the lease area. (Refer Plate No. IA and IB).		
8.11	Protected area / ECO sensitive area/ Wild Life Sanctuary	10km	There is no ECO sensitive Zone/ Wild Life Sanctuary/ Critically Polluted Area/ HACA/ CRZ located within 10km radius of the area. (Refer Plate No. IA).		



**9.0 EMPLOYMENT POTENTIAL & WELFARE MEASURES****9.1 Employment potential (skilled, semi-skilled, un skilled):**

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

**a. Mine official & Competent Persons:**

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

**b. Machinery Operators**

Jack hammer operator	:	2
Excavator Operator	:	1
Tippers Driver	:	1

**c. Ordinary Employee**

Helper	:	3
Cleaner & Co-Operator	:	2
Security	:	1
<b>Total</b>	:	<b>12</b>

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.

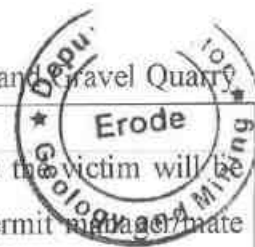
**9.2 Welfare Measures:****a) Drinking Water:**

Packaged drinking water is available from the nearby water vendors in Munampally which is located about 2.0km on the Southeast side of the lease applied area.

**b) Sanitary Facilities:**

Hygienic modern Sanitary Facilities will be constructed in the safety area as semi permanent structure and it will be maintained periodically.

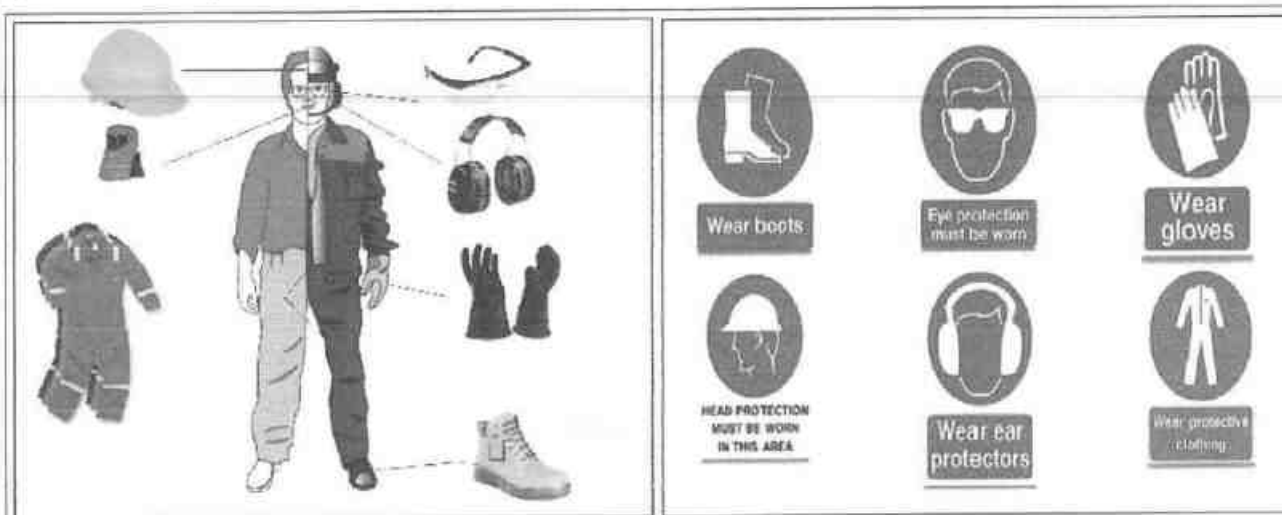


**c) First aid facility:**

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/permit manager/ mate will be in charge of first aid and injured person will be taken to the hospital by the applicant's vehicle. Hospital is available in Nambiyur located at a distance of 5.0km on the South side.

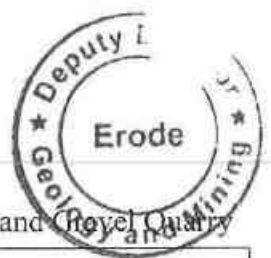
**d) Labour Health:**

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

**e) Precautionary safety measures to the labourers:**

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

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



**PART – B**

**10.0 ENVIRONMENT MANAGEMENT PLAN**

**10.1 Existing Land use pattern:**

The quarry lease applied area is a Plain terrain. The area is a dry barren land devoid of Agriculture and Habitations. The land is not used for any specific vegetation.

**LAND USE PATTERN**

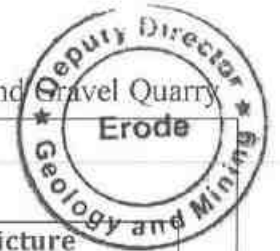
**Table – 12**

<b>Description</b>	<b>Present area (Ha)</b>	<b>Area at the end of this quarrying period (Ha)</b>
Area under quarrying	0.54.35	0.54.35
Infrastructure	Nil	0.01.00
Roads	0.01.00	0.02.00
Green Belt	Nil	0.26.25
Unutilized Area	0.30.65	0.02.40
<b>Grand Total</b>	<b>0.86.00</b>	<b>0.86.00</b>

**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.









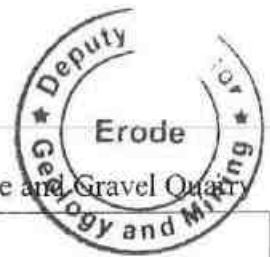
## 10.3 Flora and Fauna:

Table - 13

S.No	Name of the plant (Scientific)	Family Name	Common Name	Habit	Picture
1.	Prosopis juliflora	Fabaceae	Seemai karuvelam	Tree	
2.	Azadirachta indica	Meliaceae	Neem, Vembu	Tree	
3.	Cocos nucifera	Arecaceae	Thennai	Tree	
4.	Aloe vera	Asphodelaceae	Katralai	Shrub	
5.	Borassus flabellifer	Arecaceae	Panai	Tree	
6.	Cissus quadrangularis	Vitaceae	Pirandai	Shrub	

List of Fauna

S.No.	Scientific Name	Common Name	Picture
1.	Capra aegagrus hircus	Goat	
2.	Funambulus palmarum	Squirrel	
3.	Bos taurus	Cow	
4.	Danaus plexippus	Striped tiger	
5.	Corvus leuillanti	Crow	
6.	Agrion sp & Petalura sp	Dragon fly	

**10.4 Climatic Conditions:**

The area receives rainfall of about 721mm/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 21°C.

**10.5 Human settlement:**

There are few villages located within 5km radius of the area; the approximate distance, direction and populations are given below:

Table – 14

S.No.	Name of the Village	Approximate distance & Direction from lease applied area	Approximate population
1.	Kurumandur	3.0km – NE	4,300
2.	Munampally	2.0km – SE	2,500
3.	Elathur	3.0km – SW	4,500
4.	Vettaiyampalayam	2.0km – NW	2,200

Basic human welfare Amenities such as Health Centre, Schools, Communication Facilities, and Commercial Centres etc., are available at Nambiyur located at a distance of 5.0km on the South 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 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 Mitigate measures carried out to prevent dust and Air propagation in to air. The estimated budget for dust suppression would be around Rs.52,000/year.

**10.7 Plan for Noise level control:**

The noise level increased due to the Excavation, Drilling, Blasting 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 equipments 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 Environmental impact assessment statement describing impact of mining on the next five years:**

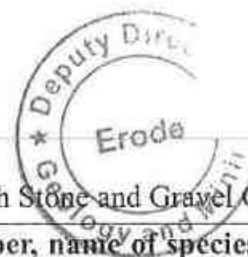
In the mining plan proposed for a production of Rough Stone does not involve deep hole drilling and blasting. Such limited mining activity is not likely to cause any impact adversely on the environment. As far as pollution of air, water and noise concerned, the environmental impact studies will be conducted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

**10.9 Proposal for waste management:**

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

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

In the mining plan only to a maximum depth of 28m has been envisaged as workable depth for safe & economic mining during entire lease applied area. The quarry area will be fenced with Barbed wire fencing also safety bund constructed around the quarry to prevent inadvertent entry of public and cattle. There is no waste hence, no proposal for backfilling. The barbed wire fencing cost would be around **Rs.1,11,000/-**.



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

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

Table – 15

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	60	80%	525	Neem, Pongamia pinnata, Casuarina, etc.,	48
II	60	80%	525		48
III	60	80%	525		48
IV	60	80%	525		48
V	60	80%	525		48

Nearly 2,625 sq.m area is proposed to use under Greenbelt by planting 300 Numbers of trees during mining plan period with an anticipated survival rate of 80% (Please refer Plate No.III). The estimated budget for plantation and maintenance of Green belt development would be around **Rs. 30,000/-** for the period of five years.

The Greenbelt Development will be formed in quarried out top benches, Approach Road and Panchayat Road. The cost would be around **Rs. 20,000/-**.

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

Budget Provision for the Mining Plan period:

Table – 16

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
<b>Total EMP Cost/ year</b>					<b>76,000</b>

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





A. Project cost / investment																		
i) Land cost	<p>The Land value as per the Government Guideline land cost is calculated as follows,</p> <table border="1"> <thead> <tr> <th>S.F.No</th> <th>Extent</th> <th>Cost/Ha</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>347/1B</td> <td>0.49.0</td> <td>129000</td> <td>63210</td> </tr> <tr> <td>347/2B</td> <td>0.37.0</td> <td>129000</td> <td>47730</td> </tr> <tr> <td>Total</td> <td>0.86.0</td> <td>Total</td> <td>110940</td> </tr> </tbody> </table> <p>i.e., Rs. 1,11,000/- (Source : <a href="https://tnreginet.gov.in/portal/">https://tnreginet.gov.in/portal/</a>)</p>	S.F.No	Extent	Cost/Ha	Total	347/1B	0.49.0	129000	63210	347/2B	0.37.0	129000	47730	Total	0.86.0	Total	110940	Rs. 1,11,000/-
S.F.No	Extent	Cost/Ha	Total															
347/1B	0.49.0	129000	63210															
347/2B	0.37.0	129000	47730															
Total	0.86.0	Total	110940															
ii) Machinery to be used	The following machineries are proposed to meet out the productions. Excavator attached with rock breaker, Tipper, Tractor mounted compressor with jack Hammer and loose tools (Rental Basis)	Rs. 10,00,000/-																
iii) Refilling/ Fencing	Fencing will be constructed around the quarry pit to prevent the inadvertent entry of public and cattle cost would be around	Rs. 1,11,000/-																
iv) Labourers shed	Labour sheds will be constructed as semi permanent structure. The cost is around	Rs. 1,20,000/-																
v) Sanitary facility	Adequate latrine and urinal accommodation has provided at conveniently accessible places the cost would be around	Rs. 80,000/-																
vi) Others items	First aid room & accessories	Rs. 70,000/-																
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. 80,000/-																
viii) Sanitary arrangement	The latrine and urinal will keep clean and sanitary condition. The maintenance cost would be around	Rs. 60,000/-																
ix) Safety kit	All the Safety kit such as Helmet, Earmuffs, Goggles, Reflector Jackets, Safety shoes etc., will be provided to the workers by the applicant own cost which would be around	Rs.1,00,000/-																
x) Water sprinkling	Water will be sprinkled in the haul roads by water sprinklers the cost would be around	Rs.1,50,000/-																



Mining Plan and PQCP

Elathur 'A' Rough Stone and Gravel Quarry

xi) Garland drain	Construction of Garland drain with check dam to prevent surface run-off rain water in to the quarry pit, the construction cost is around	Rs. 96,000/-
xii) Greenbelt etc.	Greenbelt development and maintenance will be carried out in the boundary barriers the cost would be around	Rs. 30,000/-
	Greenbelt development and maintenance will be carried out in the quarried out top benches, approach road and Panchayat Road.	Rs.20,000/-
<b>Total Project Cost</b>		<b>Rs. 20,28,000/-</b>

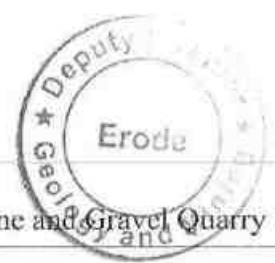
<b>B. EMP Cost :- (Per year)</b>	
Air Quality monitoring	Rs. 52,000/-
Water Quality Sampling	Rs. 18,000/-
Noise Monitoring	Rs. 2,000/-
Ground vibration test	Rs. 4,000/-
<b>Total Cost</b>	<b>Rs. 76,000/-</b>

Total EMP Cost for the five years period is **Rs.3,80,000/-**

Description	Amount (Rs.)
<b>A. Operational Cost</b>	<b>20,28,000</b>
<b>B. EMP Cost</b>	<b>3,80,000</b>
<b>Total Project Cost (A+ B)</b>	<b>24,08,000</b>
The applicant indents to involve corporate environment responsibilities (CER) activity like Water Purifier, Cot and Bed facilities to the nearby Govt. Primary Health Centre and Water Purifier, Bench and Table facilities to the nearby Government School at 2.0% from the total project cost. The Cost would be around <b>Rs.49,000/-</b> .	<b>49,000</b>
<b>Total Cost</b>	<b>24,57,000</b>

The Total cost would be around twenty four lakh and fifty seven thousand only.





## **11.0 PROGRESSIVE QUARRY CLOSURE PLAN**

### **11.1 Introduction:**

The Progressive Quarry Closure Plan for Rough Stone and Gravel quarry lease applied area over an extent of 0.86.0 Hectares of patta lands in S.F.Nos. 347/1B & 347/2B of Elathur 'A' Village, Nambiyur Taluk, Erode District, Tamil Nadu State has been prepared for **Thiru.K.Vijay Perichiyappan**, S/o. K.N.Kandasamy, K.N. Charman Thottam, B.Karattupalayam, Gobichettipalayam Taluk, Erode District – 638 457.

### **11.2 Present Land use pattern:**

Land Use Table – 17

Description	Present area (Ha)
Quarrying Pit	0.54.35
Infrastructure	Nil
Roads	0.01.00
Green Belt	Nil
Unutilized Area	0.30.65
<b>Grand Total</b>	<b>0.86.00</b>

### **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. The slope of the bench should not more than 60° from the horizontal.

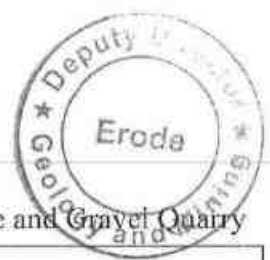
However, as far as the quarrying of Rough Stone is concerned, observance of the provisions of Regulation 106(2) (b) is available with Director General of Mines Safety. If the lessee intends to modify the dimensions of benches, relaxation and permission are available with Director General of Mines Safety under 106 (2) (b) of Metalliferous Mines Regulations, 1961. In such a scenario if there is any drastic change in the Resources and Reserves a modified plan will be submitted to the concerned authority for necessary relaxation, clearance and permission. This relaxation will be applied and obtained after the execution of lease/Commencement of quarry operation.

### **11.4 Mineral Processing Operations:**

The quarried out Rough Stone will be transported by the 20tons capacity Tippers to the needy crushers. Splitting of rock mass of considerable volume from the parent rock mass by jackhammer 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 ensuing mining plan.

**11.6 Statutory obligations:**

The applicant ensures to comply all the conditions stipulated in the precise area communication letter before grant of quarry lease 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 : No.17, Advaita Ashram Road,  
Alagapuram, Salem – 636 004.

Mobile : +91 94422 78601 & 94433 56539

Telephone No. : 0427- 2431989

Email : infogeoexploration@gmail.com

The 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:**

There is no waste generated during entire life of quarry, hence backfilling is not possible in the quarried out pit. The entire quarry area is an active also no proposal given for Progressive quarry closure plan in the previous mining plan hence, the applicant has not taken any action for progressive quarry closure. Hence, review of implementation of progressive quarry closure does not arise at present. However, if any work done for progressive quarry closure plan during this plan period, it will be discussing in the ensuing Mining Plan.

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

At the end of mining plan period, about 0.54.35 Ha of area will be mined out. Land use at various stages is given in the table below.

Land Use Table – 18

Description	Present area (Ha)	Area at the end of this quarrying period (Ha)
Area Under Quarrying	0.54.35	0.54.35
Infrastructure	Nil	0.01.00
Roads	0.01.00	0.02.00
Green Belt	Nil	0.26.25
Unutilized Area	0.30.65	0.02.40
<b>Grand Total</b>	<b>0.86.00</b>	<b>0.86.00</b>

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

**(ii) Water quality management:**

Following control measures will be adopted for controlling water pollution:-

- Construction of Garland drain with check dams / gully plugs at strategic places to arrest silt wash off from broken up area.
- Collection of surface run-off from broken up area in mine pits for settling and only properly settled excess water from mine pit will be discharged to nearby users. The storm water/ mine water will be used for dust suppression, greenbelt development, etc.
- Periodic analysis of mine pit water and ground water quality in nearby villages.
- The quarried out pit will be allowed to collect rain and seepage water which will act as a reservoir for storage. This water storage will enhance the static level and ground water recharge of nearby wells and it will be used for agriculture purpose to the nearby agriculture lands.
- Domestic sewage from site office & urinals/latrines provided in QL is discharged in septic tank followed by soak pits.

**(iii) Air Quality Management:**

The proposed mining method is not likely to produce much of dust and fugitive emissions to cause damage to ambient air quality of the area. Workers will be provided with personnel protective equipment like face-mask, earplug/ muffs.

For air pollution management at the progressive quarry closure plan, greenbelt will be developed to prevent and control air pollution.

**(iv) Top Soil and Waste Management:**

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

**(v) Disposal of mining machinery:**

Part of the Machineries will be purchased by fresh condition also part of machineries has been utilized on rental basis. After completion of quarry operation all purchased machineries will be utilized another quarry area or sold out to the second hand. Hence, disposal or decommissioning of mining machinery does not arise.

**(vi) Safety & Security:**

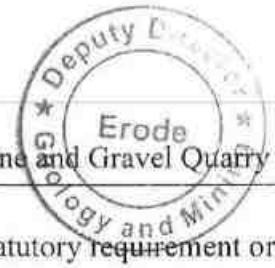
Safety measures will be implemented to prevent access in the excavation area an unauthorized persons as per Mine Act 1952, MMR 1961.

- Safety measures will be implemented as per Mine Act 1952, MMR 1961, and Mines Rules 1955.
- Provisions of MMR 1961 shall be strictly followed and all roads shall be wider than the height of the bench or equal to the height of the bench and have a gradient of not more than 1 in 16.
- The bench height will be 5.0m.
- Width of working bench will be kept about 5.0 m for ease of operations and provide sufficient room for the movement of equipments.
- Protective equipment like dust masks, ear-plugs/ muffs and other equipments shall be provided for use by the work persons.
- Notices giving warning to prevent inadvertent entry of persons shall be displayed at all conspicuous places and in particular near mine entries.
- Danger signs shall be displayed near the excavations and proper signal by siren alarm will be given to the public before blasting to prevent accident.
- Security guards will be posted.
- In the event of temporary closer, approaches will be fenced off and notice displayed.

**(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 mining operation will be carried out under the Management and control of experienced and qualified Mines Manager having Certificate of Competency to manage the mines granted by DGMS.
- All the provisions of Mines Act 1952, MMR 1961 and Mines Rules 1955, TNMMCR 1959 and other laws applicable to mine will be strictly complied with.
- During heavy rainfall the mining activities will be suspended.
- All persons in supervisory capacity will be provided with proper communication facilities.
- Competent persons will be provided FIRST AID kits which they will always carry.
- The Greenbelt Development will be formed in around the approach road and panchayat road of the lease applied area.



**(viii) Care and Maintenance during Temporary Discontinuance:**

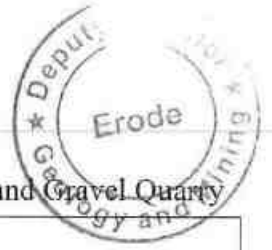
In case of any temporary discontinuance due to court order or due to statutory requirement or any other unforeseen circumstance following measures shall be taken for care, maintenance and monitoring of conditions.

- 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, mining operation will be restarted as early as possible after completing rescue work, restoring safety and security, repairs of roads etc.

**(ix) Economic Repercussion of Closure of Quarry and manpower Retrenchments:**

The quarry lease is granted for a period of five 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 – 19**

ACTIVITY		YEAR					RATE	AMOUNT (INR)
		I	II	III	IV	V		
Plantation under safety zone	Nos.	60	60	60	60	60	@100 Rs Per sapling	Rs.30,000/-
	Cost	6,000	6,000	6,000	6,000	6,000		
Plantation cost in the quarried out top benches, approach road and panchayat road	Nos.	40	40	40	40	40	@300 Rs Per Meter	Rs.20,000/-
	Cost	4,000	4,000	4,000	4,000	4,000		
Wire Fencing (In Mtrs) 370		1,11,000	-	-	-	-	@300 Rs Per Meter	Rs.1,11,000/-
Garland drain (In Mtrs) 320		96,000	-	-	-	-	@300 Rs Per Meter	Rs.96,000/-
<b>TOTAL</b>								<b>Rs. 2,57,000/-</b>





**12 ANY OTHER DETAILS INTEND TO FURNISH BY THE APPLICANT**

This Mining plan for Rough Stone (Charnockite) and Gravel is under Rules 41 & 42 as per the Amended under Tamil Nadu Minor Mineral Concession Rules, 1959. The provisions of the 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. As per amendment notification in the EIA notification 2006 is given by Ministry of Environment, Forest and Climate Change vide S.O.1807(E), dated:12.04.2022, the validity of existing environmental clearance is extended upto the end of this mining plan period. Any violation pointed out by the inspecting authorities shall be rectified and modified after scrutiny comments as per the guidelines of the Concerned Department and Authorities.

Prepared by

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

Place: Salem

Date: 24.12.2022

<b>DONATE RED</b>
<b>SPREAD GREEN</b>
<b>SAVE BLUE</b>

**This Mining Plan is approved subject to the conditions indicated in the Mining Plan approved letter in**  
**R.C. No. 442/mines/2021**  
**Dated: 24.01.2023**

**This Mining Plan is approved as per the Powers conferred under Rule 41 (2) of Tamil Nadu Minor Mineral Concession Rules, 1959**

*[Signature]*  
 Deputy Director,  
 Geology and Mining,  
 Erode

*24/01/23*

*[Signature]*  
 24/01/23

துணை இயக்குநர் அலுவலகம்,  
புவியியல் மற்றும் சுரங்கத்துறை,  
ஈரோடு

ந.க. 442/கனிமம்/2021

நாள்: 21.12.2022



குறிப்பாணை

பொருள்: கனிமங்களும் குவாரிகளும் - ஈரோடு மாவட்டம் - சிறுகனிமம் - சாதாரணக்கற்கள் - நம்பியூர் வட்டம் - எலத்தூர் அ கிராமம் - புல எண்கள் 347/1B, 347/2B-இல் 0.86.0 ஹெக்டர் பரப்பில் சாதாரணக்கற்கள் மற்றும் கிராவல் மண் வெட்டி எடுக்க 5 ஆண்டுகளுக்கு குவாரி குத்தகை உரிமம் கோரி திரு. கே. விஜய் பெரிச்சியப்பன் விண்ணப்பம் அளித்தது - அங்கீகரிக்கப்பட்ட சுரங்கத்திட்டம் மற்றும் சுற்றுச் சூழல் ஒப்புதல் பெற்று அளிக்க கோருதல் - தொடர்பாக.

- பார்வை:
1. திரு. கே. விஜய் பெரிச்சியப்பன் என்பவரின் மனு நாள் 05.05.2021
  2. நம்பியூர் வருவாய் வட்டாட்சியரின் அறிக்கை ந.க. 2339/2021/அ3 நாள் 21.01.2022.
  3. கோபிசெட்டிபாளையம் வருவாய் கோட்டாட்சியர் அவர்களின் அறிக்கை ந.க. 646/2022/அ2 நாள் 04.02.2022.
  4. செயல் அலுவலர், எலத்தூர் பேரூராட்சி ந.க. எண் 129/2021 நாள் 09.11.2022.
  5. எலத்தூர் கிராம நிர்வாக அலுவலரின் சான்று நாள் 17.11.2022.
  6. ஈரோடு புவியியல் மற்றும் சுரங்கத்துறை உதவி புவியியலாளர் அவர்களின் தணிக்கை குறிப்பு நாள்: 09.12.2022.
  7. அரசு அணை எண் 169 தொழில் (எம்எம்சி1) துறை நாள் 04.08.2020.

ஈரோடு மாவட்டம், நம்பியூர் வட்டம், எலத்தூர் அ கிராமம், புல எண்கள் 347/1B, 347/2B -இல் மொத்தம் 0.86.0 ஹெக்டர் பரப்பில் சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க 5 ஆண்டுகளுக்கு திரு. கே. விஜய் பெரிச்சியப்பன் என்பவர் விண்ணப்பித்ததன் பேரில் குவாரிக் குத்தகை உரிமம் வழங்குவது தொடர்பாக, கோபிசெட்டிபாளையம் வருவாய் கோட்டாட்சியர், ஈரோடு புவியியல் மற்றும் சுரங்கத்துறை உதவி புவியியலாளர், நம்பியூர் வருவாய் வட்டாட்சியர், எலத்தூர் பேரூராட்சி செயல் அலுவலர் ஆகியோர் மேற்காணும் விண்ணப்பப் புல எண்கள் 347/1B, 347/2B -இல் மொத்தம் 0.86.0 ஹெக்டர் பரப்பில் ஐந்து ஆண்டுகளுக்கு தமிழ்நாடு சிறுகனிம சலுகை விதிகள், 1959-ன் விதி எண். 19 (i), 20, 22 ஆகியவற்றின் கீழ் சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க குவாரி குத்தகை உரிம அனுமதி சில நிபந்தனைக்குட்பட்டு வழங்கலாம் என பரிந்துரை செய்துள்ளனர்.





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எனவே, மேற்காணும் பரிந்துரைகளின் அடிப்படையில் திரு. கே. விஜய் பெரிச்சியப்பன் என்பவருக்கு குவாரி குத்தகை ஒப்பந்த ஆவணம் நிறைவேற்றப்பட்ட நாளிலிருந்து 5 ஆண்டுகளுக்கு சாதாரணக்கற்கள் மற்றும் கிராவல் மண் வெட்டி எடுக்க குவாரி குத்தகை உரிமம் வழங்குவது தொடர்பாக கீழ்க்காணும் நிபந்தனைகளுக்கு உட்பட்டு ஈரோடு துணை இயக்குநரால் ஏற்பளிக்கப்பட்ட சுரங்கத் திட்டம் மற்றும் மாநில சுற்றுச் சூழல் அமைப்பிடம் இருந்து பெறப்பட்ட சுற்றுச்சூழல் ஒப்புதல் ஆகியன உரிய காலத்திற்குள் விண்ணப்பதாரால் பெற்றளிக்கப்பட வேண்டும் என தெரிவிக்கப்படுகிறது.

1. நம்பியூர் வட்டம், எலத்தூர் அ கிராமம், புல எண்கள் 347/1B, 347/2B -இல் மொத்தம் 0.86.0 ஹெக்டர் பரப்பளவுள்ள பூமியிலிருந்து சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டி எடுக்க குவாரி குத்தகை உரிமம் வழங்குவது தொடர்பாக ஏற்பளிக்கப்பட்ட சுரங்கத் திட்டம் மற்றும் சுற்றுச் சூழல் ஒப்புதல் ஆகியன பெற்றளிக்கப்பட வேண்டும்.
2. விண்ணப்ப புலத்தின் கிழக்கு பகுதியில் உள்ள அரசு புறம்போக்கு வண்டிப்பாதைக்கு 10 மீட்டர் பாதுகாப்பு இடைவெளி விட்டு குவாரிப் பணிபுரிய வேண்டும்.
3. விண்ணப்ப புலத்தின் வடகிழக்கு பகுதியில் புல எண் 174- குட்டைக்கு 50 மீட்டர் பாதுகாப்பு இடைவெளி விட்டு குவாரிப் பணிபுரிய வேண்டும்.
4. புலத்தை சுற்றி அமைந்துள்ள பட்டா நிலங்களுக்கு 7.5 மீட்டர் பாதுகாப்பு இடைவெளி விட்டு குவாரிப் பணிபுரிய வேண்டும்.

துணை இயக்குநர்,  
புவியியல் மற்றும் சுரங்கத்துறை,  
ஈரோடு.

21.12.22

பெறுநர்

திரு. கே. விஜய் பெரிச்சியப்பன்,  
த/பெ. கே.என். கந்தசாமி,  
கே. என். சேர்மன் தோட்டம்,  
பி. கரட்டுப்பாளையம்,  
கோபிசெட்டிபாளையம் - 638457.

21.12.22



Dr. S. KALYANASUNDARAM, I.F.S.(Retd.)  
CHAIRMAN

STATE LEVEL ENVIRONMENT IMPACT  
ASSESSMENT AUTHORITY – TAMIL NADU  
3rd Floor, Panagal Maaligai,  
No.1 Jeenis Road, Saidapet,  
Chennai-15.  
Phone No.044-24359974  
Fax No. 044-24359975

**ENVIRONMENTAL CLEARANCE**

**Lr. No.SEIAA-TN/F.No.3827/1(a)/ EC.No.2934/2015 dated:17.02.2016**

To

Thiru K. Vijay Perichiyappan  
Karattupalayam  
Elathur Village  
Gobichettipalayam Taluk  
Erode

Sir,

**Sub:** SEIAA-TN – Proposed Rough Stone & Gravel quarry located at S.F.No 347/1B, 2B, Elathur Village, Gobichettipalayam Taluk, Erode District- Issue of Environmental Clearance – Reg.

**Ref:** 1. Your Application for Environmental Clearance dt: 04.09.2015  
2. Minutes of the 73rd SEAC held on 12.02.2016 & 13.02.2016  
3. Minutes of the SEIAA meeting held on 17.02.2016

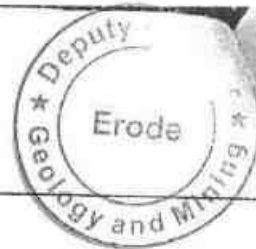
**Details of Minor Mineral Activity:-**

This has reference to your application first cited. The proposal is for obtaining environmental clearance for mining/quarrying of minor minerals based on the particulars furnished in your application as shown below.

1	<b>Name of Project Proponent and address</b>	Thiru K. Vijay Perichiyappan Karattupalayam Elathur Village Gobichettipalayam Taluk Erode
2	<b>Location of the Proposed Activity</b>	
	Survey Number	347/1B, 2B
	Latitude and Longitude	11°24'21"N to 11°24'25"N 77°19'33"E to 77°19'37"E
	Village	Elathur
	Taluk	Gobichettipalayam

*S. Kalyan*  
CHAIRMAN  
SEIAA-TN

17/2/16



	District	Erode
3	<b>Proposed Activity</b>	
	i. Minor mineral	Rough Stone & Gravel
	ii. Mining Lease Area	0.86.0 Ha
	iii. Approved quantity	18000 cu.m of Rough Stone & 1944 cu.m of Weathered Gravel Formation
	iv. Depth of Mining	13 m (10m Rough Stone & 3m Gravel)
	v. Type of mining	Opencast Semi Mechanized Method
	vi. Category(B1/B2)	B2
	vii. Precise area communication	Rc.No. 30118/2014/X-1 dated 17.06.2015
	viii. Mining plan approval	Assistant Director Rc.No. 30118/2014/X-1 dated 23.07.2015
	ix. Mining lease period	5 Years
4	<b>Whether Project area attracts any General conditions specified in the EIA notification, 2006 as amended:-</b>	Not attracted. Affidavit furnished
5	<b>Man Power requirement per day:</b>	11 Employees
6	<b>Utilities</b>	
	i. Source of Water :	Water vendors/Borehole
	ii. Quantity of Water Requirement in KLD:	
	a. Domestic	0.3KLD
	b. Industrial	} 0.7KLD
	c. Green Belt & Dust Suppression	
	iii. Power Requirement:	
	a. Domestic Purpose	TNEB
	b. Industrial Purpose	
7	<b>Cost</b>	
	i. Project Cost	Rs.27.58 Lakhs
	ii. EMP Cost	Rs.5.05 Lakhs
8	<b>Public Consultation:-</b>	Not required as per O.M. dated 24.12.2013 of MoEF, Gol.
9	<b>Date of Appraisal by SEAC:- Agenda No:</b>	12.02.2016 & 13.02.2016 73-20
10	<b>Date of Review/Discussion by SEIAA and the Remarks:-</b>	The proposal was placed before the SEIAA in its 164th Meeting held on 17.02.2016 and the Authority after careful consideration, decided to grant environmental clearance to the said project Mining of Rough Stone & Gravel to terms and conditions stipulated under the provisions of Environment Impact Assessment Notification, 2006 as amended.
11	<b>Validity:</b>	The Environmental Clearance will be coterminous with the mine lease period or limited to a maximum period of 5 Years from the date of issue whichever is earlier.

*S. Subramanian*  
CHAIRMAN  
SEIAA-TN  
12/16

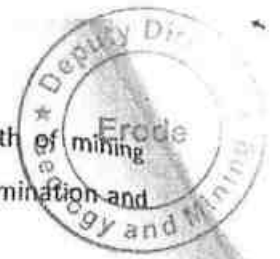


**Conditions to be Complied before commencing mining operations:-**

1. The project proponent shall advertise in at least two local newspapers widely circulated in the region, one of which shall be in the vernacular language informing the public that
  - I. The project has been accorded Environmental Clearance.
  - II. Copies of clearance letters are available with the Tamil Nadu Pollution Control Board.
  - III. Environmental Clearance may also be seen on the website of the SEIAA.
  - IV. The advertisement should be made within 7 days from the date of receipt of the clearance letter and a copy of the same shall be forwarded to the SEIAA.
2. The applicant has to obtain land use classification as industrial use before issue/renewal of mining lease.
3. NOC from the Standing committee of the NBWL shall be obtained, if protected areas are located within 10 Km from the proposed project site.
4. The project proponent shall comply the conditions laid down in the Section V, Rule 36 of Tamil Nadu Minor Minerals Concession Rules 1959.
5. A copy of the Environment Clearance letter shall be sent by the proponent to the concerned Panchayat, Town Panchayat / Panchayat union/ Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the proponent and also kept at the site, for the general public to see.
6. Quarry lease area should be demarcated on the ground with wire fencing to show the boundary of the lease area on all sides with red flags on every pillar shall be erected before commencement of quarrying.
7. The proponent shall ensure that First Aid Box is available at site.
8. The excavation activity shall not alter the natural drainage pattern of the area.
9. The excavated pit shall be restored by the project proponent for useful purposes.
10. The proponent shall quarry and remove only in the permitted areas as per the approved Mining Plan details.
11. The quarrying operation shall be restricted between 7AM and 5 PM.
12. The proponent shall take necessary measures to ensure that there shall not be any adverse impacts due to quarrying operation on the nearby human habitations, by way of pollution to the environment.
13. A minimum distance of 15 mts. From any civil structure shall be kept from the periphery of any excavation area.

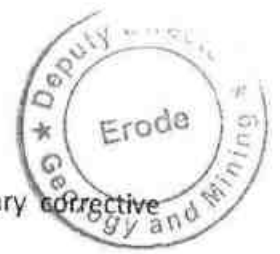
*S. Srinivasan*  
CHAIRMAN  
SEIAA-TN  
17/12/16

14. Depth of quarrying shall be 2m above the ground water table /approved depth of mining whichever is lesser to be considered as a safe guard against Environmental Contamination and over exploitation of resources.
15. The mined out pits should be backfilled where warranted and area should be suitably landscaped to prevent environmental degradation. The mine closure plan as furnished in the proposal shall be strictly followed with back filling and tree plantation.
16. Wet drilling method is to be adopted to control dust emissions. Delay detonators and shock tube initiation system for blasting shall be used so as to reduce vibration and dust.
17. Drilling and blasting shall be done only either by licensed explosive agent or by the proponent after obtaining required approvals from Competent Authorities.
18. The explosives shall be stored at site as per the conditions stipulated in the permits issued by the licensing Authority.
19. Blasting shall be carried out after announcing to the public adequate through public address system to avoid any accident.
20. A study has to be conducted to assess the optimum blast parameters and blast design to keep the vibration limits less than prescribed levels and only such design and parameters should be implemented while blasting is done. Periodical monitoring of the vibration at specified location to be conducted and records kept for inspection.
21. The Proponent shall take appropriate measures to ensure that the GLC shall comply with the revised NAAQ norms notified by MoEF, GoI on 16.11.2009.
22. The following measures are to be implemented to reduce Air Pollution during transportation of mineral
- i. Roads shall be graded to mitigate the dust emission.
  - ii. Water shall be sprinkled at regular interval on the main road and other service roads to suppress dust
23. The following measures are to be implemented to reduce Noise Pollution
- i. Proper and regular maintenance of vehicles and other equipment
  - ii. Limiting time exposure of workers to excessive noise.
  - iii. The workers employed shall be provided with protection equipment and earmuffs etc.
  - iv. Speed of trucks entering or leaving the mine is to be limited to moderate speed of 25 kmph to prevent undue noise from empty trucks.



*[Signature]*  
CHAIRMAN  
SEIAA-TN



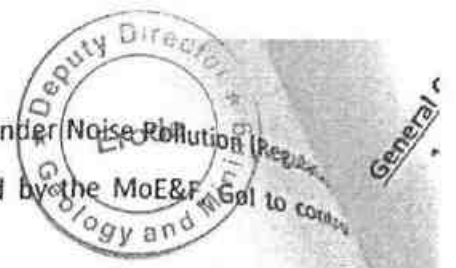


the groundwater table is getting depleted due to the mining activity; necessary corrective measures shall be carried out. District Collector/mining officer shall ensure this.

34. No tree-felling shall be done in the leased area, except only with the permission from competent Authority.
35. To take up environmental monitoring of the proposed quarry site before, during and after the mining activities including vibration study data, water, air & flora/fauna environment, slurry water generated/disposed and method of disposal, involving a reputed academic institution.
36. It shall be ensured that the total extent of nearby quarries(existing, abandoned and proposed) located within 500 meter radius from the periphery of this quarry is not exceeding 25 hectares within the mining lease period of this application.
37. It shall be ensured that there is no habitation is located within 500 meter radius from the periphery of the quarry site and also ensure that no hindrance will be caused to the people of the habitation located within 500m radius from the periphery of the quarry site
38. Ground water quality monitoring should be conducted once in 3 Months
39. Transportation of the quarried materials shall not cause any hindrance to the Village people/Existing Village road.
40. Free Silica test should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF , GOI.
41. Air sampling at intersection point should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF , GOI..
42. Bunds to be provided at the boundary of the project site.
43. Ground water quality monitoring should be conducted once in 3 Months
44. The project proponent shall undertake plantation/afforestation work by planting the native species on all side of the lease area at the rate of 400/Ha. Suitable tall tree saplings should be planted on the bunds and other suitable areas in and around the work place.
45. At least 10 Neem trees should be planted around the boundary of the quarry site.
46. Floor of excavated pit to be levelled and sides to be sloped with gentle slope (Except for granite quarries) in the mine closure phase.
47. The Project Proponent shall ensure a minimum of 2.5% of the annual turnover will be utilized for the CSR Activity
48. The Project Proponent shall provide solar lighting system to the nearby villages
49. The Project Proponent shall comply with the mining and other relevant rules and regulations where ever applicable.
50. Rainwater shall be pumped out Via Settling Tank only
51. Earthen bunds and barbed wire fencing around the pits with green belt all along the boundary shall be developed and maintained.
52. As per MoEF&CC, GoI, Office Memorandum dated 30.03.2015, prior clearance from Forestry & Wild Life angle including clearance from obtaining committee of the National Board for Wild life as applicable shall be obtained before starting the quarrying operation, if the project site is located within 10KM from National Park and Sanctuaries.
53. The quarrying activity shall be stopped if the entire quantity indicated in the Mining plan is quarried even before the expiry of the quarry lease period and the same shall be monitored by the District Authorities.
54. Safety equipments to be provided to all the employees.
55. Safety distance of 50m has to be provided in case of railway, reservoir, canal/odai

  
CHAIRMAN  
SEIAA-TN

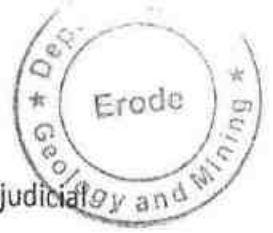
24. Measures should be taken to comply with the provisions laid under Noise Pollution (Regulation and Control) (Amendment) Rules, 2010, dt: 11.01.2010 issued by the MoE&F, Govt of India to control noise to the prescribed levels.
25. Suitable conservation measures to augment groundwater resources in the area shall be planned and implemented in consultation with Regional Director, CGWB. Suitable measures should be taken for rainwater harvesting.
26. Permission from the competent authority should be obtained for drawl of ground water, if any, required for this project.
27. Topsoil, if any, shall be stacked properly with proper slope with adequate measures and should be used for plantation purpose.
28. The following measures are to be adopted to control erosion of dumps:-
- i. Retention/ toe walls shall be provided at the foot of the dumps.
  - ii. Worked out slopes are to be stabilized by planting appropriate shrub/ grass species on the slopes.
29. Waste oils, used oils generated from the EM machines, mining operations, if any, shall be disposed as per the Hazardous Wastes (Management, Handling, and trans boundary movement) Rules, 2008 and its amendments thereof to the recyclers authorized by TNPCB.
30. Concealing the factual data or failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.
31. Rain water harvesting to collect and utilize the entire water falling in land area should be provided.
32. Rain water getting accumulated in the quarry floor shall not be discharged directly to the nearby stream or water body. If it is to be let into the nearby water body, it has to be discharged into a silt trap on the surface within the lease area and only the overflow after allowing settling of soil be let into the nearby waterways. The silt trap should be of sufficient dimensions to catch all the silt water being pumped out during one season. The silt trap should be cleaned of all the deposited silt at the end of the season and kept ready for taking care of the silt in the next season.
33. The lease holder shall undertake adequate safeguard measures during extraction of material and ensure that due to this activity, the hydro-geological regime of the surrounding area shall not be affected. Regular monitoring of ground water level and quality shall be carried out around the mine lease area during the mining operation. If at any stage, if it is observed that



*[Signature]*  
CHARMAN  
SEIAA-TN  
17/11/16

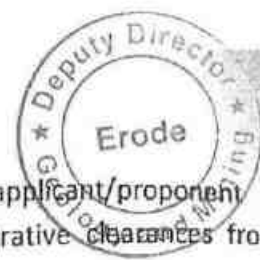
General Conditions:

1. EC is given only on the factual records, documents and the commitment furnished in non judicial stamp paper by the proponent.
2. The Proponent shall obtain the Consent for Establishment from the TNPC Board before commencing the activity.
3. No change in mining technology and scope of working should be made without prior approval of the SEIAA, Tamil Nadu.
4. No change in the calendar plan including excavation, quantum of mineral (minor mineral) should be made.
5. Effective safeguard measures, such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulate matter such as loading and unloading point and all transfer points. Extensive water sprinkling shall be carried out on haul roads. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.
6. Effective safeguards shall be adopted against health risks on account of breeding of vectors in the water bodies created due to excavation of earth.
7. A berm shall be left from the boundary of adjoining field having a width equal to at least half the depth of proposed excavation.
8. Mineral handling area shall be provided with adequate number of high efficiency dust extraction system. Loading and unloading areas including all the transfer points should also have efficient dust control arrangements. These should be properly maintained and operated.
9. Vehicular emissions shall be kept under control and be regularly monitored. The mineral transportation shall be carried out through the covered trucks only and the vehicles carrying the mineral shall not be overloaded.
10. Access and haul roads to the quarrying area should be restored in a mutually agreeable manner where these are considered unnecessary after extraction has been completed.
11. All Personnel shall be provided with protective respiratory devices including safety shoes, Masks, gloves etc. Supervisory people should be provided with adequate training and information on safety and health aspects. Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.
12. Periodical medical examination of the workers engaged in the project shall be carried out and records maintained. For the purpose, schedule of health examination of the workers should be drawn and followed accordingly. The workers shall be provided with personnel protective measures such as masks, gloves, boots etc.
13. Workers/labourers shall be provided with facilities for drinking water and sanitation facility for Female and Male separately.
14. The project proponent shall ensure that child labour is not employed in the project as per the sworn affidavit furnished.
15. The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry of Environment and Forests and its Regional Office located at Chennai.



*S. Jeyapal*  
CHAIRMAN  
SEIAA-TN





16. The Environmental Clearance does not absolve the applicant/proponent of his obligation/requirement to obtain other statutory and administrative clearances from other statutory and administrative authorities.
17. This Environmental Clearance does not imply that the other statutory / administrative clearances shall be granted to the project by the concerned authorities. Such authorities would be considering the project on merits and be taking decisions independently of the Environmental Clearance
18. The SEIAA, Tamil Nadu may alter/modify the above conditions or stipulate any further conditions in the interest of environment protection.
19. The SEIAA, Tamil Nadu may cancel the environmental clearance granted to this project under the provisions of EIA Notification, 2006, at any stage of the validity of this environmental clearance, if it is found or if it comes to the knowledge of this SEIAA, TN that the project proponent has deliberately concealed and/or submitted false or misleading information or inadequate data for obtaining the environmental clearance.
20. Failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of the Environment (Protection) Act, 1986.
21. The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, the Public Liability Insurance Act, 1991, along with their amendments, draft Minor Mineral Conservation & Development Rules, 2010 framed under MMDR Act 1957, National Commission for protection of Child Right Rules, 2006 and rules made there under and also any other orders passed by the Hon'ble Supreme Court of India/Hon'ble High Court of Madras and any other Courts of Law relating to the subject matter.
22. Any other conditions stipulated by other Statutory/Government authorities shall be complied
23. Any appeal against this environmental clearance shall lie with the Hon'ble National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.

Copy to:

1. The Secretary, Ministry of Mines, Government of India, Shastri Bhawan, New Delhi.
2. The Principal Secretary, Environment and Forests Department, Government of Tamil Nadu, Tamil Nadu.
3. The Additional Chief Secretary, Industries Department, Government of Tamil Nadu, Tamil Nadu.
4. The Additional Principal Chief Conservator of Forests, Regional Office (SZ), 34, HEPC Building, 1<sup>st</sup> & 2<sup>nd</sup> Floor, Cathedral Garden Road, Nungambakkam, Chennai – 34.
5. The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-Cum-Office Complex, East Arjun Nagar, New Delhi-110 032.
6. The Chairman, Tamil Nadu Pollution Control Board, 76, Mount Salai, Guindy, Chennai-32
7. The District Collector, Erode District
8. The Commissioner of Geology and Mines, Guindy, Chennai-32
9. E1 Division, Ministry of Environment & Forests, Parivaran Bhawan, New Delhi.
10. Spare.

