# DRAFT EIA / EMP FOR
# PROPOSED ROUGH STONE AND GRAVEL QUARRY
# CATEGORY B1 - CLUSTER (CLUSTER AREA – 9.69.78 Ha.)

**(Submitted for Public Hearing as per the provisions of EIA Notification 2006 & its amendments thereof)**

**APPROVED TOR No. TO25B0108TN5591167N, Dated: 13.05.2025**

| PROPOSED QUARRY LEASE DETAILS | |
|---|---|
| **SURVEY NOS** | **42/3A, 42/3B, 44/1, 44/2, 44/3, 44/4A(P) AND 44/4B** |
| **VILLAGE** | **KORAIKENI** |
| **TALUK** | **VANUR** |
| **DISTRICT** | **VILUPPURAM** |
| **EXTENT** | **4.84.5 Ha** |
| **PROPOSED PRODUCTION** | **TOTAL PRDODUCTION FOR TEN YEARS – 14,12,880 $m^3$ of ROUGH STONE**<br>**FOR FIRST FIVE YEARS - 12,00,260 $m^3$ of ROUGH STONE and 2,13,185 $m^3$ of GRAVEL**<br>**SECOND FIVE YEARS - 2,12,620 $m^3$ of ROUGH STONE**<br>**PEAK PRODUCTION – 2,41,550 $m^3$ OF ROUGH STONE & 98,100 $m^3$ of GRAVEL** |
| **LAND** | **PATTA LAND** |

**(Sector No. 1(a) (Sector no.1 as per NABET)**
**Category of the Project: B1 Cluster Mining, Total Cluster Area – 9.69.78 ha**
**Baseline Monitoring Period – December 2024 to February 2025.**

## APPLICANT


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| ENVIRONMENTAL CONSULTANT | LABORATORY |
|---|---|
| **M/s. GLOBAL MINING SOLUTIONS**<br>*(NABET Accredited & ISO 9001 Certified Consultant)*<br>Plot No. 6, S.F.No. 13/2, A2, VS City,<br>RC Chettypatty, Kottamettupatty, Omalur,<br>Salem, Tamil Nadu – 636 455.<br>NABET Accreditation No:NABET/EIA/23-26/SA 0241,<br>Valid Until - January 4, 2026<br>Contact: 97502 23535 & 94446 54520<br>Email: infoglobalmining@gmail.com,<br>globalminingsolutionssalem@gmail.com | **M/s. SHRIENT ANALYTICAL & RESEARCH LABS PRIVATE LIMITED**<br>(NABL Accredited Testing Laboratory)<br>Valid Until -29.09.2025<br>#416/15, Dhargas Road, Perungalathur,<br>West Tambaram, Chennai,<br>Tamil Nadu, India. |

**August -2025**

## AMENDMENT PAGE

| SL | Page No. | Section / Clause / Para / Line (as Applicable) | Date of Amendment | Amendment Made | Reasons of amendment | Signature of Person Authorizing Amendment |
|---|---|---|---|---|---|---|
| 1 | | | | | | |
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# ACKNOWLEDGEMENT

*M/s. Global Mining Solutions, Salem is very much thankful to Thiru.S.Senthil Kumar, (Lessee) for the confidence and trust placed on our organization for carrying out Environmental Impact Assessment (EIA) study for the proposed Rough Stone and Gravel Quarry over an extent of 4.84.50Ha and a cluster area of 9.69.78 Ha at Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu and formulating the Environmental Management Plan (EMP). We also gratefully acknowledge the cooperation and assistance provided by concerned government authorities for collection of secondary information for the preparation of EIA/EMP report. Our sincere thanks to the local people of Koraikeni Village and the nearby villages for their whole hearted cooperation and constant involvement during the entire field study without which the study would not have been possible.*

*For: M/s. Global Mining Solutions*



(M.Prabhu)

Managing Director

# UNDERTAKING

*In Line with MoEF & CC OM no. J – 11013/41/2006-IA.II (I) dated 5th October 2011, we hereby give our undertaking for owning the content and information in the EIA/EMP report submitted for EC of the proposed Rough Stone and Gravel Quarry over an extent of 4.84.50Ha and a cluster area of 9.69.78 Ha at Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu.*

*For Global Mining Solutions*



*Name: Manikandan Manickam*
*EIA Coordinator – Mining of Minerals*
*M/s. Global Mining Solutions*

# UNDERTAKING

*In Line with MOEF&CC OM no. J-11013/41/2006-IA.II (1) dated 4th Aug 2009 and its Amendments, we hereby confirm that all Terms of Reference issued by State Environmental Impact Assessment Authority – TN vide Letter No:. TO25B0108TN5591167N, Dated: 13.05.2025 for preparation of EIA/EMP report for the proposed Rough Stone and Gravel Quarry over an extent of 4.84.5Ha and a cluster area of 9.69.78 Ha at Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu, for the production of 12,00,260 Cu.m of Rough Stone and 2,13,185 Cu.m of Gravel (First five years) and 2,12,620 Cu.m of Rough Stone (Second Five years) from the proposed lease area and the details has been complied in the EIA/EMP report is factually correct.*

*The EIA/EMP report has been prepared by M/s. Global Mining Solutions (GMS), Salem. GMS is a NABET accredited consultant for preparation of EIA/EMP report of Mining of Minerals (Opencast only) vide certificate No. NABET/EIA/23-26/SA 0241 valid till 04.01.2026.*

*For Global Mining Solutions*



*Name: Manikandan Manickam*
*EIA Coordinator – Mining of Minerals*
*M/s. Global Mining Solutions*

QUALITY COUNCIL OF INDIA

NABET

## National Accreditation Board for Education and Training

# Certificate of Accreditation

## Global Mining Solutions

Plot No - 6 SF No 13/2 A2, VS City, RC Chettypatty, Kottamettupatty,Omalur, Salem, Tamil Nadu-636455

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| 6 | Townships and Area development projects | 39 | 8 (b) | B |

***Note: Names of appraised EIA Coordinators and Functional Area Experts are mentioned in SAAC minutes dated May 20, 2025, 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/EIA/ACO/25/3838 dated May 30, 2025. The accreditation needs to be renewed before the expiry date. Global Mining Solutions, Salem following due process of assessment.*

**Valid up to**
**January 4, 2026**

**Certificate No.**
**NABET/EIA/23-26/SA 0241**

**Issue Date**
**May 30, 2025**

**Prof (Dr) Varinder S Kanwar**
**CEO - NABET**

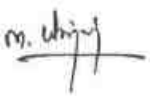
*For the updated List of Accredited EIA Consultant Organizations with approved Sectors please refer to QCI-NABET website*

# DECLARATION BY EXPERTS

*Declaration by Experts contributing to the proposed Rough Stone and Gravel Quarry over an extent of 4.84.5Ha and a cluster area of 9.69.78 Ha at Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu.*

*I, hereby, certify that I was a part of the EIA team that developed the above EIA.*

*EIA Coordinator Name: Manikandan Manickam*



*Signature & Date*

*Period of involvement: December 2024 to February 2025.*

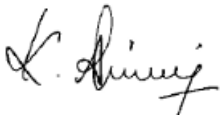
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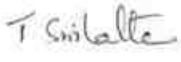
***M/s Global Mining Solutions***

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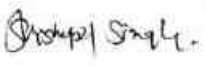
***Kottamettupatty, Omalur,***

***Salem, Tamil Nadu – 636 455***

| S. No. | Functional areas | Name of the expert/s | Involvement (period and task**) | Signature and Date |
|---|---|---|---|---|
| 1 | *AP* | *Dhanalakshmi Ramanathan* | *Assessment of existing air quality, Impact of the project on ambient air and suggested mitigation measures for air pollution.*<br>*Period: December 2024 to February 2025.* |  |
| 2 | *WP* | *Abirami Kaliaperumal* | *Assessment of existing water quality, impact of the project on surface and ground water quality, suggested mitigation measures for minimizing the impact.*<br>*Period: December 2024 to February 2025.* |  |
| 3 | *SHW* | *Ramadoss N* | *Assessment of waste generated from the project, suggested waste management practices.*<br>*Period: December 2024 to February 2025.* |  |

| | | | | |
|---|---|---|---|---|
| 4 | *SE* | *Sarasvathy K* | *Baseline SE study. Data compilation and assessment. Impact of the project on SE status of the area. Formulation of CER plan.*<br><br>*Period: December 2024 to February 2025.* |  |
| 5 | *EB* | *Saravanan S* | *Baseline data collection of related to ecology of the area.*<br><br>*Period: December 2024 to February 2025.* |  |
| 6 | *HG* | *Ravinthiran N* | *Hydrogeological feature of the area. Ground water depth and impact of project on ground water of the area.*<br><br>*Period: December 2024 to February 2025.* |  |
| 7 | *AQ* | *Srilatha Thiruveedhula* | *Air quality modeling utilizing the area source model. Predication of the ground level concentration of the dust.* |  |

| | | | | |
|---|---|---|---|---|
| | | | *Suggesting suitable mitigation measures.*<br><br>*Period: December 2024 to February 2025.* | |
| 8 | *NV* | *Dhanalakshmi Ramanathan* | *Ambient noise study of the area. Incremental noise generation due to quarry operation and impact of the noise due to the project.*<br><br>*Period: December 2024 to February 2025.* |  |
| 9 | *LU* | *Srilatha Thiruveedhula* | *Preparation of land use map based on satellite imagery. Land use classification and analysis. Impact prediction of the project on the surrounding land environment.*<br><br>*Period: December 2024 to February 2025.* |  |

| | | | | |
|---|---|---|---|---|
| 10 | *RH* | *S.V. Prashant* | *Identification of the Risk related to the mining activities. Preparation of emergency disaster management plan. Plan for supply of safety equipment for the worker.*<br><br>*Period: December 2024 to February 2025.* |  |
| 11 | *SC* | *Shisupal Sing* | *Soil monitoring, secondary data collection on soil type, soil management practices, utilization of topsoil.*<br><br>*Period: December 2024 to February 2025.* |  |
| 12 | *GEO* | *Valliappan Meyyappan* | *Geological map, stability of quarry and dump, management plan for mine stability, after use of mining quarry and geological feature of the area.*<br><br>*Period: December 2024 to February 2025.* |  |

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# COMPLIANCE TO TERMS OF REFERENCE

## POINT WISE COMPLIANCE OF TOR CONDITIONS

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|---|---|---|---|
| A. | **SEAC condition -Site Specific** | | |
| 1 | Since agricultural activity is observed on the adjacent site, the PP shall furnish the impact study<br><br>Report on agricultural activity due to quarrying. | The project site will have negligible air emissions. Dust generation is likely during truck loading, but this will be temporary and is not expected to significantly affect the surrounding vegetation. Additionally, there will be no wastewater discharge from the mine lease area into nearby water bodies. Proper drainage will be maintained within the lease area for surface runoff. Proposed dust control measures will be implemented at the source level to prevent significant impact on nearby agricultural land. The anticipated impact and its mitigation measures for nearby agricultural land are detailed in section 4.2.1 of Chapter 4. | 179 |
| 2 | A Cluster Management Committee (CMC) shall be constituted including all the mines in the cluster as Committee Members for the effective management of the mining operation in the cluster<br><br>through systematic & scientific approach with appointment of required statutory personnel, | A cluster management committee including all the proponents of the rough stone quarrying projects within the cluster of 500 m radius will be constituted for the effective implementation of appropriate environmental management plan. Affidavit in this regard will be submitted during final EIA/EMP Report. | - |

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| | appropriate environmental management, system of maintaining the haul roads and village/panchayat roads, authorized blasting operation, Monitoring system of the environmental & other statutory<br><br>Compliances & its reporting status, etc. The PP shall submit the following details in the form of an<br><br>Affidavit during the EIA appraisal:<br><br>(i) Copy of the agreement forming CMC.<br><br>(ii) The Organization chart of the Committee with defining the role of the members<br><br>(iii) The 'Standard Operating Procedures' (SoP) executing the planned activities. | | |
| 3 | The PP shall ensure the installation of CCTV at the proposed quarry site and ensure its inclusion during the EIA presentation. | Agreed. The PP will install CCTV at the proposed mine lease area and submit proof during the project appraisal. | - |
| 1 | In the case of existing/operating mines, a letter obtained from the concerned AD (Mines) shall be | Not applicable. This is a fresh quarry project. | - |

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| | submitted and it shall include the following: | | |
| | i. Original pit dimension<br>ii. Quantity achieved Vs EC Approved Quantity<br>iii. Balance Quantity as per Mineable Reserve calculated.<br>iv. Mined out Depth as on date Vs EC Permitted depth<br>v. Details of illegal/illicit mining<br>vi. Violation in the quarry during the past working.<br>vii. Quantity of material mined out outside the mine lease area<br>viii. Condition of Safety zone/benches<br>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. | The details of survey on the structures within 300m radius is given in section 3.3 of Chapter 3 and the VAO certificate is enclosed as Annexure – 5. | 121 |
| 3 | The proponent is requested to carry out a survey and enumerate on the structures located within the radius of (i) 50 | A Site survey has been conducted to identify and list structures located within a 500 m radius from the proposed Quarry and | 121 |

| | | | |
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| | 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. | structures located within 500 m radius are given in section 3.3 of Chapter 3. | |
| 4 | The PP shall submit a detailed hydrological report indicating the impact of proposed quarrying operations on the waterbodies like lake, water tanks, etc are located within I km of the proposed quarry. | A detailed hydro-geological report of the proposed project is given. | - |
| 5 | The Proponent shall carry out Bio diversity study through reputed Institution and the same shall be included in EIA Report. | The bio diversity study has been carried out by our FAE is given in section 3.3.6 of Chapter 3. | 150 |
| 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. | The DFO letter will be incorporated in the Final EIA/EMP Report. | - |
| 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 | Not applicable. This is a fresh quarry project. | - |

| | | | |
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| | 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, NlRM/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. | The ultimate depth for this proposal (Ten years) is 70 m BGL only. The slope stability study will be carried once the depth reach 25 m BGL. | - |
| 9 | The PP shall furnish the affidavit stating that the blasting operation in the proposed quarry is carried out by the statutory competent person as per the MMR 1961 such as blaster mining mate mine foreman, IIII | Affidavit will be incorporated in the Final EIA/EMP Report. | - |

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| | 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. | Controlled blasting techniques using delay detonators and optimum charge per delay will be implemented in this quarry. The details on blasting parameters are given in section 2.9.5 of Chapter 2. | 96 |
| 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. | The PP has not carried out any quarrying operation before this project. | - |
| 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, | Not applicable. This is a fresh quarry project. | - |
| 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.<br>• Highest production achieved in any one year<br>• Detail of approved depth of mining. | | - |

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| | • Actual depth of the mining achieved earlier.<br>• Name of the person already mined in that leases area.<br>• If EC and CTO already obtained, the copy of the same shall be submitted.<br>• Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches. | | |
| 15 | All comer 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). | Project coordinates superimposed in satellite imagery and topo map given as Figure No – 3.2 and Figure 3.3.<br><br>The geology and geomorphology map are provided in Figure No.3.20, 3.21, Chapter 3.<br><br>The Soil map is provided under Figure No. 3.22, Chapter-3.<br><br>The 10km Radius Index plan showing buffer zone is given in Figure No.3.2 & Figure 3.3 in Chapter – 3. | 118,119, 169 , 170 & 171 |
| 16 | The PP shall carry out Drone video survey covering the cluster, green belt, fencing, etc., | Fresh lease. It will be complied after commencement of the mining operation. | - |
| 17 | The proponent shall furnish photographs of adequate fencing, green belt along the | Photographs of the site are provided in Figure 2.5 of Chapter-2. | 83 |

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| | periphery including replantation of existing trees & safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan, | As per Precise Order condition, PP have provided safety distance of 7.5 m to the adjoining patta land. A seasonal odai is at 53 m in eastern side of the project.<br><br>Green belt will be developed over an area of 0.74.50 hectares. The work of the same is under process. | |
| 18 | The Project proponent shall provide the details of mineral reserves and mineable reserves, planned production capacity, proposed working methodology with justifications, the anticipated impacts of the mining operations on the surrounding environment, and the remedial measures for the same. | The geological reserves - 31,47,755 $m^3$ of rough stone and 2,42,135 $m^3$ of Gravel for 70 m BGL.<br><br>The mineable reserves – 14,12,880 $m^3$ of rough stone and 2,13,185 $m^3$ of gravel for 70 m BGL.<br><br>The proposed total production quantity (Ten years) is 14,12,880 $m^3$ of rough stone and 2,13,185 $m^3$ gravel upto a depth of 70 m below ground level. (First five years – 12,00,260 $m^3$ of rough stone and 2,13,185 $m^3$ gravel upto a depth of 50 m below ground level and Second five years – 2,12,620 of rough stone-70 m BGL.)<br><br>Details are given in Chapter 2. | 92 |
| 19 | The Project Proponent shall provide the Organization chart | Complied. Please refer figure 10.1 of Chapter 10. | 240 |

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| | 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 I 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. | A detailed hydro-geological report of the proposed project is given. | - |
| 21 | The proponent shall furnish the baseline data for the environmental and ecological parameters with regard to surface water/ground water | The baseline data were collected (December 2024 to February 2025) for the environmental components including land, soil, water, air, noise, biology, socio- | 105 & 114 |

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| | quality, air quality, soil quality & flora /fauna including traffic / vehicular movement study. | economy, and the results have been discussed in Chapter 3. Traffic density survey is detailed in section 2.11 of Chapter 2. | |
| 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. | cumulative impact study due to mining operations in cluster are given in Section 7.5 of Chapter 7. Anticipated impacts and its mitigation measures for various attributes are detailed in Chapter 4. | 231 & 174 |
| 23 | Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted. | Rain water harvesting Plan is given in section 4.2.3 of chapter 4. Water balance is shown in Figure 4.1. | 187 & 188 |
| 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 | 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 has been discussed in Section 3.3.7, of Chapter 3. details of surrounding ecological sensitive features have been provided in Table 3.2 under Chapter 3. Land use plan of the | 158, 114 & 84 |

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| | submitted. Impact, if any, of change of land use should be given. | project area showing pre-operational, operational and post-operational phases are discussed in Table 2.4 under Chapter 2. | |
| 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.<br><br>No dumps have been proposed outside the lease area.<br><br>There is no overburden / waste generation from this quarry, the entire mined out minerals will be directly transported to the needy buyers. | - |
| 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 TMCB (or) Dept. of Geology and Mining should be secured and furnished to the effect that the proposed mining activities could be considered. | This condition is not applicable to this project because this project is not located in proximity to the areas of areas declared as 'Critically Polluted' (or) the project areas which attracts the court restrictions for mining operations. | - |
| 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 falling in the quarry will be harvested in the sump at the lowest level of the quarry. This sump will act as a settling pond to prevent solids escaping along with discharge, before outlet. etc.<br><br>Towards surface runoff management, a garland drain will be constructed around the quarry | 187 & 188 |

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| | | and will be connected to a settling pond with silt traps. The supernatant clear water from the settling pond will be flow to the downstream users.<br><br>Rain water harvesting plan is given in section 4.2.3 of Chapter 4. | |
| 28 | Impact on local transport infrastructure due to the Project should be indicated. | A traffic density study was carried out and are detailed in section 2.11 of Chapter 2. | 105 |
| 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 details on tree survey covering 300 m radius is given in section 3.3.6 of chapter 3. | 150 |
| 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 details are given in section 2.10 of Chapter 2 and section 7.6 of Chapter 7. | 101 |
| 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. | Accepted. It will be done. | - |
| 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 | A detailed green belt development plan has been provided in section 4.2.4 of Chapter 4. | 194 |

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| | 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 | Tatler / 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 | The FAE of ecology and biodiversity has advised the project proponent that saplings of one year old raised in the ecofriendly bags should be purchased and planted with the spacing of 3 m between each plant around the proposed project area as per the advice of local forest authorities/botanist. | - |
| 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. | A disaster management plan for the project has been provided in Section 7.3 under Chapter 7. | 222 |
| 35 | A Risk Assessment and management Plan shall be prepared and included in the EIA/EMP Report for the complete | A risk assessment plan for the project has been provided in Section 7.2 under Chapter 7. | 218 |

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| | 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. | Occupational health impacts of the project and preventive measures have been discussed in detail in Section 4.4. under Chapter 4. | 209 |
| 37 | Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations. | No public health implications are anticipated due to this project. Details of CER activities have been discussed in Chapter 8.<br><br>Public health facilities will be further aimed to be developed through CER activities wherein periodic health checkups, medical camps for the locals will be conducted. | 233 |
| 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 | No negative impact on socio-economic environment of the study area is anticipated and this project shall benefit the socio-economic environment by offering employment for 34 people directly. | - |

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| | indicated. As far as possible, quantitative dimensions may be given with time frames for implementation. | | |
| 39 | Details of litigation pending against the project, if any, with direction /order passed by any Court of law against the Project should be given. | No litigation is pending in any court against this 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. | Benefits of the project is given in Chapter 8. | 233 |
| 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. This is a fresh quarry project. | - |
| 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 is planned for the entire life of the mine. The affidavit for the same will be included in the Final EIA/EMP Report. | - |
| 43 | Concealing any factual information or submission of false/fabricated data and failure | Agreed | - |

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| | 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. | | |
| 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. | There are two existing quarry and this present proposed quarry (2 Existing + 1 Proposed), within a 500-metre radius. The proponent will take the initiative to form a cluster management committee once environmental clearance is obtained for this 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., | Agreed. It will be complied. | - |
| 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. | Agreed. The list of members of the committee formed will be submitted to ad/mines after obtaining Environmental Clearance. | - |

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| 4 | Detailed Operational Plan must be submitted which must include the blasting frequency with respect to the nearby quarry situated in the cluster, the usage of haul roads by the individual quarry in the form of route map and network. | Agreed. Details of the Operation plan for cluster mining operations will be submitted once we get environmental clearance. | - |
| 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. | Risk management plan for the individual quarry is given in this report. As far as cluster working condition is concerned, once the committee is formed, risk management as a cluster including inundation of clusters and the evacuation plan will be elaborated. | |
| 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 in the EIA report. | Environmental policy for the cluster will be framed by the cluster management committee and the policy will be in accordance with EPA Act, 1986 and its amendments, guidelines by MoEF&CC/SEIAA and other regulatory bodies. This policy will be displayed in the quarry. | - |
| 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. | Agreed. It will be complied as mentioned in the Point No.4 | - |
| 8 | The committee shall deliberate on the health of the workers/staff involved in the | Agreed. It will be complied as mentioned in the Point No.4 | - |

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| | mining as well as the health of the public. | | |
| **Agriculture & Agrobiodiversity** | | | |
| 9 | impacts on surrounding agricultural fields around the proposed mining Area. | Agreed. Replied in point 1 of site specific ToR. The anticipated impact its mitigation measures are given in section 4.2.1 of Chapter 4. | - |
| 10 | impacts on soil flora & vegetation around the project site. | The chemical and physical characteristics of the soil is given in section 3.3.5 of Chapter 3.<br><br>The anticipated impact and its mitigation measures for soil environment and biological environment are detailed in section 4.2.2 & 4.2.4 of Chapter 4 respectively. | 149, 183<br><br>& 188 |
| 11 | 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. | There is no standing trees or vegetation within the mine lease area. | - |
| 12 | The Environmental Impact Assessment should study the biodiversity, the natural ecosystem, the soil micro flora, fauna and soil seed banks and | The ecological details have been provided in Section 3.3.6 under Chapter 3 and measures have been provided in Section 4.2.4 under Chapter 4. | 150 & 188 |

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| | suggest measures to maintain the natural Ecosystem. | | |
| 13 | Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services. | All the essential environmental protective measures will be followed by the proponent to manage the surrounding environment and restore the ecosystem, as discussed in Chapter 4. | 174 |
| 14 | The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands, Horticulture, Agriculture and livestock. | The impact of project on the land environment has been discussed in Section 4.1 under Chapter 4. | 175 |
| **Forests** | | | |
| 15 | The project proponent shall detailed study on impact of mining on Reserve forests free ranging wildlife | There are no forest within 10 km radius and the nearest forest is Melkondai R.F. - 10.33km (NW). The project proponent shall do barbed wire fencing work and develop a green belt around the lease area to prevent wildlife from entering the site. | - |
| 16 | The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna | The impacts of the project on biological environment is given in section 4.2.4 under Chapter 4. | 188 |
| 17 | The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection. | There are no standing trees within lease area. | - |

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| 18 | The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site. | There are no protected areas, National Parks, environmentally sensitive areas Corridors and Wildlife pathways near project site. | |
| **Water Environment** | | | |
| 19 | 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 I 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. | A detailed hydrogeological report is given. | - |
| 20 | Erosion Control measures. | There is no waste generation (OB) in this quarry has been envisaged. However, there may be erosion due the rainy season and that is limited within quarry area. The control measures are explained in Chapter 4. | - |
| 21 | Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area on the nearby Villages, | Complied. The study details are incorporated in Chapter 3. | 174 |

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| | Water-bodies/ Rivers, & any ecological fragile areas | Anticipated impacts and its mitigation measures are detailed in Chapter 4. | |
| 22 | The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir. | There is no wastewater generation from this Quarry, so this is not applicable. | - |
| 23 | The project proponent shall study and furnish the details on potential fragmentation impact on natural environment by the activities. | Section 2.10 provides the land-use pattern at present and at the end of the quarrying period.<br><br>The post mining land use plan showing afforestation and water body is shown in Figure No- 2.9. | 101 |
| 24 | 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 | The Flora and Fauna study covering 10 km radius are detailed in section 3.3.6 of chapter 3.<br><br>The impacts anticipated with respect to the environment of the project area is very negligible and it will be minimized within the project area.<br><br>Greenbelt / Plantation will be carried out to enhance the vegetative growth and aesthetic in the safety zone area. | 150 |
| 25 | The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components. | The impact of mining on soil environment has been discussed in Section 4.2.2 under Chapter 4. | 183 |
| 26 | The Environmental Impact Assessment should study on | The anticipated impact and its mitigation measures for Water | 184 |

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| | wetlands, water bodies, rivers streams, lakes and farmer sites. | Environment are detailed in section 4.2.3 of Chapter 4. | |
| 27 | The EIA shall include the impact of mining activity on the following:<br><br>a) Hydrothermal/Geothermal effect due to destruction in the Environment.<br><br>b) Bio-geochemical processes and its foot prints including Environmental stress.<br><br>c) Sediment geochemistry in the surface streams | The proposed quarry operation is Opencast Mechanized operation with drilling, blasting, excavation, loading and transportation. So, the effect of Hydrothermal/Geothermal is not envisaged.<br><br>This is a simple mining operation, so bio-geochemical processes are not envisaged.<br><br>Due to mining operation, there may be minimum impact to the nearby water bodies due to dust sedimentation. It will be controlled by wet drilling, water sprinkling and plantation. | |
| **Energy** | | | |
| 28 | The measures taken to control Noise, Air, Water, Dust Control and steps adopted to efficiently utilize the Energy shall be furnished | The measures taken to control noise, air, water, and dust have been given under Chapter 4. | 174 |
| **Climate Change** | | | |
| 29 | 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. | The carbon emission and the measures to mitigate carbon emission have been discussed in Section 4.2.4 under Chapter.<br><br>Only the best equipment will be used, and it will be properly and regularly maintained. Regular vehicular emission tests will be conducted on the transport | 193 |

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| 30 | The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock, soil health and physical, chemical & biological soil features.. | vehicles to ensure minimal carbon emissions.<br><br>To further reduce carbon emissions, a good greenbelt plan has been planned. | - |
| 31 | Impact of mining on pollution leading to GHGs emissions and the impact of the same on the<br><br>local livelihood. | | |
| 32 | Detailed Mine Closure Plan covering the entire mine lease period as per precise area communication order issued. | The mine closure plan details are given in section 2.10 of Chapter 2 and section 7.6 of Chapter 7.<br><br>The budget details for the progressive mine closure plan are shown in Table 10.2. | 101 & 232, 241 |
| **EMP** | | | |
| 33 | Detailed Environment Management Plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued and the scope for achieving SDGs. | Complied. The details are described in Chapter 10. | 226 |
| 34 | The Environmental Impact Assessment should hold detailed study on EMP with budget for Green belt development and mine closure plan including disaster management plan. | Total EMP Cost for 10 years is 48.12 lakhs i.e., Rs.9.13 Lakhs of Capital + Recurring cost Rs. 38.99 lakhs for Ten year, which is including the cost of Rs. 0.75 Lakhs | 241 |

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| | | (capital) and Rs. 0.15 (Recurring) for Greenbelt development. | |
| **Risk Assessment** | | | |
| 35 | To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining. | The risk assessment and management plan for this project has been provided in Section 7.2 under Chapter 7. | 218 |
| **Disaster Management Plan** | | | |
| 36 | To furnish disaster management plan and disaster mitigation measures in regard to all aspects to avoid,/reduce vulnerability to hazards & to cope with disaster/untoward accidents in & around the proposed mine lease area due to the proposed method of mining activity & its related activities covering the entire mine lease period as per precise area communication order issued. | Disaster Management plan are detailed in section 7.3, Chapter 7. | 222 |
| **Others** | | | |
| 37 | 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. | There are no historical places, schools, cemeteries, temples, bird sanctuaries, and wildlife sanctuaries within 500 meters of the proposed project area. In this regard, the project proponent has received an official letter from the Village Administrative Officer, The letter copy enclosed as Annexure – 5. | - |

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| 38 | As per the MoEF& cc office memorandum F.No.z2-6512017-tA.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. | The concerns raised during the public consultation and all the activities proposed will be updated in the final EIA report. | - |
| 39 | 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. | Complied. The PP has framed detail solid waste management system for the project are and the same will be executed by proper awareness and sign boards. The sign boards will be in two language i.e., Vernacular language (Tamil) and common language (English). The plastic waste generation is very negligible and it will be collected from the source level in specific dustbin and disposed through the municipal bins. | - |
| **C. Standard ToR** | | | |
| 1 | Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification 1994 came into force. w.r.t. the highest production achieved prior to 1994 | Not applicable. This is a New Proposal for Quarrying Rough Stone and Gravel. | - |

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| 2 | A copy of the document in support of the fact that the proponent is the rightful lessee of the mine should be given. | This proposed project area is classified as Patta land registered in the name of the Applicant, vide patta No.1024. The copy of the Patta, Adangal and A-Register are enclosed as Annexure -6. | - |
| 3 | All documents including approved mine plan, EIA and public Hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and should be in the name of the lessee. | Noted & agreed. All documents including approved mine plan, EIA and Public Hearing are compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and is in the name of the lessee. | - |
| 4 | All comer 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). | Project coordinates superimposed in satellite imagery and topo map given as Figure No – 3.2 and Figure 3.3.<br><br>The geology and geomorphology map are provided in Figure No.3.20, 3.21, Chapter 3.<br><br>The Soil map is provided under Figure No. 3.22, Chapter-3.<br><br>The 10km Radius Index plan showing buffer zone is given in Figure No.3.2 & Figure 3.3 in Chapter – 3. | 118,119, 169 , 170 & 171 |
| 5 | Information should be provided in Survey of India Topo sheet in l:50,000 scare indicating | The following map in 1:50,000 Scale: Geology map of the project area covering 10km radius – Figure | 168 - 170 |

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| | 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. | No. 3.20. Geomorphology Map of the Study Area covering 10 km radius – Figure No. 3.21.<br><br>Drainage map – 3.19 | |
| 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. | (a) Precise Area Communication:<br><br>The Project Proponent has obtained Precise Area Communication from the Assistant Director, Department of Geology and Mining, Villupuram vide Rc.No.A/G & M / 157/ 2024, Dated 03.12.2024. The letter copy enclosed as Annexure – 2.<br><br>(b) Mining Plan Approval:<br><br>The project proponent has prepared mining plan under rule L9(l),41 &42 of Tamil Nadu Minor Mineral Concession Rules, 1959 and the same has been approved by the Assistant Director, Dept. of Geology & Mining, Villupuram vide Rc.No.B / G & M / 157 / 2024, dated 27.12.2024. The approval letter along with approved plan is enclosed as Annexure – 3. | - |
| 7 | It should be clearly stated whether the proponent company has a well laid down | The proponent will frame a well-planned environmental policy. Its details are provided under Section | 236 - 240 |

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| | 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. | 10.1, Chapter-10. Monitoring Mechanism is detailed under Section .10.3. | |
| 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. | Various risks likely to arise due to mining activities are detailed under section 7.2, Chapter-7. This being an opencast mine, subsidence is not applicable. The impact due to ground vibrations due to blasting is given in para 4.4.2, Chapter-4. | 218 & 205 |
| 9 | The study area will comprise of l0 km zone around the mine lease from lease periphery and the data contained in the EIA | Noted & Agreed<br><br>The study area considered for this study is 10 km radius and all data | - |

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| | such as waste generation etc. should be for the life of the mine / lease period. | 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. | The land use of the study area was studied to demarcate various LULC categories and its details are provided under section 3.3.7 0f Chapter-3. The land use pattern at present and at the end of the quarrying period has been provided in Table 2.4, Chapter-2. The Conceptual plan of mine lease area is shown in Figure No- 2.11. | 158,84 & 104 |
| 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. | There is no waste generation anticipated in this quarry operation since the entire excavated material will be utilized. Hence, there is no external overburden dump involved. | - |
| 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. ln 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 | There is no Forest Land involved in the proposed project area. The proposed project area is a patta land. Approved Mining Plan is enclosed. | - |

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| | ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees. | | |
| 13 | Status of forestry clearance for the broken-up area and virgin forestland involved in the Project including deposition of Net Present Value (NPV) and Compensatory Afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished. | Not Applicable. The proposed project area does not involve any Forest Land. | - |
| 14 | Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated. | Not Applicable. The project doesn't attract Recognition of Forest Rights Act, 2006. | - |
| 15 | The vegetation in the RF / PF areas in the study area, with necessary details, should be given. | There are no forest within 10 km radius and the nearest forest is Melkondai R.F. - 10.33km (NW). The flora details in buffer zone are detailed in section 3.3.6 of Chapter 3. | 150 |
| 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 | The mining lease area and the 10 km buffer zone from the periphery of the core zone is devoid of declared ecologically sensitive features like national parks, biospheres, sanctuaries, etc. | - |

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| | 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 l0 km of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished. | Not Applicable. There are No National Parks, Biosphere Reserves, Wildlife Corridors, and Tiger/Elephant Reserves within 10 km Radius from the periphery of the project area. | - |
| 18 | A detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present' In case of any scheduled fauna found in the | A detailed study of flora and fauna composition in the core and buffer zone of the project has been made. The details are furnished in section 3.3.6. | 150 |

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| | 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. | Not Applicable | - |
| 20 | Similarly, for coastal projects, a CRZ map duly authenticated by one of the authorized agencies demarcating LTL. HTL, CRZ area, location of the mine lease with respect to CRZ, Coastal features such as mangroves, if any, should be furnished. (Note: The Mining projects falling under CRZ would also need to obtain approval of the concerned | Not Applicable | - |

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| | 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. | The mining activities will be carried out within the mine lease area only. The entire mine lease area of 4.84.50 Ha is a patta land. There is no population within the ML area. Hence, the question of R& R does not arise. | - |
| 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 of2009, water | Baseline Data were collected for One Season (December 2024 to February 2025) as per CPCB Notification and MoEF & CC Guidelines and Detailed in Chapter -. 3. | 114 |

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| | quality, noise revel, 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. lt 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 | Air Quality Modelling for prediction of incremental GLC's of pollutant was carried out using AERMOD view and Detailed in Section 4.3.5.<br><br>Air Quality Modelling For Cluster are detailed in section 7.5.1 of Chapter 7. | 199 & 228 |

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| | habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map. | | |
| 24 | The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated. | The total water requirement for the project is 6.0 KLD. The required water will be procured from outside agencies initially and later rainwater harvested in the mine pit shall be used other than drinking purpose. Water Balance diagram is presented in Figure No – 4.2. | 187 |
| 25 | Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided. | Not Applicable<br><br>Water for dust suppression, greenbelt development and domestic use will be sourced from accumulated rainwater/seepage water in mine pits and purchased from local water vendors through water tankers on daily requirement basis. | - |
| 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. | Rain water will be diverted into working area by constructing drains to store and use for dust suppression and greenbelt development. Details are presented in section 4.2.3.<br><br>The total water requirement for the project will be 6.0 KLD comprising Drinking and domestic 2.0 KLD, Dust suppression 2.5 KLD, Greenbelt 1.5 KLD. The water will be sourced initially from outside | 187 |

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| | | agencies. Later the rainwater collected in the mine pit sump will be used for this purpose. The water balance diagram for the same is shown in Figure No 4.2. | |
| 27 | Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided. | Impact Studies and Mitigation Measures of Water Environment including Surface Water and Ground Water are discussed in Section 4.2.3. | 184 |
| 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-ali4 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 quarrying activity will not intersect ground water table as quarrying is proposed upto a depth of 70 m bgl and water table is found at a depth of 82 m BGL. | - |
| 29 | Details of any stream, seasonal or otherwise, passing through the lease area and modification / | Not applicable | - |

<table>
<tr><td></td><td>diversion proposed, if any, and the impact of the same on the hydrology should be brought out.</td><td></td><td></td></tr>
<tr><td>30</td><td>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.</td><td><table><tr><td>Site Elevation above MSL</td><td>73 m from MSL</td></tr><tr><td>Ultimate Depth</td><td>70 m bgl</td></tr><tr><td>Ground water</td><td>82 m BGL.</td></tr></table></td><td>-</td></tr>
<tr><td>31</td><td>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</td><td>Greenbelt Development Plan & Recommended Species proposed for Greenbelt Development are detailed in Section 4.2.4.<br><br>0.74.50 hectares of land are allotted for greenbelt development.</td><td>194</td></tr>
</table>

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| | 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. | The traffic density study was carried out and the same is given in section 2.11 of Chapter 2. | 105 |
| 33 | Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report. | Temporary Infrastructure & other facilities will be provided to the Mine Workers after the grant of quarry lease and the same has been discussed in Chapter 2. | 86 |
| 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. | At the conceptual stage the quarried-out land will be fenced and lower benches will be allowed to collect rain water to act as a temporary reservoir and Greenbelt development will be carried out on the top bench, unutilized areas and haul roads. | 101 |

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| | | Mine closure plan is detailed in Section 2.10 of Chapter 2. | |
| 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 of occupational health and safety aspects are given under the Section 4.4.6 & Section 10.4. | 209 |
| 36 | Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations. | No Public Health Implications anticipated due to this project. Details of CER are discussed under Chapter No. 8, | 233 |
| 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. | This project provides employment to 34 people directly. Local people will be hired for unskilled labour. Through CER, nearby schools, hospitals will be benefitted. For CER, INR 5.0 Lakh is allocated. Based on the demand of the people during public hearing, further funds will be allocated, if necessary. | - |

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| 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. | Environmental Management plan details are given in Chapter 10. | 236 |
| 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. | During public hearing process, the opinions and demands of the people will be noted. The replies and commitment made by the proponent along with time bound action plan wherever applicable will be provided in Final EIA/EMP report. | - |
| 40 | Details of litigation pending against the project, if any, with direction /order paced by any Court of Law against the Project should be given. | There is no litigation pending against the project. | - |
| 41 | The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out. | **Project Cost** is Rs.167.69 Lakhs<br><br>**CER Cost** is Rs.5.0/- lakhs<br><br>**EMP Cost**<br><br>Capital Cost is Rs. 9.13/- Lakhs<br><br>Recurring Cost is Rs. 38.99 /- Lakhs for ten years. | - |

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| 42 | A Disaster management Plan shall be prepared and included in the EIA/EMP Report. | Disaster management plan are provided under section 7.3 of Chapter-7. | 222 |
| 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. | Detailed in Chapter 8. | 233 |
| 44 | | | |
| A | Executive Summary of the EIA/EMP Report | Yes, Enclosed | |
| 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. | Yes, Complied | - |
| 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 results are detailed in Chapter 3. Original Baseline monitoring reports will be made available during appraisal of the project. | |
| E | Where the documents provided are in a language other than English, an English translation should be provided. | Yes, complied | - |
| F | The Questionnaire for environmental appraisal of mining projects as devised | Yes, complied | - |

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| | 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- l 1013/41/2006-IA.11 0) dated 4th August, 2009, which are available on the website of this Ministry, should be followed. | Noted & Agreed | - |
| H | Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the PFR for securing the TOR) should be brought to the attention of MoEF&CC with reasons for such changes and permission should be sought, as the ToR may also have to be altered. Post Public Hearing changes in structure and content of the draft EIA/EMP (other than modifications arising out of the P.H. process) will entail conducting the pH again with the revised documentation. | Noted & Agreed | - |
| I | As per the circular no. J-l l0l I161812010-1A.ll (l) dated 30.5.2012, certified report of the status of compliance of the conditions stipulated in the Environment Clearance the existing operations of the project, should be obtained from the Regional office of Ministry of | Yes, Complied | - |

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| | 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. | Surface Plan and Geological Plan – Figure No. 2.8. | 79 |

# 1.0 INTRODUCTION

## 1.1 PURPOSE OF THE REPORT

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. Rough Stone are the major requirements for construction industry. This EIA report is prepared by considering Cumulative load of all proposed & existing quarries located within 500 m radius of the project area. This proposal is towards obtaining environmental clearance for Rough Stone and Gravel Quarry located at survey nos. 42/3A, 42/3B, 44/1, 44/2, 44/3, 44/4A(P) and 44/4B over an extent of 4.84.5 Ha., in Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State, for production capacity of 12,00,260 Cu.m of Rough Stone and 2,13,185 Cu.m of Gravel (First five years) and 2,12,620 Cu.m of Rough Stone (Second Five years). The proposed ML is a Patta land in the name of the Applicant, Thiru.S.Senthil Kumar, vide patta no. 1024, for which precise area has been communicated by Assistant Director, Department of Geology and Mining, Viluppuram, vide Rc.No.A/G(&)M/157/2024 dated 03.12.2024 and mining plan approved by Assistant Director, Department of Geology and Mining, Viluppuram, vide Rc.No.B/G&M/242/2024, dated 27.12.2024. This proposed project comes under cluster classification, based on the AD mines 500m letter Rc.No.B/G&M/242/2024, dated 26.12.2024, there are two Abandoned quarries (Thiru.S.Thirumurugan- 2.92.0 Ha, Thiru.R. Ramkumar - 0.52.0 Ha), two Existing quarries (Thiru.C. Prabakar-2.74.0 Ha and Thiru.S.Senthilkumar- 2.11.27 Ha) and the Proposed quarry (Thiru.S.Senthilkumar-4.84.5 Ha) located within 500m radius which brings the total extent area under the cluster to 9.67.78 Ha, (exceeds 5 Ha.). Total Cluster area (1 Proposed + 2 Existing ) is 9.69.78 Ha including this lease area, and are detailed in below Table. Cluster area

calculated as per MoEF & CC Notification S.O. 2269(E) Dated 1st July 2016. Satellite image of Quarries in Cluster is shown in Fig 1.1.

**Table - 1.1 Cluster Mines Details**

| Sl. No | Extent | Proponent | Status of lease |
|---|---|---|---|
| 1 | 2.74.0 Ha | C. Prabakar | Existing |
| 2 | 1.66.5 Ha | S. Senthilkumar | |
| 3 | 4.84.50 Ha | S. Senthil Kumar | Proposed |
| Total extent is **9.69.78 Ha** including this proposed project. | | | |

As per MoEF&CC OM: F.No.L-11011/175/2018-IA-II(M), dated 12.12.2018, the common EIA/EMP report has to be prepared for the cluster area based on ToR recommended by SEIAA. Therefore, the applicant applied for ToR through Parivesh website vide online proposal no. SIA/TN/MIN/522426/2025, dated 05.02.2025. The ToR proposal was placed in 542nd SEAC meeting, dt 26.03.2025. Then ToR has been issued by the SEIAA vide TO25B0108TN5591167N, Dated: 13.05.2025 and this draft EIA report is prepared as per the recommended ToR for conducting Public hearing and obtaining Environmental Clearance from the SEIAA.




*Figure 1.1 Satellite Image showing cluster quarries*

## 1.2 IDENTIFICATION OF PROJECT AND PROJECT PROPONENT

### 1.2.1 IDENTIFICATION OF PROJECT

The applicant Thiru. S.Senthikumar, proposed to quarry Rough Stone and Gravel for the period of ten years in patta land over an area of 4.84.50 Ha located in survey nos. 42/3A, 42/3B, 44/1, 44/2, 44/3, 44/4A(P) and 44/4B of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. The proposed project details are given below.

## Table -1.2 Project Identification

| | |
|---|---|
| Name of the Project | Rough Stone and Gravel Quarry of Thiru.S.Senthilkumar |
| Survey Nos. | 42/3A, 42/3B, 44/1, 44/2, 44/3, 44/4A(P) and 44/4B |
| Location of the Project | Village: Koraikeni |
| | Taluk: Vanur |
| | District: Viluppuram |
| | State: Tamil Nadu |
| Extent | 4.84.50 Ha. |
| Type of Land | Patta Land patta land registered in the name of Applicant vide patta no.1024. **The copy of the Patta, Adangal and A-Register are enclosed as Annexure -6.** |
| Sector | Non-coal mining |
| Category of the project | B1 |
| Proposed mineral | Rough Stone and Gravel quarry |
| Type of Lease | The applied lease area is fresh lease |
| Proposed production quantity | For First Five Years - 12,00,260 $m^3$ of Rough Stone and 2,13,185 $m^3$ of Gravel.<br>Second Five Years - 2,12,620 $m^3$ of Rough Stone<br>Peak Production – 2,41,550 $m^3$ of Rough Stone & 98,100 $m^3$ of Gravel |
| Proposed depth of mining | 70 m Below Ground Level |
| Method of mining | Opencast Semi-mechanized. |
| Proposed lease period | 10 years |
| Proposed Environmental Clearance | 10 years |

### 1.2.2 PROFILE OF THE PROJECT PROPONENT

The proposed lessee Thiru.S.Senthil Kumar is an individual with sound experience in the identification of quarry, operation and marketing in the field of Rough Stone and gravel quarry. The proposed land is patta land, please refer **Annexure no – 6.**

**Table -1.3- Details of Project Proponent**

| | |
|---|---|
| Name of the Project Proponent | Thiru.S.Senthil Kumar |
| Communication address | S/o.Sekar,<br>No.9, Selsiya Street,<br>Raja Annamalai Nagar,<br>Gorimedu,<br>Puducherry -605 006. |
| Mobile No. | 94432 27349 |
| Email ID | sskearthmovers@yahoo.in |

## 1.3 BRIEF DESCRIPTION OF NATURE, SIZE, LOCATION OF THE PROJECT AND ITS IMPORTANCE TO THE COUNTRY, REGION:

The proposed quarrying operation Opencast Mechanized method with 5m bench height, 5m bench width and overall bench slope is less than 45°. The quarry operation involves shallow jackhammer drilling, slurry blasting, excavation, loading and transportation.

### 1.3.1 SIZE AND LOCATION OF THE PROJECT

#### a. Size of the project

| Table 1.4 Proposed project details | | |
|---|---|---|
| **Sl. No.** | **Feature** | **Description** |
| 1 | Type of land | Owned Patta land |
| 2 | Extent of lease area | 4.84.50 Ha |
| 3 | Type of lease | The applied lease area is fresh lease |
| 4 | Geological Resource | Rough Stone – 31,47,755 $m^3$<br>Gravel - 2,42,135 $m^3$ |

| | | |
|---|---|---|
| 5 | Mineable Resource | Rough Stone – 14,12,880 $m^3$<br>Gravel – 2,13,185 $m^3$ |
| 6 | Proposed production quantity for ten years | For First Five Years - 12,00,260 m3 of Rough Stone and 2,13,185 m3 of Gravel.<br>Second Five Years - 2,12,620 m3 of Rough Stone<br>Total for ten years - Rough Stone – 14,12,880 $m^3$ & Gravel – 2,13,185 $m^3$ |
| 7 | Proposed depth of mining | 70 m BGL for ten years |

**b. Location of the project**

The proposed Quarry lease area is situated at S.F.Nos. 42/3A, 42/3B, 44/1, 44/2, 44/3, 44/4A(P) and 44/4B of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu. The area lies in the north latitude of **12°02'23.31"N to 12°02'31.78"N** and eastern longitude of **79°38'21.41"E to 79°38'30.47"E** with Survey of India Topo Sheet No. 57- P/12. Location of the proposed project is shown in Figure 2.1 and the satellite imagery of the project site is shown in Figure 2.2.

### 1.3.2 IMPORTANCE OF THE PROJECT TO THE REGION

There is an increasing demand for rough stone in India and other countries. Since the construction industry is rapidly growing now, there is an increasing demand for rough stone. Thus, this project will contribute not only to the demand of Rough Stone, but also provide employment opportunities to the nearby villages.

## 1.4 SCOPE OF THE STUDY -DETAILS OF REGULATORY SCOPING CARRIED OUT (AS PER TERMS OF REFERENCE):

Any mining project may cause environmental impacts near the project site during its operation. The type and intensity of impacts on various components of the environment may vary depending on the nature of the project, as well as its geographical location. The net impacts of the project can be quantified through Environment Impact Assessment (EIA) studies on Physical, Biological and Socio-economic environment. The EIA studies give a basis for preparing an Environmental Management Plan (EMP) to conserve the environment of the area.

For the purpose of preparing EIA/EMP the SEIAA, Tamil Nadu has issued a Terms of Reference ToR Identification No. TO25B0108TN5591167N, Dated: 13.05.2025 in accordance with the provisions of EIA Notification 2006 and its subsequent amendments. This EIA study includes both Core and Buffer zone i.e., the lease area and 10km radius of the project area respectively. This EIA report prepared based on the data generated from the Winter season 2024 (December 2024 to February 2025) and all individual components of environment are described in detail. An in-depth analysis of available information has been made for working out an effective Environmental Management Plan.

### 1.4.1 PRESENT STUDY:

The Project Proponent has assigned M/s. Global Mining Solutions, Salem for conducting Environment Impact Assessment / Environmental Management Plan (EIA/EMP) for this project. The Environmental Impact Assessment and Environmental Management Plan of this cluster quarry addressing all the environmental related impacts and mitigation measures. The EMP report is based on the data generated from March 2024 to May 2024 by M/s. Shrient Analytical & Research Labs Private Limited, Chennai and the data generated by the FAE of the M/s. Global Mining Solutions, Salem. The study evaluates the prevailing baseline environmental conditions. The objectives of the present study are given below.

- To prepare the present baseline scenario through primary field monitoring and secondary data for different environmental descriptors such as air, water, noise, traffic, biodiversity, socio-economic etc.
- To identify the activities of mining that have bearing on the environment
- To Assess the impact of proposed project activity
- To suggest preventive mitigation measures
- To prepare an Environmental Management Plan (EMP) including environmental monitoring.
- To Prepare Disaster Management Plan.

### 1.4.2 STATUTORY DETAILS:

**a) District Survey Report:**

The proposed quarry lease is located in Villupuram District. The District Survey Report for Villupuram District has been issued by the Collector, Dept. of Geology and Mining, Villupuram, This DSR has been prepared in line with MoEF & CC S.O. 3611(E) dated 25.07.2018.

**b) Precise Area Communication:**

The Project Proponent has obtained Precise area communication letter received from the Assistant Director, Department of Geology and Mining, Villupuram, vide Rc.No.A/G & M / 157/ 2024, Dated 03.12.2024. **The letter copy enclosed as Annexure – 2.**

**c) Mining Plan Approval:**

The project proponent has prepared Mining Plan under rule 19 (1), 41 & 42 of Tamil Nadu Minor Mineral Concession Rules, 1959 and the same has been approved by the Assistant Director, Dept. of Geology & Mining, Villupuram vide Rc.No.B / G & M / 157 / 2024, dated 27.12.2024. **The approval letter along with approved plan is enclosed as Annexure – 3.**

**d) 500m radius quarry features:**

The project proponent has obtained an official letter from Assistant Director, Dept. of Geology & Mining, Villupuram vide Rc.No. B / G & M / 157 / 2024, Dated 27.12.2024. **The letter copy enclosed as Annexure – 4.**

**e) VAO certification regarding 300 meter features of the project area.**

There are no historical places, schools, cemeteries, HT and LT lines, temples, bird sanctuaries, and wildlife sanctuaries within 300 metres of the proposed project area. In this regard, the project proponent has received an official letter from the Village Administrative Officer, Koraikeni village, dated 22.01.2025. **The letter copy enclosed as Annexure –5.**

**f) Blasting Agreement:**

The Project Proponent have agreement with Sri Sakthi Explosives to carry out the blasting operation for the proposed quarry.

**g) Land document of the proposed lease area:**

It is a Patta land registered in the name of the Applicant, vide patta No.1024. **The copy of the Patta, Adangal and A-Register are enclosed as Annexure -6.**

****

# 2.0 PROJECT DESCRIPTION

## 2.1 TYPE OF THE PROJECT

The proposed activity is the extraction of Rough Stone by open cast mechanized mining method and proposed to produce 12,00,260 $m^3$ of Rough Stone, 2,13,185 $m^3$ of Gravel formation for first five years up to the depth of 50 m bgl and remaining quantity of 2,12,620 $m^3$ of Rough Stone for second five years upto the depth of 70 m bgl.

As per EIA notification, 2006 and its subsequent amendments the project comes under Schedule 1 (a) under Category B1 (Lease area >5 to 250 Ha), considering cluster situation and the total cluster area is 9.69.78 Ha. The details of mines located in the cluster area is certified by Assistant Director, Dept. of Geology & Mining, Viluppuram vide Rc.No.B/G&M/157/2024 dated 27.12.2024.

| S.No | Name of the Quarry Owner | S.F. Nos & Village | Lease Period | Area |
|---|---|---|---|---|
| a. | **Abandoned Quarry** | | | |
| 1. | S. Thirumurugan, S/o Sivaprakasam, | S.F.Nos.3/2B, 3/3, 10/1 Thiruvakkarai Village | 15.02.2019 to 14.02.2024 | 2.92.0 Ha |
| 2. | R. Ramkumar, S/o Rasu Gounder, No.29, Pillaiyar Koil Street, Thirukkanur, Mannadipattu Commune, Puducherry | S.F.Nos. 12/1B, 12/4B, 12/4C, 26/3 Thiruvakkarai Village | 30.05.2013 to 29.05.2018 | 1.61.5 Ha |
| b. | **Existing Quarry** | | | |
| 1. | C. Prabakar, S/o M.C. Chinnasamy, No. 133A, Pillaiyar Kovil Street , Guruvammapettai, Endiyur Post, Tindivanam Taluk, Viluppuram District. | S.F.No.54/1 Koraikeni Village | 25.02.2021 to 24.02.2031 | 2.74.0 Ha |
| 2. | S. Senthilkumar, S/o Sekar | S.F.Nos.26/11 (P), 26/13, 26/14, 27/3, 27/4, 27/5, 27/8A, 27/8B, 27/9, | 20.06.2022 to 19.06.2032 | 2.11.28 Ha |

| | | | | |
|---|---|---|---|---|
| | No.9, Selsia Street, Raja Annamalai Nagar, Gorimedu, Puducherry | 27/13, 27/14, 27/15, 27/16, 27/17 Thiruvakkarai Village | | |
| c. | **Proposed Quarry** | | | |
| 1. | Thiru.S.Senthil Kumar No.121, Keezhanda Street, Kilsiviri Village, Vanur Taluk, Viluppuram District 604 301. | S.F.Nos.42/3A, 42/3B, 44/1, 44/2, 44/3, 44/4A(P) and 44/4B Koraikeni Village | - | 4.84.5 Ha |
| **Total Area of Cluster** | | **9.69.78 Ha** | | |

## 2.2 NEED FOR THE PROJECT

Rough stone is one of the important materials for the building construction. The rough stone is used as both as coarse aggregate and fine aggregate after the proper sizing of stone. The coarse and fine aggregate are essential for preparing concrete which is used in foundation, beam, column, roof slab work of the buildings. The infrastructure is the sign of development of nation. So it is very need to excavate the rough stone for economic and infrastructure development of our Nation.

## 2.3 LOCATION (MAPS SHOWING GENERAL LOCATION, SPECIFIC LOCATION, PROJECT BOUNDARY & PROJECT SITE LAYOUT):

The proposed quarry project is located in survey nos. S.F.Nos. 42/3A, 42/3B, 44/1, 44/2, 44/3, 44/4A(P) and 44/4B over an extent of 4.84.5 Ha., in Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State as shown in Figure 2.1. The area is represented by Survey of India Toposheet No. 57 P/12. The lease boundary with Geo Co-ordinates is shown in Figure 2.2. the area lies in the north latitude of **12°02'23.31"N to 12°02'31.78"N** and eastern longitude of **79°38'21.41"E to 79°38'30.47"E.** Latitude and Longitude of all boundary pillars are given in Table 2.1 and the satellite imagery of the project site is shown in Figure 3.1

## Table 2.1 Boundary Coordinates of the Project

| Corners | Co- ordinates | |
|---|---|---|
| | Latitude | Longitude |
| 1 | 12° 02' 24.81"N | 79° 38' 21.41"E |
| 2 | 12° 02' 26.37"N | 79° 38' 22.06"E |
| 3 | 12° 02' 28.09"N | 79° 38' 22.78"E |
| 4 | 12° 02' 28.25"N | 79° 38' 22.36"E |
| 5 | 12° 02' 31.52"N | 79° 38' 23.45"E |
| 6 | 12° 02' 31.78"N | 79° 38' 23.50"E |
| 7 | 12° 02' 31.26"N | 79° 38' 26.30"E |
| 8 | 12° 02' 31.00"N | 79° 38' 29.04"E |
| 9 | 12° 02' 29.36"N | 79° 38' 29.37"E |
| 10 | 12° 02' 29.24"N | 79° 38' 30.47"E |
| 11 | 12° 02' 24.42"N | 79° 38' 29.61"E |
| 12 | 12° 02' 25.08"N | 79° 38' 25.47"E |
| 13 | 12° 02' 23.31"N | 79° 38' 24.84"E |
| 14 | 12° 02' 24.05"N | 79° 38' 22.92"E |

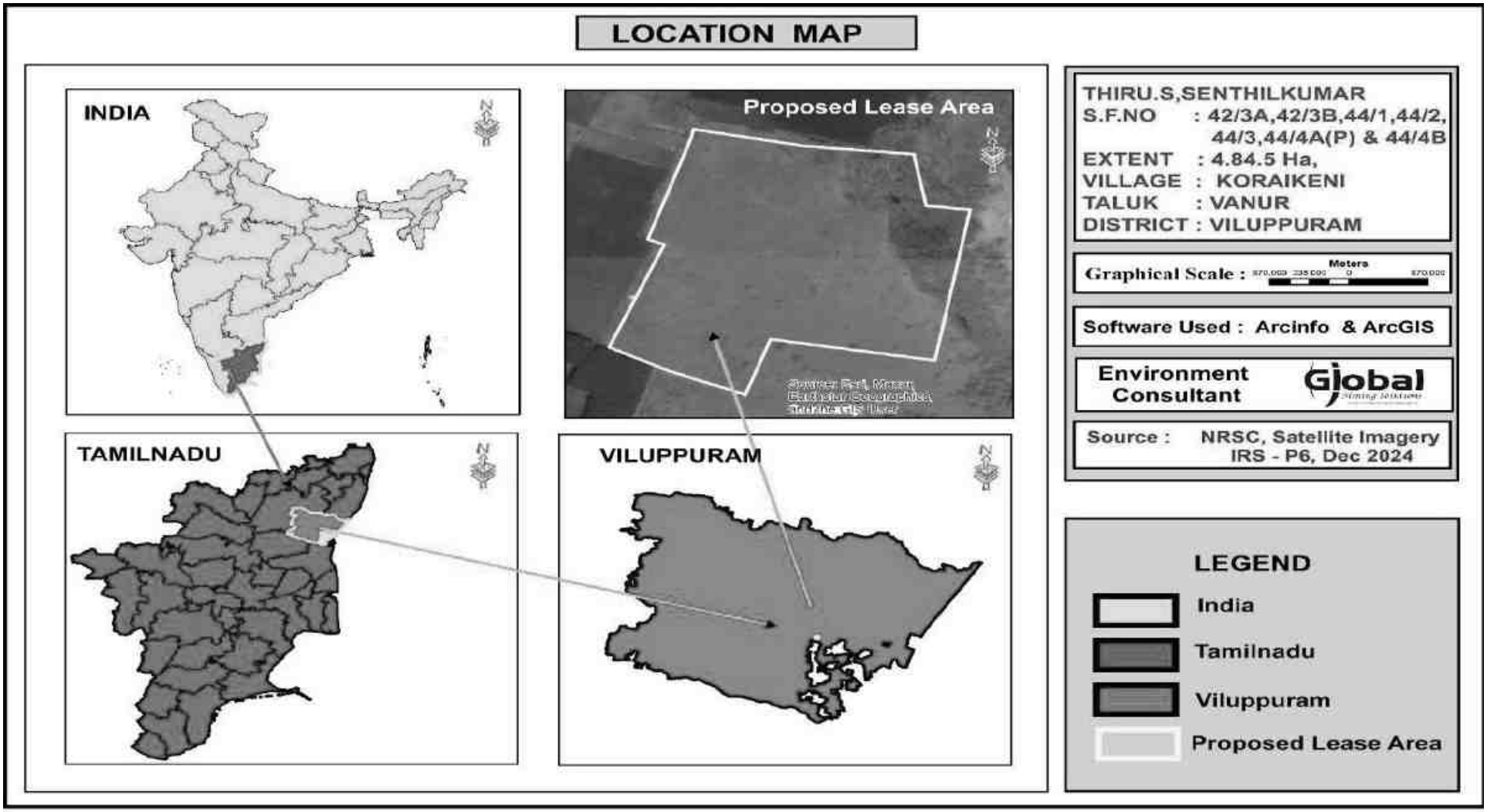



**Figure 2.1 Location Map**

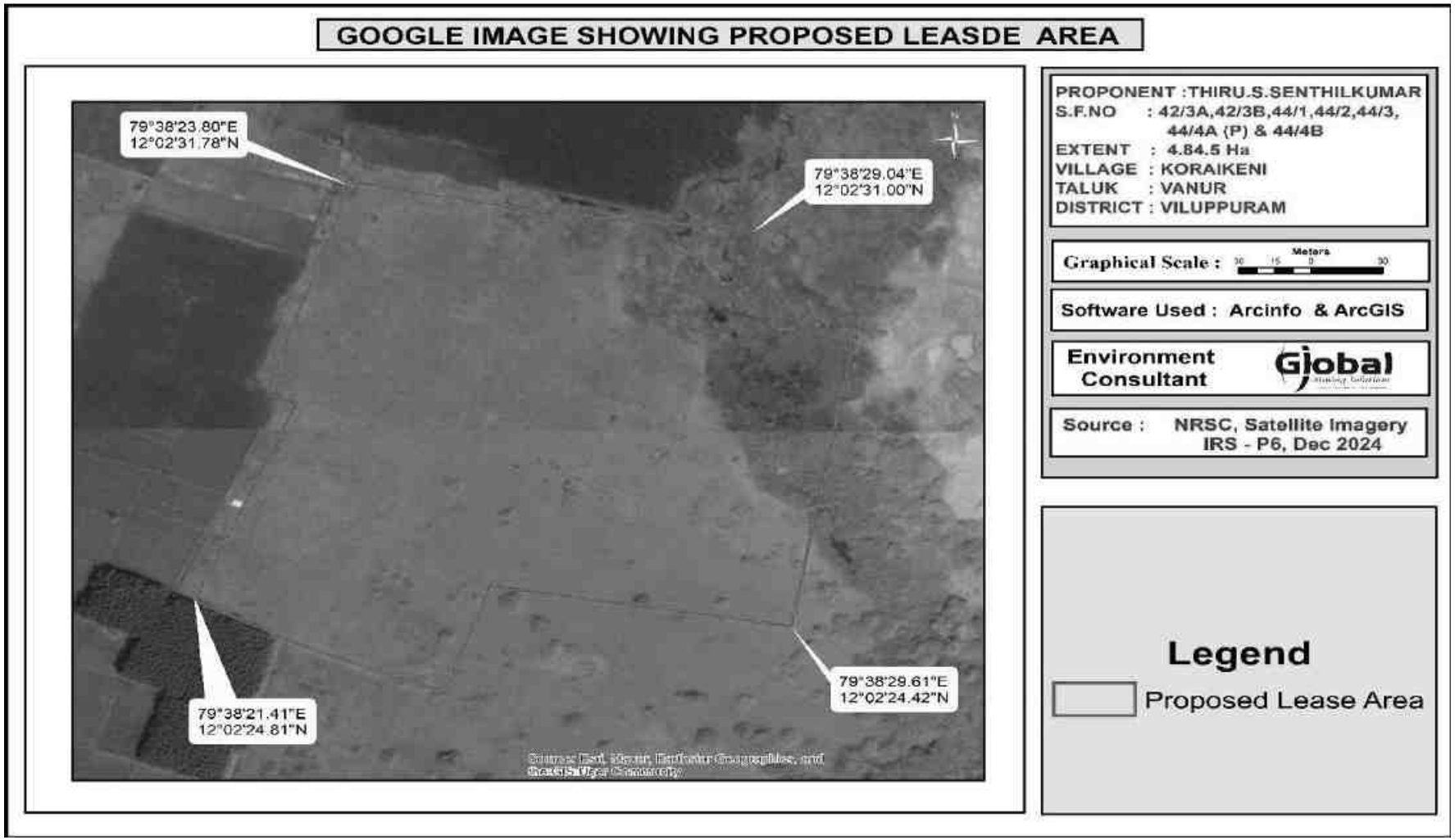



**Figure 2.2 Google Map showing corners coordinates**

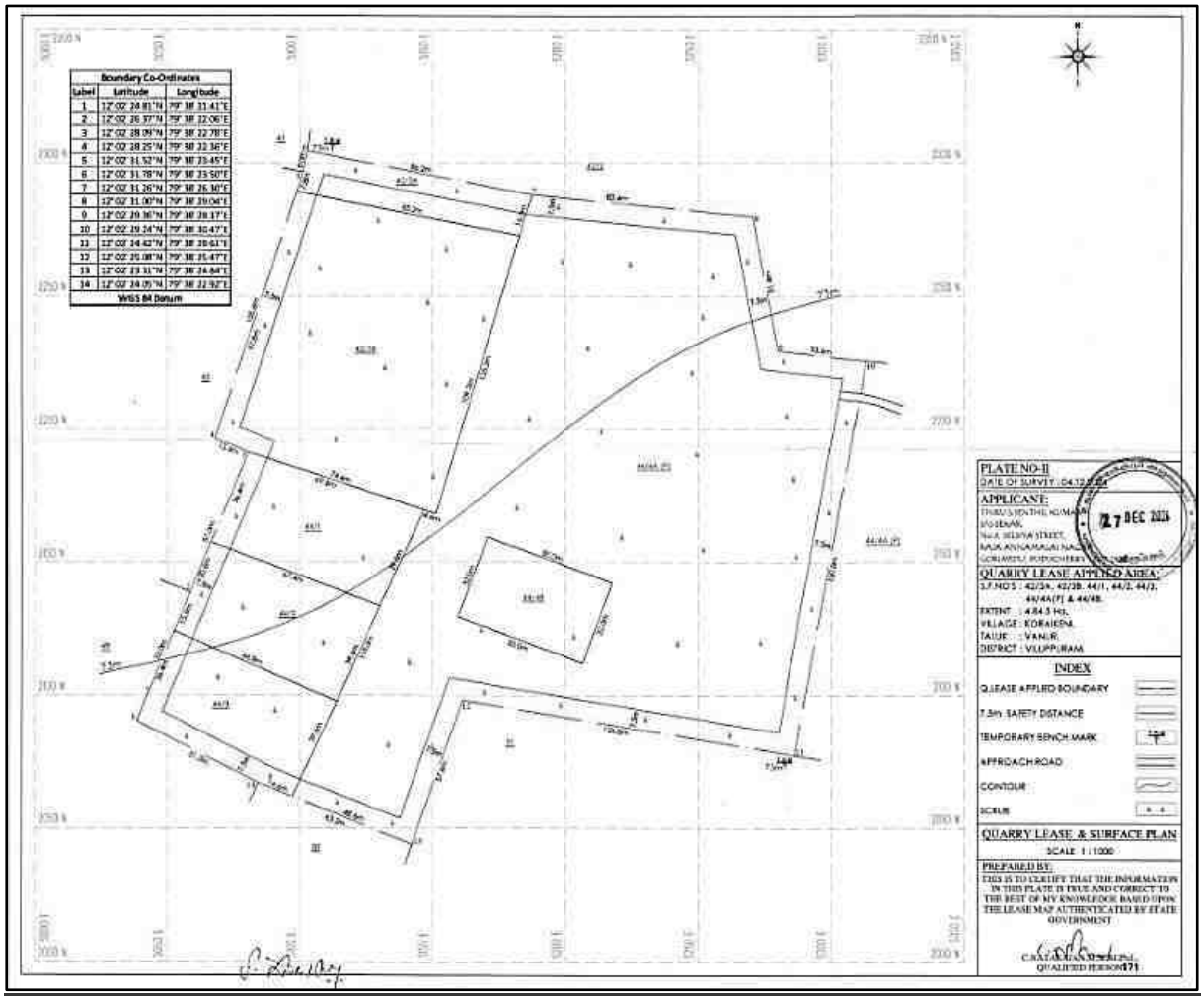



**Figure 2.3 Lease Plan**

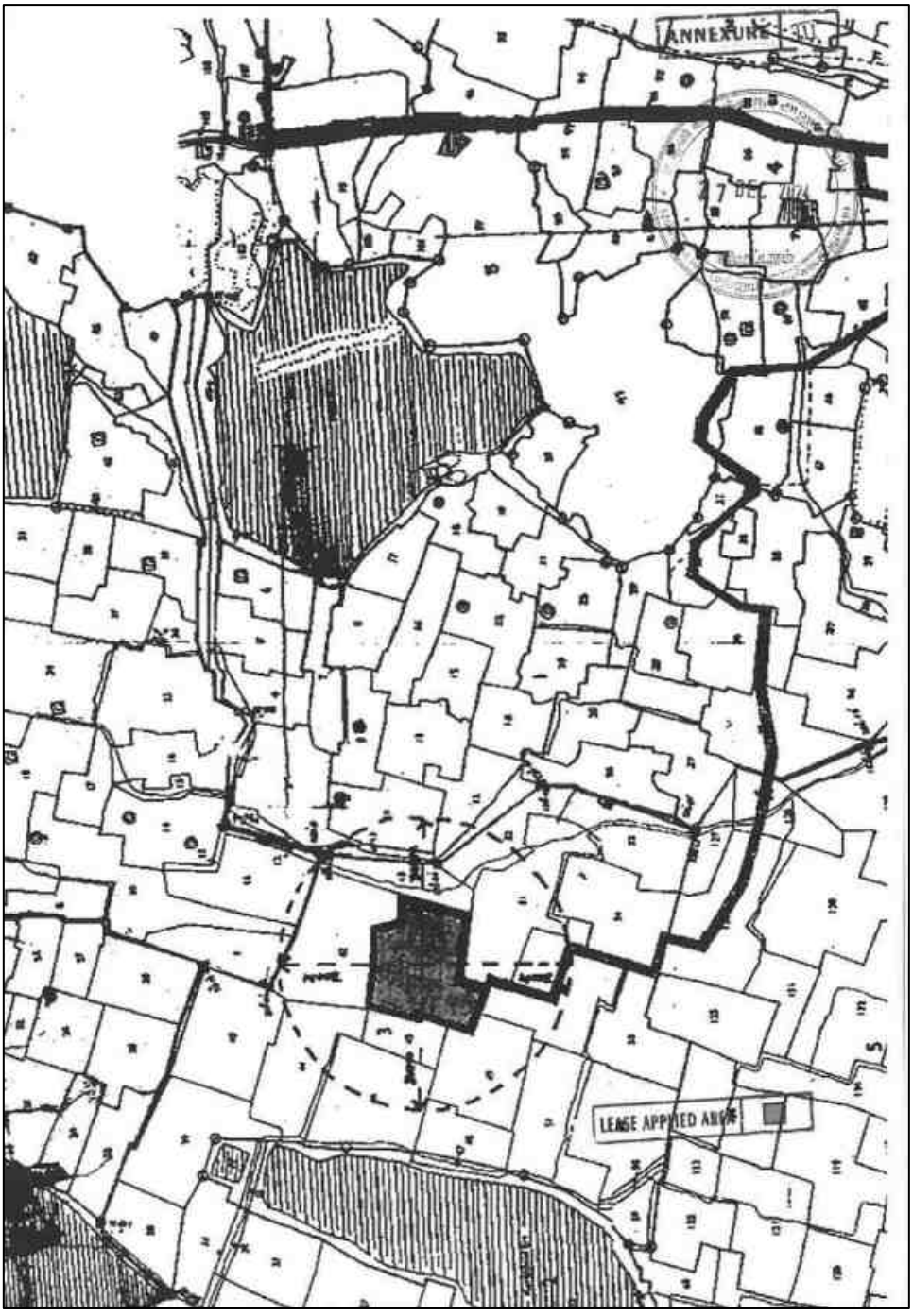



**Figure 2.4 VILLAGE MAP SHOWING 300m AND 500m RADIUS OF THE PROJECT AREA**

### 2.3.1 LEASE AREA

This proposed project area is classified as Patta land registered in the name of the Applicant, vide patta No.1024. The copy of the Patta, Adangal and A-Register are enclosed as Annexure -6. & does not fall within 10 km radius of any Eco – sensitive zone, Wild life Sanctuary, National Park, Tiger Reserve, Elephant Corridor and Biosphere Reserves. The M.L area details are presented in below Table. the Land use pattern of the project site is given below Table 2.4.

**Table 2.2 Mine Lease Area and its Ownership**

| Location | S.F. No | Area in Ha | Patta no | Patta Name | Remarks |
|---|---|---|---|---|---|
| Koraikeni Village, Vanur Taluk, Viluppuram District | 42/3A | 0.13.5 | 1024 | Thiru.S.Senthil Kumar (Applicant) | It is patta land in the name of Applicant vide patta no.1024. |
| | 42/3B | 0.91.5 | | | |
| | 44/1 | 0.26.5 | | | |
| | 44/2 | 0.26.0 | | | |
| | 44/3 | 0.25.5 | | | |
| | 44/4A | 2.85.5 | | | |
| | 44/4B | 0.16.0 | | | |
| **Total** | | **4.84.5** | | | |

**Site Connectivity**

- There is an existing road from the area leads to Thiruvakkarai village road on Southeastern side of the area.
- The Nearest Railway line is Viluppuram to Chennai line which is about 10.5Km on western side of the area.
- The National Highway (NH-179B) Viluppuram – Chennai is about 10.3km on western side of the area.
- The State Highway (SH-136) Mailam – Vanur is about 4.5Km on Northeastern side of the area.

## Table 2.3 Site Connectivity

| | |
|---|---|
| Nearest Roadway | The National Highway (NH-179B) Viluppuram – Chennai is about 10.3km on western side of the area.<br>The State Highway (SH-136) Mailam – Vanur is about 4.5Km on Northeastern side of the area. |
| Nearest Village | Koraikeni Village – 1.1km (SW) |
| Nearest Railway | Perani – 11.61Km (NW) |
| Nearest Airport | Puducherry Airport - 20.6 Km (SE) |







**Figure 2.5 Site Photographs**

## 2.4 LAND USE PATTERN OF THE PROJECT AREA

The entire project site is Patta land registered in the name of the Applicant, vide patta No.1024. The copy of the Patta, Adangal and A-Register are enclosed as Annexure -6. The land use pattern of the mine lease area as of today and conceptual stage given in Table No. 2.4.

**Table 2.4 Land use pattern of the Project area**

| Sl. No. | Land Use | Present Area (Ha) | Area in use during the quarrying period (Ha) |
|---|---|---|---|
| 1. | Quarrying Pit | Nil | 4.08.0 |
| 2. | Infrastructure | Nil | 0.01.0 |
| 3. | Roads | Nil | 0.01.0 |
| 4. | Green Belt | Nil | 0.74.5 |
| 5. | Unutilized | 4.84.5 | Nil |
| | Total | **4.84.5** | **4.84.5** |

During operation & in the Post mining stage, the Safety Zone of 0.74.50 Ha., will be planted and maintained with 745 numbers of saplings. In the conceptual stage, the quarried pit will be fenced by using Barbed wire fencing to prevent inherent entry of public and cattle.

## 2.5 SIZE OR MAGNITUDE OF OPERATION (INCL. ASSOCIATED ACTIVITIES REQUIRED BY OR FOR THE PROJECT)

The proposed production of rough stone is 14,12,880 m3 & Gravel – 2,13,185 $m^3$ by Opencast Semi-Mechanized mining method. Available Geological Resources of Rough stone 31,47,755 $m^3$ and Gravel 2,42,135 $m^3$. Cost of the project is Rs. 167.69 lakhs including land cost. Capital cost for EMP is Rs. 9.13 lakhs and recurring cost for the EMP is Rs. 3.10 Lakh/Annum.

### 2.5.1 STATUS OF STATUTORY CLEARANCES, PERMISSIONS, NO OBJECTION CERTIFICATES, CONSENTS:

The mining project will be implemented after getting all the Statutory Clearances, Permissions, No Objection Certificates, consents etc. which are

required/necessary for this project under various Acts, Rules and Regulations is as given in table below:

**Table 2.5 Status of Statutory Clearances, Permissions, NOC, Consents**

| S.No | Particular | Status |
|---|---|---|
| 1 | Mining Plan Approval Status | The project proponent has prepared mining plan under rule 19(1) 41 & 42 of Tamil Nadu Minor Mineral Concession Rules, 1959 and the same has been approved by Assistant Director, Dept. of Geology & Mining, Villupuram vide Rc.No.B / G & M / 157 / 2024, dated 27.12.2024. |
| 2 | Environment Clearance Status | ToR Letter Received vide TO25B0108TN5591167N, Dated: 13.05.2025 |
| 3 | Grant of Consent to Establish (CTE) | After 30 days from grant of EC (Duration as per TNPCB) |
| 4 | Grant of Consent to Operate (CTO) | After 30 days from grant of EC (Duration as per TNPCB) |

## 2.6 PROPOSED SCHEDULE FOR APPROVAL & IMPLEMENTATION

Proposed schedule for approval of the proposed mining project is given as under:

**Table 2.6 Proposed Schedule for Approval**

| S.N | Activity Description | Sep 2025 | Oct 2025 | Nov 2025 | Dec 2025 |
|---|---|---|---|---|---|
| 1 | Submission of Final EIA/EMP Report to SEIAA-TN | | | | |

| | | | | | |
|---|---|---|---|---|---|
| 2 | Consideration for EC by SEAC | | | | |
| 3 | Recommendation of SEAC to SEIAA | | | | |
| 4 | Grant of EC by SEIAA | | | | |

*Proposed schedule has been prepared as per EIA Notification, 2006*

Note: Application was submitted to Parivesh Portal vide SIA/TN/MIN/522426/2025 on 05.02.2025, ToR was granted on 13.05.2025. Baseline data Collection during winter Season (December 2024 to February 2025). After obtaining EC from SEIAA-TN, CTE and CTO under section 21 of the Air (Prevention and Control Act) 1981 and section 25/26 Water (Prevention and Control of Pollution Act) 1974 will be obtained from Tamil Nadu State Pollution Control Board (TNPCB).

### 2.6.1 IMPLEMENTATION

Implementation of the proposed mining project will be done in accordance with the existing Acts and Rules applicable on mining operations as well as in accordance with any Act/Rule/Guidelines issued by Central or State Government from time to time and as per Mining Plan and Progressive Mine Closure Plan approved by Assistant Director, Dept. of Geology & Mining, Viluppuram, vide Rc.No.B / G & M / 157 / 2024, dated 27.12.2024.

## 2.7 TECHNOLOGY & PROCESS DESCRIPTION

### BASIC REQUIREMENTS FOR THE PROJECT

The project requirements such as water, power, man-power, fuel, machinery with source of supply is described in the sections below.

### 2.7.1 WATER REQUIREMENTS

In the proposed mines water will be mainly used for domestic purpose, dust suppression & plantation. Total water requirement for the project is 6.0KLD which will be sourced from outside agencies. Negligible sewage of 1.0 KLD will be generated, for which a septic tank with soak pit will be set up. The water balance diagram is given below.

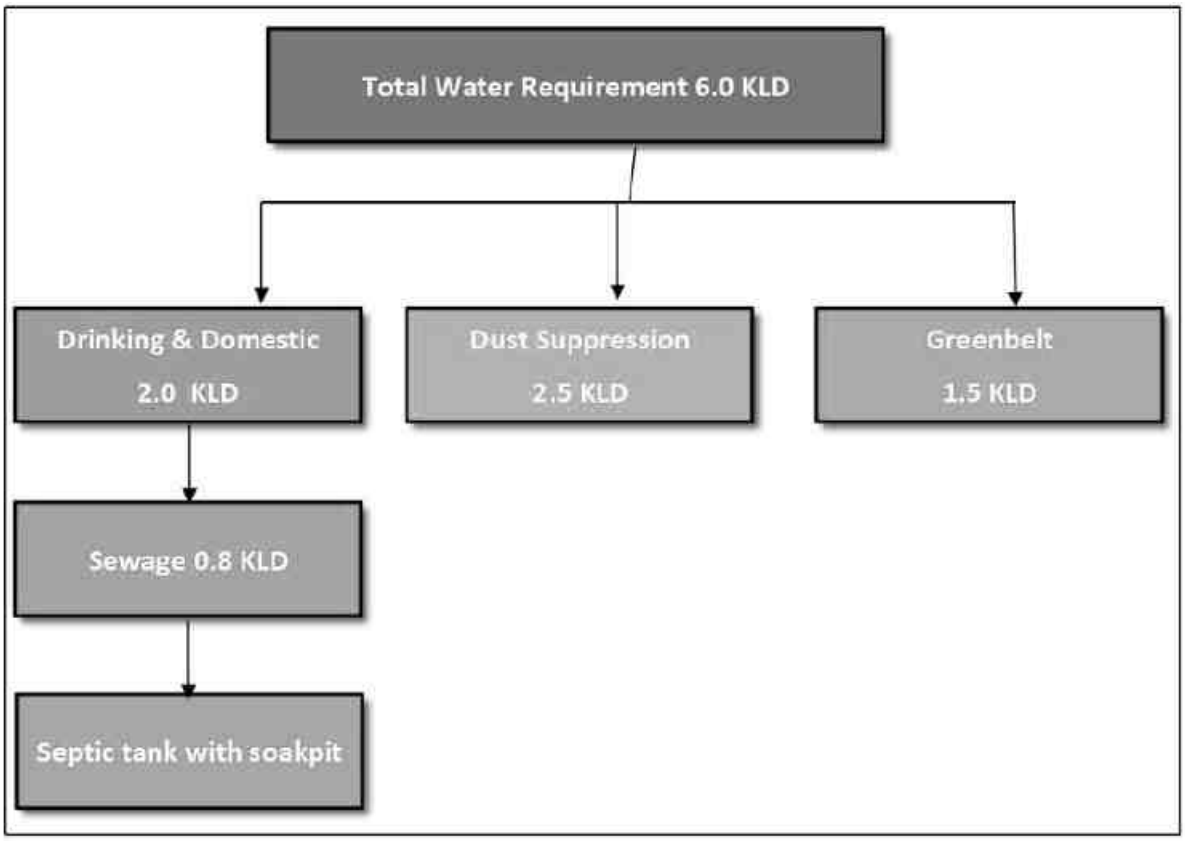



**Figure 2.6 Water Balance Diagram**

**Table - 2.7 Water Requirement**

| S. No | Particular | Water Requirement (KLD) |
|---|---|---|
| 1 | Dust suppression | 2.0 |
| 2 | Drinking/Domestic | 2.5 |
| 3 | Greenbelt/Plantation | 1.5 |
| Total | | 6.0 |

### 2.7.2 POWER REQUIREMENT

All the equipment will be diesel operated. No electricity is needed for mining operation. The minimum power requirement for office, etc will be met from state grid. 4,73,442 litres of HSD for the entire period of life (10 years).

### 2.7.3 MAN POWER REQUIREMENT

Total Manpower requirement will be 34 persons, out of which 16 persons (Mines manager, Foreman, Mining Mate, etc.,) and other are drivers and workman's categories. Beside this, 18 workmen will be drivers and workmen. Preference will be given to the locals as per their eligibility.

| S.No | Description | Employment potential |
|---|---|---|
| 1 | Mines Manager | 1 No. |
| 2 | Foreman / Mate | 2 Nos. |
| 3 | Operator | 12 Nos. |
| 4 | Mechanic | 1 No. |
| 5 | Driver | 6 Nos. |
| 6 | Labours | 12 Nos |
| **Total** | | **34 Nos** |

### 2.7.4 EXTENT OF MECHANIZATION

**Table 2.8 – Machinery Details**

| S.No | Type | Nos | Capacity |
|---|---|---|---|
| 1 | Jack hammer | 12 | 32 mm Dia |
| 2 | Compressor | 3 | - |
| 3 | Excavator | 3 | 0.9 Cu.m |
| 4 | Tippers | 6 | 5 / 10 T |

Source: Approved Mining Plan

Note: The mining equipment's of the above capacities are adequate for total material handling requirements for the proposed production of Rough stone and Gravel in the ML area.

## 2.8 GEOLOGY AND TOPOGRAPHY

### TOPOGRAPHY

The mine lease area of 4.84.50 Ha is covered in the Survey of India Toposheet 57 P/12 and is bounded by Latitude: 12°02'23.31"N to 12°02'31.78"N and Longitude: 79°38'21.41"E to 79°38'30.47"E. No major river is found nearby the lease applied area. Water table is found at a depth of 82 m. Temperature of the area is reported to be $18^0$ C to a maximum of $42^0$ C during summer. Rainfall of this area is about 800 mm to 900 mm during the both NE & SW monsoons.

The topo map showing the lease area of the proposed quarry is given in Figure 3.2 and Satellite map showing proposed lease area is given in Figure 3.1.

The elevation of the proposed quarry is 73 m (maximum) from MSL. There is no forest land in the mine lease area. The project site is dry land which is not fit for any cropping.

The generalized Geology of the district is as follows:

| | |
|---|---|
| Recent and sub-recent | Soil |
| | Alluvium |
| | Laterite |
| Mio – Pliocene | Cuddalore Sandstone with intercalations of clay, shale and pebble bed. |
| Lower Jurassic (Upper Gondwana) | Shales and sandstones |
| Archacan | Basic dykes, Pegmatites and Quartz veins |
| | Granites |
| | Norites |
| | Charnockitic rocks |
| | Garnet plagioclase and pyroxene plagioclase rock (Anorthosite) |
| | Talc Rock (altered ultrabasic rock) |
| | Talc – Chlorite – Epidote Rock |
| | Sillimanite – Quartzite |
| | Magnetite Quartzite |
| | Hornblende granulites and amphibolites |

Villupuram district is underlain by crystalline metamorphic complex in the western part of the district and sedimentary tract in eastern side (Plate-II). The thickness of sediments exceeds 600m near southern part of the district. Groundwater occurs under phreatic and semi–confined conditions in consolidated formations, which comprises weathered and fractured granites, gneisses and charnockites whereas in unconsolidated sedimentary rocks the groundwater occurs in phreatic, semi-confined conditions in Vanur sandstone, Kadapperi kuppam formation and Turuvai limestone. The district is having rocky outcrops in major part of Kallakurichi, Sankarapuram and Tirukoilur taluks. The weathering is highly erratic and the depth of abstraction structures is controlled by the intensity of weathering and fracturing. The depth of wells varies from 6.64 to 17 m bgl and water levels in observation wells tapping shallow aquifers varied from 0.74 to 9.7 m bgl during pre monsoon (May 2006) and it varies from 0.7 to 4.45 m bgl during post monsoon (January 2007). During pre monsoon, the depth to water levels in the range of >2 to 5 m bgl in major part of the district, in the range of >5 -10 m bgl in western and southeastern parts of the district and range of 0-2 m bgl were recorded in two isolated pockets (Plate –III). During post monsoon the depth to water levels range of >2 to 5 m bgl exists in major part of the district, range of 0 - 2 m bgl prevails in central and northeastern parts of the district and range of >5 - 10 m bgl were recorded in two isolated pockets in the southwester and north western parts of the district (Plate –IV). The depth to piezometric surface ranged from 2.8 to 11.25 m bgl during Pre monsoon and 0.5 to 6.35 m bgl during post monsoon. The ground water is being developed my means of dug wells, bore wells and tube wells. The diameter of the well is in the range of 7 to 10 m and depth of dug wells range from 15 to 18 m bgl depending on the weathered thickness and joints. 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. The yield of bore wells in favorable locations vary from <1 to 6 lps. The valley fills, intersection, particularly in western part along the foot hills of kalrayan hills are reported to have potential pockets suitable for dug wells and bore wells. The area of contact between crystalline and sedimendary formations has variable yield prospects. The cretaceous formations are very compact and yield prospects are low. The dug

wells of 6 m diameter and 10 m bgl depth in sandy tracts give about 3.5 lps. The yield of tube wells in the sedimentary formation ranges from 2.4 to 37 lps.

### 2.8.1 LOCAL GEOLOGY

The area is underlain by the wide range of metamorphic rocks of peninsular gneissic complex. These rocks are extensively weathered and overlain by the recent valley fills and alluvium at places. The geological formations found in the district are Archaean rocks like Gneisses, Granites, Charnockites basic granulites and calc-gneisses. The younger formations are Quartz veins and pegmatite.

The rock type noticed in the area for lease is Charnockite which contains mostly Quartz and Feldspar with some ferromagnesian minerals. The Charnockite is part of peninsular Gneisses, a high-grade metamorphic rock.

The strike of the Charnockite formation is N45$^0$E – S45$^0$W with dipping towards SE80$^0$.

The general geological succession of the area is given as under.

| AGE | | ROCK TYPE |
|---|---|---|
| Recent | - | Gravelly soil |
| Unconformity | | |
| Archaean | - | Dolerite dyke, Charnockite. |
| | | Peninsular Gneissic complex and Calc Gneiss |

## 2.9 PROJECT DESCRIPTION INCLUDING DRAWING SHOWING PROJECT LAY OUT COMPONENTS OF PROJECT ETC., SCHEMATIC REPRESENTATION OF THE FEASIBILITY DRAWING WHICH GIVE INFORMATION IMPORTANT FOR EIA PURPOSE

### 2.9.1 PROCESS DESCRIPTION

**PROPOSED METHOD OF MINING**

Opencast mechanized method with 5.0 m height 5.0m width and overall, 45$^0$ slope of the bench. It is proposed to excavate produce 12,00,260 m3 of Rough Stone, 2,13,185 m3 of Gravel formation for first five years up to the depth of 50 m bgl and remaining quantity of 2,12,620 m3 of Rough Stone for second five years upto the depth of 70 m bgl. The details of geological and mineable

reserves in the lease area have been provided below in the subsequent sub section. No wastage is envisaged as the entire material available is Rough Stone and Gravel only.

**TIMING**

Mining will be done on single shift basis. Timing will be 8 hours from 8 AM to 1 Noon and 2 PM to 5 PM. Lunch time will be provided between 1 Noon and 2 PM. Timing may be variable from season to season depending upon the sunrise and sunset. Weekly one day will be declared as holiday.

**BENCH GEOMETRY**

Height (max) and Width (max) of the benches will be maintained as 5m each and overall slope angle will be at around 450 with the horizontal.

**DEVELOPMENT OF MINING FACES**

The proposed mining method is Opencast Mechanized mining. Site preparation as such bush cleaning, approach road, office and sanitary facilities will be done after obtaining all the statutory clearances as such Environmental Clearance, Consent to Operate, Lease Deed, etc., Once site is ready will start the quarrying operation and it is anticipated in the month of December 2025.

### 2.9.2 RESOURCES AND RESERVES

The Resources and Reserves of Rough Stone and Gravel were calculated based on Cross-Section Method to cover the maximum lease area.

**GEOLOGICAL RESOURCES**

The quarrying is restricted up to a depth of 70 m Below ground level only. Availability of Resources is given below.

## Table 2.9 Available Geological Resources

| Section | Bench | Length in (m) | Width in (m) | Depth in (m) | Volume in $m^3$ | Gravel in $m^3$ | Geological Resources of Rough stone in $m^3$ |
|---|---|---|---|---|---|---|---|
| XY-AB | I | 179 | 233 | 5 | 208535 | 208535 | |
| | II | 179 | 233 | 5 | 208535 | | 208535 |
| | III | 179 | 233 | 5 | 208535 | | 208535 |
| | IV | 179 | 233 | 5 | 208535 | | 208535 |
| | V | 179 | 233 | 5 | 208535 | | 208535 |
| | VI | 179 | 233 | 5 | 208535 | | 208535 |
| | VII | 179 | 233 | 5 | 208535 | | 208535 |
| | VIII | 179 | 233 | 5 | 208535 | | 208535 |
| | IX | 179 | 233 | 5 | 208535 | | 208535 |
| | X | 179 | 233 | 5 | 208535 | | 208535 |
| | XI | 179 | 233 | 5 | 208535 | | 208535 |
| | XII | 179 | 233 | 5 | 208535 | | 208535 |
| | XIII | 179 | 233 | 5 | 208535 | | 208535 |
| | XIV | 179 | 233 | 5 | 208535 | | 208535 |
| | **Total** | | | | | **208535** | **2710955** |
| XY-CD | I | 60 | 112 | 5 | 33600 | 33600 | |
| | II | 60 | 112 | 5 | 33600 | | 33600 |
| | III | 60 | 112 | 5 | 33600 | | 33600 |
| | IV | 60 | 112 | 5 | 33600 | | 33600 |
| | V | 60 | 112 | 5 | 33600 | | 33600 |
| | VI | 60 | 112 | 5 | 33600 | | 33600 |
| | VII | 60 | 112 | 5 | 33600 | | 33600 |
| | VIII | 60 | 112 | 5 | 33600 | | 33600 |
| | IX | 60 | 112 | 5 | 33600 | | 33600 |
| | X | 60 | 112 | 5 | 33600 | | 33600 |
| | XI | 60 | 112 | 5 | 33600 | | 33600 |
| | XII | 60 | 112 | 5 | 33600 | | 33600 |
| | XIII | 60 | 112 | 5 | 33600 | | 33600 |
| | XIV | 60 | 112 | 5 | 33600 | | 33600 |
| | **Total** | | | | | **33600** | **436800** |
| **Grand Total** | | | | | | **242135** | **3147755** |

Gravel Formation : 2,42,135$m^3$

The Geological Resources of Rough stone : 31,47,755$m^3$

## MINEABLE RESERVES

The mineable reserves are calculated by deducting 7.5 m safety distance and bench loss.

**Table 2.10 – Available Mineable Reserves**

| Section | Bench | Length in (m) | Width in (m) | Depth in (m) | Volume in $m^3$ | Gravel in $m^3$ | Mineable Reserves of Rough stone in $m^3$ |
|---|---|---|---|---|---|---|---|
| XY-AB | I | 172 | 218 | 5 | 187480 | 187480 | |
| | II | 167 | 208 | 5 | 173680 | | 173680 |
| | III | 162 | 198 | 5 | 160380 | | 160380 |
| | IV | 157 | 188 | 5 | 147580 | | 147580 |
| | V | 152 | 178 | 5 | 135280 | | 135280 |
| | VI | 147 | 168 | 5 | 123480 | | 123480 |
| | VII | 142 | 158 | 5 | 112180 | | 112180 |
| | VIII | 137 | 148 | 5 | 101380 | | 101380 |
| | IX | 132 | 138 | 5 | 91080 | | 91080 |
| | X | 127 | 128 | 5 | 81280 | | 81280 |
| | XI | 117 | 118 | 5 | 69030 | | 69030 |
| | XII | 107 | 108 | 5 | 57780 | | 57780 |
| | XIII | 97 | 98 | 5 | 47530 | | 47530 |
| | XIV | 87 | 88 | 5 | 38280 | | 38280 |
| | **Total** | | | | | **187480** | **1338940** |
| XY-CD | I | 53 | 97 | 5 | 25705 | 25705 | |
| | II | 48 | 87 | 5 | 20880 | | 20880 |
| | III | 43 | 77 | 5 | 16555 | | 16555 |
| | IV | 38 | 67 | 5 | 12730 | | 12730 |
| | V | 33 | 57 | 5 | 9405 | | 9405 |
| | VI | 28 | 47 | 5 | 6580 | | 6580 |
| | VII | 23 | 37 | 5 | 4255 | | 4255 |
| | VIII | 18 | 27 | 5 | 2430 | | 2430 |
| | IX | 13 | 17 | 5 | 1105 | | 1105 |
| | **Total** | | | | | **25705** | **73940** |
| **Grand Total** | | | | | | **213185** | **1412880** |

The mineable reserve is computed as 14,12,880m3 of Rough stone and 2,13,185m3 of Gravel formation upto a depth 70m below ground level only.

## 2.9.3 PROCESS DESCRIPTION AND TECHNOLOGY

## 2.9.4 PROCESS DESCRIPTON

The quarry operation involves shallow jack hammer drilling, slurry blasting, excavation, Loading and transportation of Rough stone to the needy buyers. 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 buyers.
- 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. The process diagram is provided in Figure 2.7. The production plan and cross section is given in Figure 2.8 & 2.9 and conceptual plan and conceptual cross section is given in Figure No. 2.11.

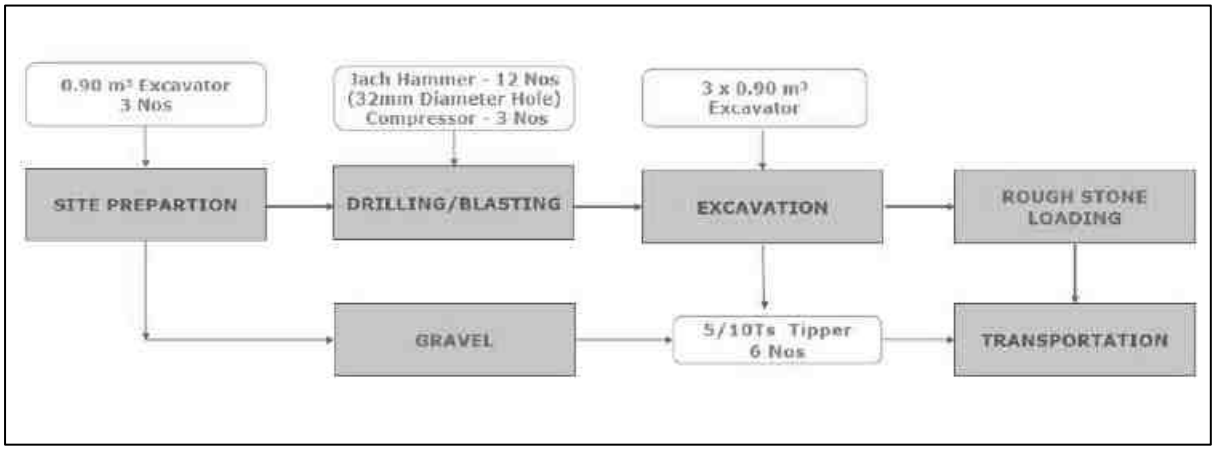



**Figure 2.7 Process Flow Diagram**

### 2.9.5 DRILLING AND BLASTING PARAMETERS

Drilling and Blasting will be carried out as per parameters given below,

| | |
|---|---|
| Diameter of the hole | 32-36 mm |
| Spacing | 0.6m |
| Depth | 1 to 1.5 m |
| Burden of hole | 0.6m |
| Pattern of hole | Zigzag |
| Inclination of hole | $70^0$ from horizontal |
| Number of holes | 694 |
| Powder factor | 6Ts/Kg of Explosives |
| Total explosive required | 347 Kg slurry Explosives |
| Charge / hole | 0.5Kg |
| Blasting time | 12-2 Pm |

### 2.9.6 TYPE OF EXPLOSIVE

Small dia, 25mm slurry explosive are proposed for shattering and heaving effect for removal of rough stone. No deep hole drilling or primary blasting is proposed.

### 2.9.7 STORAGE OF EXPLOSIVES

No proposal for storage of explosives within the project area, the applicant will engage authorized explosive agency to carry out the blasting and it will be supervised by competent and statutory foreman / mines manager as per DGMS guidelines.

### 2.9.8 PRODUCTION SCHEDULE

The year wise production schedule upto lease period is given below, the year wise production plan is given in Figure 2.8 & 2.9.

**Table 2.11 Year wise Production Plan – first five years**

| Year | Section | Bench | Length in (m) | Width in (m) | Depth in (m) | Volume in $m^3$ | Gravel in $m^3$ | Mineable reserve of Rough stone in $m^3$ |
|---|---|---|---|---|---|---|---|---|
| I | XY-AB | I | 90 | 218 | 5 | 98100 | 98100 | |
| | | II | 85 | 208 | 5 | 88400 | | 88400 |
| | | III | 80 | 198 | 5 | 79200 | | 79200 |
| | | IV | 75 | 188 | 5 | 70500 | | 70500 |
| | **Total** | | | | | | **98100** | **238100** |
| II | XY-AB | I | 82 | 218 | 5 | 89380 | 89380 | |
| | | II | 82 | 208 | 5 | 85280 | | 85280 |
| | | III | 82 | 198 | 5 | 81180 | | 81180 |
| | | IV | 77 | 188 | 5 | 72380 | | 72380 |
| | **Total** | | | | | | **89380** | **238840** |
| III | XY-AB | IV | 5 | 188 | 5 | 4700 | | 4700 |
| | | V | 152 | 178 | 5 | 135280 | | 135280 |
| | | VI | 50 | 168 | 5 | 42000 | | 42000 |
| | XY-CD | I | 53 | 97 | 5 | 25705 | 25705 | |
| | | II | 48 | 87 | 5 | 20880 | | 20880 |
| | | III | 43 | 77 | 5 | 16555 | | 16555 |
| | | IV | 38 | 67 | 5 | 12730 | | 12730 |
| | | V | 33 | 57 | 5 | 9405 | | 9405 |
| | **Total** | | | | | | **25705** | **241550** |
| IV | XY-AB | VI | 97 | 168 | 5 | 81480 | | 81480 |
| | | VII | 142 | 158 | 5 | 112180 | | 112180 |
| | | VIII | 49 | 148 | 5 | 36260 | | 36260 |
| | XY-CD | VI | 28 | 47 | 5 | 6580 | | 6580 |
| | | VII | 23 | 37 | 5 | 4255 | | 4255 |
| | **Total** | | | | | | | **240755** |
| V | XY-AB | VIII | 88 | 148 | 5 | 65120 | | 65120 |
| | | IX | 132 | 138 | 5 | 91080 | | 91080 |
| | | X | 127 | 128 | 5 | 81280 | | 81280 |
| | XY-CD | VIII | 18 | 27 | 5 | 2430 | | 2430 |
| | | IX | 13 | 17 | 5 | 1105 | | 1105 |
| | **Total** | | | | | | | **241015** |
| **Grand Total** | | | | | | | **213185** | **1200260** |

The mineable reserve is estimated as 12,00,260$m^3$ of Rough stone and 2,13,185$m^3$ of Gravel formation upto a depth of 50m below ground level for the period of first five years and remaining quantity of 2,12,620$m^3$ of Rough Stone will be proposed for the period of second five years upto a depth of 70m (below ground level).

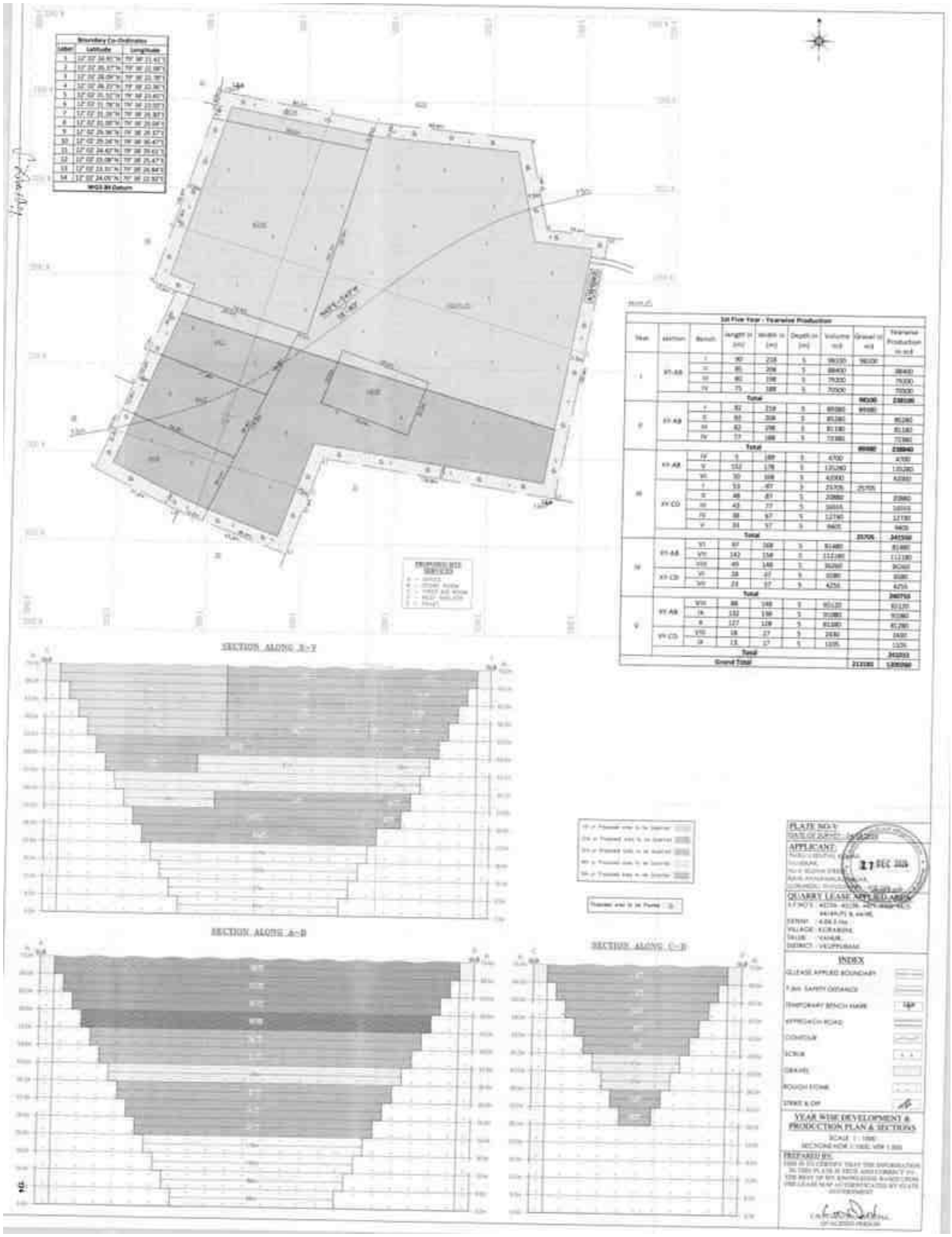



**Figure 2.8 Production Plan and Cross Section for first five years**

## The proposed tentative year-wise production for 6th to 10th year

| Year | Section | Bench | Length in (m) | Width in (m) | Depth in (m) | Volume in $m^3$ | Mineable reserve of Rough stone in $m^3$ |
|---|---|---|---|---|---|---|---|
| VI | XY-AB | XI | 72 | 118 | 5 | 42480 | 42480 |
| | **Total** | | | | | | **42480** |
| VII | XY-AB | XI | 45 | 118 | 5 | 26550 | 26550 |
| | | XII | 29 | 108 | 5 | 15660 | 15660 |
| | **Total** | | | | | | **42210** |
| VIII | XY-AB | XII | 78 | 108 | 5 | 42120 | 42120 |
| | **Total** | | | | | | **42120** |
| IX | XY-AB | XIII | 87 | 98 | 5 | 42630 | 42630 |
| | **Total** | | | | | | **42630** |
| X | XY-AB | XIII | 10 | 98 | 5 | 4900 | 4900 |
| | | XIV | 87 | 88 | 5 | 38280 | 38280 |
| | **Total** | | | | | | **43180** |
| **Grand Total** | | | | | | | **212620** |

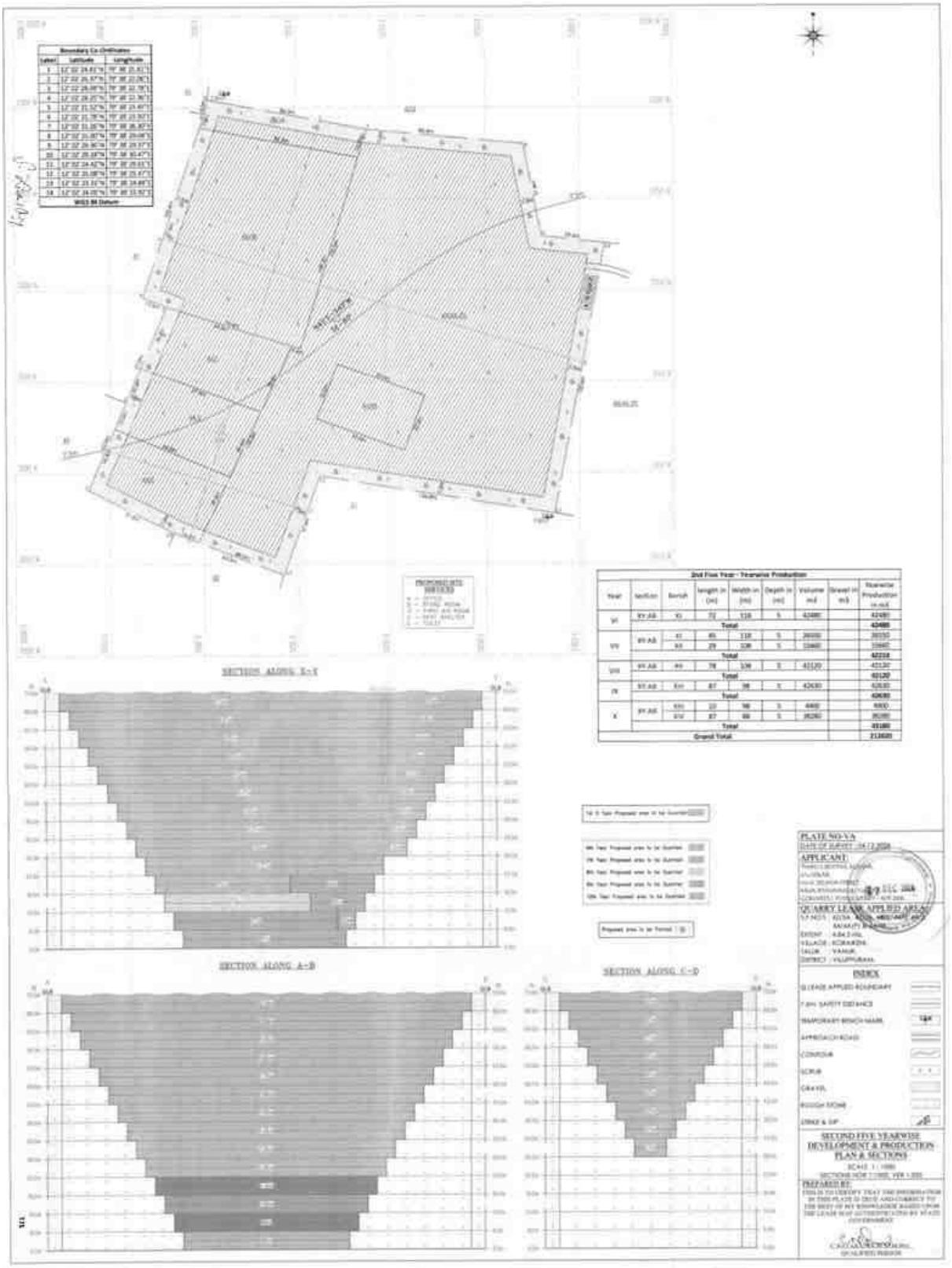



**Figure 2.9 Production Plan and Cross Section for Second five years**

### 2.9.9 DISPOSAL OF WASTE

There is no overburden from this project, the entire mined out mineral will be directly loaded into tipper to the needy crushers/ other buyers for road project and construction works for filling and levelling low lying areas.