*Kalyanesh*  
CHAIRMAN  
12/1/16 SEIAA-TN



Serial

Karattupalayam

Village

No. 347

Name

Area 1100

Field No. 347

		E		
10	66-8	1538		
		1322	10.2	21
20	1170	1314		
		880	25.0	19
		1400		
		156	19.6	17
		590	18.6	17
30	200	450		
		A		
		1112		
		1000	9.2	15
		618	5.6	14
		1454	8.6	13
		1242	17.9	12
		1388	9.0	11
		1008	20.6	10
		618	3.0	9
		E		
		D		
		792		
		606	2.8	8
7	62	D		
		E		
		D		
		1704		
		1121	42	6
		824	11.6	5
		424	8.0	4
		C		
		A		
		1754		
		1574	10.6	3
		1475	27.2	2
		980	25.4	1
2	43-8	649		
		B		



new subdivisions 1A, 1B, 2A, 2B  
 changes emerged after 15.10.09  
 BA 12/11/19 dt 6.10.00

Bound  
 15.10.09  
 22/11/09

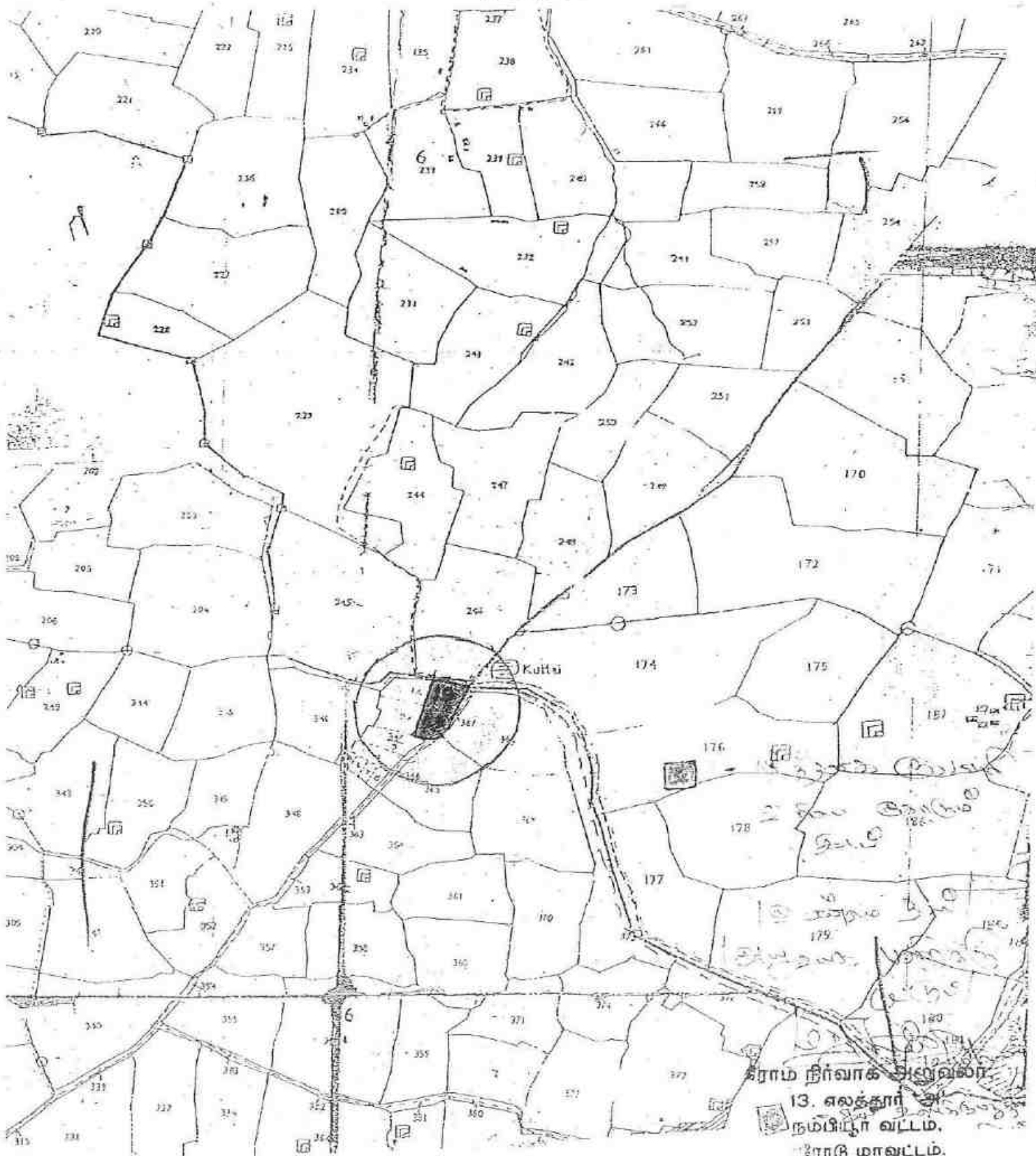
Scale  
 Inch = One Chain

LEASE APPLIED AREA



Location map  
பின்னணி வரைபடம்

சுற்று வரைபடம்



சீராம நிர்வாக சிஸ்டம்  
13. எலக்ட்ரிக் அ  
நம்பியூர் வட்டம்.  
சீராடு மாவட்டம்.

LEASE APPLIED AREA 



தமிழக அரசு

வருவாய்த் துறை

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

மாவட்டம் : ஈரோடு

வட்டம் : நம்பியூர்

வருவாய் கிராமம் : எலத்தூர் அ

பட்டா எண் : 1525

உரிமையாளர்கள் பெயர்

1. கந்தசாமி மகன் விஜய பெரிச்சியப்பன்

புல எண்	உட்பிரிவு	புனசெய்		நனசெய்		மற்றவை		குறிப்புகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக்டேர்	ரூ - பை	ஹெக்டேர்	ரூ - பை	ஹெக்டேர்	ரூ - பை	
347	1B	0 - 49.00	1.36	--	--	--	--	RTR1363/09 321P1 0 0000 - 19-10-2009
347	2B	0 - 37.00	1.02	--	--	--	--	RTR1363/09 321P1 0 0000 - 19-10-2009
		0 - 86.00	2.38					

குறிப்பு 2 :



1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணையத்தளத்தில் 10/36/013/01525/110313 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உரிமை செய்துகொள்ளவும்.
2. இத் தகவல்கள் 16-02-2021 அன்று 04:04:00 PM நேரத்தில் அச்சடிக்கப்பட்டது.
3. கைப்பேசி கேமராவின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையத்தளத்தில் சரிபார்க்கவும்.



## அ-பதிவேடு விவரங்கள்



மாவட்டம் : ஈரோடு

வட்டம் : நம்பியூர்

கிராமம் : எலத்துர் அ

1. புல எண்	347	9. மண் வயனமும் ரகமும்	8 - 2
2. உட்பிரிவு எண்	1B	10. மண் தரம்	4
3. பழைய புல உட்பிரிவு எண்	25	11. தீர்வை (ரூ - ஹெ)	2.77
4. பகுதி	P	12. பரப்பு (ஹெக்டோ ஏர்)	0 - 49.00
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	1.36
6. நிலத்தின் வகை	புஞ்சை	14. பட்டா எண்	1525
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	-	16. பெயர்	1.விஜய் பெரிச்சியப்பன்

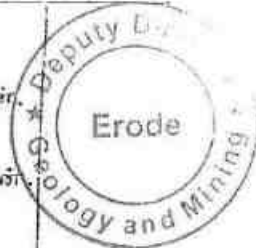
## குறிப்பு 1:



1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 130313 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.



1	2	3	4	5	6	7	8	9	10	11	12		
								ரு. பை.	தெற. ஏர்ஸ்.	ரு. பை.			
345	8	26 29	ர	பு	...	8	2	4	2	77	0 14.5	0 40	26. க. ஆய்யாவு மூப்பன்.
	9	26	ர	பு	...	8	2	4	2	77	0 43.5	1 20	105. கா. கருப்ப மூப்பன்.
	10	25	ர	பு	...	8	2	4	2	77	0 19.5	0 54	241. க. குமர மூப்பன்.
	11	26	ர	பு	...	8	2	4	2	77	0 13.0	0 36	94. க. கருப்ப மூப்பன்.
	12	26	ர	பு	...	8	2	4	2	77	0 14.5	0 40	330. க. சின்ன மூப்பன்.
	13	26	ர	பு	...	8	2	4	2	77	0 07.5	0 20	54. க. கருப்ப மூப்பன்.
										3	53.0	9 75	
346	1	25	ர	பு	...	8	2	4	2	77	0 17.0	0 47	761. க. ராமசாமிக் கவுண்டர்.
	2	25	ர	பு	...	8	2	4	2	77	0 17.0	0 47	106. ர. கருப்ப கவுண்டர்.
	3	25	ர	பு	...	8	2	4	2	77	0 40.5	1 12	695. க. ரங்கப்ப கவுண்டர்.
	4	25	ர	பு	...	8	2	4	2	77	0 58.5	1 62	923. ப. காவியண்ணன் (1), ப. பாவாள் (2).
	5	25	ர	பு	...	8	2	4	2	77	0 26.5	0 73	73. க. கருப்ப கவுண்டர்.
	6	25	ர	பு	...	8	2	4	2	77	0 25.0	0 69	27. ர. அங்கப்ப கவுண்டர்.
	7	25	ர	பு	...	8	2	4	2	77	0 39.5	1 09	73. க. கருப்ப கவுண்டர்.
	8	25	ர	பு	...	8	2	4	2	77	0 42.0	1 16	108. சி. கருப்பக் கவுண்டர்.
										2	66.0	7 35	
347	1	25	ர	பு	...	8	2	4	2	77	0 73.0	2 02	521. க. பழனிக் கவுண்டர்.
	2	25	ர	பு	...	8	2	4	2	77	0 60.0	1 66	331. ர. சின்ன கருப்ப கவுண்டர்.



சுப்பிரமணியன்

12 ஜூன் 3 2011  
 10. 11. 00  
 சிராம நாயக அலுவலர்.  
 13. சலத்தூர் 'அ'

3 4 5 6 7 8 9 10  
 5 6 7 8 9 10 11 12



பெரியபாளையம், Erode  
 மாண்புமிகு கனிம வளத் துறை  
 இயக்குநர், கி. 2. அலுவலகம்

1B, 25 7 H 8 2 4 277 049.0 36 4. சிவன் 1525  
 கருத்தரிக்கப்பட்ட  
 கி. 2. அலுவலகம்

0730 2.02

2A, 25 7 H 8 2 4 277 0230 0.64 4. சிவன் 331  
 சி. சி. சிவன் 331

2B, 25 7 H 8 2 4 277 0370 1.02 4. சிவன் 1525  
 கருத்தரிக்கப்பட்ட  
 கி. 2. அலுவலகம்  
 0600 1.66

New Subdivisions changes carried out  
 as per FR 8A/42/1418 dt 6.12.09

34

இயக்குநர் கி. 2. அலுவலகம்/

இயக்குநர் அலுவலகம்/

சு. சிவன்

சு. சிவன்  
 13, சைத்தன் 'அ'  
 நம்பியூர் வட்டம்,  
 கோட்டை மாவட்டம்.

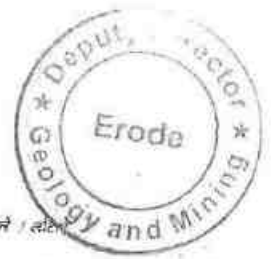
347



कर विभाग  
INCOME TAX DEPARTMENT



भारत सरकार  
GOVT. OF INDIA



K VIJAYAPERICHYAPPAN

KANDHASAMY

19/10/1973  
Permanent Account Number

AHUPV3647F

*K. Vijayaperichiyappan*  
Signature



34092008

इस कार्ड के होने / होने पर कृपया सूचित करें / होने  
आपका पैन सेवा इकाई, एन एस यू एन  
पाटली मंजिल, टाईपिंग टॉवर, कपला मिल्स कंपाउंड,  
एच. बी. मार्ग, लोअर पार्स, मुंबई - 400 013.

*If this card is lost / someone's lost card is found,*

*please inform / return to :-*

Income Tax PAN Services Unit, NSDL

1st Floor, Jungs Tower,

Kanala Mills Compound,

S. B. Marg, Lower Parsis Mumbai - 400 013.

Tel: 91 22 2499 4670 Fax: 91 22 2495 0664

e-mail: [unit@nsdl.com](mailto:unit@nsdl.com)



**இந்திய அரசாங்கம்**

Unique Identification Authority of India  
Government of India

பதிவு அடையாளம் / Enrollment No.: 11117100202701

To  
விலய் பஞ்சிப்பன் க  
Vilay Panchiappan K  
S/O Kandasamy K N  
10/11/2012  
CHERMEN THOTTAM  
P KARATTUPALAYAM Gobichettipalayam  
Karattupalayam, Erode  
Tamil Nadu 638457



MN150584807DF

15058480



உங்கள் ஆதார் எண் / Your Aadhaar No. :

**6932 9410 1544**

ஆதார் - சாதரண மனிதனின் அதிகாரம்



விலய் பஞ்சிப்பன் க  
Vilay Panchiappan K  
பிறந்தாண்டு / Year of Birth : 1973  
ஆயுசாண்டு / Male

GOVERNMENT OF INDIA



**6932 9410 1544**

ஆதார் - சாதரண மனிதனின் அதிகாரம்

**தகவல்**

- ஆதார் அடையாளத்திற்கான சான்று குடியரிமைக்கு அல்ல.
- அடையாள சான்ற இணையதளம் மூலம் உறுதிப்படுத்திக் கொள்ளவும்.

**INFORMATION**

- Aadhaar is proof of identity, not of citizenship.
- To establish identity, authenticate online.

- ஆதார் நாடு முழுவதிலும் செல்லுபடியாகும்.
- வருங்காலத்தில் அரசு மற்றும் அரசு சாரா சேவைகளை பயன்படுத்திக் கொள்ள ஆதார் உதவிகரமாக இருக்கும்.
- Aadhaar is valid throughout the country.
- Aadhaar will be helpful in availing Government and Non-Government services in future.

15058480



இந்திய அடையாள அமைப்பு ஆணையம்  
GOVERNMENT OF INDIA

முகவரி:  
S/O கந்தசாமி க நா, கோமல  
கோட்டம், பி  
கோட்டுபாளையம்,  
கோபிச்செட்டிபாளையம்,  
கரட்டுப்பாளையம், கோட்டு,  
தமிழ்நாடு, 638457

Address:  
S/O Kandasamy K N,  
CHERMEN THOTTAM, P  
KARATTUPALAYAM,  
Gobichettipalayam,  
Karattupalayam, Erode,  
Tamil Nadu, 638457

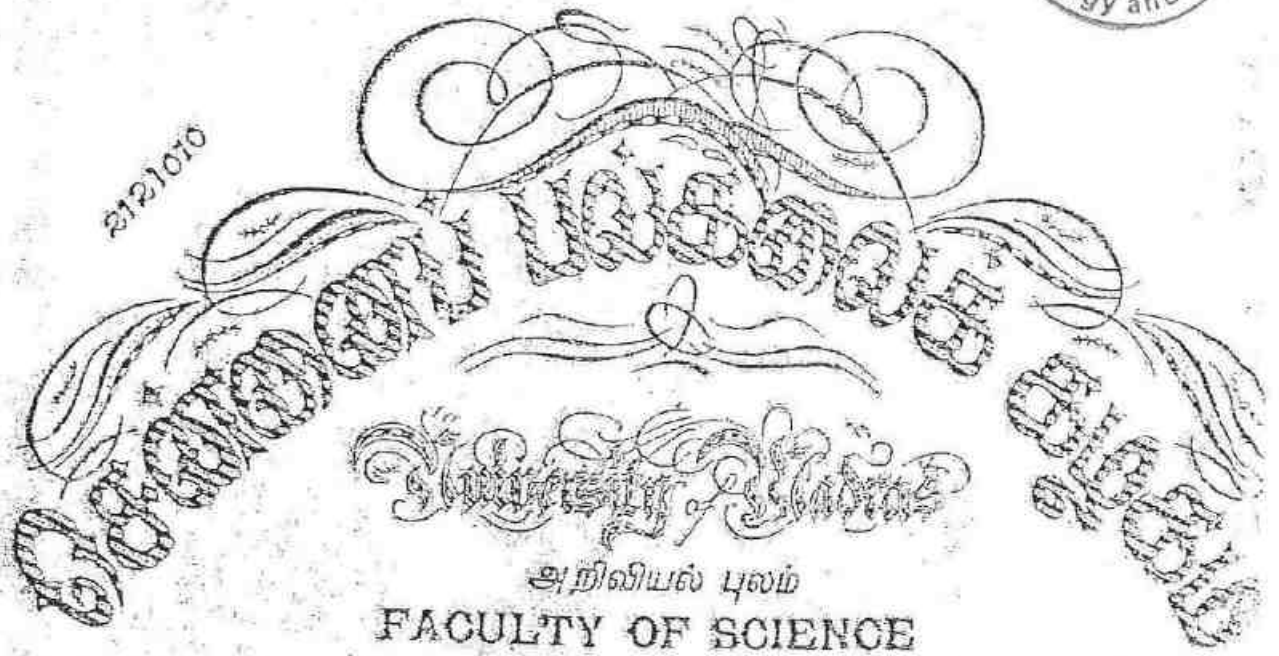
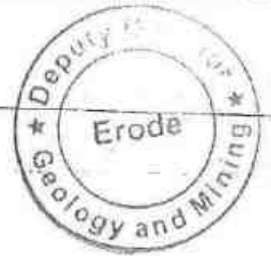


1947  
1947  
1947

www.aadhaar.gov.in  
www.aadhaar.gov.in

www.aadhaar.gov.in

P.O. Box 116, 1947  
Bengaluru-500 001



212/1070

அறிவியல் புலம்  
FACULTY OF SCIENCE

சென்னைப் பல்கலைக் கழகப் பொது 1994 ஆம் ஆண்டு...  
 இயக்குநர்... மாநில...  
 உய. திருச்சூரூர்...  
 இவ்வாறு உறுதி செய்து தக்க சான்றிதழ்கள் அறிவியல் நிறைஞர் என்றும் பு.ப.ப.த்தை அவருக்குப் பல்கலைக் கழக இலாகாவில்...  
 உறுதி செய்து...

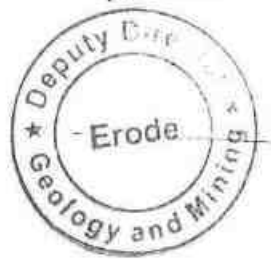
The Senate of the UNIVERSITY OF MADRAS hereby makes known that...  
 P. Sranganaga...  
 has been admitted to the Degree of Master of Science, he/she having been certified by duly appointed Examiners to be qualified to receive the same in...  
 Geology... and was placed in the...  
 First... Class, at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



Given under the seal of the University

சென்னை, சேரபுதி  
 சென்னை, மதுரை  
 25.01.1994

P. T. Tyndale  
 Deputy Registrar

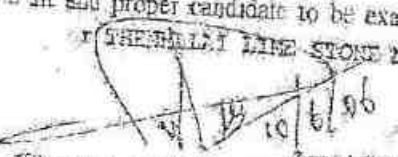


GOVERNMENT OF INDIA  
MINISTRY OF LABOUR AND REHABILITATION  
OFFICE OF THE DIRECTOR GENERAL OF MINES SAFETY

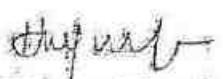
Certificate of Practical experience granted by the Manager to a candidate for a Manager's / Surveyor's / Foreman's / Over man's / Sirdar's / Mine's / Short fire's / Blaster's Certificate of competency (Restricted) examination under the Metalliferous Mines Regulations 1961.

I, T.VENKATARAJAGOPALAN being the Mines Agent of M/S.LIMENAPH CHEMICALS, RAJAPALAYAM OF LIMESTONE PRODUCTS (Theatali 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.

  
10/6/96  
(Signature with date and official Seal)  
[T.VENKATARAJAGOPALAN]

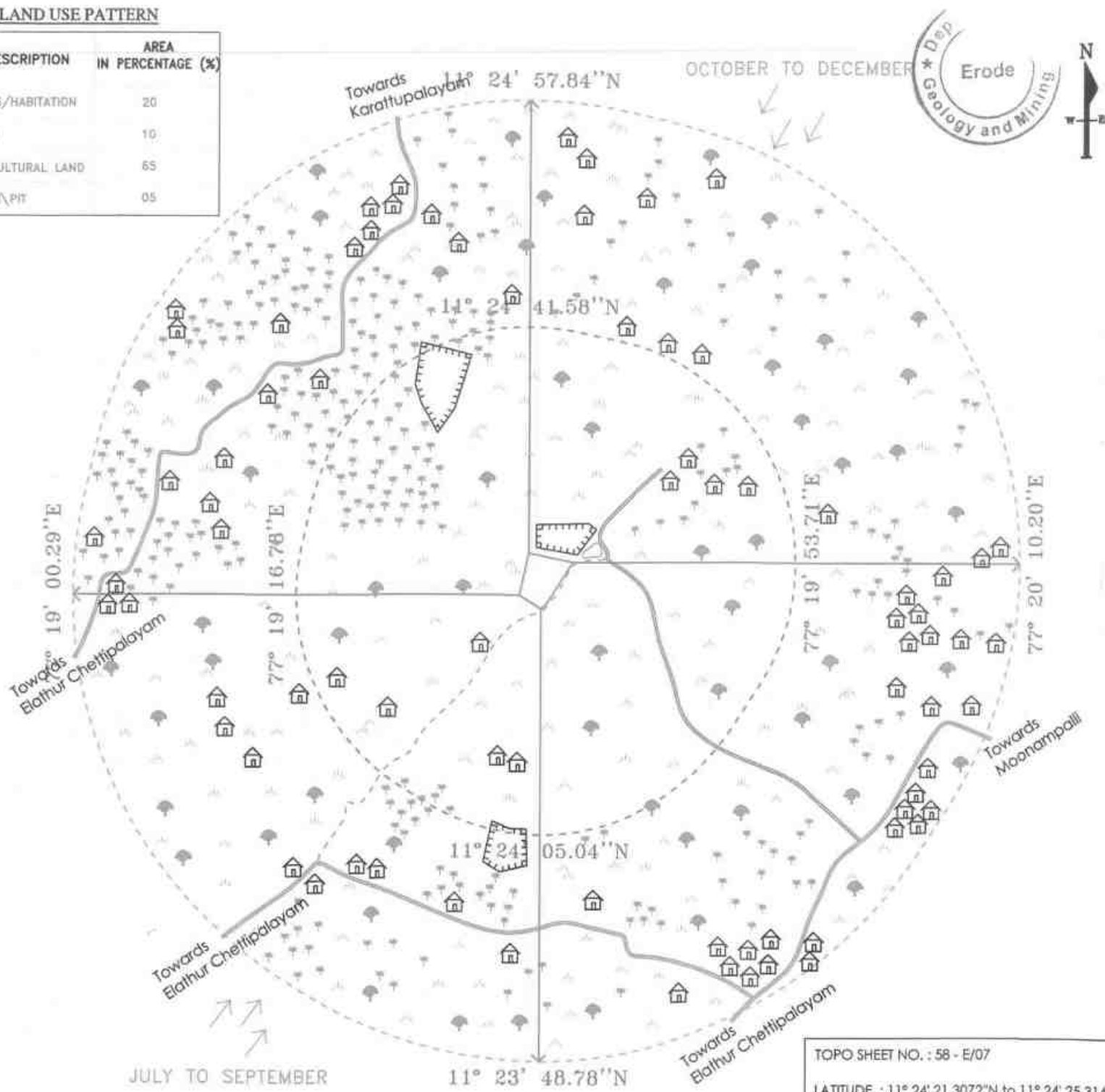
Mines Agent:  
P.O. : ARUKANGULAM  
District : TIRUNELVELI  
State : TAMIL NADU

  
(Signature of Candidate)

(State name of Mineral) : LIMESTONE

**LAND USE PATTERN**

DESCRIPTION	AREA IN PERCENTAGE (%)
TREES/HABITATION	20
ROAD	10
AGRICULTURAL LAND	65
KUTTA\PIT	05



**PLATE NO: I-B**  
DATE OF SURVEY :23.12.2022

**APPLICANT:**  
THIRU.K.VIJAY PERICHIYAPPAN,  
S/O.K.N.KANDASAMY,  
K.N.CHARMAN THOTTAM,  
B.KARATTUPALAYAM,  
GOPICHETTIPALAYAM TALUK,  
ERODE DISTRICT-638457.

**LOCATION OF QUARRY LEASE APPLIED AREA:-**  
S.F.No : 347/1B and 347/2B,  
EXTENT : 0.86.0 HA.  
VILLAGE : ELATHUR 'A'  
TALUK : GOPICHETTIPALAYAM  
DISTRICT : ERODE

**INDEX**

APPROACH ROAD	
WIND DIRECTION	
TREES	
VILLAGE ROAD	
AGRICULTURE LAND	
MAJOR ROAD	
KUTTAI	
CRUSHER PLANT	
HABITATION	
QUARRY PIT	
VANDI PATHAI	

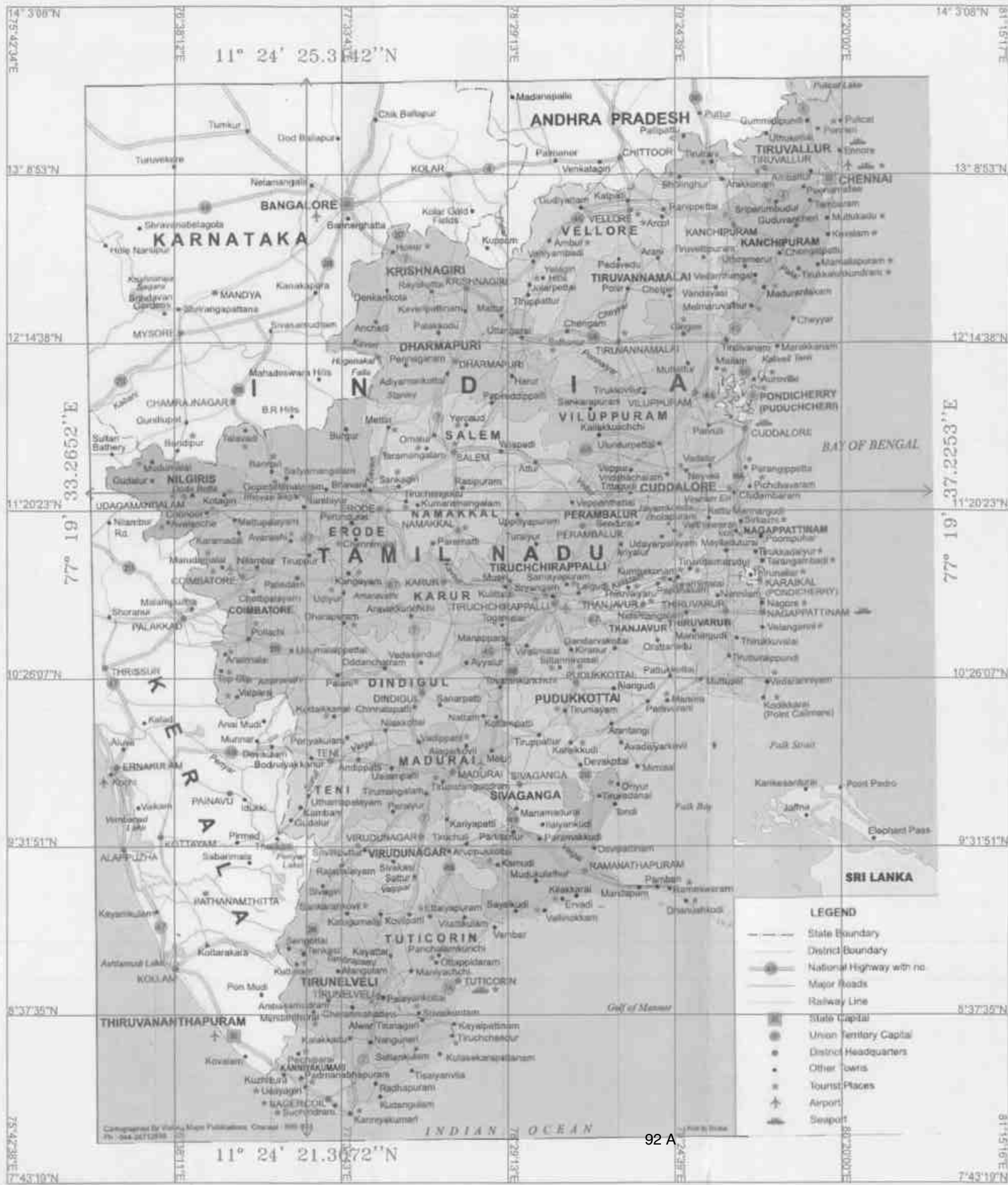
TOPO SHEET NO. : 58 - E/07  
LATITUDE : 11° 24' 21.3072"N to 11° 24' 25.3142"N  
LONGITUDE : 77° 19' 33.2652"E to 77° 19' 37.2253"E

1KM RADIUS :   
500M RADIUS :   
Q.L.APPLIED AREA:

**ENVIRONMENTAL & LANDUSE PLAN(For 1km Radius)**  
SCALE 1:10,000

**PREPARED BY:**  
THIS IS TO CERTIFY THAT THE INFORMATION IN THIS PLATE IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE BASED UPON THE LEASEMAP AUTHENTICATED BY STATE GOVERNMENT  
  
D.P. THANGARAJU, M.Sc, Ph.D.,  
QUALIFIED PERSON





**PLATE NO: I**

DATE OF SURVEY : 23.12.2022

**APPLICANT:**

THIRU.K.VIJAY PERICHIYAPPAN,  
S/O.K.N.KANDASAMY,  
K.N.CHARMAN THOTTAM,  
B.KARATTUPALAYAM,  
GOPICHETTIPALAYAM TALUK,  
ERODE DISTRICT-638457.

**LOCATION OF QUARRY  
LEASE APPLIED AREA:-**

S.F.No : 347/1B and 347/2B.  
EXTENT : 0.86.0 HA.  
VILLAGE : ELATHUR 'A'  
TALUK : GOPICHETTIPALAYAM  
DISTRICT : ERODE

**INDEX**

Q. L. A. AREA : ●

TOPO SHEET NO. : 58 - E/07

LATITUDE : 11° 24' 21.3072"N to 11° 24' 25.3142"N

LONGITUDE : 77° 19' 33.2652"E to 77° 19' 37.2253"E

**LOCATION PLAN**

SCALE 1:24,00,000

**PREPARED BY :**

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PLATE IS TRUE AND CORRECT TO THE  
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AUTHENTICATED  
BY STATE GOVERNMENT

*Dr. P. Thanagaraju*  
Dr. P. THANAGARAJU, M.Sc., Ph.D.,  
QUALIFIED PERSON





**PLATE NO:I-C**

DATE OF SURVEY :23.12.2022

**APPLICANT:**

THIRU.K.VIJAY PERICHIYAPPAN,  
S/O.K.N.KANDASAMY,  
K.N.CHARMAN THOTTAM,  
B.KARATTUPALAYAM,  
GOPICHETTIPALAYAM TALUK,  
ERODE DISTRICT-638457.

**LOCATION OF QUARRY  
LEASE APPLIED AREA:-**

S.F.No : 347/1B and 347/2B,  
EXTENT : 0.86.0 HA.  
VILLAGE : ELATHUR 'A'  
TALUK : GOPICHETTIPALAYAM  
DISTRICT : ERODE

**INDEX**

Q.L.APPLIED BOUNDARY	
VANDI PATHAI	
MAJOR ROAD	
PANCHAYAT ROAD	

**ROUTE MAP**

Not to Scale

**PREPARED BY:**

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS  
PLATE IS TRUE AND CORRECT TO THE  
BEST OF MY KNOWLEDGE BASED UPON THE LEASEMAP  
AUTHENTICATED  
BY STATE GOVERNMENT

Dr. P. THANGARAJU, M.Sc., Ph.D.,  
QUALIFIED PERSON



**APPLICANT:**

THIRU.K.VIJAY PERICHIYAPPAN  
 S/O.K.N.KANDASAMY,  
 K.N.CHARMAN THOTTAM,  
 B.KARATTUPALAYAM,  
 GOPICHETTIPALAYAM TALUK,  
 ERODE DISTRICT-638457.



**LOCATION OF QUARRY  
 LEASE APPLIED AREA:-**

S.F.No : 347/1B and 347/2B,  
 EXTENT : 0.86.0 HA.  
 VILLAGE : ELATHUR 'A'  
 TALUK : GOPICHETTIPALAYAM  
 DISTRICT : ERODE

**INDEX**

- Q.L. APPLIED AREA BOUNDARY
- 7.5M,10M,50M SAFETY DISTANCE
- TEMPORARY BENCH MARK
- QUARRY PIT
- QUARRY ROAD
- VANDI PATHAI
- STRIKE AND DIP
- GRAVEL
- ROUGH STONE

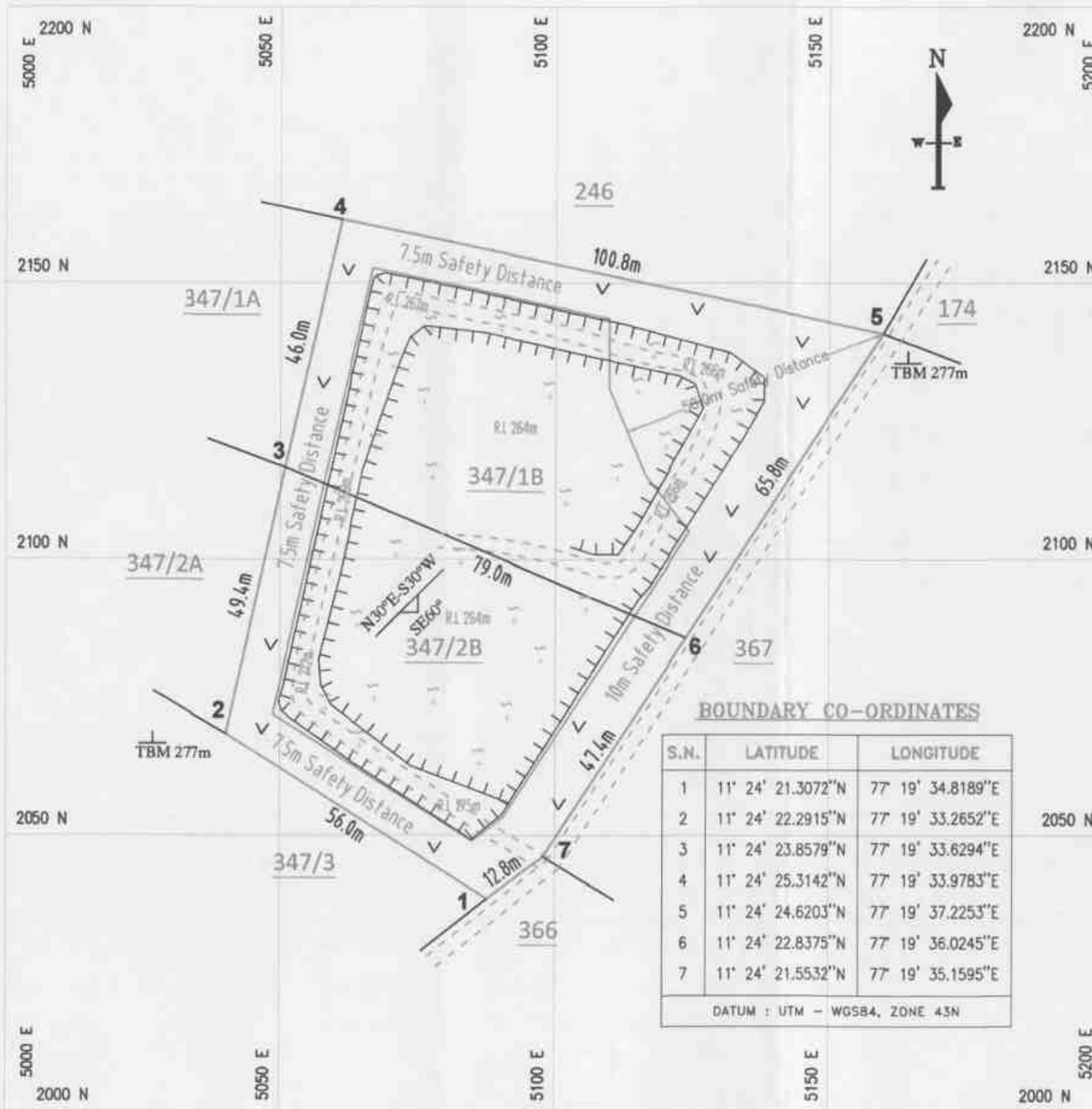
**QUARRY LEASE AND  
 SURFACE PLAN**

SCALE 1 : 1000

**PREPARED BY:**

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS  
 PLATE IS TRUE AND CORRECT TO THE  
 BEST OF MY KNOWLEDGE BASED UPON THE LEASEMAP  
 AUTHENTICATED  
 BY STATE GOVERNMENT.

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

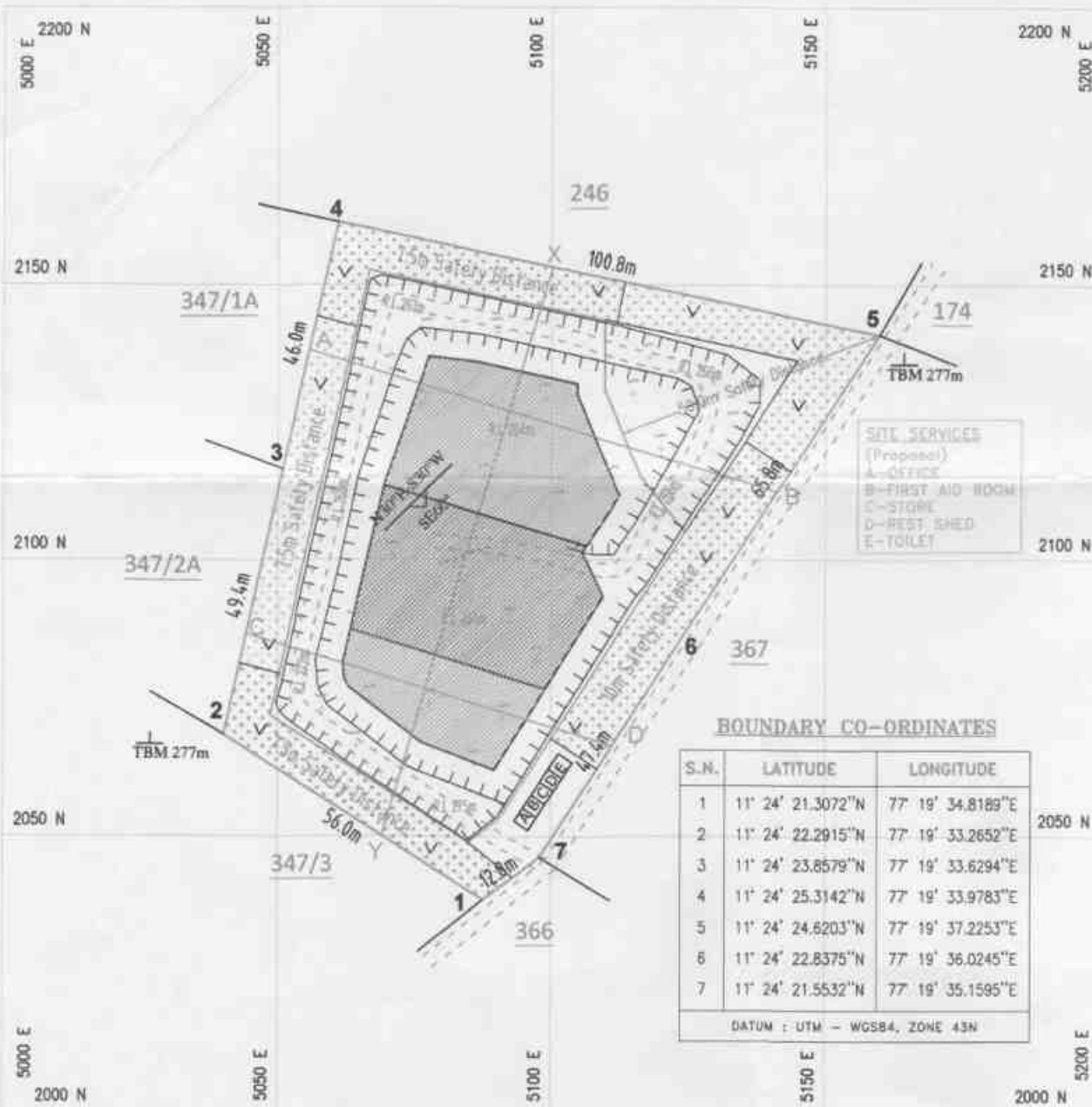


**BOUNDARY CO-ORDINATES**

S.N.	LATITUDE	LONGITUDE
1	11° 24' 21.3072"N	77° 19' 34.8189"E
2	11° 24' 22.2915"N	77° 19' 33.2652"E
3	11° 24' 23.8579"N	77° 19' 33.6294"E
4	11° 24' 25.3142"N	77° 19' 33.9783"E
5	11° 24' 24.6203"N	77° 19' 37.2253"E
6	11° 24' 22.8375"N	77° 19' 36.0245"E
7	11° 24' 21.5532"N	77° 19' 35.1595"E

DATUM : UTM - WGS84, ZONE 43N

Existing Pit Dimension  
 92m X 60m(Avg) X 13m(d)



Existing Pit Dimension  
92m X 60m(Avg) X 13m(d)

**PLATE NO. III**  
DATE OF SURVEY :23.12.2022

**APPLICANT:**  
THIRU.K.VIJAY PERICHYAPPAN,  
S/O.K.N.KANDASAMY,  
K.N.CHARMAN THOTTAM,  
B.KARATTUPALAYAM,  
GOPICHETTIPALAYAM TALUK,  
ERODE DISTRICT-638457.

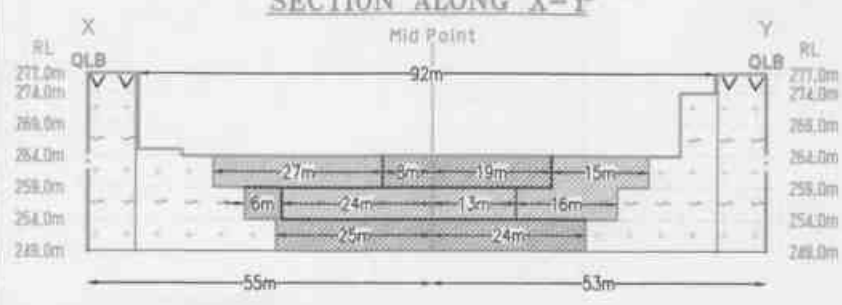
**LOCATION OF QUARRY LEASE APPLIED AREA:-**  
S.F.No : 347/1B and 347/2B,  
EXTENT : 0.86.0 HA.  
VILLAGE : ELATHUR 'A'  
TALUK : GOPICHETTIPALAYAM  
DISTRICT : ERODE

**BOUNDARY CO-ORDINATES**

S.N.	LATITUDE	LONGITUDE
1	11° 24' 21.3072"N	77° 19' 34.8189"E
2	11° 24' 22.2915"N	77° 19' 33.2652"E
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5	11° 24' 24.6203"N	77° 19' 37.2253"E
6	11° 24' 22.8375"N	77° 19' 36.0245"E
7	11° 24' 21.5532"N	77° 19' 35.1595"E

DATUM : UTM - WGS84, ZONE 43N

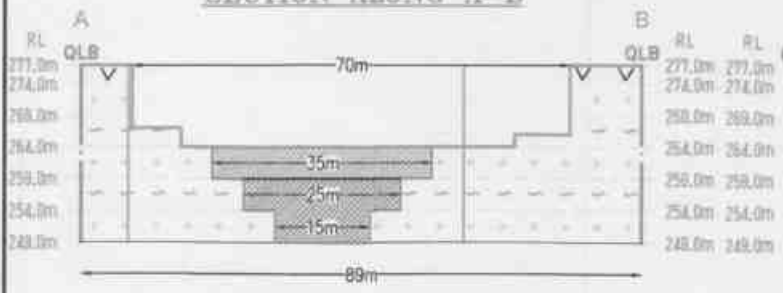
**SECTION ALONG X-Y\***



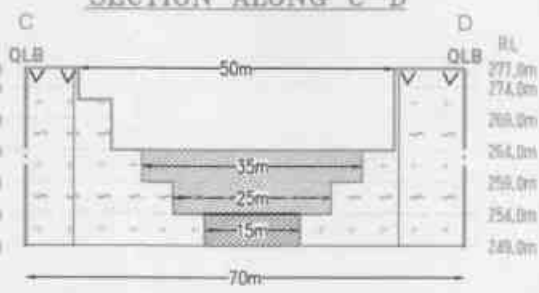
**PRESENT & POST LAND USE PATTERN**

DESCRIPTION	PRESENT AREA (Ha)	AREA AT THE END OF THIS QUARRYING PERIOD (Ha)
AREA UNDER QUARRYING	0.54.35	0.54.35
INFRASTRUCTURE	Nil	0.01.00
ROADS	0.01.00	0.02.00
GREEN BELT	Nil	0.28.25
UN-UTILIZED AREA	0.30.65	0.02.40
<b>GRAND TOTAL</b>	<b>0.86.00</b>	<b>0.86.00</b>

**SECTION ALONG A-B**



**SECTION ALONG C-D**



1st-yr Proposed area to be Planted	[Symbol]	1st-yr Proposed area to be Quarried	[Symbol]
2nd-yr Proposed area to be Planted	[Symbol]	2nd-yr Proposed area to be Quarried	[Symbol]
3rd-yr Proposed area to be Planted	[Symbol]	3rd-yr Proposed area to be Quarried	[Symbol]
4th-yr Proposed area to be Planted	[Symbol]	4th-yr Proposed area to be Quarried	[Symbol]
5th-yr Proposed area to be Planted	[Symbol]	5th-yr Proposed area to be Quarried	[Symbol]

**INDEX**

- Q.L. APPLIED AREA BOUNDARY [Symbol]
- 7.5M,10M,50M SAFETY DISTANCE [Symbol]
- TEMPORARY BENCH MARK [Symbol]
- QUARRY PIT [Symbol]
- QUARRY ROAD [Symbol]
- VANDI PATHAI [Symbol]
- STRIKE AND DIP [Symbol]
- GRAVEL [Symbol]
- ROUGH STONE [Symbol]

**TOPOGRAPHY, GEOLOGICAL, YEARWISE DEVELOPMENT & PRODUCTION PLAN & SECTIONS**  
SCALE 1 : 1000

**PREPARED BY:**  
THIS IS TO CERTIFY THAT THE INFORMATION IN THIS PLATE IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE BASED UPON THE LEASEMAP AUTHENTICATED BY STATE GOVERNMENT

*[Signature]*  
THANGARAJU, M.Sc., Ph.D.,  
QUALIFIED PERSON



**APPLICANT:**

THIRU.K.VIJAY PERICHIYAPPAN,  
S/O.K.N.KANDASAMY,  
K.N.CHARMAN THOTTAM,  
B.KARATTUPALAYAM,  
GOPICHETTIPALAYAM TALUK,  
ERODE DISTRICT-638457.

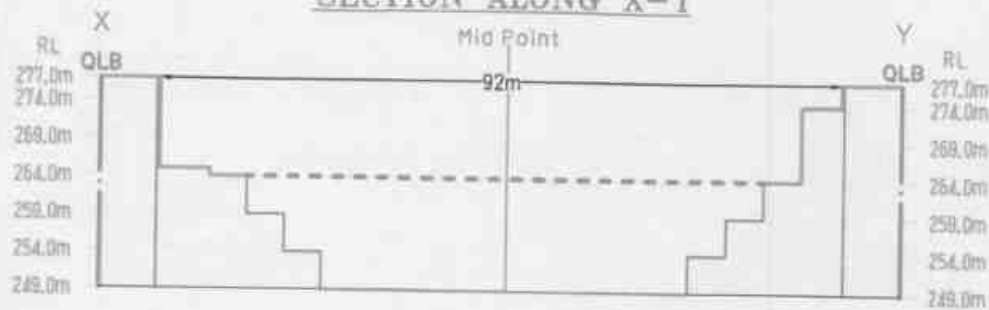
**LOCATION OF QUARRY  
LEASE APPLIED AREA:-**

S.F.No : 347/1B and 347/2B,  
EXTENT : 0.86.0 HA.  
VILLAGE : ELATHUR 'A'  
TALUK : GOPICHETTIPALAYAM  
DISTRICT : ERODE

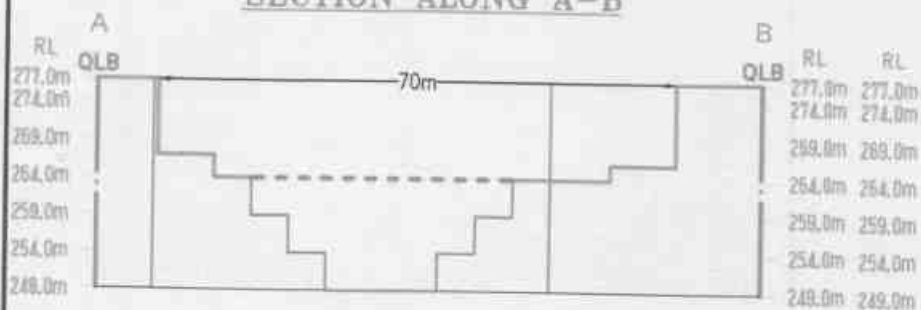
**INDEX**

Q.L. APPLIED AREA BOUNDARY	
7.5M, 10M, 50M SAFETY DISTANCE	
TEMPORARY BENCH MARK	
QUARRY PIT	
QUARRY ROAD	
VANDI PATHAI	
STRIKE AND DIP	
EXISTING LANDFORM	
OLD SURFACE LEVEL	
FINISHED SURFACE LEVEL	
FENCING	
PROPOSED GARLAND DRAIN	

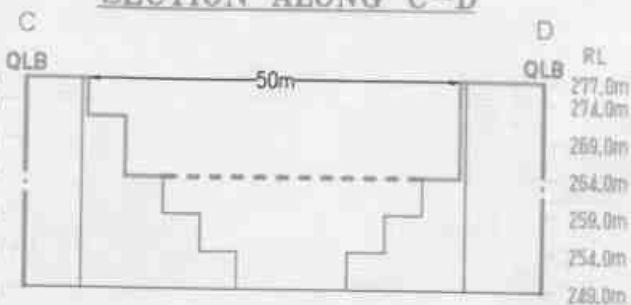
**SECTION ALONG X-Y**



**SECTION ALONG A-B**



**SECTION ALONG C-D**



**PROGRESSIVE QUARRY  
CLOSURE  
PLAN & SECTIONS  
SCALE 1 : 1000**

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BEST OF MY KNOWLEDGE BASED UPON THE LEASEMAP  
AUTHENTICATED  
BY STATE GOVERNMENT

Dr. P. THANGARAJU, M.Sc., Ph.D.,  
QUALIFIED PERSON



**PLATE NO. V**

DATE OF SURVEY :23.12.2022

**APPLICANT:**

THIRU.K.VIJAY PERICHIYAPPAN,  
S/O.K.N.KANDASAMY,  
K.N.CHARMAN THOTTAM,  
B.KARATTUPALAYAM,  
GOPICHETTIPALAYAM TALUK,  
ERODE DISTRICT-638457.

**LOCATION OF QUARRY  
LEASE APPLIED AREA:-**

S.F.No : 347/1B and 347/2B,  
EXTENT : 0.86.0 HA.  
VILLAGE : ELATHUR 'A'  
TALUK : GOPICHETTIPALAYAM  
DISTRICT : ERODE

**INDEX**

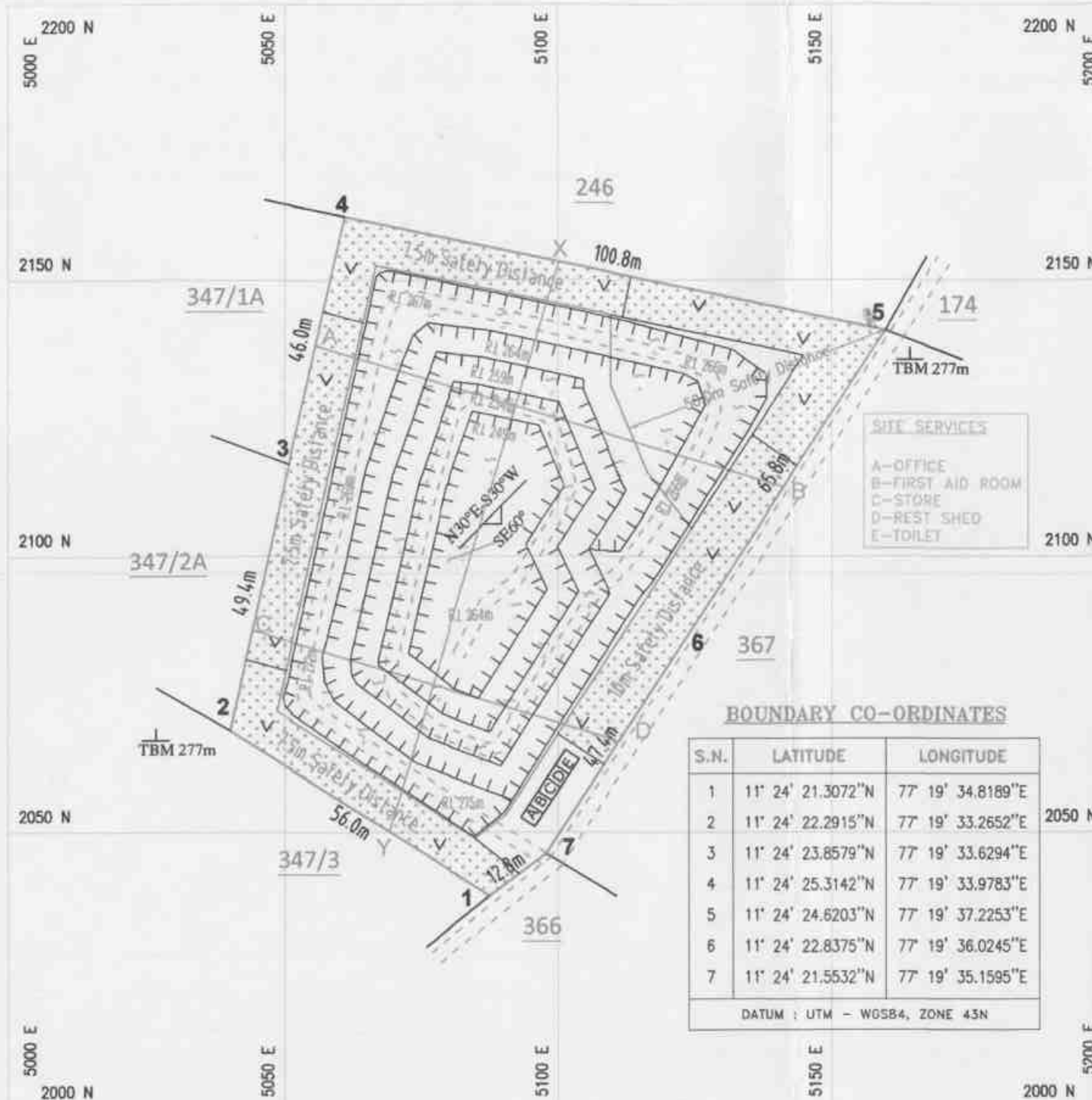
Q.L, APPLIED AREA BOUNDARY	
7.5M,10M,50M SAFETY DISTANCE	
TEMPORARY BENCH MARK	
QUARRY PIT	
QUARRY ROAD	
VANDI PATHAI	
STRIKE AND DIP	
GRAVEL	
ROUGH STONE	

**CONCEPTUAL  
PLAN & SECTIONS  
SCALE 1 : 1000**

**PREPARED BY:**

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS  
PLATE IS TRUE AND CORRECT TO THE  
BEST OF MY KNOWLEDGE BASED UPON THE LEASEMAP  
AUTHENTICATED  
BY STATE GOVERNMENT

DR.P.THANGARAJU,M.Sc,Ph.D.,  
QUALIFIED PERSON

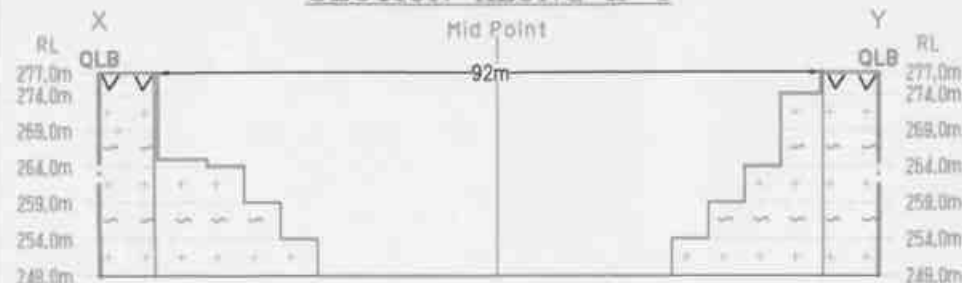


**BOUNDARY CO-ORDINATES**

S.N.	LATITUDE	LONGITUDE
1	11° 24' 21.3072"N	77° 19' 34.8189"E
2	11° 24' 22.2915"N	77° 19' 33.2652"E
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5	11° 24' 24.6203"N	77° 19' 37.2253"E
6	11° 24' 22.8375"N	77° 19' 36.0245"E
7	11° 24' 21.5532"N	77° 19' 35.1595"E

DATUM : UTM - WGS84, ZONE 43N

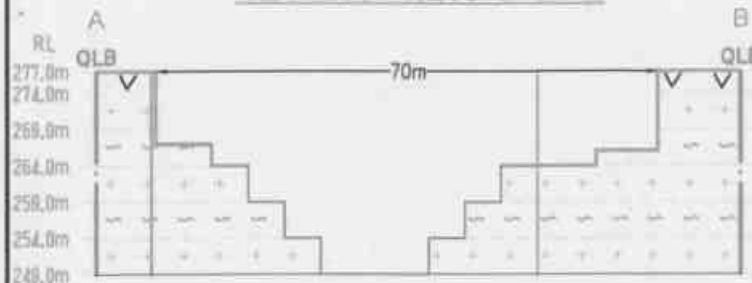
**SECTION ALONG X-Y**



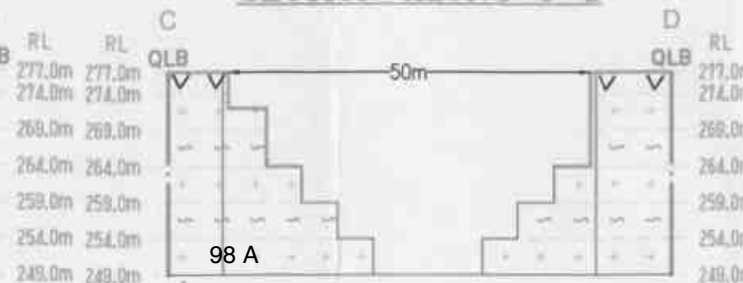
1st-5th yr Area to be Planted

Ultimate Pit Dimension  
92m X 60m(Avg) X 28m(d)

**SECTION ALONG A-B**



**SECTION ALONG C-D**



# HYDROGEOLOGICAL REPORT

Rough stone and Gravel Quarry

Extent of 0.86.0ha

Elathur 'A' Village, Nambiyur Taluk,

Erode District, Tamil Nadu State.

## **HYDROGEOLOGICAL REPORT FOR ELATHUR ‘A’ ROUGH STONE AND GRAVEL QUARRY**

### **1. INTRODUCTION**

**Name of the Applicant-** : K. Vijay Perichiyappan  
S/o. K.N.Kandasamy,  
**Address** : K.N. Charman Thottam,  
B.Karattupalayam,  
Gobichettipalayam Taluk,  
Erode District - 638 457  
**Pin Code** : 638 457  
**Mobile No** : 98428 82920 & 98658 10829  
**Aadhaar No** : 6932 9410 1544  
**Email ID** : [vinovinoth829@gmail.com](mailto:vinovinoth829@gmail.com)

#### **Study Area Details-**

**Land Classification** : Patta Land  
**Survey Numbers** : 347/1B & 347/2B  
**Extent in Heaters** : 0.86.0ha  
**Village** : Elathur  
**Taluk** : Nambiyur  
**District** : Erode  
**State** : Tamil Nadu

The Client requires detailed information on Ground Water Occurrences at Proposed Project Site. 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. GEOGRAPHICAL INFORMATION**

### **Location**

The investigated site falls in the Toposheet No: **58 - E/07** Latitude between **11°24'21.3072''N to 11°24'25.3142''N** and Longitude between **77°19'33.2652''E to 77°19'37.2253''E** on WGS datum-1984.

### **4. Geomorphology**

The Erode district forms part of the uplands of the state. Physiographically the district can be divided into hilly area, the upland area and plains area. The prominent geomorphic units identified in the district 1) Structural hills, 2) Inselberg, 3) Ridges, 4) Valley fill, 5) Pediments, 6) Shallow Pediments,

The hilly area is represented by the Western Ghats in the northwestern part of the district, the BiligiriRangan hills in the north, BodamalaiBetta hills in the northwestern parts and Konbattarayan hills in the north central part of the district. Konbattarayan hill (1699 m above MSL) is the highest peak in the district while Moyar Gorge is a picturesque gorge in the WesternGhats through which Moyar river traverses.

The Kongunadu uplands lie south of Bhavaniriver and the Lower Bhavani canal passes through these uplands. Scattered hillocks and knolls of moderate elevations occur within these uplands. The plains area is characterised by an undulating topography with a general gradient due east and southeast. The plains are limited to the east and southwestern border of the district. The plains west of Cauvery river are known as Lower Cauvery plains.

**Soils**

The soils of Erode district can be broadly classified into 6 major soils types viz., Redcalcareous soil, Red non calcareous soil, Black Soil, Alluvial and Colluvialsoils, Brown soil and Forest soil. Major part of the district covered by red calcareous soils.

They are mostly sandy to loamy and characterised by the hard and compact layer of lime. The red non-calcareous soils are seen in Erode, Perunthurai and Gopichettioalayamtaluks. The black soils are occurring as patches in four taluks. Brown soil occupies only a small portion of Bhavani, Kangayam and Gopichettipalayamtaluks. Alluvial soils are found in small patches along the Noyil and Bhavani rivers and the Colluvial soils are found in the foothills of Western Ghats. Forest soil is confined to the reserve forest area in northwestern part of the district, where a surface layer of organic matter is present.

**Rainfalls**

The district receives the rain under the influence of both southwest and northeast monsoons. The northeast monsoon chiefly contributes to the rainfall in the district. The southwest monsoon is also reasonable. During the winter and hot seasons, the rainfall is scanty.

The normal annual rainfall over the district varies from about 575 mm to about 833mm. It is the minimum in the southern and southeastern parts of the district around Kodumudi (575.3 mm) Mulanur (581.0 mm) and Dharapuram (593.0 mm). It gradually increases towards north and northwest and reaches a maximum around Talavadi (833 mm).

**Climate**

The western part of the Erode district enjoys a salubrious climate because of the hilly region, whereas the central and eastern parts of the district are hot and humid. The cooler and pleasant climate prevails in the hilly regions. The weather is extremely pleasant during the period from November to February both in the plains and on the hills. Mornings in general are more humid than the afternoons. The relative humidity varies from 65 to 87 percent during the northeast monsoon period between October and November.

The hot weather begins early in March, the highest temperature being reached in April and May. Highest temperatures are recorded during the months of April and May with temperatures reaching 40°C. The weather in the plains during the summer i.e., from April to June is generally dry and hot. Weather cools down progressively from about the middle of June and by December. The night temperatures are the lowest in the hills.



## 5. GEOLOGY

The rock types exposed in the erode district can be broadly grouped as

- 1) Granulite group of rocks
- 2) Migmatite Complex
- 3) Sathyamangalam Schist Complex
- 4) Peninsular Gneissic Complex
- 5) Alkali Complex
- 6) Acid Intrusives
- 7) Quaternary Alluvium.

The Granulite group of rocks comprise of Calc Granulite, Quartzite of Khondalite group, Charnockite, Pyroxene Granulite, Pyroxenite of Charnockite group, Migmatite gneiss, and Metagabbro. Charnockite occurs as a major rock type in the northern part and as thin bands and enclaves in the southern part of the district. Quartzite and Calc Granulite, Pyroxene Granulite, Migmatite Gneiss occurs as thin bands and enclaves.

Hornblende gneiss, Garnetiferous - Quartzofeldspathic gneiss and granite are the important rock types of Migmatite Complex, of which, hornblende gneiss occupies the major part of the District, particularly in southern part and northwestern part. Garnetiferous quartzofeldspathic gneiss is located near Bhavani Sagar reservoir and north of Anthiyur.

The Sathyamangalam Group includes fuchsite Quartzite, schistose-quartzite, sillimanite-quartzite, ferruginous Quartzite, talc-tremolite / Actinolite schist / hornblende schist, Amphibolite and Gabbro-anorthosite and Pyroxenite. Schistose rocks occur as enclaves near Sathyamangalam, west of Chennimalai. Quartzite occurs as thin beds near Kavilanattam, west of Chennimalai, Amphibolite occur as enclaves near Sathyamangalam, Gobi and around Perudnurai. A north site, Pyroxenite occurs as WSW-ENE trending bands in fissile hornblende gneiss of PGC (Bhavani Group) which occupies the ventral part of the district.

Granite bodies are located in the central part of the district around Punjai Puliyampatti and west of Erode. Quaternary fluvial deposits are restricted to the river beds of Cauveri, Noyyal, Amaravathi and Bhavani rivers.

The plains show a large number of ultramafic bodies along the E-W Bhavani lineament. WNW-ESE to NW-SE trending dykes is a common feature. The Cauveri River which has a NNE-SSW trending straight course between Mettur and Bhavani is considered to represent a major lineament, probably a deep seated fault zone.

The general E-W to ENE-WSW course of the Bhavani River flowing at the foot of the hills indicates a major lineament, probably a deep seated fault zone.

The Moyyar - Bhavani, Noyyil - Cauveri lineaments belong to the NNW-SSE to E-W system. The Mettur fault is a NNE-SSW system. The N-S to NNE-SSW trending dykes show clear truncation against the E-W Bhavani lineament.

Stratigraphy of Erode district

Lithology	Group	Age
Soil Alluvium		Holocene
Laterite		
Kankar		
Granite	Acid intrusive	Proterozoic
Dolerite dyke / Meta dolerite / Basic intrusive		
Nephelenesyenite Corrundumsyenite	Alkaline complex	
Pink migmatite	Penninsular gneissic complex (Bhavani)	Proterozoic to Archaean
Fisshile Hornblende biotite gneiss		
Gabbro, anorthosite, pyroxenite	Sathyamangalam Group	
Amphibolite		
Talc - tremolite / Actinolite schist /Hornblende schist		
Fuchsite quartzite, schistose quartzite, Sillimanite quartzite, ferruginous quartzite		
Hornblende biotite gneiss	Migmatite Complex	
Gametiferous- Quartzofeldspathic gneiss		
Metagabbro phrozenite	Charnockite Group	
Magnetite quartzite		
Pyroxene granulite		
Charnockite		
Calc granulite	Khondalite Group	
Quartzite Anorthosite located in well cuttings		

## **5.GEOPHYSICAL INVESTIGATION METHODS**

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

### **Resistivity Method**

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

### **Basic Principles**

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

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

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

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

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

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

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

With Ohm's Law,

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

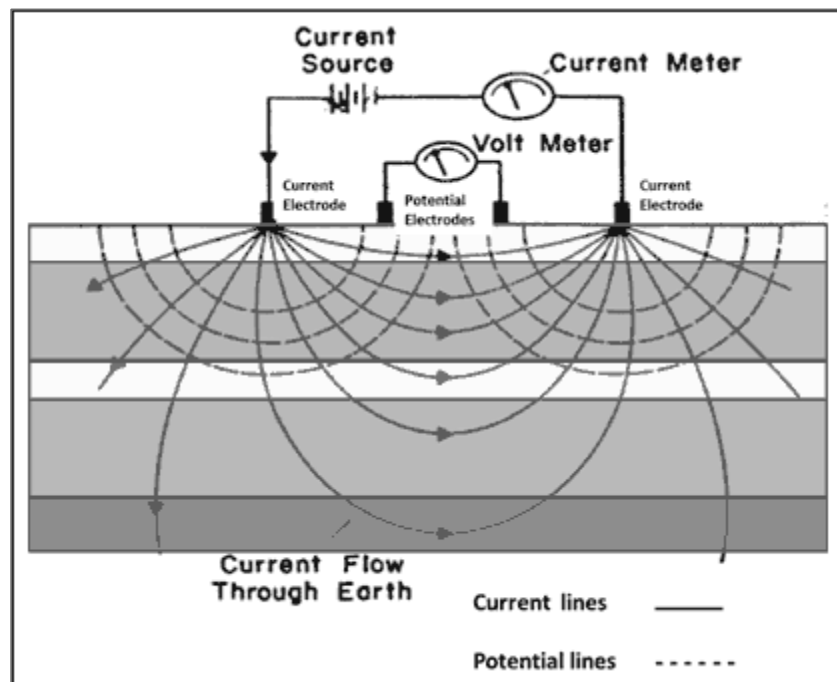
Where  $dV$  is the potential difference across the resistor and  $I$  is the electric current through the resistor. The specific resistivity may be determined by:

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

### Vertical Electrical Sounding (VES)

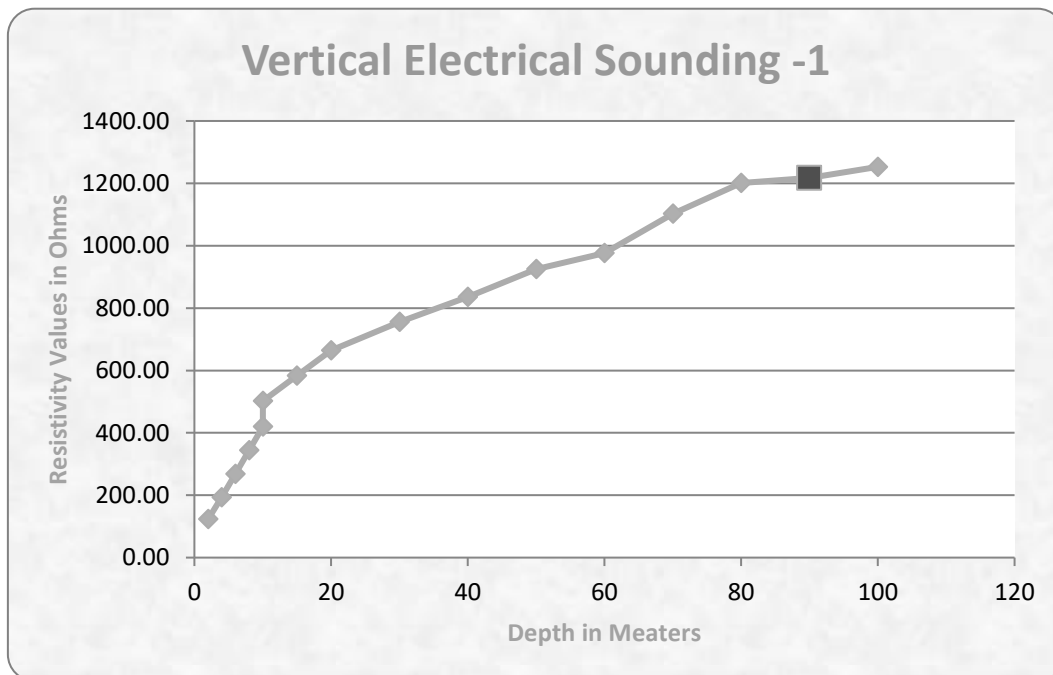
When carrying out a resistivity sounding, current is led into the ground by means of two electrodes. With two other electrodes, situated near the center of the array, the potential field generated by the current is measured. From the observations of the current strength and the potential difference, and taking into account the electrode separations, the ground resistivity can be determined. During a resistivity sounding, the separation between the electrodes is step-wise increased (known as a Schlumberger Array), thus causing the flow of current to penetrate greater depths. When plotting the observed resistivity values against depth on double logarithmic paper, a resistivity graph is formed, which depicts the variation of resistivity with depth. This graph can be interpreted with the aid of a computer, and the actual resistivity layering of the subsoil is obtained. The depths and resistivity values provide the hydro geologist with information on the geological layering and thus the occurrence of groundwater.

### Vertical Electrical Sounding Method (VES)



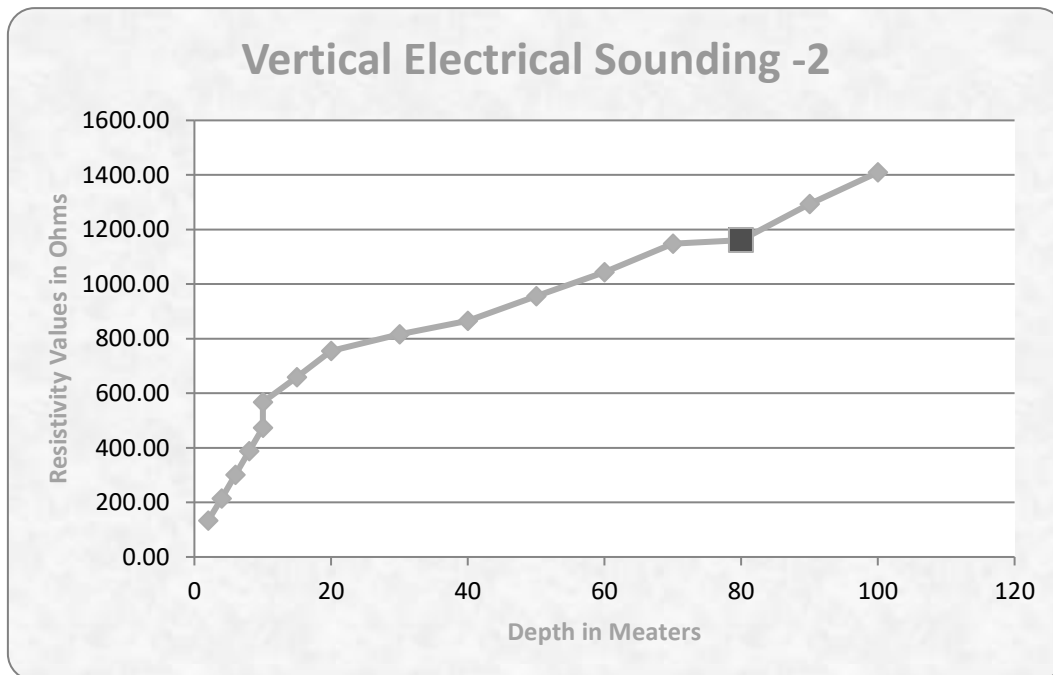
## Geophysical Data and graph Diagram

Vertical Electrical Sounding - 1					
GPS Coordinates - 11°24'23.41"N 77°19'33.60"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	26.15	123.03
2	4	1	23.55	8.20	193.11
3	6	1	54.95	4.88	267.61
4	8	1	98.91	3.47	344.21
5	10	1	155.45	2.72	419.72
6	10	5	23.55	21.30	502.09
7	15	5	62.80	9.29	582.78
8	20	5	117.75	5.63	664.11
9	30	5	274.75	2.74	755.56
10	40	5	494.55	1.72	835.79
11	50	5	777.15	1.21	924.81
12	60	5	1122.55	0.88	976.62
13	70	5	1530.75	0.73	1102.14
14	80	5	2001.75	0.62	1201.05
15	90	5	2535.55	0.45	1217.06
16	100	5	3132.15	0.42	1252.86



◆ Based on the vertical electrical sounding graphs purple colour level is fracture zone

Vertical Eletrical Sounding - 2					
GPS Coordinates - 11°24'24.93"N 77°19'33.96"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	28.25	133.06
2	4	1	23.55	9.13	214.78
3	6	1	54.95	5.47	301.13
4	8	1	98.91	3.90	387.73
5	10	1	155.45	3.02	474.12
6	10	5	23.55	24.14	567.56
7	15	5	62.80	10.49	659.40
8	20	5	117.75	6.40	754.78
9	30	5	274.75	2.94	816.01
10	40	5	494.55	1.78	865.46
11	50	5	777.15	1.24	955.89
12	60	5	1122.55	0.92	1043.97
13	70	5	1530.75	0.75	1148.06
14	80	5	2001.75	0.55	1161.02
15	90	5	2535.55	0.48	1293.13
16	100	5	3132.15	0.40	1409.47

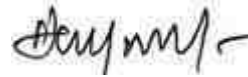


◆ Based on the vertical electrical sounding graphs purple colour level is fracture zone

## 6. CONCLUSION –

Based on the available information and the geophysical investigations it is concluded that the project area is considered to have medium to good groundwater potential. Productive aquifers are expected within weathered/fractured metamorphic terrain. Shallow aquifers are expected above 90m BGL. The ultimate pit limit as per the approved mining plan depth is **28m (3m Gravel + 25m Rough Stone) below ground level** which will have no impact on the Ground Water.

Prepared By



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நிலவருவாய் ஆய்வாளர் அலுவலகம்,  
எலத்தூர் உள்வட்டம்.

நாள்: 2-12-2021

அ1 விளம்பரம்

ஈரோடு மாவட்டம், நம்பியூர் வட்டம், எலத்தூர் உள்வட்டம், எலத்தூர் "அ"  
கிராமம், கிராமப் பொதுமக்களுக்கு அறிவிப்பு

ஈரோடு மாவட்டம், நம்பியூர் வட்டம், கரட்டுப்பாளையம் கிராமம், கஸ்பாவில்  
வசித்து வரும் திரு.க.விஜய் பெரிச்சியப்பன் த/பெ.க.ந.கந்தசாமி என்பவர் நம்பியூர்  
வட்டம், எலத்தூர் அ கிராமம், புல எண். 347/1, 2-நெ.காலைகளில் புஞ்சை ஏக்கர்  
2.12 செண்ட் பரப்பு பட்டா நிலப்பரப்பில் சாதாரண கற்கள் மற்றும் கிராவல் மண்  
வெட்டியெடுக்க 5 வருடங்களுக்கு குவாரி குத்தகை உரிமம் வழங்க கோரியுள்ளார்.  
மேற்படி பூமிக்கு குவாரி குத்தகை உரிமம் வழங்குவது தொடர்பாக  
ஆட்சேபனை இருப்பின் விளம்பரம் வெளியிட்ட 15 தினங்களுக்குள் எலத்தூர்  
நிலவருவாய் ஆய்வாளர் அல்லது வட்டாட்சியர் நம்பியூர் அவர்களுக்கு  
எழுத்துப்பூர்வமாக தெரிவித்துக் கொள்ள பொதுமக்கள் கேட்டுக்  
கொள்ளப்படுகிறார்கள்.

*சுமந்திரன்*  
நிலவருவாய் ஆய்வாளர்,  
எலத்தூர் உள்வட்டம்.  
2-12-2021

பெறுநர்

கிராம நிர்வாக அலுவலர்,  
எலத்தூர் "அ" கிராமம்.

மேற்கண்ட விளம்பரத்தை கிராமத்தில் விளம்பரம் செய்து பொதுமக்கள்  
கையொப்பம் பெற்று மீள சமர்ப்பிக்க வேண்டியது.



1) ~~കുമാരൻ~~

2) R.P. മേനോൻ

3) ~~കുമാരൻ~~

4) A. S. മേനോൻ

5) ~~കുമാരൻ~~

6) U. S. മേനോൻ

7) K. S. മേനോൻ

8) P. S. മേനോൻ

9) K. S. മേനോൻ

10) P. S. മേനോൻ

11) U. S. മേനോൻ

## குறிப்பாணை

- பொருள் : கனிமங்களும் குவாரிகளும் - நம்பியூர் வட்டம் - எலத்தூர் கிராமம் - புல எண்கள்.347/1B (0.49.0) , 347/2B (0.37.0) ஆக மொத்தம் 0.86.0 ஹெக்டேர் பட்டா நிலப்பரப்பில் சாதாரணகற்கள் மற்றும் கிராவல் மண் வெட்டி எடுக்க ஐந்து ஆண்டுகளுக்கு குவாரி குத்தகை உரிமம் கோரியது - தொடர்பாக.
- பார்வை : கோபிசெட்டிபாளையம் வருவாய் கோட்ட அலுவலக ந.க.3669/2021/ஆ3 நாள்: 29.07.2021

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நம்பியூர் வட்டம் , எலத்தூர் கிராமம் , புல எண்கள்.347/1B (0.49.0) , 347/2B (0.37.0) ஆக மொத்தம் 0.86.0 ஹெக்டேர் பட்டா நிலப்பரப்பில் சாதாரணகற்கள் மற்றும் கிராவல் மண் வெட்டி எடுக்க ஐந்து ஆண்டுகளுக்கு குவாரி குத்தகை உரிமம் கோரி பார்வையில் காணும் கடித்தில் பரிந்துரை செய்து அறிக்கை அனுப்புமாறு தெரிவிக்கப்பட்டுள்ளது.

இந்நேரில் மேற்காண் புலங்களை பார்வையிட்டு , கீழ்க்காணும் விபரங்கள் தொடர்பான அறிக்கையினை அனுப்பிவைக்குமாறு கேட்டுக்கொள்ளப்படுகிறார்.

1. குத்தகை வழங்கக் கேட்கும் புலத்தின் எல்லைகள் வரையறுக்கப்பட்டு எல்லைக் கற்கள் நடப்பட்டுள்ளதா?
2. குவாரி குத்தகை தொடர்பாக பொதுமக்கள் ஆட்சேபனை ஏதும் செய்வார்களா என்பது குறித்து அ1 நோட்டீஸ் பிரசுரம் மூலம் கண்டறிந்தும் ,
3. குத்தகை வழங்கும் புலத்திலிருந்து 300மீ சுற்றளவிற்குள் கிராம நத்தம், அங்கீகரிக்கப்பட்ட குடிருப்பு மனைகள் மற்றும் கட்டுமானங்கள் ஏதும் உள்ளதா?
4. குத்தகை வழங்கக் கேட்கும் நிலத்தின் மீதான உரிமை விண்ணப்பதாரருக்கு உள்ளதா ?போன்ற விபரங்களுடன்
5. விண்ணப்ப புலத்தில் வழக்கு தாவா ஏதேனும் நிலுவையில் உள்ளதா?
6. அரசின் நிலஎடுப்பு பிரேரணையில் விண்ணப்ப புலம் உள்ளதா?
7. தடையாணைப் புத்தகத்தில் பதிவுகள் ஏதேனும் உள்ளதா?
8. விண்ணப்ப புலங்களில் ஏதேனும் வில்லங்கள் மற்றும் வசூல் செய்ய வேண்டிய நிலுவை தொகை ஏதேனும் உள்ளதா?

மேற்கண்ட விபரங்களுடன் புலத்தணிக்கை மற்றும் விசாரணை செய்து உரிய ஆவணங்களுடன் விரிவான அறிக்கையினை உடன் அனுப்புமாறு எலத்தூர் நிலவருவாய் ஆய்வாளர் கேட்டுக் கொள்ளப்படுகிறார்.

ஓம்/எஸ்.மாரிமுத்து,  
வருவாய் வட்டாட்சியர்,  
நம்பியூர்.

//உண்மை நகல் / உத்தரவுப்படி//

தலைமையிடத்து துணை வட்டாட்சியர்.

பெறுநர்:

நில வருவாய் ஆய்வாளர்,  
எலத்தூர் உள்வட்டம்.

21/9/2021

ஈரோடு மாவட்டம், நம்பியூர் வட்டம், எலத்தூர் உள்வட்டம், எலத்தூர் "அ" கிராமம், பொது மக்கள் கொடுத்த வாக்குமூலம்.

ஈரோடு மாவட்டம், நம்பியூர் வட்டம், கரட்டுப்பாளையம் கிராமம், கஸ்பாவில் வசித்து வரும் திரு.க.விஜய் பெரிச்சியப்பன் த/பெ.க.ந.கந்தசாமி என்பவர் நம்பியூர் வட்டம், எலத்தூர் அ கிராமம், புல எண்.347/1,2-நெ.காலைகளில் புஞ்சை ஏக்கர் 2.12 செண்ட் பரப்பு பட்டா நிலப்பரப்பில் சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க 5 வருடங்களுக்கு குவாரி குத்தகை உரிமம் வழங்க கோரியுள்ளார். மேற்படி பூமிக்கு குவாரி குத்தகை உரிமம் வழங்க கோரியது ,தொடர்பான விசாரணை என்பதை தெரிந்துகொண்டோம். மேற்படி பூமியில் குவாரி குத்தகை உரிமம் வழங்குவது தொடர்பாகவோ, சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டி எடுப்பதற்கு எங்களுக்கு எந்தவிதமான ஆட்சேபனை இல்லை என்பதை தெரிவித்துக் கொள்கிறோம். மேலும், மேற்படி சாதாரண கற்கள் மற்றும் கிராவல் மண் எடுக்கும் இடத்திற்கு அருகில் குடியிருப்புகள் ஏதுமில்லை என்பதையும் தெரிவித்துக் கொள்கிறோம்.

//படித்துபார்த்தோம் சரி/  
//படிக்ககேட்டோம் சரி//

// சீல் இன்றால் //

தலைகுவாய் ஆய்வினர்.  
எலத்தூர் உள்வட்டம்.

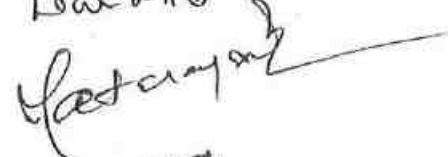


கேள்யணன்



கேள்யணன்

கேள்யணன்



K. S. Srinivasan



ஈரோடு மாவட்ட ஆட்சியர் அவர்களின் செயல்முறை ஆணைகள்

முன்னிலை : டாக்டர். எஸ். பிரபாகர், இ.ஆ.ப.,

ந.க. எண். 30118/2014 / எக்ஸ்-1.

நாள் : 04.03.2016.

பொருள் : கனிமங்களும் குவாரிகளும் - ஈரோடு மாவட்டம் - கோபிசெட்டிபாளையம் வட்டம் - எலத்தூர் கிராமம் - பட்டா புல எண்கள் 347/1பி மற்றும் 347/2பி-ல் 0.86.0 ஹெக்டர் பரப்புள்ள நிலத்திலுள்ள சாதாரண கற்கள் / கிராவல் 5 ஆண்டுகளுக்கு வெட்டி எடுக்க திரு. கே.விஜய் பெரிச்சியப்பன் என்பவருக்கு குவாரி குத்தகை உரிமம் வழங்கி ஆணையிடுவது - தொடர்பாக

பார்வை: 1. திரு. கே. விஜய் பெரிச்சியப்பன் என்பவரின் விண்ணப்பம் வரப்பெற்ற நாள் 17.11.2014.

2. கோபிசெட்டிபாளையம் சார் ஆட்சியர் (பொ) அவர்களின் அறிக்கை கடிதம் ந.க. 1063/2015/ஆ3 நாள் 23.5.2015.

3. உதவி இயக்குநர், புவியியல் மற்றும் சுரங்கத்துறை, ஈரோடு புலத்தணிக்கை குறிப்பு நாள் 5.6.2015.

4. ஈரோடு மாவட்ட ஆட்சியரின் குறிப்பாணை ந.க. 30118 / 2014 / எக்ஸ்-1 நாள் 17.6.2015 (Precise Area)

5. திரு. கே. விஜய் பெரிச்சியப்பன் என்பவரின் மனு நாள் 7.7.2015 (mining Plan submitted)

6. ஈரோடு உதவி இயக்குநர், புவியியல் மற்றும் சுரங்கத்துறை, கடிதம் ந.க. 30118 / 2014 / எக்ஸ்-1 நாள் 27.2.2015.(Mining Plan approved)

7. உறுப்பினர் செயலர், மாநில சுற்றுப்புற சூழ்நிலை செயல் விளைவு மதிப்பீட்டுக் குழு, பனகல் மாளிகை, சைதாப்பேட்டை, சென்னை அவர்களின் கடித எண். SEIAA, TN / F. No. 3827 / EC / 1(a) / 2738 /2015 dt. 17.2.2016.

8. தமிழ்நாடு மாகாணகட்டுப்பாட்டு வாரியத்தின் CONSENT ORDER NO 160514500227 Proceedings No. F 0722 PND / RS / DEE / TNPCB / PND / A & W / 2016 dt 1.3.2016.

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உத்தரவு:-

ஈரோடு மாவட்டம், கோபிசெட்டிபாளையம் வட்டம், எலத்தூர் கிராமம், புல எண்கள் 347/1பி (0.49.0) மற்றும் 347/2பி (0.37.0) ஆகியவற்றில் மொத்தம் 0.86.0 ஹெக்டர் பரப்புள்ள பட்டா பூமியிலிருந்து சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க ஐந்து ஆண்டுகளுக்கு குவாரி குத்தகை உரிமம் கோரி திரு. கே. விஜய் பெரிச்சியப்பன், த/பெ. கே.என். கந்தசாமி, கரட்டுப்பாளையம், எலத்தூர் கிராமம், கோபிசெட்டிபாளையம் வட்டம் என்பவர் பார்வை (1)ல் கண்டவாறு மனு செய்திருந்தார்.

2. மனுதாரர் உரிய படிவத்தில் மனு செய்திருப்பதுடன் விண்ணப்ப கட்டணம் மற்றும் அடிப்படை செலவினங்களுக்காக ரூ. 1500/- ஐ சலான் எண்: 186 நாள்: 17.11.2014-ஐ பாரத ஸ்டேட் வங்கி, ஈரோட்டில் செலுத்தியுள்ளார். மேலும், மனுதாரர் செலுத்த வேண்டிய வருமான வரி மற்றும் கனிமவரி நிலுவையில்லை என்பதற்கான சான்றுறுதி ஆவணம் மற்றும் கிராம கணக்கு நகல்களையும் சமர்ப்பித்துள்ளார்.

3. மனுதாரர் சாதாரணக்கற்கள் மற்றும் கிராவல் வெட்டி எடுக்க உரிமம் கோரிய பிரஸ்தாப புலத்தை கோபிசெட்டிபாளையம் சார் ஆட்சியர் (பொ) மற்றும் ஈரோடு உதவி இயக்குநர், புவியியல் மற்றும் சுரங்கத்துறை ஆகியோர் இடப்பார்வை செய்து அறிக்கை சமர்ப்பித்துள்ளனர்.

4. கோபிசெட்டிபாளையம் சார் ஆட்சியர் (பொ) அவர்கள் தனது அறிக்கையில் கீழ்க்கண்டவாறு தெரிவித்துள்ளார். கோபிசெட்டிபாளையம் வட்டம், எலத்தூர் "அ" கிராமம், புல எண் 347/1பி-ல் 0.49.0 ஹெக்டர் மற்றும் 347/2பி-ல் 0.37.0 ஹெக்டர் ஆக மொத்தம் 0.86.0 ஹெக்டர் நிலம் பட்டா எண் 1525-ன்படி மனுதாரர் திரு. கந்தசாமி மகன் விஜய்பெரிச்சியப்பன் என்பவருக்கு பாத்தியப்பட்டு கிராமக் கணக்குகளில் தாக்கலாகியுள்ளது. சிறுகனிம குத்தகை உரிமம் கோரியுள்ள புலன்களுக்கு 300 மீட்டருக்குள் குடியிருப்பு பகுதிகள் ஏதும் இல்லை. அரசு புறம்போக்கு நிலங்கள் ஏதுமில்லை. எனவே கோபிசெட்டிபாளையம் வட்டம், எலத்தூர் "அ" கிராமம் புல எண் 347/1பி-ல் 0.49.0 ஹெக்டர் மற்றும் 347/2பி-ல் 0.37.0 ஹெக்டர் பரப்பில் 1959-ம் ஆண்டு சிறுகனிம சலுகை விதிகளின்படி விதி எண் 19(1) மற்றும் 22-ன்படி சாதாரணக்கல் மற்றும் கிராவல் வெட்டி எடுத்துச் செல்ல ஐந்தாண்டுகளுக்கு நடைமுறையில் உள்ள நிபந்தனைகளின் அடிப்படையில் குத்தகை உரிமம் புதுப்பித்து வழங்கலாம் எனப் பரிந்துரை செய்துள்ளார்.

5. ஈரோடு புவியியல் மற்றும் சுரங்கத்துறை, உதவி இயக்குநர் தனது அறிக்கையில், தணிக்கையின்போது புலத்தின் எல்லைகளை அறிய முடிந்தது எனவும், கல் உடைக்க உரிமம் கோரும் புலத்தில் சார்னகைட், பைராக்சின் கிரானுலைட் மற்றும் பெக்மடைட் வகை பாறைகள் காணப்படுகிறது எனவும், மேற்படி பாறைகள் கட்டுமான தொழில்களுக்கு பயன்படும் எனவும், ஏற்றுமதிக்குரிய, உயர்தர கிரானைட் கனிமம் வெட்டியெடுக்க புயன்படாது எனவும், போதிய அளவு பாறைகள் மற்றும் கிராவல் மண் இப்புலத்தில் உள்ளது எனவும், பிரஸ்தாப புலத்தின் கிழக்கில் புல எண் 367 மற்றும் 366-ல் வண்டிப்பாதை செல்கிறது எனவும், எனவே, ஈரோடு மாவட்டம், கோபிசெட்டிபாளையம் வட்டம், எலத்தூர் கிராமம், புல எண்கள் 347/1பி மற்றும் 347/2பி ஆகியவற்றில் மொத்தம் 0.86.0 ஹெக்டர் பரப்பில் சாதாரணக் கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க திரு. கே. விஜய்பெரிச்சியப்பன் என்பவருக்கு தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 1959-ன் விதி 19(1)-ன்படி புல எண் 367 மற்றும் 366-ல் செல்லும் வண்டிப்பாதைக்கு பாதிப்பில்லாமல் 10 மீட்டர் பாதுகாப்பு இடைவெளி அளித்து குவாரிப்பணி புரிய வேண்டும் எனவும், அருகிலுள்ள பொதுமக்களுக்கும், விவசாய நிலங்களுக்கும் பாதிப்பில்லாமல் குவாரிப்பணி புரிய வேண்டும் ஆகிய நிபந்தனைகளின் அடிப்படையில் 5 ஆண்டுகளுக்கு குவாரி குத்தகை உரிமம் வழங்கலாம் என பரிந்துரை செய்துள்ளார்.

6. ஈரோடு புவியியல் மற்றும் கரங்கத்துறை உதவி இயக்குநரால் 27.2.2015 அன்று ஏற்பளிப்பு செய்யப்பட்ட கரங்கத் திட்டத்தை பார்வை 6-ல் கண்டவாறு மனுதாரர் சமர்ப்பித்துள்ளார்.

7. பார்வை 7-ல் கண்ட சென்னை மாநில சுற்றுப்புற சூழ்நிலை செயல் விளைவு மதிப்பீட்டு குழு, உறுப்பினர் செயலர் அவர்கள் கடிதத்தில் நிபந்தனை எண். 1 -ல் கண்டவாறு குவாரிப்பணி ஆரம்பிப்பதற்கு முன்பாக தமிழ்நாடு மாசுக்கட்டுப்பாட்டு வாரியத்தின் ஒப்புதல் பெற வேண்டும் என்ற நிபந்தனை உட்பட சில நிபந்தனைகளுடன் மனுதாரருக்கு குவாரி குத்தகை உரிமம் வழங்கலாம் என பரிந்துரை செய்துள்ளார்.

8. மேற்படி நிபந்தனைகளில் தெரிவிக்கப்பட்டவாறு குத்தகைதாரர் இரண்டு உள்நூர் தினசரி நாளிதழ்களில் விளம்பரம் செய்தும், பஞ்சாயத்து தலைவர் மற்றும் வட்டார வளர்ச்சி அலுவலர் ஆகியோரிடம் நகலினை சமர்ப்பித்து அதற்கான சான்று ஆகியவற்றினை சமர்ப்பித்துள்ளார்.

9. பார்வை 8-ல் கண்டவாறு மாவட்ட சுற்றுப்புறச் சூழல் பொறியாளர், தமிழ்நாடு மாசுக்கட்டுப்பாட்டு வாரியம், பெருந்துறை அவர்களிடமிருந்து தடையில்லா சான்று (Consent for operation) பெற்று சமர்ப்பிக்கப்பட்டுள்ளது.

10 இவ்வலுவலகத்தில் பராமரிக்கப்படும் ஆவணங்களின் அடிப்படையில் மனுதாரர் செலுத்த வேண்டிய கனிம வரி ஏதும் நிலுவையில் இல்லை.

11. மேற்கண்ட அலுவலர்களின் பரிந்துரை மற்றும் சிறுகனிம சலுகை விதிகளின் பேரில், மனுதாரருக்கு குவாரி குத்தகை உரிமம் வழங்க ஒப்புதல் தெரிவிக்கப்பட்டதன் பேரில், மனுதாரர் விதிகளின்டி காப்புத் தொகையாக ரூ. 5000/-ஐ செலுத்தி அசல் சலானையும், பரப்பு வரியாக ரூ. 430/-ஐ செலுத்தி அசல் சலானையும், 1959-ம் தமிழ்நாடு சிறுகனிம சலுகை விதிகளின் பின் இணைப்பு IV கண்டுள்ள படிவத்தில் உரிய முத்திரைத்தாளில் குத்தகை ஒப்பந்தப் பத்திரம் தயார் செய்து அளித்துள்ளார்.

எனவே, திரு. கே. விஜய்மெரிச்சியப்பன், த/பெ. கே.என். கந்தசாமி, கரட்டுப்பாளையம், எலத்தூர் கிராமம், கோபிசெட்டிபாளையம் வட்டம் என்பவருக்கு ஈரோடு மாவட்டம், கோபிசெட்டிபாளையம் வட்டம், எலத்தூர் கிராமம், புல எண்கள் 347/1பி (0.49.0) மற்றும் 347/2பி (0.37.0) ஆகியவற்றில் மொத்தம் 0.86.0 ஹெக்டர் பரப்பில் சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க குத்தகை ஒப்பந்தப் பத்திரம் நிறைவேற்றிய நாளிலிருந்து (04.3.2016 முதல் 03.3.2021 வரை) ஐந்து ஆண்டுகளுக்கு 1959-ம் ஆண்டு தமிழ்நாடு சிறுகனிம சலுகை விதிகளின் விதி 19 (1) மற்றும் 22-ன்படி குத்தகை ஒப்பந்தப் பத்திரத்தில் கண்டுள்ள நிபந்தனைகள், மாநில சுற்றுச்சூழல் மதிப்பீட்டு ஆணைய உறுப்பினர் செயலர் பரிந்துரையில் குறிப்பிட்டுள்ள நிபந்தனைகள், தமிழ்நாடு மாசுக்கட்டுப்பாட்டு வாரிய சுற்றுச்சூழல் பொறியாளர் பரிந்துரையில் குறிப்பிட்டுள்ள நிபந்தனைகள், கீழ்க்கண்ட நிபந்தனைகள் மற்றும் தமிழ்நாடு சிறுகனிம சலுகை விதிகளில் கண்டுள்ள நிபந்தனைகளின் பேரிலும் குவாரி குத்தகை உரிமம் வழங்கி ஆணையிடப்படுகிறது.