## 2.10 CONCEPTUAL MINING PLAN / FINAL MINE CLOSURE PLAN

Conceptual mining plan is prepared with an object of ten years of systematic development of bench layouts, selection of ultimate pit limit, depth of quarrying, ultimate pit slope, 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. Conceptual cross section and mine closure plan is given in figure 2.10.

**Table 2.12 - Ultimate Pit Dimension**

| Ultimate Pit dimension (M) end of Mining plan Period | | | |
|---|---|---|---|
| Pit No | Length (max) in (m) | Width (Avg) in (m) | Depth(max) in(m) |
| I | 225 | 181 | 50 |
| Ultimate pit dimension End of the lease period | | | |
| Pit No | Length (max) in (m) | Width (Avg) in (m) | Depth(max) in(m) |
| I | 225 | 181 | 70 |

**Table 2.13 Post mining Land use Pattern**

| Sl. No. | Land Use | Present Area (Ha) | Area in use during the quarrying period (Ha) |
|---|---|---|---|
| 1. | Quarrying Pit | Nil | 4.08.0 |
| 2. | Infrastructure | Nil | 0.01.0 |
| 3. | Roads | Nil | 0.01.0 |
| 4. | Green Belt | Nil | 0.74.5 |
| 5. | Unutilized | 4.84.5 | Nil |
| | Total = | **4.84.5** | **4.84.5** |

- At the end of life of mine, the excavated mine pit / void of 4.08.00 Ha. will act as artificial reservoir for collecting rain water and helps to meet out the demand or crises during drought season.
- The greenbelt (0.74.5 Ha.) will be developed along the safety barrier and top benches and 0.02 ha are approach road and Infrastructure.
- The quarried pit will be fenced by using Barbed wire fencing to prevent inherent entry of public and cattle.

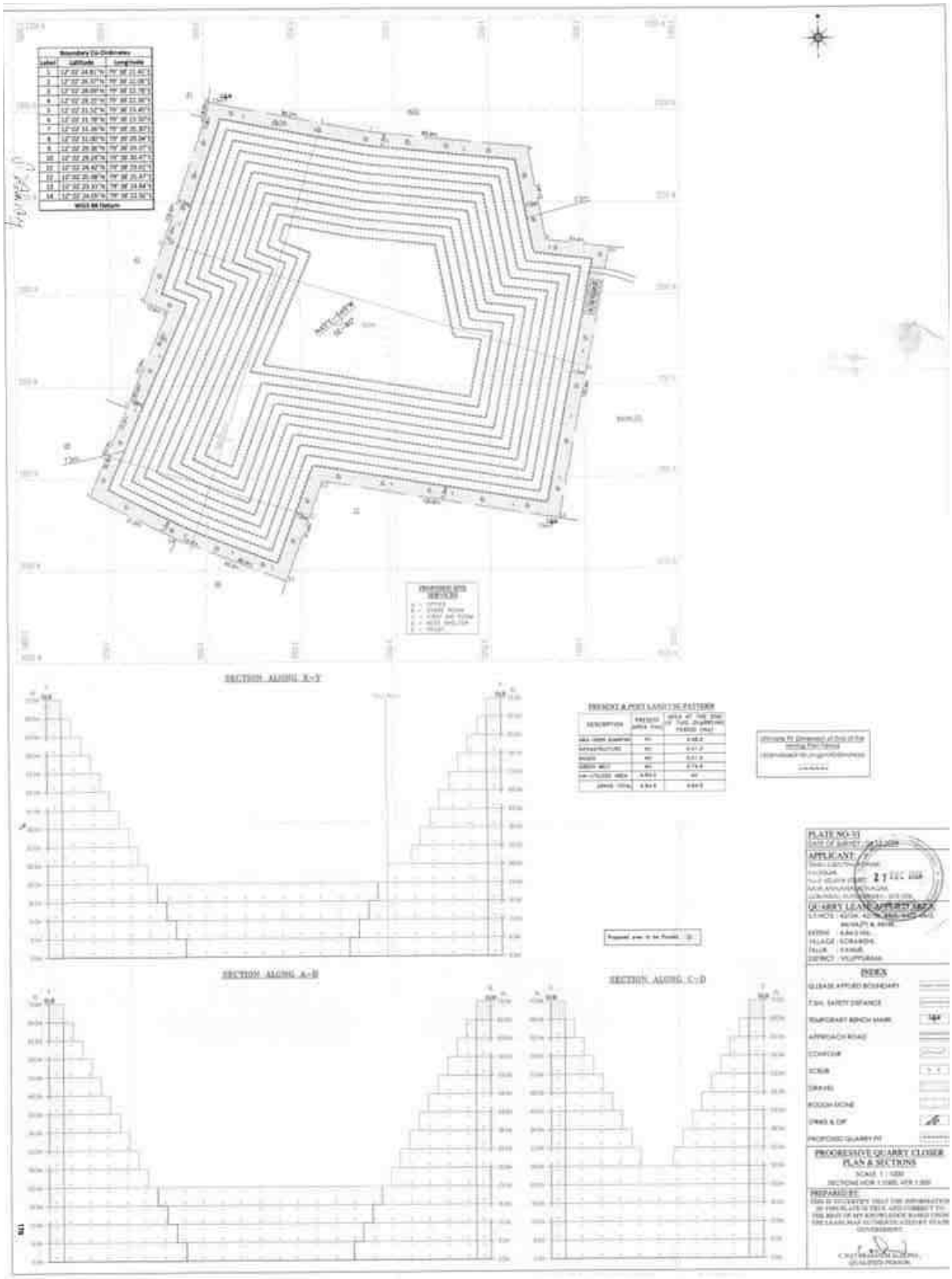



**Figure 2.10 Progressive mine closure plan.**

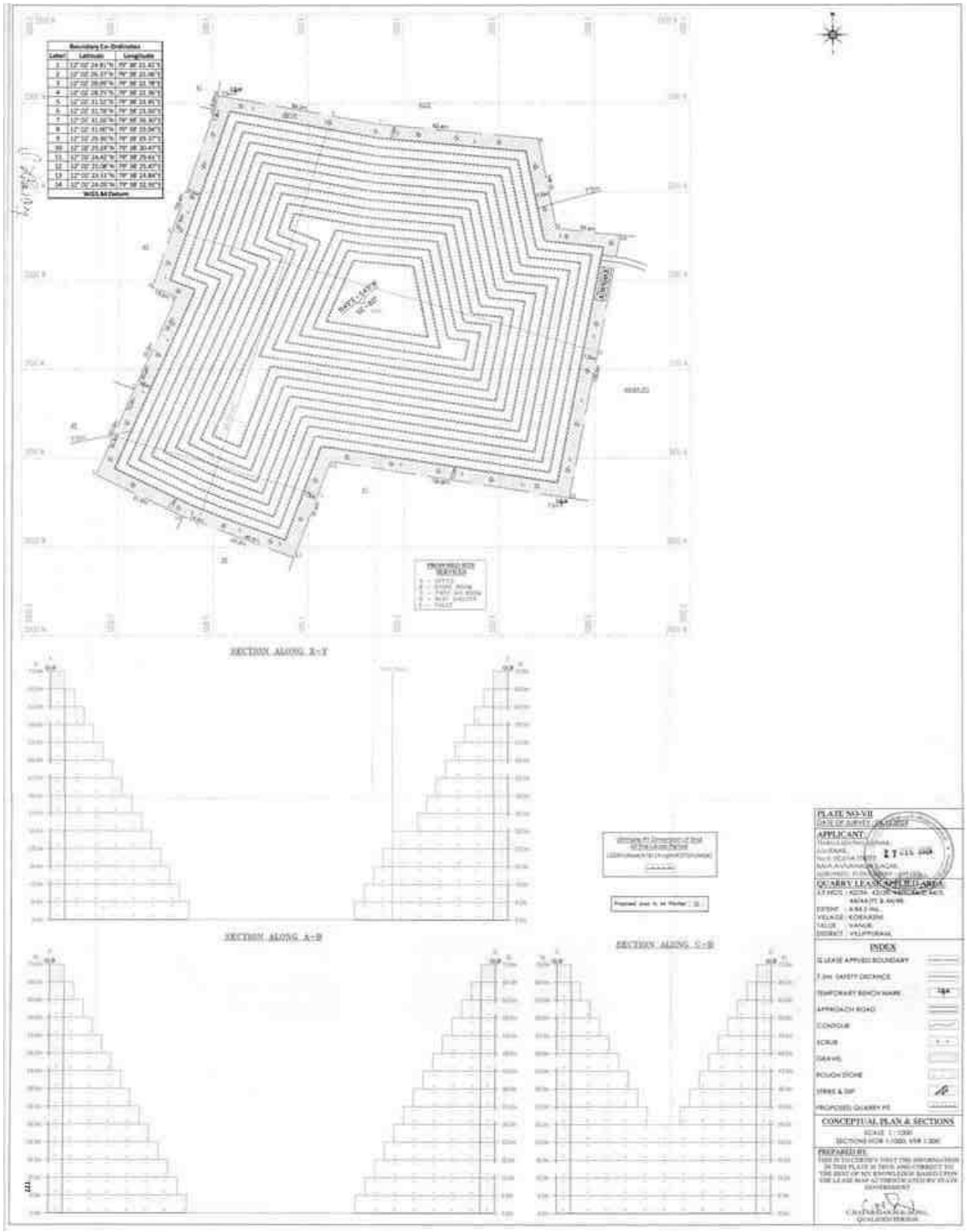



**Figure 2.11 Conceptual Plan**

## 2.11 TRAFFIC STUDY:

The mined-out mineral from the Quarry is transported to Crusher located at a distance of 110 m from the quarry in eastern side of the project. The final product from the crusher will be transported through the Thiruvakkarai village road which is about 1.7 Km in eastern side of the project.

### Mineral Transportation

| Table 2.14 Mineral Transportation | | |
|---|---|---|
| **Production Per day in tons** | | |
| **Quarry** | **Total Mineral in tons per day** | **No. of Lorry Load per day** |
| P1 (Proposed) | 2667 | 267 |
| P2 (Existing) | 427 | 43 |
| P3 (Existing) | 642 | 64 |
| **Total** | **3736** | **374** |

As two quarries already exist, they are part of the current traffic. The proposed project will bring 267 trips per day.

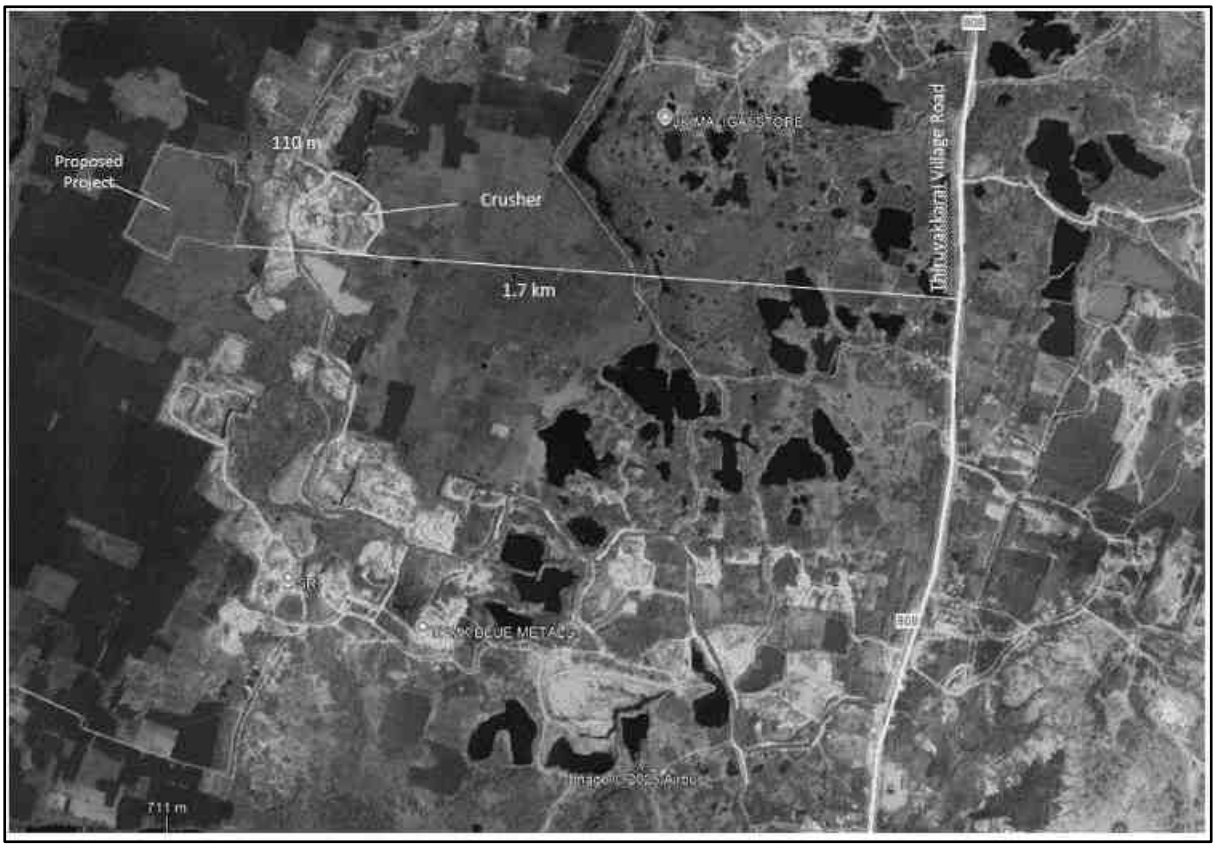



**Figure 2.12 Mineral Transport Route**

**METHODOLOGY**

**Vehicle Count**

The vehicles passing through the road (in both ways) were counted separately for 24 hours at the one selected location from 0600 hrs to 0600 hrs next day continuously. Category wise vehicle counting has been done continuously and recorded in the traffic volume count on hourly basis under respective categories.

**Categorization of Traffic**

The engine driven vehicles were categorized into various heads viz. two wheelers, three wheelers, four wheelers and trucks/bus.

**OPERATING CONDITION OF ROAD IN TERMS OF V/C AS PER INDIAN ROADS CONGRESS (IRC) 106 - 1990**

| Level of Service | General Operating conditions | Range of V/C |
|---|---|---|
| A | Free flow (traffic flows at or above speed limit and motorists have complete mobility between lanes) | <0.30 |
| B | Reasonable flow (slightly more congested, with some maneuverability) | 0.3 – 0.47 |
| C | Stable flow (more congested than B, loads close to capacity) | 0.48 – 0.68 |
| D | Approaching unstable flow (speeds are somewhat reduced, example: busy corridor during middle of a weekday, or a functional urban highway during rush hour) | 0.69 – 0.88 |
| E | Unstable flow (flow becomes irregular, speed varies widely and rarely reaches speed limit) | 0.88 - 1.00 |
| F | Forced or breakdown flow (a constant traffic jam) | >1.00 |

**Table 2.15 Existing Traffic Flow**

| Station Code | HMV | | LMV | | 2/3 Wheelers | | Total PCU |
|---|---|---|---|---|---|---|---|
| | No | PCU | No | PCU | NO | PCU | |
| 1 | 70 | 210 | 56 | 56 | 190 | 95 | 361 |

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

**Table 2.16 – Mineral Hourly Transportation Requirement**

| Capacity of trucks | No Trips per day Cumulatively | Volume in PCU | PCU Per hour considering 8 HOURS |
|---|---|---|---|
| 10 tonnes | 267 | 801 | 100 |

**Table 2.17 - Summary of Traffic Volume**

| Route | Existing Traffic Survey in PCU | Incremental Traffic Survey due to project | Total Traffic Survey Volume | Hourly capacity in PCU as per IRC -1960 guidelines |
|---|---|---|---|---|
| Thiruvakkarai Village Road | 361 | 100 | 461 | 1500 |

- Due to this project the existing traffic volume will not exceed
- As per the IRC 1960 this existing village road can handle 1500 PCU in hour hence there will not be any conjunction due to this proposed transportation.

**Table 2.18 - Modified Level of Service**

| Sampling Location | Existing Volume (PCU/hr) | Existing Volume/ Capacity ratio | Additional Volume (PCU/hr) | Modified Volume (PCU/hr) | Modified Volume/ Capacity ratio | Modified LOS |
|---|---|---|---|---|---|---|
| State Highway (SH-136) Vellemedupettai – Puduchery | 361 | 0.24 | 100 | 0.06 | 0.30 | A* |

(* A – Free Flow)

## 2.12 PROJECT COST

The Project cost, including Operational, EMP & CER is **167.69 Lakhs**. The proponent is financially sound to meet this financial requirement. Besides, he also has the technical capability to work at quarry.

| **A. FIXED ASSERT COST** | |
|---|---|
| **Particulars** | **Amount** |
| Land cost | 29.07 Lakhs |
| First aid room | 1.00 Lakhs |
| Labour Shed | 1.00 Lakhs |
| Sanitary Facility | 1.00 Lakhs |
| **Total** | **32.07 Lakhs** |

| **B. OPERATIONAL COST** | | |
|---|---|---|
| Machineries | 80.00 Lakhs | |
| Fencing cost | 2.50 Lakhs | |
| **Total** | **82.50 Lakhs** | |
| **C. EMP COST (FOR 10 YEARS) in Lakhs** | | |
| **Mitigation Measures** | **Capital cost** | **Recurring Cost /Annum** |
| Air Environment | 6.76 | 2.01 |
| Noise Environment | 0.30 | 0.02 |
| Waste Management | 0.25 | 0.12 |
| Mine Closure | 0.75 | 0.15 |
| Implementation of EC, Mining Plan & DGMS Condition | 1.07 | 0.80 |
| **Total** | **9.13** | **3.10** |
| **The total EMP Cost of 48.12 Lakhs for a period of ten years have been proposed. i.e., Capital cost of Rs. 9.13 Lakhs + Recurring cost of Rs. 38.99 lakhs (@ 5% Escalation).** | | |
| **Total** | **48.12 Lakhs** | |
| **D. CER COST** | | |
| CER Cost | **5.00 Lakhs** | |
| **Grand Total (A+B+C+D)** | **167.69 Lakhs** | |

A. **Fixed asset cost = 32.07 Lakhs**

B. **Operational cost = 82.50 Lakhs**

C. **EMP Cost = 48.12 Lakhs**

D. **CER Cost = 5.00 Lakhs**

**Total Project cost (A+B+C+D) = 167.69 Lakhs**

## 2.13 DESCRIPTION OF MITIGATION MEASURES INCORPORATED INTO THE PROJECT TO MEET ENVIRONMENTAL STANDARDS ENVIRONMENTAL OPERATING CONDITIONS, OR OTHER EIA REQUIREMENTS (AS REQUIRED BY THE SCOPE)

The mitigation measures given in this section are for management of the emissions (particulate or gaseous), Noise pollution, wastewater & surface run-off generated from the mining operations to meet the environmental standards and environmental operating conditions are as follows:

### 2.13.1 AIR QUALITY MANAGEMENT

**Drilling**

Drilling machines are proposed to be equipped with wet drilling arrangements and cyclone dust collectors.

**Blasting**

- Controlled blasting is proposed to be adopted and optimum use of explosive energy will help in reducing the air pollution.
- Secondary blasting will be avoided.
- Rock breakers are proposed to be used for breaking over sized boulders in order to reduce the dust generation.
- Use of good quality of explosives having proper oxygen balance with regular monitoring.
- Ensuring proper stemming after charging of explosives. Proper stemming material will help in minimizing dust throw thereby lowering the spread of dust particles in ambient air pollution.
- Water spray on blasted muck pile before dozing/loading to control dust generation.

**Loading & Transportation**

- Water spray on haulage roads, access roads, operating benches and proper maintenance of haul roads.
- Development of green belt/plantation around mine boundary, roads and other places will be carried out to control the air pollution.
- Proper maintenance of the HEMMs & transportation vehicles will be done.
- Vehicular emissions will be kept under norms.
- Personal Protective Equipment like dust masks will be provided to all employees. ➢ Regular air quality monitoring will be carried out.
- Compliance of conditions laid by MoEF&CC and TNPCB to minimize environmental impacts

### 2.13.2 NOISE MANAGEMENT

**Drilling**

- Drilling with sharp drill bits to achieve optimum drilling performance and to reduce noise generation at source will be adopted.
- Personal protective equipments i.e. earplug in drilling & in high noise area shall be used.

**Blasting**

- As blasting will be done in accordance with standards prescribed by DGMS for controlled blasting; therefore, ground vibrations will not affect the structures in the vicinity of mine area.
- Explosives charge per hole and per delay will be maintained as per DGMS guidelines.

- Blasting will be carried out by use of non-electric detonators (NONEL) system and the impacts of noise generated due to blasting are momentary.
- Vibrations and noise generated by blasting will be monitored regularly

**Transportation**

- Adequate silencers in HEMMs will be provided to reduce generation of noise.
- Proper and regular maintenance, oiling and greasing of machines at regular intervals will be done to reduce generation of noise.
- All HEMMs will be equipped with acoustic a/c closed cabins for operators.
- The workers employed at HEMMs will be provided with protective equipment, earmuffs and earplugs as protective measures from the high noise level generated at the mine site and wherever required.
- Development of green belt & plantation around the mining activity and other areas, will be carried out.
- Regular monitoring of noise will be carried out.

### 2.13.3 WATER MANAGEMENT

**Waste Water**

Septic Tanks and soak pits will be provided for the disposal of effluent generated from mine office.

**Surface Run-off**

- Garland drains are proposed to be constructed around the temporary overburden soil dump to channelize the runoff water from dumps and also around the active pit to restrict rainy water from entering in to the working pit.
- Rain water falling directly into the mine pits will be stored and used for plantation & dust suppression.

- Regular monitoring of water quality will be carried out

**GREENBELT/ PLANTATION**

The mine lease area is devoid of major plantation. Shrubs and bushes are majorly found within the lease area. The proponent has planned to develop green belt in an area of 0.74.50 Ha. Trees like Pungai, Vagai, Vembu, Manjal konrai, Naval, Puvarasu, etc., will be planted around the mine lease area. A total of 800 trees are planned to be planted. Spacing will be 3m x 3m.

## 2.14 ASSESSMENT OF NEW & TESTED TECHNOLOGY FOR THE RISK OF TECHNOLOGICAL FAILURE:

From the nature and extent of the deposit, the reserves and the quality have been proved with adequate degree of reliability. Considering the type of mineralization, opencast mechanized method is the most feasible method for mining in the proposed mine lease. It is also a matter of fact that the mining machineries are upgrading with time and therefore the project proponent would act fast to adopt more advanced equipment and automation for safe and environment friendly mining technology in the years to come.

***

# 3.0 DESCRIPTION OF THE ENVIRONMENT

## 3.1 STUDY AREA, PERIOD COMPONENTS AND METHODALOGY

The project area is located in Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State over an extent of 4.84.50 Ha., The project area is considered as Core zone and the area in the surrounding 10km radius is considered as Buffer Zone. The baseline environmental monitoring was conducted by Shrient Analytical & Research Labs Private Limited, Chennai it is an NABL and MOEF recognized laboratory for various components of environment, viz. Air, Noise, Water, Land was carried out during Summer Season i.e. December 2024 to February 2025 in the study area covering 10 km radial distance from the rough stone and Gravel mine. Other environmental data on flora and fauna, land-use pattern, forest etc. were also generated through field surveys and secondary information collected from different State Govt. departments. Sampling methods and analysis. Socio-economic survey was conducted, through interaction with the people, sarpanch and medical officers by floating questionnaires and collection of information are supported by census data for demographic structures, amenities, and infrastructure availability within the study area. Baseline values for various environmental components are discussed in this Chapter.

**ENVIRONMENTAL SETTING OF THE STUDY AREA**

**Table 3.1 Environmental Settings of the Study Area – 10 km radius**

| S.NO | Particulars | Description |
|---|---|---|
| 1. | Latitude & Longitude | Latitude: 12°02'23.31"N to 12°02'31.78"N<br>Longitude: 79°38'21.41"E to 79°38'30.47"E |
| 2. | Toposheet No. | 57-P/ 12 |
| 3. | The altitude of the area | 73 m (MSL) |
| 4. | Topography | Plain Terrain |
| 5. | Land use of M.L. area | Patta Land |
| 6. | Extent of the Lease area | 4.84.50 Ha. |

| | | |
|---|---|---|
| 7. | Nearest Highway | The National Highway (NH-179B) Viluppuram – Chennai is about 10.3km on western side of the area.<br><br>The State Highway (SH-136) Mailam – Vanur is about 4.5 Km on Northeastern side of the area. |
| 8. | Nearest Railway Station | Perani - 11.61Km (NW) |
| 9. | Nearest airport | Puducherry Airport - 20.6 Km (SE) |
| 10. | Nearest Village | Koraikeni Village - 1.1km (SW) |
| 11 | Water Bodies | **Core Zone** – NIL<br>**Buffer Zone**<br>**Within 1 km Radius**<br>Seasonal Odai 53 m - E<br>Korakeni Tank 287 m (W)<br>Tank 800 m (E)<br>**1 km to 10 km Radius**<br>Nemili Tank 1.2km (NE)<br>Sangarabarani River / Varaha Nadi 1.25km (S)<br>Vidur Branch Canal 1.58km (NW)<br>Poonampoondi Tank 1.95km (NW)<br>Tank 3.11km (NW)<br>Thollamur Eri 3.50km (NE)<br>Tirukannur Lake 5.18km (S)<br>Katterikuppam Lake 6.49km (SE)<br>Veedur Dam 6.55km (NW)<br>Tondi River 8.00km (NW)<br>Mathur Lake 8.54km (SW) |
| 12. | Historical Places/Places of Tourist/ Archeological site | Nil within 10 km radius |
| 13. | Environmental Sensitive areas, Protected areas , National Park/ Wildlife Sanctuaries/Biosphere | NIL within 10 km radius<br>Oussudu Lake Birds Sanctuary - 12.77 Km (SE) |

| | | |
|---|---|---|
| | Reserves/Tiger Reserves/Migratory Corridors; Migratory routes etc | |
| 14 | Seismic Zone | Zone II (Least active) |
| 15 | Reserved/Protected Forest | Nil within a 10Km radius.<br>Melkondai R.F. - 10.33km (NW) |
| 16 | Interstate boundary | NIL |

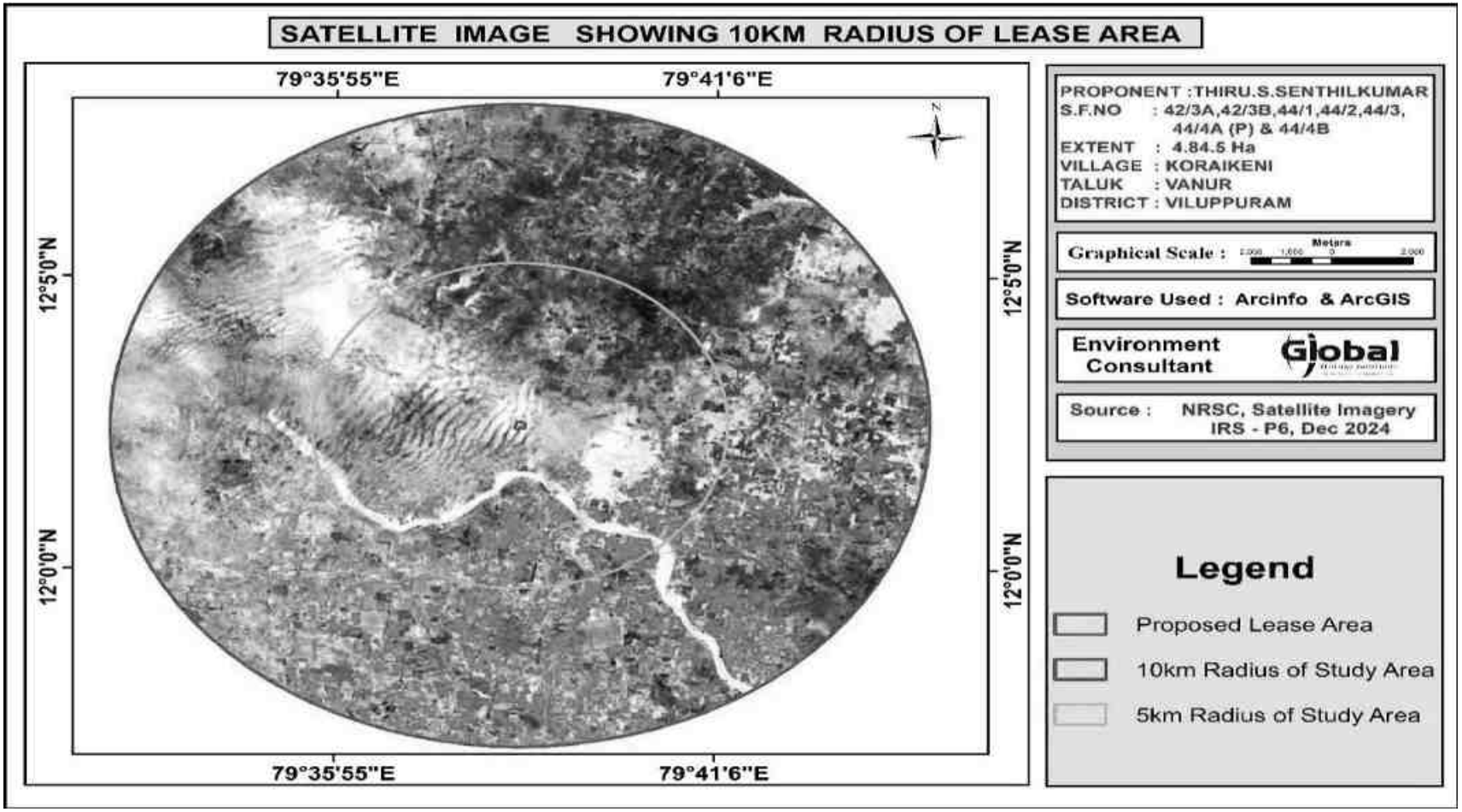



**Figure 3.1 Satellite Image of the Study Area**

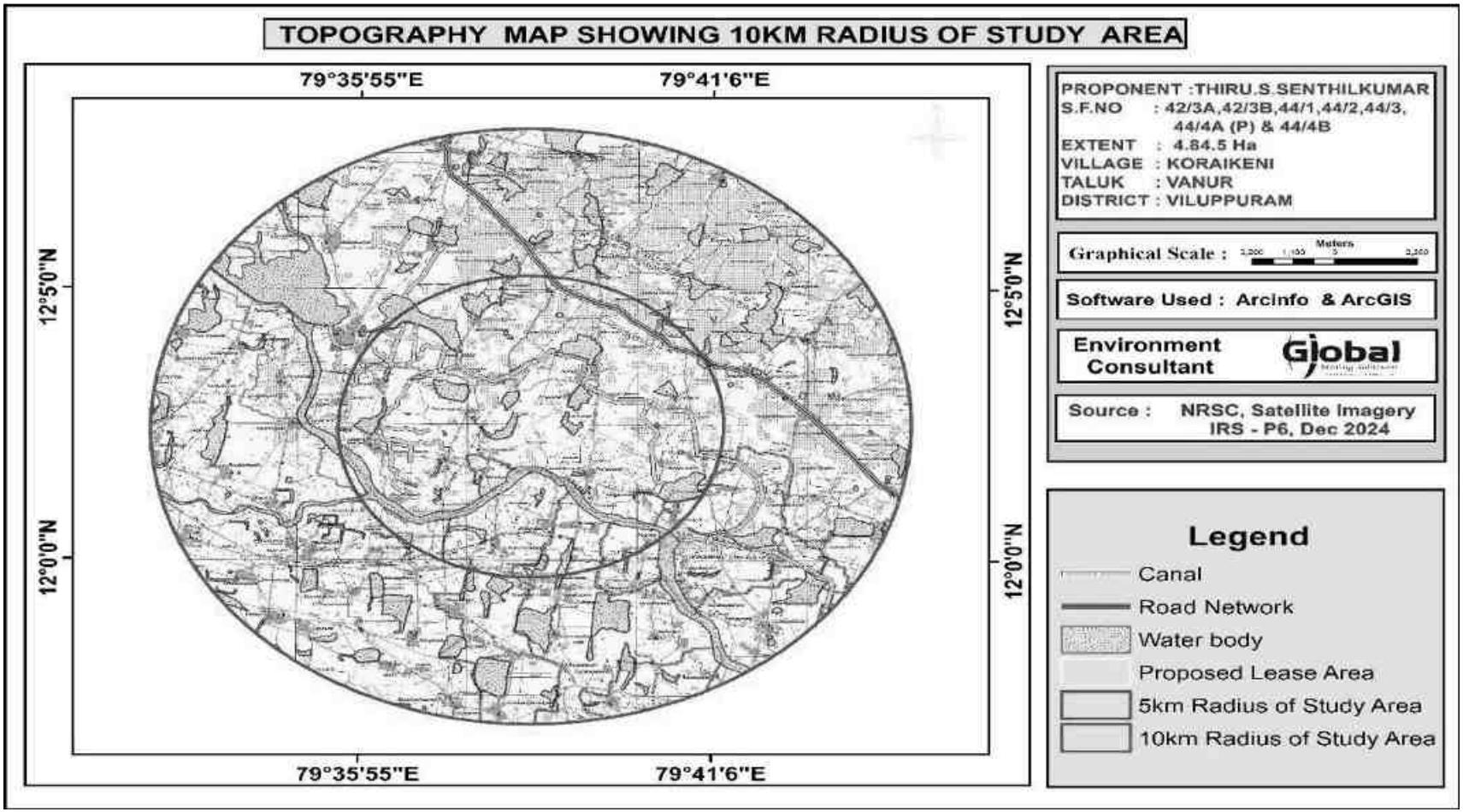



**Figure 3.2 Topo map Showing Study Area**

**STUDY PERIOD**

The relevant information and data (both primary and secondary) were collected in core as well as buffer zone (10 km distance from the mine boundary) during Winter Season (December 2024 to February 2025) in accordance with the guidelines for preparation of EIA studies in order to assess the impact of the mine site within the 10 Km study area on existing physical, biological and social environment.

## 3.2 ESTABLISHMENT OF BASELINE FOR VALUED ENVIRONMENTAL COMPONENTS:

Information on the following components/parameters were collected to understand the existing scenario of the core and buffer area:

- Meteorological environment
- Air environment
- Water environment
- Noise environment
- Soil environment
- Biological environment
- Land use & Land cover
- Socio economic environment
- Hydrogeology

**BASELINE DATA COLLECTION**

Baseline environment data on various components of the environment in the study area were collected during Summer Season (December 2024 to February 2025) to assess the present scenario of the area. Details are given in the table given below.

| Sr.No | Environmental Component | Primary data | | |
|---|---|---|---|---|
| | | Parameters | Frequency | Monitoring/ Sampling locations |
| 1 | Land | Agriculture, Habitation, Industry, Stony waste/ | Once in a Season | 10 km radius study area |

| | | | | |
|---|---|---|---|---|
| | | Quarries, Forest area, Plantation/ Vegetation, Open scrub, Water bodies etc. | | |
| 2 | Meteorology | Temperature, Relative Humidity, Wind Speed, Wind Direction. | Hourly | 1 |
| 3 | Air | PM10, PM2.5, SO2, NO2, CO & PAH | twice a week (24 hourly) | 6 |
| 4 | Noise | Equivalent noise levels in Leq in dB (A) | Once in a season (day & night time) | 6 |
| 5 | Water | Parameters as per IS 10500 - 2012 | Once in a season | |
| A | Surface Water | Parameters as per IS 10500 - 2012 | Once in a season | 2 |
| B | Ground Water | Parameters As per IS 2720/USDA | Once in a season | 6 |
| 6 | Soil | Parameters As per IS 2720/USDA | Once in a season | 6 |
| 7 | Biological Environment | Flora and Fauna | Once in a season | Study Area |
| 8 | Socio-Economic Environment | Socio-Economic Environment | Once in a season | Study Area |

**INSTRUMENTS USED FOR ENVIRONMENTAL BASELINE DATA COLLECTION**

The following instruments were used at the site for environmental baseline data collection work.

- Respirable Dust Sampler with attachment for gaseous Pollutants, Envirotech APM 460.
- Fine Particulate Matter (FPS) Sampler APM 550
- Sound Level Meter Model Envirotech SLM - 100
- Digital D.O. Meter Model - 831 E (CPCB Kit)
- Weather Monitoring Station Model Enviro WM 271
- Water Level Indicator and
- Global Positioning System (GPS) Apart from collecting samples of air, water, noise and soil from representative sampling points given in proceeding sections, the data on land use, vegetation and agricultural crops were also collected by the field team through interaction with a large number of local inhabitants of the study area and different Government departments/agencies. This provided an excellent opportunity to the members of the field team for obtaining clear scenario of the existing environment of the study area.

## 3.3 BASE MAP OF ALL ENVIRONMENTAL COMPONENTS

**ENUMERATIONS OF THE STRUCTURES LOCATED WITHIN 300M RADIUS FROM THE PROPOSED QUARRY SITE**

**Table 3.2 Structures within 300 m radius**

| S. No | Name of the Structure | Distance and Direction | Ownership | Occupant | Type | Age |
|---|---|---|---|---|---|---|
| S1 | Crusher Unit | 124m (E) | Belongs to the PP | Nil | - | > 5 years |
| S2 | Crusher Unit Power House | 155m (E) | | 1 | Concrete | > 5 years |
| S3 | Crusher Unit Building | 163m (NE) | | Nil | Concrete | > 5 years |
| S4 | Crusher Unit | 172m (E) | | Nil | - | > 5 years |
| S5 | Crusher Unit | 178m (E) | | Nil | - | > 5 years |

| | | | | | | |
|---|---|---|---|---|---|---|
| S6 | Crusher Unit | 192m (NE) | | Nil | - | > 5 years |
| S7 | Crusher Unit Office Room | 202m (E) | | 1 | G.I.Sheet | > 5 years |
| S8 | Crusher Unit Labourer's Shed | 265m (E) | | 3 | G.I.Sheet | > 5 years |
| S9 | Abandoned Quarry Shed | 276m (NE) | Does not belong to the PP | Nil | G.I.Sheet | > 8 years |




**Figure 3.3 Structures within 300 m radius**



S1- Crusher Unit- 124m (E)



S2- Crusher Unit Power House - 155m (E)



S3- Crusher Unit Building- 163m (NE)



S4- Crusher Unit- 172m (E)



S5- Crusher Unit- 178m (E)



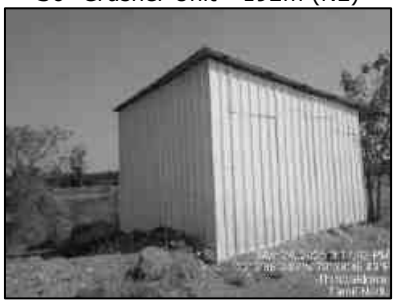
S6- Crusher Unit - 192m (NE)



S7- Crusher Unit Office Room- 202m (E)



S8- Crusher Unit Labourer's Shed- 265m (E)



S9- Abandoned Quarry Shed - 276m (NE)

**Figure 3.4 Photographs on Enumerations of the Structures within 300 m Radius**

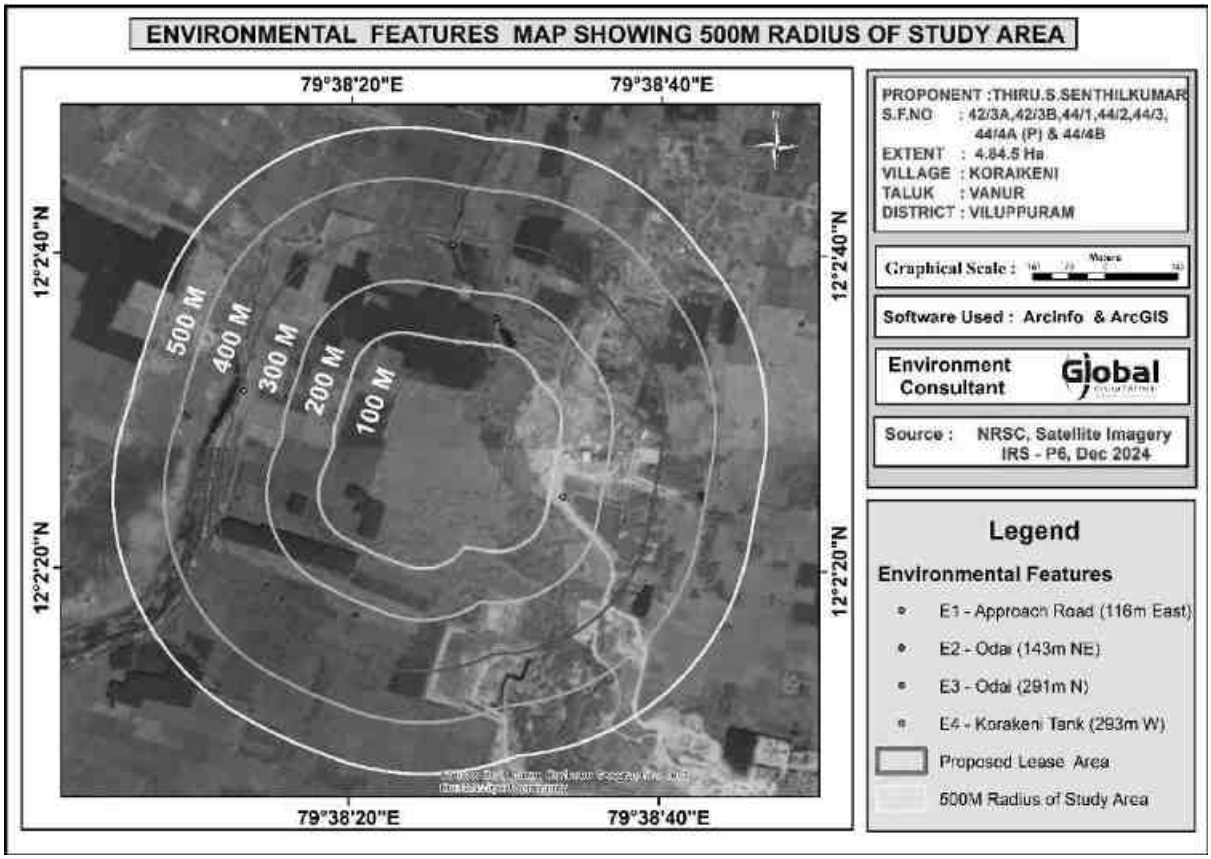



**Figure 3.5 Environmental Features within 500 m radius**



**E1- Approach Road- 116m (E)**




**E2- Odai- 143m (NE)**




E3- Odai- 291m (N)




E4- Korakeni Tank- 293m (W)

**Figure 3.6 Photographs on Environmental Features within 500 m radius**

## 3.3.1 EXISTING ENVIRONMENTAL SCENARIO

### MICRO- METEOROLOGY

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.

### CLIMATE AND RAINFALL DATA

The district receives rainfall from southwest monsoon (June – September), northeast monsoon (October – December) and non-monsoon periods (January – May). The rainfall is generally heavy during low-pressure depressions and cyclones during the northeast monsoon period. The normal annual rainfall is 1119.8 mm (1901-1980) and the higher is towards coast.

The area falls under tropical climate with temperature in the summer months of March to May. The average temperature varies from 26 to 410 C. The humidity is also high in the order of 80%. The wind speed is high during the months of July and August. The wind speed ranges from 7.4 to 12.6 km/hr, which increases from 100 to 120 km/hr during cyclone period.

**Table 3.3 Rainfall Data**

| Years | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|---|---|---|---|---|---|---|---|---|
| Rainfall in mm | 786.9 | 1073.30 | 792.70 | 985.80 | 973.20 | 954.10 | 1001.60 | 1084.50 |

### 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.

## Table 3.4 Meteorological Data Recorded at Site

| S.No | Parameters | December 2024 to February 2025 | | |
|---|---|---|---|---|
| | | Min | Max | Avg |
| 1. | Temperature (0C) | 19 | 33 | 24 |
| 2. | Relative Humidity (%) | 33 | 96 | 75 |
| 3. | Wind Speed (m/s) | 0 | 6.2 | 3.1 |
| 4 | Predominant wind direction | NE (Blowing From) | | |

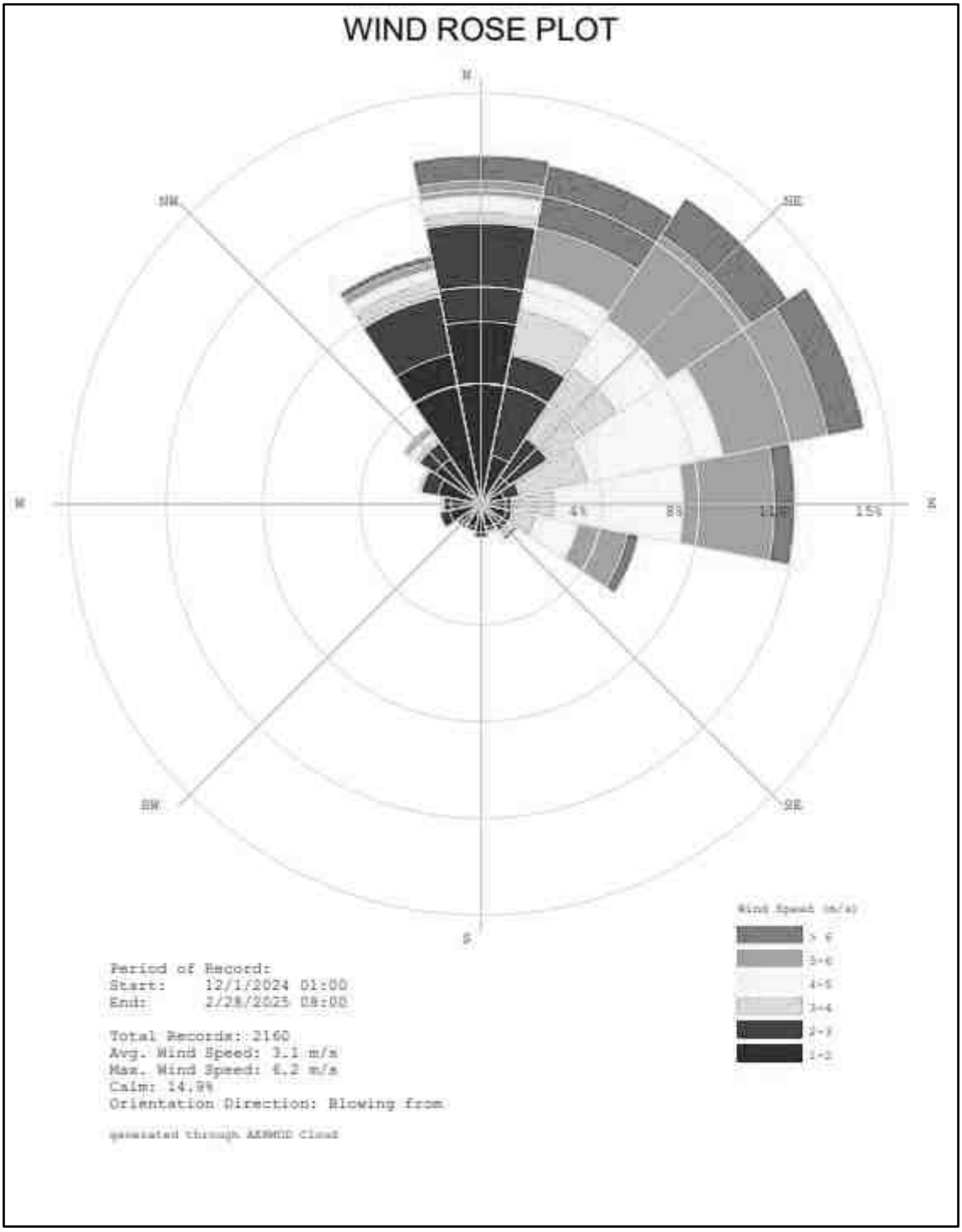



**Figure 3.7 Wind Rose Diagram (December 2024 to February 2025)**

### 3.3.2 AMBIENT AIR MONITORING DATA

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.,

**SAMPLING & ANALYTICAL TECHNIQUES**

**Table 3.5 Methodology for Air Quality Monitoring**

| Parameter | Method |
|---|---|
| PM2.5 | Gravimetric Method Beta -attenuation Method |
| PM10 | Gravimetric Method Beta -attenuation Method |
| SO2 | IS-5182 Part II (Improved West & Gaeke method) |
| NOx | IS-5182 Part II (Jacob & Hochheiser modified method) |
| CO | CO Monitor |

**FREQUENCY AND PARAMETERS FOR SAMPLING**

Ambient air quality monitoring has been carried out with a frequency of two samples per week at Six (6) locations, adopting a continuous 24 hourly (3 shift of 8-hour) schedule for the period December 2024 to February 2025. The baseline data of ambient air has been generated for $PM_{10}$, $PM_{2.5}$, Sulphur Dioxide (SO2), Nitrogen Dioxide (NO2) and Carbon Monoxide Monitoring has been carried out as per the CPCB, MoEF guidelines and notifications.

It was ensured that the equipment was placed preferably at a height of at least 1.8 to 2.2 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.

## AMBIENT AIR QUALITY MONITORING STATIONS

Six (6) monitoring stations were set up in the study area as depicted in Figure 3.8 for assessment of the existing ambient air quality. Details of the sampling locations are given below.