சிறப்பு நிபந்தனைகள்

- புல எண் 307 மற்றும் 366-ல் செல்லும் வண்டிப்பாதைக்கு பாதிப்பில்லாமல் 10 மீட்டர் பாதுகாப்பு இடைவெளி அளித்து குவாரிப்பணி புரிய வேண்டும்

நிபந்தனைகள்:-

1. குத்தகைதாரர் தனக்கு அளிக்கப்பட்ட குத்தகை பகுதியின் எல்லைகளை தெளிவாக காட்டும் வகையில் கல் நட்டு வண்ணம் இட்டு குத்தகை காலம் முழுமைக்கும் பராமரிக்க வேண்டும்.
2. குத்தகையின் முழு விவரங்கள் அடங்கிய தகவல் பலகை வைத்தல் வேண்டும்.
3. குவாரிக்கு சென்றுவரும் பாதை வசதிகள் குத்தகைதாரர்கள் அவர் தம் சொந்த பொறுப்பிலேயே அமைத்துக் கொள்ள வேண்டும்.
4. குத்தகை உரிமம் வழங்கப்பட்ட பகுதியில் சாதாரண கட்டுமான கல், ஜல்லி, அளவுக்கல், வேலிக்கல், கல் தூண் போன்றவைகளை மட்டுமே உடைக்க வேண்டும். ஏற்றுமதிக்குரிய பெரிய கனமீட்டர் அளவிலான மெருகூட்ட கூடிய தகுதி வாய்ந்த கிராளைட் கற்கறை உடைக்கக் கூடாது.
5. குவாரியிலிருந்து கொண்டு செல்லப்படும் மேற்கண்ட வகை கற்களுக்கு 1959ம் ஆண்டு தமிழ்நாடு சிறுகனிம சலுகை விதிகள் பின் இணைப்பு 2ல் கண்டுள்ளவாறு உரிமவரி செலுத்த வேண்டும். அரசு அவ்வப்போது அறிவிக்கும் உரிமவரி மாற்றங்களுக்கு ஏற்ப எவ்வித ஆட்சேபணை இன்றி செலுத்துதல் வேண்டும்.
6. குத்தகை அனுமதி வழங்கப்பட்ட நிலத்திலிருந்து கொண்டு செல்லப்பட்ட கற்களுக்கு முறையான கணக்குகளும், குழிவாயில் பதிவேடும் முறையாக பராமரித்தல் வேண்டும். அவற்றை சம்பந்தப்பட்ட அலுவலர்கள் தணிக்கைக்கு ஆஜர்படுத்த கோரினால் தவறாது சமர்ப்பிக்க வேண்டும்.
7. உதவி இயக்குநர் (புவியியல் மற்றும் சுரங்கத்துறை)-ன் அலுவலக முத்திரை, கையொப்ப முத்திரையுடன் கூடிய உரிய அனுப்புகைச் சீட்டை வாகனங்களுக்கு கொடுக்கப்படும் போது அனுப்புகைச் சீட்டில் வாகன எண், தேதி, புறப்படும் நேரம், செல்லுமிடம் ஆகியவற்றை முறையாகக் குறிப்பிட்டு கையொப்பம் இட்ட பின்னரே, குத்தகைதாரரோ அல்லது அவரது அனுமதி பெற்ற நபரோ கொடுக்க வேண்டும். மேற்கண்டவாறு குறிப்பிடுவதில் ஏதேனும் தவறுகள் இருந்தாலோ, கலங்கள் பூர்த்தி செய்யப்படாமல் இருந்தாலோ முறையற்ற வகையில் கனிமம் எடுத்துச் செல்வதாகக் கருதப்பட்டு வாகனத்தை கைப்பற்றி அபராதம் விதிப்பதோடு, அதற்கு குத்தகைதாரரை பொறுப்பாக்கி கனிம விதிகளின் படி மேல் நடவடிக்கை எடுக்கப்படும்.
8. இந்த ஆணையில் குத்தகை அனுமதி வழங்கப்பட்ட புலத்தை முழுமையாகவோ, பகுதியாகவோ எவருக்கும் உள் குத்தகைக்கு விடுவதோ அல்லது கிரையம் செய்வதோ கூடாது.
9. மேற்கூறிப்பட்ட நிபந்தனை, மற்றும் கனிம விதிகளை மீறியுள்ளது உறுதிபடும் தருணத்தில் விதிமுறைகளுக்கு உட்பட்டு குத்தகை இரத்து செய்ய நடவடிக்கை எடுக்கப்படும். மேற்கண்ட நிபந்தனைகள் ஒப்பந்தப் பத்திரத்தில் கண்டுள்ள நிபந்தனைகள் மற்றும் 1959-ம் ஆண்டு தமிழ்நாடு சிறுகனிம சலுகை விதிகள் ஆகியவற்றின் அடிப்படையில் குத்தகைதாரர் குவாரிப் பணி புரிய வேண்டும்.
10. அருகிலுள்ள பட்டா நிலங்களுக்கு 7.5 மீட்டர் தூரம் பாதுகாப்பு இடைவெளி விட்டு குவாரிப்பணி புரிய வேண்டும்.
11. கற்கள் வெட்டும்போது சுற்றுப்புற பொதுமக்களின் உரிமைகள் பாதிக்கப்படக்கூடாது.

12. சுற்றுப்புற விளைச்சல் நிலங்கள் மற்றும் நிலச் சொந்தக்காரர்களுக்கு மற்றும் சுற்றுப்புற சூழ்நிலைகளுக்கும் எவ்வித பாதிப்பும் ஏற்படுத்தக் கூடாது.
13. அனுமதி வழங்கப்பட்ட நிலத்தில் அனுமதிக்கப்பட்ட பரப்பளவில் மட்டுமே கற்கள் வெட்டி எடுக்கப்பட வேண்டும். அனுமதிக்கப்பட்ட நிலத்தை ஒட்டியும் பட்டா நிலங்களிலோ அல்லது புறம்போக்கு நிலங்களிலோ கற்கள் வெட்டி எடுக்கக்கூடாது. அவ்வாறு வெட்டியெடுப்பது தெரியவந்தால், இந்த அனுமதி ரத்து செய்யப்படுவதுடன் விதிகளின்படி கடும் நடவடிக்கை எடுக்கப்படும்.
14. குத்தகைதாரர் குவாரியில் குழந்தை தொழிலாளர்களை பணியமர்த்தக்கூடாது.
15. வெடிபொருள் சட்டம் 1884ல் தெரிவிக்கப்பட்ட சரத்துக்கள் மற்றும் கீழ்காணும் நிபந்தனைகளின்படியும் குறைந்த அளவு வெடிபொருளை உபயோகித்து கற்கள் வெளியே சிதறாமலும், சத்தம் அதிகம் ஏற்படாமலும், பொதுமக்களுக்கும், கால்நடைகளுக்கும், எவ்வித பாதிப்பும் இன்றியும் கல்குவாரி பணி செய்யப்பட வேண்டும்.
- அ) கல்குவாரியில் ஒரு முறை வெடிப்பதற்கு மொத்த குழிகளிலும் உபயோகிக்கப்படும் / நிரப்பப்படும் வெடிமருந்தின் அளவு இரண்டு கிலோ கிராமிற்கு மிகாமல் இருக்க வேண்டும்.
- ஆ) ஒரு முறை வெடிக்கும் மொத்த குழிகளின் எண்ணிக்கை 10-க்கு மிகாமல் இருக்க வேண்டும்.
- இ) சிறிய விட்டமுடைய (< 50 மி.மீ) ஆழ்துறை குழிகளை ஜாக்ஹாமர் மூலம் அமைத்து அடிப்பகுதியில் டெட்டனேட்டர் வைத்து வெடிக்கும் முறையை கடைப்பிடிக்க வேண்டும். மேலும், பெரிய / அகல விட்டமுடைய குழிகளை போர் (Wagon Drill) வாயிலாக அமைத்து கண்டிப்பாக வெடிக்க கூடாது.
- ஈ) டீலே (delay) டெட்டனேட்டர்களை குழிகளின் அடிப்பகுதியில் அமைத்து (Bottom initiation) கல்குவாரிகளில் வெடிக்க வேண்டும்.
- உ) முதலில் வெடி வைத்து பெயர்ந்து வந்த பெரிய கற்களை சிறிதாக்க மீண்டும் இரண்டாவது முறையாக வெடி வைக்கக் கூடாது.
- ஊ) அருகாமையில் உள்ள குடியிருப்புகளுக்கும், பொதுமக்களுக்கும் எவ்வித பாதிப்பும் ஏற்படா வண்ணம் கட்டுபாடான முறையில் (controlled blasting method) அதாவது கல்குவாரியில் வெடி வைக்கும் பரப்பினை தண்ணீரால் ஈரப்படுத்தியும், குறைந்தளவு வெடி மருந்துகள் நிரப்பப்பட்ட குழிகள் மீது மண் மூட்டைகள், பழைய கோணிப்பைகள், டயர்கள் மற்றும் கன்வெயர் பெல்டுகளை அமைத்து மட்டில் (Muffle blasting) முறையில் வெடி வைத்து குவாரிப்பணி செய்யலாம்.
- எ) வெடிபொருள்கள் அரசு உரிமம் பெற்ற விற்பனைதாரரிடம் மட்டுமே பெற்று வெடிப்பதற்கு உரிமம் / அங்கீகாரம் பெற்ற வெடிப்பாளர்களை (Blaster / Mines mate) கொண்டு கல்குவாரியில் வெடி வைக்க வேண்டும்.
16. மேற்காணும் நிபந்தனைகளுடன் அரசு அவ்வப்போது பிறப்பிக்கும் விதிமுறைகளையும் நிபந்தனைகளையும் விண்ணப்பதாரர் தவறாமல் ஏற்றுக்கொண்டு விதிகளின்படி குவாரிப் பணி செய்ய வேண்டும்.
17. மேற்காணும் நிபந்தனைகளுடன் மாநில சுற்றுச்சூழல் மதிப்பீட்டு ஆணைத்தின் ஆணையில் தெரிவிக்கப்பட்டுள்ள நிபந்தனைகளை கடைபிடிக்க வேண்டும்.



11. மேற்குறிப்பிட்ட நிபந்தனைகள் மற்றும் கனிம விதிகளை மீறியுள்ளது உறுதிபடுத் தருணத்தில் விதிமுறைகளுக்கு உட்பட்டு குத்தகை இரத்து செய்ய நடவடிக்கை எடுக்கப்படும். மேற்கண்ட நிபந்தனைகள், ஒப்பந்தப் பத்திரத்தில் கண்டுள்ள நிபந்தனைகள் மற்றும் 1959-ம் ஆண்டு தமிழ்நாடு சிறுகனிம சலுகை விதிகள் ஆகியவற்றின் அடிப்படையில் குத்தகைதாரர் குவாரிப் பணி புரிய வேண்டும்.

(ஓம்)... 4.3.2016,  
மாவட்ட ஆட்சியர்,  
ஈரோடு மாவட்டம்,  
ஈரோடு.

பெறுநர்:

திரு. கே. விஜய் பெரிச்சியப்பன்,  
த/பெ. கே.என். சுந்தர்மி,  
கரட்டுப்பாளையம்,  
எலத்தூர் கிராமம்,  
கோபிசெட்டிபாளையம் வட்டம்

- நகல். 1. சார் ஆட்சியர், கோபிசெட்டிபாளையம்  
2. வருவாய் வட்டாட்சியர், கோபிசெட்டிபாளையம்  
3. கிராம நிர்வாக அலுவலர், எலத்தூர்  
4. ஊரக வளர்ச்சி உதவி இயக்குநர் (உள்ளாட்சிகள்), ஈரோடு  
5. மாவட்ட சுற்றுச்சூழல் பொறியாளர், தமிழ்நாடு அரசுக்கட்டுப்பாட்டு வாரியம்,  
பெருந்துறை.  
6. இருப்பு கோப்பிற்கு

// உண்மை நகல் / உத்தரவுப்படி //

  
4/3/16  
உதவி இயக்குநர்,  
புவியியல் மற்றும் சுரங்கத்துறை,  
ஈரோடு.



உ.மூ. ௨௧௧/2021

நிலவருவாய் ஆய்வாளர்

எலத்தூர் உள்வட்டம்

நாள்: 15/12/2021

ஈரோடு மாட்டம், நம்பியூர் வட்டம், எலத்தூர் உள்வட்டம், கரட்டுப்பாளையம் கிராமம், கஸ்பாவில் வசித்து வரும் திரு. K.வ்ஜய்பெரிச்சியப்பன் த/பெ K.N.கந்தசாமி என்பவர் நம்பியூர் வட்டம், எலத்தூர் அ கிராமம், புல எண் 347/1B,2B நெ.காலைகளில் புஞ்சை ஏக்கர் 2.12 செண்ட் பரப்பு [பட்டா 1525] நிலப்பரப்பில் சாதாரண கற்கல் மற்றும் கிராவல் மண் வெட்டியெடுக்க 5 வருடங்களுக்கு குவாரி குத்தகை உரிமம் கோரியுள்ளார். மேற்படி பூமிக்கு குவாரி குத்தகை உரிமம் வழங்குவது தொடர்பாக A1 விளம்பரம் செய்யப்பட்டு பொதுமக்களின் வாக்குமூலம் பெறப்பட்டுள்ளது ஈரோடு STATE BANK OF INDIA வங்கி சலான் எண் 17/5.5.2021 அன்று ரூ 1500 ( ஆயிரத்தி ஐந்துநூறு) மட்டும் செலுத்தப்பட்டுள்ளது ஆட்சேபனை ஏதுவும் வரப்பெறவில்லை. கிராம ஆவணங்கள் சரிபார்க்கப்பட்டது K.வ்ஜய்பெரிச்சியப்பன் த/பெ K.N.கந்தசாமி என்பவருக்கு குத்தகை உரிமம் வழங்கலாம் என பணிவுடன் தெரிவித்துக்கொள்கிறேன்

செவ்விய

செவ்விய

செவ்விய  
நிலவருவாய் ஆய்வாளர், 15/12/2021  
எலத்தூர் உள்வட்டம்.

செவ்விய

செவ்விய

செவ்விய

நிலவருவாய் ஆய்வாளர் அலுவலகம்,  
எலத்தூர் உள்வட்டம்.

நாள்: 2.12.2021

அ1 விளம்பரம்

ஈரோடு மாவட்டம், நம்பியூர் வட்டம், எலத்தூர் உள்வட்டம், எலத்தூர் "அ"  
கிராமம், கிராமப் பொதுமக்களுக்கு அறிவிப்பு

ஈரோடு மாவட்டம், நம்பியூர் வட்டம், கரட்டுப்பாளையம் கிராமம், கஸ்பாவில்  
வசித்து வரும் திரு.க.விஜய் பெரிச்சியப்பன் த/பெ.க.ந.கந்தசாமி என்பவர் நம்பியூர்  
வட்டம், எலத்தூர் அ கிராமம், புல எண்.347/1B, 347/2C-நெ.காலைகளில் புஞ்சை ஏக்கர்  
2.12 செண்ட் பரப்பு பட்டா நிலப்பரப்பில் சாதாரண கற்கள் மற்றும் கிராவல் மண்  
வெட்டியெடுக்க 5 வருடங்களுக்கு குவாரி குத்தகை உரிமம் வழங்க கோரியுள்ளார்.  
மேற்படி பூமிக்கு குவாரி குத்தகை உரிமம் வழங்குவது தொடர்பாக  
ஆட்சேபனை இருப்பின் விளம்பரம் வெளியிட்ட 15 தினங்களுக்குள் எலத்தூர்  
நிலவருவாய் ஆய்வாளர் அல்லது வட்டாட்சியர் நம்பியூர் அவர்களுக்கு  
எழுத்துப்பூர்வமாக தெரிவித்துக் கொள்ள பொதுமக்கள் கேட்டுக்  
கொள்ளப்படுகிறார்கள்.

நிலவருவாய் ஆய்வாளர்,  
எலத்தூர் உள்வட்டம்.

பெறுநர்

கிராம நிர்வாக அலுவலர்,  
எலத்தூர் "அ" கிராமம்.

மேற்கண்ட விளம்பரத்தை கிராமத்தில் விளம்பரம் செய்து பொதுமக்கள்  
கையொப்பம் பெற்று மீள சமர்ப்பிக்க வேண்டியது.

1) சிவசுந்தரி

2) K.P. சிவசுந்தரி

3) சிவசுந்தரி

4) A. சிவசுந்தரி

5) ~~சிவசுந்தரி~~  
சிவசுந்தரி

6) U. சிவசுந்தரி

7) P. சிவசுந்தரி

8) P. சிவசுந்தரி

9) K. சிவசுந்தரி

10) P. சிவசுந்தரி

11) U. சிவசுந்தரி

12, Palaniswamy.

13, T. Kartha.

14) சிவசுந்தரி

15) சிவசுந்தரி

சிவசுந்தரி

பேரவையின் சிவசுந்தரி தலைவரின் கருவியின்படி

இருக்கக் கூடிய சிவசுந்தரி சிவசுந்தரி சிவசுந்தரி

சிவசுந்தரி  
சிவசுந்தரி  
சிவசுந்தரி

சிவசுந்தரி  
சிவசுந்தரி  
சிவசுந்தரி

ஈரோடு மாவட்டம், நம்பியூர் வட்டம், எலத்தூர் உள்வட்டம், எலத்தூர் "அ" கிராமம், பொது மக்கள் கொடுத்த வாக்குமூலம்.

ஈரோடு மாவட்டம், நம்பியூர் வட்டம், கரட்டுப்பாளையம் கிராமம், கஸ்பாவில் வசித்து வரும் 'திரு.க.விஜய் பெரிச்சியப்பன் த/பெ.க.ந.கந்தசாமி என்பவர் நம்பியூர் வட்டம், எலத்தூர் அ கிராமம், புல எண்.347/1,2-நெ.காலைகளில் புஞ்சை ஏக்கர் 2.12 செண்ட் பரப்பு பட்டா நிலப்பரப்பில் சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க 5 வருடங்களுக்கு குவாரி குத்தகை உரிமம் வழங்க கோரியுள்ளார். மேற்படி பூமிக்கு குவாரி குத்தகை உரிமம் வழங்க கோரியது தொடர்பான விசாரணை என்பதை தெரிந்துகொண்டோம். மேற்படி பூமியில் குவாரி குத்தகை உரிமம் வழங்குவது தொடர்பாகவோ, சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டி எடுப்பதற்கு எங்களுக்கு எந்தவிதமான ஆட்சேபணை இல்லை என்பதை தெரிவித்துக் கொள்கிறோம். மேலும், மேற்படி சாதாரண கற்கள் மற்றும் கிராவல் மண் எடுக்கும் இடத்திற்கு அருகில் குடியிருப்புகள் ஏதுமில்லை என்பதையும் தெரிவித்துக் கொள்கிறோம்.

1/ விசாரணை

விசாரணை  
தலைகுவரய் ஆய்வாளர்,  
எலத்தூர் உள்வட்டம்.

//படித்துபார்த்தோம் சரி/  
//படிக்ககேட்டோம் சரி//

19.11.2017  
கிராம நிர்வாக அலுவலர்  
13. எலத்தூர் 'அ'  
நம்பியூர் வட்டம்,  
ஈரோடு மாவட்டம்.

# EZHUMALAYAN EXPLOSIVES

85, MAIN ROAD, KAVINDAPADI - (Po.) 638 455. ERODE District.

Date : 23.01.23

To

K.Vijay Perichiyappan,  
S/o,K.N.Kandasamy,  
K.N.Charman Thottam,  
B.Karattupalayam,  
Gobichettipalayam Taluk,  
Erode (D.t)-638457.

Respected Sir,

Sub: Regarding blasting work using Explosive in your proposed quarry.

We are having explosives license Nos,

1. E/SC/TN/22/103/(E10328 )
2. E/SC/TN/22/710(E92938 )

In the name of M/S EZHUMALAYAN EXPLOSIVES situated in survey SFNO.936 part, Salangapalayam Village, Bhavani Taluk, Erode District, Our office functioning at address 85, Main Road, Kavindapadi Post , Bhavani Taluk, Erode District.

We are enacting 4 explosive vans for transporting detonators and class 2 separately for our Magazine to our work site and well experienced and licensed blasters and shot firer for safe blasting work since 5 years without untoward incident.

We are willing to undertake blasting work on contract basis at your SFNO.347/1B & 347/2B ,(0.86.0 Ha) Elathur A Village, Nambiyur Taluk, Erode District,Tamilnadu.

Thanking You Sir,

Enclosed  
Licence Copies.

For M/S.Ezhumalayan Explosives,



EZHUMALAYAN EXPLOSIVES  
85, MAIN ROAD,  
KAVINDAPADI (PO),  
ERODE (DT) - 638 455.



भारत सरकार | Government of India  
 वणिज्य और उद्योग मंत्रालय | Ministry of Commerce & Industry  
 पेट्रोलियम तथा विस्फोटक सुरक्षा संगठन (पेसो) | Petroleum & Explosives Safety Organisation (PESO)  
 पूर्व नाम- विस्फोटक विभाग | Formerly- Department of Explosives  
 A और D- विंग, ब्लॉक 1-8, दूसरा तल, शास्त्री भवन | A & D - Wing, Block 1-8, IInd Floor, Shastri Bhavan  
 26 हद्दोउस रोड, नुंगम्बक्कम चेन्नै | 26 Haddous Road, Nungambakkam Chennai 600006  
 फोन (Phone):- 2828 1023 | फैक्स (Fax) :- 28284848  
 ई-मेल Email: jtccechennai@explosives.gov.in

(E10328)  
 31.3.2020

संख्या (No.): E/SC/TN/22/103(E10328)

सेवा में | To

दिनांक (Date): 27/05/2020

M/s Ezhumalayan Explosives

85, MAIN RD, KOVANDAPADI DIST. ERODE, Pin 638455, Town/Village - Salangapalayam  
 District-ERODE, State-Tamil Nadu, Pincode - 638455

2 JUN 2020

विषय:

Survey No(s).936/PART, ग्राम SALANGAPALAYAM, जिला ERODE, राज्य Tamil Nadu में विस्फोटक के मैगजीन में उपयोग के लिए कब्जा हेतु विस्फोटक नियम, 2008 के अंतर्गत LE-3 में जारी अनुज्ञप्ति सं E/SC/TN/22/103(E10328) के नवीनीकरण संदर्भ में।

Subject:

Possession for Use of Explosives from magazine situated at Survey No(s).936/PART, SALANGAPALAYAM, Dist. ERODE, Tamil Nadu -Licence No.: E/SC/TN/22/103(E10328) granted in Form LE-3 of Explosives Rules, 2008 - Renewal regarding

महोदय | Sir,

आपका उपर्युक्त विषय पर पत्र संख्या ना दिनांक 14/01/2020 का संदर्भ ग्रहण करें। विस्फोटक नियम, 2008 के अंतर्गत प्ररूप LE-3 में जारी अनुज्ञप्ति दिनांक 31/3/2025 तक नवीनीकृत कर इस पत्र के साथ भेजी जा रही है।  
 Reference to your letter No.: Nil dated: 14/01/2020, the subject licence duly renewed upto 31/3/2025 and issued in Form LE-3 of Explosives Rules, 2008 is forwarded herewith.

अनुज्ञप्ति के आगामी नवीकरण हेतु कृपया निम्नलिखित दस्तावेज दिनांक 31/03/2025 से पहले इस कार्यालय को भेजे जाएं।  
 For further renewal of licence, please submit the following documents so as to reach this office on or before 31/3/2025.

- प्ररूप आरई-1 में विधिवत पूर्ण एवं हस्ताक्षरित आवेदन।  
Application in Form RE-1 duly filled in and signed.
- एक से पांच वर्ष के अनुज्ञप्ति शुल्को का, विस्फोटक नियम, 2008 के तहत ऑनलाइन आवेदन पोर्टल पर उपलब्ध ई-भुगतान सुविधा के माध्यम से लाइसेंस शुल्क ऑनलाइन जमा किया जाना है।  
Licence fees renewable for one to five years, to be submitted online through e-payment facility available on online application portal under the Explosives Rules, 2008.
- अनुमोदित प्लान के साथ मूल अनुज्ञप्ति।  
Original licence with approved plan.
- कृपया इस संबंध में विस्फोटक नियम, 2008 के नियम 112 का भी संदर्भ ग्रहण करें।  
In this connection, please also refer to Rule 112 of Explosives Rules, 2008.
- विस्फोटकों के क्रय हेतु आरई-11 में मांगपत्र (इंडेंट) आपूर्तिकर्ता को दिया जाए और उसी की एक प्रति इस कार्यालय को भेजी जाए (आतिशबाजी गोदाम के लिए लागू नहीं)।  
Indent for purchase of explosives shall be placed in RE-11 with the supplier and copy of the same shall be sent to this office. (Not applicable for fireworks store house)
- कृपया विस्फोटकों की त्रैमासिक विवरणी हर तिमाही के अंत में आरई-7 में प्रस्तुत की जाए। विवरणी इस कार्यालय के कार्यालय में आगामी तिमाही के 10 तारीख से पहले पहुंच जानी चाहिए (आतिशबाजी गोदाम के लिए लागू नहीं)।  
Please submit quarterly returns of explosives in RE-7 at the end of every quarter so as to reach this office by 10th of the succeeding quarter. (Not applicable for fireworks store house)
- सभी ब्लास्टिंग ऑपरेशन एक सक्षम द्वारा की जाएगी जो उपरोक्त नियमों के तहत एक वैध शॉट फायर प्रमाणपत्र धारक हो। हालांकि, खान अधिनियम 1952 के अधीन आने वाले खानों में ब्लास्टिंग ऑपरेशन करने वाले ब्लास्टर की योग्यता उसी अधिनियम से निर्धारित हो।  
All blasting operations shall be carried out by a competent person holding a valid shot firer's permit granted under above rules. However, blasting operations in mines coming under the purview of the Mines Act 1952, the blaster shall have qualifications prescribed in the regulations framed under the said Act.

भवदीय | Your's faithfully

(डी.सी.पण्डित) | D.C.PANDIT

विस्फोटक नियंत्रक | Controller of Explosives

कृते संयुक्त मुख्य विस्फोटक नियंत्रक | For Joint Chief Controller of Explosives  
 दक्षिणांचल, चेन्नै | South Circle, Chennai

प्रतिलिपि प्रेषित | Copy Forwarded to:

1. जिला मजिस्ट्रेट (District Magistrate), ERODE (Tamil Nadu) - सूचना के लिए (for information.)

कृते संयुक्त मुख्य विस्फोटक नियंत्रक | For Joint Chief Controller of Explosives  
 दक्षिणांचल, चेन्नै | South Circle, Chennai

(अधिक जानकारी जैसे आवेदन का स्थिति, शुल्क आदि के लिए हमारी वेबसाइट <http://peso.gov.in> देखें।)  
 (For more information regarding status, fees and other details please visit our website <http://peso.gov.in>)



## अनुज्ञापित प्ररूप एल. ई.-3 | LICENCE FORM LE-3

(विस्फोटक नियम, 2008 को अनुसूची 4 के भाग 1 के अनुच्छेद 3(क) से (ग) देखिए।  
(See article 3(a) to (g) of Part 1 of Schedule IV of Explosives Rules, 2008)(ग) 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  
Licence to possess: (c) for use, explosives of class 1, 2, 3, 4, 5, 6 or 7 in a magazineअनुज्ञापित सं. (Licence No.): E/SC/TN/22/103(E10328)  
वार्षिक फीस रूपए (Annual fee Rs.) 4800/-

1. Licence is hereby granted to

M/S Ezhumalayam Explosives (अधिभोगी / Occupier : K.M. SUBRAMANIAN), 85, MAIN  
RD, KOVANDAPADI, DIST. ERODE, Pin 638455, Town/Village - Salangapalayam, District-ERODE, State-Tamil Nadu,  
Pincode - 638455

को अनुज्ञापित अनुदत्त की जाती है।

2. अनुज्ञापितधारी की प्रस्थिति | Status of licensee : Company

3. अनुज्ञापित निम्नलिखित प्रयोजनों के लिए विधिमाम्य है।

Licence is valid only for the following purpose.

possess for use of Safety Fuse, Nitrate Mixture, Detonators, Defonating  
Fuse, - के उपयोग के लिए

4. अनुज्ञापित विस्फोटकों के निम्नलिखित किस्मों, प्रकार और मात्रा के लिए विधिमाम्य है।

Licence is valid for the following kinds and quantity of explosives: - (क) (a)

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	1000 Kg.
2.	Detonators	6, 3	0	25000 Nos.
3.	Defonating Fuse	6, 2	0	10000 Mtrs
4.	Safety Fuse	6, 1	0	15000 Mtrs

(ख) किसी एक कलेंडर मास में खरीदे जाने वाले विस्फोटक की मात्रा (अनुच्छेद 3(ख) और (ग) के अधीन अनुज्ञापित के लिए  
(b) Quantity of explosives to be purchased in a calendar month (applicable for licence under article 3(b) and (c)) :15 times  
as above.

5. निम्नलिखित रेखाचित्र (रेखाचित्रों) से अनुज्ञापित परिसर की पुष्टि होती है।

The licensed premises shall conform to the following drawing(s).

रेखाचित्र क्र. (Drawing No.) E/SC/TN/22/103(E10328)  
दिनांक (Dated) 17/10/2001

6. अनुज्ञापित परिसर निम्नलिखित पते पर स्थित हैं। The licensed premises are situated at following address:

Survey No(s). 936/PART , ग्राम (Town/Village) : SALANGAPALAYAM.

पुलिस थाना (Police Station) : KAVINDAPADY

जिला (District)

ERODE

राज्य (State)

Tamil Nadu

पिनकोड (Pincode)

दूरभाष (Phone)

ई.मेल (E-Mail)

फैक्स (Fax)

7. अनुज्ञापित परिसर में निम्नलिखित सुविधाएं अंतर्भूत हैं।

The licensed premises consist of following facilities.

: MAIN ROOM LOBBY AND DETONATORS ROOM

8. अनुज्ञापित समय - समय पर यथासंशोधित विस्फोटक अधिनियम, 1884 और उनके अधीन विरचित विस्फोटक नियम, 2004 के उपबंधों, शर्तों और अतिरिक्त शर्तों और निम्नलिखित उपायचर्यों 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.

- उपरोक्त क्रम सं. 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.
- अनुज्ञापित प्राधिकारी द्वारा हस्ताक्षरित इस अनुज्ञापित 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 अनुज्ञापित तारीख 31 मार्च 2003 तक विधिमाम्य रहेगी। This licence shall remain valid till 31st day of March 2003.

यह अनुज्ञापित, अधिनियम या उसके अधीन विरचित नियमों या अनुसूची V के भाग 4 के प्रति निर्दिष्ट सेट-VII के अधीन तथा उपवर्णित इस अनुज्ञापित की शर्तों का अधिकारण करने या यदि अनुज्ञापित परिसर योजना या उससे संलग्न उपबंध में दर्शित विवरण के अनुरूप नहीं पाए जाने पर निलंबित या प्रतिसंहत 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 VIII, 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 - 17/10/2001

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

Amendments :

- Change in Authorized Signatory/Occupier/Partners/Directors dated : 03/02/2010
- Amendment of Quantity of Explosives/Monthly Purchase Limit dated : 10/11/2010
- Amendment of Quantity of Explosives/Monthly Purchase Limit dated : 08/05/2012
- Amendment of Quantity of Explosives/Monthly Purchase Limit dated : 28/08/2012

Transfers :

- Change in Licensee Name/Address/Status dated : 03/02/2010

नवीनीकरण के पृष्ठांकन 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
27/05/2020	31/03/2025	Jt. Chief Controller of Explosives South Circle, Chennai

स्वामिनी 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.





भारत सरकार | Government of India  
 वाणिज्य और उद्योग मंत्रालय | Ministry of Commerce & Industry  
 पेट्रोलियम तथा विस्फोटक सुरक्षा संगठन (पेसी) | Petroleum & Explosives Safety Organisation (PESO)  
 पूर्व नाम: विस्फोटक विभाग | Formerly- Department of Explosives  
 A और D- विंग ब्लॉक 1-3, दुसरा तल: शास्त्री भवन | A & D- Wing, Block 1-3, 11th Floor, Shastri Bhavan  
 26 हल्लीउसे रोड, नुंगम्बकम चेंनै | 26 Haldous Road, Nungambakam Chennai 600006  
 फोन (Phone):- 28281023 | फैक्स (Fax):- 28284848  
 ई-मेल Email: jsc@peso.gov.in

दिनांक (Date): 25/04/2022

संख्या (No.): E/SC/TN/22/710(E92938)

सेवा में | To,

M/s Ezhumalayam Explosives,  
 85, Main Road, Karvindapadi, Bhavani Taluk, Town/Village - Karvindapadi  
 District:ERODE, State-Tamil Nadu. Pincode - 638455

विषय: Survey No.936 Part, ग्राम Salangapalayam, जिला ERODE, राज्य Tamil Nadu में विस्फोटक के मैगजीन में उपयोग के लिए कब्जा हेतु विस्फोटक नियम, 2008 के अंतर्गत LE-3 में जारी अनुज्ञप्ति सं E/SC/TN/22/710(E92938) के नवीनीकरण संदर्भ में।  
 Possession for Use of Explosives from magazine situated at Survey No.:936/Part, Salangapalayam, Dist, FRODE, Tamil Nadu -Licence No.: E/SC/TN/22/710(E92938) granted in Form LE-3 of Explosives Rules, 2008 - Renewal regarding

महोदय | Sir,

आपका उपर्युक्त विषय पर पत्र संख्या 62867 दिनांक 07/04/2022 का सदरभ ग्रहण करें। विस्फोटक नियम, 2008 के अंतर्गत प्रारूप LE-3 में जारी अनुज्ञप्ति दिनांक 31/3/2026 तक नवीनीकृत कर इस पत्र के साथ भेजी जा रही है।

Reference to your letter No.: 62867 dated: 07/04/2022, the subject licence duly renewed upto 31/3/2026 and issued in Form LE-3 of Explosives Rules, 2008 is forwarded herewith.

अनुज्ञप्ति के आगामी नवीकरण हेतु कृपया निम्नलिखित दस्तावेज दिनांक 31/03/2026 से पहले इस कार्यालय को भेजे जाएं।  
 For further renewal of licence, please submit the following documents so as to reach this office on or before 31/3/2026.

- प्रारूप आरई-1 में विधिवत पूर्ण एवं हस्ताक्षरित आवेदन।  
Application in Form RE-1 duly filled in and signed.
- एक से पाँच वर्ष के अनुज्ञप्ति शुल्को का, विस्फोटक नियम, 2008 के तहत ऑनलाइन आवेदन पोर्टल पर उपलब्ध ई-भुगतान सुविधा के माध्यम से लाइसेंस शुल्क ऑनलाइन जमा किया जाना है।  
Licence fees renewable for one to five years, to be submitted online through e-payment facility available on online application portal under the Explosives Rules, 2008.
- अनुमोदित प्लान के साथ मूल अनुज्ञप्ति।  
Original licence with approved plan.
- कृपया इस संबंध में विस्फोटक नियम, 2008 के नियम 112 का भी संदर्भ ग्रहण करें।  
In this connection, please also refer to Rule 112 of Explosives Rules, 2008.
- विस्फोटकों के क्रय हेतु आरई-11 में मागपत्र (इंडेंट) आपूर्तिकर्ता को दिया जाए और उसी की एक प्रति इस कार्यालय को भेजी जाए (आतिशबाजी गोदाम के लिए लागू नहीं)।  
Indent for purchase of explosives shall be placed in RE-11 with the supplier and copy of the same shall be sent to this office. (Not applicable for fireworks store house)
- कृपया विस्फोटकों की त्रैमासिक विवरणी हर तिमाही के अंत में आरई-7 में प्रस्तुत की जाए। विवरणी इस कार्यालय के कार्यालय में आगामी तिमाही के 10 तारीख से पहले पहुंच जानी चाहिए (आतिशबाजी गोदाम के लिए लागू नहीं)। Please submit quarterly returns of explosives in RE-7 at the end of every quarter so as to reach this office by 10th of the succeeding quarter. (Not applicable for fireworks store house)
- सभी ब्लास्टिंग ऑपरेशन एक सक्षम द्वारा की जाएगी जो उपरोक्त नियमों के तहत एक वैध शॉट फायर घमापत्र धारक हो। हालांकि, खान अधिनियम 1952 के अधीन आने वाले खानों में ब्लास्टिंग ऑपरेशन करने वाले ब्लास्टर की योग्यता उसी अधिनियम से निर्धारित हो।  
All blasting operations shall be carried out by a competent person holding a valid shot fire's permit granted under above rules. However, blasting operations in mines coming under the purview of the Mines Act 1952, the blaster shall have qualifications prescribed in the regulations framed under the said Act.

भवदीय | Your's faithfully

(डॉ. ए. शेख हुसैन) | Dr. A SHEIK HUSSAIN

विस्फोटक नियंत्रक | Controller of Explosives

कृते संयुक्त मुख्य विस्फोटक नियंत्रक | For Joint Chief Controller of Explosives

दक्षिणांचल, चेंनै | South Circle, Chennai

प्रतिलिपि प्रेषित | Copy Forwarded to:

1. जिला मजिस्ट्रेट (District Magistrate), ERODE (Tamil Nadu)- सूचना के लिए (for information.)

कृते संयुक्त मुख्य विस्फोटक नियंत्रक | For Joint Chief Controller of Explosives  
 दक्षिणांचल, चेंनै | South Circle, Chennai

(अधिक जानकारी जैसे आवेदन की स्थिति, शुल्क आदि के लिए हमारी वेबसाइट <http://peso.gov.in> देखें।)  
 (For more information regarding status, fees and other details please visit our website <http://peso.gov.in>)

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

अनुज्ञप्ति प्रारूप एन.ई.-3 | LICENCE FORM LE-3

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

(ग) उपरोक्त के लिए एक समय पर वर्ग 1, 2, 3, 4, 5 या वर्ग 7 के विस्फोटक या किसी प्रेग्रीन में वर्ग 1 के विस्फोटक रखने के लिए अनुज्ञप्ति  
Licence to possess (g) for use explosives of class 1, 2, 3, 4, 5, 6 or 7 in a magazine

अनुज्ञप्ति सं. (Licence No.): E/SC/TN/22/710(E92938)  
वार्षिक फीस रूप (Annual Fee Rs): 5000/-

1. Licence is hereby granted to

M/s Ezhumalayan Explosives (अधिभोगी / Occupier: K.S.Saravanan), 85, Main Road, Kavindapadi, Bhavani Taluk, Town/Village - Kavindapadi, District-ERODE, State-Tamil Nadu, Pincode - 638455



को अनुज्ञप्ति अनुदत्त की जाती है।

2. अनुज्ञप्तिधारी की प्राप्ति (Status of licensee: Partnership Firm)

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

possess for use of Nitrate Mixture, Detonators, Detonating Fuse, - कै  
उपयोग के लिए

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

क्र. सं. 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	1500 Kg.
2.	Detonators	6.3	0	44000 Nos.
3.	Detonating Fuse	6.2	0	10000 Mtrs

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

10 times  
as above.

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

रेखाचित्र क्र. (Drawing No.) E/SC/TN/22/710(E92938)  
दिनांक (Dated) 22/08/2017

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

Survey No. 936/Part, ग्राम (Town/Village): Salangapalayam

पुलिस थाना (Police Station): Kavindapadi

जिला (District)

ERODE

राज्य (State)

Tamil Nadu

पिनकोड (Pincode)

638455

दूरभाष (Phone)

ई-मेल (E-Mail)

फैक्स (Fax)

7. अनुज्ञप्ति परिसर में निम्नलिखित सुविधाएं अंतर्भूत हैं।  
The licensed premises consist of following facilities.

One Explosives Storage room, one lobby and one Safety Fuse/Detonating fuse room.

8. अनुज्ञप्ति समय - समय पर पदांशोचित विस्फोटक अधिनियम, 1884 और उनके 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, 2004 framed there under and the conditions, additional conditions and the following Annexures.

1. उपर्युक्त क्रम सं. 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.

2. अनुज्ञप्ति प्राधिकारी द्वारा हस्ताक्षरित इस अनुज्ञप्ति की शर्तों और अतिरिक्त शर्तों।  
Conditions and Additional Conditions of this licence signed by the licensing authority.

3. दूरी प्रारूप DE-2 | Distance Form DE-2.

9. यह अनुज्ञप्ति तारीख 31 मार्च 2022 तक विधिमान्य रहेगी। This licence shall remain valid till 31st day of March 2022.

यह अनुज्ञप्ति, अधिनियम या उसके अधीन विरचित नियमों या अनुसूची V के भाग 4 के प्रति निर्दिष्ट सेट-VII के अधीन तथा उपरोक्त इस अनुज्ञप्ति की शर्तों का अधिकमन करने या यदि अनुज्ञप्ति परिसर योजना या उससे संलग्न उपबंध में दर्शित विवरण के अनुरूप नहीं पाए जाने पर निलंबित या प्रतिबंधित 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 VIII, 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 - 22/08/2017

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

नवीनीकरण के पृष्ठान्न 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
25/04/2022	31/03/2026	Jt. Chief Controller of Explosives, South Circle, Chennai

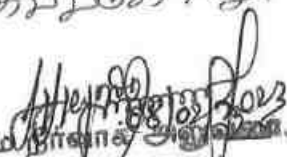
कानूनी चेतावनी : विस्फोटकों को गलत ढंग से चलाना या उनका दुरुपयोग विधि के अधीन गंभीर दंडिक अपराध होगा।  
Statutory Warning : Mishandling and misuse of explosives shall constitute serious criminal offence under the law.

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

சீரணி

ரீ.சேராடு மாவட்டம், நம்பியூர் வட்டம்

13- எலக்ட்ரிக் டி கிராமத்தில் மூன்றாம் மலர்  
347/1B, 2B ல் 0.85.83 ஏரன் ரிஸம் டட்ட  
மலர் : 1525 ல் க.வ. கந்தசாமி மகன் வித்யா  
மயரிசீலியம்மன் மயாரில் உள்ளது. மேலும்  
மலர் : 347/1B, 2B - 0.85.83 ஏரன்  
ரிஸத்தை சீரணி 300 மீட்டர் சாற்றாவல்  
குடியிருப்பினர், கோயில்கள், மாரிசீலியம்  
மலர் இவ்வல மலர் சீரணி சீரணிக்கப்படுகிறது.

  
சீரணி  
13. எலக்ட்ரிக் டி  
நம்பியூர் வட்டம்  
சேராடு மாவட்டம்

**TOPOGRAPHICAL VIEW OF ELATHUR 'A' ROUGH STONE  
AND GRAVEL QUARRY LEASE APPLIED AREA**



Name of the Applicant : **K.Vijay Perichiyappan,**  
Address : S/o. K.N.Kandasamy,  
K.N. Charman Thottam,  
B.Karattupalayam,  
Gobichettipalayam Taluk,  
Erode District – 638 457.

**Location:**

S.F.Nos. : 347/1B & 347/2B  
Extent : 0.86.0 Ha  
Village : Elathur 'A'  
Taluk : Nambiyur  
District : Erode

Signature of the Applicant

*K. Vijay Perichiyappan*

(K. Vijay Perichiyappan)

*[Handwritten Signature]*  
(Village Administrative Officer)  
13. ஏ.கே.எஸ்.சி.  
நம்பியூர் வட்டம்,  
எரோடு மாவட்டம்.



## TAMILNADU POLLUTION CONTROL BOARD



CONSENT ORDER NO. 160524500227

DATED: 01/03/2016.

PROCEEDINGS NO.F.0722PND/RS/DEE/TNPCB/PND/A/2016 DATED: 01/03/2016

**SUB:** Tamil Nadu Pollution Control Board –CONSENT TO OPERATE –DIRECT -M/s. K. VIJAY PERICHIYAPPAN ROUGH STONE AND GRAVEL QUARRY , S.F.No. 347/1B & 347/2B, ELATHUR village Gobichettipalayam Taluk and Erode District - Consent for operation of the plant and discharge of emissions under Section 21 of the Air (Prevention and Control of Pollution) Act, 1981 as amended in 1987 (Central Act 14 of 1981) –Issued- Reg.

**Ref:** 1.Units application dated:29.02.2016.  
2.FIR.No : F.0722PND/RS/AE/PND/2016 dated 01/03/2016.  
3. . Minutes of the Meeting dated (Item no -- 70-1 ) dt 01.03.16

CONSENT TO OPERATE is hereby granted under Section 21 of the Air (Prevention and Control of Pollution) Act, 1981 as amended in 1987 (Central Act 14 of 1981) (hereinafter referred to as "The Act") and the rules and orders made there under to

The Proprietor,  
M/s . K. VIJAY PERICHIYAPPAN ROUGH STONE AND GRAVEL QUARRY  
S.F No.347/1B & 347/2B,  
ELATHUR Village,  
Gobichettipalayam Taluk,  
Erode District.

Authorizing the occupier to operate the industrial plant in the Air Pollution Control Area as notified by the Government and to make discharge of emission from the stacks/chimneys.

This is subject to the provisions of the Act, the rules and the orders made there under and the terms and conditions incorporated under the Special and General conditions stipulated in the Consent Order issued earlier and subject to the special conditions annexed.

This CONSENT is valid for the period ending March 31, 2016

  
District Environmental Engineer,  
Tamil Nadu Pollution Control Board,  
PERUNDURAI

To  
The Proprietor,  
M/s.K. VIJAY PERICHIYAPPAN ROUGH STONE AND GRAVEL QUARRY,  
S.F.No. 347/1B & 2B, Karattupalayam, Elathur Village, Gobichettipalayam Taluk, Erode.,  
Pin: 638458

Copy to:

- 1.The Commissioner, NAMBIYUR-Panchayat Union, Gobichettipalayam Taluk, Erode District .
2. Copy submitted to the Member Secretary, Tamil Nadu Pollution Control Board, Chennai for favour of kind information.
3. Copy submitted to the JCEE-Monitoring, Tamil Nadu Pollution Control Board, Coimbatore for favour of kind information.
4. File

**POLLUTION PREVENTION PAYS**

**அகம் தூய்மை வாய்மைக்கு ! புறம் தூய்மை வாழ்வுக்கு !**





**TAMILNADU POLLUTION CONTROL BOARD**  
**SPECIAL CONDITIONS**

1. This consent to operate is valid for operating the facility for the manufacture of products (Col. 2) at the rate (Col. 3) mentioned below. Any change in the products and its quantity has to be brought to the notice of the Board and fresh consent has to be obtained.

Sl. No.	Description	Quantity	Unit
<b>Product Details</b>			
1.	Rough Stone	18000.0	Cum/5Years
2.	Gravel	1944.0	Cum/5Years

2. This consent to operate is valid for operating the facility with the below mentioned emission/noise sources along with the control measures and/or stack. Any change in the emission source/control measures/change in stack height has to be brought to the notice of the Board and fresh consent/Amendment has to be obtained.

<b>I Point source emission with stack :</b>				
Stack No.	Point Emission Source	Air pollution Control measures	Stack height from Ground Level in m	Gaseous Discharge in Nm <sup>3</sup> /hr
<b>II Fugitive/Noise emission :</b>				
Sl. No.	Fugitive or Noise Emission sources	Type of emission	Control measures	

- 3(a). The emission shall not contain constituents in excess of the tolerance limits as laid down hereunder :

Sl.	Parameter	Unit	Tolerance limits	Stacks
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**Annexure enclosed if applicable. :-**

- 3(b) The Ambient Air in the industrial plant area shall not contain constituents in excess of the tolerance limits prescribed below.

Sl. No.	Pollutant	Time Weighted Average	Unit	Tolerance Limits	
				Industrial, Residential, Rural and other area	Ecologically Sensitive Area (notified by Central Govt.)
1.	Sulphur Dioxide (SO <sub>2</sub> )	Annual 24 hours	microgram/m <sup>3</sup>	50	20
			microgram/m <sup>3</sup>	80	80
2.	Nitrogen Dioxide (NO <sub>2</sub> )	Annual 24 hours	microgram/m <sup>3</sup>	40	30
			microgram/m <sup>3</sup>	80	80
3.	Particulate Matter (Size Less than 10 micro M) or PM <sub>10</sub>	Annual 24 hours	microgram/m <sup>3</sup>	60	60
			microgram/m <sup>3</sup>	100	100
4.	Particulate Matter (Size Less than 2.5 micro M) or PM <sub>2.5</sub>	Annual 24 hours	microgram/m <sup>3</sup>	40	40
			microgram/m <sup>3</sup>	60	60
5.	Ozone (O <sub>3</sub> )	Annual 24 hours	8 Hours	100	100
			1 Hour	180	180

**POLLUTION PREVENTION PAYS**

**அகம் தூய்மை வாய்க்கும் ! புறம் தூய்மை வாழ்வுக்கு !**



## TAMILNADU POLLUTION CONTROL BOARD

Sl. No.	Pollutant	Time Weighted Average	Unit	Tolerance Limits	
				Industrial, Residential, Rural and other area	Ecologically Sensitive Area (notified by Central Govt.)
6.	Lead (Pb)	Annual 24 hours	microgram/m <sup>3</sup>	0.5	0.5
			microgram/m <sup>3</sup>	1.0	1.0
7.	Carbon Monoxide (CO)	8 Hours	miligram/m <sup>3</sup>	02	02
		1 Hour	miligram/m <sup>3</sup>	04	04
8.	Ammonia (NH <sub>3</sub> )	Annual 24 hours	microgram/m <sup>3</sup>	100	100
			microgram/m <sup>3</sup>	400	400
9.	Benzene (C <sub>6</sub> H <sub>6</sub> )	Annual	microgram/m <sup>3</sup>	5	5
10.	Benzo(O) Pyrene (BaP) -particulate phase only	Annual	nanogram/m <sup>3</sup>	01	01
11.	Arsenic (As)	Annual	nanogram/m <sup>3</sup>	06	06
12.	Nickel (Ni)	Annual	nanogram/m <sup>3</sup>	20	20

3(c) The Ambient Noise Level in the industrial plant area shall not exceed the limits prescribed below:

Limits in L.eq.-dB(A)	Day Time	Night Time
Residential Area	55	45

- All units of the Air pollution control measures shall be operated efficiently and continuously so as to achieve the standards prescribed in Sl. No.3 above.
- The occupier shall not change or alter quality or quantity or the rate of emission or replace or alter the air pollution control equipment or change the raw material or manufacturing process resulting in change in quality and/or quantity of emissions without the previous written permission of the Board.
- The occupier shall maintain log book regarding the stack monitoring system or operation of the plant or any other particulars for each of the unit operations of air pollution control systems to reflect the working condition which shall be furnished for verification of the Board officials during inspection.
- The occupier shall at his own cost get the samples of emission/air/noise levels collected and analyzed by the TNPC Board Laboratory once in every 6 months/once in a year/periodically for the parameters as prescribed.
- Any upset condition in any of the plants of the factory which is likely to result in increased emissions and result in violation of the standards mentioned in Sl.No.3 shall be reported to the Member Secretary / Joint Chief Environmental Engineer-Monitoring and the concerned District/Assistant Environmental Engineer of the Board by e-mail immediately and subsequently by Post with full details of such upset condition.
- The occupier shall always comply and carryout the order/directions issued by the Board in this Consent Order and from time to time without any negligence. The occupier shall be liable for action as per provisions of the Act in case of non compliance of any order/directions issued.