**Table 3.6 – Ambient Air Quality Monitoring Locations**

| S.NO | Location Code | Monitoring Locations | Latitude and longitude |
|---|---|---|---|
| 1 | A1 | Within Mine Lease area | 12° 2'27.48"N & 79°38'25.90"E |
| 2 | A2 | Thiruvakkarai | 12° 2'1.28"N & 79°39'23.28"E |
| 3 | A3 | Ponnampundi | 12° 2'46.41"N & 79°37'32.05"E |
| 4 | A4 | Eraiyur | 12° 3'25.66"N & 79°39'14.82"E |
| 5 | A5 | Koddukkur | 12° 0'37.33"N & 79°39'3.96"E |
| 6 | A6 | Pombur | 12° 2'7.06"N & 79°36'5.83"E |

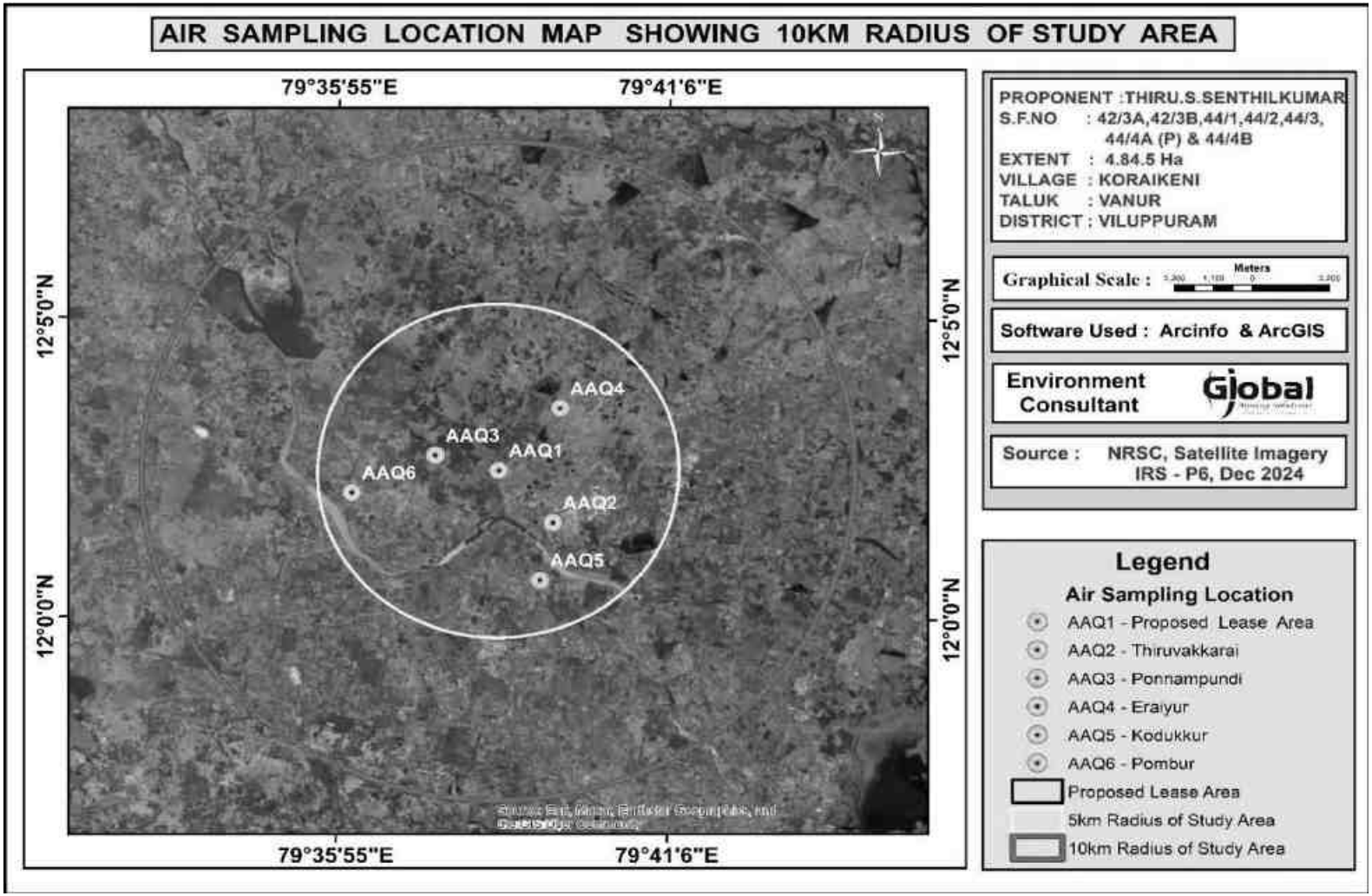



**Figure 3.8 Ambient Air Quality Monitoring Locations**

## Table 3.7 Ambient Air Quality Data

| Ambient Air Quality | | | | | | | | | | | All Value in µg/m3 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Parameters | PM10 | | | PM2.5 | | | SO2 | | | NO2 | | |
| S.NO | Locations | Min | Avg | Max | Min | Avg | Max | Min | Avg | Max | Min | Avg | Max |
| 1 | A1-Mine Lease Area | 59.20 | 66.14 | 73.90 | 28.41 | 31.72 | 35.47 | 7.10 | 7.73 | 8.40 | 10.10 | 13.06 | 15.60 |
| 2 | A2 - Thiruvakkarai | 45.30 | 50.20 | 55.50 | 20.40 | 22.60 | 25.0 | 5.40 | 6.60 | 7.70 | 9.60 | 10.80 | 11.90 |
| 3 | A3 - Ponnampundi | 49.90 | 55.0 | 61.80 | 23.60 | 26.40 | 29.70 | 6.10 | 7.0 | 7.60 | 9.20 | 10.20 | 11.30 |
| 4 | A4 - Eraiyur | 45.70 | 51.50 | 58.10 | 21.90 | 24.70 | 27.90 | 7.30 | 8.60 | 9.30 | 9.10 | 10.30 | 11.80 |
| 5 | A5 - Koddukkur | 46.40 | 52.60 | 57.80 | 22.30 | 25.20 | 27.70 | 7.90 | 9.0 | 10.40 | 10.70 | 12.0 | 13.60 |
| 6 | A6 - Pombur | 45.80 | 49.70 | 54.10 | 22.0 | 23.90 | 26.0 | 7.60 | 8.80 | 10.30 | 8.50 | 9.90 | 11.40 |
| 7 | **CPCB NAAQS 2009** | **100** | | | **60** | | | **80** | | | **80** | | |

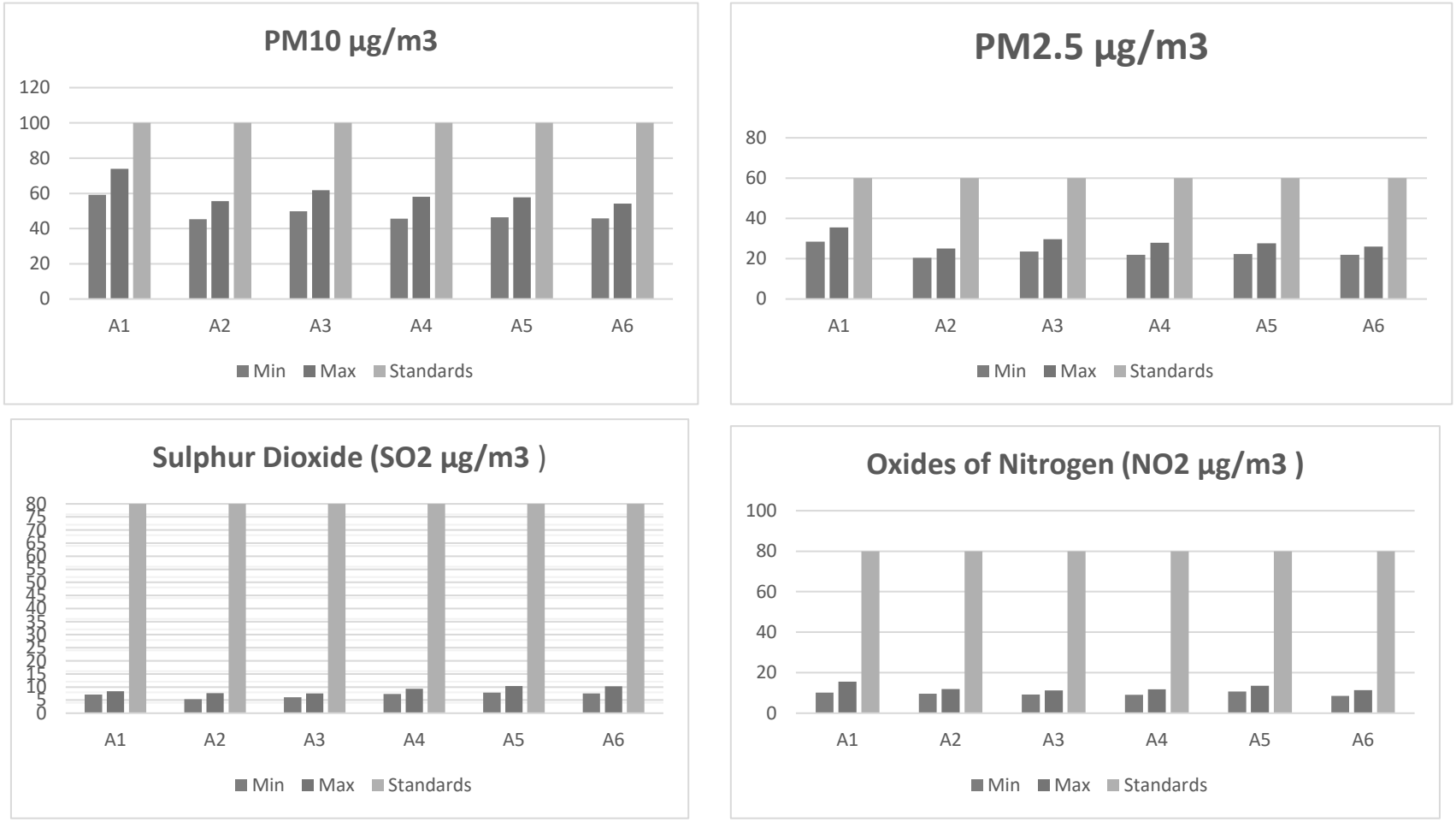



**Figure –3.9 - Graphical Representation of Air Quality Data**

**DISCUSSION**

From the table it is seen that, in core zone, the PM10 values were in the range of 59.20 – 73.9 µg/m3. PM2.5 values in the range of 28.41 – 35.47 µg/m3. SO2 levels were ranging from 7.10 – 8.40 µg/m3 and NO2 levels were ranging from 10.10 – 15.60 µg/m3. In buffer zone, the PM10 values were in the range of 45.30 – 61.80 µg/m3. PM2.5 values were in the range of 20.40 – 29.70 µg/m3. SO2 levels were ranging from 5.40 – 10.40 µg/m3. NO2 levels were ranging from 8.50 – 13.60 µg/m3. While comparing with the NAAQ Norms laid by MoEF, all monitored values of PM10, PM2.5, SO2, NO2 & CO were found to be well within the prescribed standards. The CO values in the all locations found to be below detectable limit (DL – 1144 µg/m3).

### 3.3.3 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 standard guidelines issued by CPCB for analysis.

**METHODOLOGY**

Reconnaissance survey was undertaken and monitoring locations were selected based on:

- Location of the major water bodies
- Location of project site, their water intake and effluent disposal locations
- Likely areas that can represent baseline conditions
- The water samples were collected and were analyzed for physical, chemical, and biological characteristics as per guidelines issued by IS code No.10500/2012.

## SURFACE WATER

The following water bodies are located within 10 km radius from the proposed project site:

| **Within 1 km Radius** | |
|---|---|
| Seasonal Odai | 53 m - E |
| Korakeni Tank | 287 m (W) |
| Tank | 800 m (E) |
| **1 km to 10 km Radius** | |
| Nemili Tank | 1.2km (NE) |
| Sangarabarani River / Varaha Nadi | 1.25km (S) |
| Vidur Branch Canal | 1.58km (NW) |
| Poonampoondi Tank | 1.95km (NW) |
| Tank | 3.11km (NW) |
| Thollamur Eri | 3.50km (NE) |
| Tirukannur Lake | 5.18km (S) |
| Katterikuppam Lake | 6.49km (SE) |
| Veedur Dam | 6.55km (NW) |
| Tondi River | 8.00km (NW) |
| Mathur Lake | 8.54km (SW) |

The area is studded with few tanks and Sangarabarani River is located at 1.25 km in Southern side that serve as the source for agriculture and also their surplus feeds adjoining tanks. The rainfall over the area is moderate, the rainwater storage in open wells, trenches is in practice over the area and the stored water acts as source of freshwater.

## GROUND WATER

Villupuram district is underlain by crystalline metamorphic complex in the western part of the district and sedimentary tract in eastern side (Plate-II). The thickness of sediments exceeds 600m near southern part of the district. Groundwater occurs under phreatic and semi–confined conditions in consolidated formations, which comprises weathered and fractured granites, gneisses and charnockites whereas

in unconsolidated sedimentary rocks the groundwater occurs in phreatic, semi-confined conditions in Vanur sandstone, Kadapperi kuppam formation and Turuvai limestone.

The district is having rocky outcrops in major part of Kallakurichi, Sankarapuram and Tirukoilur taluks. The weathering is highly erratic and the depth of abstraction structures is controlled by the intensity of weathering and fracturing. The depth of wells varies from 6.64 to 17 m bgl and water levels in observation wells tapping shallow aquifers varied from 0.74 to 9.7 m bgl during pre monsoon (May 2006) and it varies from 0.7 to 4.45 m bgl during post monsoon (January 2007).

During pre monsoon, the depth to water levels in the range of >2 to 5 m bgl in major part of the district, in the range of >5 -10 m bgl in western and southeastern parts of the district and range of 0-2 m bgl were recorded in two isolated pockets. During post monsoon the depth to water levels range of >2 to 5 m bgl exists in major part of the district, range of 0 - 2 m bgl prevails in central and northeastern parts of the district and range of >5 - 10 m bgl were recorded in two isolated pockets in the southwester and north western parts of the district.

The scenario of ground water in Vanur Taluk, Villupuram District, is given below.

| Ground Water Level Status in Marungapuri | | | | | | | |
|---|---|---|---|---|---|---|---|
| **S. No.** | **Name of Block** | **Net Annual Ground water availability** | **Existing gross Draft for irrigation** | **Existing gross Draft for domestic and industrial water supply** | **Existing gross draft for all uses** | **Stage of ground water development** | **Category** |
| 1 | Vanur | 9387.83 | 8981.67 | 275.59 | 9257.27 | 99 | Critical |

Source:nwm.gov.in

## SAMPLING LOCATIONS

Two (2) surface water samples and Six (6) 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 ground water. The samples were analysed as per the procedures specified by CPCB, IS-10500:2012. The water sampling locations are given in Table 3.11.

**Table 3.8 Water Sampling Locations**

| S.NO | Location Code | Monitoring Locations | Latitude and longitude |
|---|---|---|---|
| **Surface Water** | | | |
| 1 | SW1 | Sangarabarani River (up Stream) – 1.31 km (S) | 12° 1'15.08"N & 79°37'54.86"E |
| 2 | SW2 | Sangarabarani River (down stream ) – 2.39 km (S) | 12° 1'13.93"N & 79°39'5.79"E |
| **Ground Water** | | | |
| 1 | GW1 | Within Mine Lease area | 10°20'11.72"N & 78°20'47.65”E |
| 2 | GW2 | Korakkeni | 12° 1'57.02"N & 79°37'50.23"E |
| 3 | GW3 | Ambhuzhukkai | 12° 2'56.33"N & 79°38'56.86"E |
| 4 | GW4 | Thiruvakkarai | 12° 1'59.92"N & 79°39'22.94"E |
| 5 | GW5 | Ponnampundi | 12° 2'43.33"N & 79°37'32.74"E |
| 6 | GW6 | Koddukkur | 12° 0'35.15"N & 79°39'5.97"E |

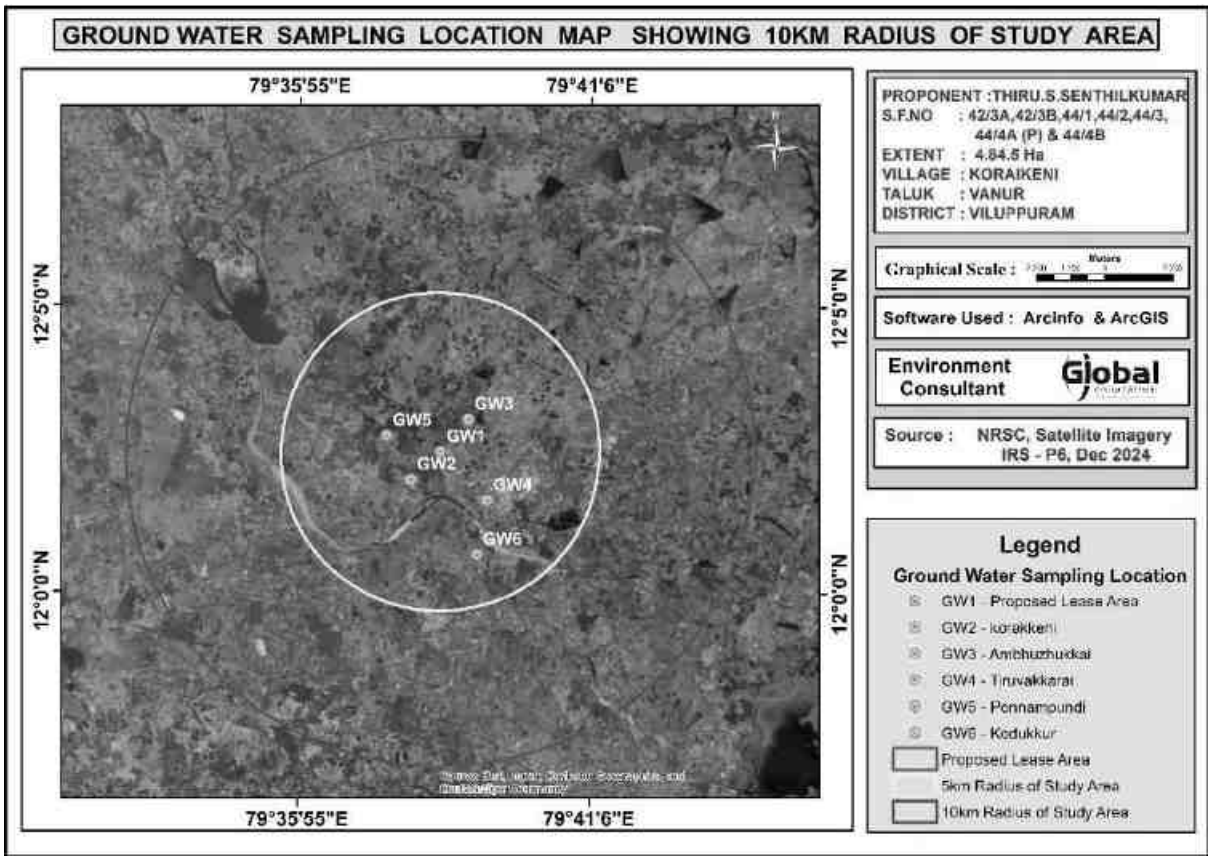



**Figure 3.10 –Ground Water Monitoring Locations**

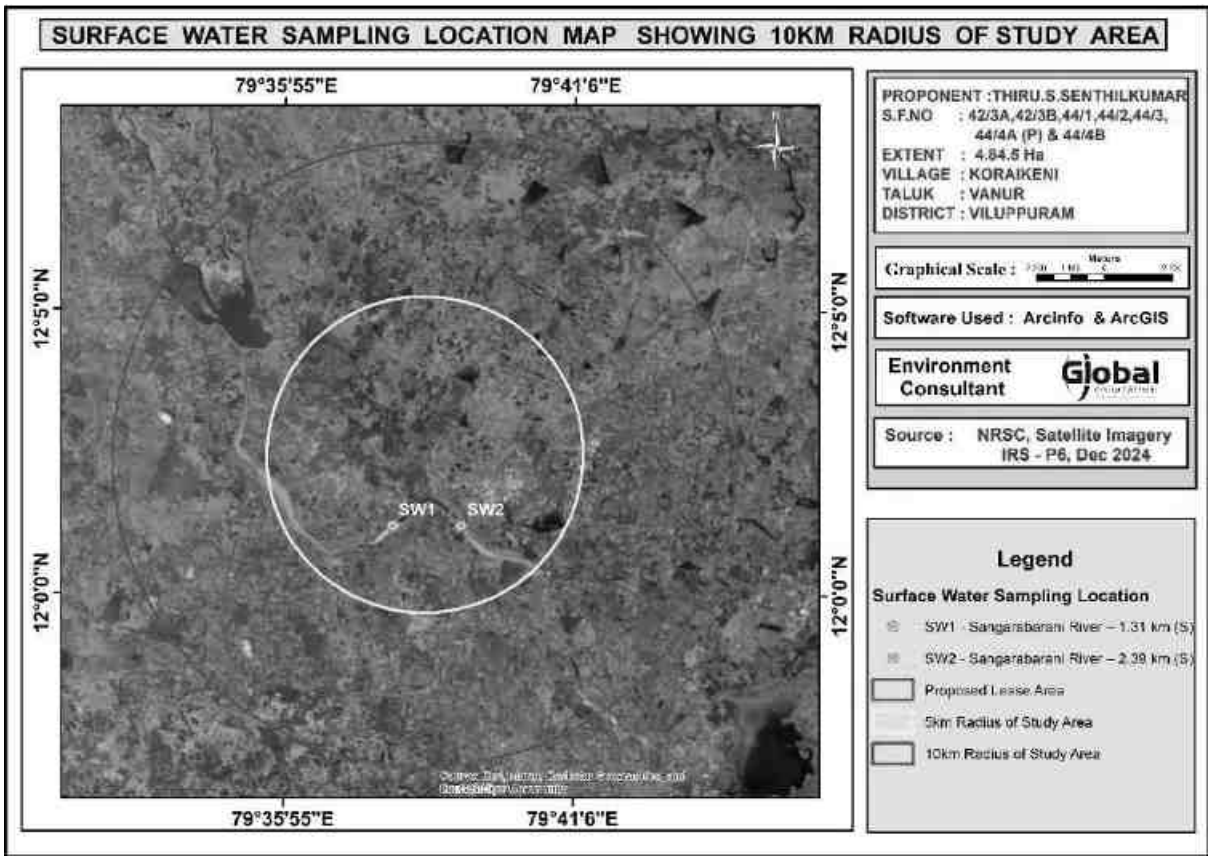



**Figure 3.11 –Surface Water Monitoring Locations**

**Table 3.9 – Ground Water Analysis Results**

| Parameter | GW1 | GW2 | GW3 | GW4 | GW5 | GW6 | Standards as Per IS 10500: 2012 | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | Acceptable Limits | Permissible Limits |
| Odour | Agreeable | Agreeable | Agreeable | Agreeable | Agreeable | Agreeable | Agreeable | Agreeable |
| Turbidity, NTU | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | 1.0 | 5.0 |
| pH at 25 ˚C | 7.66 | 7.77 | 7.44 | 6.65 | 7.95 | 7.73 | 6.5- 8.5 | No Relaxation |
| Electrical Conductivity µS/cm | 1432 | 2532 | 1323 | 537 | 829.2 | 1143 | - | - |
| Total Dissolved Solids, mg/l | 860 | 1520 | 794 | 330 | 498 | 686 | 500 | 2000 |
| Total hardness as $CaCO_3$, mg/l | 432 | 434 | 446 | 121 | 213 | 277 | 200 | 600 |
| Calcium as Ca, mg/l | 85.6 | 75.5 | 81.9 | 27.3 | 56.2 | 70.7 | 75 | 200 |
| Magnesium as Mg, mg/l | 52.2 | 58.8 | 57.8 | 12.5 | 17.4 | 24.1 | 30.0 | 100 |
| Calcium as $CaCO_3$, mg/l | 214 | 189 | 205 | 68.3 | 141 | 177 | - | - |
| Magnesium as $CaCO_3$, mg/l | 218 | 245 | 241 | 52.2 | 72.3 | 100 | - | - |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Total alkalinity as $CaCO_3$, mg/l | 291 | 465 | 424 | 120 | 246 | 291 | 200 | 600 |
| Chloride as $Cl^-$, mg/l | 245 | 493 | 152 | 89.6 | 132 | 186 | 250 | 1000 |
| Free Residual chlorine as $Cl^-$, mg/l | BDL (D.L - 0.2) | BDL (D.L - 0.2) | BDL (D.L - 0.2) | BDL (D.L - 0.2) | BDL (D.L - 0.2) | BDL (D.L - 0.2) | 0.2 | 1 |
| Sulphates as $SO_4^{2-}$, mg/l | 192 | 291 | 176 | 72.5 | 64.6 | 125.0 | 200 | 400 |
| Iron as Fe, mg/l | BDL (DL 0.01) | 0.04 | 0.06 | BDL (DL 0.01) | BDL (DL 0.01) | BDL (DL 0.01) | 0.3 | No Relaxation |
| Nitrate as $NO_3$, mg/l | 2.58 | 3.65 | 2.98 | 2.14 | 1.45 | 3.64 | 45 | No Relaxation |
| Fluoride as F, mg/l | 0.32 | 0.54 | 0.46 | 0.42 | 0.38 | 0.57 | 1 | 1.5 |
| Manganese as Mn, mg/l | BDL(D.L-0.05) | BDL(D.L-0.05) | BDL (D.L - 0.05) | BDL(D.L-0.05) | BDL(D.L-0.05) | BDL(D.L-0.05) | 0.1 | 0.3 |

## Table 3.10 Surface Water Analysis Results

| Parameter | SW1 | SW2 | CPCB Designated Best Use | |
|---|---|---|---|---|
| | | | Acceptable Limits | Permissible Limits |
| Odour | Disagreeable | Agreeable | Agreeable | Agreeable |
| Turbidity, NTU | 6.3 | 10.0 | 2 | 5 |
| pH at 25 ˚C | 8.12 | 8.19 | 6.5- 8.5 | No Relaxation |
| Electrical Conductivity, µS/cm | 734.6 | 735.2 | - | - |
| Total Dissolved Solids, mg/l | 442 | 445 | 500 | 2000 |
| Total hardness as $CaCO_3$, mg/l | 117 | 117 | 200 | 600 |
| Calcium as Ca, mg/l | 11.3 | 12.1 | 75 | 200 |
| Magnesium as Mg, mg/l | 14.6 | 13.7 | 30.0 | 100 |
| Calcium as $CaCO_3$, mg/l | 56.2 | 60.2 | - | - |
| Magnesium as $CaCO_3$, mg/l | 60.2 | 56.2 | - | - |
| Total alkalinity as $CaCO_3$, mg/l | 136 | 140 | 200 | 600 |
| Chloride as $Cl^-$, mg/l | 144 | 152 | 250 | 1000 |
| Free Residual chlorine as $Cl^-$, mg/l | BDL(D.L-0.2) | BDL(D.L-0.2) | 0.2 | 1 |
| Sulphates as $SO_4^{2-}$, mg/l | 120 | 112 | 200 | 400 |
| Iron as Fe, mg/l | BDL (DL 0.01) | 0.12 | 0.3 | No Relaxation |
| Nitrate as $NO_3$, mg/l | 3.65 | 2.68 | 45 | No Relaxation |
| Fluoride as F, mg/l | 0.52 | 0.48 | 1 | 1.5 |

| | | | | |
|---|---|---|---|---|
| Manganese as Mn, mg/l | BDL | BDL | 0.1 | 0.3 |
| TSS, mg/l | 16.0 | 8.0 | | |
| COD, mg/l | 29.0 | 4.0 | - | - |
| BOD, mg/l 3 days @ 27°C as O2 | 8.1 | BDL | 2.0 | 2.0 |
| DO, mg/l | 6.2 | 6.4 | 6.0 | 6.0 |

**DISCUSSION**

**Surface Water**

The pH varied from 8.12 to 8.19 while turbidity found to be 6.3 to 10.0, which is exceeding the permissible limit of 5.0. Total Dissolved Solids varied from 442 to 445 mg/l. Chloride varied between 144 mg/l and 152 mg/l. Nitrates varied from 2.68 to 3.65 mg/l, while sulphates varied from 112 to 120 mg/l.

**Ground Water**

Suitability of ground water for drinking/irrigation/industrial purposes is determined keeping in view the effects of various chemical constituents present in water as required human use, plant use. Though many ions are very essential for the growth of plants and human body but when present in excess, have an adverse effect on health and growth.

As Per the data it has been observed that the pH value varies from 6.65 – 7.95, Chlorides Ranges From 89.6 - 493 mg/l, Sulphates value found to be between 64.6 - 291 mg/l, Fluoride value varies from 0.32 – 0.57 mg/l, Total Hardness varies from 121 – 446 mg/l, and Total dissolved solid 330 – 1520 mg/l. The ground water has been analyzed as per IS10500: 2012 and found to be suitable for drinking purpose. So the results of chemical and bacteriological analysis of water samples are classified under good class for drinking purpose with respect to total dissolved solids. Total hardness of the samples ranged from soft to moderately hard waters and can be fairly used for drinking. Regular ground water monitoring is suggested as the quality of ground water may fluctuate with groundwater consumption and seasonal variations.

### 3.3.4 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.

## SAMPLING LOCATIONS

In order to assess the ambient noise levels within the study area, noise monitoring was carried out at Six (6) locations. The noise level of monitoring locations were carried out by covering 10 km radius of the project area. A noise monitoring methodology was chosen such that it best suited the purpose and objectives of the study. The noise monitoring locations are given in Figure 3.12 and in below table.

**Table 3.11 Noise Monitoring Locations**

| S.NO | Location Code | Monitoring Locations | Latitude and longitude |
|---|---|---|---|
| 1 | N1 | Within Mine Lease area | 10° 20'11.72"N & 78° 20'47.65" E |
| 2 | N2 | Thiruvakkarai | 12° 2'1.28"N & 79°39'23.28"E |
| 3 | N3 | Ponnampundi | 12° 2'46.41"N & 79°37'32.05"E |
| 4 | N4 | Eraiyur | 12° 3'25.66"N & 79°39'14.82"E |
| 5 | N5 | Koddukkur | 12° 0'37.33"N & 79°39'3.96"E |
| 6 | N6 | Pombur | 12° 2'7.06"N & 79°36'5.83"E |

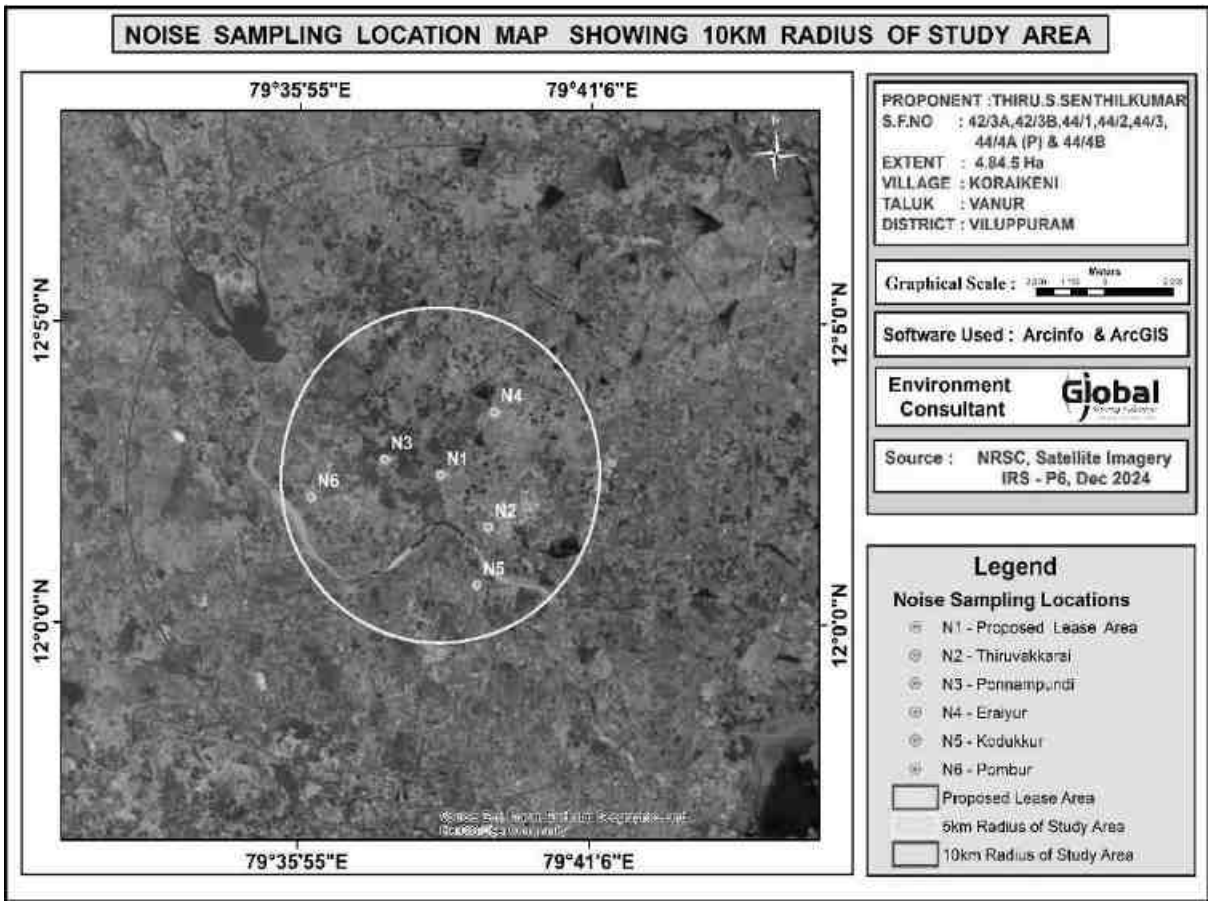



**Figure 3.12 Noise Monitoring Location**

## METHOD OF MONITORING

Noise levels were measured using sound level meter manufactured by (Model No - SL4001, Make - Lutron). Sound Pressure Level (SPL) measurements were measured at all locations where ambient air quality monitored; one reading for every hour was taken for 24 hours.

## NOISE MONITORING RESULT

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 3.12.

**Table 3.12 Noise Monitoring Result**

| Monitoring Location | N1 | N2 | N3 | N4 | N5 | N6 |
|---|---|---|---|---|---|---|
| DAY EQUIVALENT | 52.5 | 52.4 | 50.6 | 51.9 | 48.4 | 49.8 |
| NIGHT EQUIVALENT | 43.1 | 43.8 | 42.8 | 43.2 | 43.2 | 43.2 |
| DAY & NIGHT EQUIVALENT | 51.0 | 51.0 | 49.2 | 50.4 | 47.3 | 48.5 |
| Limits as per MoEF&CC | | | | | | |
| Day equivalent - 55 dB (A); Night equivalent - 45 dB (A); Work zone Exposure in 8 hr - 90 dB (A) | | | | | | |

**DISCUSSION**

From the table it is observed that the day Equivalent Noise (Leq-d) level were ranging from 48.4 to 52.5 dB(A) and Night Equivalent Noise (Leq-n) level were ranging from 42.8 to 43.2 dB(A). Day and Night Equivalent Noise (Leq-n) level were ranging from 47.3 to 51.0 dB(A). While comparing with the MoEF Norm of 55 dB(A) for day time and 45 dB(A) for night time, the monitored ambient noise levels are within the limit values.

After commencement of mine operation the anticipated noise level will be 52 dB – 65 dB in the N1 location. (Project Site). It is very negligible and within the prescribed standards of MoEF & CC and DGMS.

### 3.3.5 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 analyzed for different parameters. The locations of the monitoring sites are detailed in Table 3.13 and Figure 3.13.

## MONITORING LOCATIONS

Soil samples were collected from 6 locations to assess the soil quality in and around the mines. Soil samples collected using sampling augers and field capacity apparatus.

**Table 3.13 – Soil Sampling Locations**

| S.No | Location Code | Monitoring Locations | Latitude and longitude |
|---|---|---|---|
| 1 | S1 | Within Mine Lease area | 10° 20'11.72"N & 78° 20'47.65" E |
| 2 | S2 | Thiruvakkarai | 12° 2'1.28"N & 79°39'23.28"E |
| 3 | S3 | Ponnampundi | 12° 2'46.41"N & 79°37'32.05"E |
| 4 | S4 | Eraiyur | 12° 3'25.66"N & 79°39'14.82"E |
| 5 | S5 | Koddukkur | 12° 0'37.33"N & 79°39'3.96"E |
| 6 | S6 | Pombur | 12° 2'7.06"N & 79°36'5.83"E |

## 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 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.

Composite grab samples of the topsoil were collected by specified depth, and mixed to provide a representative sample for analysis. They were stored in airtight Polythene bags and analyzed at the laboratory.

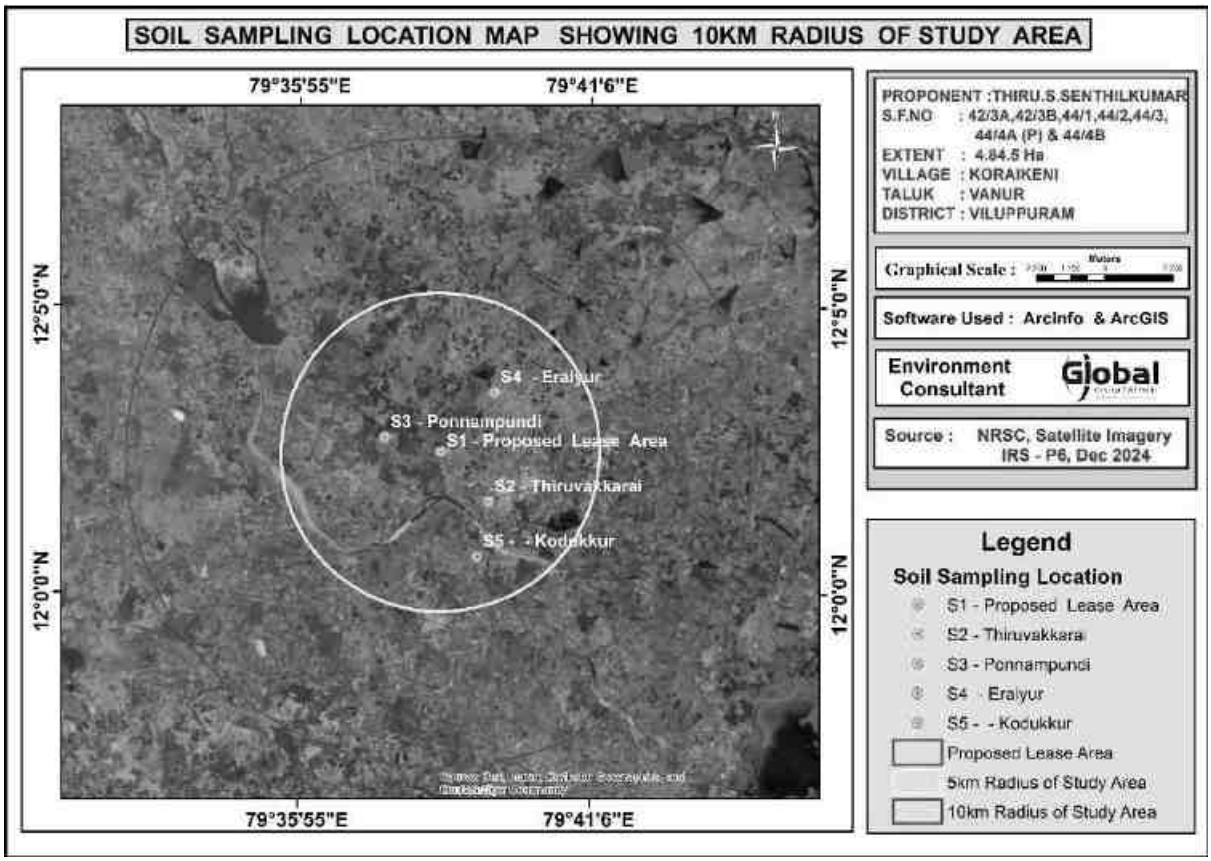



**Figure 3.13 - Soil Sampling Stations**

**Table 3.14 - Soil Testing Result**

| S.No | Parameter | Unit | S1 | S2 | S3 | S4 | S5 | S6 |
|---|---|---|---|---|---|---|---|---|
| 1 | pH at 25 °C | - | 8.50 | 7.40 | 5.03 | 7.56 | 7.07 | 7.05 |
| 2 | Electrical Conductivity | µmhos/cm | 226.4 | 1024 | 346.7 | 1133 | 821.4 | 360.8 |
| 3 | Dry matter content | % | 97.88 | 88.91 | 98.49 | 70.34 | 89.00 | 71.01 |
| 4 | Water Content | % | 2.12 | 1.51 | 1.51 | 29.66 | 11.00 | 28.99 |
| 5 | Organic Matter | % | 2.05 | 20.64 | 15.67 | 21.49 | 7.72 | 29.09 |
| 6 | Soil texture | - | SILTY CLAY LOAM | SILTY CLAY | CLAY | SILTY CLAY | SILTY CLAY LOAM | CLAY |
| 7 | Grain Size Distribution<br>i. Sand | % | 14.97 | 4.80 | 2.84 | 4.22 | 7.09 | 7.24 |
| 8 | ii. Silt | % | 57.79 | 50.30 | 24.64 | 43.39 | 55.25 | 37.91 |
| 9 | iii. Clay | % | 27.23 | 44.90 | 72.52 | 52.39 | 37.66 | 54.85 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 10 | Phosphorous as P | mg/kg | BDL(D.L.0.02) | 14.5 | 10.3 | BDL(D.L.0.02) | 6.1 | 12.1 |
| 11 | Sodium as Na | mg/kg | 456 | 482 | 354 | 512 | 643 | 520 |
| 12 | Potassium as K | mg/kg | 248 | 264 | 199 | 258 | 374 | 267 |
| 13 | Nitrogen and Nitregenous Compounds | mg/kg | 120 | 145 | 59 | 86 | 122 | 146 |
| 14 | Total Soluble Sulphate | % | 1554 | 518 | 1552 | 926 | 1096 | 1276 |
| 15 | Porosity | % | 35.7 | 37.5 | 42.9 | 21.4 | 37.5 | 21.6 |
| 16 | Water Holding Cabacity | Inches/foot | 39 | 42 | 44 | 42 | 40 | 40 |

**SOIL TESTING RESULT**

Results of the soil samples show that the pH values were found to be 5.03 to 8.50 and Electrical Conductivity values were ranging between 226.4 – 1024 µmhos/cm. Soils are generally Silty Clay Loam. Organic matter values were ranging between 2.05 – 29.09 %. Total Nitrogen values were ranging between 59 – 146 mg/kg. Phosphorus values were ranging between BDL – 14.5 µg/g. Potassium values were ranging between 199 – 374 mg/kg. Sodium values were ranging between 354 – 643 mg/kg. The soil quality data for the 6 samples collected and analyzed are provided in Table no – 3.14.

### 3.3.6 BIOLOGICAL ENVIRONMENT

An ecological survey was conducted to collect the baseline data regarding flora and fauna in the study area of 10 km radius. Data were also collected from different sources, i.e., government departments such as District Forest Office, Government of Tamil Nadu. On the basis of onsite observations as well as forest department records the checklist of flora and fauna was prepared.

**Methodology**

Sampling locations were selected with reference to topography, land use, vegetation pattern, etc. In this study, quadrats of 25m × 25m were laid down to assess trees and quadrats of 10m × 10m were laid down for shrubs.

## FLORA

An ecological survey of the study area was conducted with reference to listing of species and assessment of the existing baseline ecological (Terrestrial Ecosystems) conditions. The objective of the survey is as follows:

- Generate existing data from field observations of various terrestrial floristic occurrences.
- Collect secondary data from Government records as well as through discussion with Forest officials, knowledgeable public etc.,
- Compare the data with authentic past records to identify changes, if any.
- Identify the impact of project operations on the biological aspects.

To accomplish the above objectives, a general ecological survey covering an area of 10 km radius was conducted. The locations were identified for phyto-sociological aspects to assess the current status.

## FLORISTIC COMPOSITION IN CORE ZONE

The lease area is a non- forest, private land with scrub and thorny bushes. In the core zone, there are no trees.

## Flora in 300 m radius zone

There are Agriculture land within 500 m radius. It contains a total of 13 species belonging to 12 families have been recorded from the buffer zone of 300 m radius. Trees 4 (30%), Shrubs 4 (30 %) Herbs 5 (40%) were identified.

**Flora in 300 m radius**

| S. No | Local Name | Scientific Name | Family Name | IUCN Conservation Status |
|---|---|---|---|---|
| **Trees** | | | | |
| 1 | Kondrai | *Cassia fistula* | Caesalpiniaceae | Not Listed |
| 2 | Seetha | *Annona squamosa* | Annonaceae | Not Listed |
| 3 | Vembu | *Azadirachta Indica* | Meliaceae | Not Listed |
| 4 | Karuvelam | *Vachellia Nilotica* | Fabaceae | Not Listed |
| **Shrubs** | | | | |
| 1 | Erukku | *Calotropis Gigantea* | Apocynaceae | Not Listed |
| 2 | Chundai | *Solanum torvum* | Solanaceae | Not Listed |

| | | | | |
|---|---|---|---|---|
| 3 | Thuthi | *Abutilon Indicum* | Meliaceae | Not Listed |
| 4 | Unnichedi | *Lantana camara* | Verbenaceae | Not Listed |
| **Herbs** | | | | |
| 1 | Kuppaimeni | *Acalypha indica* | Euphorbiaceae | Not Listed |
| 2 | Nelavembu | *Andrographis paniculata* | Acanthaceae | Not Listed |
| 3 | Kovakkai | *Trichosanthes Dioica* | Cucurbitaceae | Not Listed |
| 4 | Perandai | *Cissus Quadrangularis* | Vitaceae | Not Listed |
| 5 | Thumbai | *Leucas Aspera* | Lamiaceae | Not Listed |

## FLORISTIC SCENARIO IN BUFFER ZONE AREA

Taxonomically a total of 77 species distributed among 45 families have been recorded from the buffer area. Based on habitat classification of the enumerated plants the majority of species were Trees 27 and Shrubs 18 followed by herbs (21), climbers 11. Details of flora with the scientific name were mentioned in Table No. 3.17.

**Table 3.15 List of Flora**

| S.No | Species | Family | Common Name | IUCN |
|---|---|---|---|---|
| Trees | | | | |
| 1. | Acacia nilotica | Mimosaceae | Karuvelam | LC |
| 2. | Acacia planifrons | Mimosaceae | Kodaivelam | NA |
| 3. | Aegle marmelos | Rutaceae | Vilvam | NA |
| 4. | Annona squamosa | Annonaceae | Seetha | NA |
| 5. | Atalantiamonophylla | Rutaceae | Kaattunaragam | NA |
| 6. | Carica papaya | Caricaceae | Pappali | NA |
| 7. | Cassia fistula | Caesalpiniaceae | Kondrai | NA |
| 8. | Chamaecrista nigricans | Caesalpiniaceae | | |
| 9. | Citrus aurantifolia | Rutaceae | - | NA |
| 10. | Delonix regia | Caesalpiniaceae | MayilKondrai | NA |
| 11. | Dichrostachys cinerea | Mimosaceae | Vidathalamthazhai | NA |

| | | | | |
|---|---|---|---|---|
| 12. | Euphorbia antiquorum | Euphorbiaceae | Sadura-kalli | NA |
| 13. | Ficus benghalensis | Moraceae | Aalamaram | NA |
| 14. | Ficus religiosa | Moraceae | Arasu | NA |
| 15. | Leucaena leucocephala | Mimosaceae | Soundil | NA |
| 16. | Melia azedarach | Meliaceae | Malaivaembu | NA |
| 17. | Morindapubescens | Rubiaceae | Manjanatti | NA |
| 18. | Nyctanthes arbor-tristis | Nyctanthaceae | Parijaatham | NA |
| 19. | Phyllanthus acidus | Euphorbiaceae | Aranelli | NA |
| 20. | Phyllanthus emblica | Euphorbiaceae | Nelli, Muzhunelli | NA |
| 21. | Pithecellobium dulce | Mimosaceae | Kodukkaaipuli | NA |
| 22. | Pongamia pinnata | Fabaceae | Punga maram | NA |
| 23. | Prosopis juliflora | Mimosaceae | Velikkaathaan | NA |
| 24. | Psidium guajava | Myrtaceae | Koyya | NA |
| 25. | Senna occidentalis | Caesalpiniaceae | Peiyavarai | NA |
| 26. | Tamarindus indica | Caesalpiniaceae | Puliyamaram | NA |
| 27. | Tectona grandis | Verbenaceae | Thekku | NA |
| Shrub | | | | |
| 1. | Tecoma stans | Bignoniaceae | Sornapatti | NA |
| 2. | Solanum torvum | Solanaceae | Chundai | NA |
| 3. | Senna auriculata | Caesalpiniaceae | Avaram | NA |
| 4. | Ricinus communis | Euphorbiaceae | Amanakku | NA |
| 5. | Punica granatum | Punicaceae | Madhulai | NA |
| 6. | Polygala javana | Polygalaceae | | NA |
| 7. | Phyllanthus reticulatus | Euphorbiaceae | Inkipazham | NA |

| | | | | |
|---|---|---|---|---|
| 8. | Ocimumgratissimum | Labiatae | Elumichanthulasi | NA |
| 9. | Ocimumtenuiflorum | Labiatae | Thulasi | NA |
| 10. | Nerium oleander | Apocynaceae | Karaviram, Sevvarali | NA |
| 11 | Lantana camara | Verbenaceae | Unnichedi | NA |
| 12. | Justicia adhatoda | Acanthaceae | Adathodai | NA |
| 13 | Jatropha curcas | Euphorbiaceae | Kaatu-amanakku | NA |
| 14 | Abrusprecatorius | Fabaceae | Kundumani | NA |
| 15 | Abutilon indicum | Malvaceae | Perun thuthi | NA |
| 16 | Agave americana | Agavaceae | Kathazhai | NA |
| 17 | Calotropisgigantea | Asclepiadaceae | Erukku, Arkkam | NA |
| 18 | Cissus quadrangularis | Vitaceae | Pirandai | NA |
| Herb | | | | |
| 1. | Acalypha indica | Euphorbiaceae | Kuppaimeni | NA |
| 2. | Achyranthes aspera | Amaranthaceae | Nayurivi | NA |
| 3. | Ageratum conyzoides | Compositae | Poompillu | NA |
| 4. | Alternanthera sessilis | Amaranthaceae | Ponnanganni | NA |
| 5. | Andrographis paniculata | Acanthaceae | Nelavembu | NA |
| 6. | Arachis hypogaea | Fabaceae | Verkadalai | NA |
| 7. | Argemone Mexicana | Papaveraceae | BramanThandu | NA |
| 8. | Aristolochiabracteolata | Aristolochiaceae | Aduthinnappalai | NA |
| 9. | Blumealacera | Compositae | Navakkarandai | NA |
| 10. | Boerhaviadiffusa | Nyctaginaceae | Mookarattai | NA |
| 11. | Boerhaviaerecta | Nyctaginaceae | Seemaimookarattai | NA |

| | | | | |
|---|---|---|---|---|
| 12. | Celosia argentea | Amaranthaceae | Pannaikeerai | NA |
| 13. | Centella asiatica | Apiaceae | Vallarai | NA |
| 14. | Cleome viscosa | Capparidaceae | Naikadugu | NA |
| 15 | Croton bonplandianum | Euphorbiaceae | Rail poondu | NA |
| 16 | Hygrophilaschulli | Acanthaceae | Neermulli | NA |
| 17 | Leucas aspera | Labiatae | Thumbai | NA |
| 18 | Opuntia stricta | Cactaceae | Chappathikkalli | NA |
| 19 | Phyllanthus amarus | Euphorbiaceae | Kizha-nelli | NA |
| 20 | Scoparia dulcis | Scrophulariaceae | Sarakkotthini | NA |
| 21 | Solanum melongena | Solanaceae | Kathiri | NA |
| Climber | | | | |
| 1. | Asparagus racemosus | Asparagaceae | Sadhavaeri | NA |
| 2. | Capparis roxburghii | Capparidaceae | - | NA |
| 3. | Coccinia grandis | Cucurbitaceae | Kovai | NA |
| 4. | Cocculushirsutus | Menispermaceae | Kattukodi | NA |
| 5. | Cucumis sativus | Cucurbitaceae | Vellarikkaai | NA |
| 6. | Lagenaria siceraria | Cucurbitaceae | Surakkaai | NA |
| 7. | Passiflora foetida | Passifloraceae | Siruppoonaikkaali | NA |
| 8. | Rhynchosiaviscosa | Fabaceae | - | NA |
| 9. | Riveahypocrateriformis | Convolvulaceae | Boodhikeerai | NA |
| 10 | Solanum trilobatum | Solanaceae | Thoodhuvalai | NA |
| 11 | Tinospora cordifolia | Menispermaceae | Seendhil | NA |

## LIST OF FAUNA

A total of 34 species belonging were recorded in the buffer zone. Based on habitat classification the majority of species were 15 Birds, followed by 7 Insects, 4 Reptiles, 5 Mammals and 3 Amphibians . There are one schedule I species, one schedule II species, 31 schedule IV species and one Schedule V species according to Indian wild life Act 1972. There are no critically endangered, vulnerable and endemic species observed. List of fauna in the buffer zone is mentioned in Table 3.18.

**Table 3.16 List of Fauna**

| S.No. | Scientific Name | Common Name | Conservation status as per Indian Wildlife Protection Act (1972) |
|---|---|---|---|
| Avifauna | | | |
| 1 | *Ardeola grayii* | Pond heron/ Paddy Bird | Sch-IV |
| 2 | *Ploceus philippinus* | Weaver bird | Sch-IV |
| 3 | *Tachybaptus ruficollis* | Little Grebe | Sch-IV |
| 4 | *Corvus splendens* | House crow | Sch-V |
| 5 | *Acridotheres tristis* | Common myna | Sch-IV |
| 6 | *Dicrurus macrocerus* | Black drongo | Sch-IV |
| 7 | *Quills contronix* | Grey quail | Sch-IV |
| 8 | *Apus affinis* | House swift | Sch-IV |
| 9 | *Columba livia* | Blue Rock pigeon | Sch-V |
| 10 | *Streptopelia chinensis* | Spotted Dove | Sch-IV |
| 11 | *Passer domesticus* | House Sparrow | Sch-IV |
| 12 | *Egretta garzetta* | Little egret | Sch-IV |
| 13 | *Himantopus Himantopus* | Black Winged Stilt | Sch-IV |

| | | | |
|---|---|---|---|
| 14 | *Ceryule rudis* | Lesser Pied Kingfisher | Sch-IV |
| Reptiles | | | |
| 1 | *Naja naja* | India cobra | Sch-II |
| 2 | *Calotes versicolor* | Common garden lizard | Sch-IV |
| 3 | *Bangarus caerleus* | Krait | Sch-IV |
| 4 | *Ptyas mucosus* | Rat snake | Sch-II |
| Amphibians | | | |
| 1 | *Rana hexadactyla* | Frog | Sch-IV |
| 2 | *Rana tigrine* | Bull frog | Sch-IV |
| 3 | *Bufo melanosticus* | Common Indian toad | Sch-IV |
| Mammals | | | |
| 1 | *Rattus sp* | Rat | Sch-V |
| 2 | *Lepus nigricollis* | Indian Hare | Sch-IV |
| 3 | *Funambulus palmarum* | Indian Palm squirrel | Sch-IV |
| 4 | *Rattus norvegicus* | Field mouse | Sch-IV |
| 5 | *Rusty spotted Cat* | Felis rubiginosa | Sch-IV |
| Insects | | | |
| 1 | *Danainae* | Milkweed butterfly | NL |
| 2 | *Apis cerana* | Indian honey bee | Sch-IV |
| 3 | *Ceratogomphus pictus* | Dragonfly | Sch-IV |
| 4 | *Hieroglyphus sp* | Grasshopper | NL |
| 5 | *Danaus chrysippus* | Tawny coster | Sch-IV |
| 6 | *Sympetrum fonscolombii* | Red-veined darter | NL |
| 7 | *Tirumala limniace* | Blue tiger | Sch-IV |

The core zone of the area is patta land, No forest land is involved in the project area. There is no Wild Life Sanctuary or National Park within the study area of 10km. 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. Hence this small mining operation over short period of time will not have any significant impact on the surrounding flora and fauna.

### 3.3.7 LAND ENVIRONMENT

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

**LAND USE PATTERN OF THE PROJECT AREA**

The present and the post mining land use pattern is shown below.