### Additional Conditions:

**POLLUTION PREVENTION PAYS**

**அகம் தூய்மை வாய்மைக்கு ! புறம் தூய்மை வாழ்வுக்கு !**



## TAMILNADU POLLUTION CONTROL BOARD

1. The unit shall carry out Water sprinkling as APC measures to control the high levels particulate matter such as loading and unloading and all transfer points.
2. The unit shall provide acoustic measures so as to satisfy the Ambient Noise Level standards prescribed by the Board.
3. The unit shall ensure that the transportation of stones and gravel shall be carried out through the covered trucks to arrest erosion by winds.
4. The unit shall comply with the conditions appended to the license granted by the District Collector.
5. The unit shall provide 25% of area as green belt development.
6. The unit shall ensure that the blasting operations are not carried out without prior permission from the authorities concerned.
7. The issue of consent order is subject to the condition of Suo motto petition No 165/2013 Pending before the National Tribunal Case
8. The unit shall comply with the terms and conditions given by State Level Environmental Impact assessment Authority, Tamil Nadu vide letter No. SEIAA, TN/F.No.3827 1(a) /EC No: 2934/2015 dated: 17.02 .2016.

  
District Environmental Engineer,  
Tamil Nadu Pollution Control Board,  
PERUNDURAI

**POLLUTION PREVENTION PAYS**

**அகம் தூய்மை வாய்மைக்கு ! புறம் தூய்மை வாழ்வுக்கு !**





## TAMILNADU POLLUTION CONTROL BOARD

### GENERAL CONDITIONS

1. The occupier shall make an application along with the prescribed consent fee for grant of renewal of consent at least 60 days before the date of expiry of this Consent Order along with all the required particulars ensuring that there is no change in production quantity and emission.
2. This Consent is given by the Board in consideration of the particulars given in the application. Any change or alteration or deviation made in actual practice from the particulars furnished, in the application will also be ground for review/variation/revocation of the Consent Order under Section 21 of the Act.
3. The conditions imposed shall continue in force until revoked under Section 21 of the Act.
4. After the issue of this order, all the 'Consent to Operate' orders issued previously under Air (Prevention and Control of Pollution) Act, 1981 as amended stands defunct.
5. The occupier shall maintain an Inspection Register in the factory so that the inspecting officer shall record the details of the observations and instructions issued to the unit at the time of inspection for adherence.
6. The occupier shall provide and maintain an alternate power supply along with separate energy meter for the Air Pollution Control measures sufficient to ensure continuous operation of all pollution control equipments to ensure compliance.
7. The occupier shall provide all facilities to the Board officials for collection of samples in and around the factory at any time.
8. The applicant shall display the flow diagram of the sources of emission and pollution control systems provided at the site.
9. The liquid effluent arising out of the operation of the air pollution control equipment shall also be treated in a manner and to the satisfaction of standards prescribed by the Board in accordance with the provisions of Water (Prevention and Control of Pollution) Act, 1974 as amended.
10. The air pollution control equipments, location of inspection chambers and sampling port holes shall be made easily accessible at all time.
11. In case of any episodal discharge of emission, the industry shall take immediate action to bring down the emission within the limits prescribed by the Board.
12. If applicable, the occupier has to comply with the provisions of Public Liability Insurance Act, 1991 to provide immediate relief in the event of any hazard to human beings, other living creatures/plants and properties while handling and storage of hazardous substances.
13. The issuance of this consent does not authorize or approve the construction of any physical structures or facilities or the undertaking of any work in any natural watercourse or in Government Poromboke lands.
14. The issuance of this Consent does not convey any property right in either real personal property or any exclusive privileges, nor does it authorize any injury to private property or Government property or any invasion of personal rights nor any infringement of Central, State laws or regulation.
15. The occupier shall forth with keep the Board informed of any accident of unforeseen act or event of any poisonous, noxious or polluting matter or emissions are being discharged into stream or well or air as a result of such discharge, water or air is being polluted.
16. If due to any technological improvements or otherwise the Board is of opinion that all or any of the conditions referred to above requires variation (including the change of any treatment system, either in whole or in part) the Board shall, after giving the applicant an opportunity of being heard, vary all or any of such conditions and thereupon the applicant shall be bound to comply with the conditions as so varied.
17. In case there is any change in the constitution of the management, the occupier of the new management shall file fresh application under Air (Prevention and Control of Pollution) Act, 1981, as amended in Form-I alongwith relevant documents of change of management immediately and get the necessary amendment with renewal of consent order.
18. In case there is any change in the name of the company alone, the occupier shall inform the same with relevant documents immediately and get the necessary amendments for the change of name from the Board.

**POLLUTION PREVENTION PAYS**

**அகம் தூய்மை வாய்மைக்கு ! புறம் தூய்மை வாழ்வுக்கு !**



## TAMILNADU POLLUTION CONTROL BOARD

19. The occupier shall display this consent order granted to him in a prominent place for perusal of the inspecting Officers of this Board.

  
District Environmental Engineer,  
Tamil Nadu Pollution Control Board,  
PERUNDURAI





**POLLUTION PREVENTION PAYS**

**அகம் தூய்மை வாய்மைக்கு ! புறம் தூய்மை வாழ்வுக்கு !**



Government of India  
Ministry of Environment, Forest and Climate Change  
(Issued by the State Environment Impact Assessment  
Authority(SEIAA), Tamil Nadu)

To,

The Applicant

PALANISAMY BALAJI

No. 1/96, Kallankattuvalasu, Polavakkalipalayam, Gobichettipalayam -  
638476

**Subject:** Grant of Environmental Clearance (EC) to the proposed Project Activity  
under the provision of EIA Notification 2006-regarding

Sir/Madam,

This is in reference to your application for Environmental Clearance (EC)  
in respect of project submitted to the SEIAA vide proposal number  
SIA/TN/MIN/262455/2022 dated 26 Oct 2022. The particulars of the environmental  
clearance granted to the project are as below.

1. EC Identification No.	EC22B001TN112454
2. File No.	9116
3. Project Type	New
4. Category	B2
5. Project/Activity including Schedule No.	1(a) Mining of minerals
6. Name of Project	P.Balaji, Extent: 4.30.0Ha S.F.No. 246 Karattupalayam "B" Village, Nambiyur Taluk Erode District
7. Name of Company/Organization	PALANISAMY BALAJI
8. Location of Project	Tamil Nadu
9. TOR Date	N/A

The project details along with terms and conditions are appended herewith from page  
no 2 onwards.

Date: 08/11/2022

(e-signed)  
Thiru.Deepak S.Bilgi  
Member Secretary  
SEIAA - (Tamil Nadu)

*Note: A valid environmental clearance shall be one that has EC identification  
number & E-Sign generated from PARIVESH.Please quote identification  
number in all future correspondence.*

*This is a computer generated cover page.*





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

**ENVIRONMENTAL CLEARANCE**

**Lr. No.SEIAA-TN/F.No.9116/EC.No:5356/2022, dated:17.10.2022**

Sir/Madam,

**Sub:** SEIAA-TN – Proposed Rough Stone and Gravel quarry over an extent of 4.30.0 Ha in S.F.No. 246 of Karattupalayam “B” Village, Nambiyur Taluk, Erode District, Tamil Nadu by Thiru.P.Balaji – under Category “B2” of Item 1(a) “Mining of Minerals Projects” of the Schedule to the EIA Notification, 2006 issue of Environmental Clearance – Regarding.

- Ref:** 1. Online Proposal No. SIA/TN/MIN/262455/2022 dated 18.03.2022.  
2. Your Application for Environmental Clearance dated: 24.03.2022.  
3. Minutes of the 314<sup>th</sup> SEAC meeting held on 23.09.2022.  
4. Minutes of the 560<sup>th</sup> SEIAA meeting held on 17.10.2022.

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**Details of Minor Mineral Activity:-**

This has reference to your application 1<sup>st</sup> & 2<sup>nd</sup> cited. The proposal is for obtaining Environmental Clearance for mining / quarrying of minor minerals based on the particulars furnished in your application as shown below.

S.N	Particulars	Details furnished
1.	Name of the Owner / Firm	P.Balaji S/o.K.M.Palanisamy No. 1/96, Kallankattuvalasu,

  
MEMBER SECRETARY  
SEIAA-TN



		Polavakkalipalayam, Gobichettipalayam Taluk, Erode District – 638 476
2.	Type of quarrying (savudu / Rough stone / Sand / Granite)	Rough Stone & Gravel quarry
3.	S.F No. of the quarry site with area break-up	246
4.	Village in which situated	Karattupalayam "B"
5.	Taluk in which situated	Nambiyur
6.	District in which situated	Erode
7.	Extent of Quarry (in ha.)	4.30.0 ha
8.	Period of Quarrying proposed	Five years
9.	Type of Mining	Opencast Mechanized Mining
10.	Total Production (Quantity in m <sup>3</sup> )	3,92,495 cu.m of Rough stone & 47,490 cu.m of Gravel
11.	Latitude & Longitude of all corners of the quarry site	11°24'24.60"N to 11°24'33.48"N 77°19'33.20"E to 77°19'40.19"E
12.	Topo sheet No.	57 - E/07
13.	Man power requirement per day:	47 Employees
14.	Precise Area Communication approved by Deputy Director, with date	Re.No.983/kanimam/2021, dated:30.12.2021
15.	Mining plan approved by the Assistant Director, Department of Geology and Mining with date	Re.No.983/mines/2021, dated:07.02.2022
16.	500mts letter approved by the Assistant Director, Department of Geology and Mining with date	Re.No.983/mines/2021, dated:18.02.2022
17.	Water requirement: 1. Drinking & domestic purposed (in KLD)	2.3 KLD  0.5 KLD

MEMBER SECRETARY  
SIIAA-TN



	2. Dust Suppression & Green Belt (in KLD)	1.0 KLD 0.8 KLD
18.	Power requirement: a. Domestic purpose b. Machinery works	TNEB 350318 Liters of HSD will be utilized for entire project life
19.	Depth of Mining	39m BGL (2m Gravel + 35m Rough stone)
20.	Depth of Water table	70-65m BGL
21.	Project cost	Rs. 1,09,20,000/-
22.	EMP cost	Capital cost: Rs. 15,91,000/- Recurring cost: Rs. 23,13,400/-
23.	CER cost	6 lakhs
24.	VAO letter dated	02.02.2022
25.	<p><b><u>Validity:</u></b> This Environmental Clearance is granted for the production in 3,92,495 cu.m of Rough stone &amp; 47,490 cu.m of Gravel for the period of 5 Years from the date of execution of the mining lease and ultimate depth of mining upto 39m BGL (2m Gravel + 35m Rough stone).</p>	


The Proponent has furnished affidavit in stamp paper attested by the Notary stating that

I.P.Balaji, S/o.K.M.Palanisamy, residing at No. 1/96, Kallankattuvalasu, Polavakkalipalayam, Gobichettipalayam Taluk, Erode District-638 476,solemnly declare and sincerely affirm that:

I have applied for getting Environment Clearance to SEIAA, Tamil Nadu for quarry lease for quarry **Rough Stone & Gravel** for over an extent of **4.30.0** of Patta Landin **S.F.No.246 of Karattupalayam "B" Village, Nambiyur Taluk, Erode District.**

1. I swear to state and confirm that within 10km area of the quarry site, I have applied for environment clearance, none of the following is situated.

a. Protected areas notified under the wild life (Protection) Act, 1972,

  
MEMBER SECRETARY  
SEIAA-TN

- b. Critically polluted areas as notified by the central pollution control board constituted under water (Prevention and Control of Pollution) Act, 1974,
- c. Eco-Sensitive areas as notified,
- d. Interstate Boundary.

2. I will spend the amount of Rs.6Lakhs towards Corporate Environment Responsibility (Revised CER) for the following activities to the Panchayat Union Primary School, Nambiyur Union, Erode District, before commencement of quarrying activities.

Sl. No.	Description	CER Cost INR
1	Renovation of Existing Toilets	<b>Rs.6,00,000/-</b>
2	Plantation along the School Boundary 250 Nos	
3	Providing Environmental related books to School Library	
4	Providing Drinking water facilities	
5	Providing Smart Class Board, Office tables and chairs to the School	
6	In addition Construction of Elephant drinking water spot 4 Nos (Rs.25,000/- per one water spot) in consultation with District Forest officer – Rs.1,00,000/-	

3. The total area of following quarries located within 500m radius from the periphery of my quarry site details as shown below:

**Existing Quarries**

S. No.	Name of the Applicant	S.F. No.	Extent (hect.)	Lease Period
1	P. Balaji	246	4.30.0	30.06.2017 to 29.06.2022

**Proposed Quarries**

S. No.	Name of the owner	S.F. No.	Extent (hect.)
Nil			

  
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**Lease Expired / Abandoned Quarries**

S. No.	Name of the owner	S.F. No.	Extent (hect.)	Lease Period	Remarks
Nil					

4. There will not be hindrance or disturbance to the living people while transporting the mineral and quarrying activities.
5. There is no approved habitation within 300m radius from the periphery of my quarry.
6. I swear that afforestation will be carried out during the course of quarrying operation and maintained.
7. The required insurance will be taken in the name of the laborers working in my quarry site.
8. Approach road belongs to local panchayat only and no other private patta roads encountered.
9. I will not engage any child labor in our quarry site and I aware that engaging child labor is punishable under the law.
10. All types of safety / protective equipment will be provided to all the laborers working in my quarry.
11. No permanent structures, temples etc., are located within 500m radius from the periphery of my quarry.

I ensure to do all the social and Environment commitment as mentioned in the Mining Plan to the best of my knowledge.

**Details of 500M radius Proposed quarry:**

The Project Proponent has submitted a copy of the letter obtained from Assistant Director, Department of Geology and Mining, Erode District in his letter Re.No.983/mines/2021, dated:18.02.2022 has stated that the details of other quarries (Proposed / Existing / Abandoned Quarries) within a radius 500m from the boundary of the proposed quarry site as follows:

**Existing Quarries**

  
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S. No.	Name of the Applicant	S.F. No.	Extent (hect.)	Lease Period
1	P. Balaji	246	4.30.0	30.06.2017 to 29.06.2022

**Proposed Quarries**

S. No.	Name of the owner	S.F. No.	Extent (hect.)
Nil			

**Lease Expired / Abandoned Quarries**

S. No.	Name of the owner	S.F. No.	Extent (hect.)	Lease Period	Remarks
Nil					

**Appraisal by SEAC:-**

Proposed Rough Stone and Gravel quarry over an extent of 4.30.0 Ha in S.F.No. 246 of Karattupalayam "B" Village, Nambiyur Taluk, Erode District, Tamil Nadu by Thiru.P.Balaji- Environmental Clearance (SIA/TN/MIN/262455/2022 dated 18.03.2022)

The proposal was placed in this 314<sup>th</sup> Meeting of SEAC held on 23.09.2022. The project proponent gave detailed presentation. 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/activity is covered under Category "B2" of Item 1(a) "Mining of Mineral Projects" of the Schedule to the EIA Notification, 2006.

Sl. No.	Details of the Proposal	
1.	Name of the Owner / Firm	P.Balaji S/o.K.M.Palanisamy No. 1/96, Kallankattuvalasu,

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		Polavakkalipalayam, Gobichettipalayam Taluk, Erode District – 638 476
2.	Type of quarrying (savudu / Rough stone / Sand / Granite)	Rough Stone & Gravel quarry
3.	S.F No. of the quarry site with area break-up	246
4.	Village in which situated	Karattupalayam "B"
5.	Taluk in which situated	Nambiyur
6.	District in which situated	Erode
7.	Extent of Quarry (in ha.)	4.30.0 ha
8.	Period of Quarrying proposed	Five years
9.	Type of Mining	Opencast Mechanized Mining
10.	Total Production (Quantity in m <sup>3</sup> )	419060 m <sup>3</sup> of Rough stone, 42894 m <sup>3</sup> of Weathered Rock & 47490 m <sup>3</sup> of gravel, 40161 m <sup>3</sup> of Existing Gravel Dump; Annual Peak production capacity: 1,04,095 m <sup>3</sup> of Rough stone.
11.	Latitude & Longitude of all corners of the quarry site	11°24'24.60"N to 11°24'33.48"N 77°19'33.20"E to 77°19'40.19"E
12.	Topo sheet No.	57 - E/07
13.	Man power requirement per day:	47 Employees
14.	Precise Area Communication approved by Deputy Director, with date	Rc.No.983/kanimam/2021, dated:30.12.2021
15.	Mining plan approved by the Assistant Director,	Rc.No.983/mines/2021, dated:07.02.2022

  
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	Department of Geology and Mining with date	
16.	500mts letter approved by the Assistant Director, Department of Geology and Mining with date	Re.No.983/mines/2021, dated:18.02.2022
17.	Water requirement: 3. Drinking & domestic purposed (in KLD) 4. Dust Suppression & Green Belt (in KLD)	2.3 KLD 0.5 KLD 1.0 KLD 0.8 K LD
18.	Power requirement: c. Domestic purpose d. Machinery works	TNEB 350318 Liters of HSD will be utilized for entire project life
19.	Depth of Mining	Existing Depth: 11.5 m Proposed & Approved Depth : 44m BGL
20.	Depth of Water table	70-65m BGL
21.	Project cost	Rs. 1,09,20,000/-
22.	EMP cost	Capital cost: Rs. 15,91,000/- Recurring cost: Rs. 23,13,400/-
23.	CER cost	5 lakhs
24.	VAO letter dated	02.02.2022

Based on the presentation and document furnished by the project proponent, SEAC decided to **recommend the proposal for the grant of Environmental Clearance** for the total excavation of 419060 m<sup>3</sup> of Rough stone, 42894 m<sup>3</sup> of Weathered Rock & 47490 m<sup>3</sup> of gravel, by maintaining the Ultimate pit depth of 44 m and 40161 m<sup>3</sup> of Existing Gravel Dump placed within the mining lease, with not exceeding the Annual Peak production capacity of 1,04,095 m<sup>3</sup> of Rough stone & 35,334 m<sup>3</sup> of Gravel, subject to the standard conditions as per the **Annexure** of this minutes & normal conditions stipulated by MOEF&CC, in addition to

  
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the following specific conditions:

1. **The prior Environmental Clearance granted for this mining project shall be valid for the project life including production value as laid down in the mining plan approved and renewed by competent authority, from time to time, subject to a maximum of thirty years, whichever is earlier vide MoEF&CC Notification S.O. 1807(E) dated 12.04.2022.**
2. The proponent shall mandatorily appoint the statutory Mines Manager and other statutorily competent persons such as Blaster, Mine Mate, Mine Foreman in relevant to the proposed quarry size as per the provisions of Mines Act 1952 and Metalliferrous Mines Regulations, 1961 respectively.
3. The PP shall communicate the 'Notice of Opening' of the quarry to the Director of Mines Safety, Chennai Region before obtaining the CTO from the TNPCB.
4. The proponent shall construct the 'S3 (or) G2' type of fencing all around the boundary of the proposed working quarry with gates for entry/exit before the commencement of the operation as recommended in the DGMS Circular, 11/1959 and shall furnish the photographs showing the same before obtaining the CTO from TNPCB.
5. Further, the PP shall construct the garland drain with proper size, gradient and length along the boundary of the pit leaving behind the mandatory safety zone of 7.5 m as it is designed to take care of run-off water (size, gradient and length) before obtaining the CTO from TNPCB.
6. The PP shall maintain a safety zone of 7.5 m invariably along the South side of the proposed quarry adjacent to the neighbouring quarry and it shall not be extracted unless a statutory permission is obtained from the Chief Inspector of Mines (also designated as Director-General of Mines Safety) under the provisions of Regulations 111 (3) of MMR, 1961.
7. The PP shall carry out the shallow depth Jack hammer drilled holes (of 32-34 mm dia & 1.5 m depth) & NONEL initiation based 'controlled' blasting operation involving muffle blasting in the proposed quarry such that the blast-induced ground vibrations are controlled within the permissible limits as stipulated by the DGMS as well as no fly rock travel beyond 20 m from the blast site.
8. The PP shall use the jack hammer drill machine fitted with the dust extractor for the drilling operations such that the fugitive dust is controlled effectively at the source.

  
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9. Since the habitations are situated at a distance range of 700 to 800 m from the mine lease boundary, the PP shall carry out the scientific studies on controlled blasting within one year from the commencement of mining operations, for reducing the impact of blast-induced ground/air vibrations and fly rock, by involving a reputed Research and Academic Institution such as NIRM, IITs, Anna University Chennai-Dept of Mining Engg, NIT Surathkal-Dept of Mining Engg, and any CSIR Laboratories etc. A copy of such scientific study report shall be submitted to the SEIAA, MoEF, TNPCB, AD/Mines-DGM and DMS, Chennai as a part of Environmental Compliance.
10. The PP shall carry out the tree plantation to act as a barrier to reduce noise level and dust pollution along the boundary of the quarrying site considering the wind direction before obtaining the CTO from the TNPCB.
11. The Project Proponent (PP) shall furnish a 'Slope stability action plan' incorporating the haul road ramp keeping the benches intact for the proposed quarry lease as the depth of the proposed quarry is exceeding 40 m to the office of concerned AD (Mines) before obtaining CTO from TNPCB.
12. However, the PP shall carry out the scientific studies to assess the slope stability of the benches and quarry wall when the depth of the quarry touches 40 m (or) after the completion of 3 years of operation whichever is earlier, by involving a reputed Research and Academic Institution such as NIRM, IITs, NIT-Dept of Mining Engg, Surathkal, Anna University Chennai-CEG Campus, and any CSIR Laboratories etc. A copy of such scientific study report shall be submitted to the SEIAA, MoEF, TNPCB, AD/Mines-DGM and DMS, Chennai as a part of Environmental Compliance without any deviation.
13. The Project Proponent shall ensure that the funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year-wise expenditure should be reported to the MoEF & CC Ministry and its Integrated Regional Office (IRO) located in Chennai.
14. The Project Proponent shall send a copy of the clearance letter marked to concerned Panchayat from whom any suggestion/representation has been received while processing the proposal.
15. 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 adhere to the EMP as committed.

  
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16. As accepted by the Project Proponent the CER cost is Rs. 5 lakhs and the amount shall be spent for the activities in Panchayath Union Primary School, Nambiyur, Erode District & Elephant water hole in consultation with concern DFO as committed, before obtaining CTO from TNPCB.

#### ANNEXURE-I

1. The proponent shall mandatorily appoint the required number of statutory officials and the competent persons in relevant to the proposed quarry size as per the provisions of Mines Act 1952 and Metalliferous Mines Regulations, 1961.
2. The proponent shall erect fencing all around the boundary of the proposed area with gates for entry/exit before the commencement of the operation and shall furnish the photographs/map showing the same before obtaining the CTO from TNPCB.
3. Perennial maintenance of haulage road/village / Panchayat Road shall be done by the project proponent as required in connection with the concerned Govt. Authority.
4. The Project Proponent shall adhere to the working parameters of mining plan which was submitted at the time of EC appraisal wherein year-wise plan was mentioned for total excavation i.e. quantum of mineral, waste, over burden, inter burden and top soil etc.. No change in basic mining proposal like mining technology, total excavation, mineral & waste production, lease area and scope of working (viz. method of mining, overburden & dump management, O.B & dump mining, mineral transportation mode, ultimate depth of mining etc.) shall not be carried out without prior approval of the Ministry of Environment, Forest and Climate Change, which entail adverse environmental impacts, even if it is a part of approved mining plan modified after grant of EC or granted by State Govt. in the form of Short Term Permit (STP), Query license or any other name.
5. The reject/waste generated during the mining operations shall be stacked at earmarked waste dump site(s) only. The physical parameters of the waste dumps like height, width and angle of slope shall be governed as per the approved Mining Plan as per the guidelines/circulars issued by DGMS w.r.t. safety in mining operations shall be strictly adhered to maintain the stability of waste dumps.
6. The proponent shall ensure that the slope of dumps is suitably vegetated in scientific manner with the native species to maintain the slope stability, prevent erosion and surface

  
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run off. The gullies formed on slopes should be adequately taken care of as it impacts the overall stability of dumps.

7. Perennial sprinkling arrangement shall be in place on the haulage road for fugitive dust suppression. Fugitive emission measurements should be carried out during the mining operation at regular intervals and submit the consolidated report to TNPCB once in six months.
8. The Project Proponent shall carry out slope stability study by a reputed academic/research institution such as NIRM, IIT, Anna University for evaluating the safe slope angle if the proposed dump height is more than 30 meters. The slope stability report shall be submitted to concerned Regional office of MoEF&CC, Govt. of India, Chennai as well as SEIAA, Tamilnadu.
9. The Proponent shall ensure that the Noise level is monitored during mining operation at the project site for all the machineries deployed and adequate noise level reduction measures undertaken accordingly. The report on the periodic monitoring shall be submitted to TNPCB once in 6 months.
10. Proper barriers to reduce noise level and dust pollution should be established by providing greenbelt along the boundary of the quarrying site and suitable working methodology to be adopted by considering the wind direction.
11. 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 in consultation with the DFO, State Agriculture University and local school/college authorities. 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.
12. Taller/one year old Saplings raised in appropriate size of bags, preferably eco-friendly bags should be planted in proper escapements 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.
13. **Noise and Vibration Related:** (i) The Proponent shall carry out only the Controlled Blasting operation using NONEL shock tube initiation system during daytime. Usage of

  
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other initiation systems such as detonating cord/fuse, safety fuse, ordinary detonators, cord relays, should be avoided in the blasting operation. The mitigation measures for control of ground vibrations and to arrest fly rocks should be implemented meticulously under the supervision of statutory competent persons possessing the I / II Class Mines Manager / Foreman / Blaster certificate issued by the DGMS under MMR 1961, appointed in the quarry. No secondary blasting of boulders shall be carried out in any occasions and only the Rock Breakers (or) other suitable non-explosive techniques shall be adopted if such secondary breakage is required. The Project Proponent shall provide required number of the security sentries for guarding the danger zone of 500 m radius from the site of blasting to ensure that no human/animal is present within this danger zone and also no person is allowed to enter into (or) stay in the danger zone during the blasting.

(ii) Appropriate measures should be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in operations of HEMM, etc. should be provided with ear plugs/muffs, (iii) Noise levels should be monitored regularly (on weekly basis) near the major sources of noise generation within the core zone.

14. Ground water quality monitoring should be conducted once in every six months and the report should be submitted to TNPCB.
15. The operation of the quarry should not affect the agricultural activities & water bodies near the project site and a 50 m safety distance from water body should be maintained without carrying any activity. The proponent shall take appropriate measures for "Silt Management" and prepare a SOP for periodical de-siltation indicating the possible silt content and size in case of any agricultural land exists around the quarry.
16. The proponent shall provide sedimentation tank / settling tank with adequate capacity for runoff management.
17. The proponent shall ensure that the transportation of the quarried materials shall not cause any hindrance to the Village people/Existing Village Road and shall take adequate safety precautionary measures while the vehicles are passing through the schools / hospital. The Project Proponent shall ensure that the road may not be damaged due to transportation of the quarried rough stones; and transport of rough stones will be as per IRC Guidelines with respect to complying with traffic congestion and density.
18. To ensure safety measures along the boundary of the quarry site, security guards are to be posted during the entire period of the mining operation.

  
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19. After mining operations are completed, the mine closure activities as indicated in the mine closure plan shall be strictly carried out by the Proponent fulfilling the necessary actions as assured in the Environmental Management Plan.
20. The Project proponent shall, after ceasing mining operations, undertake re-grassing the mining area and any other area which may have been disturbed due to their mining activities and restore the land to a condition that is fit for the growth of fodder, flora, fauna etc.
21. The Project Proponent shall comply with the provisions of the Mines Act, 1952, MMR 1961 and Mines Rules 1955 for ensuring safety, health and welfare of the people working in the mines and the surrounding habitants.
22. The project proponent shall ensure that the provisions of the MMRD, 1956, the MCDR 2017 and Tamilnadu Minor Mineral Concession Rules 1959 are complied by carrying out the quarrying operations in a skillful, scientific and systematic manner keeping in view proper safety of the labour, structure and the public and public works located in that vicinity of the quarrying area and in a manner to preserve the environment and ecology of the area.
23. The quarrying activity shall be stopped if the entire quantity indicated in the Mining plan is quarried even before the expiry of the quarry lease period and the same shall be informed to the District AD/DD (Geology and Mining) District Environmental Engineer (TNPCB) and the Director of Mines Safety (DMS), Chennai Region by the proponent without fail.
24. The Project Proponent shall abide by the annual production scheduled specified in the approved mining plan and if any deviation is observed, it will render the Project Proponent liable for legal action in accordance with Environment and Mining Laws.
25. Prior clearance from Forestry & Wild Life including clearance from committee of the National Board for Wildlife as applicable shall be obtained before starting the quarrying operation, if the project site attracts the NBWL clearance, as per the existing law from time to time.
26. All the conditions imposed by the Assistant/Deputy Director, Geology & Mining, concerned District in the mining plan approval letter and the Precise area communication letter issued by concerned District Collector should be strictly followed.

  
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27. The mining lease holders shall, after ceasing mining operations, undertake re-grassing the mining area and any other area which may have been disturbed due to their mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc.
28. The Project proponent shall install a Display Board at the entrance of the mining lease area/abutting the public Road, about the project information as shown in the **Appendix – II** of this minute.

**Appendix - I**  
**List of Native Trees Suggested for Planting**

No	Scientific Name	Tamil Name	Tamil Name
1	<i>Apple mameelos</i>	Vilvam	ஶிலவம்
2	<i>Adimaanthera pavonina</i>	Manjadi	மஞ்சாடி, ஆழைக்கத்தலம்பன்
3	<i>Albizia lebeck</i>	Vaagai	வாகை
4	<i>Albizia amara</i>	Usil	உசில்
5	<i>Bauhinia purpurea</i>	Mantharai	மந்தாரை
6	<i>Bauhinia racemosa</i>	Aathi	ஆத்தி
7	<i>Bauhinia tomentosa</i>	Iruvatlu	இருவாத்தி
8	<i>Buchanania axillaris</i>	Kattuma	காட்டுமர
9	<i>Borassus flabellifer</i>	Parai	பனை
10	<i>Butea monosperma</i>	Murukkamaram	முருக்கமரம்
11	<i>Bobax ceiba</i>	Ilavu, Sevvilavu	இலவு
12	<i>Calophyllum inophyllum</i>	Purnai	புனை
13	<i>Cassia fistula</i>	Sarakondrai	சரகண்டரை
14	<i>Cassia roxburghii</i>	Sengondrai	செங்கண்டரை
15	<i>Chloroxylon swietenia</i>	Purasamaram	புரசமரம்
16	<i>Cochlospermum religiosum</i>	Kongu, Maryallavu	கோங்கு, மஞ்சள் இலவு
17	<i>Cordia dichotoma</i>	Naruvuli	நடுவளி
18	<i>Cretova adisoni</i>	Mavalingum	மாவலிங்கம்
19	<i>Dillenia indica</i>	Uva, Uzha	உவா
20	<i>Dillenia pentagyna</i>	SiruUva, Sitruzha	சீறு உவா
21	<i>Diospyro sebenum</i>	Karungali	கரங்காலை
22	<i>Diospyro schloroxylon</i>	Vaganai	வாகளை
23	<i>Ficus amplissima</i>	Kallitdu	கல் இச்சி
24	<i>Hibiscus tiliaceou</i>	Aatrupoovarasu	ஆற்றுப்பலகை
25	<i>Hardwickia binata</i>	Aacha	ஆச்சா
26	<i>Holoptelia integrifolia</i>	Aayili	ஆயிலி மரம், ஆயிலி
27	<i>Lamnea coromandelica</i>	Odhiam	ஒதியம்
28	<i>Lagerstroemia speciosa</i>	Poo Marudhu	பூ மருது
29	<i>Lepisanthus tetraphylla</i>	Neikottaimaram	நெய் கொட்டை மரம்
30	<i>Limonia acidissima</i>	Vila maram	வில்லா மரம்
31	<i>Litsea glutinos</i>	Pisinpattai	பின்பட்டை
32	<i>Madhuca longifolia</i>	Iluppai	இலுப்பை
33	<i>Manilkara hexandra</i>	UlakkaiPaalai	உலக்கை பழை
34	<i>Mimusops elengi</i>	Magizhamaram	மகிழ்மரம்
35	<i>Mitragyna parvifolia</i>	Kadambu	கடம்பு
36	<i>Morinda pubescens</i>	Nuna	நுனா
37	<i>Morinda citrifolia</i>	Vellai Nuna	வெள்ளை நுனா
38	<i>Phoenix sylvestre</i>	Eachai	ஈச்சமரம்
39	<i>Pongamia pinnat</i>	Pungam	புங்கம்

  
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40	<i>Prenna mollissima</i>	Murnai	முனை
41	<i>Prenna serratifolia</i>	Narumunnai	நடு முனை
42	<i>Prenna tomentosa</i>	Malipoovarasu	மலை பூவரசு
43	<i>Prosopis cinerea</i>	Vanni maram	வள்ளி மரம்
44	<i>Pterocarpus marsupium</i>	Vengai	வேங்கை
45	<i>Pterospermum canescens</i>	Vennangu, Tada	வேண்டாங்கு
46	<i>Pterospermum xylocarpum</i>	Polaru	புலர்வு
47	<i>Puthranjita roxburghii</i>	Karipala	கறிபாலா
48	<i>Salvadora persica</i>	Ugai Maram	ஊகா மரம்
49	<i>Sapindus emarginatus</i>	Manipungan, Soapukai	மணிப்புங்கன் சோபுகாய்
50	<i>Saraca asoca</i>	Asoca	அசோகா
51	<i>Strobilus asper</i>	Piray maram	பிராய் மரம்
52	<i>Strychnos nuxvomica</i>	Yeti	யெட்டி
53	<i>Strychnos potatorum</i>	Therthang Kottai	தேத்தாங் கொட்டை
54	<i>Syzygium cumini</i>	Naval	நாவல்
55	<i>Terminalia belleric</i>	Thandri	தாண்ட்ரி
56	<i>Terminalia arjuna</i>	Ven maradhu	வெண் மருது
57	<i>Toona ciliata</i>	Sandhana vembu	சந்தன வேம்பு
58	<i>Diospesia populnea</i>	Puvarasu	பூவரசு
59	<i>Walsuratrifoliata</i>	valsura	வால்கூரா
60	<i>Wrightia tinctoria</i>	Veppalai	வேப்பாலை
61	<i>Pithecolobium dulce</i>	Kodukkapuli	கொடுக்காப்பூளி

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2. As per the MoEF& CC office memorandum F.No.22-65/2017-IA.III dated: 30.09.2020 and 20.10.2020 as accepted by the Project proponent the revised CER cost is Rs. 6.0lakhs and the amount shall be spent for the Panchayath Union Primary School, NambiyurUnion, Erode District & Elephant Water hole in consultation with concern DFOas committed, before obtaining CTO from TNPCB.

**Annexure 'A'**

1. The AD/DD, Dept. of Geology & Mining shall ensure operation of the proposed quarry after the submission slope stability study conducted through the reputed research & Academic Institutions such as NIRM, IITs, NITS Anna University, and any CSIR Laboratories etc.
2. The AD/DD, Dept. of Geology & Mining & Director General of Mine safety shall ensure strict compliance and implementation of bench wise recommendations/action plans as recommended in the scientific slope stability study of the reputed research & Academic Institutions as a safety precautionary measure to avoid untoward accidents during mining operation.
3. No trees in the area should be removed and all the trees numbered and protected. In case trees fall within the proposed quarry site the trees may be transplanted in the Greenbelt zone. The proponent shall ensure that the activities in no way result in disturbance to forest and trees in vicinity. The proponent shall ensure that the activity does not disturb the movement of grazing animals and free ranging wildlife. The proponent shall ensure that the activity does not disturb the biodiversity, the flora & fauna in the ecosystem. The proponent shall ensure that the activity does not result in invasion by invasive alien species. The proponent shall ensure that the activities do not disturb the resident and migratory birds. The proponent shall ensure that the activities do not disturb the vegetation and wildlife in the adjoining reserve forests and areas around.
4. The proponent shall ensure that the operations do not result in loss of soil biological properties and nutrients.
5. The activity should not result in CO<sub>2</sub> release and temperature rise and add to micro climate alternations.

  
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6. The proponent shall ensure that the activity does not disturb the water bodies and natural flow of surface and ground water, nor cause any pollution, to water sources in the area.
7. The proponent shall ensure that the activities undertaken do not result in carbon emission, and temperature rise, in the area.
8. The proponent shall ensure that Monitoring is carried out with reference to the quantum of particulate matter during excavation; blasting; material transport and also from cutting waste dumps and haul roads.
9. The proponent shall ensure that the activities do not disturb the agro biodiversity and agro farms. Actions to be taken to promote agro forestry, mixed plants to support biodiversity conservation in the mine restoration effort.
10. The proponent shall ensure that activity does not deplete the indigenous soil seed bank and disturb the mycorrhizal fungi, soil organism, soil community nor result in eutrophication of soil and water.
11. The activities should not disturb the soil properties and seed and plant growth. Soil amendments as required to be carried out, to improve soil health
12. Bio remediation using microorganisms should be carried out to restore the soil environment to enable carbon sequestration.
13. The proponent shall ensure that all mitigation measures listed in the EIA/EMP are taken to protect the biodiversity and natural resources in the area.
14. The proponent shall ensure that the activities do not impact the water bodies/wells in the neighboring open wells and bore wells. The proponent shall ensure that the activities do not in any way affect the water quantity and quality in the open wells and bore wells in the vicinity or impact the water table and levels. The proponent shall ensure that the activities do not disturb the river flow, nor affect the Odai, Water bodies, Dams in the vicinity.
15. The proponent shall ensure that in the green belt development more indigenous trees species (Appendix as per the SEAC Minutes) to be planted.
16. The proponent shall ensure the area is restored and rehabilitated with native trees as recommended in SEAC Minutes (in Appendix).
17. The proponent shall ensure that the mine restoration is done using mycorrhizal VAM, vermin-composting, Biofertilizers to ensure soil health and biodiversity conservation.

  
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18. The proponent shall ensure that the topsoil is protected and used in planting activities in the area.
19. The proponent should ensure that there is no disturbance to the agriculture plantations, social forestry plantations, waste lands, forests, sanctuary or national parks. There should be no impact on the land, water, soil and biological environment and other natural resources due to the mining activities.
20. The proponent shall ensure that topsoil to be utilized for site restoration and Green belt alone within the proposed area.
21. The proponent shall ensure that the activities do not impact green lands/grazing fields of all types surrounding the mine lease area which are food source for the grazing cattle.
22. The project proponent shall store/dump the granite waste generated within the earmarked area of the project site for mine closure as per the approved mining plan.

**Directions for Reclamation of mine sites**

1. The mining closure plan should strictly adhere to appropriate soil rehabilitation measures to ensure ecological stability of the area. Reclamation/Restoration of the mine site should ensure that the Geotechnical, physical, chemical properties are sustainable that the soil structure composition is buildup, during the process of restoration.
2. The proponent shall ensure that the mine closure plan is followed as per the mining plan and the mine restoration should be done with native species, and site restored to near original status. The proponent shall ensure that the area is ecologically restored to conserve the ecosystems and ensure flow of goods and services.
3. A crucial factor for success of reclamation site is to select sustainable species to enable develop a self-sustaining eco system. Species selected should easily establish, grow rapidly, and possess good crown and preferably be native species. Species to be planted in the boundary of project site should be un palatable for cattle's/ goats and should have proven capacity to add leaf-litter to soil and decompose. The species planted should be adaptable to the site conditions. Should be preferably pioneer species, deciduous in nature to allow maximum leaf-litter, have deep root system, fix atmospheric nitrogen and improve soil productivity. Species selected should have the ability to tolerate altered pit and toxicity of and site. They should be capable of meeting requirement of local people in regard to fuel fodder and should be able to attract bird, bees and butterflies. The species should be planted in mixed association.

  
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4. For mining area reclamation plot culture experiments to be done to identify/determine suitable species for the site.
5. Top soil with a mix of beneficial microbes (Bacteria/Fungi) to be used for reclamation of mine spoils. AM Fungi (Arbuscular mycorrhizal fungi), plant growth promoting Rhizo Bacteria and nitrogen fixing bacteria to be utilized.
6. Soil and moisture conservation and water harvesting structures to be used where ever possible for early amelioration and restoration of site.
7. Top soil is most important for successful rehabilitation of mined sites. Topsoil contains majority of seeds and plant propagation, soil microorganism, Organic matter and plant nutrients. Wherever possible the topsoil should be immediately used in the area of the for land form reconstruction, to pre mining conditions.
8. Over burdens may be analyzed and tested for soil characteristics and used in the site for revegetation. Wherever possible seeds, rhizome, bulbs, etc of pioneering spices should be collected, preserved and used in restoring the site.
9. Native grasses seeds may be used as colonizers and soil binders, to prevent erosion and allow diverse self- sustaining plant communities to establish. Grasses may offer superior tolerance to drought, and climatic stresses.
10. Reclamation involves planned topographical reconstruction of site. Care to be taken to minimize erosion and runoff. Topsoils should have necessary physical, chemicals, ecological, properties and therefore should be stored with precautions and utilized for reclamation process. Stocked topsoil should be stabilized using grasses to protect from wind. Seeds of various indigenous and local species may be broad casted after topsoil and treated overburden are spread.
11. Alkaline soils, acidic soils, Saline soils should be suitably treated/amended using green manure, mulches, farmyard manure to increase organic carbon. The efforts should be taken to landscape and use the land post mining. The EMP and mine closure plan should provide adequate budget for reestablishing the site to pre-mining conditions. Effective steps should be taken for utilization of over burden. Mine waste to be used for backfilling, reclamation, restoration, and rehabilitation of the terrain without affecting the drainage and water regimes. The rate of rehabilitation should be similar to rate of mining. The land disturbed should be reshaped for long term use. Mining should be as

  
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far as possible be ecofriendly. Integration of rehabilitation strategies with mining plan will enable speedy restoration.

12. Efforts should be taken to aesthetically improve the mine site. Generally there are two approaches to restoration i.e Ecological approach which allows tolerant species to establish following succession process allowing pioneer species to establish. The other approach i.e plantation approach is with selected native species are planted. A blend of both methods may be resorted to restore the site by adding soil humus and mycorrhiza. Action taken for restoration of the site should be specifically mentioned in the EC compliances.


**Part-A: Conditions to be Complied before commencing mining operations:-**

1. The project proponent shall advertise in at least two local newspapers widely circulated in the region, one of which shall be in the vernacular language informing the public that
  - I. The project has been accorded Environmental Clearance.
  - II. Copies of clearance letters are available with the Tamil Nadu Pollution Control Board.
  - III. Environmental Clearance may also be seen on the website of the SEIAA.
  - IV. The advertisement should be made within 7 days from the date of receipt of the clearance letter and a copy of the same shall be forwarded to the SEIAA.
2. Mining activity should be reviewed by the District Collector after three years and decide for further extension.
3. NOC from the Standing committee of the NBWL shall be obtained, if protected areas are located within 10 Km from the proposed project site.
4. The project proponent shall comply the conditions laid down in the Section V, Rule 36 of Tamil Nadu Minor Minerals Concession Rules 1959.
5. A copy of the Environment Clearance letter shall be sent by the proponent to the concerned Panchayat, Town Panchayat / Panchayat union/ Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal.

  
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**The clearance letter shall also be put on the website of the proponent and also kept at the site, for the general public to see.**

6. Quarry lease area should be demarcated on the ground with wire fencing to show the boundary of the lease area on all sides with red flags on every pillar shall be erected before commencement of quarrying.
7. The proponent shall ensure that First Aid Box is available at site.
8. The excavation activity shall not alter the natural drainage pattern of the area.
9. The excavated pit shall be restored by the project proponent for useful purposes.
10. The proponent shall quarry and remove only in the permitted areas as per the approved Mining Plan details.
11. The quarrying operation shall be restricted between 7AM and 5 PM.
12. The proponent shall take necessary measures to ensure that there shall not be any adverse impacts due to quarrying operation on the nearby human habitations, by way of pollution to the environment.
13. A minimum distance of 50mts. from any civil structure shall be kept from the periphery of any excavation area.
14. Depth of quarrying should be as per approved mining plan.
15. The mined out pits should be backfilled where warranted and area should be suitably landscaped to prevent environmental degradation. The mine closure plan as furnished in the proposal shall be strictly followed with back filling and tree plantation.
16. Wet drilling method is to be adopted to control dust emissions. Delay detonators and shock tube initiation system for blasting shall be used so as to reduce vibration and dust.
17. Drilling and blasting shall be done only either by licensed explosive agent or by the proponent after obtaining required approvals from Competent Authorities.
18. Blasting shall be carried out after announcing to the public adequate through public address system to avoid any accident.
19. A study has to be conducted to assess the optimum blast parameters and blast design to keep the vibration limits less than prescribed levels and only such design and parameters should be implemented while blasting is done. Periodical monitoring of the vibration at specified location to be conducted and records kept for inspection.
20. The Proponent shall take appropriate measures to ensure that the GLC shall comply with the revised NAAQ norms notified by MoEF& CC, GoI on 16.11.2009.

  
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21. The following measures are to be implemented to reduce Air Pollution during transportation of mineral
- i. Roads shall be graded to mitigate the dust emission.
  - ii. Water shall be sprinkled at regular interval on the main road and other service roads to suppress dust
22. The following measures are to be implemented to reduce Noise Pollution
- i. Proper and regular maintenance of vehicles and other equipment
  - ii. Limiting time exposure of workers to excessive noise.
  - iii. The workers employed shall be provided with protection equipment and earmuffs etc.
  - iv. Speed of trucks entering or leaving the mine is to be limited to moderate speed of 25 kmph to prevent undue noise from empty trucks.
  - v. All noise generating machinery the compressor, generator to be enclosed in acoustic enclosure so as to reduce noise in working area.
23. Measures should be taken to comply with the provisions laid under Noise Pollution (Regulation and Control) (Amendment) Rules, 2010, dt: 11.01.2010 issued by the MoEF& CC, Govt to control noise to the prescribed levels.
24. Suitable conservation measures to augment groundwater resources in the area shall be planned and implemented in consultation with Regional Director, CGWB. Suitable measures should be taken for rainwater harvesting.
25. Permission from the competent authority should be obtained for drawl of ground water, if any, required for this project.
26. Topsoil, if any, shall be stacked properly with proper slope with adequate measures and should be used for plantation purpose.
27. The following measures are to be adopted to control erosion of dumps:-
- i. Retention/ toe walls shall be provided at the foot of the dumps.
  - ii. Worked out slopes are to be stabilized by planting appropriate shrub/ grass species on the slopes.
28. Waste oils, used oils generated from the EM machines, mining operations, if any, shall be disposed as per the Hazardous& other wastes (Management, and Trans Boundary Movement) Rules, 2016 and its amendments thereof to the recyclers authorized by TNPCB.

  
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29. Concealing the factual data or failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.
30. Rain water harvesting to collect and utilize the entire water falling in land area should be provided.
31. Rain water getting accumulated in the quarry floor shall not be discharged directly to the nearby stream or water body. If it is to be let into the nearby water body, it has to be discharged into a silt trap on the surface within the lease area and only the overflow after allowing settling of soil be let into the nearby waterways. The silt trap should be of sufficient dimensions to catch all the silt water being pumped out during one season. The silt trap should be cleaned of all the deposited silt at the end of the season and kept ready for taking care of the silt in the next season.
32. The lease holder shall undertake adequate safeguard measures during extraction of material and ensure that due to this activity, the hydro-geological regime of the surrounding area shall not be affected. Regular monitoring of ground water level and quality shall be carried out around the mine lease area during the mining operation. If at any stage, if it is observed that the groundwater table is getting depleted due to the mining activity; necessary corrective measures shall be carried out. District Collector/mining officer shall ensure this.
33. No tree-felling shall be done in the leased area, except only with the permission from competent Authority.
34. To take up environmental monitoring of the proposed quarry site before, during and after the mining activities including vibration study data, water, air & flora/fauna environment, slurry water generated/disposed and method of disposal, involving a reputed academic Institution.
35. It shall be ensured that the total extent of nearby quarries(existing, abandoned and proposed) located within 500 meter radius from the periphery of this quarry is not exceeding 5 hectares within the mining lease period of this application.
36. It shall be ensured that there is no habitation is located within 300 meter radius from the periphery of the quarry site and also ensure that no hindrance will be caused to the people of the habitation located within 300m radius from the periphery of the quarry site.

  
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37. Free Silica test should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF& CC, GOI.
38. Air sampling at intersection point should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF& CC, GOI.
39. Bunds to be provided at the boundary of the project site.
40. The project proponent shall undertake plantation/afforestation work by planting the native species on all side of the lease area at the rate of 400/Ha. Suitable tall tree saplings should be planted on the bunds and other suitable areas in and around the work place.
41. Floor of excavated pit to be levelled and sides to be sloped with gentle slope (Except for granite quarries) in the mine closure phase.
42. The Project Proponent shall ensure a minimum of 2.5% of the annual turnover will be utilized for the CSR Activity
43. The Project Proponent shall provide solar lighting system to the nearby villages.
44. Earthen bunds and barbed wire fencing around the pits with green belt all along the boundary shall be developed and maintained.
45. Safety equipments to be provided to all the employees.
46. Safety distance of 50m has to be provided in case of railway, reservoir, canal/odai
47. The Assistant/Deputy Director, Department of Geology & mining shall ensure that the proponent has engaged the blaster with valid Blasting license/certificate obtained from the competent authority before execution of mining lease.
48. The proponent shall furnish the Baseline data covering the Air, Water, Noise and land environment quality for the proposed quarry site before execution of mining lease.
49. The proponent shall erect the pillars in accordance with the Rules for depicting GPS details in the earmarked boundary of the quarry site to monitor electronically before execution of mining.
50. The proponent has to provide insurance protection to the workers in the case of existing mining or provide the affidavit in case of fresh lease before execution of mining lease.
51. The proponent has to display the name board at the quarry site showing the details of Proponent, lease period, extent, etc., with respect to the existing activity before execution of mining.

  
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52. Heavy earth machinery equipments if utilized, after getting approval from the competent authority.
53. The Proponent shall ensure that the project activity including blasting, mining transportation etc should in no way have adverse impact to the other forests, such as reserve forests and social forests, tree plantation and bio diversity, surrounding water bodies etc.
54. The proponent shall provide Green Belt development at the rate of not less than 400 trees/Hectare. The tree saplings shall be not less than 3m height.
55. The fugitive emissions should be monitored during the mining activity and should be reported to TNPCB once in a month and the operation of the quarry should no way impact the agriculture activity & water bodies near the project site.
56. All the commitment made by the project proponent in the proposal shall be strictly followed.
57. The mining lease holders shall, after ceasing mining operations, undertake re-grassing the mining area and any other area which may have been disturbed due to their mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc.

**Part B: General Conditions:**

1. EC is given only on the factual records, documents and the commitment furnished in non judicial stamp paper by the proponent.
2. The Proponent shall obtain the Consent from the TNPC Board before commencing the activity.
3. No change in mining technology and scope of working should be made without prior approval of the SEIAA, Tamil Nadu.
4. No change in the calendar plan including excavation, quantum of mineral (minor mineral) should be made.
5. Effective safeguard measures, such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulate matter such as loading and unloading point and all transfer points. Extensive water sprinkling shall be carried out on haul roads. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.

  
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6. Effective safeguards shall be adopted against health risks on account of breeding of vectors in the water bodies created due to excavation of earth.
7. A berm shall be left from the boundary of adjoining field having a width equal to at least half the depth of proposed excavation.
8. Loading and unloading areas including all the transfer points should also have efficient dust control arrangements. These should be properly maintained and operated.
9. Vehicular emissions shall be kept under control and be regularly monitored. The mineral transportation shall be carried out through the covered trucks only and the vehicles carrying the mineral shall not be overloaded.
10. Access and haul roads to the quarrying area should be restored in a mutually agreeable manner where these are considered unnecessary after extraction has been completed.
11. All Personnel shall be provided with protective respiratory devices including safety shoes, masks, gloves etc. Supervisory people should be provided with adequate training and information on safety and health aspects. Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.
12. Periodical medical examination of the workers engaged in the project shall be carried out and records maintained. For the purpose, schedule of health examination of the workers should be drawn and followed accordingly. The workers shall be provided with personnel protective measures such as masks, gloves, boots etc.
13. Workers/labourers shall be provided with facilities for drinking water and sanitation facility for Female and Male separately.
14. The project proponent shall ensure that child labour is not employed in the project as per the sworn affidavit furnished.
15. The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry of Environment and Forests and its Regional Office located at Chennai.
16. The Environmental Clearance does not absolve the applicant/proponent of his obligation/requirement to obtain other statutory and administrative clearances from other statutory and administrative authorities.


  
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17. This Environmental Clearance does not imply that the other statutory / administrative clearances shall be granted to the project by the concerned authorities. Such authorities would be considering the project on merits and be taking decisions independently of the Environmental Clearance
18. The SEIAA, Tamil Nadu may alter/modify the above conditions or stipulate any further conditions in the interest of environment protection.
19. The SEIAA, Tamil Nadu may cancel the Environmental Clearance granted to this project under the provisions of EIA Notification, 2006, at any stage of the validity of this Environmental Clearance, if it is found or if it comes to the knowledge of this SEIAA, TN that the project proponent has deliberately concealed and/or submitted false or misleading information or inadequate data for obtaining the Environmental Clearance.
20. Failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of the Environment (Protection) Act, 1986.
21. The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, the Public Liability Insurance Act, 1991, along with their amendments, Minor Mineral Conservation & Development Rules, 2010 framed under MMDR Act 1957, National Commission for protection of Child Right Rules, 2006, Wildlife Protection Act, 1972, Forest Conservation Act, 1980, Biodiversity Conservation Act, 2016, the Biological Diversity Act, 2002 and Biological diversity Rules, 2004 and Rules made there under and also any other orders passed by the Hon'ble Supreme Court of India/Hon'ble High Court of Madras and any other Courts of Law relating to the subject matter.
22. Any other conditions stipulated by other Statutory/Government authorities shall be complied.
23. Any appeal against this Environmental Clearance shall lie with the Hon'ble National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.

  
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24. The Environmental Clearance is issued based on the documents furnished by the project proponent. In case any documents found to be incorrect/not in order at a later date the Environmental Clearance issued to the project will be deemed to be revoked/ cancelled.

  
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**Copy to:**

1. The Secretary, Ministry of Mines, Government of India, Shastri Bhawan, New Delhi.
2. The Additional Chief Secretary to Government, Environment and Forests Department, Tamil Nadu.
3. The Additional Chief Secretary to Government, Industries Department, Tamil Nadu.
4. The Additional Principal Chief Conservator of Forests, Regional Office (SZ), 34, HEPC Building, 1<sup>st</sup>& 2<sup>nd</sup> Floor, Cathedral Garden Road, Nungambakkam, Chennai – 34.
5. The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-Cum-Office Complex, East Arjun Nagar, New Delhi-110 032.
6. The Chairman, TNPC Board, 76, Mount Salai, Guindy, Chennai-32
7. The District Collector, Erode District
8. The Commissioner of Geology and Mines, Guindy, Chennai-32
9. EI Division, Ministry of Environment & Forests, Paryavaran Bhawan, New Delhi.
10. File Copy

**Signature Not Verified**

Digitally signed by Thiru. Deepak S. Bilgi  
Member Secretary  
Date: 11/8/2022 4:29:21 PM  
Page 31 of 31

### TEST REPORT

ULR TC606023000008010F

Report Number: GLCS/TR/8164/2023-24(1)

Report Date: 01.11.2023

<b>Issued To:</b> K.Vijay Perichiyappan, S/o K.N.Kandasamy, K.N.Charman Thottam, B.Karattupalayam, Gobichettipalayam Taluk, Erode District		<b>Site Address:</b> Lease Area – 0.86.0 Ha. S.F.Nos: 347/1B & 347/2B, Elathur 'A' Village, Nambiyur Taluk, Erode District	
<b>Attention</b>	-	<b>Sample Receipt Condition</b>	Ambient – Good
<b>Customer Ref No</b>	3952	<b>Sample Quantity</b>	2Liters
<b>Sample Name</b>	Surface Water -1	<b>Sampled by</b>	Laboratory
<b>Sample Description</b>	Liquid	<b>Sampling Method</b>	GLCS/SOP/W/028
<b>Sample Code</b>	GLCS / 8164	<b>Sample Receipt Date</b>	25.11.2023
<b>Location Name</b>	Lower Bhavani Canal	<b>Date of Analysis</b>	25.11.2023
<b>Sampling Date</b>	23.11.2023	<b>Date of Completion</b>	15.12.2023
		<b>Coordinates</b>	11°24'30.00"N 77°20'27.90"E

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Color	IS 3025 PART 4	Hazen	10
2	Odor	IS 3025 PART 5	-	Agreeable
3	pH	IS 3025 PART11	-	8.24
4	Electrical Conductivity	IS 3025 PART14	µS/cm	2980
5	Turbidity	IS 3025 PART10	NTU	20
6	Total Dissolved Solids	IS 3025 PART16	mg/l	1988
7	Total Alkalinity as CaCO <sub>3</sub>	IS 3025 PART 23	mg/l	780
8	Total Hardness as CaCO <sub>3</sub>	IS 3025 PART 21	mg/l	860
9	Calcium as Ca	IS 3025 PART40	mg/l	168

For Global Lab and Consultancy Services



  
**Authorised Signatory**  
**L. SUDHAPRIYA**  
Technical Manager

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**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 reports issued by us can be verified by submitting on E-mail with report number and report date along with report copy.

### TEST REPORT

ULR TC606023000008010F

Report Number: GLCS/TR/8164/2023-24(1)

Report Date: 18.12.2023

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
10	Magnesium as Mg	IS 3025 PART 46	mg/l	107
11	Chloride as Cl <sup>-</sup>	IS 3025 PART 32	mg/l	605
12	Sulphate as SO <sub>4</sub> <sup>2-</sup>	IS 3025 PART 24	mg/l	184
13	Iron as Fe	IS 3025 PART 53	mg/l	0.32
14	Boron as B	IS 3025 PART 57	mg/l	BDL(DL:0.1)
15	Free Residual Chlorine as Cl <sub>2</sub>	IS 3025 PART 26	mg/l	BDL(DL:1.0)
16	Fluoride as F	GLCS/SOP/W/015	mg/l	0.24
17	Manganese as Mn	IS 3025 PART 59	mg/l	BDL(DL:0.1)
18	Nitrate as NO <sub>3</sub>	IS 3025 PART 34	mg/l	BDL(DL:2.0)
19	Dissolved Oxygen	IS 3025 PART 38	mg/l	4.1
20	Bio-Chemical Oxygen Demand @ 27°C for 3 days	IS 3025 PART 44	mg/l	18
21	Chemical Oxygen Demand	IS 3025 PART 58	mg/l	52
22	Ammonia as NH <sub>3</sub>	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  
**L. SUDHAPRIYA**  
Technical Manager

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### TEST REPORT

ULR TC606023000008010F

Report Number: GLCS/TR/8164/2023-24(1)

Report Date: 18.12.2023

<b>Issued To:</b> K.Vijay Perichiyappan, S/o K.N.Kandasamy, K.N.Charman Thottam, B.Karattupalayam, Gobichettipalayam Taluk, Erode District		<b>Site Address:</b> Lease Area – 0.86.0 Ha. S.F.Nos: 347/1B & 347/2B, Elathur 'A' Village, Nambiyur Taluk, Erode District	
<b>Attention</b>	-	<b>Sample Receipt Condition</b>	Good
<b>Customer Ref No</b>	3952	<b>Sample Quantity</b>	300 ml
<b>Sample Name</b>	Surface Water -1	<b>Sampled by</b>	Laboratory
<b>Sample Description</b>	Liquid	<b>Sampling Method</b>	GLCS/M/SOP-05
<b>Sample Code</b>	GLCS / 8164	<b>Sample Receipt Date</b>	25.11.2023
<b>Location Name</b>	Lower Bhavani Canal	<b>Date of Analysis</b>	25.11.2023
<b>Sampling Date</b>	23.11.2023	<b>Date of Completion</b>	02.12.2023
		<b>Coordinates</b>	11°24'30.00"N 77°20'27.90"E

Sl. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Total Coliforms	IS 1622	MPN/100ml	60
2	<i>Escherichia coli</i>	IS 1622	MPN/100ml	<2

Note: MPN –Most Probable Number.



For Global Lab and Consultancy Services

  
**Authorised Signatory**  
**L. DINESHKUMAR**  
 Technical Manager-Microbiology

\*\*\*\*\*End of Report\*\*\*\*\*  
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**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 reports issued by us can be verified by submitting on E-mail request with report number and report date along with report copy.

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**TEST REPORT**

Report Number: GLCS/TR/8164/2023-24(2)

Report Date: 18.12.2023

<b>Issued To:</b> K.Vijay Perichiyappan, S/o K.N.Kandasamy, K.N.Charman Thottam, B.Karattupalayam, Gobichettipalayam Taluk, Erode District		<b>Site Address:</b> Lease Area – 0.86.0 Ha. S.F.Nos: 347/1B & 347/2B, Elathur 'A' Village, Nambiyur Taluk, Erode District	
<b>Attention</b>	-	<b>Sample Receipt Condition</b>	Ambient – Good
<b>Customer Ref No</b>	3952	<b>Sample Quantity</b>	2Liters
<b>Sample Name</b>	Surface Water -1	<b>Sampled by</b>	Laboratory
<b>Sample Description</b>	Liquid	<b>Sampling Method</b>	GLCS/SOP/W/028
<b>Sample Code</b>	GLCS / 8164	<b>Sample Receipt Date</b>	25.11.2023
<b>Location Name</b>	Lower Bhavani Canal	<b>Date of Analysis</b>	25.11.2023
<b>Sampling Date</b>	23.11.2023	<b>Date of Completion</b>	15.12.2023
		<b>Coordinates</b>	11°24'30.00"N 77°20'27.90"E

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Total Suspended Solids	IS 3025 PART 17	mg/l	12
2	Phenolic Compounds	IS 3025 PART 43	mg/l	BDL(DL:0.1)
3	Anionic Detergents	IS 13428 Annex K	mg/l	BDL(DL:0.05)
4	Cyanide	IS 3025 PART 27	mg/l	BDL(DL:0.02)
5	Sulphide	GLCS/SOP/W/66	mg/l	BDL(DL:1.0)
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 <sup>6+</sup>	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
14	Barium as Ba	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
15	Molybdenum as Mo	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
16	Arsenic as As	GLCS/SOP/W/62	mg/l	BDL(DL:0.002)

Note: BDL – Below Detection Limit, DL – Detection Limit.

For Global Lab and Consultancy Services

\*\*\*\*\*End of Report\*\*\*\*\*  
Page 1 of 1

*(Signature)*  
**Authorised Signatory**  
**L. SUDHAPRIYA**  
 Technical Manager

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### TEST REPORT

ULR TC606023000008011F

Report Number: GLCS/TR/8165/2023-24(1)

Report Date: 18.12.2023

<b>Issued To:</b> K.Vijay Perichiyappan, S/o K.N.Kandasamy, K.N.Charman Thottam, B.Karattupalayam, Gobichettipalayam Taluk, Erode District		<b>Site Address:</b> Lease Area – 0.86.0 Ha. S.F.Nos: 347/1B & 347/2B, Elathur 'A' Village, Nambiyur Taluk, Erode District	
<b>Attention</b>	-	<b>Sample Receipt Condition</b>	Ambient – Good
<b>Customer Ref No</b>	3952	<b>Sample Quantity</b>	2Liters
<b>Sample Name</b>	Surface Water -2	<b>Sampled by</b>	Laboratory
<b>Sample Description</b>	Liquid	<b>Sampling Method</b>	GLCS/SOP/W/028
<b>Sample Code</b>	GLCS / 8165	<b>Sample Receipt Date</b>	25.11.2023
<b>Location Name</b>	Bhavani River	<b>Date of Analysis</b>	25.11.2023
<b>Sampling Date</b>	23.11.2023	<b>Date of Completion</b>	15.12.2023
		<b>Coordinates</b>	11°27'17.16"N 77°17'33.69"E

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Color	IS 3025 PART 4	Hazen	8
2	Odor	IS 3025 PART 5	-	Agreeable
3	pH	IS 3025 PART11	-	7.68
4	Electrical Conductivity	IS 3025 PART14	µS/cm	2648
5	Turbidity	IS 3025 PART10	NTU	10
6	Total Dissolved Solids	IS 3025 PART16	mg/l	1721
7	Total Alkalinity as CaCO <sub>3</sub>	IS 3025 PART 23	mg/l	540
8	Total Hardness as CaCO <sub>3</sub>	IS 3025 PART 21	mg/l	610
9	Calcium as Ca	IS 3025 PART40	mg/l	124



For Global Lab and Consultancy Services

*(Signature)*  
**Authorised Signatory**  
**L. SUDHAPRIYA**  
 Technical Manager

Page 1 of 3

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### TEST REPORT

ULR TC606023000008011F

Report Number: GLCS/TR/8165/2023-24(1)

Report Date: 18.12.2023

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
10	Magnesium as Mg	IS 3025 PART 46	mg/l	73
11	Chloride as Cl <sup>-</sup>	IS 3025 PART 32	mg/l	340
12	Sulphate as SO <sub>4</sub> <sup>-</sup>	IS 3025 PART 24	mg/l	136
13	Iron as Fe	IS 3025 PART 53	mg/l	0.36
14	Boron as B	IS 3025 PART 57	mg/l	BDL(DL:0.1)
15	Free Residual Chlorine as Cl <sub>2</sub>	IS 3025 PART 26	mg/l	BDL(DL:1.0)
16	Fluoride as F	GLCS/SOP/W/015	mg/l	0.24
17	Manganese as Mn	IS 3025 PART 59	mg/l	BDL(DL:0.1)
18	Nitrate as NO <sub>3</sub>	IS 3025 PART 34	mg/l	BDL(DL:2.0)
19	Dissolved Oxygen	IS 3025 PART 38	mg/l	4.8
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	24
22	Ammonia as NH <sub>3</sub>	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  
L. SUDHAPRIYA  
Technical Manager

Page 2 of 3

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### TEST REPORT

ULR TC606023000008011F

Report Number: GLCS/TR/8165/2023-24(1)

Report Date: 18.12.2023

<b>Issued To:</b> K.Vijay Perichiyappan, S/o K.N.Kandasamy, K.N.Charman Thottam, B.Karattupalayam, Gobichettipalayam Taluk, Erode District		<b>Site Address:</b> Lease Area – 0.86.0 Ha. S.F.Nos: 347/1B & 347/2B, Elathur 'A' Village, Nambiyur Taluk, Erode District	
<b>Attention</b>	-	<b>Sample Receipt Condition</b>	Good
<b>Customer Ref No</b>	3952	<b>Sample Quantity</b>	300 ml
<b>Sample Name</b>	Surface Water -2	<b>Sampled by</b>	Laboratory
<b>Sample Description</b>	Liquid	<b>Sampling Method</b>	GLCS/M/SOP-05
<b>Sample Code</b>	GLCS / 8165	<b>Sample Receipt Date</b>	25.11.2023
<b>Location Name</b>	Bhavani River	<b>Date of Analysis</b>	25.11.2023
<b>Sampling Date</b>	23.11.2023	<b>Date of Completion</b>	02.12.2023
		<b>Coordinates</b>	11°27'17.16"N 77°17'33.69"E

SI. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Total Coliforms	IS 1622	MPN/100ml	40
2	<i>Escherichia coli</i>	IS 1622	MPN/100ml	<2

Note: MPN –Most Probable Number.



For Global Lab and Consultancy Services

\*\*\*\*\*End of Report\*\*\*\*\*

Page 3 of 3

  
Authorized Signatory  
L. DINESHKUMAR  
Technical Manager-Microbiology

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## TEST REPORT

Report Number: GLCS/TR/8165/2023-24(2)

Report Date: 18.12.2023

<b>Issued To:</b> K.Vijay Perichiyappan, S/o K.N.Kandasamy, K.N.Charman Thottam, B.Karattupalayam, Gobichettipalayam Taluk, Erode District		<b>Site Address:</b> Lease Area – 0.86.0 Ha. S.F.Nos: 347/1B & 347/2B, Elathur 'A' Village, Nambiyur Taluk, Erode District	
<b>Attention</b>	-	<b>Sample Receipt Condition</b>	Ambient – Good
<b>Customer Ref No</b>	3952	<b>Sample Quantity</b>	2Liters
<b>Sample Name</b>	Surface Water -2	<b>Sampled by</b>	Laboratory
<b>Sample Description</b>	Liquid	<b>Sampling Method</b>	GLCS/SOP/W/028
<b>Sample Code</b>	GLCS / 8165	<b>Sample Receipt Date</b>	25.11.2023
<b>Location Name</b>	Bhavani River	<b>Date of Analysis</b>	25.11.2023
<b>Sampling Date</b>	23.11.2023	<b>Date of Completion</b>	15.12.2023
		<b>Coordinates</b>	11°27'17.16"N 77°17'33.69"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 Detergents	IS 13428 Annex K	mg/l	BDL(DL:0.05)
4	Cyanide	IS 3025 PART 27	mg/l	BDL(DL:0.02)
5	Sulphide	GLCS/SOP/W/66	mg/l	BDL(DL:1.0)
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 <sup>6+</sup>	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
14	Barium as Ba	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
15	Molybdenum as Mo	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
16	Arsenic as As	GLCS/SOP/W/62	mg/l	BDL(DL:0.002)

Note: BDL – Below Detection Limit, DL – Detection Limit.

For Global Lab and Consultancy Services



\*\*\*\*\*End of Report\*\*\*\*\*

Page 1 of 1

  
**Authorised Signatory**  
**L. SUDHAPRIYA**  
 Technical Manager

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### TEST REPORT

ULR TC606023000008012F

Report Number: GLCS/TR/8166/2023-24(1)

Report Date: 18.12.2023

<b>Issued To:</b> K.Vijay Perichiyappan, S/o K.N.Kandasamy, K.N.Charman Thottam, B.Karattupalayam, Gobichettipalayam Taluk, Erode District		<b>Site Address:</b> Lease Area – 0.86.0 Ha. S.F.Nos: 347/1B & 347/2B, Elathur 'A' Village, Nambiyur Taluk, Erode District	
<b>Attention</b>	-	<b>Sample Receipt Condition</b>	Good
<b>TRF No.</b>	3952	<b>Sample Quantity</b>	2liters
<b>Sample Name</b>	Well Water -1	<b>Sampled by</b>	Laboratory
<b>Sample Description</b>	Liquid	<b>Sampling Method</b>	GLCS/SOP/W/028
<b>Location</b>	Near Project Area -SW	<b>Sample Receipt Date</b>	25.11.2023
<b>Sample Code</b>	GLCS / 8166	<b>Date of Analysis</b>	25.11.2023
<b>Sample Receipt Date</b>	25.11.2023	<b>Date of Completion</b>	15.12.2023
		<b>Coordinates</b>	11°24'14.17"N 77°19'32.70"E

SI. 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	-	7.58
4	Electrical Conductivity	IS 3025 PART 14	µS/cm	1615
5	Turbidity	IS 3025 PART 10	NTU	<1
6	Total Dissolved Solids	IS 3025 PART 16	mg/l	1050
7	Total Suspended Solids	IS 3025 PART 17	mg/l	BDL(DL:2.0)

Note: BDL- Below Detection Limit, DL- Detection Limit.



For Global Lab and Consultancy Services

  
Authorised Signatory

L. SUDHAPRIYA  
Technical Manager

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### TEST REPORT

ULR TC606023000008012F

Report Number: GLCS/TR/8166/2023-24(1)

Report Date: 18.12.2023

SI. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
8	Total Alkalinity	IS 3025 PART 23	mg/l	410
9	Total Hardness as CaCO <sub>3</sub>	IS 3025 PART 21	mg/l	380
10	Calcium as Ca	IS 3025 PART 40	mg/l	72
11	Magnesium as Mg	IS 3025 PART 46	mg/l	49
12	Chloride as Cl <sup>-</sup>	IS 3025 PART 32	mg/l	190
13	Sulphate as SO <sub>4</sub> <sup>2-</sup>	IS 3025 PART 24	mg/l	33
14	Iron as Fe	IS 3025 PART 53	mg/l	BDL(DL:0.1)
15	Boron as B	IS 3025 PART 57	mg/l	BDL(DL:0.1)
16	Free Residual Chlorine as Cl <sub>2</sub>	IS 3025 PART 26	mg/l	BDL(DL:1.0)
17	Fluoride as F	GLCS/SOP/W/015	mg/l	0.14
18	Nitrate as NO <sub>3</sub>	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  
L. SUDHAPRIYA  
Technical Manager

Page 2 of 3

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### TEST REPORT

ULR TC606023000008012F

Report Number: GLCS/TR/8166/2023-24(1)

Report Date: 18.12.2023

<b>Issued To:</b> K.Vijay Perichiyappan, S/o K.N.Kandasamy, K.N.Charman Thottam, B.Karattupalayam, Gobichettipalayam Taluk, Erode District		<b>Site Address:</b> Lease Area – 0.86.0 Ha. S.F.Nos: 347/1B & 347/2B, Elathur 'A' Village, Nambiyur Taluk, Erode District	
<b>Attention</b>	-	<b>Sample Receipt Condition</b>	Good
<b>TRF No.</b>	3952	<b>Sample Quantity</b>	300 ml
<b>Sample Name</b>	Well Water -1	<b>Sampled by</b>	Laboratory
<b>Sample Description</b>	Liquid	<b>Sampling Method</b>	GLCS/M/SOP-05
<b>Location</b>	Near Project Area -SW	<b>Sample Receipt Date</b>	25.11.2023
<b>Sample Code</b>	GLCS / 8166	<b>Date of Analysis</b>	25.11.2023
<b>Sample Receipt Date</b>	25.11.2023	<b>Date of Completion</b>	27.11.2023
		<b>Coordinates</b>	11°24'14.17"N 77°19'32.70"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/8166/2023-24(2)

Report Date: 18.12.2023

<b>Issued To:</b> K.Vijay Perichiyappan, S/o K.N.Kandasamy, K.N.Charman Thottam, B.Karattupalayam, Gobichettipalayam Taluk, Erode District		<b>Site Address:</b> Lease Area – 0.86.0 Ha, S.F.Nos: 347/1B & 347/2B, Elathur 'A' Village, Nambiyur Taluk, Erode District	
<b>Attention</b>	-	<b>Sample Receipt Condition</b>	Good
<b>TRF No.</b>	3952	<b>Sample Quantity</b>	2liters
<b>Sample Name</b>	Well Water -1	<b>Sampled by</b>	Laboratory
<b>Sample Description</b>	Liquid	<b>Sampling Method</b>	GLCS/SOP/W/028
<b>Location</b>	Near Project Area -SW	<b>Sample Receipt Date</b>	25.11.2023
<b>Sample Code</b>	GLCS / 8166	<b>Date of Analysis</b>	25.11.2023
<b>Sample Receipt Date</b>	25.11.2023	<b>Date of Completion</b>	15.12.2023
		<b>Coordinates</b>	11°24'14.17"N 77°19'32.70"E

SI. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Arsenic as As	GLCS/SOP/W/62	mg/l	BDL(DL:0.002)
2	Ammonia (NH <sub>3</sub> )	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**  
**L. SUDHAPRIYA**  
 Technical Manager

Page 1 of 2

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## TEST REPORT

Report Number: GLCS/TR/8166/2023-24(2)

Report Date: 18.12.2023

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
9	Barium as Ba	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
10	Anionic Detergents	IS 13428 Annex k	mg/l	BDL(DL:0.05)
11	Cyanide	IS 3025 PART 27	mg/l	BDL(DL:0.02)
12	Phenolic Compounds	IS 3025 PART 43	mg/l	BDQ(DL:0.1)
13	Chromium as Cr <sup>6+</sup>	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

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 reports issued by us can be verified by submitting on E-mail request with report number and report date along with report copy.

180/A

### TEST REPORT

ULR TC606023000008013F

Report Number: GLCS/TR/8167/2023-24(1)

Report Date: 18.12.2023

<b>Issued To:</b> K.Vijay Perichiyappan, S/o K.N.Kandasamy, K.N.Charman Thottam, B.Karattupalayam, Gobichettipalayam Taluk, Erode District		<b>Site Address:</b> Lease Area – 0.86.0 Ha. S.F.Nos: 347/1B & 347/2B, Elathur 'A' Village, Nambiyur Taluk, Erode District	
<b>Attention</b>	-	<b>Sample Receipt Condition</b>	Good
<b>TRF No.</b>	3952	<b>Sample Quantity</b>	2liters
<b>Sample Name</b>	Well Water -2	<b>Sampled by</b>	Laboratory
<b>Sample Description</b>	Liquid	<b>Sampling Method</b>	GLCS/SOP/W/028
<b>Location</b>	Koramadai	<b>Sample Receipt Date</b>	25.11.2023
<b>Sample Code</b>	GLCS / 8167	<b>Date of Analysis</b>	25.11.2023
<b>Sample Receipt Date</b>	25.11.2023	<b>Date of Completion</b>	15.12.2023
		<b>Coordinates</b>	11°26'32.88"N 77°21'4.05"E

SI. 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	-	7.47
4	Electrical Conductivity	IS 3025 PART 14	µS/cm	1148
5	Turbidity	IS 3025 PART 10	NTU	<1
6	Total Dissolved Solids	IS 3025 PART 16	mg/l	746
7	Total Suspended Solids	IS 3025 PART 17	mg/l	BDL(DL:2.0)

Note: BDL- Below Detection Limit, DL- Detection Limit.



For Global Lab and Consultancy Services

  
Authorised Signatory  
L. SUDHAPRIYA  
Technical Manager

Page 1 of 3

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### TEST REPORT

ULR TC606023000008013F

Report Number: GLCS/TR/8167/2023-24(1)

Report Date: 18.12.2023

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
8	Total Alkalinity	IS 3025 PART 23	mg/l	380
9	Total Hardness as CaCO <sub>3</sub>	IS 3025 PART 21	mg/l	360
10	Calcium as Ca	IS 3025 PART 40	mg/l	72
11	Magnesium as Mg	IS 3025 PART 46	mg/l	44
12	Chloride as Cl <sup>-</sup>	IS 3025 PART 32	mg/l	105
13	Sulphate as SO <sub>4</sub> <sup>-</sup>	IS 3025 PART 24	mg/l	46
14	Iron as Fe	IS 3025 PART 53	mg/l	0.2
15	Boron as B	IS 3025 PART 57	mg/l	BDL(DL:0.1)
16	Free Residual Chlorine as Cl <sub>2</sub>	IS 3025 PART 26	mg/l	BDL(DL:1.0)
17	Fluoride as F	GLCS/SOP/W/015	mg/l	0.13
18	Nitrate as NO <sub>3</sub>	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**  
**L. SUDHAPRIYA**  
Technical Manager

Page 2 of 3

**Note:** The test results are only to the sample submitted for test. Any Correction of the test report on full or part shall invalidate the report. Samples are not drawn by us unless otherwise stated. Sample will be retained for 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 reports 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 TC606023000008013F

Report Number: GLCS/TR/8167/2023-24(1)

Report Date: 18.12.2023

<b>Issued To:</b> K.Vijay Perichiyappan, S/o K.N.Kandasamy, K.N.Charman Thottam, B.Karattupalayam, Gobichettipalayam Taluk, Erode District		<b>Site Address:</b> Lease Area – 0.86.0 Ha. S.F.Nos: 347/1B & 347/2B, Elathur 'A' Village, Nambiyur Taluk, Erode District	
<b>Attention</b>	-	<b>Sample Receipt Condition</b>	Good
<b>TRF No.</b>	3952	<b>Sample Quantity</b>	300 ml
<b>Sample Name</b>	Well Water -2	<b>Sampled by</b>	Laboratory
<b>Sample Description</b>	Liquid	<b>Sampling Method</b>	GLCS/M/SOP-05
<b>Location</b>	Near Project Area -NE	<b>Sample Receipt Date</b>	25.11.2023
<b>Sample Code</b>	GLCS / 8167	<b>Date of Analysis</b>	25.11.2023
<b>Sample Receipt Date</b>	25.11.2023	<b>Date of Completion</b>	27.11.2023
		<b>Coordinates</b>	11°26'32.88"N 77°21'4.05"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/8167/2023-24(2)

Report Date: 18.12.2023

<b>Issued To:</b> K.Vijay Perichiyappan, S/o K.N.Kandasamy, K.N.Charman Thottam, B.Karattupalayam, Gobichettipalayam Taluk, Erode District		<b>Site Address:</b> Lease Area – 0.86.0 Ha. S.F.Nos: 347/1B & 347/2B, Elathur 'A' Village, Nambiyur Taluk, Erode District	
<b>Attention</b>	-	<b>Sample Receipt Condition</b>	Good
<b>TRF No.</b>	3952	<b>Sample Quantity</b>	2liters
<b>Sample Name</b>	Well Water -2	<b>Sampled by</b>	Laboratory
<b>Sample Description</b>	Liquid	<b>Sampling Method</b>	GLCS/SOP/W/028
<b>Location</b>	Koramadai	<b>Sample Receipt Date</b>	25.11.2023
<b>Sample Code</b>	GLCS / 8167	<b>Date of Analysis</b>	25.11.2023
<b>Sample Receipt Date</b>	25.11.2023	<b>Date of Completion</b>	15.12.2023
		<b>Coordinates</b>	11°26'32.88"N 77°21'4.05"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 <sub>3</sub> )	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

*(Signature)*  
**Authorised Signatory**  
**L. SUDHAPRIYA**  
 Technical Manager

Page 1 of 2

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**TEST REPORT**

Report Number: GLCS/TR/8167/2023-24(2)

Report Date: 18.12.2023

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
9	Barium as Ba	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
10	Anionic Detergents	IS 13428 Annex k	mg/l	BDL(DL:0.05)
11	Cyanide	IS 3025 PART 27	mg/l	BDL(DL:0.02)
12	Phenolic Compounds	IS 3025 PART 43	mg/l	BDQ(DL:0.1)
13	Chromium as Cr <sup>6+</sup>	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 TC606023000008014F

Report Number: GLCS/TR/8168/2023-24(1)

Report Date: 18.12.2023

<b>Issued To:</b> K.Vijay Perichiyappan, S/o K.N.Kandasamy, K.N.Charman Thottam, B.Karattupalayam, Gobichettipalayam Taluk, Erode District		<b>Site Address:</b> Lease Area – 0.86.0 Ha. S.F.Nos: 347/1B & 347/2B, Elathur 'A' Village, Nambiyur Taluk, Erode District	
<b>Attention</b>	-	<b>Sample Receipt Condition</b>	Good
<b>TRF No.</b>	3952	<b>Sample Quantity</b>	2liters
<b>Sample Name</b>	Bore Well Water -1	<b>Sampled by</b>	Laboratory
<b>Sample Description</b>	Liquid	<b>Sampling Method</b>	GLCS/SOP/W/028
<b>Location</b>	Near Project Area - NE	<b>Sample Receipt Date</b>	25.11.2023
<b>Sample Code</b>	GLCS / 8168	<b>Date of Analysis</b>	25.11.2023
<b>Sample Receipt Date</b>	25.11.2023	<b>Date of Completion</b>	15.12.2023
		<b>Coordinates</b>	11°24'30.47"N 77°19'44.66"E

SI. 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	-	7.9
4	Electrical Conductivity	IS 3025 PART 14	µS/cm	989
5	Turbidity	IS 3025 PART 10	NTU	<1
6	Total Dissolved Solids	IS 3025 PART 16	mg/l	643
7	Total Suspended Solids	IS 3025 PART 17	mg/l	BDL(DL:2.0)

Note: BDL- Below Detection Limit, DL- Detection Limit.



For Global Lab and Consultancy Services

  
Authorised Signatory

L. SUDHAPRIYA  
Technical Manager

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### TEST REPORT

ULR TC606023000008014F

Report Number: GLCS/TR/8168/2023-24(1)

Report Date: 18.12.2023

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
8	Total Alkalinity	IS 3025 PART 23	mg/l	300
9	Total Hardness as CaCO <sub>3</sub>	IS 3025 PART 21	mg/l	350
10	Calcium as Ca	IS 3025 PART 40	mg/l	80
11	Magnesium as Mg	IS 3025 PART 46	mg/l	36
12	Chloride as Cl <sup>-</sup>	IS 3025 PART 32	mg/l	90
13	Sulphate as SO <sub>4</sub> <sup>2-</sup>	IS 3025 PART 24	mg/l	130
14	Iron as Fe	IS 3025 PART 53	mg/l	BDL(DL:0.1)
15	Boron as B	IS 3025 PART 57	mg/l	BDL(DL:0.1)
16	Free Residual Chlorine as Cl <sub>2</sub>	IS 3025 PART 26	mg/l	BDL(DL:1.0)
17	Fluoride as F	GLCS/SOP/W/015	mg/l	0.3
18	Nitrate as NO <sub>3</sub>	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  
L. SUDHAPRIYA  
Technical Manager

Page 2 of 3

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### TEST REPORT

ULR TC606023000008014F

Report Number: GLCS/TR/8168/2023-24(1)

Report Date: 18.12.2023

<b>Issued To:</b> K.Vijay Perichiyappan, S/o K.N.Kandasamy, K.N.Charman Thottam, B.Karattupalayam, Gobichettipalayam Taluk, Erode District		<b>Site Address:</b> Lease Area – 0.86.0 Ha. S.F.Nos: 347/1B & 347/2B, Elathur 'A' Village, Nambiyur Taluk, Erode District	
<b>Attention</b>	-	<b>Sample Receipt Condition</b>	Good
<b>TRF No.</b>	3952	<b>Sample Quantity</b>	300 ml
<b>Sample Name</b>	Bore Well Water - 1	<b>Sampled by</b>	Laboratory
<b>Sample Description</b>	Liquid	<b>Sampling Method</b>	GLCS/M/SOP-05
<b>Location</b>	Near Project Area - NE	<b>Sample Receipt Date</b>	25.11.2023
<b>Sample Code</b>	GLCS / 8168	<b>Date of Analysis</b>	25.11.2023
<b>Sample Receipt Date</b>	25.11.2023	<b>Date of Completion</b>	27.11.2023
		<b>Coordinates</b>	11°24'30.47"N 77°19'44.66"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/8168/2023-24(2)

Report Date: 18.12.2023

<b>Issued To:</b> K.Vijay Perichiyappan, S/o K.N.Kandasamy, K.N.Charman Thottam, B.Karattupalayam, Gobichettipalayam Taluk, Erode District		<b>Site Address:</b> Lease Area – 0.86.0 Ha. S.F.Nos: 347/1B & 347/2B, Elathur 'A' Village, Nambiyur Taluk, Erode District	
<b>Attention</b>	-	<b>Sample Receipt Condition</b>	Good
<b>TRF No.</b>	3952	<b>Sample Quantity</b>	2liters
<b>Sample Name</b>	Bore Well Water -1	<b>Sampled by</b>	Laboratory
<b>Sample Description</b>	Liquid	<b>Sampling Method</b>	GLCS/SOP/W/028
<b>Location</b>	Near Project Area - NE	<b>Sample Receipt Date</b>	25.11.2023
<b>Sample Code</b>	GLCS / 8168	<b>Date of Analysis</b>	25.11.2023
<b>Sample Receipt Date</b>	25.11.2023	<b>Date of Completion</b>	15.12.2023
		<b>Coordinates</b>	11°24'30.47"N 77°19'44.66"E

SI. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Arsenic as As	GLCS/SOP/W/62	mg/l	BDL(DL:0.002)
2	Ammonia (NH <sub>3</sub> )	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/8168/2023-24(2)

Report Date: 18.12.2023

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
9	Barium as Ba	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
10	Anionic Detergents	IS 13428 Annex k	mg/l	BDL(DL:0.05)
11	Cyanide	IS 3025 PART 27	mg/l	BDL(DL:0.02)
12	Phenolic Compounds	IS 3025 PART 43	mg/l	BDQ(DL:0.1)
13	Chromium as Cr <sup>6+</sup>	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



*(Signature)*  
**Authorised Signatory**  
**L. SUDHAPRIYA**  
 Technical Manager

\*\*\*\*\*End of Report\*\*\*\*\*  
 Page 2 of 2

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### TEST REPORT

ULR TC606023000008015F

Report Number: GLCS/TR/8169/2023-24(1)

Report Date: 18.12.2023

<b>Issued To:</b> K.Vijay Perichiyappan, S/o K.N.Kandasamy, K.N.Charman Thottam, B.Karattupalayam, Gobichettipalayam Taluk, Erode District		<b>Site Address:</b> Lease Area – 0.86.0 Ha. S.F.Nos: 347/1B & 347/2B, Elathur 'A' Village, Nambiyur Taluk, Erode District	
<b>Attention</b>	-	<b>Sample Receipt Condition</b>	Good
<b>TRF No.</b>	3952	<b>Sample Quantity</b>	2liters
<b>Sample Name</b>	Bore Well Water -2	<b>Sampled by</b>	Laboratory
<b>Sample Description</b>	Liquid	<b>Sampling Method</b>	GLCS/SOP/W/028
<b>Location</b>	Vellaikovilpalayam	<b>Sample Receipt Date</b>	25.11.2023
<b>Sample Code</b>	GLCS / 8169	<b>Date of Analysis</b>	25.11.2023
<b>Sample Receipt Date</b>	25.11.2023	<b>Date of Completion</b>	15.12.2023
		<b>Coordinates</b>	11°22'31.10"N 77°21'5.55"E

SI. 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	1062
5	Turbidity	IS 3025 PART 10	NTU	<1
6	Total Dissolved Solids	IS 3025 PART 16	mg/l	690
7	Total Suspended Solids	IS 3025 PART 17	mg/l	BDL(DL:2.0)

Note: BDL- Below Detection Limit, DL- Detection Limit.



For Global Lab and Consultancy Services

  
Authorised Signatory  
L. SUDHAPRIYA  
Technical Manager

### TEST REPORT

ULR TC606023000008015F

Report Number: GLCS/TR/8169/2023-24(1)

Report Date: 18.12.2023

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
8	Total Alkalinity	IS 3025 PART 23	mg/l	290
9	Total Hardness as CaCO <sub>3</sub>	IS 3025 PART 21	mg/l	340
10	Calcium as Ca	IS 3025 PART 40	mg/l	76
11	Magnesium as Mg	IS 3025 PART 46	mg/l	36
12	Chloride as Cl <sup>-</sup>	IS 3025 PART 32	mg/l	120
13	Sulphate as SO <sub>4</sub> <sup>2-</sup>	IS 3025 PART 24	mg/l	102
14	Iron as Fe	IS 3025 PART 53	mg/l	0.4
15	Boron as B	IS 3025 PART 57	mg/l	BDL(DL:0.1)
16	Free Residual Chlorine as Cl <sub>2</sub>	IS 3025 PART 26	mg/l	BDL(DL:1.0)
17	Fluoride as F	GLCS/SOP/W/015	mg/l	0.2
18	Nitrate as NO <sub>3</sub>	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  
L. SUDHAPRIYA  
Technical Manager

Page 2 of 3

**Note:** The test results are only to the sample submitted for test. Any Correction of the test report on full or part shall invalidate the report. Samples are not drawn by us unless otherwise stated. Sample will be retained for 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 reports 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 TC606023000008015F

Report Number: GLCS/TR/8169/2023-24(1)

Report Date: 18.12.2023

<b>Issued To:</b> K.Vijay Perichiyappan, S/o K.N.Kandasamy, K.N.Charman Thottam, B.Karattupalayam, Gobichettipalayam Taluk, Erode District		<b>Site Address:</b> Lease Area – 0.86.0 Ha. S.F.Nos: 347/1B & 347/2B, Elathur 'A' Village, Nambiyur Taluk, Erode District	
<b>Attention</b>	-	<b>Sample Receipt Condition</b>	Good
<b>TRF No.</b>	3952	<b>Sample Quantity</b>	300 ml
<b>Sample Name</b>	Bore Well Water -2	<b>Sampled by</b>	Laboratory
<b>Sample Description</b>	Liquid	<b>Sampling Method</b>	GLCS/M/SOP-05
<b>Location</b>	Vellaikovilpalayam	<b>Sample Receipt Date</b>	25.11.2023
<b>Sample Code</b>	GLCS / 8169	<b>Date of Analysis</b>	25.11.2023
<b>Sample Receipt Date</b>	25.11.2023	<b>Date of Completion</b>	27.11.2023
		<b>Coordinates</b>	11°22'31.10"N 77°21'5.55"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

  
Authorised Signatory  
**L. DINESHKUMAR**  
Technical Manager-Microbiology

\*\*\*\*\*End of Report\*\*\*\*\*

Page 3 of 3

**Note:** The test results are only to the sample submitted for test. Any Correction of the test report on full or part shall invalidate the report. Samples are not drawn by us unless otherwise stated. Sample will be retained for 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 reports 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/8169/2023-24(2)

Report Date: 18.12.2023

<b>Issued To:</b> K.Vijay Perichiyappan, S/o K.N.Kandasamy, K.N.Charman Thottam, B.Karattupalayam, Gobichettipalayam Taluk, Erode District		<b>Site Address:</b> Lease Area – 0.86.0 Ha. S.F.Nos: 347/1B & 347/2B, Elathur 'A' Village, Nambiyur Taluk, Erode District	
<b>Attention</b>	-	<b>Sample Receipt Condition</b>	Good
<b>TRF No.</b>	3952	<b>Sample Quantity</b>	2liters
<b>Sample Name</b>	Bore Well Water -2	<b>Sampled by</b>	Laboratory
<b>Sample Description</b>	Liquid	<b>Sampling Method</b>	GLCS/SOP/W/028
<b>Location</b>	Vellaikovilpalayam	<b>Sample Receipt Date</b>	25.11.2023
<b>Sample Code</b>	GLCS / 8169	<b>Date of Analysis</b>	25.11.2023
<b>Sample Receipt Date</b>	25.11.2023	<b>Date of Completion</b>	15.12.2023
		<b>Coordinates</b>	11°22'31.10"N 77°21'5.55"E

SI. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Arsenic as As	GLCS/SOP/W/62	mg/l	BDL(DL:0.002)
2	Ammonia (NH <sub>3</sub> )	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

*(Signature)*  
**Authorised Signatory**  
**L. SUDHAPRIYA**  
 Technical Manager

Page 1 of 2

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## TEST REPORT

Report Number: GLCS/TR/8169/2023-24(2)

Report Date: 18.12.2023

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
9	Barium as Ba	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
10	Anionic Detergents	IS 13428 Annex k	mg/l	BDL(DL:0.05)
11	Cyanide	IS 3025 PART 27	mg/l	BDL(DL:0.02)
12	Phenolic Compounds	IS 3025 PART 43	mg/l	BDQ(DL:0.1)
13	Chromium as Cr <sup>6+</sup>	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-TC606023000008064F

Report Number: GLCS/TR/8170/2023-24(1)

Report Date: 20.12.2023

<b>Issued To:</b> K.Vijay Perichiyappan, S/o K.N.Kandasamy, K.N.Charman Thottam, B.Karattupalayam, Gobicheltipalayam Taluk, Erode District		<b>Site Address:</b> Lease Area – 0.86.0 Ha. S.F.Nos: 347/1B & 347/2B, Elathur 'A' Village, Nambiyur Taluk, Erode District	
<b>Attention</b>	-	<b>Sample Receipt Condition</b>	Ambient – Good
<b>Customer Ref No</b>	3952	<b>Sample Quantity</b>	2 kg
<b>Sample Name</b>	Soil -1	<b>Sampled by</b>	Laboratory
<b>Sample Description</b>	Powder	<b>Sampling Method</b>	GLCS/SOP/S/014
<b>Sample Code</b>	GLCS / 8170	<b>Sample Receipt Date</b>	25.11.2023
<b>Location Name</b>	Core Zone	<b>Date of Analysis</b>	25.11.2023
<b>Sampling Date</b>	23.11.2023	<b>Date of Completion</b>	19.12.2023
		<b>Location Co-ordinates</b>	11°24'25.08"N 77°19'34.06"E

Sl. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Organic Matter	GLCS/SOP/S/003	%	0.93
2	pH	IS 2720 PART 26	-	8.43
3	Specific Electrical Conductivity	IS 14767 : 2000	µS/cm	396
4	Available Phosphorous	GLCS/SOP/S/005	mg/kg	13.3
5	Available Potassium	GLCS/SOP/S/026	meq/l	1.23
6	Exchangeable Calcium (as Ca)	GLCS/SOP/S/020	meq/100g	6.4

For Global Lab and Consultancy Services



  
Authorised Signatory  
L. SUDHAPRIYA  
Technical Manager

Page 1 of 2

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### TEST REPORT

ULR-TC606023000008064F

Report Number: GLCS/TR/8170/2023-24(1)

Report Date: 20.12.2023

SI. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
7	Exchangeable Magnesium (as Mg)	GLCS/SOP/S/021	meq/100g	5.2
8	Sulphate as SO <sub>4</sub>	GLCS/SOP/S/009	mg/100g	13.0
9	Cation Exchange Capacity	GLCS/SOP/S/024	meq/100g	16.3
10	Bulk Density	GLCS/SOP/S/017	g/cc	1.004
11	Sand	GLCS/SOP/S/015	%	29.5
12	Silt	GLCS/SOP/S/015	%	38.9
13	Clay	GLCS/SOP/S/015	%	31.6
14	Water Holding Capacity	GLCS/SOP/S/016	%	49.6
15	Available Nitrogen as N	GLCS/SOP/S/029	Kg/ha	389
16	Chloride	GLCS/SOP/S/004	meq/l	4.1