**Table 3.17 Land use pattern of the project site**

| Description | Present Area in Ha. | Area at the end of life of Quarry in Ha. |
|---|---|---|
| Quarrying pit | NIL | 4.08.00 |
| Infrastructure | NIL | 0.01.0 |
| Roads | NIL | 0.01.0 |
| Greenbelt | NIL | 0.74.50 |
| Unutilized | 4.84.50 | 0.00.0 |
| **Total** | **4.84.50** | **4.84.50** |

- At the end of life of mine, the excavated mine pit / void of 4.08.00 Ha. 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 (0.74.50 Ha.) will be developed along the safety barrier and top benches and 0.02 ha are approach road and Infrastructure.

**LAND USE PATTERN OF THE STUDY AREA**

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. The land use map of the study area is given in Figure 3.14.

**Table 3.18 Land use pattern of the Study area of 10 km radius**

| Sl.No. | LAND USE / LAND COVER | Area in Sq.Km | Area in Percentage |
|---|---|---|---|
| 1 | Built-up land | 13.69 | 4.24 |
| 2 | Agriculture | 142.81 | 44.28 |
| 3 | Crop land | 108.03 | 33.47 |
| 4 | Existing mining area | 3.45 | 1.06 |
| 5 | Fallow land | 1.75 | 0.54 |
| 6 | Land with scrub | 10.85 | 3.36 |
| 7 | Land without scrub | 11.67 | 3.61 |
| 8 | Water bodies | 30.49 | 9.44 |
| | **Total Area** | **322.74** | **100.00** |

Source : Survey of India Toposheet and Landsat Satellite Imagery

From above table it is inferred that the majority of the land in the study area is Agriculture Land (44.28 %) followed by Crop Land (33.47 %).

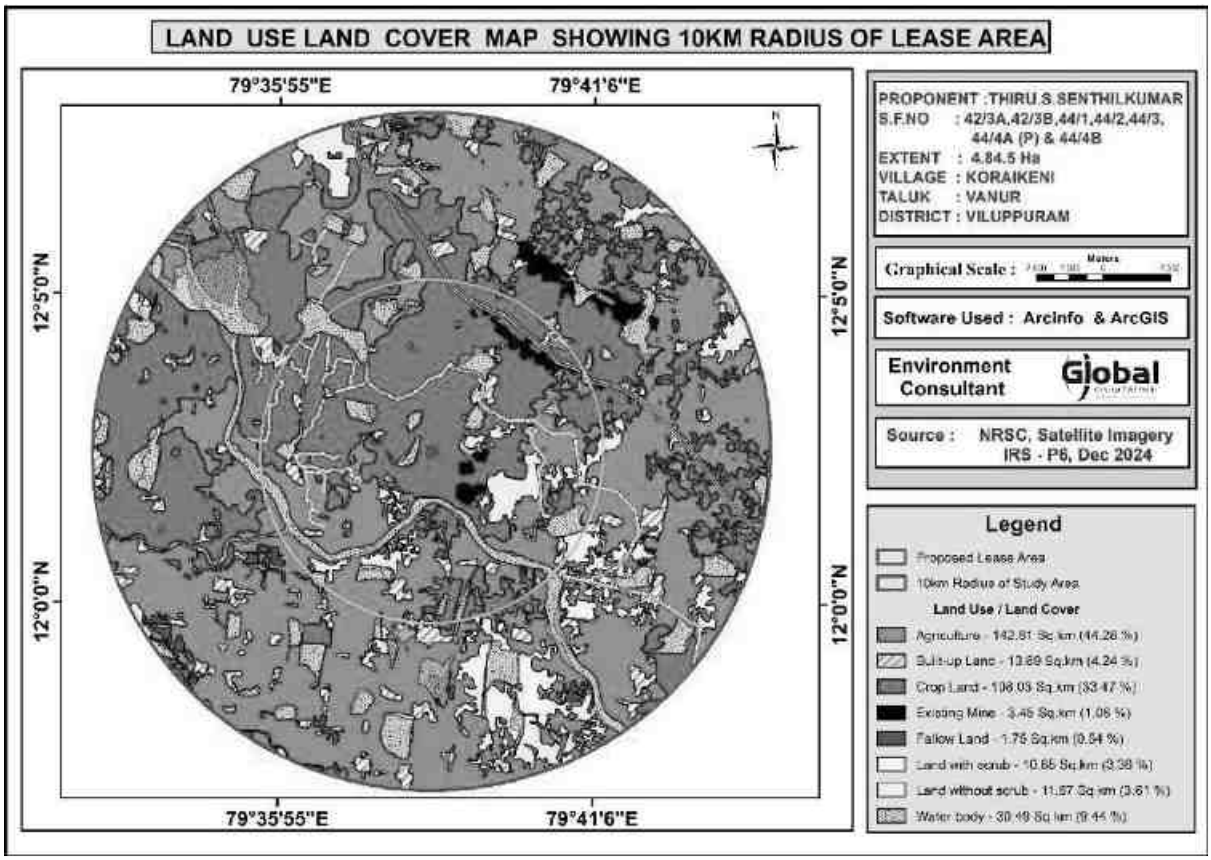



**Figure 3.14 Land use map of the study area**

### 3.3.8 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.

## OBJECTIVES OF THE STUDY

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

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

## 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

## DETAILS OF VILLAGES

The project is located in Koraikeni Village, Vanur Taluk, Villupuram District. In 2011, Viluppuram had population of 3,458,873 of which male and female were 1,740,819 and 1,718,054 respectively. In 2001 census, Viluppuram had a population of 2,960,373 of which males were 1,492,442 and remaining 1,467,931 were females. The villages located in the study area is given in figure 3.20 below. There are 28 villages in the study area (10 km radius).

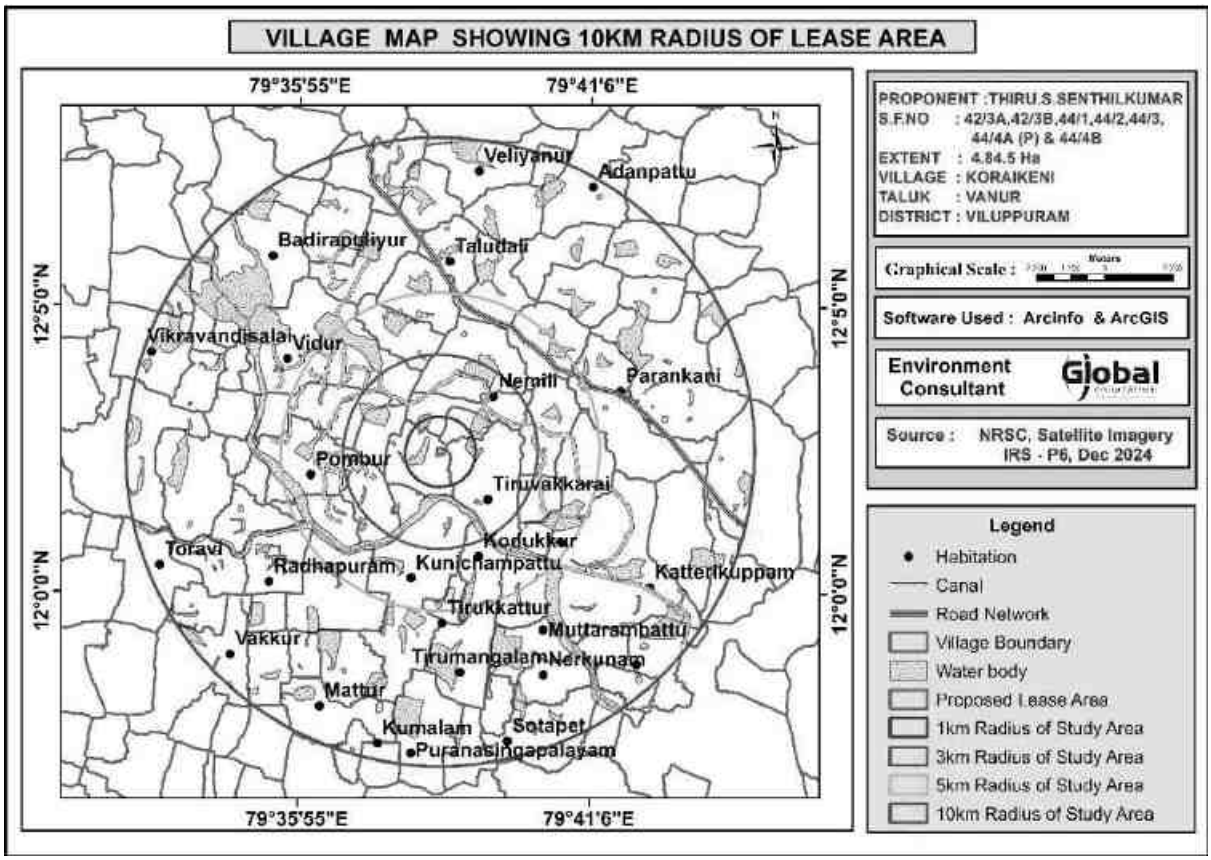



**FIG 3.15 VILLAGE MAP OF THE STUDY AREA**

### Basic Amenities

A better network of physical infrastructure facilities (well-built roads, rail links, irrigation, power and telecommunication, information technology, market-network and social infrastructure support, viz. health and education, water and sanitation, veterinary services and co-operative) is essential for development of the rural economy. All basic amenities Education (higher education, colleges, universities, Medical college, Transport facilities, Railway station, Bus station area available.

| Table 3.19 Population profile of the study area | | |
|---|---|---|
| **Particulars** | **No of Population** | **Percentage (%)** |
| **A. Population break-up by Gender** | | |
| Male Population | 33502 | 50.06 |
| Female Population | 33413 | 49.94 |
| Total | **66915** | 100 |
| **B. Population break-up by Caste** | | |
| Scheduled Caste | 24258 | 36.25 |
| Scheduled Tribes | 748 | 1.147 |
| Others | 41909 | 62.63 |
| Total | **66915** | 100 |
| **C. Literacy Level** | | |
| Total Literate Population | 43768 | 65.40 |
| Others | 23147 | 34.60 |
| Total | **66915** | 100 |
| **D. Occupational structure** | | |
| Main workers | 24610 | 36.77 |
| Marginal workers | 9092 | 13.58 |
| Total Workers | 33702 | 50.36 |
| Total Non-workers | 33213 | 49.64 |
| **Total** | **66915** | **100** |

The above table shows that the male and female population ratio are almost equal. Among the total population 1.147 % belong to Scheduled Tribes, 36.25 % are Scheduled Caste and the balance 62.63 % people belong to other castes. Among the total population, 65.40 % of the people are literate. The results are plotted in figures below.

| Table 3.20 Population profile – Koraikeni Village | | |
|---|---|---|
| **Particulars** | **No of Population** | **Percentage (%)** |
| **A. Population break-up by Gender** | | |
| Male Population | 489 | 53.97 |
| Female Population | 417 | 46.03 |
| **Total** | **906** | **100** |
| **B. Population break-up by Caste** | | |
| Scheduled Caste | 361 | 39.84 |
| Scheduled Tribes | **0** | 0 |
| Others | 545 | 60.16 |
| **Total** | **906** | **100** |
| **C. Literacy Level** | | |
| Total Literate Population | 594 | 65.56 |
| Illiterate | 312 | 34.44 |
| **Total** | **906** | **100** |
| **D. Occupational structure** | | |
| Main workers | 447 | 49.33 |
| Marginal workers | 35 | 3.87 |
| Total Workers | 482 | 53.20 |
| Total Non-workers | 424 | 46.78 |
| **Total** | **906** | **100** |

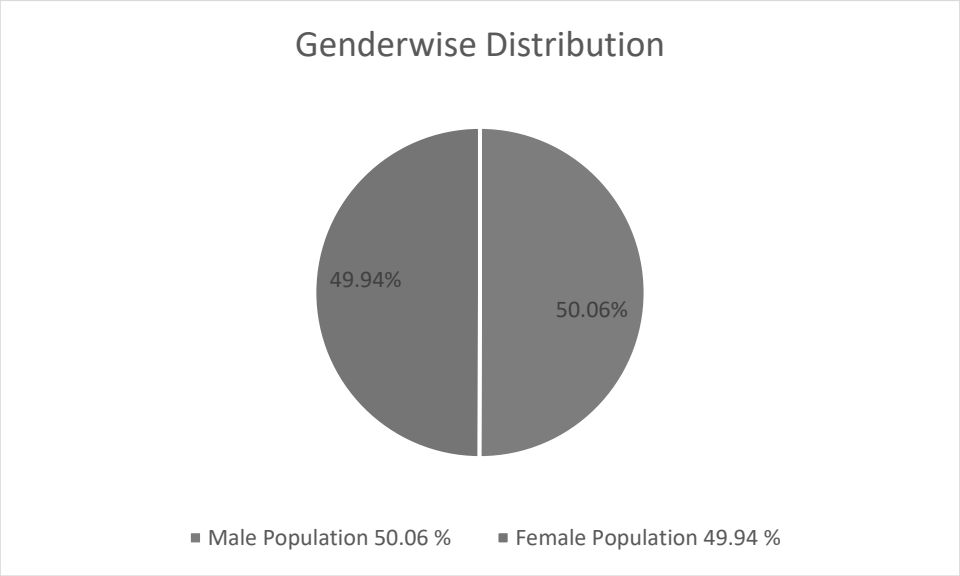



**FIG 3.16 GENDER-WISE POPULATION DISTRIBUTION**

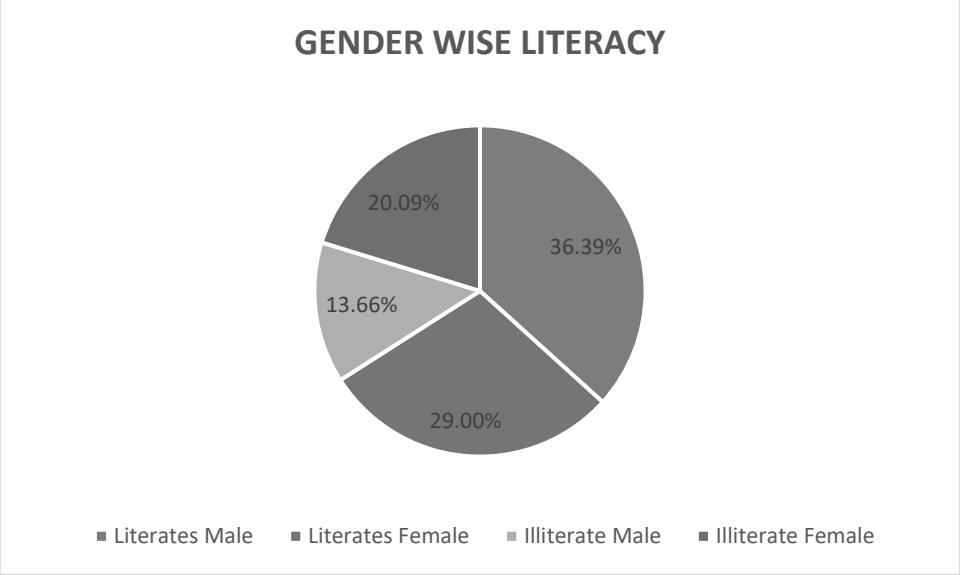



**FIG 3.17 GENDER WISE LITERACY DISTRIBUTION**

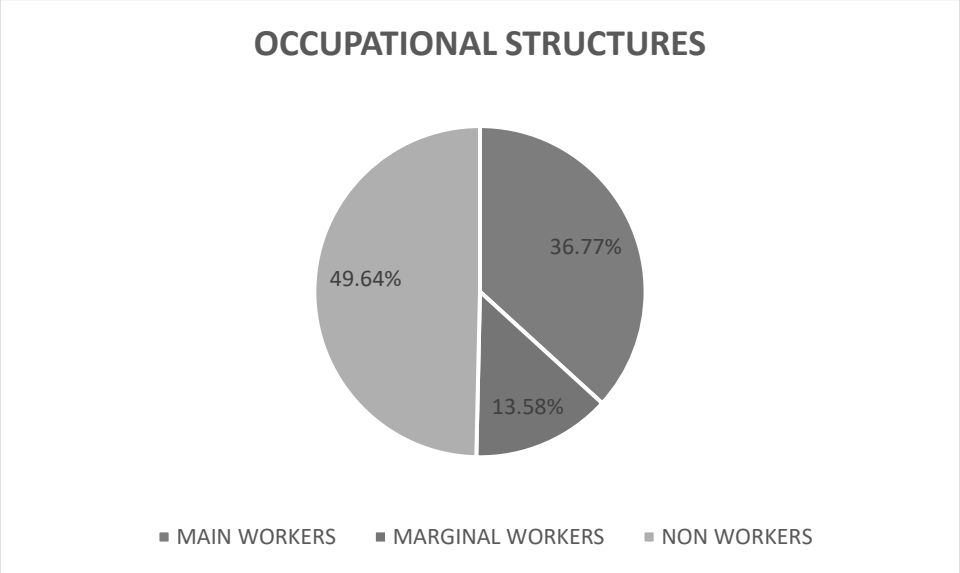



**FIG 3.18 OCCUPATIONAL STRUCTURE WITHIN BUFFER ZONE**

### 3.3.9 HYDROGEOLOGICAL STUDY:

This section delves into the study of the hydrogeological scenario of the study area to evaluate impact the mining activities on nearby areas. A detailed hydrogeological study will be incorporated in the Final EIA/EMP report.

The quarrying activity will not intersect ground water table as quarrying is proposed upto a depth of 70 m bgl and water table is found at a depth of 82- 85 m BGL.

### TOPOGRAPHY

The area applied for quarry lease is exhibits almost plain topography covered by Gravel formation. The massive Charnockite formation is noticed below 5 m (Avg) Gravel formation and sloping towards Southeastern side of the area, the altitude of the area is above 73 m (maximum) from MSL. No water bodies is found nearby the applied area.

## DRAINAGE PATTERN OF THE AREA

The Drainage pattern study reveals that there is a seasonal odai located at 53 m in eastern side of the site, two tanks at 287 m (W) and 800 m (E). Sangarabarani River / Varaha Nadi a located at 1.25 km in southern side of the site. The drainage map of the study area is given in Figure 3.15.

## GEOMORPHOLOGY

Predominantly the buffer zone is dominated by Shallow weathered Buried Pediplain (48.28 %), and the lease area also falls under the same category. Geomorphology of the study area is detailed below. The geomorphology of the study area is given in Figure 3.17.

| Sl.No. | GEOMORPHOLOGY | Area in Sq.Km | Area in Percentage |
|---|---|---|---|
| 1 | Moderately weathered Buried Pediplain | 71.51 | 22.15 |
| 2 | Pediment – Inselberg Complex | 6.12 | 1.89 |
| 3 | Shallow Flood Plain | 15.94 | 4.93 |
| 4 | Shallow alluvian Plain | 71.23 | 22.07 |
| 5 | Shallow weathered Buried Pediplain | 155.84 | 48.28 |
| 6 | Upland | 2.1 | 0.71 |
| | **Total Area** | **322.74** | **100.00** |

## GEOLOGY

The geology of the study area is shown below in Figure 3.16. The majority of the buffer zone is composed of Pegmatite (45.67 %),followed by Fluvial (30.91 %). The lease area falls under Pegmatite category. The geology of the study area is detailed below.

| Sl.No. | GEOLOGY | Area in Sq.Km | Area in Percentage |
|---|---|---|---|
| 1 | Argillaceous & Calcareous Sandstone | 8.57 | 2.65 |
| 2 | Basic Dykes | 2.86 | 0.88 |
| 3 | Charnockite | 9.48 | 2.93 |
| 4 | Fluvial | 99.71 | 30.91 |
| 5 | Granite / Granulite | 19.71 | 6.11 |
| 6 | Laterite | 0.57 | 0.21 |
| 7 | Pegmatite | 147.35 | 45.67 |
| 8 | Water Body | 6.71 | 2.08 |

| | | | |
|---|---|---|---|
| 9 | Sandstone with Clay | 27.62 | 8.56 |
| | **Total Area** | **322.58** | **100** |

## SOIL TEXURE

The major soil texture found in the buffer zone are Clay (41.07 %), followed by sandy loam (31.04 %). The lease area falls under clay category. The soil texture of the study area is detailed below.

| Sl.No. | SOIL TYPE | Area in Sq.Km | Area in Percentage |
|---|---|---|---|
| 1 | Clay | 132.56 | 41.07 |
| 2 | Clay Loam | 90.02 | 27.89 |
| 2 | Sandy Loam | 100.17 | 31.04 |
| | **Total** | **322.75** | **100** |

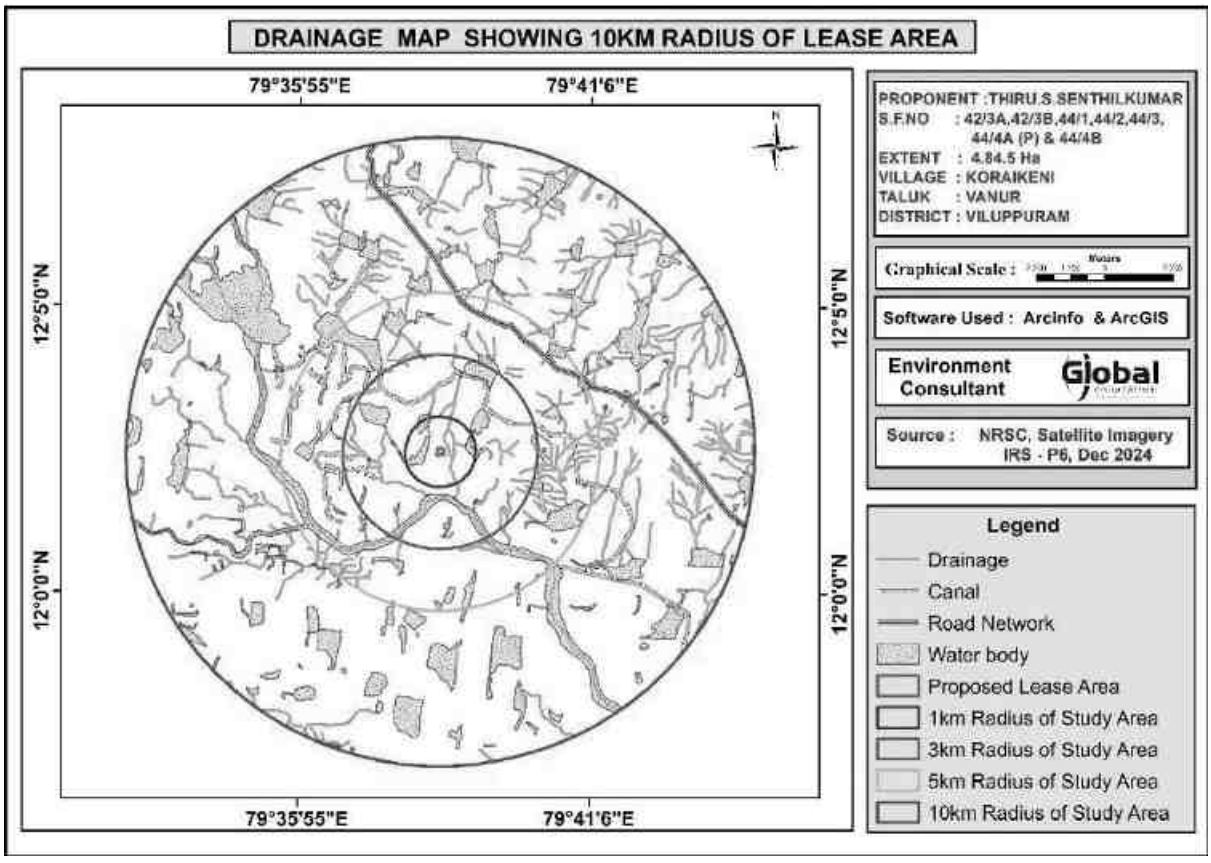



**Figure 3.19 Drainage map of the study area**

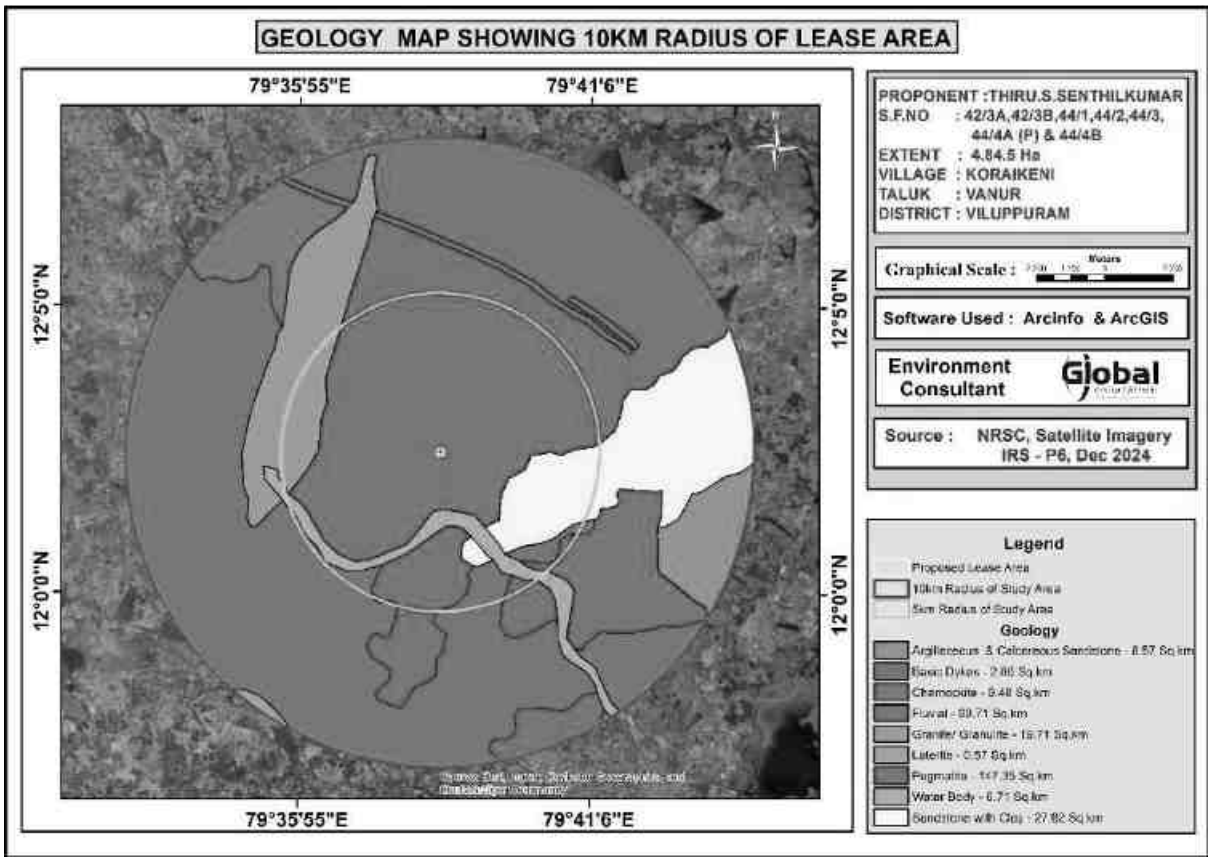



**Figure 3.20 Geology map of the study area**

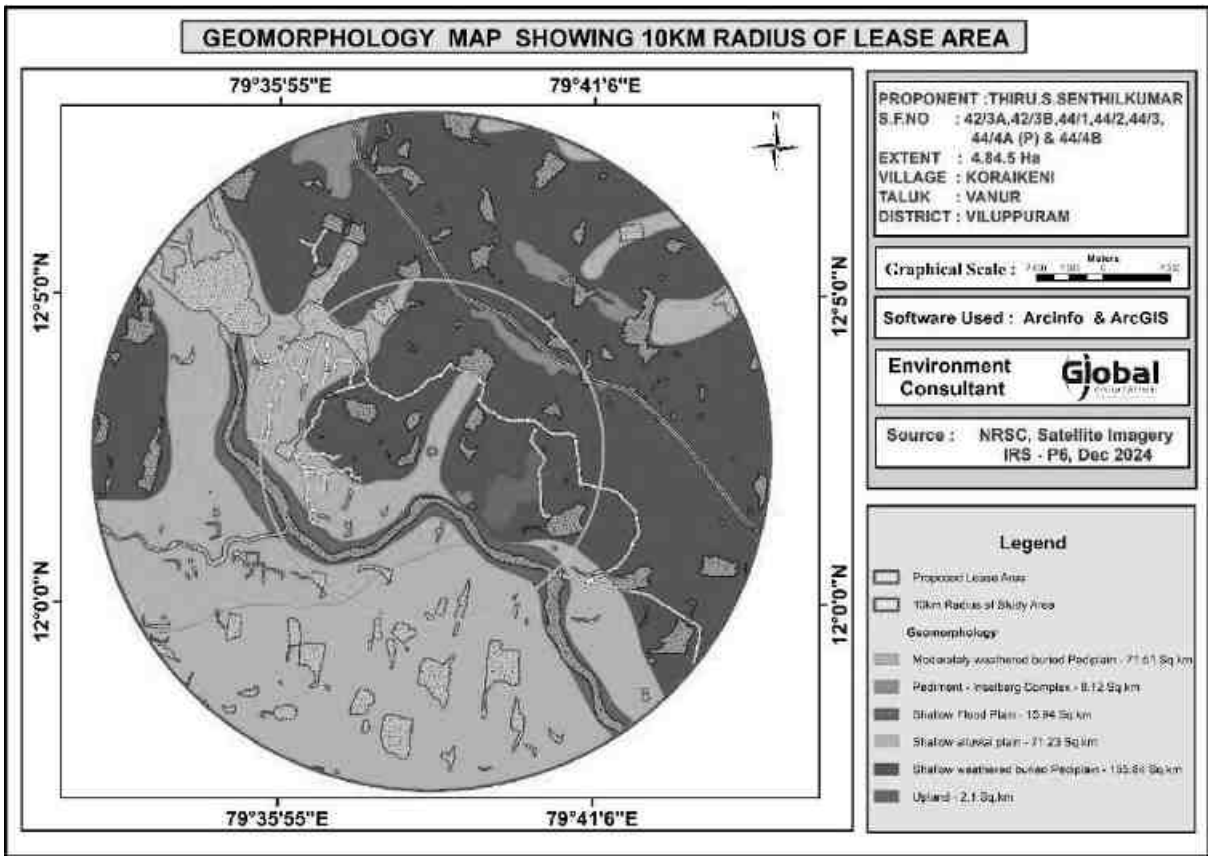



**Figure 3.21 Geomorphology map of the study area**

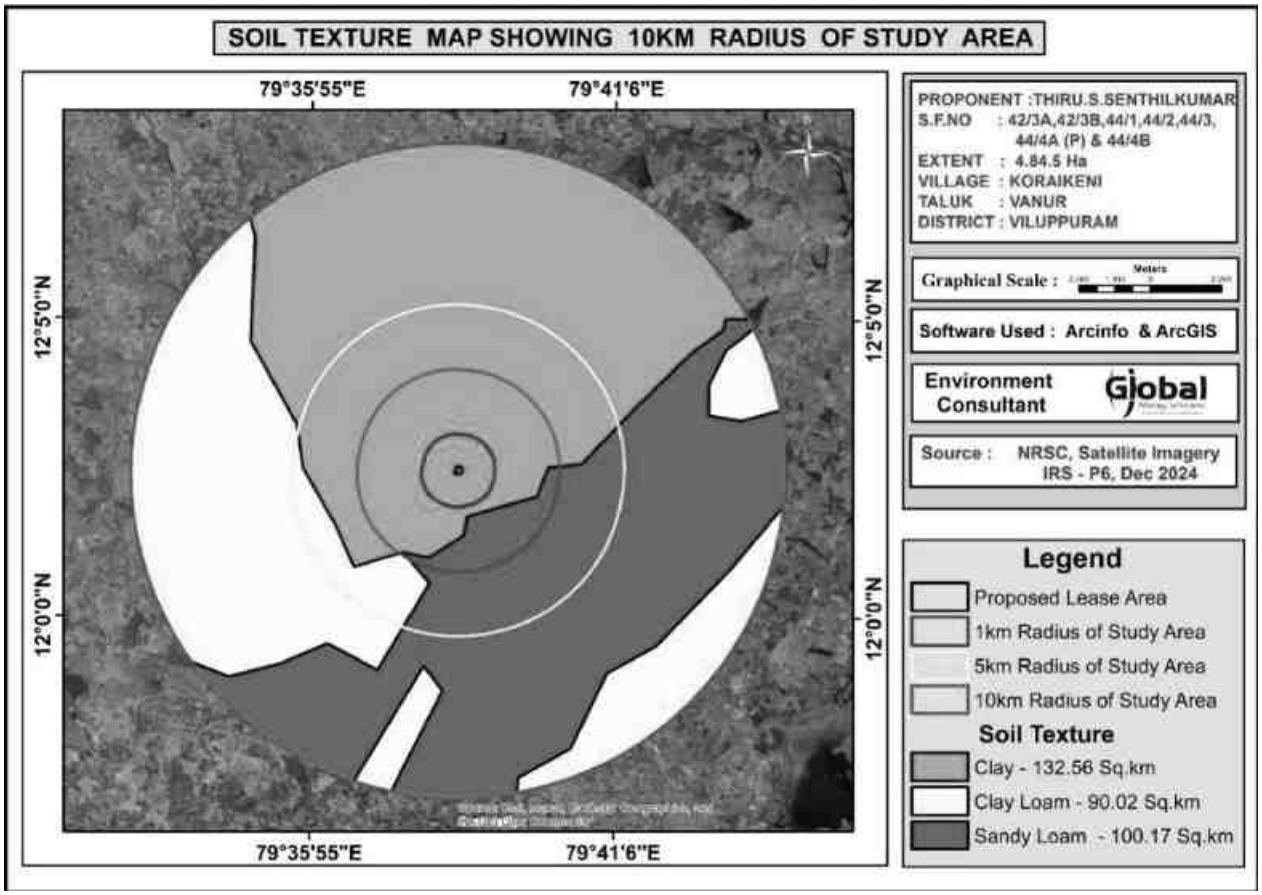



**Figure 3.22 – Soil Texture Map of the Study Area**

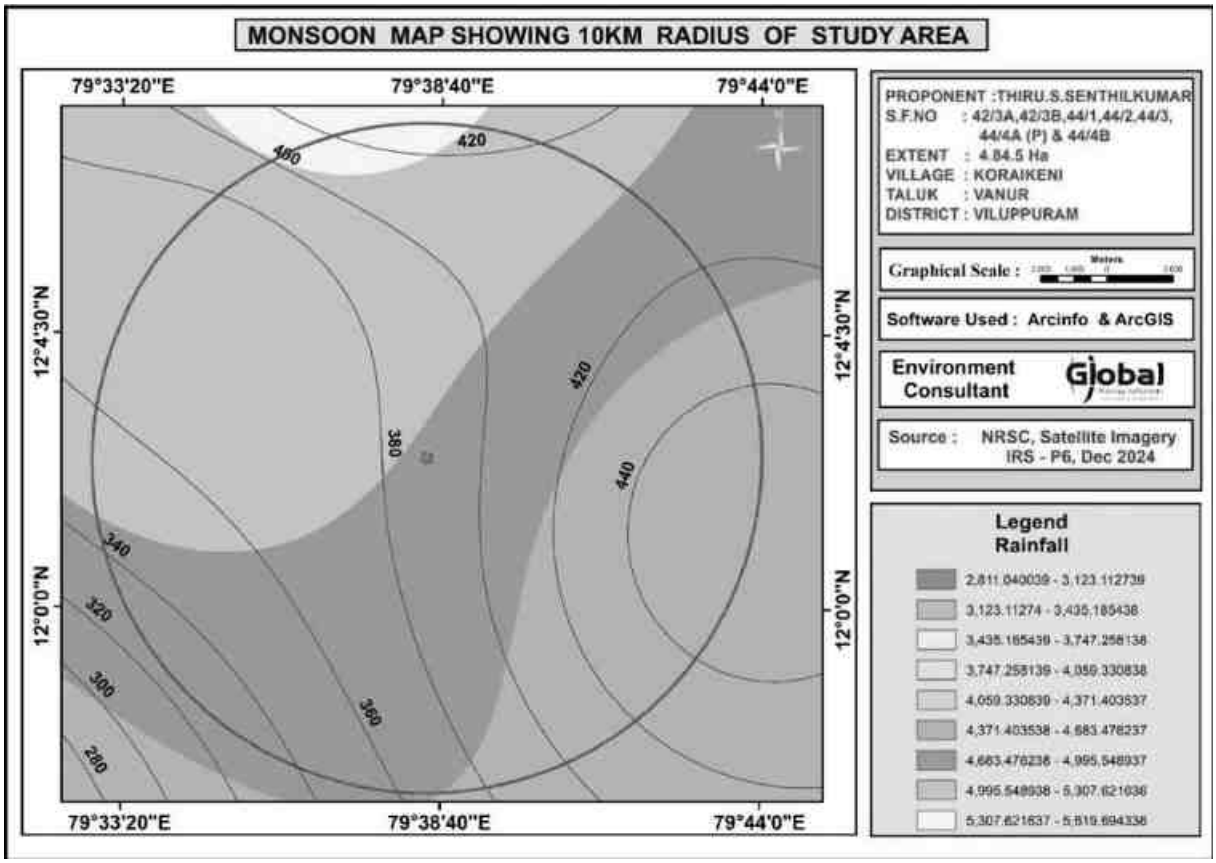



**Figure 3.23 – Monsoon map showing 10 km radius of study Area**

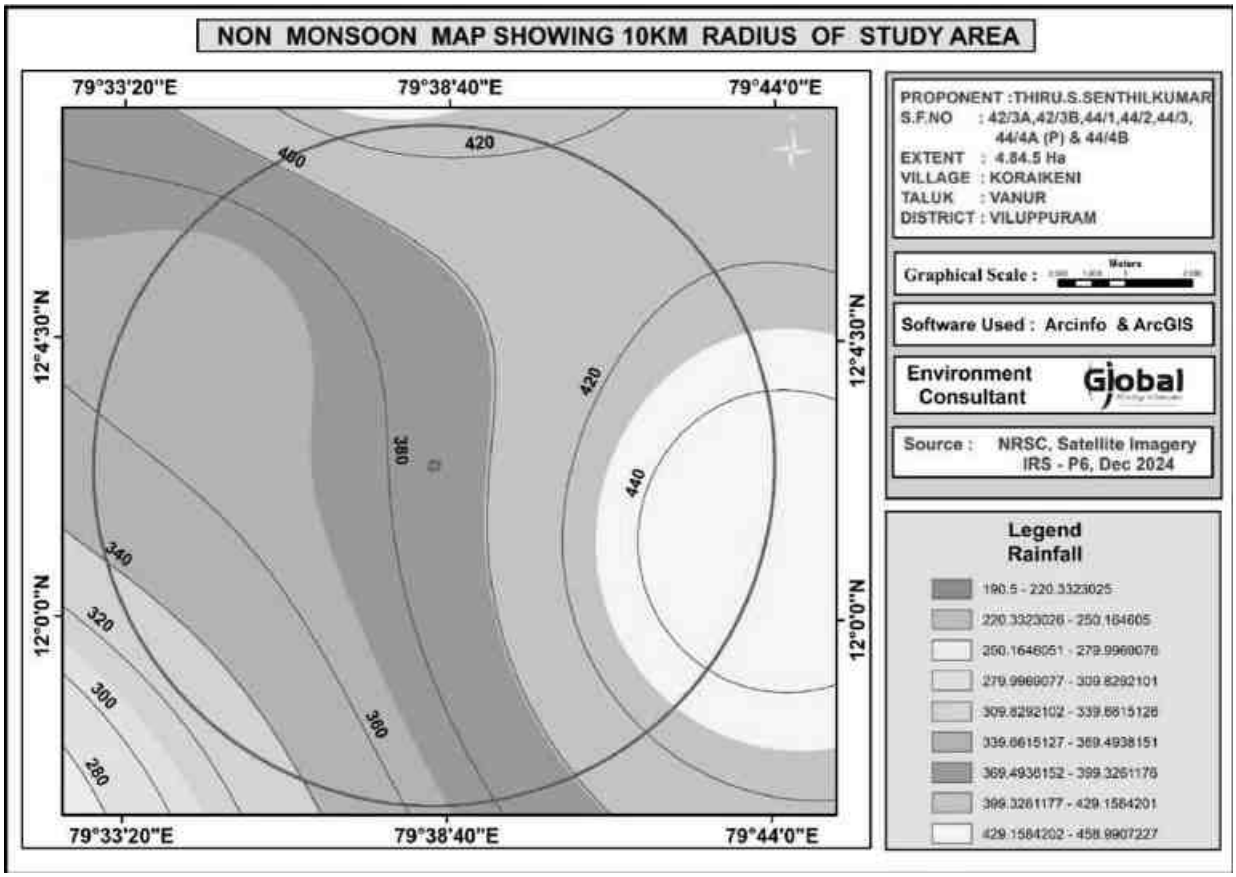



**Figure 3.24 – Non - Monsoon map showing 10 km radius of study Area**

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# 4.0 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

## INTRODUCTION

Environmental impacts both direct and indirect on various environmental attributes due to cluster quarries 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.

This chapter deals with the various anticipated environmental impacts and mitigation measures of the proposed mining activity. The proposed method of mining is Opencast Mechanized and the quarry operation involves Shallow Jack Hammer Drilling, Blasting, Excavation, Formation of benches, Loading and Transportation of minerals.

All these operations can disturb the environment in various ways, such as removal of mass, change of landscape, flora and fauna of the area, surface drainage, and change in air, water and soil quality. Therefore, it is essential to assess the impacts of mining on different environmental parameters before starting the mining operations, so that abatement measures could be planned in advance for eco-friendly mining in the area. The likely impacts on various environmental aspects and mitigation measures are discussed below.

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

- Land environment

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

The proposed mining activity is small and not likely to have any serious impacts on the existing environment of the area. However, the potential impacts of the proposed mining and related activities on various environmental parameters are discussed.

## 4.1 DETAILS OF INVESTIGATED ENVIRONMENTAL IMPACTS DUE TO PROJECT LOCATION POSSIBLE ACCIDENTS, PROJECT DESIGN, PROJECT CONSTRUCTION, REGULAR OPERATIONS FINAL DECOMMISSIONING OR REHABILITATION OF A COMPLETE PROJECT.

This is a proposed Rough Stone Quarry & Gravel Quarry of S.F.NO. 42/3A, 42/3B, 44/1, 44/2, 44/3, 44/4A(P) and 44/4B over an extent of 4.84.50 Ha in Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. The method of mining is Opencast mechanized with a bench width and height of 5m. It is proposed to produce 12,00,260 m3 of Rough Stone, 2,13,185 m3 of Gravel formation for first five years up to the depth of 50 m bgl and remaining quantity of 2,12,620 m3 of Rough Stone for second five years upto the depth of 70 m bgl. There is no stream/odai within the mine lease area.

The main anticipated impact on the Land Environment due to quarrying operation is change in Landscape, change in Land – use Pattern.

The entire mine lease area is Patta land. It is proposed to be altered by effective quarrying operation such as excavation (4.08.00 Ha), Infrastructure (0.01.0), Road (0.01.0 Ha) and green belt will be developed in the safety zone of 0.74.50 Ha. The ultimate depth of quarrying is proposed with maximum depth of 70 m BGL and will not intersect the ground water table.

## *4.2 MEASURES FOR MINIMIZING AND /OR OFFSETTING ADVERSE IMPACTS IDENTIFIED*

<table>
<tr><th>Aspect</th><th>Impact</th><th>Mitigation measures</th></tr>
<tr><td>Topography</td><td>The area is exhibits almost plain covered by Gravel formation. Quarrying activity will lead to change in geological setting of the area i.e., Due to the quarrying activity in the mine lease area will leads to affect the aesthetic view on the environment. Further, due to the movement of heavy vehicles in and around the mine lease area will leads to affect the surrounding agricultural lands, ecology and biodiversity, human habitations due to the emissions from vehicles like $SO_2$, $NO_x$, $PM_{10}$, $PM_{2.5}$, etc., The existing land use pattern is given as under.
<table>
<tr><th>Land Use</th><th>Present Area (Hect)</th><th>Area in use during the quarrying period (Hect)</th></tr>
<tr><td>Quarrying Pit</td><td>Nil</td><td>4.08.0</td></tr>
<tr><td>Infrastructure</td><td>Nil</td><td>0.01.0</td></tr>
<tr><td>Roads</td><td>Nil</td><td>0.01.0</td></tr>
<tr><td>Green Belt</td><td>Nil</td><td>0.74.5</td></tr>
<tr><td>Unutilized</td><td>4.84.50</td><td>NIL</td></tr>
<tr><td>Total</td><td>4.84.50</td><td>4.84.50</td></tr>
</table></td><td>The major impact due to this project on land environment is the change in land use. Since this quarry is a small one and the production is less, mining activity will be carried out up to 70 m BGL. At the end of mining period, the quarried pit will act as a water reservoir to store the rain water.<br>Land Use at the end of mine will be as follows.
<table>
<tr><th>Land Use</th><th>Area in use during the quarrying period (Hect)</th></tr>
<tr><td>Area left for water body</td><td>4.08.0</td></tr>
<tr><td>Green Belt</td><td>0.74.5</td></tr>
<tr><td>Remaining area</td><td>0.02.0</td></tr>
<tr><td>Total</td><td>2.62.0</td></tr>
</table>
At the mine closure stage, 4.08.0 Ha of lease area will be left as rain water harvesting pond. 0.74.5 Ha will be developed with green belt.<br>Greenbelt shall be developed around the mine lease area and the details has been given below.
<table>
<tr><th>Year</th><th>Species</th><th>No. of trees</th><th>Spacing</th><th>Survival</th></tr>
<tr><td>I<br>II</td><td>Azadirachta indiaca</td><td>750</td><td>3m x 3m</td><td>80%</td></tr>
</table></td></tr>
</table>

| | | |
|---|---|---|
| | The proposed ultimate pit dimension of the mine lease area is given below.<br>**Ultimate Pit dimension at the end of Mining plan Period**<br>**Pit No. / Length (max) (m) / Width (Avg) (m) / Depth (max) (m)**<br>I 225 181 50 BGL<br>**Ultimate Pit dimension End of the lease period**<br>I 225 181 70 BGL<br><br>If mining is not done systematically it will leads to the dumping failure in the mining area. | III<br>IV<br>V<br>**Total 750**<br><br>Due to the thick vegetation around the mine lease area and sprinkling of water around the haul roads the dust emissions arises from the vehicles will be controlled.<br>At the end of mining period, fencing will be provided around the mine lease area to arrest the entry of public/cattle to the mining area.<br>The rough stone is proposed to quarry 5m bench height and 5m width with $80^0$ slope and with conventional opencast Mechanized method. As per the approved mining plan a safety distance of 7.5 m all around the boundary provided. There is no overburden from this proposal, entire mined out mineral will be directly loaded into tipper to the needy crushers / other buyers for construction works. |
| **Drainage** | Mine drainage is surface water or groundwater that drains from an active or abandoned mine. One of the adverse impact of mine drainage is it will contaminate the ground water. | As per the approved mining plan the ultimate pit limit for the first five years is 50 m BGL and in the second five years 70 m BGL. The ground water table is reported as 82 m BGL. In the proposed lease period plan, the 70 m BGL depth has been envisaged as workable depth for safe & economic quarrying for the ten years. Hence the quarrying operation may not affect the ground water. |
| **Soil Quality and Agriculture** | In monsoon seasons due to the excavation of minerals soil erosion and sediment deposition will occur in the nearby water bodies. | It is proposed to quarry upto a depth of 70 m BGL and the nearby water table is 82 m BGL. So, the mining activity will not affect the ground water. To prevent the soil erosion during |

| | | |
|---|---|---|
| | | monsoon season, garland drain will be constructed with silt traps. |
| **Visual impact on surrounding environment** | Quarrying activities and rock extraction generally cause several environmental effects on the surrounding areas. The alteration of landscape due to activities like excavation, drilling or blasting, in particular, often generates a visual impact on the receptors set in the surroundings. Among these effects, the shape, extent, or chromatic contrast of the mining surface with the original land form may represent a huge loss of appeal for the growth of new urban settlements. | The reclamation of the post mined quarry surface is aimed at restoring the ecological balance taking into account geological parameters but also local flora and climate. Further the ultimate depth of mining is 70 m BGL (Ten years). In the post mining stage the quarried out pit will be used for rainwater harvesting. At the mine closure stage, 4.08.0 Ha of lease area will be left as rain water harvesting pond. 0.74.5 Ha will be developed with green belt. |

### 4.2.1 AGRICULTURE

The general impacts on agricultural lands will be dust pollution, as volume of dust is discharged into the air during the process of quarrying. Dust gets deposited on the leaves of plants, flowers and soil. This affects the photosynthetic and fruiting ability of the crops. Silt from the reject during monsoon season gets washed and chokes the agricultural fields, rendering them useless for the growth of crops. Due to blasting, fly rocks may fall on agricultural fields making it difficult for the farmer to cultivate.

There is a need for dust control on haul road movements. Vehicles emit fugitive gases during transportation of materials. Those gases enter the plants through the stomata pores, it destructs chlorophyll and affects photosynthesis leading to stunted growth or death of crops.

**LAND USE PATTERN – 1 KM RADIUS**

Land use pattern of the area was studied through LISS III imagery of Bhuvan (ISRO). The 1 km radius map of study area was taken for analysis of Land use cover. The land use map of the study area is given in Figure 4.1 and in below table.

**Table 4.1 Land use pattern of the Study area of 1 km radius**

| Sl. No. | LULC_CLASS | Area in Sq.km | Percentage (%) |
|---|---|---|---|
| 1 | Agriculture | 1.95 | 48.02 |
| 1 | Crusher | 0.07 | 1.72 |
| 2 | Existing Quarry | 0.12 | 2.95 |
| 3 | Land with Scrub | 0.74 | 18.22 |
| 4 | Land Without Scrub | 0.73 | 17.98 |
| 5 | Water Body | 0.45 | 11.08 |
| **Total** | | **4.06** | **100** |

**Source: Survey of India Toposheet and Landsat Satellite Imagery**

From above table it is inferred that the majority of the land in the study area is agriculture Land (48.02 %) followed by Land with scrub (18.22 %). The agriculture area covers 1.95 Sq.m.

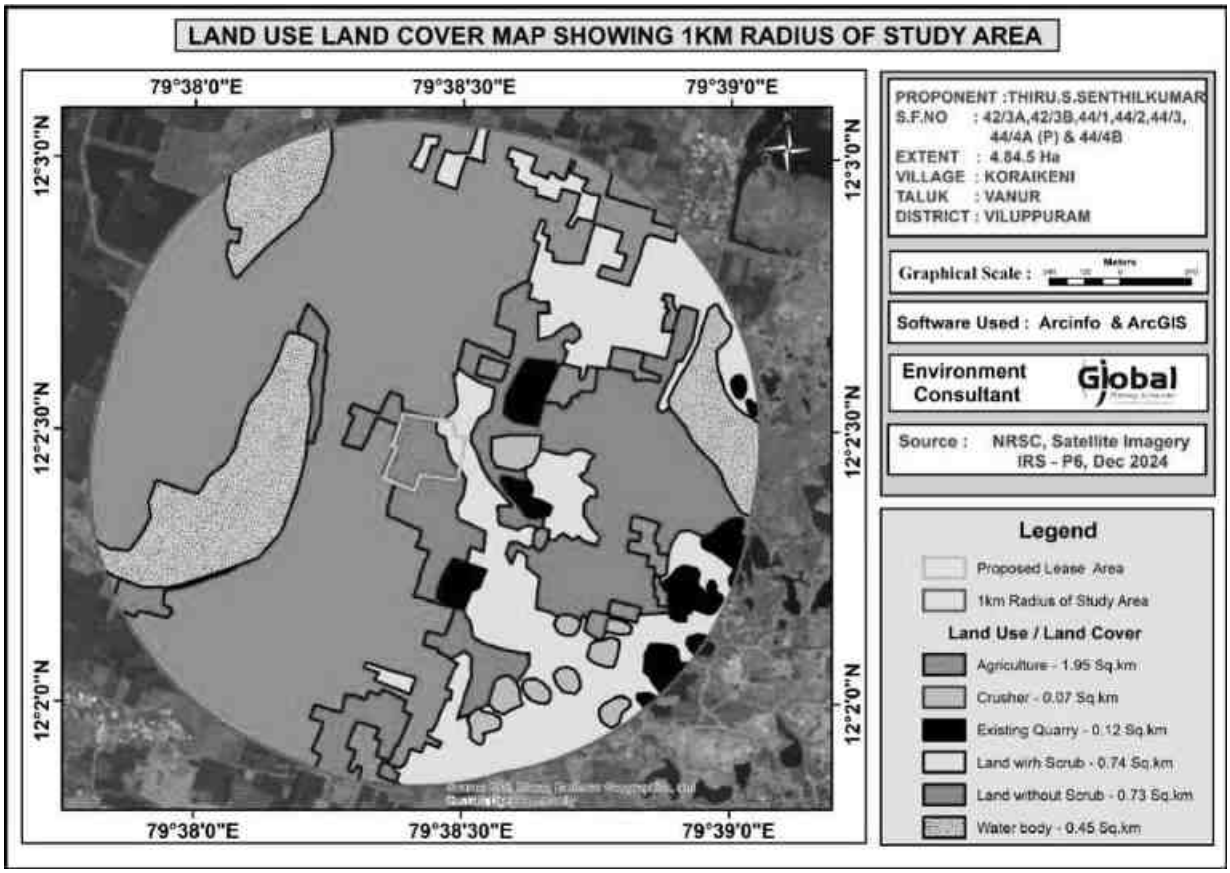



**Figure 4.1 Land use map of the study area**

## ANTICIPATED IMPACT DUE TO MINING OPERATION ON AGRICULTURE:

The anticipated impact and its mitigation measures are detailed in below table.

| S.No | Anticipated Impact | Mitigation Measures |
|---|---|---|
| 1 | Open cast mining causes significant disturbances to the vegetation | There is no vegetation in the mine lease area, and the proposed quarry area is patta land, unsuitable for cultivation. Hence, there will be no vegetation loss due to this proposed quarry. Moreover, approximately 750 saplings of native species will be planted in and around the mine lease area to enhance its aesthetics. There |

| | | |
|---|---|---|
| | | are batches of agriculture land are located within 1 km radius covering the area of 1.98 Sq.m (48.02 %) from the proposed lease area. |
| 2 | hydrological relations | ▪ The surface runoff of the quarry area will not be directly discharged into these water bodies. If it is to be discharged desilting will be carried out before discharging.<br>▪ Proper drainage pattern with silt trap will be followed in the quarry area to control the quarry dirty water enter these water bodies.<br>▪ There is no proposal for discharge of wastewater from this project.<br>▪ There are two tanks and a seasonal odai within 1 km radius of the project site. Sangarabarani river is located at 1.25 km in southern direction.<br>▪ A detailed hydrogeological study is in progress and the PP will adopt the study's recommendations to control the water pollution. |
| 3 | The dust particles generated through mining pose severe impact on the environment. These particles are the potential phytotoxic pollutants that | Dust Control Measures:<br>A SOP will be developed to identify the potential dust generating points and develop the comprehensive dust |

| | | |
|---|---|---|
| | can lead to the significant destruction of the ecosystem. The flora of the mining area is greatly impacted by mining and related activities, which also alter crop plant development and yield. | control plan.<br>Provide appropriate training to the workers.<br>Drilling and Blasting:<br>Use of wet drilling techniques to reduce dust generation and at source.<br>2. Use appropriate drill bits and drilling techniques to minimize dust generation.<br>3. Implement controlled blasting techniques to reduce ground vibrations and dust<br>generation during blasting.<br>4. Wet the blast area before and after blasting to control airborne dust wherever feasible.<br>Fixed water sprinkling system will be adopted.<br>Adequate Blast shield or blast mats will be provided wherever necessary for fly rock protection during blasting, thus to prevent the accident on the nearest farms.<br>Transportation:<br>Spraying of water on the haul roads will be done to suppress the dust in the source itself.<br>The trees having tolerance to different air pollutants will be planted along the |

| | | |
|---|---|---|
| | | boundary to prevent the escape of dust to the surroundings.<br>Regular check and proper maintenance of Vehicles will be carried out to minimize the emission of pollutants. |
| 4 | Mining directly influences the mineral availability and soil microbial activities, which ultimately has a negative impact on plant growth and productivity. | There is no overburden or waste generation from this project; the entire mined mineral will be transported directly to the consumer. Therefore, no sediment of waste or leachate affecting soil quality is anticipated. Moreover, there will be no use of hazardous chemicals or mineral processing within the mine lease area. |

There will not be any wastewater discharge from mine lease area to these water bodies. Proper drainage will be maintained within lease area for surface run off. Also proposed dust control measures will be adopted to control the dust at source level and by adopting the proposed control measures, there will not be any significant impact on nearby agriculture land.