For Global Lab and Consultancy Services

  
Authorised Signatory

\*\*\*\*\*End of Report\*\*\*\*\*

Page 2 of 2

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**TEST REPORT**

Report Number: GLCS/TR/8170/2023-24(2)

Report Date: 20.12.2023

<b>Issued To:</b> K.Vijay Perichiyappan, S/o K.N.Kandasamy, K.N.Charman Thottam, B.Karattupalayam, Gobichettipalayam Taluk, Erode District		<b>Site Address:</b> Lease Area – 0.86.0 Ha. S.F.Nos: 347/1B & 347/2B, Elathur 'A' Village, Nambiyur Taluk, Erode District	
<b>Attention</b>	-	<b>Sample Receipt Condition</b>	Ambient – Good
<b>Customer Ref No</b>	3952	<b>Sample Quantity</b>	2 kg
<b>Sample Name</b>	Soil -1	<b>Sampled by</b>	Laboratory
<b>Sample Description</b>	Powder	<b>Sampling Method</b>	GLCS/SOP/S/014
<b>Sample Code</b>	GLCS / 8170	<b>Sample Receipt Date</b>	25.11.2023
<b>Location Name</b>	Core Zone	<b>Date of Analysis</b>	25.11.2023
<b>Sampling Date</b>	23.11.2023	<b>Date of Completion</b>	19.12.2023
		<b>Location Co-ordinates</b>	11°24'25.08"N 77°19'34.06"E

SI. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Permeability	By Permeameter	%	42.3
2	Manganese as Mn	USEPA Method	mg/kg	20.6
3	Zinc as Zn	USEPA Method	mg/kg	52.0
4	Cadmium as Cd	USEPA Method	mg/kg	23.5
5	Chromium as Cr 6+	USEPA Method	mg/kg	47.0
6	Copper as Cu	USEPA Method	mg/kg	21.1
7	Lead as Pb	USEPA Method	mg/kg	0.98
8	Iron as Fe	USEPA Method	mg/kg	55.4
9	Organic Carbon	GLCS/SOP/S/003	%	0.54
10	Boron as B	USEPA Method	mg/kg	4.9



For Global Lab and Consultancy Services

*(Signature)*  
**Authorised Signatory**  
**L. SUDHAPRIYA**  
 Technical Manager

\*\*\*\*\*End of Report\*\*\*\*\*

Page 1 of 1

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### TEST REPORT

ULR-TC606023000008065F

Report Number: GLCS/TR/8171/2023-24(1)

Report Date: 20.12.2023

<b>Issued To:</b> K.Vijay Perichiyappan, S/o K.N.Kandasamy, K.N.Charman Thottam, B.Karattupalayam, Gobichettipalayam Taluk, Erode District		<b>Site Address:</b> Lease Area – 0.86.0 Ha. S.F.Nos: 347/1B & 347/2B, Elathur 'A' Village, Nambiyur Taluk, Erode District	
<b>Attention</b>	-	<b>Sample Receipt Condition</b>	Ambient – Good
<b>Customer Ref No</b>	3952	<b>Sample Quantity</b>	2 kg
<b>Sample Name</b>	Soil -2	<b>Sampled by</b>	Laboratory
<b>Sample Description</b>	Powder	<b>Sampling Method</b>	GLCS/SOP/S/014
<b>Sample Code</b>	GLCS / 8170	<b>Sample Receipt Date</b>	25.11.2023
<b>Location Name</b>	Munnampalli	<b>Date of Analysis</b>	25.11.2023
<b>Sampling Date</b>	23.11.2023	<b>Date of Completion</b>	19.12.2023
		<b>Location Co-ordinates</b>	11°23'49.88"N 77°20'0.09"E

Sl. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Organic Matter	GLCS/SOP/S/003	%	1.4
2	pH	IS 2720 PART 26	-	8.58
3	Specific Electrical Conductivity	IS 14767 : 2000	µS/cm	473
4	Available Phosphorous	GLCS/SOP/S/005	mg/kg	10.6
5	Available Potassium	GLCS/SOP/S/026	meq/l	1.57
6	Exchangeable Calcium (as Ca)	GLCS/SOP/S/020	meq/100g	5.6



For Global Lab and Consultancy Services

  
Authorised Signatory  
L. SUDHAPRIYA  
Technical Manager

Page 1 of 2

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### TEST REPORT

ULR-TC606023000008065F

Report Number: GLCS/TR/8171/2023-24(1)

Report Date: 20.12.2023

Sl. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
7	Exchangeable Magnesium (as Mg)	GLCS/SOP/S/021	meq/100g	7.0
8	Sulphate as SO <sub>4</sub>	GLCS/SOP/S/009	mg/100g	9.2
9	Cation Exchange Capacity	GLCS/SOP/S/024	meq/100g	16.7
10	Bulk Density	GLCS/SOP/S/017	g/cc	1.03
11	Sand	GLCS/SOP/S/015	%	33.35
12	Silt	GLCS/SOP/S/015	%	38.75
13	Clay	GLCS/SOP/S/015	%	27.9
14	Water Holding Capacity	GLCS/SOP/S/016	%	51.2
15	Available Nitrogen as N	GLCS/SOP/S/029	Kg/ha	414
16	Chloride	GLCS/SOP/S/004	meq/l	5.2

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/8171/2023-24(2)

Report Date: 20.12.2023

<b>Issued To:</b> K.Vijay Perichiyappan, S/o K.N.Kandasamy, K.N.Charman Thottam, B.Karattupalayam, Gobichettipalayam Taluk, Erode District		<b>Site Address:</b> Lease Area – 0.86.0 Ha. S.F.Nos: 347/1B & 347/2B, Elathur 'A' Village, Nambiyur Taluk, Erode District	
<b>Attention</b>	-	<b>Sample Receipt Condition</b>	Ambient – Good
<b>Customer Ref No</b>	3952	<b>Sample Quantity</b>	2 kg
<b>Sample Name</b>	Soil -2	<b>Sampled by</b>	Laboratory
<b>Sample Description</b>	Powder	<b>Sampling Method</b>	GLCS/SOP/S/014
<b>Sample Code</b>	GLCS / 8171	<b>Sample Receipt Date</b>	25.11.2023
<b>Location Name</b>	Munnampalli	<b>Date of Analysis</b>	25.11.2023
<b>Sampling Date</b>	23.11.2023	<b>Date of Completion</b>	19.12.2023
		<b>Location Co-ordinates</b>	11°23'49.88"N 77°20'0.09"E

SI. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Permeability	By Permeameter	%	43.6
2	Manganese as Mn	USEPA Method	mg/kg	21.2
3	Zinc as Zn	USEPA Method	mg/kg	52.6
4	Cadmium as Cd	USEPA Method	mg/kg	25.6
5	Chromium as Cr 6+	USEPA Method	mg/kg	35.0
6	Copper as Cu	USEPA Method	mg/kg	3.4
7	Lead as Pb	USEPA Method	mg/kg	BDL (DL : 0.5)
8	Iron as Fe	USEPA Method	mg/kg	48.0
9	Organic Carbon	GLCS/SOP/S/003	%	0.81
10	Boron as B	USEPA Method	mg/kg	5.4

**Note:** BDL – Below Detection Limit, DL – Detection Limit;

For Global Lab and Consultancy Services



\*\*\*\*\*End of Report\*\*\*\*\*

Page 1 of 1

*(Signature)*  
**Authorised Signatory**  
**L. SUDHAPRIYA**  
 Technical Manager

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### TEST REPORT

ULR-TC606023000008066F

Report Number: GLCS/TR/8172/2023-24(1)

Report Date: 20.12.2023

<b>Issued To:</b> K.Vijay Perichiyappan, S/o K.N.Kandasamy, K.N.Charman Thottam, B.Karattupalayam, Gobichettipalayam Taluk, Erode District		<b>Site Address:</b> Lease Area – 0.86.0 Ha. S.F.Nos: 347/1B & 347/2B, Elathur 'A' Village, Nambiyur Taluk, Erode District	
<b>Attention</b>	-	<b>Sample Receipt Condition</b>	Ambient – Good
<b>Customer Ref No</b>	3952	<b>Sample Quantity</b>	2 kg
<b>Sample Name</b>	Soil -3	<b>Sampled by</b>	Laboratory
<b>Sample Description</b>	Powder	<b>Sampling Method</b>	GLCS/SOP/S/014
<b>Sample Code</b>	GLCS / 8172	<b>Sample Receipt Date</b>	25.11.2023
<b>Location Name</b>	Odayagoundanpalayam	<b>Date of Analysis</b>	25.11.2023
<b>Sampling Date</b>	23.11.2023	<b>Date of Completion</b>	19.12.2023
		<b>Location Co-ordinates</b>	11°26'27.73"N 77°17'58.00"E

Sl. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Organic Matter	GLCS/SOP/S/003	%	2.56
2	pH	IS 2720 PART 26	-	7.83
3	Specific Electrical Conductivity	IS 14767 : 2000	µS/cm	342
4	Available Phosphorous	GLCS/SOP/S/005	mg/kg	15.0
5	Available Potassium	GLCS/SOP/S/026	meq/l	1.04
6	Exchangeable Calcium (as Ca)	GLCS/SOP/S/020	meq/100g	5.8



For Global Lab and Consultancy Services

  
**Authorised Signatory**  
**L. SUDHAPRIYA**  
 Technical Manager

Page 1 of 2

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ULR-TC606023000008066F

Report Number: GLCS/TR/8172/2023-24(1)

Report Date: 20.12.2023

SI. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
7	Exchangeable Magnesium (as Mg)	GLCS/SOP/S/021	meq/100g	7.0
8	Sulphate as SO <sub>4</sub>	GLCS/SOP/S/009	mg/100g	10.8
9	Cation Exchange Capacity	GLCS/SOP/S/024	meq/100g	16.5
10	Bulk Density	GLCS/SOP/S/017	g/cc	1.01
11	Sand	GLCS/SOP/S/015	%	33.5
12	Slit	GLCS/SOP/S/015	%	38.0
13	Clay	GLCS/SOP/S/015	%	28.5
14	Water Holding Capacity	GLCS/SOP/S/016	%	51.4
15	Available Nitrogen as N	GLCS/SOP/S/029	Kg/ha	338.7
16	Chloride	GLCS/SOP/S/004	meq/l	6.4



For Global Lab and Consultancy Services

  
Authorised Signatory  
L. SUDHAPRIYA  
Technical Manager

\*\*\*\*\*End of Report\*\*\*\*\*

Page 2 of 2

**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 reports issued by us can be verified by submitting on E-mail report with report number and report date along with report copy.



**TEST REPORT**

Report Number: GLCS/TR/8172/2023-24(2)

Report Date: 20.12.2023

<b>Issued To:</b> K.Vijay Perichiyappan, S/o K.N.Kandasamy, K.N.Charman Thottam, B.Karattupalayam, Gobichettipalayam Taluk, Erode District		<b>Site Address:</b> Lease Area – 0.86.0 Ha. S.F.Nos: 347/1B & 347/2B, Elathur 'A' Village, Nambiyur Taluk, Erode District	
<b>Attention</b>	-	<b>Sample Receipt Condition</b>	Ambient – Good
<b>Customer Ref No</b>	3952	<b>Sample Quantity</b>	2 kg
<b>Sample Name</b>	Soil -3	<b>Sampled by</b>	Laboratory
<b>Sample Description</b>	Powder	<b>Sampling Method</b>	GLCS/SOP/S/014
<b>Sample Code</b>	GLCS / 8172	<b>Sample Receipt Date</b>	25.11.2023
<b>Location Name</b>	Odayagoundanpalayam	<b>Date of Analysis</b>	25.11.2023
<b>Sampling Date</b>	23.11.2023	<b>Date of Completion</b>	19.12.2023
		<b>Location Co-ordinates</b>	11°26'27.73"N 77°17'58.00"E

SI. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Permeability	By Permeameter	%	48.2
2	Manganese as Mn	USEPA Method	mg/kg	24.5
3	Zinc as Zn	USEPA Method	mg/kg	51.5
4	Cadmium as Cd	USEPA Method	mg/kg	26.0
5	Chromium as Cr 6+	USEPA Method	mg/kg	46.5
6	Copper as Cu	USEPA Method	mg/kg	18.0
7	Lead as Pb	USEPA Method	mg/kg	1.5
8	Iron as Fe	USEPA Method	mg/kg	55.5
9	Organic Carbon	GLCS/SOP/S/003	%	1.48
10	Boron as B	USEPA Method	mg/kg	4.5



For Global Lab and Consultancy Services

*(Signature)*  
**Authorised Signatory**  
**L. SUDHAPRIYA**  
 Technical Manager

\*\*\*\*\*End of Report\*\*\*\*\*

Page 1 of 1

**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 reports issued by us can be verified by submitting on E-mail [lab@glcs.in](mailto:lab@glcs.in) with report number and report date along with report copy.

### TEST REPORT

ULR-TC606023000008067F

Report Number: GLCS/TR/8173/2023-24(1)

Report Date: 20.12.2023

<b>Issued To:</b> K.Vijay Perichiyappan, S/o K.N.Kandasamy, K.N.Charman Thottam, B.Karattupalayam, Gobichettipalayam Taluk, Erode District		<b>Site Address:</b> Lease Area – 0.86.0 Ha. S.F.Nos: 347/1B & 347/2B, Elathur 'A' Village, Nambiyur Taluk, Erode District	
<b>Attention</b>	-	<b>Sample Receipt Condition</b>	Ambient – Good
<b>Customer Ref No</b>	3952	<b>Sample Quantity</b>	2 kg
<b>Sample Name</b>	Soil -4	<b>Sampled by</b>	Laboratory
<b>Sample Description</b>	Powder	<b>Sampling Method</b>	GLCS/SOP/S/014
<b>Sample Code</b>	GLCS / 8173	<b>Sample Receipt Date</b>	25.11.2023
<b>Location Name</b>	Vellaikovilpalayam	<b>Date of Analysis</b>	25.11.2023
<b>Sampling Date</b>	23.11.2023	<b>Date of Completion</b>	19.12.2023
		<b>Location Co-ordinates</b>	11°22'28.84"N 77°21'0.25"E

Sl. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Organic Matter	GLCS/SOP/S/003	%	1.2
2	pH	IS 2720 PART 26	-	8.04
3	Specific Electrical Conductivity	IS 14767 : 2000	µS/cm	514
4	Available Phosphorous	GLCS/SOP/S/005	mg/kg	16.3
5	Available Potassium	GLCS/SOP/S/026	meq/l	0.93
6	Exchangeable Calcium (as Ca)	GLCS/SOP/S/020	meq/100g	4.8



For Global Lab and Consultancy Services

  
Authorised Signatory  
L. SUDHAPRIYA  
Technical Manager

Page 1 of 2

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### TEST REPORT

ULR-TC606023000008067F

Report Number: GLCS/TR/8173/2023-24(1)

Report Date: 20.12.2023

Sl. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
7	Exchangeable Magnesium (as Mg)	GLCS/SOP/S/021	meq/100g	7
8	Sulphate as SO <sub>4</sub>	GLCS/SOP/S/009	mg/100g	12
9	Cation Exchange Capacity	GLCS/SOP/S/024	meq/100g	17
10	Bulk Density	GLCS/SOP/S/017	g/cc	1.006
11	Sand	GLCS/SOP/S/015	%	30
12	Silt	GLCS/SOP/S/015	%	40
13	Clay	GLCS/SOP/S/015	%	30
14	Water Holding Capacity	GLCS/SOP/S/016	%	49.8
15	Available Nitrogen as N	GLCS/SOP/S/029	Kg/ha	364
16	Chloride	GLCS/SOP/S/004	meq/l	5.7

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/8173/2023-24(2)

Report Date: 20.12.2023

<b>Issued To:</b> K.Vijay Perichiyappan, S/o K.N.Kandasamy, K.N.Charman Thottam, B.Karattupalayam, Gobichettipalayam Taluk, Erode District		<b>Site Address:</b> Lease Area – 0.86.0 Ha. S.F.Nos: 347/1B & 347/2B, Elathur 'A' Village, Nambiyur Taluk, Erode District	
<b>Attention</b>	-	<b>Sample Receipt Condition</b>	Ambient – Good
<b>Customer Ref No</b>	3952	<b>Sample Quantity</b>	2 kg
<b>Sample Name</b>	Soil -4	<b>Sampled by</b>	Laboratory
<b>Sample Description</b>	Powder	<b>Sampling Method</b>	GLCS/SOP/S/014
<b>Sample Code</b>	GLCS / 8173	<b>Sample Receipt Date</b>	25.11.2023
<b>Location Name</b>	Vellaikovilpalayam	<b>Date of Analysis</b>	25.11.2023
<b>Sampling Date</b>	23.11.2023	<b>Date of Completion</b>	19.12.2023
		<b>Location Co-ordinates</b>	11°22'28.84"N 77°21'0.25"E

Sl. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Permeability	By Permeameter	%	50.4
2	Manganese as Mn	USEPA Method	mg/kg	38
3	Zinc as Zn	USEPA Method	mg/kg	52
4	Cadmium as Cd	USEPA Method	mg/kg	25
5	Chromium as Cr 6+	USEPA Method	mg/kg	43
6	Copper as Cu	USEPA Method	mg/kg	24
7	Lead as Pb	USEPA Method	mg/kg	BDL (DL :0.5)
8	Iron as Fe	USEPA Method	mg/kg	18.4
9	Organic Carbon	GLCS/SOP/S/003	%	0.67
10	Boron as B	USEPA Method	mg/kg	6.5

Note: BDL – Below Detection Limit, DL – Detection Limit;

For Global Lab and Consultancy Services



\*\*\*\*\*End of Report\*\*\*\*\*

Page 1 of 1

*(Signature)*  
**Authorised Signatory**  
**L. SUDHAPRIYA**  
 Technical Manager

Note: The test results are only to the sample submitted for test. Any Correction of the test report on full or part shall invalidate the report. Samples are not drawn by us unless otherwise stated. Sample will be retained for 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 reports 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-TC606023000008068F

Report Number: GLCS/TR/8174/2023-24(1)

Report Date: 20.12.2023

<b>Issued To:</b> K.Vijay Perichiyappan, S/o K.N.Kandasamy, K.N.Charman Thottam, B.Karattupalayam, Gobichettipalayam Taluk, Erode District		<b>Site Address:</b> Lease Area – 0.86.0 Ha. S.F.Nos: 347/1B & 347/2B, Elathur 'A' Village, Nambiyur Taluk, Erode District	
<b>Attention</b>	-	<b>Sample Receipt Condition</b>	Ambient – Good
<b>Customer Ref No</b>	3952	<b>Sample Quantity</b>	2 kg
<b>Sample Name</b>	Soil -5	<b>Sampled by</b>	Laboratory
<b>Sample Description</b>	Powder	<b>Sampling Method</b>	GLCS/SOP/S/014
<b>Sample Code</b>	GLCS / 8174	<b>Sample Receipt Date</b>	25.11.2023
<b>Location Name</b>	Sanarudal	<b>Date of Analysis</b>	25.11.2023
<b>Sampling Date</b>	23.11.2023	<b>Date of Completion</b>	19.12.2023
		<b>Location Co-ordinates</b>	11°24'17.73"N 77°17'31.99"E

Sl. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Organic Matter	GLCS/SOP/S/003	%	1.5
2	pH	IS 2720 PART 26	-	8.38
3	Specific Electrical Conductivity	IS 14767 : 2000	µS/cm	719
4	Available Phosphorous	GLCS/SOP/S/005	mg/kg	13.7
5	Available Potassium	GLCS/SOP/S/026	meq/l	1.92
6	Exchangeable Calcium (as Ca)	GLCS/SOP/S/020	meq/100g	7.6



For Global Lab and Consultancy Services

  
Authorised Signatory  
L. SUDHAPRIYA  
Technical Manager

Page 1 of 2

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### TEST REPORT

ULR-TC606023000008068F

Report Number: GLCS/TR/8174/2023-24(1)

Report Date: 20.12.2023

SI. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
7	Exchangeable Magnesium (as Mg)	GLCS/SOP/S/021	meq/100g	6.6
8	Sulphate as SO <sub>4</sub>	GLCS/SOP/S/009	mg/100g	19
9	Cation Exchange Capacity	GLCS/SOP/S/024	meq/100g	16.9
10	Bulk Density	GLCS/SOP/S/017	g/cc	1.01
11	Sand	GLCS/SOP/S/015	%	36.75
12	Slit	GLCS/SOP/S/015	%	35
13	Clay	GLCS/SOP/S/015	%	28.25
14	Water Holding Capacity	GLCS/SOP/S/016	%	47.6
15	Available Nitrogen as N	GLCS/SOP/S/029	Kg/ha	263
16	Chloride	GLCS/SOP/S/004	meq/l	4.7

For Global Lab and Consultancy Services



  
Authorised Signatory  
L. SUDHAPRIYA  
Technical Manager

\*\*\*\*\*End of Report\*\*\*\*\*

Page 2 of 2

**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 reports issued by us can be verified by submitting on E-mail report with report number and report date along with report copy.

**TEST REPORT**

Report Number: GLCS/TR/8174/2023-24(2)

Report Date: 20.12.2023

<b>Issued To:</b> K.Vijay Perichiyappan, S/o K.N.Kandasamy, K.N.Charman Thottam, B.Karattupalayam, Gobichettipalayam Taluk, Erode District		<b>Site Address:</b> Lease Area – 0.86.0 Ha, S.F.Nos: 347/1B & 347/2B, Elathur 'A' Village, Nambiyur Taluk, Erode District	
<b>Attention</b>	-	<b>Sample Receipt Condition</b>	Ambient – Good
<b>Customer Ref No</b>	3952	<b>Sample Quantity</b>	2 kg
<b>Sample Name</b>	Soil -5	<b>Sampled by</b>	Laboratory
<b>Sample Description</b>	Powder	<b>Sampling Method</b>	GLCS/SOP/S/014
<b>Sample Code</b>	GLCS / 8174	<b>Sample Receipt Date</b>	25.11.2023
<b>Location Name</b>	Sanarudal	<b>Date of Analysis</b>	25.11.2023
<b>Sampling Date</b>	23.11.2023	<b>Date of Completion</b>	19.12.2023
		<b>Location Co-ordinates</b>	11°24'17.73"N 77°17'31.99"E

SI. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Permeability	By Permeameter	%	46.3
2	Manganese as Mn	USEPA Method	mg/kg	BDL (DL :0.5)
3	Zinc as Zn	USEPA Method	mg/kg	38
4	Cadmium as Cd	USEPA Method	mg/kg	21
5	Chromium as Cr 6+	USEPA Method	mg/kg	22
6	Copper as Cu	USEPA Method	mg/kg	11
7	Lead as Pb	USEPA Method	mg/kg	1.9
8	Iron as Fe	USEPA Method	mg/kg	42.3
9	Organic Carbon	GLCS/SOP/S/003	%	0.87
10	Boron as B	USEPA Method	mg/kg	9.6

Note: BDL – Below Detection Limit, DL – Detection Limit;

For Global Lab and Consultancy Services



\*\*\*\*\*End of Report\*\*\*\*\*

Page 1 of 1

*(Signature)*  
**Authorised Signatory**  
**L. SUDHAPRIYA**  
 Technical Manager

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### TEST REPORT

ULR-TC606023000008069F

Report Number: GLCS/TR/8175/2023-24(1)

Report Date: 20.12.2023

<b>Issued To:</b> K.Vijay Perichiyappan, S/o K.N.Kandasamy, K.N.Charman Thottam, B.Karattupalayam, Gobichettipalayam Taluk, Erode District		<b>Site Address:</b> Lease Area – 0.86.0 Ha. S.F.Nos: 347/1B & 347/2B, Elathur 'A' Village, Nambiyur Taluk, Erode District	
<b>Attention</b>	-	<b>Sample Receipt Condition</b>	Ambient – Good
<b>Customer Ref No</b>	3952	<b>Sample Quantity</b>	2 kg
<b>Sample Name</b>	Soil -6	<b>Sampled by</b>	Laboratory
<b>Sample Description</b>	Powder	<b>Sampling Method</b>	GLCS/SOP/S/014
<b>Sample Code</b>	GLCS / 8175	<b>Sample Receipt Date</b>	25.11.2023
<b>Location Name</b>	Poosariyur	<b>Date of Analysis</b>	25.11.2023
<b>Sampling Date</b>	23.11.2023	<b>Date of Completion</b>	19.12.2023
		<b>Location Co-ordinates</b>	11°24'51.03"N 77°22'48.59"E

SI. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Organic Matter	GLCS/SOP/S/003	%	1.72
2	pH	IS 2720 PART 26	-	8.39
3	Specific Electrical Conductivity	IS 14767 : 2000	µS/cm	486
4	Available Phosphorous	GLCS/SOP/S/005	mg/kg	15
5	Available Potassium	GLCS/SOP/S/026	meq/l	1.3
6	Exchangeable Calcium (as Ca)	GLCS/SOP/S/020	meq/100g	8



For Global Lab and Consultancy Services

  
**Authorised Signatory**  
**L. SUDHAPRIYA**  
 Technical Manager

Page 1 of 2

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### TEST REPORT

ULR-TC606023000008069F

Report Number: GLCS/TR/8175/2023-24(1)

Report Date: 20.12.2023

SI. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
7	Exchangeable Magnesium (as Mg)	GLCS/SOP/S/021	meq/100g	6.6
8	Sulphate as SO <sub>4</sub>	GLCS/SOP/S/009	mg/100g	14.4
9	Cation Exchange Capacity	GLCS/SOP/S/024	meq/100g	16.3
10	Bulk Density	GLCS/SOP/S/017	g/cc	1.009
11	Sand	GLCS/SOP/S/015	%	34.65
12	Slit	GLCS/SOP/S/015	%	38.10
13	Clay	GLCS/SOP/S/015	%	27.25
14	Water Holding Capacity	GLCS/SOP/S/016	%	48
15	Available Nitrogen as N	GLCS/SOP/S/029	Kg/ha	338.7
16	Chloride	GLCS/SOP/S/004	meq/l	5.1

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/8175/2023-24(2)

Report Date: 20.12.2023

<b>Issued To:</b> K.Vijay Perichiyappan, S/o K.N.Kandasamy, K.N.Charman Thottam, B.Karattupalayam, Gobichettipalayam Taluk, Erode District		<b>Site Address:</b> Lease Area – 0.86.0 Ha. S.F.Nos: 347/1B & 347/2B, Elathur 'A' Village, Nambiyur Taluk, Erode District	
<b>Attention</b>	-	<b>Sample Receipt Condition</b>	Ambient – Good
<b>Customer Ref No</b>	3952	<b>Sample Quantity</b>	2 kg
<b>Sample Name</b>	Soil -6	<b>Sampled by</b>	Laboratory
<b>Sample Description</b>	Powder	<b>Sampling Method</b>	GLCS/SOP/S/014
<b>Sample Code</b>	GLCS / 8175	<b>Sample Receipt Date</b>	25.11.2023
<b>Location Name</b>	Poosariyur	<b>Date of Analysis</b>	25.11.2023
<b>Sampling Date</b>	23.11.2023	<b>Date of Completion</b>	19.12.2023
		<b>Location Co-ordinates</b>	11°24'51.03"N 77°22'48.59"E

SI. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Permeability	By Permeameter	%	50.4
2	Manganese as Mn	USEPA Method	mg/kg	13.4
3	Zinc as Zn	USEPA Method	mg/kg	34.3
4	Cadmium as Cd	USEPA Method	mg/kg	34.8
5	Chromium as Cr 6+	USEPA Method	mg/kg	29.3
6	Copper as Cu	USEPA Method	mg/kg	17.9
7	Lead as Pb	USEPA Method	mg/kg	0.99
8	Iron as Fe	USEPA Method	mg/kg	40.7
9	Organic Carbon	GLCS/SOP/S/003	%	1
10	Boron as B	USEPA Method	mg/kg	7



For Global Lab and Consultancy Services

*(Signature)*  
**Authorised Signatory**  
**L. SUDHAPRIYA**  
 Technical Manager

\*\*\*\*\*End of Report\*\*\*\*\*

Page 1 of 1

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# GLOBAL LAB AND CONSULTANCY SERVICES



*Committed to Precision*

LABORATORY | CONSULTANCY | SUSTAINABILITY

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## SUMMARY REPORT

<b>Issued To</b>	K.Vijay Perichiyappan, S/o.K.N.Kandasamy, K.N.Chairman Thottam, B.Karattupalayam, Gobichettipalayam Taluk, Erode District.		
<b>Site Location</b>	Lease area : 0.86.0 Ha S.F.Nos.347/1B & 347/2B of Elathur 'A' village,Nambiyur Taluk.		
<b>Sampling Method</b>	GLCS/SOP/AAQ/015	<b>Sample Drawn by</b>	Laboratory
<b>Sample Name</b>	Air Quality Monitoring	<b>Sampling Location</b>	AAQ 1 – Core Zone (Project Area)
<b>Sample Description</b>	Ambient Air Quality Monitoring	<b>Sample Condition</b>	Good
<b>Sample Code</b>	GLCS/5814,5821,6284,6291,6580,6587,6935,6942,7213,7220,7516,7523,7778,7785,8150,8157, 8471,8478,8791,8798,9169,9176,9467,9474,9778,9785,		
<b>Location Coordinates</b>	11°24' 21.50"N 77°19' 34.76"E		
<b>Report Date</b>	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	10.30am - 10.30am	44.0	21.6	6.5	19.1	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
05.10.2023	10.35am - 10.35am	42.7	21.2	6.8	21.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
11.10.2023	10.30am - 10.30am	43.2	24.1	BDL(DL:4)	22.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
12.10.2023	10.35am - 10.35am	43.6	22.9	BDL(DL:4)	21.3	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
18.10.2023	10.30am - 10.30am	43.6	22.0	BDL(DL:4)	22.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
19.10.2023	10.35am - 10.35am	42.5	24.1	BDL(DL:4)	21.2	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
25.10.2023	10.30am - 10.30am	41.3	21.6	4.1	20.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
26.10.2023	10.35am - 10.35am	41.6	21.2	7.0	21.0	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
1.11.2023	11.00am - 11.00am	43.4	21.2	6.2	21.6	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
2.11.2023	11.10am - 11.10am	41.0	24.1	7.0	20.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
8.11.2023	10.30am - 10.30am	42.2	21.2	BDL(DL:4)	21.5	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
9.11.2023	10.35am - 10.35am	40.6	20.0	BDL(DL:4)	21.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
15.11.2023	10.30am - 10.30am	42.7	22.5	4.6	21.1	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
16.11.2023	10.35am - 10.35am	42.0	24.1	7.0	21.1	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
22.11.2023	11.00am - 11.00am	41.0	20.8	BDL(DL:4)	20.0	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
23.11.2023	11.10am - 11.10am	40.7	20.0	7.2	20.3	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
29.11.2023	10.30am - 10.30am	42.6	22.5	7.2	20.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
30.11.2023	10.35am - 10.35am	43.7	23.7	5.4	22.0	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
06.12.2023	11.00am - 11.00am	41.0	20.0	5.2	19.5	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
07.12.2023	11.10am - 11.10am	40.3	20.4	BDL(DL:4)	20.5	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
13.12.2023	10.30am - 10.30am	42.3	21.2	4.9	21.9	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
14.12.2023	10.35am - 10.35am	43.2	23.3	5.4	20.6	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
20.12.2023	11.00am - 11.00am	41.7	21.2	BDL(DL:4)	21.3	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
21.12.2023	11.10am - 11.10am	41.7	21.2	5.6	21.5	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
27.12.2023	11.00am - 11.00am	40.8	20.0	5.6	22.9	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
28.12.2023	11.10am - 11.10am	42.2	22.5	7.5	24.6	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
<b>NAAQ* Standard</b>		<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	K.Vijay Perichiyappan, S/o.K.N.Kandasamy, K.N.Chairman Thottam, B.Karattupalayam, Gobichettipalayam Taluk, Erode District.		
Site Location	Lease area : 0.86.0 Ha S.F.Nos.347/1B & 347/2B of Elathur 'A' village,Nambiyur Taluk.		
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/5814,5821,6284,6291,6580,6587,6935,6942,7213,7220,7516,7523,7778,7785,8150,8157, 8471,8478,8791,8798,9169,9176,9467,9474,9778,9785,		
Location Coordinates	11° 24' 21.50"N 77° 19' 34. 76"E		
Report Date	08.01.2024		

Date	Period. hrs	Ni (ng/m <sup>3</sup> )	As (ng/m <sup>3</sup> )	BENZENE (µg/m <sup>3</sup> )	BaP (ng/m <sup>3</sup> )	Pb (µg/m <sup>3</sup> )
04.10.2023	10.30am - 10.30am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
05.10.2023	10.35am - 10.35am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
11.10.2023	10.30am - 10.30am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
12.10.2023	10.35am - 10.35am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
18.10.2023	10.30am - 10.30am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
19.10.2023	10.35am - 10.35am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
25.10.2023	10.30am - 10.30am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
26.10.2023	10.35am - 10.35am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
1.11.2023	11.00am - 11.00am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
2.11.2023	11.10am - 11.10am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
8.11.2023	10.30am - 10.30am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
9.11.2023	10.35am - 10.35am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
15.11.2023	10.30am - 10.30am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
16.11.2023	10.35am - 10.35am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
22.11.2023	11.00am - 11.00am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
23.11.2023	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	10.30am - 10.30am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
30.11.2023	10.35am - 10.35am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
06.12.2023	11.00am - 11.00am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
07.12.2023	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	10.30am - 10.30am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
14.12.2023	10.35am - 10.35am	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)
04.10.2023	10.30am - 10.30am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
05.10.2023	10.35am - 10.35am	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

215 A

L. SUDHAPRIYA  
Technical Manager



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**SUMMARY REPORT**

Issued To	K.Vijay Perichiyappan, S/o.K.N.Kandasamy, K.N.Chairman Thottam, B.Karattupalayam, Gobichettipalayam Taluk, Erode District.		
Site Location	Lease area : 0.86.0 Ha S.F.Nos.347/1B & 347/2B of Elathur 'A' village,Nambiyur Taluk.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ 2 - Munnampalli
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/5815,5822,6285,6292,6581,6588,6936,6943,7214,7221,7517,7524,7779,7786,8151, 8472,8479,8158,8792,8799,9170,9177,9468,9475, 9779, 9786		
Location Coordinates	11° 23' 49.42"N 77° 20' 1.38"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	10.45am - 10.45am	43.2	22.0	BDL(DL:4)	20.5	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
05.10.2023	10.50am - 10.50am	46.5	24.1	6.2	17.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
11.10.2023	10.45am - 10.45am	43.3	22.5	BDL(DL:4)	19.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
12.10.2023	10.50am - 10.50am	41.9	20.8	BDL(DL:4)	25.1	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
18.10.2023	10.45am - 10.45am	42.2	22.9	BDL(DL:4)	23.0	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
19.10.2023	10.50am - 10.50am	43.6	20.8	BDL(DL:4)	23.5	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
25.10.2023	10.45am - 10.45am	42.3	22.5	BDL(DL:4)	20.3	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
26.10.2023	10.50am - 10.50am	41.2	21.2	4.4	20.6	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
1.11.2023	11.15am - 11.15am	41.6	23.3	6.7	21.7	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
2.11.2023	11.25am - 11.25am	44.2	22.5	BDL(DL:4)	21.7	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
8.11.2023	10.45am - 10.45am	43.6	23.7	BDL(DL:4)	20.5	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
9.11.2023	10.50am - 10.50am	43.6	23.7	BDL(DL:4)	20.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
15.11.2023	10.45am - 10.45am	44.7	24.5	BDL(DL:4)	20.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
16.11.2023	10.50am - 10.50am	41.4	21.6	5.6	21.1	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
22.11.2023	11.15am - 11.15am	42.3	21.6	6.7	21.0	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
23.11.2023	11.25am - 11.25am	43.1	21.2	5.4	21.7	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
29.11.2023	10.45am - 10.45am	42.0	23.2	4.6	21.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
30.11.2023	10.50am - 10.50am	44.5	22.5	4.1	21.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
06.12.2023	11.15am - 11.15am	43.2	23.7	6.2	21.3	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
07.12.2023	11.25am - 11.25am	43.5	22.8	BDL(DL:4)	21.2	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
13.12.2023	10.45am - 10.45am	41.9	22.0	4.4	21.5	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
14.12.2023	10.50am - 10.50am	43.5	22.5	5.6	21.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
20.12.2023	11.15am - 11.15am	46.5	25.7	7.2	21.7	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
21.12.2023	11.25am - 11.25am	42.6	21.6	6.2	21.2	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
27.12.2023	11.15am - 11.15am	43.3	22.5	8.5	20.2	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
28.12.2023	11.25am - 11.25am	40.0	19.9	7.0	24.2	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



Committed to Precision

LABORATORY | CONSULTANCY | SUSTAINABILITY

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**SUMMARY REPORT**

Issued To	K.Vijay Perichiyappan, S/o.K.N.Kandasamy, K.N.Chairman Thottam, B.Karattupalayam, Gobichettipalayam Taluk, Erode District.		
Site Location	Lease area : 0.86.0 Ha S.F.Nos.347/1B & 347/2B of Elathur 'A' village,Nambiyur Taluk.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ 2 - Munnampalli
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/5815,5822,6285,6292,6581,6588,6936,6943,7214,7221,7517,7524,7779,7786,8151, 8472,8479,8158,8792,8799,9170,9177,9468,9475, 9779, 9786		
Location Coordinates	11°23' 49.42"N 77°20' 1.38"E		
Report Date	08.01.2024		

Date	Period. hrs	Ni (ng/m <sup>3</sup> )	As (ng/m <sup>3</sup> )	BENZENE (µg/m <sup>3</sup> )	BaP (ng/m <sup>3</sup> )	Pb (µg/m <sup>3</sup> )
04.10.2023	10.45am - 10.45am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
05.10.2023	10.50am - 10.50am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
11.10.2023	10.45am - 10.45am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
12.10.2023	10.50am - 10.50am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
18.10.2023	10.45am - 10.45am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
19.10.2023	10.50am - 10.50am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
25.10.2023	10.45am - 10.45am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
26.10.2023	10.50am - 10.50am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
1.11.2023	11.15am - 11.15am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
2.11.2023	11.25am - 11.25am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
8.11.2023	10.45am - 10.45am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
9.11.2023	10.50am - 10.50am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
15.11.2023	10.45am - 10.45am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
16.11.2023	10.50am - 10.50am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
22.11.2023	11.15am - 11.15am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
23.11.2023	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	10.45am - 10.45am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
30.11.2023	10.50am - 10.50am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
06.12.2023	11.15am - 11.15am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
07.12.2023	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	10.45am - 10.45am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
14.12.2023	10.50am - 10.50am	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	11.15am - 11.15am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
28.12.2023	11.25am - 11.25am	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.



*[Signature]*  
Authorised Signatory

\*\*\*\*\*End of Report\*\*\*\*\*

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L. SUDHAPRIYA  
Technical Manager



**SUMMARY REPORT**

Issued To	K.Vijay Perichiyappan, S/o.K.N.Kandasamy, K.N.Chairman Thottam, B.Karattupalayam, Gobichettipalayam Taluk, Erode District.		
Site Location	Lease area : 0.86.0 Ha S.F.Nos.347/1B & 347/2B of Elathur 'A' village, Nambiyur Taluk.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ 3 - Odayagoundampalayam
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/5816,5823,6286,6293,6582,6589, 6937, 6944,7215,7222,7518, 7525,7780,7787, 8152, 8159,8473,8480,8793,8800,9171,9178,9469,9476,9780,9787		
Location Coordinates	11° 26' 27.16"N 77° 18' 0.50"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	11.10am - 11.10am	44.4	22.4	8.4	21.2	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
05.10.2023	11.15am - 11.15am	43.2	22.4	7.0	21.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
11.10.2023	11.10am - 11.10am	45.0	23.7	5.2	20.1	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
12.10.2023	11.15am - 11.15am	45.3	23.3	7.4	21.3	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
18.10.2023	11.10am - 11.10am	42.8	22.5	BDL(DL:4)	23.1	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
19.10.2023	11.15am - 11.15am	43.3	21.6	4.9	19.9	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
25.10.2023	11.10am - 11.10am	41.8	22.9	6.4	20.9	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
26.10.2023	11.15am - 11.15am	42.5	22.0	6.2	21.1	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
1.11.2023	11.40am - 11.40am	42.3	21.6	4.9	20.7	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
2.11.2023	11.50am - 11.50am	41.6	23.7	5.2	20.0	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
8.11.2023	11.10am - 11.10am	41.6	20.0	6.8	21.0	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
9.11.2023	11.15am - 11.15am	42.5	21.6	BDL(DL:4)	21.9	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
15.11.2023	11.10am - 11.10am	42.7	21.2	4.6	20.1	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
16.11.2023	11.15am - 11.15am	44.5	22.5	7.0	21.2	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
22.11.2023	11.40am - 11.40am	43.5	22.5	5.4	20.9	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
23.11.2023	11.50am - 11.50am	42.8	21.6	6.7	21.3	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
29.11.2023	11.10am - 11.10am	44.5	22.5	6.7	21.3	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
30.11.2023	11.15am - 11.15am	42.3	23.3	6.4	19.5	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
06.12.2023	11.10am - 11.40am	42.3	21.6	5.8	20.6	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
07.12.2023	11.50am - 11.50am	42.4	22.5	4.1	21.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
13.12.2023	11.10am - 11.10am	44.5	23.7	5.2	21.6	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
14.12.2023	11.15am - 11.15am	42.7	21.6	6.2	20.9	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
20.12.2023	11.40am - 11.40am	42.6	22.5	5.7	20.5	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
21.12.2023	11.50am - 11.50am	42.1	22.5	6.7	20.9	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
27.12.2023	11.40am - 11.40am	42.1	21.6	BDL(DL:4)	25.1	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
28.12.2023	11.50am - 11.50am	43.6	21.6	6.4	21.1	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



Committed to Precision

LABORATORY | CONSULTANCY | SUSTAINABILITY

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**SUMMARY REPORT**

Issued To	K.Vijay Perichiyappan, S/o.K.N.Kandasamy, K.N.Chairman Thottam, B.Karattupalayam, Gobichettipalayam Taluk, Erode District.		
Site Location	Lease area : 0.86.0 Ha S.F.Nos.347/1B & 347/2B of Elathur 'A' village,Nambiyur Taluk.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ 3 - Odayagoundampalayam
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/5816,5823,6286,6293,6582,6589, 6937, 6944,7215,7222,7518, 7525,7780,7787, 8152, 8159,8473,8480,8793,8800,9171,9178,9469,9476,9780,9787		
Location Coordinates	11°26' 27.16"N 77°18' 0.50"E		
Report Date	08.01.2024		

Date	Period. hrs	Ni (ng/m <sup>3</sup> )	As (ng/m <sup>3</sup> )	BENZENE (µg/m <sup>3</sup> )	BaP (ng/m <sup>3</sup> )	Pb (µg/m <sup>3</sup> )
04.10.2023	11.10am - 11.10am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
05.10.2023	11.15am - 11.15am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
11.10.2023	11.10am - 11.10am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
12.10.2023	11.15am - 11.15am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
18.10.2023	11.10am - 11.10am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
19.10.2023	11.15am - 11.15am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
25.10.2023	11.10am - 11.10am	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	11.40am - 11.40am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
2.11.2023	11.50am - 11.50am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
8.11.2023	11.10am - 11.10am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
9.11.2023	11.15am - 11.15am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
15.11.2023	11.10am - 11.10am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
16.11.2023	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	11.40am - 11.40am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
23.11.2023	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	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	11.15am - 11.15am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
06.12.2023	11.10am - 11.40am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
07.12.2023	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	11.10am - 11.10am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
14.12.2023	11.15am - 11.15am	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	11.40am - 11.40am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
28.12.2023	11.50am - 11.50am	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.



*(Signature)*  
Authorised Signatory

\*\*\*\*\*End of Report\*\*\*\*\*

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L. SUDHAPRIYA  
Technical Manager

**SUMMARY REPORT**

Issued To	K.Vijay Perichiyappan, S/o.K.N.Kandasamy, K.N.Chairman Thottam, B.Karattupalayam, Gobichettipalayam Taluk, Erode District.		
Site Location	Lease area : 0.86.0 Ha S.F.Nos.347/1B & 347/2B of Elathur 'A' village,Nambiyur Taluk.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ 4 - Vellaikovilpayam
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/5817,5824,6287, 6294,6583, 6590,6938,6945,7216,7223, 7519,7526,7781,7788, 8153,8160,8474,8481,8794,8801,9172,9179,9470,9477, 9781,9788		
Location Coordinates	11° 22' 28.98"N 77° 21' 2. 26"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	11.30am - 11.30am	43.1	22.8	6.8	21.6	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
05.10.2023	11.35am - 11.35am	44.5	21.6	7.3	22.5	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
11.10.2023	11.30am - 11.30am	42.9	22.9	BDL(DL:4)	23.6	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
12.10.2023	11.35am - 11.35am	41.6	21.2	BDL(DL:4)	24.6	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
18.10.2023	11.30am - 11.30am	43.8	23.7	4.4	20.5	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
19.10.2023	11.35am - 11.35am	41.5	22.0	BDL(DL:4)	25.1	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
25.10.2023	11.30am - 11.30am	43.0	21.2	5.7	21.5	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
26.10.2023	11.35am - 11.35am	42.3	21.6	4.9	21.2	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
1.11.2023	12.15pm - 12.15pm	42.9	23.7	BDL(DL:4)	20.7	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
2.11.2023	12.25pm - 12.25pm	43.1	23.3	6.7	21.1	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
8.11.2023	11.30am - 11.30am	42.6	22.5	5.4	20.5	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
9.11.2023	11.35am - 11.35am	43.4	22.5	5.4	20.6	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
15.11.2023	11.30am - 11.30am	43.1	21.6	BDL(DL:4)	20.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
16.11.2023	11.35am - 11.35am	39.6	20.0	6.2	20.9	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
22.11.2023	12.15pm - 12.15pm	45.2	24.9	5.2	20.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
23.11.2023	12.25pm - 12.25pm	41.6	21.2	4.9	21.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
29.11.2023	11.30am - 11.30am	43.4	23.7	5.2	20.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
30.11.2023	11.35am - 11.35am	42.3	21.2	BDL(DL:4)	20.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
06.12.2023	12.15pm - 12.15pm	42.7	21.2	5.6	20.1	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
07.12.2023	12.25pm - 12.25pm	41.9	21.2	7.2	20.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
13.12.2023	11.30am - 11.30am	42.5	22.5	5.9	20.2	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
14.12.2023	11.35am - 11.35am	42.5	23.7	4.1	19.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
20.12.2023	12.15pm - 12.15pm	44.0	23.7	BDL(DL:4)	20.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
21.12.2023	12.25pm - 12.25pm	42.0	22.0	7.2	20.6	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
27.12.2023	12.15pm - 12.15pm	44.3	22.0	5.7	23.2	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
28.12.2023	12.25pm - 12.25pm	42.7	23.3	6.2	19.9	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.