### 4.2.2 SOIL ENVIRONMENT

**ANTICIPATED IMPACT**

Mining activities often disrupt the existing environment as they involve disturbing the untouched earth materials. The massive Charnockite formation is noticed below 5 m (Avg) Gravel and slopping towards southeastern side of the area. The altitude of the area is above 73 m (Max) from MSL. There is no top soil formation in the applied lease area. The entire mined out mineral will be transported to the needy buyers through tippers.

**MITIGATION MEASURES FOR SOIL EROSION AND SOIL CONSERVATION**

- Runoff water will be collected in bottom of the quarry and used for plantation and dust suppression during dry season.no run off water will be discharged beyond lease area.
- Wet drilling and haul road water sprinkling will be carried out to minimise air born dust at source level, which may cause soil pollution due to sedimentation.
- Garland drains will be constructed around the project area with silt traps to control the soil erosion during rainy seasons.
- Greenbelt development (0.74.50 Ha.) all along the periphery of the project area (i.e., 7.5 m safety barrier) will ensure binding strength and minimizes soil erosion.
- Soil sampling will be carried out in the core zone for every season to ensure the soil quality is not affected due to the quarrying activities.

### 4.2.3 WATER ENVIRONMENT

**ANTICIPATED IMPACT ON SURFACE WATER BODY**

The impact due to quarrying on the water quality is expected to be insignificant because of no use of chemicals or hazardous substances during quarrying process.

There is a seasonal odai located at 53 m in eastern side, a tank is located at 287 m (W) and an another tank is located at 800 m in eastern side of the project site. There is no river passed through within 1 km radius from the project site. Sangarabarani River is located at 1.25 km in southern side of the project site.

Based on the drainage map given in the Fig.NO.3.15, it is found that there is no stream connect the lease area to the water body. As the proposed mining activity takes place with 100 % recovery. Moreover, no toxic element will be quarried out or no chemicals or hazardous substances are used during mining process. No other water bodies close to the project site, there is no proposal for discharging of wastewater outside the project area. There is no proposal for a

rough stone processing or workshop within the project area, so no effluent is anticipated in the mine.

During rainy season rain water will be collected in the quarry pit and later used for greenbelt development and for the water sprinkling in the haul roads.

Mitigation Measures:

- The garland drainage will be provided around the area to prevent the escape of runoff.
- The repair works of the machineries are strictly prohibited within the lease area to prevent the spillage of grease, oil etc.
- Regular water quality will be carried in nearby villages to ensure the water quality is not affected due to the quarrying activities.
- Domestic sewage from site office & urinals/latrines provided in project area will be discharged through septic tank followed by soak pit system.
- Only clear and settled water free from silt content will be used for dust suppression and greenbelt development.
- De-silting will be carried out before and immediately after the monsoon season and the settling tank and drains will be cleaned weekly, especially during monsoons.

**ANTICIPATED IMPACT ON GROUND WATER**

The quarrying activity will not intersect ground water table as quarrying is proposed upto a depth of 70 m bgl (Ten years ) and water table is found at a depth of 82 m BGL. No chemical having toxic elements will be used for carrying out mining activity. Also Rough stone does not contain any kind of toxic element which can contaminate the water. So the rain water or water used for drilling purposes which infiltrates into the ground in the lease area does not affect the quality of ground water.

**Mitigation measures**

- Entire lease area will be provided with proper garland drains.
- Check wears will be provided to prevent solids from wash off.
- Construction of garland drains around freshly excavated so that flow of water with loose material is prevented.
- The mine water will be passed through the natural slopes and valleys and gets accumulated in the settling tank (Bottom pit).

**Ground water environment in buffer zone**

The scenario of ground water in Villupuram District, Vanur Taluk is given below.

**Table 4.2 Ground Water Level Status in Vanur**

| S. No. | Firka | Net Annual Ground water availability | Existing gross ground water consumption for irrigation | Existing gross ground water consumption for domestic and industrial water supply | Existing gross ground water consumption for all uses | Stage of ground water development | Category |
|---|---|---|---|---|---|---|---|
| 1 | Vanur | 1756.51 | 1590.55 | 81.83 | 1672.38 | 95% | Critical |

Source: nwm.gov.in

It is planned to carryout appropriate rainwater harvesting schemes and artificial recharge schemes in the area.

## ANTICIPATED IMPACT DUE TO WATER USE IN MINE'S

The total water requirement for the project will be 6.0 KLD comprising Drinking 1.2 KLD, Dust suppression 2.5 KLD, Greenbelt 1.5 KLD and Domestic purpose 0.8 KLD. The water will be sourced initially from outside agencies. Later the rainwater collected in the mine pit sump will be used for this purpose. The water balance diagram for the same is shown in Figure No 4.2.

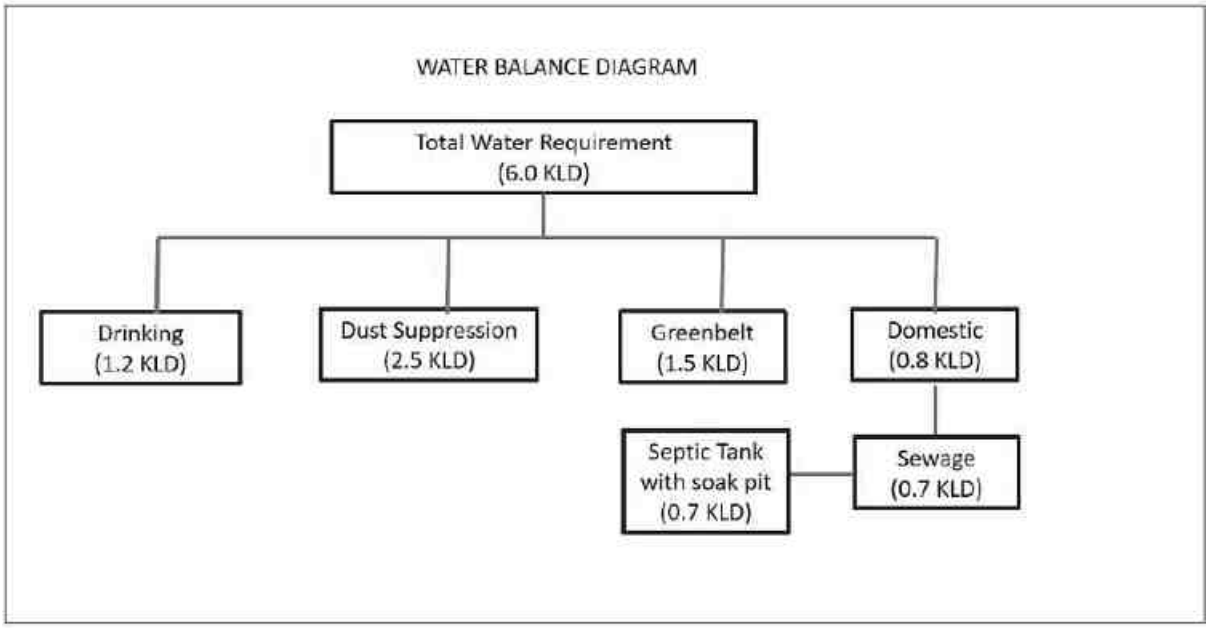



**Figure 4.2 Water Balance Diagram**

## MITIGATION MEASURES

The following mitigation measures are suggested for water management

- Rainwater will be collected in lower part of the quarry pit by construction of garland drains to divert surface run-off and will be connected to setting tank to allow suspended solids to settle down if any. This collected water will act as a rain water harvesting system and will be used for dust suppression and greenbelt development.
- Regular monitoring (every 6 month once) and analyzing the quality of water in open well, bore wells and surface water.

## RAINWATER HARVESTING PLAN

Since the lease proximate areas are with less water potential and the rainwater is the major source for replenishment of ground water, effective rainwater harvesting and other water augmentation measures are proposed in this project.

- Development of garland drain around the quarry connected to settling tank.
- Cleaning of drain periodically to prevent siltation

- The supernatant clear water from the settling pond will drain into the nearby channel on the eastern side of the lease.
- Utilizing the rainwater harvested in the mine pit to meet the water requirement of the project.

The average annual rainfall of the area is 985 mm. Taking into consideration of 0.35 as runoff co-efficient for mining area, the total quantity of rain water can be harvested per annum from the area has been tabulated as below.

**Table 4.3 – Rainwater Harvesting Plan**

| S.NO | Rainwater Harvesting Area | Area in Sq.m | Average annual rainfall | Volume of harvestable quantity (Cum) of rain water per annum |
|---|---|---|---|---|
| 1 | Quarry Area | 48450 | 0.9 | 15262 |
| **Total Harvested Rainfall** | | | | **15262** |

Total surface water runoff is 15262 Cum per Annum. 10% of this amount will be evaporated and rest 13736 $m^3$ will be recharged in the rain water harvesting pit.

Three sumps with each capacity 5000 Cu.m will provided to harvest the rainwater. The rain water stored in the sump will be utilized for plantation, dust suppression activities. The capacity of Rain water harvesting post will be sufficient to arrest the surface runoff from the lease area considering the highest amount of rain fall.

### 4.2.4 BIOLOGICAL ENVIRONMENT

The details and list of flora, fauna, reserved forest and cropping pattern within the 10km radius of study area is given in chapter 3. The impact on ecology and biodiversity due to the proposed mining activity has to be studied in detail to prepare the management plan to safeguard the flora, fauna, forest products and aquatic living organism etc.

A detailed anticipated impact of Ecology and Biodiversity due to mining activity is described in below Table.

## Table 4.4 Ecological Impact Assessments and Its Mitigations -Part 1

| S.NO | Issues | Assessment | Mitigations |
|---|---|---|---|
| 1 | Proximity to national park/ wildlife sanctuary / reserve forest / mangroves / coastline/estuary/sea | There is no forest located within 10 km radius. The proposed project does not attract Forest Conservation Act, 1980. There is no wild life sanctuaries found around 10km radius and the area does not attract Wildlife Protection Act, 1972 and C.R.Z. Notification, 1991. | The fugitive dust generated by the mining activity will be suppressed by frequent sprinkling of water based on evaporation rate in the site specific. |
| 2 | Activities of the project affects the breeding/nesting sites of birds and animals | No breeding and nesting site was identified in mining lease site. The fauna sighted mostly migrated from buffer area. The fauna in the buffer zone may be affected by noise generated due to mining activity. | The noise due to the mining activity will be controlled by developing green belt all along the lease boundary, regular maintenance of tippers, excavators, transporting the tippers within speed limits. |
| 3 | Located near an area populated by rare or endangered species | No endangered, critically endangered, vulnerable species sighted in core mining lease area and also in buffer zone. | NIL |
| 4 | Proposed project restricts access to waterholes for wildlife | No waterholes are in core zone. No Wild life sanctuary within 10km radius. | NIL |
| 5 | Proposed mining project impact surface water quality that also provide water to wildlife | „NO“ scheduled or threatened wildlife animal sighted regularly in core area. There is no proposal for discharge of wastewater to nearby water bodies. | NIL |
| 6 | Proposed mining project increase siltation that would affect nearby Biodiversity area. | Surface runoff management structures like garland drain, settling pond etc. as explained above will be constructed and as such there will not be any appreciable impact on surface water quality which in turn can affect the bio diversity of the area. | |

| | | | |
|---|---|---|---|
| 7 | Risk of fall/slip or cause death to wild animals due to project activities | In the post mining stage, wire fencing is proposed all around the mined-out void to prevent falling of animals in the mine pits. | |
| 8 | The project release effluents into a water body that also supplies water to a wildlife | As the proposed project is mining activity there will be no possibilities of release of effluents. Also, no Wild life sanctuary within 10km radius. | NIL |
| 9 | Mining project effect the forest-based livelihood/ any specific forest production which local livelihood depended | There is no forest within 10 km radius. | - |
| 10 | Project likely to affect migration routes | No migration route observed during monitoring period. | NIL |
| 11 | Project likely to affect flora of an area, which have medicinal value | No such significantly important medicinal value species within the ML area and its nearby region. | NIL |
| 12 | Forestland is to be diverted, has carbon high sequestration | „NO“. There is no forest land within the lease area. | NIL |
| 13 | The project likely to affect wetlands, fish breeding grounds, marine ecology | 'NO“. No wetland, fish breeding grounds, marine ecology present in core mining area. | NIL |

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

## Table 4.5 Ecological Impact Assessments and Its Mitigations -Part 2

| Identified Impacts | Ecological Significance of impact | Magnitude | Phase / duration | Reversibility | Mitigation |
|---|---|---|---|---|---|
| Project site Habitat due to Site Clearance. | There are no trees in the core zone. The Mining activity will be carried within the lease area. No clearance of vegetation in the buffer zone | Low impact | Planning stage | Irreversible | The quarried-out pit will be used as water storage pond which increases agricultural activity in the buffer zone. |
| Impact on Surrounding habitat due to fugitive emission | The fugitive emission due to the mining activities such as drilling, blasting, loading and transportation on the haul road will be deposited on the flora and crop field in the buffer zone which affects growth and its productivity. | Temporary Impact | Operational stage | Reversible | The sprinkling of water over the haul road will be done. Then completely wet drilling will be take place. The transportation vehicles will be maintained and serviced Properly. |
| road construction | No Road construction is required to assess the project site. The existing internal Road connects the project site to the existing SH and NH | No Impact | - | - | - |
| Ecological Impact on Surrounding/ Eco sensitive habitat due to waste water generated | Since the proposed project is a mining activity no waste water generation is expected. Sewage will be generated due to the workers | No impact | - | - | - |

| | | | | | |
|---|---|---|---|---|---|
| from the project activity. | | | | | |
| Ecological Impact on Surrounding / Eco sensitive habitat due to Noise generated from the project activity. | During drilling or blasting, transportation of rough stone noise will be generated and it may slightly affect the movement of fauna around the lease area. | Temporary impact | Only during drilling, blasting operation and transportation period. (5 years) | NO | Avenue trees will be planted along the lease area to minimize the noise level. Milli second detonators shall be used preferably 25–50ms per delay to control vibrations. Regular maintenance of vehicles and driving the tipper within specified limits also control the noise generations. |
| Ecological Impact on Surrounding/ Eco sensitive habitat due to Transportation | There is no eco sensitive habitat found around the lease area. The fugitive emission from drilling, blasting, vehicle movement will form layer in leaves thus reducing the gaseous exchange process. This ultimately affects the growth of plants. The animals like dog, cattle may get accident due to truck movement. | Temporary impact | During Operation Phase | NO | The truck driver will be advised to drive the vehicle within 20km/hr inside the lease area and 40km/hr outside the lease area. The sprinkling of water over the haul road will be done. Then completely wet drilling will be take place. |

## ANTICIPATED IMPACT

- The deforestation, soil degradation, water, air, and noise pollution caused by mining operations typically have a direct or indirect negative impact on the fauna and floral composition of the project region.
- Although impacts on important habitat components will happen on a local level, they would not be crucial for the life cycle requirements of the species as seen or anticipated on a regional level.
- Additionally, during the conceptual stage, the top bench's mined-out areas will be re-vegetated by planting native or local species, and the lower benches will be converted into rainwater harvesting structures after the mining activities are finished, replacing habitat resources for fauna species in this area for a longer period of time.

## MITIGATION MEASURES

- Necessary mitigative measures like dust suppression, proper maintenance of equipment's, roads will be carried out to prevent dust generation.
- There is no proposal to discharge any effluent into nearby water bodies.
- Surface runoff management structures like garland drain, settling pond, protective bund etc. as explained above will be constructed and as such there will not be any appreciable impact on surface water quality which in turn can affect the bio diversity of the area.
- Construction of barbed wire fencing all around the boundary to prevent falling of animals in the mine pits.

Carbon Emission

| Description | Per Day | Per year | For Ten Years |
|---|---|---|---|
| Total fuel consumption in liters | 389 | 1,16,583 | 11,65,835 |
| $Co_2$ emission in kg | 1042 | 3,33,427 | 33,34,273 |

Carbon Sequestration:

To mitigate carbon emission due to mining activities. We recommend planting trees around the quarry to offset the carbon emission. Fuel efficient machinery and optimize transportation routes to reduce emissions from diesel powered vehicles. Conduct regular vehicular emission tests for the transport vehicles to ensure minimal impact due to carbon emissions. To further mediate the carbon emissions, additional plantation will be carried out around the lease area.

## GREENBELT DEVELOPMENT PLAN

In order to compensate the loss of vegetation cover, it is suggested to carry out afforestation program mainly in proposed mine lease area earmarked for plantation program as per Approved Mining Plan in different phases. This habitat improvement program would ensure the faunal species to re-colonize and improve the abundance status in the core zone. Greenbelt / Plantation will be carried out to enhance the vegetative growth and aesthetic in the safety zone area.

**Table – 4.6 GREENBELT DEVELOPMENT PLAN**

| Year | No. of trees proposed to be planted | Survival % | Name of the Species | No. of trees expected to be grown |
|---|---|---|---|---|
| I | 750 | 80% | Neem, Casuarina, Pongamia pinnata, etc., | 600 |
| II | - | - | | |
| III | - | - | | |
| IV | - | - | | |
| V | - | - | | |
| | 750 | | | 600 |

Nearly 0.74.50 Ha. of area is proposed for Greenbelt development by planting 750 Nos of trees during first year and expected growth is around 600 Nos @ survival rate of 80%.

The objectives of the green belt cover will cover the following:

- Noise abatement.
- Reuse of waste water to the extent possible.
- Prevention of soil erosion.
- Ecological restoration.

- Aesthetic, biological and visual improvement of area due to improved vegetative and plantations cover.

## 4.3 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF ENVIRONMENTAL COMPONENTS.

### 4.3.1 IMPACT DUE TO MINING OPERATION

Impact prediction is a very important phenomenon in evaluating the environmentally potential adverse impacts for any proposed mine project. The impact prediction is always carried out under worst possible conditions so as to mitigate or to eliminate the environmental hazards. These predictions thus calculated are superimposed over the baseline data to calculate the net impact on the environment after the proposed mine Project comes into production.

### 4.3.2 IMPACT ON AIR ENVIRONMENT

The existing ambient air quality in the area has been described in Chapter-3. Opencast mechanized mining, using jackhammer drilling, blasting, and excavation through an excavator, as well as mineral transport through tippers, will be carried out for the excavation of rough stone and gravel.

### 4.3.3 ANTICIPATED IMPACT

The proposed mining and allied operations may cause deterioration of air quality due to pollution arising from the project operation if prompt care is not taken. The principal sources of air pollution in general due to mining and allied activities will be:

The air-borne particulate matter generated by quarrying operations and transportation is mainly $PM_{10}$ and PM2.5, and emissions of sulfur dioxide ($SO_2$) and oxides of nitrogen ($NO_2$) due to excavation/loading equipment and vehicles plying on haul roads are the cause of air pollution in the project area.

Furthermore, the loading, unloading, and transportation of rough stone and gravel, as well as wind erosion of the exposed area and movement of light

vehicles, will cause pollution within a 500-meter radius of the project area due to quarrying activities. This has a cumulative impact on the ambient air environment around the project area.

### 4.3.4 MITIGATION MEASURES

The following measures will be adopted to control impact on the air quality due to mining operations in the lease area due to adoption of which, no major impact on air quality is envisaged due to this proposed opencast mining operation.

## Table 4.7 Mitigative Measures for Air Environment

| S.NO | Activity | Consequence | Mitigative Measures |
|---|---|---|---|
| 1 | Drilling | Dust Emission | Usage of wet drilling |
| | | | Covering of drill holes with wet cloth |
| | | | Usage of sharp drill bits for drilling of holes. |
| | | | Provision of dust mask to workers working at highly dust prone and affected areas. |
| 2 | Blasting | Prompt dust emission | Well-designed blasting parameter, effective stemming to achieve optimum breakage occurs without generating fines. |
| | | | Use of appropriate explosives for blasting and avoiding overcharging of blast holes. |
| | | | Avoiding blasting during high wind periods where the fine dust is carried out away easily affecting the ambient air quality. |
| | | | Use of controlled blasting techniques with milli second delay detonators to keep the dust generation, noise as well as vibration level within the prescribed limits. |
| 3 | Excavation and Loading | Dust emission, Gaseous Emission | Proper maintenance of HEMM will be carried out to minimize dust and gaseous emission at the source level. |
| | | | Water sprinkling will be carried out at excavation and loading area. |
| | | | Imparting sufficient training to operators on safety and environmental parameters. |
| | | | Avoiding overloading of dumpers. |

| | | | |
|---|---|---|---|
| 4 | Transportation | Dust emission, Gaseous Emission | Regular wetting of transport road using mobile water tanker. |
| | | | Proper maintenance of haul road and other roads |
| | | | Avoiding overloading of tippers |
| | | | Covering of loaded tippers with tarpaulins during transportation |
| | | | Vehicular emissions will be controlled through regular and proper preventive maintenance only PUC valid vehicles will be used for transportation. |
| 5 | Greenbelt | Dust emission, Gaseous Emission | Development of greenbelt / barriers around mine in the safety zone and carrying out plantation within the lease area. |
| 6 | Occupation Health | Dust emanation, Gaseous Emission | 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. |

### 4.3.5 AIR QUALITY IMPACT PREDICTION

The AERMOD atmospheric dispersion modeling (AERMOD Cloud remote version) is used for assessment of incremental Ground level concentration (GLC) for the proposed production. Area source model taken into consideration taking into consideration of wet drilling and loading. Further line source model was taken into consideration for transportation through haul road. Baseline meteorological studies were conducted for the period of December 2024 to February 2025. The following sources are considered.

**TABLE 4.8 Types of Source for Air Pollution in Mining**

| S. No. | Type of mining operation | Type of Source |
|---|---|---|
| 1 | Wet drilling | Point |
| 2 | Loading | Point |
| 3 | Transportation | Line |

#### 4.3.5.1 ARRIVING EMISSION FACTOR

Emission factor for $PM_{10}$ for different activities are given below.

**TABLE 4.9 Emission Factors for Mining Activities**

| S. No. | Activity | Emission factor | Unit |
|---|---|---|---|
| 1 | Wet drilling | 0.00008 | lb/s |
| 2 | Ore loading | 0.0014 | Kg/t/s |
| 3 | Transportation | 0.26 | Kg/VKT |

**Source**

1. Jose I. Huertas & Dumar A, Camacho & Maria E. Huertas, Standardized emissions inventory methodology for openpit mining areas, Environmental Science Pollution Research, 2012.
2. AP-42. U.S Environmental Protection Agency, Office of Air Quality Planning and Standards

### 4.3.5.2 EMISSIONS FROM THE PROPOSED PROJECT

The emissions from each activity after the application of control and mitigation measures like water sprinkling, proper maintenance of transport vehicles, etc., are given below.

**TABLE 4.10 Pm 10 And Pm 2.5 Emission From Mining Activities**

| S. No. | Activity | PM10 | PM2.5 |
|---|---|---|---|
| 1 | Wet drilling | 0.22 | 0.04 |
| 2 | Ore loading | 0.87 | 0.16 |
| 3 | Transportation | 0.23 | 0.05 |

### 4.3.5.3 MODEL INPUT DATA:

The air pollution modeling carried out represents the normal operating scenarios. As the project is a mining project the major source of pollution is particulate matter. The SOx and NOx emission will be very less only due to vehicular emission. So the pollutant taken for prediction of incremental concentration is particulate matter (PM 10 & PM 2.5). The predicted incremental Ground Level Concentrations (GLCs) for particulate matter is likely to be contributed by the proposed project. The average predicted 24 hr average concentration has been tabulated as below.

### 4.3.5.4 EMISSION ESTIMATION

The emission estimations for the activities are detailed below.

**Table 4.11 - Area Emissions – Total Material handling**

| | |
|---|---|
| Quantity, TPA | Rough Stone: 1200260 $m^3$ of Rough Stone (First Five Years) &<br>Rough Stone: 212620 $m^3$ (Second Five Years)<br>Gravel: 213185 $m^3$ (First Five Years) |
| Operational Hours Per Year | 2400 |

| | |
|---|---|
| Activity Rate, t/hr. | 396.41362 |
| Emission of dust, g/t. | 0.16 |
| Emission of dust, g /hr. | 53.65865 |
| Area of influence, m2 | 629 |
| Uncontrolled emission rate g/s/m2 | 0.0000430228 |
| Controlled emission rate, PM10 g/s/m2 | 0.0000043022 |
| Controlled emission rate, PM2.5 g/s/m2 | 0.00000286819 |

**Table 4.12 - Line Source – Transport of Material from Pit to Boundary**

| | |
|---|---|
| Quantity, TPA | Rough Stone: 1200260 m3 of Rough Stone (First Five Years) &<br>Rough Stone: 212620 m3 (Second Five Years)<br>Gravel: 213185 m3 (First Five Years) |
| Operational Hours Per Year | 2400 |
| Capacity of each Dumper (T) | 10 |
| Total No. of Tippers/ year | 141288 |
| Lead length/trip, Km | 0.18 |
| Total VKT/Year | 68764 |
| Emission Kg/VKT | 0.25 |
| Total emission Kg/Year | 23456.05 |
| Uncontrolled emission rate g/s/m | 3.43786 |
| Controlled emission rate, PM10 g/s/m | 0. 343786 |

| | |
|---|---|
| Controlled emission rate, PM2.5 g/s/m | 0.253471 |

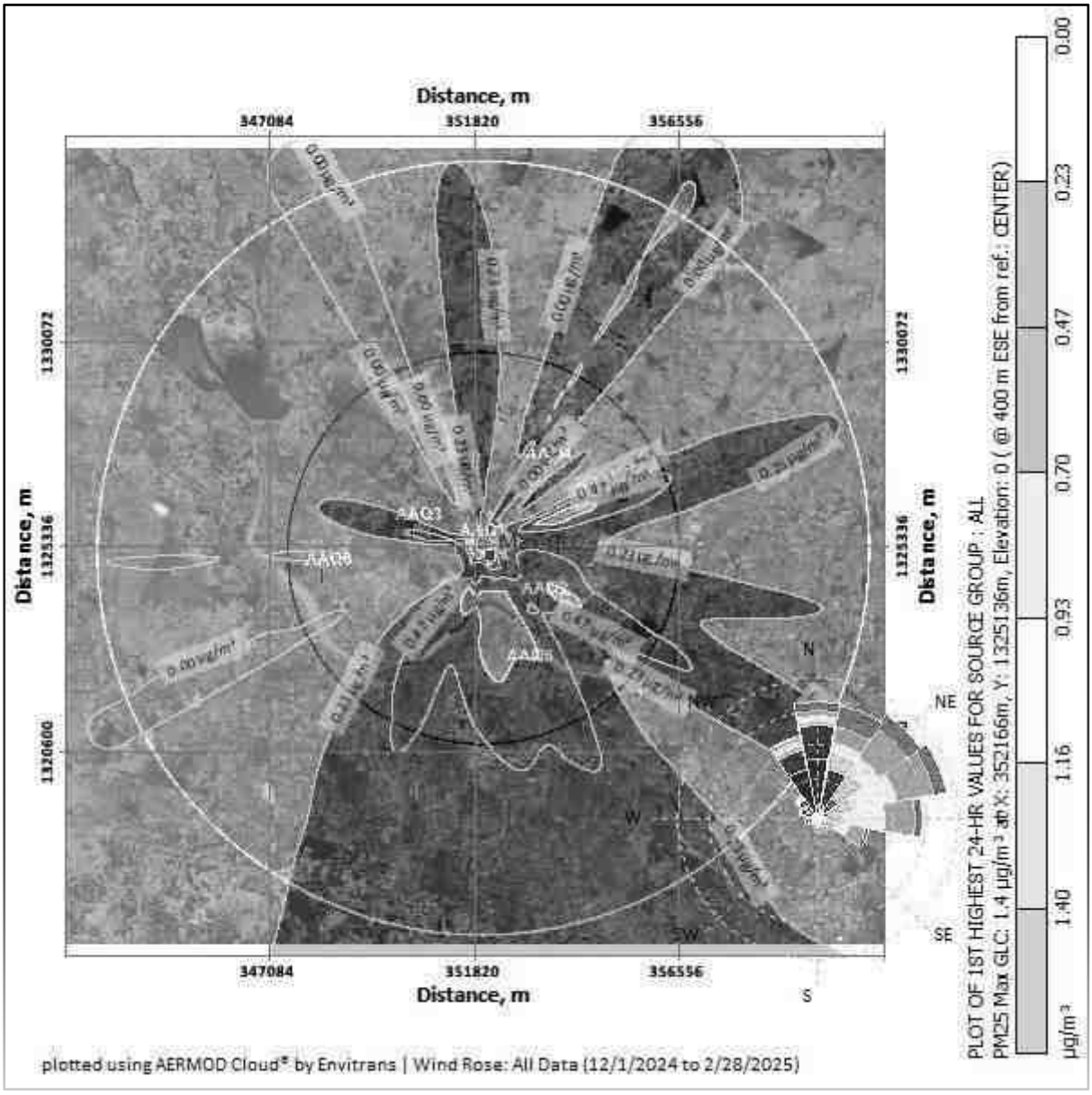



**Figure 4.3 Isopleth of GLC Prediction for $PM_{2.5}$**

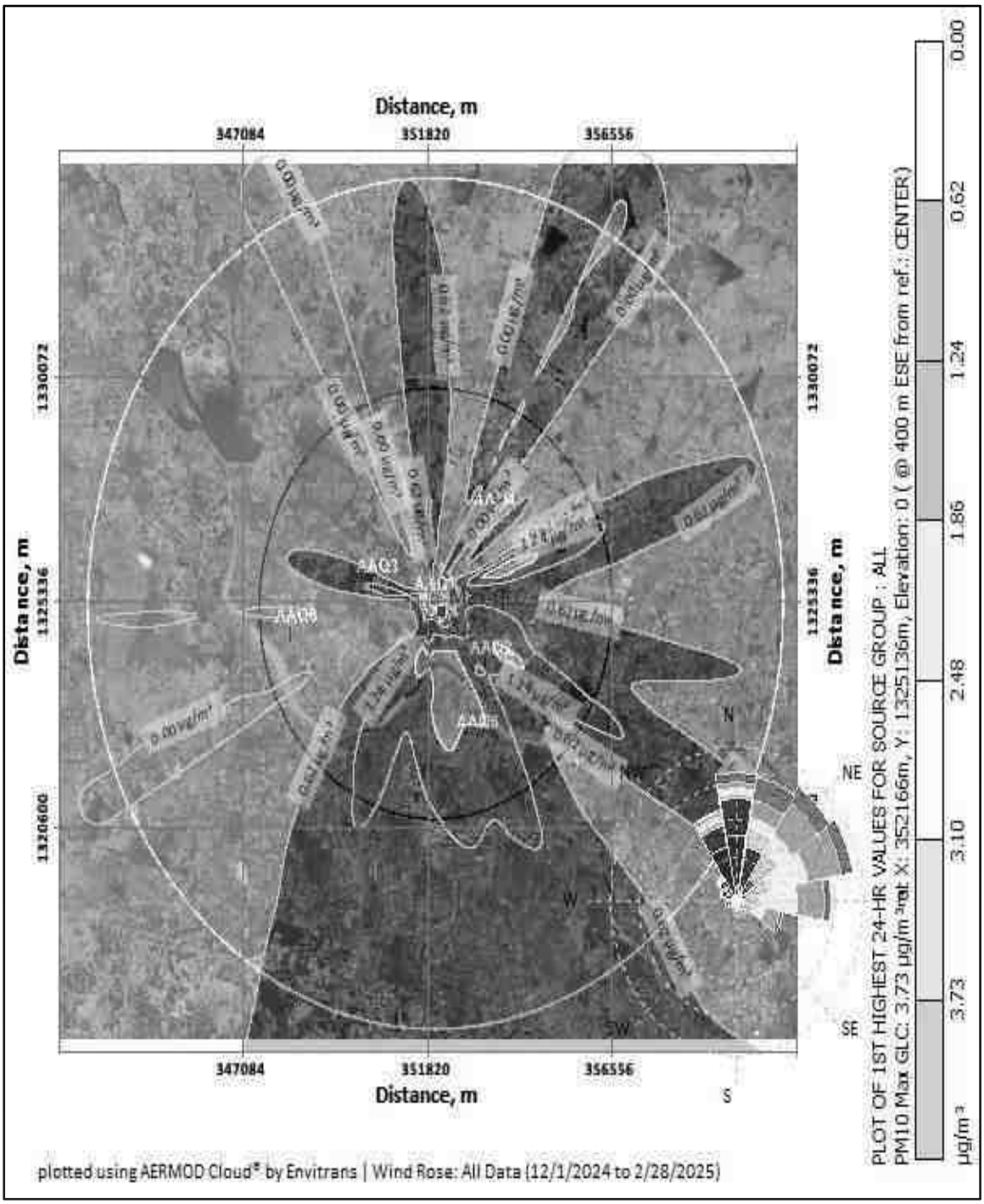



**Figure 4.4 - Isopleth of GLC Prediction for PM10**

### 4.3.5.5 PREDICTED AMBIENT AIR QUALITY:

The post project Concentrations of PM10, PM2.5, (GLC) (base line + incremental) after adopting necessary control measures is given in Table No - 4.9 to 4.10.

**Table 4.13: Concentrations of PM $_{2.5}$ after Project Implementation**

| SL.No | Location | Background Concentration | Predicted incremental Concentration | Post Project Concentration | Statutory Limits in µg/m$^3$ |
|---|---|---|---|---|---|
| 1 | Within Mine Lease area | 35.47 | 1.40 | 36.87 | **60** |
| 2 | Thiruvakkarai | 25.0 | 1.16 | 26.16 | |
| 3 | Ponnampundi | 29.70 | <1.0 | 30.70 | |
| 4 | Eraiyur | 27.90 | <1.0 | 28.90 | |
| 5 | Koddukkur | 27.70 | <1.0 | 28.70 | |
| 6 | Pombur | 26.0 | <1.0 | 27.0 | |

**Table 4.14: Concentrations of PM 10 after Project Implementation**

| SL.No | Location | Background Concentration | Predicted incremental Concentration | Post Project Concentration | Statutory Limits in µg/m3 |
|---|---|---|---|---|---|
| 1 | Within Mine Lease area | 73.90 | 3.73 | 77.63 | **100** |
| 2 | Thiruvakkarai | 55.50 | 3.10 | 58.6 | |
| 3 | Ponnampundi | 61.80 | 2.48 | 64.28 | |
| 4 | Eraiyur | 58.10 | 1.86 | 59.96 | |
| 5 | Koddukkur | 57.80 | 1.24 | 59.04 | |
| 6 | Pombur | 54.10 | <1.0 | 55.10 | |

The above report seems that, even in the worst-case scenario, the resultant added concentrations with baseline figures show that the values of ambient air quality for $PM_{10}$ are in the range of 55.10 µg/m$^3$ to 77.63 µg/m$^3$ and for $PM_{2.5}$ are in the range of 26.16 µg/m$^3$ to 36.87 µg/m$^3$ which are within the statutory limits in each case. The mitigation measures undertaken in the mine for control of air pollution are given below.

- Wet drilling will be practiced in drilling operation.
- Water sprinkling will be done in haul roads & loading etc.
- The mines workers are provided with the dust masks.
- Three layer plantation in the safety zone.
- DG sets shall be periodically maintained as per manufacturer's specifications.

## 4.4 ASSESSMENT OF SIGNIFICANCE OF IMPACTS (CRITERIA FOR DETERMINING SIGNIFICANCE, ASSIGNING SIGNIFICANCE).

### 4.4.1 NOISE ENVIRONMENT

The ambient noise levels in the study area have been discussed in Chapter - 3. The data shows that the existing noise levels are within statutory limits. The impact prediction and control measure for noise environment due to mining and allied activities is described below:

### 4.4.2 IMPACT DUE TO NOISE AND VIBRATION

The main noise generating source during mining operation and related activities are drilling, excavation, loading, unloading and transportation. Intermittent noise is generated due to operation of diesel generator.

**Table 4.15 - The likely noise level in the lease area**

| SL.No | Source Name | Noise Level in dB (A) |
|---|---|---|
| 1 | Diesel generator | 102 |
| 2 | Excavator Operation | 95 |
| 3 | Trucks movement | 95 |
| 4 | Drilling | 105 |
| 5 | Blasting | 120 |

### 4.4.3 MITIGATION MEASURES FOR NOISE CONTROL

The following noise mitigation measures are proposed for control of Noise

- Usage of sharp drill bits while drilling which will help in reducing noise;
- Secondary blasting will be totally avoided and hydraulic rock breaker are utilized for breaking boulders;
- Controlled blasting with proper spacing, burden, stemming and optimum charge/delay will reduce noise;
- The blasting will be carried out during favourable atmospheric condition and less human activity timings by using nonelectrical initiation system;
- Proper maintenance, oiling and greasing of machines will be done every week to reduce generation of noise;
- Provision of sound insulated chambers for the workers working on machines (HEMM) producing higher levels of noise;
- Green Belt will be developed around the project areas and along the haul roads. The plantation minimizes propagation of noise;
- Personal Protective Equipment (PPE) like ear muffs/ear plugs will be provided to the operators of HEMM and persons working near HEMM and their use will be ensured though training and awareness.
- Regular medical check–up and proper training to personnel to create awareness about adverse noise level effects

### 4.4.4 GROUND VIBRATION

The vibration due to blasting can cause damage to the nearby structures if appropriate technology and control measures are not adopted in the blasting operation. Fly rock is another possible damage causing outcome of blasting. There are many factors which influence fly rock during blasting. Most important of these factors are long explosive column with little stemming column, improper burden, loose material or pebbles near the holes and long water column in the hole.

**Mitigative Measures**

- Proper quantity of explosive, suitable stemming materials and appropriate delay system should be adopted to avoid overcharging and for safe blasting;
- Adequate safe distance from blasting should be maintained as per DGMS guidelines;
- Blasting shelter should be provided as per DGMS guidelines;

- Blasting operations shall be carried out only during day time;
- The charge per delay shall be minimized and preferably more number of delays will be used per blasts;
- During blasting, other activities in the immediate vicinity shall be temporarily stopped;
- Drilling parameters like depth, diameter and spacing will be properly designed to give proper blast;
- Blasting will be carried out under the supervision of statuary persons as approved by DGMS.
- A well-defined SOP will be framed under the leadership of top management and the same will be followed for each blasting.
- Regular PPV monitoring will be carried out to ensure PPV limits i.e., 5.0 mm/s.

### 4.4.5 SOCIO – ECONOMIC

From the primary Socio-economic survey & through secondary data available from established literature and census data 2011, it is found that there would be positive impact on Socio-economic condition of the nearby area. There is no habitation within 300 m of the proposed mining lease area. Therefore, no major impact is anticipated on the nearby habitation during the entire life of the mine. The entire lease area is in the proponent's possession. Hence, there are no habitations or hutments in the core zone area and no rehabilitation or resettlement problems will arise here.

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

The mining operations in the proposed mine will employ about 16 persons directly and 18 people on indirect basis through allied opportunities in logistics, trading,

repairing works etc. good employment potential will arise, which will provide raising income levels and standards of living in the area through various service related activities connected with the project operations as shown under.

- Project related logistical operations for transport of Rough Stone & Gravel, etc,
- Various trading services for consumer goods, spare parts, sundry items, etc.
- Contractual services connected with the project.
- Green belt and horticultural works in the project.
- Casual labor needs for various activities.

The State and the Central governments will also get benefited through financial revenues by way of royalty, tax etc from this project.

Mitigation Measures

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

Mine management will contribute for the upliftment of these villages by conducting regular medical camps, assistance in developing necessary infrastructure facilities like maintenance of schools, village roads, drinking water supply, etc.

From above details, it is clear that the project operations will have highly beneficial positive impact in the area. However, towards the socio economic development of the surrounding area, the proponent has earmarked an amount of Rs.5.0 Lakhs under Corporate Environmental Responsibility.

### 4.4.6 OCCUPATIONAL HEALTH AND SAFETY

Primary data collection through field survey conducted in the study area reveals that there is no reported incident of any occupational diseases in the area. Hazardous jobs like blasting, loading, etc. are planned to be executed safely and with all precautionary measures as prescribed in Metalliferrous Mines Regulations of 1961, so as to minimize hazards and incidences of health problems.

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

- Respiratory hazards
- Noise
- Explosive storage and handling

**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

**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

### 4.4.7 OCCUPATIONAL HEALTH SURVEY

All the persons will undergo pre-employment and periodic medical examination as per DGMS and 12$^{th}$ National Mines Safety Council recommendation.

The PP will maintain occupational health history card for their Employees.

The PP will establish first aid station within project site.

Good Drinking Water specialty will be provided at the site level.

### 4.4.8 WASTE MANAGEMENT

**SOLID WASTE**

Since the entire mined out material will be utilized there will not be any solid waste generation from this project. However, the Solid waste (MSW) generated from administrative activities will be properly collected and disposed to Govt. Authorized yards / Re-cylers / Disposers.

**LIQUID WASTE**

There is no process effluent generation from this mine. Hence no liquid waste is generated. Domestic wastewater i.e 0.7 KLD will be discharged in soak pit via septic tank.

**HAZARDOUS WASTE MANAGEMENT**

In this project the following management practices will be followed:

In the quarrying operation, the source of hazardous waste is from machinery maintenance activities that are waste oil/ Waste lubricants / Used filters / Used Hydraulic horses. The said hazardous waste are very negligible quantity , it will be properly collected in the source level, stored in impervious storage yards and

disposed off as per the Hazardous waste (Trans-boundary Movement) Management Rules, 2016.

**PLASTIC WASTE**

Single use plastics/ use and throwaway plastics will be banned in the site as directed by the Tamil Nadu Government vide GO(Ms)No.84 regarding ban on use of plastic products. The employees will be encouraged to use compostable material or reusable material.

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# 5.0 ANALYSIS OF ALTERNATIVES

## 5.1 DESCRIPTION OF EACH ALTERNATIVE

Analysis of alternative site helps in selection of best possible site for the project. On one hand it helps to closeness to the existing infrastructure and on other hand it also helps to minimize the impact of project on environment.

## 5.2 SUMMARY OF ADVERSE IMPACTS OF EACH ALTERNATIVE

The project proponent has prepared mining plan under rule 19(1) 41 & 42 of Tamil Nadu Minor Mineral Concession Rules, 1959 and the same has been approved by the Assistant Director, Dept. of Geology & Mining, Villupuram vide Rc.No.B / G & M / 157 / 2024, dated 27.12.2024.

- There is no forest land or other Eco-sensitive places.
- Proposed mine site is selected on the basis of occurrence of mineral for suitable end use.

Hence seeking alternative site is not required.

## 5.3 MITIGATION MEASURES PROPOSED FOR EACH ALTERNATIVE

The mining technology is mechanized Opencast in single-shift operation without any change in technology. The operation will be carried out as per DGMS norms. No alternate technology will be used. Details of the technology used are given in Chapter 2.

## 5.4 SELECTION OF ALTERNATIVE

In case of Mining projects alternate site selection is not necessary as the mining is site specific and the area in which mining will be carried out has been adequately proved for presence of mineral. The deposit is also having good infrastructural facilities for access and development.

The mining technology is mechanized Opencast in single-shift operation without any change in technology. The operation will be carried out as per DGMS norms. No alternate technology will be used. Details of the technology used are given in Chapter 2.

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# 6 ENVIRONMENTAL MONITORING PROGRAMME

## 6.1 TECHNICAL ASPECTS OF THE MONITORING THE EFFECTIVENESS OF MITIGATION MEASURES (INCL MEASUREMENTS, METHODOLOGIES, FREQUENCY LOCATION DATA ANALYSIS, REPORTING SCHEDULES EMERGENCY PROCEDURES DETAILED BUDGET AND PROCUREMENT SCHEDULES)

### 6.1.1 ENVIRONMENTAL MONITORING

Monitoring is done to measure the efficiency of control measures implemented. Regular monitoring of various environmental parameters like air, water, noise and soil environments is needed to assess the status of environment during the project operation.

A schedule is framed with timeline to monitor various parameters during the operation of the project. The schedule is framed based on MoEF & CC and Tamil Nadu State Pollution Control Board. In case the SEIAA/TNPCB/MoEF & CC or other statutory bodies demand monitoring of any additional parameter/factor, the same will also be done.

The proposed quarry is a small quarry. Hence the Mines-in-charge will be responsible for environmental related activities. After obtaining EC, the conditions mentioned in EC will be strictly followed. The Mines-in-charge will be responsible for implementing the conditions. EC compliance report will also be submitted periodically.

### 6.1.2 OBJECTIVES OF ENVIRONMENTAL MONITORING

The objectives of Environmental Monitoring are as follows.

- Monitoring and analysis of air and water samples
- Implementing the control and protective measures.
- Coordinating the environment related activities within the project as well as with outside agencies. Collecting statistics of health of workers and population of the surrounding villages. Green belt development etc.

- Monitoring the progress of implementation of Environmental Management Programme.
- Monitoring the noise generation in and around the project areas.
- Monitoring of wastewater treatment and disposal of solid waste.
- The laboratory will be suitably equipped for sampling/testing for various environmental pollutants.

### 6.1.3 ENVIRONMENTAL MONITORING SCHEDULE

To evaluate the effectiveness of Environmental Management Programme, regular monitoring of the important environmental parameters will be taken up. The frequency of monitoring different parameters is given in table 6.1.

**Table 6.1 Environmental Monitoring Schedule**

| Sl.No. | Description of Parameters | Parameters | Frequency |
|---|---|---|---|
| 1 | Air | Air Quality for SPM, PM-10, PM-2.5, $SO_2$ and $NO_x$ | 24-hour average samples Once in a 3 month. |
| 2 | Water | General, Physical, and chemical parameters | Once per season |
| 3 | Noise | $L_{eq}$, $L_{max}$, $L_{min}$, $L_{eq}$ Day & $L_{eq}$ Night dB(A) | 8-hour average samples Once in a 3 month. |
| 4 | Soil | Physical and Chemical characteristics. | Once per season |

### 6.1.4 LOCATION

Monitoring of the above-mentioned environmental parameters would be done at appropriate and sensitive areas. The exact location of monitoring is given as Figure – 3.8, 3.10, 3.11, 3.12 & 3.13.

### 6.1.5 MEASUREMENT METHODOLOGY

#### a) Ambient Air Quality

Ambient air quality will be monitored for $SO_2$, $NO_x$, $PM_{10}$ and $PM_{2.5}$. The instruments like high volume air samplers and Respirable dust samplers would be used for this purpose. These parameters will be monitored as mentioned in the monitoring schedule previously.

#### b) Water Quality

Water quality analysis will be done quarterly and the monitored parameters include pH, Temperature, TDS, etc. as specified by SPCB from time to time.

#### c) Noise Monitoring

Noise level will be monitored in working environment mainly noise producing sources over the boundary and around the mining area**.**

#### d) Green Belt and Afforested Areas

Continuous vigilance and monitoring of green belt will be done for performance and survival rate of the saplings. Watch and ward personnel will properly guard the plantation. Provision will be made for fertilizers application and watering on schedule.

#### e) Socio-Economics

Socio-economic of the core and buffer zone details elaborated in Chapter-3.

### 6.1.6 TECHNICAL ASPECTS OF MONITORING THE EFFECTIVENESS OF MITIGATION MEASURES

The above monitoring schedule will be followed periodically. After collection of the data, the mines-in-charge will analyze the data obtained. The data thus obtained will be incorporated in the EC Compliance report submitted to the regional office, MoEF & CC. The measurement methodologies will be as per CPCB/BIS/MoEF & CC/DGMS norms.

### 6.1.7 EMERGENCY PROCEDURES

In case of any emergency due to environmental conditions, the mines in-charge will immediately report to the top-level management and the emergency response protocol will be implemented as per MoEF & CC/ SPCB / DGMS norms.

### 6.1.8 REPORTS TO BE GENERATED

The Project Proponent will maintain records of each test and its interpretation so as to formulate an adequate Environmental Management Plan. The set of records planned to be maintained by Project Proponent are given in below table 6.2.

**Table 6.2 Important Records to be maintained by PP**

| S.No. | Particulars |
|---|---|
| 1 | Monitoring results for Air, Water & Soil. |
| 2 | Records of slope failure, land erosion & drainage. |
| 3 | Plantation Records |
| 4 | Environmental and related standards/ norms |
| 5 | Records pertaining to statutory consents, approvals. |
| 6 | Periodic Medical examination (PME) records. |
| 7 | Complain register (Environmental pollution) |
| 8 | Records on water and electricity consumption |
| 9 | Periodic progress records. |
| 10 | Environmental Expenses Records |

### 6.1.9 DETAILED BUDGET AND PROCUREMENT SCHEDULES

The budget planned for environmental monitoring is given below.

| EMP COST (FOR 10 YEARS) in Lakhs | | |
|---|---|---|
| **Mitigation Measures** | **Capital cost** | **Recurring Cost /Annum** |
| Air Environment | 6.76 | 2.01 |
| Noise Environment | 0.30 | 0.02 |
| Waste Management | 0.25 | 0.12 |
| Mine Closure | 0.75 | 0.15 |
| Implementation of EC, Mining Plan & DGMS Condition | 1.07 | 0.80 |
| **Total** | **9.13** | **3.10** |
| **The total EMP Cost of 48.12 Lakhs for a period of ten years have been proposed. i.e., Capital cost of Rs. 9.13 Lakhs + Recurring cost of Rs. 38.99 lakhs (@ 5% Escalation).** | | |

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# 7 ADDITIONAL STUDIES

The following Additional Studies were done as per items identified by project proponent and the regulatory authority.

- Public Consultation
- Risk Assessment
- Disaster Management plan
- Social Impact Assessment, R&R Action Plans
- Cumulative Impact Study
- Slope Stability Plan

## 7.1 PUBLIC CONSULTATION

This draft EIA/EMP report will be exposed to public consultation as per mandatory procedures through the District Collector and State Pollution Control Board officials after giving 30 days advance notice in two local newspapers about the scheduled date and time for conduct of the public hearing procedures. The opinions, concerns and objections of stakeholders will be recorded during the public hearing. All the public queries and the replies to the query by the project proponent and officials concerned will be recorded and incorporated in the final EIA/EMP report for approval by SEIAA, Tamil Nadu.

## 7.2 RISK ASSESSMENT

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 person holding certificate of competency to manage a metalliferous mine granted by the DGMS. Factors of risks involved due to human induced activities in connection with this proposed mining & allied activity with detailed analysis of causes and control measures for the mine is given in below Table 7.1.

**Table 7.1 Risk Assessment and Control Measures**

| S.NO | Risk Factor | 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.<br>Entry of unauthorized persons will be prohibited.<br>Fire-fighting and first-aid provisions in the mine office complex and mining area.<br>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.<br>Quarry operation will be done as per approved mining plan and other applicable statutory guidelines issued by DGMS, Dept. of Mining & Geology-TamilNadu.<br>Handling of explosives, charging and firing shall be carried out under competent statutory persons.<br>A comprehensive standard operating procedure (SOP) will be prepared as per DGMS guidelines and the same will be circulated to all the employees and it will be strictly followed in the all face of mining operation. |
| 2 | Drilling | Improper and unsafe practices. Due to high pressure of compressed air, hoses may burst.<br>Drill Rod may break. | Safe operating procedure established for drilling (SOP) will be strictly followed.<br>Only trained operators will be deployed.<br>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. |

| | | | |
|---|---|---|---|
| | | | Drilling shall not be carried on simultaneously on the benches at places directly one above the other.<br>Periodical preventive maintenance and replacement of worn-out accessories in the compressor and drill equipment as per operator manual.<br>Drills unit shall be provided with wet drilling to ensure efficient working. |
| 3 | Blasting | Fly rock, ground vibration, Noise and dust. Improper charging, stemming & Blasting/ fining of blast holes. Vibration due to movement of vehicles. | Restrict maximum charge per delay as per approved mining plan.<br>Proper blasting design with optimum spacing & burden, Charge per delay and stemming.<br>SOP for Charging, Stemming & Blasting/Firing of Blast Holes will be followed by blasting crew during initial stage of operation.<br>Shots are fired during day time only.<br>Charging and firing shall be carried out in the same day.<br>Siren will be done for each blasting. Blasting evacuation plan prepared and executed.<br>The danger zone will be distinctly demarcated (by means of red flags). |
| 5 | Transportation | Potential hazards and unsafe workings contributing to accident and injuries. Overloading of material. While reversal & overtaking of vehicle. Operator of truck leaving his cabin when it is loaded. | 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. Unauthorized person will not be allowed to operate or ride on the vehicle.<br>Loading according to the vehicle capacity.<br>Periodical maintenance of vehicles as per operator manual. |

| | | | |
|---|---|---|---|
| 6 | Natural calamities | Unexpected happenings | An emergency management plan will be prepared considering all possible national calamity and the same will be executed if any such situation occurs.<br>Escape Routes will be provided to prevent inundation of storm water.<br>Fire Extinguishers & Sand Buckets in the designated areas. |
| 7 | Failure of Mine Benches and Pit Slope | Slope geometry, Geological structure | Ultimate or over all pit slope shall be below 60° and each bench height shall be 5m height. |

## 7.3 DISASTER MANAGEMENT PLAN

This being a small rough stone project that too working in a safe area, no major disaster is expected after following all the statutory rules and regulations.