  
Authorised Signatory

L. SUDHAPRIYA  
Technical Manager



**SUMMARY REPORT**

Issued To	K.Vijay Perichiyappan, S/o.K.N.Kandasamy, K.N.Chairman Thottam, B.Karattupalayam, Gobichettipalayam Taluk, Erode District.		
Site Location	Lease area : 0.86.0 Ha S.F.Nos.347/1B & 347/2B of Elathur 'A' village,Nambiyur Taluk.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ 4 - Vellaikovilpayam
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/5817,5824,6287, 6294,6583, 6590,6938,6945,7216,7223, 7519,7526,7781,7788, 8153,8160,8474,8481,8794,8801,9172,9179,9470,9477, 9781,9788		
Location Coordinates	11° 22' 28.98"N 77° 21' 2. 26"E		
Report Date	08.01.2024		

Date	Period. hrs	Ni (ng/m <sup>3</sup> )	As (ng/m <sup>3</sup> )	BENZENE (µg/m <sup>3</sup> )	BaP (ng/m <sup>3</sup> )	Pb (µg/m <sup>3</sup> )
04.10.2023	11.30am - 11.30am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
05.10.2023	11.35am - 11.35am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
11.10.2023	11.30am - 11.30am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
12.10.2023	11.35am - 11.35am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
18.10.2023	11.30am - 11.30am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
19.10.2023	11.35am - 11.35am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
25.10.2023	11.30am - 11.30am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
26.10.2023	11.35am - 11.35am	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	11.30am - 11.30am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
9.11.2023	11.35am - 11.35am	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	11.35am - 11.35am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
22.11.2023	12.15pm - 12.15pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
23.11.2023	12.25pm - 12.25pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
29.11.2023	11.30am - 11.30am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
30.11.2023	11.35am - 11.35am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
06.12.2023	12.15pm - 12.15pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
07.12.2023	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	12.15pm - 12.15pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
14.12.2023	12.25pm - 12.25pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
20.12.2023	11.30am - 11.30am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
21.12.2023	11.35am - 11.35am	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

L. SUDHAPRIYA  
Technical Manager

\*\*\*\*\*End of Report\*\*\*\*\*

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# GLOBAL LAB AND CONSULTANCY SERVICES



*Committed to Precision*

LABORATORY | CONSULTANCY | SUSTAINABILITY

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## SUMMARY REPORT

Issued To	K.Vijay Perichiyappan, S/o.K.N.Kandasamy, K.N.Chairman Thottam, B.Karattupalayam, Gobichettipalayam Taluk, Erode District.		
Site Location	Lease area : 0.86.0 Ha S.F.Nos.347/1B & 347/2B of Elathur 'A' village,Nambiyur Taluk.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ 5 - Koramadai
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/5818,5825,6288,6295,6584,6591,6939, 6946,7217,7224,7520,7527,7782,7789,8154,8161, 8475,8482,8795,8802,9173,9180,9471,9478,9782,9789		
Location Coordinates	11°26' 33.83"N 77°20' 58. 54"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	11.50am - 11.50am	43.7	22.5	BDL(DL:4)	20.3	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
05.10.2023	11.55am - 11.55am	42.4	21.2	5.7	21.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
11.10.2023	11.50am - 11.50am	45.4	24.1	5.5	20.2	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
12.10.2023	11.55am - 11.55am	42.9	22.0	7.6	25.2	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
18.10.2023	11.50am - 11.50am	44.7	22.8	BDL(DL:4)	25.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
19.10.2023	11.55am - 11.55am	42.7	22.8	4.4	22.7	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
25.10.2023	11.50am - 11.50am	43.8	21.6	BDL(DL:4)	20.7	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
26.10.2023	11.55am - 11.55am	43.7	24.1	5.2	21.2	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
1.11.2023	12.45pm - 12.45pm	42.5	20.0	5.7	20.3	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
2.11.2023	12.50pm - 12.50pm	42.2	21.2	BDL(DL:4)	20.1	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
8.11.2023	11.15am - 11.15am	43.1	22.9	6.1	20.6	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
9.11.2023	11.55am - 11.55am	41.6	21.2	BDL(DL:4)	20.2	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
15.11.2023	11.50am - 11.50am	42.2	24.1	4.1	19.9	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
16.11.2023	11.55am - 11.55am	42.8	21.2	7.2	20.9	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
22.11.2023	12.45pm - 12.45pm	43.3	24.1	4.6	19.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
23.11.2023	12.50pm - 12.50pm	44.1	23.7	5.2	21.2	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
29.11.2023	11.50am - 11.50am	43.6	23.7	BDL(DL:4)	20.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
30.11.2023	11.55am - 11.55am	42.9	22.5	6.2	21.9	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
06.12.2023	12.45pm - 12.45pm	42.8	21.2	BDL(DL:4)	21.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
07.12.2023	12.50pm - 12.50pm	42.2	21.6	BDL(DL:4)	21.7	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
13.12.2023	11.50am - 11.50am	43.6	23.3	BDL(DL:4)	22.3	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
14.12.2023	11.55am - 11.55am	42.9	21.2	BDL(DL:4)	20.7	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
20.12.2023	12.45pm - 12.45pm	43.3	23.3	4.1	20.5	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
21.12.2023	12.50pm - 12.50pm	43.8	23.7	4.4	20.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
27.12.2023	12.45pm - 12.45pm	44.0	24.1	BDL(DL:4)	22.3	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
28.12.2023	12.50pm - 12.50pm	43.1	22.9	8.5	23.6	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.



Authorised Signatory

L. SUDHAPRIYA  
Technical Manager





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**SUMMARY REPORT**

Issued To	K.Vijay Perichiyappan, S/o.K.N.Kandasamy, K.N.Chairman Thottam, B.Karattupalayam, Gobichettipalayam Taluk, Erode District.		
Site Location	Lease area : 0.86.0 Ha S.F.Nos.347/1B & 347/2B of Elathur 'A' village,Nambiyur Taluk.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ 5 - Koramadai
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/5818,5825,6288,6295,6584,6591,6939, 6946,7217,7224,7520,7527,7782,7789,8154,8161, 8475,8482,8795,8802,9173,9180,9471,9478,9782,9789		
Location Coordinates	11° 26' 33.83"N 77° 20' 58. 54"E		
Report Date	08.01.2024		

Date	Period. hrs	Ni (ng/m <sup>3</sup> )	As (ng/m <sup>3</sup> )	BENZENE (µg/m <sup>3</sup> )	BaP (ng/m <sup>3</sup> )	Pb (µg/m <sup>3</sup> )
04.10.2023	11.50am - 11.50am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
05.10.2023	11.55am - 11.55am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
11.10.2023	11.50am - 11.50am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
12.10.2023	11.55am - 11.55am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
18.10.2023	11.50am - 11.50am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
19.10.2023	11.55am - 11.55am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
25.10.2023	11.50am - 11.50am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
26.10.2023	11.55am - 11.55am	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	11.15am - 11.15am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
9.11.2023	11.55am - 11.55am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
15.11.2023	11.50am - 11.50am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
16.11.2023	11.55am - 11.55am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
22.11.2023	12.45pm - 12.45pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
23.11.2023	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	11.50am - 11.50am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
30.11.2023	11.55am - 11.55am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
06.12.2023	12.45pm - 12.45pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
07.12.2023	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	11.50am - 11.50am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
14.12.2023	11.55am - 11.55am	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	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\*\*\*\*\*

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L. SUDHAPRIYA  
Technical Manager

**SUMMARY REPORT**

Issued To	K.Vijay Perichiyappan, S/o.K.N.Kandasamy, K.N.Chairman Thottam, B.Karattupalayam, Gobichettipalayam Taluk, Erode District.		
Site Location	Lease area : 0.86.0 Ha S.F.Nos.347/1B & 347/2B of Elathur 'A' village,Nambiyur Taluk.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ 6 - Sanarudal
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/5819,5826,6289,6296,6585,6592,6940,6947,7218,7225,7521,7528,7783,7790,8155,8162, 8476,8483,8796,8803,9174,9181,9472,9479,9783,9790		
Location Coordinates	11° 24' 14.33"N 77° 17' 36. 59"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	12.10pm – 12.10pm	43.0	23.3	BDL(DL:4)	18.3	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
05.10.2023	12.15pm - 12.15pm	43.0	21.6	6.0	19.6	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
11.10.2023	12.10pm – 12.10pm	44.5	23.7	BDL(DL:4)	23.0	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
12.10.2023	12.15pm - 12.15pm	43.7	22.5	5.5	17.2	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
18.10.2023	12.10pm – 12.10pm	44.1	23.3	4.1	24.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
19.10.2023	12.15pm - 12.15pm	42.0	21.2	BDL(DL:4)	18.6	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
25.10.2023	12.10pm – 12.10pm	42.5	22.5	6.2	20.7	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
26.10.2023	12.15pm - 12.15pm	44.9	22.9	BDL(DL:4)	20.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
1.11.2023	1.15pm - 1.15pm	42.5	20.0	5.7	21.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
2.11.2023	1.25pm - 1.25pm	43.7	21.2	4.1	19.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
8.11.2023	12.10pm - 12.10pm	42.9	22.5	4.7	20.7	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
9.11.2023	12.15pm - 12.15pm	42.0	21.6	7.5	20.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
15.11.2023	12.10pm-12.10pm	43.0	23.7	6.0	20.7	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
16.11.2023	12.15pm - 12.15pm	43.6	22.0	4.4	21.0	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
22.11.2023	1.15pm - 1.15pm	42.5	21.6	BDL(DL:4)	21.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
23.11.2023	1.25pm – 1.25pm	42.7	22.5	BDL(DL:4)	21.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
29.11.2023	12.10pm - 12.10pm	43.0	23.3	4.1	22.3	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
30.11.2023	12.15pm – 12.15pm	41.5	20.0	BDL(DL:4)	20.7	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
06.12.2023	1.15pm – 1.15pm	43.5	22.5	6.2	22.9	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
07.12.2023	1.25pm – 1.25pm	43.4	22.0	6.5	21.6	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
13.12.2023	12.10pm-12.10pm	41.5	21.6	BDL(DL:4)	21.3	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
14.12.2023	12.15pm – 12.15pm	43.9	22.5	6.7	20.6	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
20.12.2023	1.15pm - 1.15pm	43.8	24.1	5.4	21.0	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
21.12.2023	1.25pm – 1.25pm	43.0	22.8	4.1	22.0	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
27.12.2023	1.15pm - 1.15pm	42.6	21.2	4.6	26.0	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
28.12.2023	1.25pm – 1.25pm	43.0	23.3	BDL(DL:4)	21.0	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

**SUMMARY REPORT**

Issued To	K.Vijay Perichiyappan, S/o.K.N.Kandasamy, K.N.Chairman Thottam, B.Karattupalayam, Gobichettipalayam Taluk, Erode District.		
Site Location	Lease area : 0.86.0 Ha S.F.Nos.347/1B & 347/2B of Elathur 'A' village,Nambiyur Taluk.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ 6 - Sanarudal
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/5819,5826,6289,6296,6585,6592,6940,6947,7218,7225,7521,7528,7783,7790,8155,8162, 8476,8483,8796,8803,9174,9181,9472,9479,9783,9790		
Location Coordinates	11° 24' 14.33"N 77° 17' 36. 59"E		
Report Date	08.01.2024		

Date	Period. hrs	Ni (ng/m <sup>3</sup> )	As (ng/m <sup>3</sup> )	BENZENE (µg/m <sup>3</sup> )	BaP (ng/m <sup>3</sup> )	Pb (µg/m <sup>3</sup> )
04.10.2023	12.10pm - 12.10pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
05.10.2023	12.15pm - 12.15pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
11.10.2023	12.10pm - 12.10pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
12.10.2023	12.15pm - 12.15pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
18.10.2023	12.10pm - 12.10pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
19.10.2023	12.15pm - 12.15pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
25.10.2023	12.10pm - 12.10pm	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	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	12.10pm - 12.10pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
9.11.2023	12.15pm - 12.15pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
15.11.2023	12.10pm -12.10pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
16.11.2023	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	1.15pm - 1.15pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
23.11.2023	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	12.10pm - 12.10pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
30.11.2023	12.15pm - 12.15pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
06.12.2023	1.15pm - 1.15pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
07.12.2023	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	12.10pm -12.10pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
14.12.2023	12.15pm - 12.15pm	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	1.15pm - 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.



*(Signature)*  
Authorised Signatory

\*\*\*\*\*End of Report\*\*\*\*\*

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L. SUDHAPRIYA  
Technical Manager



**SUMMARY REPORT**

Issued To	K.Vijay Perichiyappan, S/o.K.N.Kandasamy, K.N.Chairman Thottam, B.Karattupalayam, Gobichettipalayam Taluk, Erode District.		
Site Location	Lease area : 0.86.0 Ha S.F.Nos.347/1B & 347/2B of Elathur 'A' village,Nambiyur Taluk.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ7 - Poosariyur
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/5820,5827,6290,6297,6586, 6593, 6941,6948,7219,7226, 7522,7529,7784,7791, 8156,8163,8477,8484,8797,8804,9175,9181,9473,9480,9784,9791		
Location Coordinates	11° 24' 53.30"N 77° 22' 47. 34"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	12.25pm - 12.25pm	45.1	21.6	7.6	17.3	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
05.10.2023	12.30pm - 12.30pm	42.1	22.5	6.2	19.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
11.10.2023	12.25pm - 12.25pm	44.6	23.3	5.2	22.9	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
12.10.2023	12.30pm - 12.30pm	44.3	23.7	4.9	18.0	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
18.10.2023	12.25pm - 12.25pm	44.3	23.7	4.9	20.3	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
19.10.2023	12.30pm - 12.30pm	43.1	22.0	4.1	23.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
25.10.2023	12.25pm - 12.25pm	44.3	24.1	4.4	21.0	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
26.10.2023	12.30pm - 12.30pm	43.3	23.7	5.2	21.1	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
1.11.2023	1.45pm - 1.45pm	42.1	22.5	6.7	21.2	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
2.11.2023	1.55pm - 1.55pm	43.2	22.5	4.9	20.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
8.11.2023	12.25pm - 12.25pm	42.0	21.6	4.7	20.2	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
9.11.2023	12.30pm - 12.30pm	42.7	22.5	6.1	20.9	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
15.11.2023	12.25pm - 12.25pm	44.5	21.6	7.5	21.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
16.11.2023	12.30pm - 12.30pm	42.0	21.2	BDL(DL:4)	21.3	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
22.11.2023	1.45pm - 1.45pm	43.7	22.8	5.9	20.9	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
23.11.2023	1.55pm - 1.55pm	43.9	22.0	BDL(DL:4)	21.3	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
29.11.2023	12.25pm - 12.25pm	42.5	22.5	4.6	23.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
30.11.2023	12.30pm - 12.30pm	42.8	21.6	5.2	21.2	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
06.12.2023	1.45pm - 1.45pm	42.7	21.6	6.7	19.6	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
07.12.2023	1.55pm - 1.55pm	42.4	22.5	4.6	21.0	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
13.12.2023	12.25pm - 12.25pm	43.2	23.7	5.4	22.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
14.12.2023	12.30pm - 12.30pm	43.9	22.5	6.7	20.6	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
20.12.2023	1.45pm - 1.45pm	41.9	20.4	5.2	21.9	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
21.12.2023	1.55pm - 1.55pm	41.9	21.2	4.9	20.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
27.12.2023	1.45pm - 1.45pm	44.8	21.6	BDL(DL:4)	21.5	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
28.12.2023	1.55pm - 1.55pm	43.8	21.2	BDL(DL:4)	23.4	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.



*(Signature)*

Authorised Signatory

L. SUDHAPRIYA  
Technical Manager



Committed to Precision

LABORATORY | CONSULTANCY | SUSTAINABILITY

S.F.No.92/3A2, Geetha Nagar,

Alagapuram Pudur,

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**SUMMARY REPORT**

Issued To	K.Vijay Perichiyappan, S/o.K.N.Kandasamy, K.N.Chairman Thottam, B.Karattupalayam, Gobichettipalayam Taluk, Erode District.		
Site Location	Lease area : 0.86.0 Ha S.F.Nos.347/1B & 347/2B of Elathur 'A' village,Nambiyur Taluk.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ7 - Poosariyur
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/5820,5827,6290,6297,6586, 6593, 6941,6948,7219,7226, 7522,7529,7784,7791, 8156,8163,8477,8484,8797,8804,9175,9181,9473,9480,9784,9791		
Location Coordinates	11° 24' 53.30"N 77° 22' 47. 34"E		
Report Date	08.01.2024		

Date	Period. hrs	Ni (ng/m <sup>3</sup> )	As (ng/m <sup>3</sup> )	BENZENE (µg/m <sup>3</sup> )	BaP (ng/m <sup>3</sup> )	Pb (µg/m <sup>3</sup> )	
04.10.2023	12.25pm - 12.25pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)	
05.10.2023	12.30pm - 12.30pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)	
11.10.2023	12.25pm - 12.25pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)	
12.10.2023	12.30pm - 12.30pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)	
18.10.2023	12.25pm - 12.25pm	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	12.30pm - 12.30pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)	
1.11.2023	1.45pm - 1.45pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)	
2.11.2023	1.55pm - 1.55pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)	
8.11.2023	12.25pm - 12.25pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)	
9.11.2023	12.30pm - 12.30pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)	
15.11.2023	12.25pm - 12.25pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)	
16.11.2023	12.30pm - 12.30pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)	
22.11.2023	1.45pm - 1.45pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)	
23.11.2023	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	12.25pm - 12.25pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)	
30.11.2023	12.30pm - 12.30pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)	
06.12.2023	1.45pm - 1.45pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)	
07.12.2023	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	12.25pm - 12.25pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)	
14.12.2023	12.30pm - 12.30pm	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	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	1.55pm - 1.55pm	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\*\*\*\*\*

L. SUDHAPRIYA  
Technical Manager

### TEST REPORT

ULR-TC606023000007715F

Report Number: GLCS/TR/7227/2023-24

Report Date: 12.12.2023

<b>Issued To:</b> K.Vijay Perichiyappan, S/o K.N.Kandasamy, K.N.Charman Thottam, B.Karattupalayam, Gobichettipalayam Taluk, Erode District		<b>Site Address:</b> Lease Area – 0.86.0 Ha. S.F.Nos: 347/1B & 347/2B, Elathur 'A' Village, Nambiyur Taluk, Erode District		
<b>Attention</b>	-	<b>Sampling Condition</b>	Good - Active	
<b>TRF No</b>	3800	<b>Sampled by</b>	Laboratory	
<b>Sample Name</b>	Noise Level Monitoring	<b>Sampling Method</b>	GLCS/SOP/N/014	
<b>Sample Description</b>	Ambient Noise	<b>Sample Code</b>	GLCS/7227	
<b>Sampling Time</b>	Every 60 minutes	<b>Sample Receipt Date</b>	04.11.2023	
<b>Sampling Date</b>	01.11.2023 -02.11.2023	<b>Date of Analysis</b>	04.11.2023	
		<b>Date of Completion</b>	30.11.2023	
<b>Location Name</b>	AN1- Core Zone	<b>Location Co-ordinates</b>	11°24'22.13"N 77°19'34.11"E	
<b>S. No</b>	<b>Time(Hrs)</b>	<b>Min dB(A)</b>	<b>Max dB(A)</b>	<b>Leq dB(A)</b>
1	06.10	32.5	37.8	35.91
2	07.10	33.6	37.1	35.69
3	08.10	35.5	41.3	39.30
4	09.10	35.9	43.6	41.27
5	10.10	38.6	47.4	44.93
6	11.10	41.5	52.4	49.73
7	12.10	41.6	52.9	50.20
8	13.10	41.9	53.5	50.78
9	14.10	40.8	51.1	48.48
10	15.10	39.8	50.6	47.94
11	16.10	37.5	49.2	46.47
12	17.10	37.9	47.3	44.76
13	18.10	38.1	49.2	46.51
14	19.10	36.9	45.6	43.14
15	20.10	36.2	45.1	42.64



For Global Lab and Consultancy Services

*(Signature)*  
Authorised Signatory  
L. SUDHAPRIYA  
Technical Manager

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**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-TC606023000007715F

Report Number: GLCS/TR/7227/2023-24

Report Date: 12.12.2023

<b>Issued To:</b> K.Vijay Perichiyappan, S/o K.N.Kandasamy, K.N.Charman Thottam, B.Karattupalayam, Gobichettipalayam Taluk, Erode District		<b>Site Address:</b> Lease Area – 0.86.0 Ha. S.F.Nos: 347/1B & 347/2B, Elathur 'A' Village, Nambiyur Taluk, Erode District		
<b>Attention</b>	-	<b>Sampling Condition</b>	Good - Active	
<b>TRF No</b>	3800	<b>Sampled by</b>	Laboratory	
<b>Sample Name</b>	Noise Level Monitoring	<b>Sampling Method</b>	GLCS/SOP/N/014	
<b>Sample Description</b>	Ambient Noise	<b>Sample Code</b>	GLCS/7227	
<b>Sampling Time</b>	Every 60 minutes	<b>Sample Receipt Date</b>	04.11.2023	
<b>Sampling Date</b>	01.11.2023 - 02.11.2023	<b>Date of Analysis</b>	04.11.2023	
		<b>Date of Completion</b>	30.11.2023	
<b>Location Name</b>	AN1- Core Zone	<b>Location Co-ordinates</b>	11°24'22.13"N 77°19'34.11"E	
<b>S. No</b>	<b>Time(Hrs)</b>	<b>Min dB(A)</b>	<b>Max dB(A)</b>	<b>Leq dB(A)</b>
16	21.10	35.5	45.9	43.27
17	22.10	34.7	42.2	39.90
18	23.10	33.6	42.9	40.37
19	00.10	33.9	40.5	38.35
20	01.10	34.1	39.5	37.59
21	02.10	32.8	37.4	35.68
22	03.10	32.9	36.3	34.92
23	04.10	30.5	35.6	33.76
24	05.10	31.4	36.8	34.89
Day Mean dB(A)			44.44	
Night Mean dB(A)			36.93	
<b>Limits as per The Noise Pollution ( Regulation &amp; Control ) Rules, 2010 of MoEFCC / CPCB ( Industrial )</b>				<b>Day Time : 75 dB (A)</b>
				<b>Night Time : 70dB (A)</b>

Note: MoEFCC – Ministry of Environment Forest and Climate Change; CPCB – Central Pollution Control Board.



For Global Lab and Consultancy Service:

\*\*\*\*\*End of Report\*\*\*\*\*

Page 2 of 2

Authorised Signatory  
L. SUDHAPRIYA  
Technical Manager

Note: The test results are only to the sample submitted for test. Any Correction of the test report on full or part shall invalidate the report. Samples are not drawn by us unless otherwise stated. Sample will be retained for 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-TC606023000007716F**

Report Number: GLCS/TR/7228/2023-24

Report Date: 12.12.2023

<b>Issued To:</b> K.Vijay Perichiyappan, S/o K.N.Kandasamy, K.N.Charman Thottam, B.Karattupalayam, Gobichettipalayam Taluk, Erode District		<b>Site Address:</b> Lease Area – 0.86.0 Ha. S.F.Nos: 347/1B & 347/2B, Elathur 'A' Village, Nambiyur Taluk, Erode District		
<b>Attention</b>	-	<b>Sampling Condition</b>	Good - Active	
<b>TRF No</b>	3800	<b>Sampled by</b>	Laboratory	
<b>Sample Name</b>	Noise Level Monitoring	<b>Sampling Method</b>	GLCS/SOP/N/014	
<b>Sample Description</b>	Ambient Noise	<b>Sample Code</b>	GLCS/7228	
<b>Sampling Time</b>	Every 60 minutes	<b>Sample Receipt Date</b>	04.11.2023	
<b>Sampling Date</b>	01.11.2023 -02.11.2023	<b>Date of Analysis</b>	04.11.2023	
		<b>Date of Completion</b>	30.11.2023	
<b>Location Name</b>	AN2- Munnampalli	<b>Location Co-ordinates</b>	11°23'49.73"N 77°20'1.27"E	
<b>S. No</b>	<b>Time(Hrs)</b>	<b>Min dB(A)</b>	<b>Max dB(A)</b>	<b>Leq dB(A)</b>
1	06.20	33.5	37.8	36.16
2	07.20	35.8	42.2	40.09
3	08.20	37.1	46.6	44.05
4	09.20	39.5	50.5	47.82
5	10.20	40.2	52.8	50.02
6	11.20	42.6	53.1	50.46
7	12.20	40.9	52.2	49.50
8	13.20	41.8	54.5	51.72
9	14.20	42.5	51.9	49.36
10	15.20	40.8	53.2	5.43
11	16.20	39.3	51.1	48.37
12	17.20	40.9	52.5	49.78
13	18.20	38.5	39.1	38.81
14	19.20	36.5	45.6	43.09
15	20.20	35.1	43.5	41.08



For Global Lab and Consultancy Services

Page 1 of 2

  
Authorised Signatory  
L. SUDHAPRIYA  
Technical Manager

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### TEST REPORT

ULR-TC606023000007716F

Report Number: GLCS/TR/7228/2023-24

Report Date: 12.12.2023

<b>Issued To:</b> K.Vijay Perichiyappan, S/o K.N.Kandasamy, K.N.Charman Thottam, B.Karattupalayam, Gobichettipalayam Taluk, Erode District		<b>Site Address:</b> Lease Area – 0.86.0 Ha. S.F.Nos: 347/1B & 347/2B, Elathur 'A' Village, Nambiyur Taluk, Erode District		
<b>Attention</b>	-	<b>Sampling Condition</b>	Good - Active	
<b>TRF No</b>	3800	<b>Sampled by</b>	Laboratory	
<b>Sample Name</b>	Noise Level Monitoring	<b>Sampling Method</b>	GLCS/SOP/N/014	
<b>Sample Description</b>	Ambient Noise	<b>Sample Code</b>	GLCS/7228	
<b>Sampling Time</b>	Every 60 minutes	<b>Sample Receipt Date</b>	04.11.2023	
<b>Sampling Date</b>	01.11.2023 - 02.11.2023	<b>Date of Analysis</b>	04.11.2023	
		<b>Date of Completion</b>	30.11.2023	
<b>Location Name</b>	AN2- Munnampalli	<b>Location Co-ordinates</b>	11°23'49.73"N 77°20'1.27"E	
<b>S. No</b>	<b>Time(Hrs)</b>	<b>Min dB(A)</b>	<b>Max dB(A)</b>	<b>Leq dB(A)</b>
16	21.20	35.9	42.9	40.68
17	22.20	35.2	42.1	39.90
18	23.20	34.1	40.5	38.39
19	00.20	33.5	38.9	36.99
20	01.20	32.4	37.4	35.58
21	02.20	30.9	36.1	34.24
22	03.20	31.2	36.6	34.69
23	04.20	30.9	34.9	33.35
24	05.20	31.4	35.6	33.99
		<b>Day Mean dB(A)</b>		45.71
		<b>Night Mean dB(A)</b>		36.42
<b>Limits as per The Noise Pollution ( Regulation &amp; Control ) Rules, 2010 of MoEFCC / CPCB ( Residential )</b>				<b>Day Time : 55 dB (A)</b>
				<b>Night Time : 45 dB (A)</b>

Note: MoEFCC – Ministry of Environment Forest and Climate Change; CPCB – Central Pollution Control Board.



For Global Lab and Consultancy Service:

*(Signature)*  
**Authorised Signatory**  
L. SUDHAPRIYA  
Technical Manager

\*\*\*\*\*End of Report\*\*\*\*\*

Page 2 of 2

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-TC606023000007717F

Report Number: GLCS/TR/7229/2023-24

Report Date: 12.12.2023

<b>Issued To:</b> K.Vijay Perichiyappan, S/o K.N.Kandasamy, K.N.Charman Thottam, B.Karattupalayam, Gobichettipalayam Taluk, Erode District		<b>Site Address:</b> Lease Area – 0.86.0 Ha. S.F.Nos: 347/1B & 347/2B, Elathur 'A' Village, Nambiyur Taluk, Erode District		
<b>Attention</b>	-	<b>Sampling Condition</b>	Good - Active	
<b>TRF No</b>	3800	<b>Sampled by</b>	Laboratory	
<b>Sample Name</b>	Noise Level Monitoring	<b>Sampling Method</b>	GLCS/SOP/N/014	
<b>Sample Description</b>	Ambient Noise	<b>Sample Code</b>	GLCS/7229	
<b>Sampling Time</b>	Every 60 minutes	<b>Sample Receipt Date</b>	04.11.2023	
<b>Sampling Date</b>	01.11.2023 -02.11.2023	<b>Date of Analysis</b>	04.11.2023	
		<b>Date of Completion</b>	30.11.2023	
<b>Location Name</b>	AN3- Odayagoundanpalayam	<b>Location Co-ordinates</b>	11°26'26.79"N 77°18'1.22"E	
<b>S. No</b>	<b>Time(Hrs)</b>	<b>Min dB(A)</b>	<b>Max dB(A)</b>	<b>Leq dB(A)</b>
1	06.50	32.2	37.2	35.38
2	07.50	34.5	39.5	37.68
3	08.50	37.4	45.8	43.38
4	09.50	39.1	49.5	46.87
5	10.50	41.2	52.1	49.43
6	11.50	43.5	52.6	50.09
7	12.50	42.9	51.2	48.79
8	13.50	40.9	51.6	48.94
9	14.50	39.5	50.4	47.73
10	15.50	41.7	52.9	50.21
11	16.50	40.6	51.3	48.64
12	17.50	41.6	52.1	49.46
13	18.50	39.5	48.5	46.00
14	19.50	36.6	47.2	44.55
15	20.50	37.1	53.7	50.78



For Global Lab and Consultancy Services

Page 1 of 2

  
Authorised Signatory  
L. SUDHAPRIYA  
Technical Manager

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### TEST REPORT

ULR-TC606023000007717F

Report Number: GLCS/TR/7229/2023-24

Report Date: 12.12.2023

<b>Issued To:</b> K.Vijay Perichiyappan, S/o K.N.Kandasamy, K.N.Charman Thottam, B.Karattupalayam, Gobichettipalayam Taluk, Erode District		<b>Site Address:</b> Lease Area – 0.86.0 Ha. S.F.Nos: 347/1B & 347/2B, Elathur 'A' Village, Nambiyur Taluk, Erode District		
<b>Attention</b>	-	<b>Sampling Condition</b>	Good - Active	
<b>TRF No</b>	3800	<b>Sampled by</b>	Laboratory	
<b>Sample Name</b>	Noise Level Monitoring	<b>Sampling Method</b>	GLCS/SOP/N/014	
<b>Sample Description</b>	Ambient Noise	<b>Sample Code</b>	GLCS/7229	
<b>Sampling Time</b>	Every 60 minutes	<b>Sample Receipt Date</b>	04.11.2023	
<b>Sampling Date</b>	01.11.2023 - 02.11.2023	<b>Date of Analysis</b>	04.11.2023	
		<b>Date of Completion</b>	30.11.2023	
<b>Location Name</b>	AN3- Odayagoundanpalayam	<b>Location Co-ordinates</b>	11°26'26.79"N 77°18'1.22"E	
<b>S. No</b>	<b>Time(Hrs)</b>	<b>Min dB(A)</b>	<b>Max dB(A)</b>	<b>Leq dB(A)</b>
16	21.50	38.1	505	47.73
17	22.50	35.5	47.1	44.38
18	23.50	34.1	43.5	40.96
19	00.50	35.9	42.9	40.68
20	01.50	33.6	42.8	40.28
21	02.50	32.8	38.5	36.52
22	03.50	31.6	36.1	34.41
23	04.50	30.8	35.5	33.76
24	05.50	31.4	35.9	34.21
Day Mean dB(A)			46.47	
Night Mean dB(A)			38.15	
<b>Limits as per The Noise Pollution ( Regulation &amp; Control ) Rules, 2010 of MoEFCC / CPCB ( Residential )</b>				<b>Day Time : 55 dB (A)</b>
				<b>Night Time : 45 dB (A)</b>

Note: MoEFCC – Ministry of Environment Forest and Climate Change; CPCB – Central Pollution Control Board.



For Global Lab and Consultancy Service:

  
**Authorised Signatory**  
**L. SUDHAPRIYA**  
 Technical Manager

\*\*\*\*\*End of Report\*\*\*\*\*

Page 2 of 2

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-TC606023000007718F**

Report Number: GLCS/TR/7230/2023-24

Report Date: 12.12.2023

<b>Issued To:</b> K.Vijay Perichiyappan, S/o K.N.Kandasamy, K.N.Charman Thottam, B.Karattupalayam, Gobichettipalayam Taluk, Erode District		<b>Site Address:</b> Lease Area – 0.86.0 Ha. S.F.Nos: 347/1B & 347/2B, Elathur 'A' Village, Nambiyur Taluk, Erode District		
<b>Attention</b>	-	<b>Sampling Condition</b>	Good - Active	
<b>TRF No</b>	3800	<b>Sampled by</b>	Laboratory	
<b>Sample Name</b>	Noise Level Monitoring	<b>Sampling Method</b>	GLCS/SOP/N/014	
<b>Sample Description</b>	Ambient Noise	<b>Sample Code</b>	GLCS/7230	
<b>Sampling Time</b>	Every 60 minutes	<b>Sample Receipt Date</b>	04.11.2023	
<b>Sampling Date</b>	01.11.2023 -02.11.2023	<b>Date of Analysis</b>	04.11.2023	
		<b>Date of Completion</b>	30.11.2023	
<b>Location Name</b>	AN4- Vellaikovilpalayam	<b>Location Co-ordinates</b>	11°22'29.16"N 77°21'2.09"E	
<b>S. No</b>	<b>Time(Hrs)</b>	<b>Min dB(A)</b>	<b>Max dB(A)</b>	<b>Leq dB(A)</b>
1	06.30	33.5	36.6	35.32
2	07.30	34.8	39.1	37.46
3	08.30	36.1	40.5	38.83
4	09.30	40.4	51.6	48.91
5	10.30	43.2	52.3	49.79
6	11.30	42.6	54.8	52.04
7	12.30	43.5	54.2	51.54
8	13.30	42.2	51.6	49.06
9	14.30	41.6	52.6	49.92
10	15.30	41.6	52.1	49.46
11	16.30	40.9	50.5	47.94
12	17.30	43.6	53.4	50.82
13	18.30	44.4	55.2	52.54
14	19.30	43.7	53.1	50.56
15	20.30	41.6	50.6	48.10



For Global Lab and Consultancy Services

Page 1 of 2

  
**Authorised Signatory**  
**L. SUDHAPRIYA**  
 Technical Manager

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### TEST REPORT

ULR-TC606023000007718F

Report Number: GLCS/TR/7230/2023-24

Report Date: 12.12.2023

<b>Issued To:</b> K.Vijay Perichiyappan, S/o K.N.Kandasamy, K.N.Charman Thottam, B.Karattupalayam, Gobichettipalayam Taluk, Erode District		<b>Site Address:</b> Lease Area – 0.86.0 Ha. S.F.Nos: 347/1B & 347/2B, Elathur 'A' Village, Nambiyur Taluk, Erode District		
<b>Attention</b>	-	<b>Sampling Condition</b>	Good - Active	
<b>TRF No</b>	3800	<b>Sampled by</b>	Laboratory	
<b>Sample Name</b>	Noise Level Monitoring	<b>Sampling Method</b>	GLCS/SOP/N/014	
<b>Sample Description</b>	Ambient Noise	<b>Sample Code</b>	GLCS/7230	
<b>Sampling Time</b>	Every 60 minutes	<b>Sample Receipt Date</b>	04.11.2023	
<b>Sampling Date</b>	01.11.2023 - 02.11.2023	<b>Date of Analysis</b>	04.11.2023	
		<b>Date of Completion</b>	30.11.2023	
<b>Location Name</b>	AN4- Vellaikovilpalayam	<b>Location Co-ordinates</b>	11°22'29.16"N 77°21'2.09"E	
<b>S. No</b>	<b>Time(Hrs)</b>	<b>Min dB(A)</b>	<b>Max dB(A)</b>	<b>Leq dB(A)</b>
16	21.30	40.8	52.5	49.77
17	22.30	38.5	48.1	45.54
18	23.30	35.6	43.5	41.14
19	0.30	34.2	41.6	39.32
20	01.30	33.9	40.3	38.19
21	02.30	31.7	42.3	39.65
22	03.30	32.2	39.1	36.90
23	04.30	31.9	39.5	37.19
24	05.30	30.6	36.1	34.17
			<b>Day Mean dB(A)</b>	<b>47.51</b>
			<b>Night Mean dB(A)</b>	<b>39.01</b>
<b>Limits as per The Noise Pollution ( Regulation &amp; Control ) Rules, 2010 of MoEFCC / CPCB ( Residential )</b>				<b>Day Time : 55 dB (A)</b>
				<b>Night Time : 45 dB (A)</b>

Note: MoEFCC – Ministry of Environment Forest and Climate Change; CPCB – Central Pollution Control Board.



For Global Lab and Consultancy Service:

  
**Authorised Signatory**  
**L. SUDHAPRIYA**  
Technical Manager

\*\*\*\*\*End of Report\*\*\*\*\*

Page 2 of 2

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### TEST REPORT

ULR-TC606023000007719F

Report Number: GLCS/TR/7231/2023-24

Report Date: 12.12.2023

<b>Issued To:</b> K.Vijay Perichiyappan, S/o K.N.Kandasamy, K.N.Charman Thottam, B.Karattupalayam, Gobichettipalayam Taluk, Erode District		<b>Site Address:</b> Lease Area – 0.86.0 Ha. S.F.Nos: 347/1B & 347/2B, Elathur 'A' Village, Nambiyur Taluk, Erode District		
<b>Attention</b>	-	<b>Sampling Condition</b>	Good - Active	
<b>TRF No</b>	3800	<b>Sampled by</b>	Laboratory	
<b>Sample Name</b>	Noise Level Monitoring	<b>Sampling Method</b>	GLCS/SOP/N/014	
<b>Sample Description</b>	Ambient Noise	<b>Sample Code</b>	GLCS/7231	
<b>Sampling Time</b>	Every 60 minutes	<b>Sample Receipt Date</b>	04.11.2023	
<b>Sampling Date</b>	02.11.2023 -03.11.2023	<b>Date of Analysis</b>	04.11.2023	
		<b>Date of Completion</b>	30.11.2023	
<b>Location Name</b>	AN5- Koramadai	<b>Location Co-ordinates</b>	11°26'33.68"N 77°20'58.53"E	
<b>S. No</b>	<b>Time(Hrs)</b>	<b>Min dB(A)</b>	<b>Max dB(A)</b>	<b>Leq dB(A)</b>
1	06.00	33.6	42.9	40.37
2	07.00	35.9	44.6	42.14
3	08.00	36.7	47.2	44.56
4	09.00	41.5	50.6	48.09
5	10.00	42.6	51.6	49.10
6	11.00	44.7	53.5	51.03
7	12.00	43.2	54.1	51.43
8	13.00	42.5	51.4	48.92
9	14.00	41.9	50.6	48.14
10	15.00	43.6	52.5	50.02
11	16.00	44.5	54.6	51.99
12	17.00	42.7	52.6	50.01
13	18.00	41.9	51.9	49.30
14	19.00	42.1	52.1	49.50
15	20.00	39.8	48.5	46.04

For Global Lab and Consultancy Services



Page 1 of 2

  
Authorised Signatory  
L. SUDHAPRIYA  
Technical Manager

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### TEST REPORT

**ULR-TC606023000007719F**

Report Number: GLCS/TR/7231/2023-24

Report Date: 12.12.2023

<b>Issued To:</b> K.Vijay Perichiyappan, S/o K.N.Kandasamy, K.N.Charman Thottam, B.Karattupalayam, Gobichettipalayam Taluk, Erode District		<b>Site Address:</b> Lease Area – 0.86.0 Ha. S.F.Nos: 347/1B & 347/2B, Elathur 'A' Village, Nambiyur Taluk, Erode District		
<b>Attention</b>	-	<b>Sampling Condition</b>	Good - Active	
<b>TRF No</b>	3800	<b>Sampled by</b>	Laboratory	
<b>Sample Name</b>	Noise Level Monitoring	<b>Sampling Method</b>	GLCS/SOP/N/014	
<b>Sample Description</b>	Ambient Noise	<b>Sample Code</b>	GLCS/7231	
<b>Sampling Time</b>	Every 60 minutes	<b>Sample Receipt Date</b>	04.11.2023	
<b>Sampling Date</b>	02.11.2023 –03.11.2023	<b>Date of Analysis</b>	04.11.2023	
		<b>Date of Completion</b>	30.11.2023	
<b>Location Name</b>	AN5- Koramadai	<b>Location Co-ordinates</b>	11°26'33.68"N 77°20'58.53"E	
<b>S. No</b>	<b>Time(Hrs)</b>	<b>Min dB(A)</b>	<b>Max dB(A)</b>	<b>Leq dB(A)</b>
16	21.00	37.5	43.6	41.54
17	22.00	35.6	41.5	39.48
18	23.00	34.6	39.1	37.41
19	00.00	34.9	39.2	37.56
20	01.00	33.1	37.1	35.55
21	02.00	32.9	38.6	36.62
22	03.00	32.5	39.5	37.28
23	04.00	30.9	39.5	37.05
24	05.00	31.4	40.5	37.99
Day Mean dB(A)			47.64	
Night Mean dB(A)			37.37	
<b>Limits as per The Noise Pollution ( Regulation &amp; Control ) Rules, 2010 of MoEFCC / CPCB ( Residential )</b>				<b>Day Time : 55 dB (A)</b>
				<b>Night Time : 45 dB (A)</b>

Note: MoEFCC – Ministry of Environment Forest and Climate Change; CPCB – Central Pollution Control Board.



For Global Lab and Consultancy Service:

  
**Authorised Signatory**  
**L. SUDHAPRIYA**  
 Technical Manager

\*\*\*\*\*End of Report\*\*\*\*\*

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### TEST REPORT

ULR-TC606023000007720F

Report Number: GLCS/TR/7232/2023-24

Report Date: 12.12.2023

<b>Issued To:</b> K.Vijay Perichiyappan, S/o K.N.Kandasamy, K.N.Charman Thottam, B.Karattupalayam, Gobichettipalayam Taluk, Erode District		<b>Site Address:</b> Lease Area – 0.86.0 Ha. S.F.Nos: 347/1B & 347/2B, Elathur 'A' Village, Nambiyur Taluk, Erode District		
<b>Attention</b>	-	<b>Sampling Condition</b>	Good - Active	
<b>TRF No</b>	3800	<b>Sampled by</b>	Laboratory	
<b>Sample Name</b>	Noise Level Monitoring	<b>Sampling Method</b>	GLCS/SOP/N/014	
<b>Sample Description</b>	Ambient Noise	<b>Sample Code</b>	GLCS/7232	
<b>Sampling Time</b>	Every 60 minutes	<b>Sample Receipt Date</b>	04.11.2023	
<b>Sampling Date</b>	02.11.2023 -03.11.2023	<b>Date of Analysis</b>	04.11.2023	
		<b>Date of Completion</b>	30.11.2023	
<b>Location Name</b>	AN6- Sanarudal	<b>Location Co-ordinates</b>	11°24'14.88"N 77°17'36.70"E	
<b>S. No</b>	<b>Time(Hrs)</b>	<b>Min dB(A)</b>	<b>Max dB(A)</b>	<b>Leq dB(A)</b>
1	06.35	32.8	37.4	35.68
2	07.35	33.4	38.9	36.97
3	08.35	35.5	41.2	39.22
4	09.35	36.2	43.6	41.32
5	10.35	37.4	45.1	42.77
6	11.35	39.5	48.1	45.65
7	12.35	40.5	52.3	49.57
8	13.35	41.5	52.6	49.91
9	14.35	42.6	53.4	50.74
10	15.35	43.6	54.6	51.92
11	16.35	40.5	51.2	48.54
12	17.35	41.8	50.6	48.13
13	18.35	39.5	50.2	47.54
14	19.35	36.6	40.6	39.05
15	20.35	35.5	39.6	38.02



For Global Lab and Consultancy Services



**Authorised Signatory**  
**L. SUDHAPRIYA**  
Technical Manager

Page 1 of 2

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### TEST REPORT

ULR-TC606023000007720F

Report Number: GLCS/TR/7232/2023-24

Report Date: 12.12.2023

<b>Issued To:</b> K.Vijay Perichiyappan, S/o K.N.Kandasamy, K.N.Charman Thottam, B.Karattupalayam, Gobichettipalayam Taluk, Erode District		<b>Site Address:</b> Lease Area – 0.86.0 Ha. S.F.Nos: 347/1B & 347/2B, Elathur 'A' Village, Nambiyur Taluk, Erode District		
<b>Attention</b>	-	<b>Sampling Condition</b>	Good - Active	
<b>TRF No</b>	3800	<b>Sampled by</b>	Laboratory	
<b>Sample Name</b>	Noise Level Monitoring	<b>Sampling Method</b>	GLCS/SOP/N/014	
<b>Sample Description</b>	Ambient Noise	<b>Sample Code</b>	GLCS/7232	
<b>Sampling Time</b>	Every 60 minutes	<b>Sample Receipt Date</b>	04.11.2023	
<b>Sampling Date</b>	02.11.2023 - 03.11.2023	<b>Date of Analysis</b>	04.11.2023	
		<b>Date of Completion</b>	30.11.2023	
<b>Location Name</b>	AN6- Sanarudal	<b>Location Co-ordinates</b>	11°24'14.88"N 77°17'36.70"E	
<b>S. No</b>	<b>Time(Hrs)</b>	<b>Min dB(A)</b>	<b>Max dB(A)</b>	<b>Leq dB(A)</b>
16	21.35	35.1	39.1	37.55
17	22.35	34.6	39.5	37.71
18	23.35	33.5	38.9	36.99
19	0.35	33.2	37.6	35.93
20	1.35	31.5	36.6	34.76
21	2.35	31.9	36.3	34.63
22	3.35	30.5	35.3	33.53
23	4.35	31.9	36.3	34.63
24	5.35	32.6	36.1	34.69
			<b>Day Mean dB(A)</b>	43.91
			<b>Night Mean dB(A)</b>	35.60
<b>Limits as per The Noise Pollution ( Regulation &amp; Control ) Rules, 2010 of MoEFCC / CPCB ( Residential )</b>			<b>Day Time : 55 dB (A)</b>	
			<b>Night Time : 45 dB (A)</b>	

Note: MoEFCC – Ministry of Environment Forest and Climate Change; CPCB – Central Pollution Control Board.



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-TC606023000007721F

Report Number: GLCS/TR/7233/2023-24

Report Date: 12.12.2023

<b>Issued To:</b> K.Vijay Perichiyappan, S/o K.N.Kandasamy, K.N.Charman Thottam, B.Karattupalayam, Gobichettipalayam Taluk, Erode District		<b>Site Address:</b> Lease Area – 0.86.0 Ha. S.F.Nos: 347/1B & 347/2B, Elathur 'A' Village, Nambiyur Taluk, Erode District		
<b>Attention</b>	-	<b>Sampling Condition</b>	Good - Active	
<b>TRF No</b>	3800	<b>Sampled by</b>	Laboratory	
<b>Sample Name</b>	Noise Level Monitoring	<b>Sampling Method</b>	GLCS/SOP/N/014	
<b>Sample Description</b>	Ambient Noise	<b>Sample Code</b>	GLCS/7233	
<b>Sampling Time</b>	Every 60 minutes	<b>Sample Receipt Date</b>	04.11.2023	
<b>Sampling Date</b>	02.11.2023 –03.11.2023	<b>Date of Analysis</b>	04.11.2023	
		<b>Date of Completion</b>	30.11.2023	
<b>Location Name</b>	AN7- Poosariyur	<b>Location Co-ordinates</b>	11°24'53.87"N 77°22'47.00"E	
<b>S. No</b>	<b>Time(Hrs)</b>	<b>Min dB(A)</b>	<b>Max dB(A)</b>	<b>Leq dB(A)</b>
1	06.00	33.8	35.9	34.98
2	07.00	35.1	37.1	36.21
3	08.00	36.5	39.7	38.39
4	09.00	39.4	38.5	38.97
5	10.00	38.6	49.2	46.55
6	11.00	40.8	51.1	48.48
7	12.00	41.5	51.9	49.27
8	13.00	42.6	51.8	49.28
9	14.00	42.5	53.6	50.91
10	15.00	40.1	51.5	48.79
11	16.00	41.5	52.1	49.45
12	17.00	38.9	47.2	44.79
13	18.00	40.4	51.5	48.81
14	19.00	39.4	50.3	47.63
15	20.00	38.4	47.6	45.08



For Global Lab and Consultancy Services

Page 1 of 2

  
**Authorised Signatory**  
**L. SUDHAPRIYA**  
 Technical Manager

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### TEST REPORT

ULR-TC606023000007721F

Report Number: GLCS/TR/7233/2023-24

Report Date: 12.12.2023

<b>Issued To:</b> K.Vijay Perichiyappan, S/o K.N.Kandasamy, K.N.Charman Thottam, B.Karattupalayam, Gobichettipalayam Taluk, Erode District		<b>Site Address:</b> Lease Area – 0.86.0 Ha. S.F.Nos: 347/1B & 347/2B, Elathur 'A' Village, Nambiyur Taluk, Erode District		
<b>Attention</b>	-	<b>Sampling Condition</b>	Good - Active	
<b>TRF No</b>	3800	<b>Sampled by</b>	Laboratory	
<b>Sample Name</b>	Noise Level Monitoring	<b>Sampling Method</b>	GLCS/SOP/N/014	
<b>Sample Description</b>	Ambient Noise	<b>Sample Code</b>	GLCS/7233	
<b>Sampling Time</b>	Every 60 minutes	<b>Sample Receipt Date</b>	04.11.2023	
<b>Sampling Date</b>	02.11.2023 – 03.11.2023	<b>Date of Analysis</b>	04.11.2023	
		<b>Date of Completion</b>	30.11.2023	
<b>Location Name</b>	AN7- Poosariyur	<b>Location Co-ordinates</b>	11°24'53.87"N 77°22'47.00"E	
<b>S. No</b>	<b>Time(Hrs)</b>	<b>Min dB(A)</b>	<b>Max dB(A)</b>	<b>Leq dB(A)</b>
16	21.00	36.7	45.9	43.38
17	22.00	35.4	46.3	43.63
18	23.00	34.6	42.8	40.40
19	00.00	33.6	41.9	39.49
20	01.00	32.6	40.7	38.32
21	02.00	31.5	41.5	38.90
22	03.00	32.6	38.9	36.80
23	04.00	31.7	37.1	35.19
24	05.00	30.2	36.9	34.73
Day Mean dB(A)				44.98
Night Mean dB(A)				38.98
<b>Limits as per The Noise Pollution ( Regulation &amp; Control ) Rules, 2010 of MoEFCC / CPCB ( Residential )</b>				<b>Day Time : 55 dB (A)</b>
				<b>Night Time : 45 dB (A)</b>

Note: MoEFCC – Ministry of Environment Forest and Climate Change; CPCB – Central Pollution Control Board.



For Global Lab and Consultancy Services

**Authorised Signatory**  
**L. SUDHAPRIYA**  
 Technical Manager

\*\*\*\*\*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.