### 7.3.1 MODEL DISASTER MANAGEMENT PLAN

The lessee has formulated the disaster Management plan keeping all eventualities in mind.

The mining operation will be carried out under the direction of qualified mines manager and supervisors, based on the guidelines and directions of Directorate General of Mines Safety (DGMS) and Indian Bureau of Mines. Code of practice of different operations will be formulated to ensure safety of men and machines and to avoid various hazards mentioned above. Mine workers will be provided training on safe work practices. The following natural/ industrial hazards may occur during normal operation; slope failure at the mine faces; accident due to heavy equipment/ machinery.

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

- All safety precautions and provisions of Metalliferous Mines Regulations (MMR), 1961 is strictly followed during all mining operations.
- Observance of all safety precautions for blasting and storage of explosives as per MMR 1961.
- Entry of unauthorized persons into mine & allied areas is completely prohibited.
- Fire-fighting and first-aid provisions in the mines office complex and mining area are provided.
- Provisions of all the safety appliances such as safety boot, helmets, goggles, dust masks, ear plugs and ear muffs etc. are made available to the employees and the use of same is strictly adhered to through regular monitoring.
- Training and refresher courses for all the employees working in hazardous premises. Working of mine, as per approved plans and

regularly updating the mine plans.

- Handling of explosives, charging and blasting are carried out only by qualified persons following SOP.
- Checking and regular maintenance of garland drains and earthen bunds to avoid any inflow of surface water in the mine pit.
- Provision of high-capacity standby pumps with generator sets with enough quantity of diesel for emergency pumping especially during monsoon.
- A blasting SIREN is used at the time of blasting for audio signal.
- Before blasting and after blasting, red and green flags are displayed as visual signals. Warning notice boards indicating the time of blasting and NOT TO TRESPASS are displayed at prominent places.
- Regular maintenance and testing of all mining equipment were carried out as per manufacturer's guidelines.

### 7.3.2 OBJECTIVE OF DISASTER MANAGEMENT PLAN

The objective of disaster management plan is to identify mitigation measures to avoid hazards turning in to risk, the materials required for implementing the same, the personnel requirement and their roles and responsibilities, and the communication and operating procedures to be adopted in case of an emergency.

**Communication System**

The telephone numbers and addresses of mine sites in the vicinity, nearest fire station, police station, local hospital, electricity department, ambulance, and local public representatives and revenue officials shall be prepared and kept in custody of PP.

**Facilities**

The office shed will have provision of first aid centre to provide first aid in the event of an emergency. The office shed will also function as emergency control room. It will be provided with telephone and mobile phones, and a vehicle for emergency transport.

**Personnel**

The PP is responsible for overall supervision of the disaster management plan. He will be assisted by supervisors, in implementing the emergency management plan and procedures.

**Operating Procedures**

The operating procedures during emergencies are related communication to the immediate supervisor, who would relay the same to PP. The PP may assess the requirement of first aid, external assistance, transportation to nearby hospital contingent on the emergency. In the absence of mines manager, the senior most supervisor will be made responsible for disaster management.

## 7.4 REHABILITATION AND RESETTLEMENT (R & R) PLAN

No land is acquired from people dwelling in the area. The lease area is an uninhabited land. No R & R plan is proposed.

## 7.5 CUMULATIVE IMPACT STUDY

There are two existing Quarries and this proposed Quarry within a radius of 500 m from this proposed project area. The existing and proposed quarries situated within 500 m radius are presented in below Table 7.2 and the letter received from Dept. of Geology and Mining, Villupuram stating the quarries detail within 500m radius is enclosed in Annexure – 4.

**Table 7.2 Details of Quarries within 500m radius**

| Cluster Mines Details | | | |
|---|---|---|---|
| **Sl. No** | **Extent** | **Proponent** | **Status of lease** |
| 1 | 2.74.0 Ha | C. Prabakar | Existing |
| 2 | 1.66.5 Ha | S. Senthilkumar | |
| 3 | 4.84.50 Ha | S. Senthil Kumar | Proposed |
| Total extent is **9.69.78 Ha** including this proposed project. | | | |

As seen above, although the individual lease area of this project is less than 5 hectares, the existing two Quarries (2 Nos) within a 500-meter radius, along with this subject project, add up to more than 5 hectares i.e. 9.69.78 Ha. A map showing the existing and proposed quarry located within 500m radius is given in Figure 1.1.

### 7.5.1 AIR ENVIRONMENT

The cumulative production load of existing and proposed Rough stone and gravel quarries within cluster is shown in below table.

## Table 7. 3 Salient Features of Existing & Proposed Quarries

| Description | | P1 | P2 | P3 |
|---|---|---|---|---|
| Name of the Quarry | | S.Senthilkumar | C. Prabakar | S. Senthilkumar |
| Geological Resources in m3 | Rough stone | 31,47,755m3 | 5,48,000 m3 | 6,97,515 m3 |
| | Gravel | 2,42,135m3 | 82,200 m3 | 59,787 m3 |
| | Weathered Rock | - | - | 39,858 m3 |
| Mineable Reserves in m3 | Rough stone | 14,12,880 m3 | 2,13,100 m3 | 2,81,430 m3 |
| | Gravel | 2,13,185 m3 | 50,544 m3 | 46,383 m3 |
| | Weathered Rock | - | - | 30,922 m3 |
| Five years plan period as in the approved mining plan | Rough stone | 1200260 m3 | 2,13,100 m3 | 2,81,430 m3 |
| | Gravel | 213185 m3 | 50,544 m3 | 46,383 m3 |
| | Weathered Rock | | | 30,922 m3 |
| Production in m3 | Peak Production – rough stone | 241550 m3 | 43,200 m3 | 62,370 m3 |
| | Gravel | 98100 m3 | 50544 m3 | 18,306 m3 |
| Production per day in tons | Peak Production | 2667 | 427 | 642 |
| Lorry Loads per day in Nos | - | 267 | 43 | 64 |

| | | | | |
|---|---|---|---|---|
| Employment in Nos | | 34 | 22 | 31 |
| Proposed Depth in meters | | 70 BGL | 23 m BGL | 40 m BGL |
| Status of the quarry | | Proposed | Existing | Existing |

Based on the above production quantities the emissions due to various activities in all the 3 mines (2 Existing + 1 Proposed) includes various activities like ground preparation, excavation, handling and transport.

### 7.5.1.1 EMISSION ESTIMATION FROM CLUSTER

**Table 7. 4 Incremental & Resultant GLC within cluster for $PM2_{.5}$**

| SL.No | Location | Background Concentration | Predicted incremental Concentration | Post Project Concentration | Statutory Limits in µg/m³ |
|---|---|---|---|---|---|
| 1 | Within Mine Lease area | 35.47 | 2.11 | 37.58 | 60 |
| 2 | Thiruvakkarai | 25.0 | 1.76 | 26.76 | |
| 3 | Ponnampundi | 29.70 | 1.41 | 31.11 | |
| 4 | Eraiyur | 27.90 | 1.05 | 28.95 | |
| 5 | Koddukkur | 27.70 | <1.0 | 28.70 | |
| 6 | Pombur | 26.0 | <1.0 | 27.0 | |

**Table 7. 5 Incremental & Resultant GLC within cluster for $PM_{10}$**

| SL.No | Location | Background Concentration | Predicted incremental Concentration | Post Project Concentration | Statutory Limits in µg/m³ |
|---|---|---|---|---|---|
| 1 | Within Mine Lease area | 73.90 | 4.93 | 78.83 | 100 |
| 2 | Thiruvakkarai | 55.50 | 4.11 | 59.61 | |
| 3 | Ponnampundi | 61.80 | 3.29 | 65.09 | |
| 4 | Eraiyur | 58.10 | 2.46 | 60.56 | |
| 5 | Koddukkur | 57.80 | 1.64 | 59.44 | |
| 6 | Pombur | 54.10 | <1.0 | 55.10 | |

The air quality modeling report for cluster seems that, even in the worst-case scenario, the resultant added concentrations with baseline figures show that the values of ambient air quality for $PM_{10}$ are in the range of 55.10 µg/m³ to 78.83 µg/m³ and for $PM_{2.5}$ are in the range of 26.76 µg/m³ to 37.58 µg/m³ which are within the statutory limits in each case.

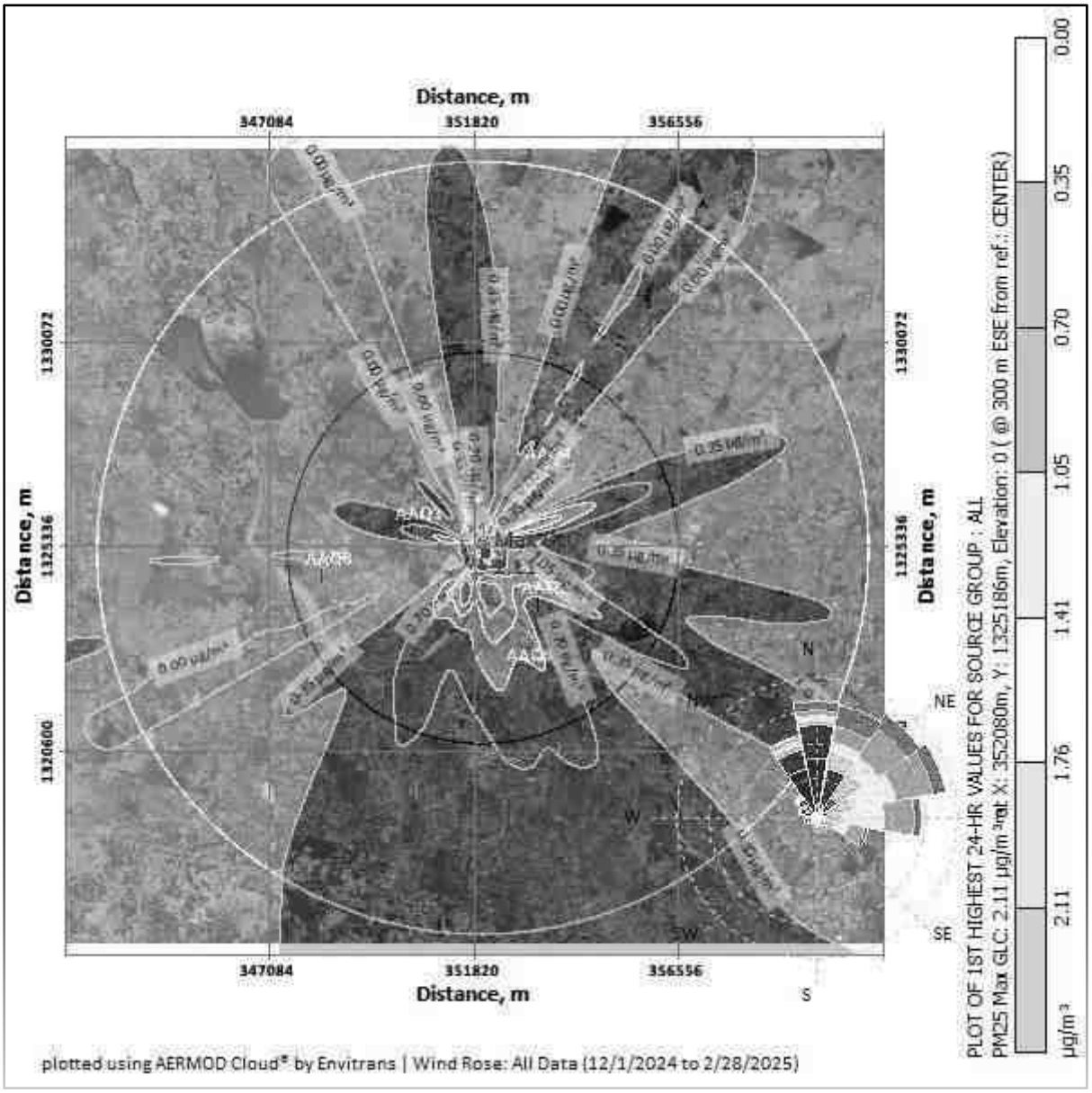



**Figure 7.1 Cluster Isopleth of GLC Prediction for $PM_{2.5}$**

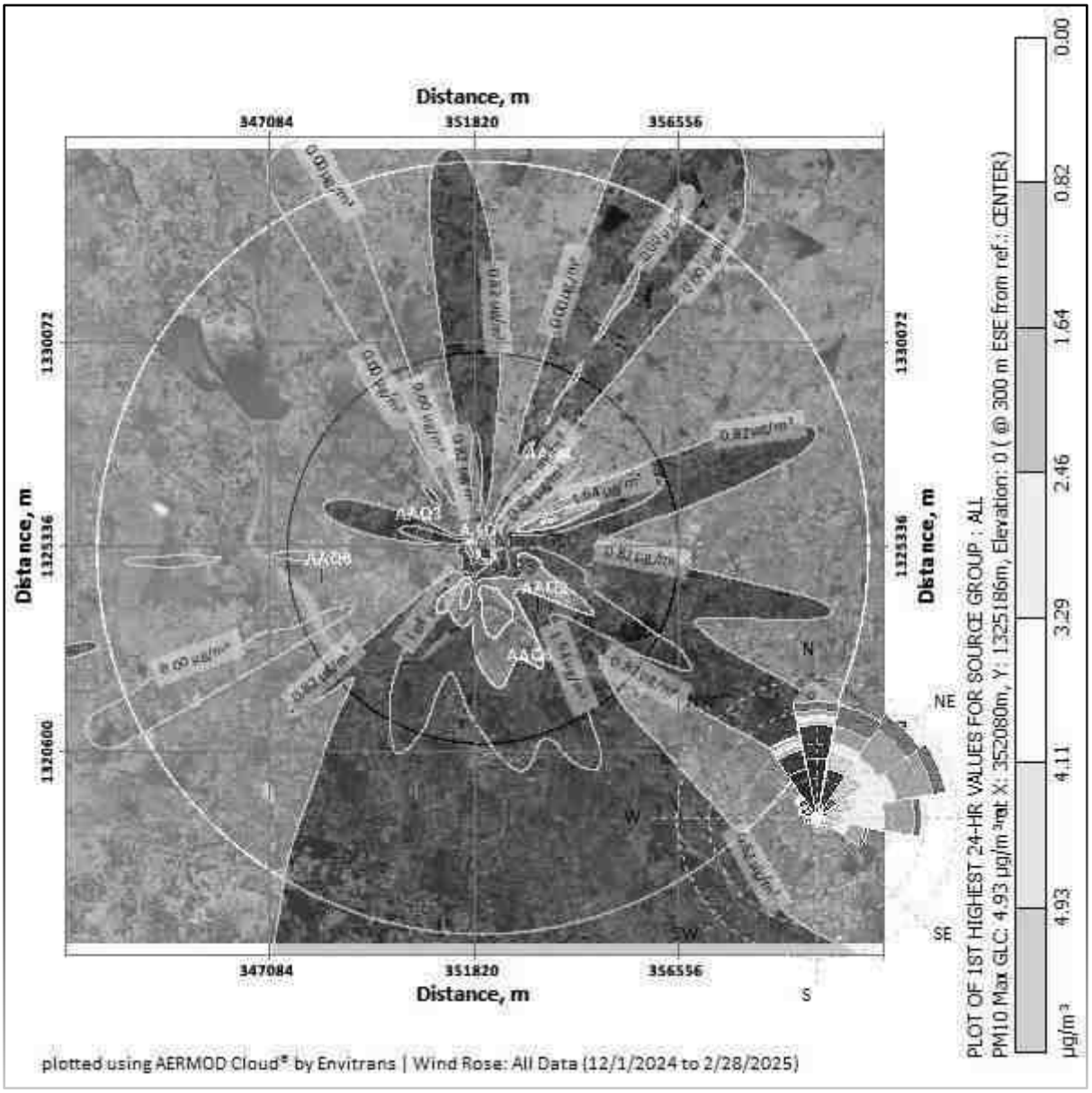



**Figure 7.2 - Cluster Isopleth of GLC Prediction for $PM_{10}$**

### 7.5.2 CUMULATIVE IMPACT ON TRAFFIC

The mined out minerals will be transported by means of trucks to the nearby crusher for producing stone aggregates of different. The cumulative impact on traffic due to transportation of minerals from these three leases are provided below:

**Table 7. 6 – Impact on Traffic**

| Quarry | Production load in tons/day | No. of Lorry Load per day |
|---|---|---|
| P1(Proposed) | 2667 | 267 |
| P2 (Existing) | 427 | 43 |
| P3 (Existing) | 642 | 64 |
| **Total** | **3736** | **374** |

As two quarries already exist, they are part of the current traffic. The proposed project will bring 267 trips per day. The existing road can absorb this additional traffic due to this project. Various measures like proper maintenance of road, covering of the loaded truck with tarpaulin, water sprinkling will be carried out to ensure no adverse impact on the logistical front.

### 7.5.3 WATER ENVIRONMENT

The mining area consists of hard compact rock, hence no major water seepage within the mine is expected from the periphery. From the nearby working quarries it is observed there are no seepages in the mine faces because of the hard rock formation. The ground water table in this area is 82 – 85 m and the proposed ultimate depth is upto 70 m bgl. Hence, ground water intersection in not envisaged and ground water will not be affected appreciably due to the quarrying operation.

### 7.5.4 CUMULATIVE IMPACT ON SOCIO-ECONOMIC ENVIRONMENT

The mining operations in the proposed this mine will provide direct employment opportunity and indirect employment opportunity for scores of people through allied opportunities in logistics, contract workers, trading, repairing works etc. Various mitigative measures suggested in this report will be properly implemented to ensure that no adverse impact is felt on the socio economic and ecological front in the area. Total 53 employment opportunities already provided by two existing mines in cluster.

**Table 7.7 SOCIO ECONOMIC BENEFITS FROM 2 MINES**

| | Employment | Project Cost | CER |
|---|---|---|---|
| P1 (Proposed) | 34 | Rs. 167.69 Lakhs | Rs.500000/- |
| P2 (Existing) | 22 | Rs. 47,84,000/- | Rs. 96,000/- |
| P3 (Existing) | 31 | Rs.49,36,000/- | Rs. 97,000/- |
| **Total** | **87** | **Rs. 2,64,89,000 /-** | **Rs.6,93,000/-** |

## 7.6 CLUSTER MINE CLOSURE PLAN

In the mine closure stage all necessary measures will be taken as per Act & Rules, there is no proposal for back filling, reclamation and rehabilitation in any of the proposals. The quarried pits after the end of life of mine will be properly fenced all around to prevent inherent entry of public and cattle and all the statutory requirements will be fulfilled. As already explained, in the post mining stage the rainwater harvested in the mined- out void shall be utilized for irrigation and domestic needs locally. The mine closure plan is provided in Figure 2.9.

## 7.7 SLOPE STABILITY STUDY

The proposed quarry is a very small quarry and the production is also less. Opencast mechanized mining with a bench height of 5m and bench width of 5m and 45° Slope is proposed. The depth of mining is proposed as 70 m (BGL), which is the ultimate pit limit. Also, there is no overburden since the entire mined out material will be utilized.

As far as technical factors are concerned, the following precautionary measures will be adopted:

- Strict adherence to DGMS norms
- Frequent inspection by Mines-in-charge/Mines Manager
- Bench height, width, slope will be as per DGMS norms

***

# 8 PROJECT BENEFITS

## INTRODUCTION

Thiru.S.Senthil Kumar has proposed Rough stone and gravel quarry over an extent of 4.84.50 ha located at S.F.No. 42/3A, 42/3B, 44/1, 44/2, 44/3, 44/4A(P) and 44/4B of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State.

## PROJECT BENEFITS

Project benefits are attributed in various ways as under:

- Environment Benefits
- Employment Potential: Skilled, Semi-skilled & Un-skilled
- Economic Benefits
- Social Benefits

## 8.1 IMPROVEMENTS IN THE PHYSICAL INFRASTRUCTURE

The project area is located on Patta land, thereby causing no impact on the loss of agriculture or forest land. The project will create employment opportunities in the area. There will be no adverse effect of mining on the socioeconomic status of the people; rather, mining activities will improve their standard of living. The mining activity creates employment opportunities for the local people, and this definitely raises their economic status. Apart from the overall beneficial impact of the project on the local people of the region, it is felt necessary to augment facilities in the fields of education, health, and social awareness, including concern for the environment and ecosystem.

## 8.2 IMPROVEMENTS IN THE SOCIAL INFRASTRUCTURE

The proposed project will help in improving the socio-economic status of the near-by villages by generating direct or indirect employment opportunities. Substantial amount of indirect revenue will be generated by transportation activities along with employment e.g. labour, helper etc.

**ECONOMIC BENEFITS:**

The execution of proposed mine will boost the economy of the area by creating direct & indirect jobs for locals. There will be a positive cumulative impact of the project on the economy.

## 8.3 EMPLOYMENT POTENTIAL: SKILLED, SEMI-SKILLED & UN-SKILLED

The mining of Thiru.S.Senthil Kumar, will create direct employment opportunity for 34 local people. As per MOEF & CC Notification CER cost is arrived for an amount of 5 Lakhs, it will be utilized as per the CER letter received from the competent authority.

## 8.4 OTHER TANGIBLE BENIFITS

The mine management will recruit semi-skilled & unskilled eligible workers from the nearby villages depending upon requirement in the mines and the eligibility, qualification and experience of local persons.

The overall effect will result in higher standard of living viz. better education, improved health and sanitation facilities, housing and acquisition of consumer durables. Housing, transport, medical, educational and other civic amenities will get improved in the future. This is envisaged as a major positive benefit.

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# 9 ENVIRONMENTAL COST BENEFIT ANALYSIS

Environmental Cost Benefit Analysis is recommended during the scoping stage, if needed. In the TOR granted by SEIAA, Tamil Nadu, it is not recommended. Hence not applicable.

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# 10 ENVIRONMENTAL MANAGEMENT PLAN

## 10.1 DESCRIPTION OF THE ADMINISTRATIVE ASPECTS OF ENSURING OF ENSURING THAT MITIGATIVE MEASURES ARE IMPLEMENTED AND THEIR EFFECTIVENESS MONITORED AFTER APPROVAL OF THE EIA.

### 10.1.1 OBJECTIVES

The Environmental Management plan is a site-specific plan. It is developed to ensure that the project is implemented in an environmentally sustainable manner, where all contractors and subcontractors, including consultants if any, understand the potential environmental risks arising from the project and take appropriate actions to minimize those risks. EMP also ensures that the project implementation is carried out in accordance with the planned design and by taking appropriate mitigation measures to reduce adverse environmental impacts during project's life cycle.

## 10.2 ENVIRONMENTAL POLICY

The Project Proponent – Thiru. S.Senthil Kumar shall carry out all the quarrying operations and activities in an environmentally responsible manner and to continually improve environmental performance.

The Proponent will:

- Meet the requirements of all laws, Acts, ordinances, rules, and regulations that are pertinent to its operations and activities.
- Implement a programme to educate employees about environmental issues in general and their personal environmental responsibilities at work.
- Allocate the resources required to guarantee that the environmental policy is carried out.
- Set up monitoring systems to alert as soon as there is a problem or a performance that is unexpected in relation to environmental protections.

- Implement monitoring programs to provide early warning of any deficiency or unanticipated performance in environmental safeguards.
- Conduct periodic reviews to verify environmental performance and to continuously strive towards improvement.

## 10.3 ENVIRONMENTAL MANAGEMENT PLAN

The impacts and detailed mitigation measures due to this mining project are detailed in chapter 4. The overall Management Plan at the site level are elaborated in this chapter. Details of EMP measures for implementation in the mine are given in the table 10.1.

**Table 10.1 - ENVIRONMENTAL MANAGEMENT PLAN**

| Environmental Parameter | Mitigation Measures |
|---|---|
| Air | Wet drilling to suppress the dust emission from drill machine |
| | Regular water sprinkling on haulage road through fixed water sprinkler. |
| | 2.5 $m^3$/day of water will be used for dust suppression. |
| | Avoiding blasting during high wind period, night times and temperature inversion periods. |
| | Regular grading of haul road to clear accumulation of loose material. |
| | It will be ensured that vehicles are properly maintained to comply with exhaust emission requirements |
| | Maintenance as per operator manual of the equipment and machinery in the mines to minimizing air pollution |
| | 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. |
| | Afforestation for control of dust. |
| Water | |
| Surface water | The nearest water bodies to the project site include a seasonal odai, which is located at 53 m in eastern side and a Tank – 287 m (W) and |

| | |
|---|---|
| | another tank – 800 m (E). Sangarabarani River is situated at 1.25 km (S).<br>There is no effluent discharge from this proposed Quarry. So no impact is anticipated.<br>Surface runoff management structures like garland drain of required length which is connected to a settling pond will be constructed around the quarry to collect the rain water.<br>Monthly or after rainfall, inspection for performance of water management structures and systems.<br>There is no discharge of any effluent into nearby water bodies. |
| Ground Water | The quarrying operation is proposed upto a depth of 70 m maximum below ground level, the water table in the area is 82 m below ground level, hence the project will not intersect the Gund water table during entire quarry period. |
| Water Consumption and Wastewater generation | The required water of 6.0 KLD will be procured from outside agencies initially and later rainwater harvested in the mine pit shall be used other than drinking purpose. |
| | Domestic wastewater generation of 0.7 KLD will be discharged in soak pit via septic tank. |
| | Conduct ground water and surface water monitoring for parameters specified by CPCB |
| Noise | The workers employed are provided with personal protective equipment (PPE) as such, earmuffs and ear- plugs for the protection from high noise level generated at the mine site wherever required. |
| | Noise levels are controlled by using optimum explosive charge, proper delay detonators and proper stemming to prevent blow out of holes. |
| | 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. |
| | Preventive maintenance of mining machinery and replacement of worn-out accessories to control noise generation. |
| | Regular ambient noise level monitoring is carried out in the project area and in surrounding villages to access the impact due to the mining activities and the efficacy of the adopted noise control measures. |

| | |
|---|---|
| Ground Vibration and Fly Rock Control | Controlled blasting using delay detonators will be carried out to maintain the PPV value well within the prescribed standards of DGMS. |
| | Drilling and blasting will be carried under the supervision of qualified persons. |
| | ensure blast holes are adequately stemmed for the depth of the hole and stemmed with suitable angular material. |
| | Undertake noise or vibration monitoring. |
| Land Environment | There is no change will be in the land use pattern as mentioned in the approved mining plan a such mine pit, safety zone etc., At conceptual stage, the mining pits will be converted into Rain Water Harvesting. Remaining area will be converted into greenbelt area. |
| | Garland drains with catch pits / settlement traps to be provided all around the project area to prevent run off affecting the surrounding lands. |
| | The periphery of Project area will be planted with thick plantation to arrest the fugitive dust, which will also act as acoustic barrier. |
| | Frequent Soil and ground water testing as per Environmental Monitoring Plan. |
| Top Soil / Overburden | There is no waste anticipated in this rough stone and gravel Quarry. The entire quarried minerals will be utilized. |
| Biological Environment | During mining, three-layer thick plantation will be carried out around the project periphery, on safety barrier zone, on top benches of quarried out area etc., |
| | 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. |
| | Regular review on green belt development programme. |
| | Year wise greenbelt development plan mentioned in Chapter 4. |

## 10.4 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. The organizational chart for the same has been given below.

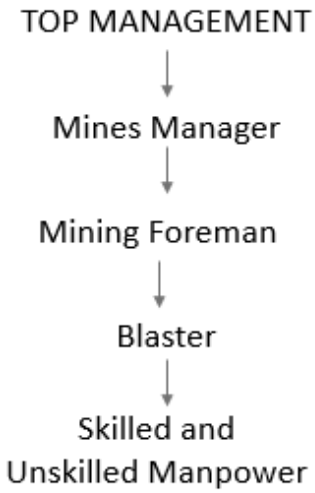



**Figure 10.1 Organization Chart**

The action plan for monitoring consists of monitoring of following environmental components.

- 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

- Green belt development
- Monitoring the progress of implementation of the environmental monitoring programme
- Compliance to statutory provisions, norms of State Pollution Control Board, Ministry of Environment and Forests and the conditions of the environmental clearance as well as the consents to establish and consents to operate.

## 10.5 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. The health status of workers in the mine shall be regularly monitored under an occupational surveillance program. Under this program, all the employees are subjected to a detail medical examination at the time of employment.

## 10.6 BUDGETARY PROVISION FOR ENVIRONMENTAL MANAGEMENT

Adequate budgetary provision has been made by the Company for execution of Environmental Management Plan. The below Table gives overall investment on the environmental safeguards and recurring expenditure for successful monitoring and implementation of control measures.

**Table 10.2 Environmental Management Plan Budget**

| Activities | Mitigation Measure | Capital cost | Recurring Cost per Annum |
|---|---|---|---|
| **Air Environment** | Compaction, gradation and drainage on both sides for Haulage Road | 0.24 | 0.24 |

| | | | |
|---|---|---|---|
| | Fixed Water Sprinkling Arrangements + Water sprinkling by own water tankers | 5.00 | 0.25 |
| | Muffle blasting – To control fly rocks during blasting | 0.00 | 0.05 |
| | Wet drilling procedure / latest eco-friendly drill machine with separate dust extractor unit | 1.20 | 0.24 |
| | No overloading of trucks/tippers/tractors | 0.00 | 0.05 |
| | Stone carrying trucks will be covered by tarpaulin | 0.00 | 0.10 |
| | Enforcing speed limits of 20 km/hr within ML area | 0.12 | 0.01 |
| | Regular monitoring of exhaust fumes as per RTO norms | 0.00 | 0.05 |
| | Regular sweeping and maintenance of approach roads for at least about 200 m from ML Area | 0.00 | 0.97 |
| | Installing wheel wash system near gate of quarry | 0.20 | 0.05 |
| **Sub-Total (A)** | | **6.76** | **2.01** |
| **Noise Environment** | Provision for Portable blaster shed | 0.30 | 0.02 |
| **Sub-Total (B)** | | **0.30** | **0.02** |
| **Activities** | **Mitigation Measure** | **Capital cost** | **Recurring Cost per Annum** |

| | | | |
|---|---|---|---|
| **Waste Management** | Provision for domestic waste collection and disposal through authorized agency | 0.20 | 0.10 |
| | Installation of dust bins | 0.05 | 0.02 |
| **Sub-Total (C)** | | **0.25** | **0.12** |
| **Mine Closure** | Plantation inside ML area (750 Nos.) | 0.75 | 0.15 |
| **Sub-Total (D)** | | **0.75** | **0.15** |
| **Implementation of EC, Mining Plan & DGMS Condition** | Size 6’ X 5’ with blue background and white letters as mentioned in MoM Appendix II by the SEAC TN | 0.05 | 0.01 |
| | Air, Water, Noise and Soil Quality Sampling every 6 Months for Compliance Report of EC Conditions | 0.00 | 0.50 |
| | Workers will be provided with Personal Protective Equipment's | 0.34 | 0.03 |
| | Health check up for workers will be provisioned | 0.00 | 0.17 |
| | First Aid facility Provision | 0.00 | 0.05 |
| | Signage & boards for safety precautions | 0.05 | 0.01 |
| | 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 | 0.48 | 0.01 |
| | Installation of CCTV cameras in the mines and mine entrance | 0.15 | 0.02 |

| | | |
|---|---|---|
| **Sub-Total (E)** | **1.07** | **0.80** |
| **Grand Total** | **9.13** | **3.10** |
| Total EMP Cost for 10 years is **48.12 lakhs**<br>i.e., **9.13 Lakhs of Capital Cost + 38.99 Lakhs of Recurring cost (For 10 Years)** | | |

## 10.7 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

## 11.1 OVER ALL JUSTIFICATION FOR IMPLEMENTATION OF THE PROJECT

This EIA Report is prepared for Thiru. S.Senthil Kumar Rough Stone and Gravel Quarry over an extent of 4.84.50 Ha. patta lands in S.F.No. 42/3A, 42/3B, 44/1, 44/2, 44/3, 44/4A(P) and 44/4B of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State in compliance with ToR obtained vide TO25B0108TN5591167N, Dated: 13.05.2025.

Although the individual lease area of this project is less than 5 hectares, the two existing Quarries (2 Nos) within a 500-meter radius, along with this subject project, add up to more than 5 hectares i.e. 9.69.78 Ha. A map showing the existing and proposed quarry located within 500m radius is given in Figure 1.1.

This cluster includes the nearby two existing Quarries namely C. Prabakar (2.74.0 Ha) and S. Senthilkumar (1.66.50 Ha).

This project proposed to produce 12,00,260 Cu.m of Rough Stone and 2,13,185 Cu.m of Gravel (First five years) and 2,12,620 Cu.m of Rough Stone (Second Five years). Total production for ten years is 14,12,880 Cu.m of rough stone with ultimate depth up to 70 m below ground level (Ten years).

## 11.2 PROJECT DESCRIPTION

**Table 11.1 Salient Features of the Project**

| Description | Salient Feature |
|---|---|
| Name of the Project | Thiru.S.Senthil Kumar Rough Stone and Gravel Quarry |
| Location of the Project | S.F.No: 42/3A, 42/3B, 44/1, 44/2, 44/3, 44/4A(P) and 44/4B of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State |
| Latitude & Longitude | Latitude: 12°02'23.31"N to 12°02'31.78"N<br>Longitude: 79°38'21.41"E to 79°38'30.47"E |

| | |
|---|---|
| Toposheet No. | 57 P/12 |
| ML Area | 4.84.50 Ha |
| Type of Land | Patta Land |
| Geological Resource | Rough Stone –31,47,755 $m^3$<br>Gravel – 2,42,135 $m^3$<br>Depth – 70 m BGL |
| Mineable Reserves | Rough Stone –14,12,880 $m^3$<br>Gravel – 2,13,185 $m^3$<br>Depth – 70 m BGL |
| Proposed Production (First Five Years) | Rough Stone – 12,00,260 $m^3$<br>Gravel – 2,13,185 m3<br>Depth – 50 m BGL |
| Proposed Production (Second Five Years) | Rough Stone – 2,12,620 $m^3$<br>Depth – 70 m BGL |
| Total Production for Ten Years | Rough Stone –14,12,880 $m^3$<br>Gravel – 2,13,185 $m^3$<br>Depth – 70 m BGL |
| Life of the mine | 10 years |
| Proposed depth of mining | 70m bgl |
| Method of Mining | Opencast mechanized mining involving drilling and blasting |
| Proposed bench height and width | Bench Height & Width – 5m. |
| Total Waste | NIL |
| Top Soil / Overburden | There is no overburden / waste from this proposed project, entire mined out mineral will be transported to the needy buyers. |
| Water Requirement & source | Total – 6.0 KLD. The required water will be procured from outside agencies initially. Later, water collected in the mine pit will be used to meet the needs. |
| Proposed Manpower Deployment | 34 Nos |
| Total Project Cost | Rs.167.69 Lakhs |

| | |
|---|---|
| Nearest Highway | The National Highway (NH-179B) Viluppuram – Chennai is about 10.3km on western side of the area.<br>The State Highway (SH-136) Mailam – Vanur is about 4.5Km on Northeastern side of the area. |
| Nearest Railway Station | The Nearest Railway line is Viluppuram to Chennai line which is about 10.5Km on western side of the area. Nearest Railway Station - Perani – 11.61Km (NW) |
| Nearest Airport | Puducherry Airport - 20.6 Km (SE) |
| Nearest Major Water bodies | Core Zone – NIL<br>Buffer Zone<br>**Within 1 km Radius**<br>Seasonal Odai – 53 m - E<br>Korakeni Tank – 287 m (W)<br>Tank – 800 m (E)<br>**1 km to 10 km Radius**<br>Nemili Tank – 1.2km (NE)<br>Sangarabarani River / Varaha Nadi – 1.25km (S)<br>Vidur Branch Canal – 1.58km (NW)<br>Poonampoondi Tank – 1.95km (NW)<br>Tank – 3.11km (NW)<br>Thollamur Eri – 3.50km (NE)<br>Tirukannur Lake – 5.18km (S)<br>Katterikuppam Lake – 6.49km (SE)<br>Veedur Dam – 6.55km (NW)<br>Tondi River – 8.00km (NW)<br>Mathur Lake – 8.54km (SW) |
| Environmental sensitive areas, Protected areas as per Wildlife Protection Act, 1972 (Tiger reserve, Elephant reserve, Biospheres, | NIL within 10 km radius |

| | |
|---|---|
| National parks, Wildlife sanctuaries, community reserves and conservation reserves) | |
| Reserved / Protected Forests | Nil within a 10Km radius.<br>Melkondai R.F. - 10.33km (NW) |
| Nearest Village | Koraikeni Village – 1.1 km (SW) |
| Seismic Zone | Zone II (Least active) |

## 11.3 DESCRIPTION OF THE ENVIRONMENT

The baseline monitoring study was carried out during December 2024 to February 2025 to assess the existing environmental scenario in the area. For the purpose of EIA studies, project area was considered as the core zone and area outside the project area up to 10km radius from the periphery of the project site was considered as buffer zone. Baseline Environmental data has been collected for: -

a) Land

b) Water

c) Air

d) Noise

e) Biological

f) Socio-economic status

### 11.3.1 LAND ENVIRONMENT

The existing land use pattern of the study area is tabulated below in table 11.2.

**Table - 11.2 Land use Pattern of the study area**

| Sl.No. | LAND USE / LAND COVER | Area in Sq.Km | Area in Percentage |
|---|---|---|---|
| 1 | Built-up land | 13.69 | 4.24 |
| 2 | Agriculture | 142.81 | 44.28 |
| 3 | Crop land | 108.03 | 33.47 |
| 4 | Existing mining area | 3.45 | 1.06 |
| 5 | Fallow land | 1.75 | 0.54 |
| 6 | Land with scrub | 10.85 | 3.36 |
| 7 | Land without scrub | 11.67 | 3.61 |

| | | | |
|---|---|---|---|
| 8 | Water bodies | 30.49 | 9.44 |
| | **Total Area** | **322.74** | **100.00** |

Source: Survey of India Toposheet and Landsat Satellite Imagery

### 11.3.2 SOIL CHARACTERISTICS

Results of the soil samples show that the pH values were found to be 5.33 to 7.54 and Electrical Conductivity values were ranging between 42.35 – 83.16 µmhos/cm. Soils are generally Silty Clay Loam. Organic matter values were ranging between 0.54 – 0.72 %. Total Nitrogen values were ranging between 156 – 305 mg/kg. Phosphorus values were ranging between 0.76 – 1.22 µg/g. Potassium values were ranging between 232 – 649 mg/kg. Sodium values were ranging between 604 – 1010 mg/kg. Total Sulphur values were observed to be BDL. The soil quality data for the 3 samples collected and analyzed are provided in Table no – 3.14.

### 11.3.3 AMBIENT AIR QUALITY

The results of ambient air quality monitoring for the period (December 2024 to February 2025) are presented in Chapter 3. The ambient air quality data for PM10, PM2.5, SO2, NO2, CO studied at 6 locations as per prescribed guidelines/ methods. As per the monitoring data, in core zone, the PM10 values were in the range of 59.20 – 73.9 µg/m3. PM2.5 values in the range of 28.41 – 35.47 µg/m3. SO2 levels were ranging from 7.10 – 8.40 µg/m3 and NO2 levels were ranging from 10.10 – 15.60 µg/m3. In buffer zone, the PM10 values were in the range of 45.30 – 61.80 µg/m3. PM2.5 values were in the range of 20.40 – 29.70 µg/m3. SO2 levels were ranging from 5.40 – 10.40 µg/m3. NO2 levels were ranging from 8.50 – 13.60 µg/m3. While comparing with the NAAQ Norms laid by MoEF, all monitored values of PM10, PM2.5, SO2, NO2 & CO were found to be well within the prescribed standards. The CO values in the all locations found to be below detectable limit (DL – 1144 µg/m3).

### 11.3.4 WATER ENVIRONMENT

**Surface Water**

The pH varied from 8.14 to 8.19 while turbidity found to be 6.3 to 10.0, which is exceeding the permissible limit of 5.0. Total Dissolved Solids varied from 442 to 445 mg/l. Chloride varied between 144 mg/l and 152 mg/l. Nitrates varied from 2.68 to 3.65 mg/l, while sulphates varied from 112 to 120 mg/l.

**Ground Water**

Suitability of ground water for drinking/irrigation/industrial purposes is determined keeping in view the effects of various chemical constituents present in water as required human use, plant use. Though many ions are very essential for the growth of plants and human body but when present in excess, have an adverse effect on health and growth.

As Per the data it has been observed that the pH value varies from 6.65 – 7.95, Chlorides Ranges From 89.6 - 493 mg/l, Sulphates value found to be between 64.6 - 291 mg/l, Fluoride value varies from 0.32 – 0.57 mg/l, Total Hardness varies from 121 – 446 mg/l, and Total dissolved solid 330 – 1520 mg/l. The ground water has been analyzed as per IS10500: 2012 and found to be suitable for drinking purpose. So the results of chemical and bacteriological analysis of water samples are classified under good class for drinking purpose with respect to total dissolved solids. Total hardness of the samples ranged from soft to moderately hard waters and can be fairly used for drinking. Regular ground water monitoring is suggested as the quality of ground water may fluctuate with groundwater consumption and seasonal variations.

### 11.3.5 NOISE ENVIRONMENT

From the monitoring data, it is observed that the day Equivalent Noise (Leq-d) level were ranging from 43.9 to 50.5 dB(A) and Night Equivalent Noise (Leq-n) level were ranging from 39.5 to 42.5 (A). Day and Night Equivalent Noise (Leq-n) level were ranging from 43.0 to 48.9 dB(A). While comparing with the MoEF Norm of 55 dB(A)

for day time and 45 dB(A) for night time, the monitored ambient noise levels are within the limit values.

### 11.3.6 BIOLOGICAL ENVIRONMENT

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. Hence this small operation over short period of time will not have any significant impact on the surrounding flora and fauna.

### 11.3.7 SOCIO-ECONOMIC ENVIRONMENT

An attempt has been made to assess the impact of the proposed mining project at koraikeni Village on Socioeconomic aspect of the study area. The various attributes that have been taken into account are population composition, employment generation, occupational shift, household income and consumption pattern. Implementation of the Proposed Mine Project will generate both direct and indirect employment. Besides, Mining operation will be legally valid and it will bring income to the state exchequer.

## 11.4 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Environmental impacts on the following environments are identified.

- Land environment
- Water environment
- Vegetation
- Fauna
- Air environment
- Noise environment
- Socio-economic impacts

### 11.4.1 LAND ENVIRONMENT: IMPACT AND MITIGATION MEASURES

The major impact due to this project on land environment is the change in land use. Since this quarry is a small one and the production is less, mining activity will be carried out upto 70 m BGL. Other than quarrying of minerals, no other change will be done since there is no dumping. To prevent soil erosion during monsoon season, garland drain will be constructed with silt traps. At the mine closure stage, 4.08.00 Ha of lease area will be left as rain water harvesting pond. 0.74.50 Ha will be developed with green belt. For this, plants like Pongamia pinnata, Syzigium cumini, Albizia lebbeck, Thespesia populnea, Bauhinia racemose, Cassia siamea, Azadirachta indiaca are selected. A total of 750 trees are planned to be planted. Spacing will be 3m x 3m.

### 11.4.2 WATER ENVIRONMENT: IMPACT AND MITIGATION MEASURES

There is no water body present inside the lease area. The entire water requirement for the project is 6.0KLD which will be sourced from outside agencies. Negligible sewage of 0.7 KLD will be generated, for which a septic tank with soak pit will be set up.

During monsoon season, the excess rain water, if any, will be led through garland drain of 0.6m width and 0.3 m depth to the collection pond with silt traps.

Since the mining operation will be limited upto depth of 70 m BGL, there will not be any seepage. However, the rain water percolation and collection of water from seepage shall be less than 300lpm and it shall be pumped out periodically by a stand by diesel powered Centrifugal pump motivated with 7.5H.P.Motor. The quality of water is expected to be potable. Hence, water stored in the quarry pit will be pumped into the adjacent agricultural fields. Further the water can also be used for plantation purposes. The water bodies found in the buffer zone are.

| Within 1 km Radius | |
|---|---|
| Seasonal Odai | 53 m - E |
| Korakeni Tank | 287 m (W) |
| Tank | 800 m (E) |
| **1 km to 10 km Radius** | |
| Nemili Tank | 1.2km (NE) |
| Sangarabarani River / Varaha Nadi | 1.25km (S) |
| Vidur Branch Canal | 1.58km (NW) |
| Poonampoondi Tank | 1.95km (NW) |
| Tank | 3.11km (NW) |
| Thollamur Eri | 3.50km (NE) |
| Tirukannur Lake | 5.18km (S) |
| Katterikuppam Lake | 6.49km (SE) |
| Veedur Dam | 6.55km (NW) |
| Tondi River | 8.00km (NW) |
| Mathur Lake | 8.54km (SW) |

Since these water bodies are located outside the lease area and there is no discharge of effluent or any untreated water from the mines will be made in to these water bodies, there is no major impact. The proponent will restrict the mining operation only within the lease and no other work will be carried out.

It is planned to carryout appropriate rainwater harvesting schemes and artificial recharge schemes in the area.

- Rain water falling in the quarry will be collected efficiently through garland drains.
- Water thus collected will be passed through collection tank with silt traps. This water can be used by the proponent for water sprinkling and for green belt purposes.
- Excess water after desiltation will be provided to downstream users, if any

### 11.4.3 BIOLOGICAL ENVIRONMENT: IMPACT AND MITIGATION MEASURES

**Impacts**

- Fauna is affected due to noise and vibration.
- Dust generation due to mining activities
- Change in land use of the lease area
- Accidental falling of animals

**Mitigation measures**

- Sirens will be blown before blasting in the mines. To reduce noise levels, plantation will be done. Blasting will be carried out only in the allotted time.
- To reduce dust generation, mist sprayers will be used. During transportation, the material will be covered with tarpaulin. Water sprinkling will be done to reduce generation of pollutants
- After the mine closure stage, the mine pit will be left as rain water collecting tank, which can attract bird population in the nearby areas.
- To prevent entry of animals, the mining area will be properly fenced.

### 11.4.4 AIR ENVIRONMENT: IMPACT AND MITIGATION MEASURES

The major air pollutants due to mining operations are fugitive emissions like $PM_{10}$, $PM_{2.5}$. Other than these pollutants, gaseous emissions of sulfur dioxide ($SO_2$) and oxides of nitrogen ($NO_x$) due to excavation/loading equipment and vehicles plying on haul roads are the cause of air pollution in the project area.

The major impacts are Dust emission due to drilling, blasting and transportation. The major mitigation measures include Using Wet drilling methods, Allowing drilling only with PPE, Carrying out blasting only during specified times, Avoiding blasting during unfavourable weather conditions, Using explosives of good quality, Using mist sprayers Regular wetting of transport, Covering the materials carried in tippers with tarpaulin, Proper maintenance of vehicles used for transportation, Conducting regular

emission tests for vehicles used for transport Development of greenbelt is proposed in the safety zone of 7.5m barriers in the lease area.

The anticipated data is calculated using AERMOD software and the projected values are found to be within limits.

### 11.4.5 NOISE ENVIRONMENT: IMPACT AND MITIGATION MEASURES

**Impacts**

- Noise generation in mining is due to operation like drilling, blasting and transportation of minerals within and outside the lease area.
- As per DGMS (Directorate General of Mines Safety) and OSHA (Occupational Safety and Health Administration) limits, the acceptable noise level is 90 dB (A) for an exposure period of 8 hours.
- Exposure to loud noise can also cause high blood pressure, heart disease, sleep disturbances, and stress. Noise pollution also impacts the health and well-being of wildlife.
- Noise exceeding prescribed limits may cause impairment like abnormal loudness perception, tinnitus, which causes a persistent high-pitched ringing in the ears, paracusis or distorted hearing

**Mitigation measures**

- As the distance between the source and receptor increases, the noise level also decreases. Hence, there will be a natural attenuation
- The proposed has planned to develop green belt in the periphery of the lease area, which diminishes sound volume by dampening them.
- All the equipment/machinery/trucks involved will be properly maintained to control noise generation
- Conducting regular health checkups for employees involved
- Employees will be made to work on shifts to reduce their exposure time
- Providing earplugs to all employees

By adopting these measures, the noise levels will be maintained well within MoEF & CC limits since the baseline value is low.

## 11.4.6 VIBRATION: IMPACT AND MITIGATION MEASURES

**Impacts**

- Though vibration will be only felt by the people working inside the lease area, it is usually undesired.
- Vibration may also cause flyrocks
- It may frighten the birds and small insects in the lease area. However, it will be felt only for a short period

**Mitigation measures**

- Carrying out blasting on limited scale, only from 12:00 PM to 2:00 PM
- Control of fly rock and vibration by maintaining peak particle velocity with in standard as prescribed by the DGMS and MOEF & CC.
- Shallow depths jackhammer drilling and blasting is proposed to be carried out with minimum use of explosive
- Supervising blasting by competent and statutory foreman/ mines manager

## 11.4.7 SOCIO ECONOMIC ENVIRONMENT

**Impact and Mitigation measures**

No land is acquired from anyone. No rehabilitation is needed. Hence, there is no negative impact. The proponent has planned to spend INR 5,00,000 for CER activities. This amount will be subjected to change after public hearing.

## 11.4.8 OCCUPATIONAL HEALTH

**Impacts**

Dust generation due to drilling and blasting, Noise generation due to drilling and blasting, unexpected accidents. Continuous exposure to dust causes Pneumonia, Tuberculosis, Rhematic arthritis and Segmental Vibration, Short term impact will be lack of sleep, high blood pressure and heart ailments. Long term exposure may lead to partial or permanent deafness, Risks include fly rocks, cracks or fissures due to improper mining methods

**Mitigation measures**

- Using dust suppression measures like water spraying on roads to reduce

rise of air pollutants

- Providing green belt for air pollutant and noise attenuation
- Ensuring slope stability
- Employing only trained professionals for blasting
- Conducting Pre-Medical Examination for employees before inducting
- Conducting periodical Medical Examination once in 6 months.
- Making all first aid kits available in mines office
- Keeping fire extinguisher in place
- Educating the employees about how to handle unexpected happenings
- Posting information containing emergency contact numbers in mines office
- By adopting all these measures, the safety of the employees working in the quarry will be ensured.

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 Chapter 4 of this report.

The project proponent will adopt all the necessary mitigation measures and management plan mentioned in this report and also comply the conditions stipulated in Environmental clearance and CTO of this project.

## 11.5 ENVIRONMENTAL MONITORING PROGRAM

Environmental Monitoring program will be conducted for various environmental components as per conditions stipulated in Environmental Clearance Letter issued by SEIAA & Consent to Operate issued by TNPCB. Post project monitoring program is detailed in Chapter 6.

Monitoring is done to measure the efficiency of control measures implemented. Regular monitoring of various environmental parameters like air, water, noise and soil environments is needed to assess the status of environment during the project

operation. A schedule is framed with timeline to monitor various parameters during the operation of the project. To evaluate the effectiveness of environmental management programme, regular monitoring of the important environmental parameters will be taken up. Air monitoring will be carried out once in 3 months, water sample will be collected once in a season, noise will be monitored once in 3 months, soil samples will be analyzed once per season.

PP will supervise the overall environmental management plan of the project during operation. Total EMP Cost for 10 years is 48.12 lakhs i.e., Rs.9.13 Lakhs of Capital + Recurring cost Rs. 38.99 lakhs for Ten years.

## 11.6 ADDITIONAL STUDIES

The following Additional Studies were done as per items identified by project proponent and the regulatory authority.

- Public Consultation
- Risk Assessment
- Disaster Management Plan
- Cumulative Impact Study
- Mine Closure Plan
- Hydrogeological Study

Terms of Reference with Public Hearing (ToR) for the project was issued vide TO25B0108TN5591167N, Dated: 13.05.2025. Now, this Draft EIA / EMP Report is prepared for conducting Public Hearing as the projects falls under B1 Category.

No high-risk accidents are anticipated as it is small scale mechanized Quarry with essential light machinery. The area is not prone for landslides, seismic activities, subsidence, floods, inundation etc. As there are no rivers and habitation in the vicinity of probable disaster from the mine lease area. Elaborate description in respect of Risk Assessment and disaster Management plan are detailed in Chapter – 7.

Although the individual lease area of this project is less than 5 Ha, the other existing and proposed quarries within the 500m radius along with this subject project works out to >5 Ha. A Cumulative impact study is conducted to determine the impact of the

existing and proposed quarries located within 500m radius on the environment and are detailed in Section 7.4.

The baseline monitoring carried out for this project reflects the cumulative impact of this existing quarry. Air Quality Model simulations are carried out for PM10 and PM2.5. It can be seen that the resultant added concentrations with baseline figures even at worst scenario and cumulative impact of both the projects show that the values of ambient air quality with respect to PM10 are in the range of 55.10 µg/m3 to 78.83 µg/m3 and for PM2.5 are in the range of 26.76 µg/m3 to 37.58 µg/m3 which are within the statutory limits in each case.

In the mine closure stage, all necessary measures will be taken as per Act & Rules, there is no proposal for back filling, reclamation and rehabilitation in any of the proposals. The quarried pits after the end of life of mine will be properly fenced all around to prevent inherent entry of public and cattle and all the statutory requirements will be fulfilled. As already explained, in the post mining stage the rainwater harvested in the mined- out void shall be utilized for irrigation and domestic needs locally. The mine closure plan is provided in Figure 2.9.

## 11.7 PROJECT BENEFITS

**Financial benefits**

- This project will contribute financially through payment of taxes like royalty, GST, etc
- The project will also contribute via CSR.

**Social benefits**

- This project provides employment to 34 people directly. Local people will be hired for unskilled labour.
- Through CSR, nearby schools, hospitals will be benefitted.
- For CSR, INR 5,00,000 is allocated.

## 11.8 CONCLUSION

EIA study was performed as per the approved ToR. Various environmental attributes were studied relating with aspects of mining activities. The related impacts were identified and evaluated. Considering all the possible ways to mitigate the environmental concerns, Environmental Management Plan was prepared and accordingly fund was allocated. The EMP has been dynamic, flexible and subject to periodic review.

The project will increase the revenue of the State Govt. as well as it will help in the social upliftment of the local community. The green belt development programme will help in increasing the green cover in the area. Thus, the proposed project is not likely to affect the environment or adjacent ecosystem adversely.

The Mine Management will be responsible for the project 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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# 12. DISCLOSURE OF CONSULTANTS

*Global Mining Solutions is a NABET Accredited EIA consultant as per NABET certificate NABET/EIA/2326/IA 0110. The registered office of Global Mining Solutions is at Plot No.6, S.F.No.13/2 A2, VS City, RC Chettypatty, Kottamettupatty, Omalur, Salem, Tamilnadu-636455.*

*Declaration by Experts contributing to the proposed Rough Stone and Gravel Quarry over an extent of 4.84.50 Ha, while total cluster area of 9.69.78 Ha at Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu.*

*I, hereby, certify that I was a part of the EIA team that developed the above EIA.*

*EIA Coordinator Name: Manikandan Manickam*



*Signature & Date*

*Period of involvement: December 2024 to February 2025*

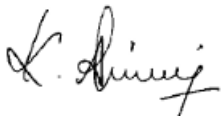
***Contact information:***

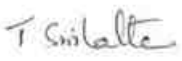
***M/s Global Mining Solutions***

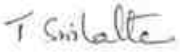
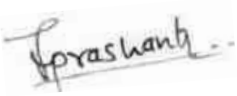
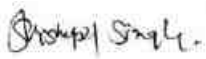
***Plot No.6, SF No. 13/2, A2, VS City, RC Chettypatty,***

***Kottamettupatty, Omalur,***

***Salem, Tamil Nadu – 636 455***

| S. No. | Functional areas | Name of the expert/s | Involvement (period and task**) | Signature and Date |
|---|---|---|---|---|
| 1 | *AP* | *Dhanalakshmi Ramanathan* | *Assessment of existing air quality, Impact of the project on ambient air and suggested mitigation measures for air pollution.*<br><br>*Period: December 2024 to February 2025.* |  |
| 2 | *WP* | *Abirami Kaliaperumal* | *Assessment of existing water quality, impact of the project on surface and ground water quality, suggested mitigation measures for minimizing the impact.*<br><br>*Period: December 2024 to February 2025.* |  |
| 3 | *SHW* | *Ramadoss N* | *Assessment of waste generated from the project, suggested waste management practices.*<br><br>*Period: December 2024 to February 2025.* |  |
| 4 | *SE* | *Sarasvathy K* | *Baseline SE study. Data compilation and assessment. Impact of the project on SE status of the area. Formulation of CER plan.* |  |

| | | | | |
|---|---|---|---|---|
| | | | *Period: December 2024 to February 2025.* | |
| 5 | *EB* | *Saravanan S* | *Baseline data collection of related to ecology of the area.*<br><br>*Period: December 2024 to February 2025.* |  |
| 6 | *HG* | *Ravinthiran N* | *Hydrogeological feature of the area. Ground water depth and impact of project on ground water of the area.*<br><br>*Period: December 2024 to February 2025.* |  |
| 7 | *AQ* | *Srilatha Thiruveedhula* | *Air quality modeling utilizing the area source model. Predication of the ground level concentration of the dust. Suggesting suitable mitigation measures.*<br><br>*Period: December 2024 to February 2025.* |  |

| | | | | |
|---|---|---|---|---|
| 8 | *NV* | *Dhanalakshmi Ramanathan* | *Ambient noise study of the area. Incremental noise generation due to quarry operation and impact of the noise due to the project.*<br><br>*Period: December 2024 to February 2025.* |  |
| 9 | *LU* | *Srilatha Thiruveedhula* | *Preparation of land use map based on satellite imagery. Land use classification and analysis. Impact prediction of the project on the surrounding land environment.*<br><br>*Period: December 2024 to February 2025.* |  |
| 10 | *RH* | *S.V. Prashant* | *Identification of the Risk related to the mining activities. Preparation of emergency disaster management plan. Plan for supply of safety equipment for the worker.*<br><br>*Period: December 2024 to February 2025.* |  |
| 11 | *SC* | *Shisupal Sing* | *Soil monitoring, secondary data collection on soil type, soil management practices, utilization of topsoil.*<br><br>*Period: December 2024 to February 2025.* |  |
| 12 | *GEO* | *Valliappan Meyyappan* | *Geological map, stability of quarry and dump, management plan for mine stability, after use of* |  |

| | | | | |
|---|---|---|---|---|
| | | | *mining quarry and geological feature of the area.*<br><br>*Period: December 2024 to February 2025.* | |

*TM- EC*

| *S.No* | *Name of TM (EC)* | *Sector(s) proposed* | *Approved (to work under)* | *Period of involvement* | *Type of work* | *Signature* |
|---|---|---|---|---|---|---|
| *1.* | *Dhanalakshmi* | *1* | *Manikandan Manickam* | *Period: March to May 2025.* | *Associated with EIA Coordinator in overall preparation of Draft EIA/EMP report.* |  |

**TM- FAE:**

| **S. No** | **Name of TM (FAE)** | **Functional Area** | **Approved FAE (to work under)** | **Period of involvement** | **Type of work** | **Signature** |
|---|---|---|---|---|---|---|
| 1 | Kamaraj S | LU | Srilatha Thiruveedhula | Period: March to May 2025 | Associated with Experts in preparing Land use map based on satellite imagery, Land use classification and analysis, Impact prediction on |  |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | surrounding land environment. | |
| | | HG | Ashok Kumar Rajagopal | *Period: March to May 2025.* | Associated with Experts in studying hydrogeological pattern of study area, Studying ground water and the impact of the project on ground water | |
| 2 | B.J.Sampatkkumar | SE | Saraswathy K | *Period: March to May 2025.* | Assisted by the Expert in preparation of socio-economic report. |  |
| | | SC | Shishupal Singh | *Period: March to May 2025.* | Assisted by the Expert in interpretation of soil sampling and their quality involved in the project. | |
| 3 | Mownica Balaji | NV | Dhanalakshmi Ramanathan | *Period: March to May 2025.* | Associated with the expert team in suggesting control measures for noise and Ground Vibration. |  |
| | | AP | Dhanalakshmi | | Associated with expert team in assessing existing | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | Ramanathan | | air quality, impact of the project on ambient air and suggesting mitigation measures for air pollution | |
| 4 | Balasubramani G | NV | Dhanalakshmi<br>Ramanathan | *Period: March to May 2025.* | Associated with the expert in selection of base line monitoring stations, Review of Noise quality results, Review of emission sources – drilling, blasting, excavation and transportation, Identification of impacts on environment, identification of remedial measures and input to EIA preparation |  |
| | | Geo | Valliappan Meyyappan | | Associated with the expert in preparing Geological map. | |
| 5 | Suresh Mani | LU | Srilatha Thiruveedhula | *Period: March to May 2025.* | Associated with Experts in preparing Land use map based on satellite imagery, Land use classification and analysis, Impact |  |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | prediction on surrounding land environment. | |
| | | HG | Ashok Kumar Rajagopal | | Associated with Experts in studying hydro-geology pattern of study area, studying water and the impact of the project on ground water. | |
| 6 | Asan Ali S | NV | Srilatha Thiruveedhula | *Period: March to May 2025.* | Associated with the expert in monitoring and analysis of blast induced ground vibration in order to develop the site-specific equation for its prediction, monitoring of fly rocks & air blast (noise), preparation of SOP's for the safety blasting practice in the mines. | S. Asan ali |
| | | Geo | Valliappan Meyyappan | | Associated with the Qualified Person & Experts in preparing Geological map, assessing stability of quarry slope faces and dump, | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | management plan for mine stability and after use of mining quarry and geological features of the area during mine plan preparation. | |
| 7 | Prabu M | Geo | Valliappan Meyyappan | *Period: March to May 2025.* | Associated with Experts and involved in Field Investigations, Mapping /Geo-referencing |  |
| 8 | Abirami Kaliyaperumal | RH | S V Prashant | *Period: March to May 2025.* | Associated with experts and involved in the identification risk and hazard, suggesting safeguard measures. |  |
| 9 | Dhanalakshmi Ramanathan | AQ | Srilatha Thiruveedhula | *Period: March to May 2025* | Involved with Expert team and involved in calculating air emission values using Meteorological data and Providing inputs for running modelling (ISCT3, AERMOD). |  |
| 10 | Manikandan Manickam | AP | Ramadoss N | *Period: March to* | Associated with expert team in assessing existing | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | *May 2025.* | air quality, impact of the project on ambient air and suggesting mitigation measures for air pollution |  |
| | | WP | Abirami Kaliyaperumal | | Involved in the identification of source of water and waste generation, suggesting treatment for safe disposal of wastewater | |

# ANNEXURE-1

**File No:** 11897
**Government of India**
**Ministry of Environment, Forest and Climate Change**
**(Issued by the State Environment Impact Assessment Authority(SEIAA), TAMIL NADU)**
***

Dated **13/05/2025**

To,

Thiru.S.Senthil Kumar
S/o.Sekar, No.9, Selsiya Street, Raja Annamalai Nagar, Gorimedu, PONDICHERRY, PUDUCHERRY, 605006
sskearthmovers@yahoo.in

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

**Sir/Madam,**

**Sub:** SEIAA, Tamil Nadu – Proposed Rough stone & Gravel Quarry lease over an extent of 4.84.5Ha at S.F.No.42/3A, 42/3B, 44/1, 44/2, 44/3, 44/4A(P) and 44/4B of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu by Thiru.S.Senthil Kumar - 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/522426/2025, Dated: 05/02/2025.
2. Your application submitted for Terms of Reference dated: 26.02.2025.
3. Minutes of the 542nd SEAC Meeting held on 26.03.2025.
4. Minutes of the 817th Authority meeting held on 07.05.2025.

2. The particulars of the proposal are as below :

| | |
|---|---|
| **(i) TOR Identification No.** | TO25B0108TN5591167N |
| **(ii) File No.** | 11897 |
| **(iii) Clearance Type** | TOR |
| **(iv) Category** | B1 |
| **(v) Project/Activity Included Schedule No.** | 1(a) Mining of minerals |
| **(vii) Name of Project** | Proposed Rough stone and Gravel Quarry of Thiru.S.Senthil Kumar |
| **(viii) Name of Company/Organization** | SEKAR SENTHIL KUMAR |
| **(ix) Location of Project (District, State)** | VILLUPURAM, TAMIL NADU |
| **(x) Issuing Authority** | SEIAA |
| **(xii) Applicability of General Conditions** | no |
| **(xiii) Applicability of Specific Conditions** | no |

1.In view of the particulars given in the Para 1 above, the project proposal interalia including Form-1(Part A and B) were

submitted to the SEIAA for an appraisal by the SEAC under the provision of EIA notification 2006 and its subsequent amendments.

2.The above-mentioned proposal has been considered by SEIAA in the meeting held on 07.05.2025. The minutes of the meeting and all the Application and documents submitted [(viz. Form-1 Part A, Part B,] are available on PARIVESH portal which can be accessed by scanning the QR Code above.

3.The State Expert Appraisal Committee (SEAC), based on the information & clarifications provided by the project proponent and after detailed deliberations on all technical aspects recommended the proposal for grant of Terms of Reference with public hearing under the provision of EIA Notification, 2006 and as amended thereof subject to the stipulation of specific and general conditions as detailed in Annexure (2).

4.The SEIAA has examined the proposal in accordance with the Environment Impact Assessment (EIA) Notification,2006 & further amendments thereto and after accepting the recommendations of the SEAC hereby decided to issue the following Terms of Reference with public hearing for instant proposal of Thiru.S.Senthil Kumar under the provisions of EIA Notification, 2006 and as amended thereof.

5.The Ministry/SEIAA-TN reserves the right to stipulate additional conditions, if found necessary.

6.The Terms of Reference with public hearing to the aforementioned project is under provisions of EIA Notification,2006. It does not tantamount to approvals/consent/permissions etc. required to be obtained under any other Act/Rule/regulation. The Project Proponent is under obligation to obtain approvals /clearances under any other Acts/Regulations or Statutes, as applicable, to the project.

7.This issues with the approval of the Competent Authority.

8.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 OM No. J-11013/41/2006-IA-II(I)(part) dated 29th August 2017.

**Copy To**

1. The Secretary, Ministry of Mines, Government of India, Shastri Bhawan, New Delhi.
2. The Principal Secretary to Government, Environment and Forests Department, Tamil Nadu.
3. The Additional Chief Secretary to Government, Natural Resources Department, Tamil Nadu.
4. The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-Cum-Office Complex, East Arjun Nagar, New Delhi-110 032.
5. The Chair Person, TNPC Board,76, Mount Salai, Guindy, Chennai-32
6. The District Collector, Viluppuram District
7. The Commissioner of Geology and Mines, Guindy, Chennai-32
8. The Assistant Director, Department of Geology & Mining, Viluppuram District
9. EI Division, Ministry of Environment & Forests, Paryavaran Bhawan, New Delhi.
10. Integrated Regional office of MoEF&CC, Sasthri Bhawan, Nungambakkam, Chennai
11. File Copy

**Annexure 1**

**Specific Terms of Reference for (Mining Of Minerals)**

**1. Seiaa Specific Conditions:**

| S. No | Terms of Reference |
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| 1.1 | The authority noted that the subject was placed in the 542nd SEAC-I meeting held on 26.03.2025. After detailed discussions, the Authority accepts the recommendation of SEAC-I and decided to grant **Terms of Reference (ToR) along with Public Hearing for the quantity of 14,12,880m$^3$ of Rough Stone & 2,13,185m$^3$ of Gravel upto the depth of 70m BGL** as per the approved mining plan, 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-I & normal conditions & the conditions mentioned in Annexure of this minutes. |

**2. Seac Conditions - Site Specific**

| S. No | Terms of Reference |
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| **2.1** | 1. Since agricultural activity is observed on the adjacent site, the PP shall furnish the impact study report on agricultural activity due to quarrying.<br>2. A Cluster Management Committee (CMC) shall be constituted including all the mines in the cluster as Committee Members for the effective management of the mining operation in the cluster through systematic & scientific approach with appointment of required statutory personnel, appropriate environmental management, system of maintaining the haul roads and village/panchayat roads, authorized blasting operation, Monitoring system of the environmental & other statutory compliances & its reporting status, etc. The PP shall submit the following details in the form of an Affidavit during the EIA appraisal:<br>(i) Copy of the agreement forming CMC.<br>(ii) The Organisation chart of the Committee with defining the role of the members<br>(iii) The 'Standard Operating Procedures' (SoP) executing the planned activities.<br>3. The PP shall ensure the installation of CCTV at the proposed quarry site and ensure its inclusion during the EIA presentation. |

**3. Seac Standard Conditions**

| S. No | Terms of Reference |
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| **3.1** | 1. In the case of existing/operating mines, a letter obtained from the concerned AD (Mines) shall be submitted and it shall include the following:<br>(i) Original pit dimension<br>(ii) Quantity achieved Vs EC Approved Quantity<br>(iii) Balance Quantity as per Mineable Reserve calculated.<br>(iv) Mined out Depth as on date Vs EC Permitted depth<br>(v) Details of illegal/illicit mining<br>(vi) Violation in the quarry during the past working.<br>(vii) Quantity of material mined out outside the mine lease area<br>(viii) Condition of Safety zone/benches<br>(ix) Revised/Modified Mining Plan showing the benches of not exceeding 6 m height and ultimate depth of not exceeding 50m.<br>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.<br>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.<br>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.<br>5. The Proponent shall carry out Bio diversity study through reputed Institution and the same shall be included in EIA Report.<br>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.<br>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 |

| S. No | Terms of Reference |
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| | 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.<br>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.<br>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.<br>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.<br>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.<br>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,<br>13. What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?<br>14. Quantity of minerals mined out.<br>· Highest production achieved in any one year<br>· Detail of approved depth of mining.<br>· Actual depth of the mining achieved earlier.<br>· Name of the person already mined in that leases area.<br>· If EC and CTO already obtained, the copy of the same shall be submitted.<br>· Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.<br>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).<br>16. The PP shall carry out Drone video survey covering the cluster, green belt, fencing, etc.,<br>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.<br>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.<br>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.<br>20. The Project Proponent shall conduct the hydro-geological study considering the contour map of the water table detailing the number of groundwater pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds, etc. within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD / TWAD so as to assess the impacts on the wells due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this |

| S. No | Terms of Reference |
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| | regard may be provided.<br>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.<br>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.<br>23. Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.<br>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.<br>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.<br>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.<br>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.<br>28. Impact on local transport infrastructure due to the Project should be indicated.<br>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.<br>30. A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.<br>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.<br>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.<br>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<br>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.<br>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.<br>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 |

| S. No | Terms of Reference |
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| | 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.<br>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.<br>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.<br>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.<br>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.<br>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.<br>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.<br>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. |

**4. Seiaa Standard Conditions:**

| S. No | Terms of Reference |
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| **4.1** | **<u>Cluster Management Committee</u>**<br>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.<br>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.,<br>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.<br>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.<br>5. The committee shall deliberate on risk & emergency management plan, fire safety & evacuation plan and sustainable development goals 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.<br>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 in the EIA Report.<br>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.<br>8. The committee shall deliberate on the health of the workers/staff involved in the mining as well as the health of the public in the vicinity.<br>**<u>Agriculture & Agro-Biodiversity</u>**<br>9. Impact on surrounding agricultural fields around the proposed mining Area. |

| S. No | Terms of Reference |
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| | 10. Impact on soil flora & vegetation around the project site.<br>11. Details of type of vegetation including no. of trees & shrubs within the proposed mining area and. If so, transplantation of such vegetation all along the boundary of the proposed mining area shall committed mentioned in EMP.<br>12. The Environmental Impact Assessment should study the agro-biodiversity, agro- forestry, horti-cultural plantations, the natural ecosystem, the soil micro flora, fauna and soil seed banks and suggest measures to maintain the natural Ecosystem.<br>13. Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.<br>14. The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands, Horticulture, Agriculture and livestock.<br>**Forests**<br>15. The project proponent shall detailed study on impact of mining on Reserve forests and free ranging wildlife.<br>16. The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.<br>17. The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection.<br>18. The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site.<br>**Water Environment**<br>19. 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.<br>20. Erosion Control measures.<br>21. 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.<br>22. The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir.<br>23. The project proponent shall study and furnish the details on potential fragmentation impact on natural Environment, by the activities.<br>24. 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.<br>25. The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components.<br>26. The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites.<br>27. The EIA shall include the impact of mining activity on the following:<br>a) Hydrothermal/Geothermal effect due to destruction in the Environment.<br>b) Bio-geochemical processes and its foot prints including Environmental stress.<br>c) Sediment geochemistry in the surface streams.<br>**Energy**<br>28. The measures taken to control Noise, Air, Water, Dust Control and steps adopted to efficiently utilise the Energy shall be furnished.<br>**Climate Change**<br>29. 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. |

| S. No | Terms of Reference |
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| | 30. The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock, soil health and physical, chemical & biological soil features.<br>31. Impact of mining on pollution leading to GHGs emissions and the impact of the same on the local livelihood.<br>**Mine Closure Plan**<br>32. Detailed Mine Closure Plan covering the entire mine lease period as per precise area communication order issued.<br>**EMP**<br>33. Detailed Environment Management Plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued and the scope for achieving SDGs.<br>34. The Environmental Impact Assessment should hold detailed study on EMP with budget for Green belt development and mine closure plan including disaster management plan.<br>**Risk Assessment**<br>35. To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining.<br>**Disaster Management Plan**<br>36. To furnish disaster management plan and disaster mitigation measures in regard to all aspects to avoid/reduce vulnerability to hazards & to cope with disaster/untoward accidents in & around the proposed mine lease area due to the proposed method of mining activity & its related activities covering the entire mine lease period as per precise area communication order issued.<br>**Others**<br>37. 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.<br>38. 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.<br>39. 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. |

**Standard Terms of Reference for (Mining of minerals)**

**1.**

| S. No | Terms of Reference |
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| **1.1** | 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 |
| **1.2** | A copy of the document in support of the fact that the Proponent is the rightful lessee of the mine should be given |
| **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 |

| S. No | Terms of Reference |
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| | management, mining technology etc. and should be in the name of the lessee |
| **1.4** | All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/ toposheet, topographic sheet, geomorphology and geology of the areashould 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) |
| **1.5** | 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 |
| **1.6** | Details about the land proposed for mining activities should be givenwith 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 |
| **1.7** | 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 |
| **1.8** | Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided |
| **1.9** | The study rea 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 |
| **1.10** | Land use of the study rea 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 |
| **1.11** | 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 |
| **1.12** | 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 |
| **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 |

| S. No | Terms of Reference |
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| | indicated. A copy of the forestry clearance should also be furnished |
| **1.14** | 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 |
| **1.15** | The vegetation in the RF / PF areas in the study area, with necessary details, should be given |
| **1.16** | 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 |
| **1.17** | 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 Wildlifeand copy furnished |
| **1.18** | 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 alongwith 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 |
| **1.19** | 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 Dept. Should be secured and furnished to the effect that the proposed mining activities could be considered |
| **1.20** | 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) |
| **1.21** | 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 |
| **1.22** | 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 |

| S. No | Terms of Reference |
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| | 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 |
| **1.23** | 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 |
| **1.24** | 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 |
| **1.25** | Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided |
| **1.26** | 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 |
| **1.27** | 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 |
| **1.28** | 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 State Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished |
| **1.29** | 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 |
| **1.30** | 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 |
| **1.31** | 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 |

| S. No | Terms of Reference |
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| **1.32** | 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 |
| **1.33** | Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report |
| **1.34** | 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 |
| **1.35** | Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed |
| **1.36** | 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 |
| **1.37** | 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 |
| **1.38** | 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 |
| **1.39** | 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 |
| **1.40** | Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given |
| **1.41** | The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out |
| **1.42** | A Disaster management Plan shall be prepared and included in the EIA/EMP Report |
| **1.43** | 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 |
| **1.44** | Besides the above, the below mentioned general points are also to be followed:- a) All documents to be properly referenced with index and continuous page numbering. b) Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated. c) 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 |

| S. No | Terms of Reference |
|---|---|
| | reports should be available during appraisal of the Project. d) Where the documents provided are in a language other than English, an English translation should be provided. e) The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted. f) While preparing the EIA report, the instructions for the Proponents and instructions for the Consultants issued by MoEF 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. g) 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. h) 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. i) The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and sections and (iii) sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area |

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## A. STANDARD TERMS OF REFERENCE

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

9) The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc. should be for the life of the mine / lease period.

10) Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.

11) Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.

12) Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area. In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees.

13) Status of forestry clearance for the broken up area and virgin forestland involved in the Project including deposition of Net Present Value (NPV) and Compensatory Afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.

14) Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.

15) The vegetation in the RF / PF areas in the study area, with necessary details, should be given.

16) A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted.

17) Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/ Elephant Reserves/(existing as well as proposed), if any, within 10 km of the mine lease should be clearly indicated, supported by a location map duly

authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished.

18) A detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled-I fauna found in the study area, the necessary plan along with budgetary provisions for their conservation should be prepared in consultation with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost.

19) Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravali Range', (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Department should be secured and furnished to the effect that the proposed mining activities could be considered.

20) Similarly, for Coastal Projects, a CRZ map duly authenticated by one of the authorized agencies demarcating LTL. HTL, CRZ area, location of the mine lease with respect to CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).

21) R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine lease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspects should be discussed in the Report.

22) One season (non-monsoon) [i.e. March-May (Summer Season); October-December (post monsoon season) ; December-February (winter season)]primary baseline data on

ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.

23) Air quality modeling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of Vehicles for transportation of mineral. The details of the model used and input parameters used for modeling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map.

24) The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated.

25) Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.

26) Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.

27) Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided.

28) Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter-alia, shall include details of the aquifers 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 cle arly indicating the area to be covered under plantation and the species to be planted. The details of plantation already done should be given. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution.

32) Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines.

33) Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.

34) Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report.

35) Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.

36) Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.

37) Measures of socio economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.

38) Detailed Environmental Management Plan (EMP) to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project.

39) Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.

40) Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.

41) The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.

42) A Disaster management Plan shall be prepared and included in the EIA/EMP Report.

43) Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.

44) Besides the above, the below mentioned general points are also to be followed:-

a) Executive Summary of the EIA/EMP Report

b) All documents to be properly referenced with index and continuous page numbering.

c) Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated.

d) Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise etc. using the MoEF&CC/NABL accredited laboratories. All the original analysis/testing reports should be available during appraisal of the Project.

e) Where the documents provided are in a language other than English, an English translation should be provided.

f) The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted.

g) While preparing the EIA report, the instructions for the Proponents and instructions for the Consultants issued by MoEF&CC vide O.M. No. J-

11013/41/2006-IA.II(I) dated 4th August, 2009, which are available on the website of this Ministry, should be followed.

h) Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the PFR for securing the TOR) should be brought to the attention of MoEF&CC with reasons for such changes and permission should be sought, as the ToR may also have to be altered. Post Public Hearing changes in structure and content of the draft EIA/EMP (other than modifications arising out of the P.H. process) will entail conducting the PH again with the revised documentation.

i) As per the circular no. J-11011/618/2010-IA.II(I) dated 30.5.2012, certified report of the status of compliance of the conditions stipulated in the Environment Clearance for the existing operations of the project, should be obtained from the Regional Office of Ministry of Environment, Forest and Climate Change, as may be applicable.

j) The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and sections and (iii) sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area.

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

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

1. Project name and location (Village, District, State, Industrial Estate (if applicable).
2. Process description in brief, specifically indicating the gaseous emission, liquid effluent and solid and hazardous wastes.
3. Measures for mitigating the impact on the environment and mode of discharge or disposal.
4. Capital cost of the project, estimated time of completion.
5. The proponent shall furnish the contour map of the water table detailing the number of wells located around the site and impacts on the wells due to mining activity.
6. A detailed study of the lithology of the mining lease area shall be furnished.
7. Details of village map, “A” register and FMB sketch shall be furnished.
8. Detailed mining closure plan for the proposed project approved by the Geology of Mining department shall be 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.
27. A detailed report on the green belt development already undertaken is to be furnished and also submit the proposal for green belt activities.
28. The proponent shall propose the suitable control measure to control the fugitive emissions during the operations of the mines.

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

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

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

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

Validity unknownSignature valid

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

Date: 13/05/2025

# ANNEXURE-2

ANNEXURE I

ந.க.ஆ/புவி(ம)சுர/157/2024
நாள்: 03.12.2024.

உதவி இயக்குநர்,
புவியியல் மற்றும் சுரங்கத்துறை அலுவலகம்,
விழுப்புரம்.

27 DEC 2024

**குறிப்பாணை**

பொருள்: கனிமங்களும் குவாரிகளும் - சிறுகனிமம் - சாதாரண கற்கள் மற்றும் கிராவல் - விழுப்புரம் மாவட்டம் - வானூர் வட்டம் - கோரைக்கேணி கிராமம் - பட்டா எண்கள்: 42/3A - 0.13.5 ஏர்ஸ், 42/3B - 0.91.5 ஏர்ஸ், 44/1 - 0.26.5 ஏர்ஸ், 44/2 - 0.26.0 ஏர்ஸ், 44/3 - 0.25.5 ஏர்ஸ், 44/4A (பகுதி) - 2.85.5 ஹெக்டேர் மற்றும் 44/4B - 0.16.0 ஏர்ஸ் ஆக மொத்தம் 4.84.5 ஹெக்டேர் பரப்பளவில் பத்தாண்டுகளுக்கு சாதாரண கற்கள் மற்றும் கிராவல் குவாரி வெட்டியெடுக்க குவாரி குத்தகை அனுமதி கோரி திரு.எஸ். செந்தில்குமார் த-பெ. சேகர் என்பவர் விண்ணப்பம் செய்தது - குவாரி குத்தகை உரிமம் வழங்குவதற்கான தகுதியான நிலப்பரப்பிற்கான சுரங்கத்திட்டம் சமர்பிக்க கோரியது - தொடர்பாக.

பார்வை:
1. திரு.எஸ். செந்தில்குமார் த-பெ. சேகர், நெ.9, செல்சியா தெரு, ராஜா அண்ணாமலை நகர், கோரிமேடு, புதுச்சேரி என்பவரது விண்ணப்பம் நாள்: 13.05.2024
2. விழுப்புரம் வருவாய் கோட்டாட்சியர் (மு.கூ.பொ) அவர்களின் கடித எண். ந.க.அ4/1864/2024, நாள்.09.09.2024.
3. விழுப்புரம் புவியியல் மற்றும் சுரங்கத்துறை உதவி புவியியலாளர் புலத்தணிக்கை அறிக்கை நாள்: 30.09.2024
4. திரு.எஸ். செந்தில்குமார் த-பெ. சேகர், நெ.9, செல்சியா தெரு, ராஜா அண்ணாமலை நகர், கோரிமேடு, புதுச்சேரி என்பவரது மனு நாள்: 13.11.2024

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விழுப்புரம் மாவட்டம், வானூர் வட்டம், கோரைக்கேணி கிராமம், பட்டா புல எண்கள்: 42/3A - 0.13.5 ஏர்ஸ், 42/3B - 0.91.5 ஏர்ஸ், 44/1 - 0.26.5 ஏர்ஸ், 44/2 - 0.26.0 ஏர்ஸ், 44/3 - 0.25.5 ஏர்ஸ், 44/4A - 3.05.5 ஏர்ஸ் மற்றும் 44/4B - 0.16.0 ஏர்ஸ் ஆக மொத்தம் 5.04.5 ஹெக்டேர் பரப்பளவில் பத்தாண்டுகளுக்கு சாதாரண கற்கள் மற்றும் கிராவல் வெட்டியெடுப்பது தொடர்பாக 1959-ஆம் ஆண்டு தமிழ்நாடு சிறுவகை கனிமச்சலுகை விதிகள், விதி எண். 19-ன்கீழ் குவாரிபணி செய்ய உரிமம் வழங்கிட கோரி பார்வை 1-ல் கண்டவாறு விண்ணப்பம் செய்துள்ளீர்.

மேற்படி விண்ணப்பம் தொடர்பாக, விழுப்புரம் வருவாய் கோட்டாட்சியர் மற்றும் விழுப்புரம் மாவட்ட புவியியல் மற்றும் சுரங்கத்துறை உதவி புவியியலாளர் ஆகியோரின் விசாரணை மற்றும் பரிந்துரை அறிக்கையினை பரிசீலனை செய்ததில் விழுப்புரம் மாவட்டம், வானூர் வட்டம், கோரைக்கேணி கிராமம், பட்டா புல எண்கள்: 42/3A - 0.13.5 ஏர்ஸ், 42/3B - 0.91.5 ஏர்ஸ், 44/1 - 0.26.5 ஏர்ஸ், 44/2 - 0.26.0 ஏர்ஸ், 44/3 - 0.25.5 ஏர்ஸ், 44/4A - 3.05.5 ஏர்ஸ் மற்றும் 44/4B - 0.16.0 ஏர்ஸ் ஆக மொத்தம் 5.04.5 ஹெக்டேர் பரப்பளவில் உள்ள பட்டா நிலத்தில் திரு.எஸ். செந்தில்குமார் த-பெ. சேகர் என்பவருக்கு பத்தாண்டுகளுக்கு




சாதாரணக்கற்கள் மற்றும் கிராவல் குவாரி உரிமம் வழங்க கீழ்கண்ட நிபந்தனைகளுக்குட்பட்டு அனுமதி வழங்கலாம் என பரிந்துரை செய்துள்ளனர்.

i. குவாரி குத்தகை அனுமதி வழங்க கோரும் புலன்களுக்கு அருகிலுள்ள பட்டா நிலங்களுக்கு 7.5 மீட்டர் பாதுகாப்பு இடைவெளியும் மற்றும் அரசு புறம்போக்கு நிலங்களுக்கு 10 மீட்டர் பாதுகாப்பு இடைவெளியும் விட்டு குவாரிப்பணி மேற்கொள்ளப்பட வேண்டும்.

ii. குவாரி குத்தகை உரிமம் கோரும் புலன்களை சுற்றியுள்ள மின்கம்பி பாதைகளுக்கு 50 மீட்டர் பாதுகாப்பு இடைவெளி விடப்பட வேண்டும்.

iii. குவாரி குத்தகை கோரும் புலன்களுக்கு அருகில் உள்ள ஓடை புறம்போக்கு புல எண்: 43/-க்கு போதிய பாதுகாப்பு இடைவெளி விடப்பட வேண்டும்.

iv. குவாரி பணிக்கான சாலை அமைக்கும்போது புல எண்: 43/-ல் உள்ள ஓடைக்கு எந்த பாதிப்பும் ஏற்படுத்தக் கூடாது.

v. குவாரிப்பணி மேற்கொள்ளும் போது அருகிலுள்ள பட்டா மற்றும் அரசு புறம்போக்கு நிலங்களுக்கு எவ்வித இடையூறும் இல்லாமல் குவாரிப்பணி செய்ய வேண்டும்.

vi. குவாரி குத்தகை வழங்கும் முன்பு விண்ணப்பித்துள்ள இடத்தினை DGPS சர்வே பணி மேற்கொண்டு அதன் அறிக்கையை சமர்பிக்க வேண்டும்.

vii. தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 1959 விதி-41ன்படி தகுதிவாய்ந்த நபரால் சுரங்க திட்டம் தயார் செய்து உதவி இயக்குநர் அவர்களின் ஒப்புதல் பெறவேண்டும்.

viii. தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 1959 விதி-42ன்படி மாநில சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணையத்திடமிருந்து சுற்றுச்சூழல் சான்று பெற்று சமர்பிக்கப்படவேண்டும்.

இந்நேர்வில், குவாரி குத்தகை வழங்க கோரும் விழுப்புரம் மாவட்டம், வானூர் வட்டம், கோரைக்கேணி கிராமம், பட்டா புல எண்: 44/4A - 3.05.5 ஹெக்டேரில் பகுதியளவு 2.85.5 ஹெக்டேர் என குறைத்து மொத்த பரப்பளவு 4.84.5 ஹெக்டேர் பரப்பினை தகுதியான நிலப்பரப்பாக கருதி குவ்ாரி பணி செய்வதற்கு சுரங்கதிட்டம் தயார் செய்திட குறிப்பாணை வழங்குமாறு பார்வை 4-ல் காணும் மனுவில் கோரியுள்ளீர்.

எனவே, விண்ணப்பத்தாரரின் கோரிக்கை மற்றும் விழுப்புரம் வருவாய் கோட்டாட்சியர் அவர்களின் பரிந்துரை அறிக்கை, விழுப்புரம் மாவட்ட புவியியல் மற்றும் சுரங்கத்துறை உதவிப்புவியியலாளர் விசாரணை மற்றும் புலத்தணிக்கை அறிக்கை ஆகியவற்றினை பரிசீலனை செய்யப்பட்டு, விழுப்புரம் மாவட்டம், வானூர் வட்டம், கோரைக்கேணி கிராம பட்டா எண்கள்: 42/3A - 0.13.5 ஏர்ஸ், 42/3B - 0.91.5 ஏர்ஸ், 44/1 - 0.26.5 ஏர்ஸ், 44/2 - 0.26.0 ஏர்ஸ், 44/3 - 0.25.5 ஏர்ஸ், 44/4A (பகுதி) - 2.85.5 ஹெக்டேர் மற்றும் 44/4B - 0.16.0 ஏர்ஸ் ஆக மொத்தம் 4.84.5 ஹெக்டேர் பரப்பளவில் திரு.எஸ். செந்தில்குமார் த-பெ. சேகர் என்பவருக்கு அரசு நிபந்தனைகளுக்குட்பட்டு 10 (பத்து) வருட காலத்திற்கு சாதாரண கற்கள் மற்றும் கிராவல் வெட்டியெடுக்க குவாரி குத்தகை உரிமம் வழங்குவதற்குரிய தகுதியான நிலப்பரப்பாக கருதப்படுகிறது.

27 DEC 2024

மேலும், தமிழ்நாடு சிறு கனிம சலுகை விதிகள் 1959 விதி எண்.41-ன்படி குவாரிப்பணி மேற்கொள்வது தொடர்பாக, வரைவு சுரங்க திட்டத்தினை தகுதிவாய்ந்த நபர் (QP) மூலமாக கீழ்கண்ட நிபந்தனைகளுக்குட்பட்டு தயாரித்து அதனை 90 தினங்களுக்குள் உதவி இயக்குநர் (புவியியல் மற்றும் சுரங்கத்துறை) அவர்களின் பரிசீலனைக்கு சமர்ப்பிக்குமாறு விண்ணப்பதாரரை கேட்டுக் கொள்ளப்படுகிறது.

மேலும் ஏற்பளிக்கப்பட்ட சுரங்கத்திட்டத்தின் தொடர்ச்சியாக 1959-ம் வருடத்திய தமிழ்நாடு சிறுகனிம சலுகை விதிகள், விதி எண்.42-ன்படி சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணையத்தின் தடையின்மை சான்று பெற்று சமர்பிக்கும் பட்சத்தில் மட்டுமே குவாரி குத்தகை உரிமம் வழங்கப்படும் என இதன் மூலம் தெரிவிக்கப்படுகிறது.

நிபந்தனைகள்:

i. குவாரி குத்தகை அனுமதி வழங்க கோரும் புலன்களுக்கு அருகிலுள்ள பட்டா நிலங்களுக்கு 7.5 மீட்டர் பாதுகாப்பு இடைவெளியும் மற்றும் அரசு புறம்போக்கு நிலங்களுக்கு 10 மீட்டர் பாதுகாப்பு இடைவெளியும் விட்டு குவாரிப்பணி மேற்கொள்ளப்பட வேண்டும்.

ii. குவாரி குத்தகை உரிமம் கோரும் புலன்களை சுற்றியுள்ள மின்கம்பி பாதைகளுக்கு 50 மீட்டர் பாதுகாப்பு இடைவெளி விடப்பட வேண்டும்.

iii. குவாரி குத்தகை கோரும் புலன்களுக்கு அருகில் உள்ள ஓடை புறம்போக்கு புல எண்: 43/-க்கு போதிய பாதுகாப்பு இடைவெளி விடப்பட வேண்டும்.

iv. குவாரி பணிக்கான சாலை அமைக்கும்போது புல எண்: 43/-ல் உள்ள ஓடைக்கு எந்த பாதிப்பும் ஏற்படுத்தக் கூடாது.

v. குவாரிப்பணி மேற்கொள்ளும் போது அருகிலுள்ள பட்டா மற்றும் அரசு புறம்போக்கு நிலங்களுக்கு எவ்வித இடையூறும் இல்லாமல் குவாரிப்பணி செய்ய வேண்டும்.

vi. குவாரி குத்தகை வழங்கும் முன்பு விண்ணப்பித்துள்ள இடத்தினை DGPS சர்வே பணி மேற்கொண்டு அதன் அறிக்கையை சமர்பிக்க வேண்டும்.

உதவி இயக்குநர்,,
புவியியல் மற்றும் சுரங்கத்துறை,
விழுப்புரம்.

பெறுநர்:-
திரு.எஸ். செந்தில்குமார்
த-பெ. சேகர்,
நெ.9, செல்சியா தெரு,
ராஜா அண்ணாமலை நகர்,
கோரிமேடு, புதுச்சேரி - 605 006.

நகல்:-
1. மாநில சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணையம், சென்னை.
2. ஆணையர், புவியியல் மற்றும் சுரங்கத்துறை, கிண்டி, சென்னை.

# ANNEXURE-3

From
Tmt. S.Safiya, M.Sc.,
Assistant Director,
Geology and Mining,
Viluppuram.

To
Thiru.S.Senthilkumar,
S/o.Sekar,
No.9, Selsiya Street,
Raja Annamalai Nagar,
Gorimedu,
Puducherry – 605006.

**Rc.No.B/G&M/157/2024 Dated 27.12.2024**

Sub: Mines & Minerals – Minor Mineral – Rough stone and Gravel - Viluppuram District – Vanur Taluk – Koraikeni Village - over an extent of 4.84.5 hectares of patta lands – S.F.Nos.42/3A (0.13.5), 42/3B (0.91.5), 44/1 (0.26.5), 44/2 (0.26.0), 44/3 (0.25.5), 44/4A (Part) (2.85.5) & 44/4B (0.16.0) – Quarry lease application preferred by Thiru.S.Senthilkumar, S/o.Sekar – Precise area communicated - Submission of mining plan for approval – Approved – Regarding.

Ref:
1. Quarry lease application dated 13.05.2024 preferred by Thiru.S.Senthilkumar, S/o.Sekar, No.9, Selsiya Street, Raja Annamalai Nagar, Gorimedu, Puducherry – 605006.
2. Assistant Director, Geology and Mining, Viluppuram Letter Rc.No.B/G&M/157/2024 Dated 03.12.2024.
3. Mining Plan submitted by Thiru.S.Senthilkumar, S/o.Sekar Dated 24.12.2024.

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In the reference 2nd cited, it has been communicated that over an extent of 4.84.5 hectares of patta lands in S.F.Nos.42/3A (0.13.5), 42/3B (0.91.5), 44/1 (0.26.5), 44/2 (0.26.0), 44/3 (0.25.5), 44/4A (Part) (2.85.5) & 44/4B (0.16.0) of Koraikeni Village, Vanur Taluk, Villupuram District as precise area for grant of quarry lease for quarrying rough stone and gravel for a period of 10 years to Thiru.S.Senthilkumar, S/o.Sekar with a direction to produce on Mining Plan for approval and to obtain Environment Clearance in respect of the precise area as per Rule 41 of Tamil Nadu Minor Mineral Concession Rules, 1959.

2. Accordingly, the applicant has submitted the draft mining plan prepared by the Qualified Person for approval vide reference 3rd cited.

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

i) The Boundary Co-Ordinates (GPS readings) for the entire boundary pillars (14 Nos.) of the area have been incorporated and shown in the mining plan.

ii) All the conditions stipulated in the Assistant Director, Geology and Mining, Viluppuram letter Rc.No.B/G&M/157/2024 dated 03.12.2024.

iii) The available geological and minable reserves as follows.

| Depth in Mts. | Geological reserves in Cu.m. | Minable Reserves in Cu.m. |
|---|---|---|
| 70 m. below ground level | Rough stone : 3147755<br>Gravel : 242135 | Rough stone: 1412880<br>Gravel : 213185 |

4. In the light of the above, in exercise of the powers confirmed under Rule 41 (7) of Tamil Nadu Minor Mineral Concession Rules, 1959 the mining plan in respect of Rough stone and gravel quarry to Thiru.S.Senthilkumar, S/o.Sekar is approved subject to the following conditions.

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

(ii) This approval of the mining plan does not in any way imply the approval of the Government in terms or any other provisions of the Mines and Minerals (Development and Regulation) Amended Act, 2015, or any other connected laws including Forest Conservation Act, 1980, Forest Conservation Rules, 1981, Environment Protection Act, 1986, Explosives Act, 1884 (Central Act IV of 1884) and the Rules made there under and the Tamil Nadu Minor Mineral Concession Rules, 1959.

(iii) The mining plan is approved without prejudice to any other order or direction from any court of competent jurisdiction.

Encl: Two copies of Approved Mining Plan.

27/12/2024

Assistant Director,
Dept. of Geology and Mining,
Viluppuram.

Copy to:

27.12.24

The Commissioner of Geology and Mining, Chennai-32.

# APPROVAL MINING PLAN

# MINING PLAN FOR KORAIKENI ROUGH STONE & GRAVEL QUARRY

17 DEC 2024

**(Prepared under rule 19(1), 41 & 42 of Tamil Nadu Minor Mineral Concession Rules, 1959)**

**LOCATION OF THE QUARRY LEASE APPLIED AREA**

| | | |
|---|---|---|
| **STATE** | : | TAMIL NADU |
| **DISTRICT** | : | VILUPPURAM |
| **TALUK** | : | VANUR |
| **VILLAGE** | : | KORAIKENI |
| **S.F.NOS** | : | 42/3A, 42/3B, 44/1, 44/2, 44/3, 44/4A(P) AND 44/4B |
| **EXTENT** | : | 4.84.5Ha |

**ECO-FRIENDLY**



**SUSTAINABILITY**



**SAFETY**

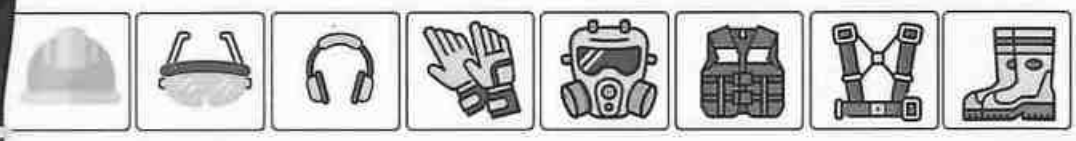


**FOR APPLICANT**

**Thiru.S.Senthil Kumar,**
**S/o.Sekar,**
**No.9, Selsiya Street,**
**Raja Annamalai Nagar, Gorimedu,**
**Puducherry -605 006.**

**PREPARED BY**

**C.Natarajan, M.Sc.,M.Phil.,**
**Qualified Person**
**No.93/36E2, Subramaniyar Kovil Street,**
**Omalur Taluk, Salem District, Tamil Nadu,**
**Pin code-636 455.**
**Mobile: 97502 23535 & 94446 54520.**



**(PPE)**

S.Senthil Kumar,
S/o.Sekar,
No.9, Selsiya Street,
Raja Annamalai Nagar, Gorimedu,
Puducherry -605 006.




## CONSENT LETTER FROM THE APPLICANT

The Mining Plan in respect of **Rough Stone and Gravel** quarry over an extent of 4.84.5hectares of Patta lands in S.F.Nos. 42/3A, 42/3B, 44/1, 44/2, 44/3, 44/4A(P) and 44/4B of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State has been prepared by

**C.Natarajan, M.Sc.,M.Phil.,**
**Qualified Person**

I request the Assistant Director, Department of Geology and Mining, Viluppuram District to make further correspondence regarding modifications of the Mining Plan with the said Qualified Person on this following address.

**C.Natarajan, M.Sc.,M.Phil.,**
**Qualified Person**
No.93/36E2, Subramaniyar Kovil Street,
Omalur Taluk, Salem District,
Tamil Nadu, Pin code-636 455.
Mobile:97502 23535 & 94446 54520.

I hereby undertake that all modifications so 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 building on me in all respects.

Signature of the Applicant

S.Senthil Kumar

Place: Puducherry
Date: 04.12.2024

S.Senthil Kumar,
S/o.Sekar,
No.9, Selsiya Street,
Raja Annamalai Nagar, Gorimedu,
Puducherry -605 006.




## DECLARATION

The Mining Plan in respect of **Rough Stone and Gravel** quarry over an extent of 4.84.5hectares of Patta lands in S.F.Nos. 42/3A, 42/3B, 44/1, 44/2, 44/3, 44/4A(P) and 44/4B of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State has been prepared with my consultation and I have understood the contents and agree to implement the same in accordance with the Mining Laws.

Signature of the Applicant

S.Senthil Kumar

Place: Puducherry
Date: 04.12.2024

**C.Natarajan, M.Sc.,M.Phil.,**
**Qualified Person**
No.93/36E2, Subramaniyar Kovil Street,
Omalur Taluk, Salem District,
Tamil Nadu, Pin code-636 455.
Mobile:97502 23535 & 94446 54520.

27 DEC 2024

## CERTIFICATE

This is to certify that, the provisions of under rules 41 & 42 as Amended in under Tamil Nadu Minor Mineral Concession Rules, 1959, have been observed in the Mining Plan for the grant of **Rough Stone and Gravel** quarry lease over an extent of 4.84.5hectares of Patta lands in S.F.Nos. 42/3A, 42/3B, 44/1, 44/2, 44/3, 44/4A(P) and 44/4B of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State applied by Thiru.S.Senthil Kumar, for fresh quarry lease.

Wherever specific permission / exemptions / relaxations or approvals are required, the applicant will approach the concerned authorities of State and Central Governments for granting such permissions etc.

Certified
Signature of Qualified Person.

**C.Natarajan, M.Sc.,M.Phil.,**
**Qualified Person**
C.NATARAJAN M.Sc.,M.Phil.,
Qualified Person

Place: Salem
Date: 05.12.2024

**C.Natarajan, M.Sc.,M.Phil.,**
**Qualified Person**
No.93/36E2, Subramaniyar Kovil Street,
Omalur Taluk, Salem District,
Tamil Nadu, Pin code-636 455.
Mobile:97502 23535 & 94446 54520.

27 DEC 2024

## CERTIFICATE

Certified that, in preparation of Mining Plan for **Rough Stone and Gravel** quarry over an extent of 4.84.5hectares of Patta lands in S.F.Nos. 42/3A, 42/3B, 44/1, 44/2, 44/3, 44/4A(P) and 44/4B of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State for Thiru.S.Senthil Kumar, covers all the provisions of Mines Act, Rules, and Regulations etc., made there under and whenever specific permission are required, the applicant will approach the Director General of Mines Safety, Chennai. The standards prescribed by DGMS in respect of Mines Health will be strictly implemented.

Certified
Signature of Qualified Person.

**C.Natarajan, M.Sc.,M.Phil.,**
**Qualified Person**
C.NATARAJAN M.Sc.,M.Phil.,
Qualified Person

Place: Salem
Date: 05.12.2024

# CERTIFICATE

27 DEC 2024

Certified that I, C.Natarajan, residing at No.93/36 E2, Subramaniyar Kovil Street, Omalur Taluk, Salem District, Tamil Nadu, Pin Code-636 455. I am a Post graduate in Geology (M.Sc., Geology) from Annamalai university and more than five years of experience in mining Field.

Rule 15(1)(a) and (b) of Minerals (Other than Atomic, Hydro Carbons Energy Minerals) concession Rules 2016 stipulates the eligibility for preparing Mining Plans as *"(1)(a) a post graduate degree in Geology granted by a university established" and (1)(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 (1)(a) and (1)(b) of 15 of the Said Rules, I am eligible to prepare Mining Plans for both Major and Minor Minerals.

Accordingly I prepared this Mining Plan in respect of Rough Stone and Gravel quarry lease applied for an extent of 4.84.5hectares of Patta land in S.F.Nos. 42/3A, 42/3B, 44/1, 44/2, 44/3, 44/4A(P) and 44/4B of Koraikeni Village, Vanur Taluk, Viluppuram District, by Thiru.S.Senthil Kumar, for a period of Ten years. Since the Mining Plan is prepared as per the provisions contained in Rule 15(1) (a) and (b) of Minerals (Other than Atomic, Hydro Carbons Energy Minerals) concession Rules 2016, the same may be approved by the Competent Authority.

**C.Natarajan, M.Sc.,M.Phil.,**

**Qualified Person**

C.NATARAJAN M.Sc.,M Phil.,
Qualified Person

Place. Salem

Date: 05.12.2024

27 DEC 2024

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## ANNEXURE

| S. No. | Description | Annexure No. |
|---|---|---|
| 1.0 | Precise Area Communication letter issued by the Assistant Director, Department of Geology and Mining | I |
| 2.0 | Copy of FMB | II |
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| 4.0 | Copy of Patta | IV |
| 5.0 | Copy of Adangal | V |
| 6.0 | Copy of A Register | VI |
| 7.0 | Copy of Identity Proof | VII |
| 8.0 | Copy of QP Certificate | VIII |

## LIST OF PLATES

| S. No. | Description | Plate No. |
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| 9.0 | Year wise Development and Production Plan & Sections | V |
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| 11.0 | Progressive Quarry Closer Plan & Sections | VI |
| 12.0 | Conceptual Plan & Sections | VII |

27 DEC 2024

# MINING PLAN FOR MINOR MINERALS

## ROUGH STONE AND GRAVEL

Over an extent of 4.84.5hectares of Patta land in S.F.Nos. 42/3A, 42/3B, 44/1, 44/2, 44/3, 44/4A(P) and 44/4B of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State.

(PREPARED UNDER RULE 19(1), 41 and 42 OF TNMMCR 1959)

### 1.0 Introduction and Executive Summary;

1. The present Mining Plan is prepared for Thiru.S.Senthil Kumar, S/o.Sekar, No.9, Selsiya Street, Raja Annamalai Nagar, Gorimedu, Puducherry -605 006.
2. The application was processed by the Assistant Director, Department of Geology and Mining, Viluppuram, and passed an order vide Rc.No. A/G(&)M/157/2024 dated 03.12.2024. directing the applicant to produce approved Mining Plan under Rule 41(5) of the Tamil Nadu Minor Mineral Concession Rules, 1959 and Environmental Clearance Certificate under Rule 42 from the State Level Environmental Impact Assessment Authority (SEIAA) for the grant of quarry lease to quarry **Rough Stone and Gravel** over an extent of 4.84.5 hectares of Patta lands in S.F.Nos.42/3A, 42/3B, 44/1, 44/2, 44/3, 44/4A(P) and 44/4B of Koraikeni Village, Vanur Taluk, Viluppuram District of Tamil Nadu State for a period of ten years.
3. Accordingly, Mining Plan is prepared under the provisions of rule 19(1), 41 and 42 as per the amendments under Tamil Nadu Minor Mineral Concession Rules, 1959 by incorporating following the conditions imposed in the precise area communication letter.



a) A safety distance of 7.5m should be provided to the adjacent patta lands and safety distance of 10m should be provided to government poramboke land while quarrying operation.

b) A safety distance of 50m should be provided to the EB Lines to surrounding the quarry lease applied area.

c) The applicant should be provided proper safety distance to Odai poramboke situated in S.F.No.43.

d) The applicant should not cause any hindrance to Odai situated in S.F.No.43 while quarry road formation.

e) The applicant should not cause any hindrance to adjoining government poramboke lands and patta lands while quarrying operations.

f) The applicant should be submit DGPS survey report before the grant of quarry lease.

4. Geological Resources is estimated at 31,47,755m³ of Rough stone and 2,42,135m³ of gravel formation and Mineable Reserves is estimated at 14,12,880m³ of Rough Stone and 2,13,185m³ of gravel formation and after leaving necessary safety distance from the lease boundary as indicated in the precise area letter and relevant mining laws in force.

5. The production schedule is proposed production of 12,00,260m³ of Rough Stone, 2,13,185m³ of gravel formation for the period of first five years upto a depth of 50m below ground level and remaining quantity of 2,12,620m³ of Rough Stone will be proposed for the period of second five years upto a depth of 70m (below ground level).

6. The applicant ensured that, child labours under 18 years of age will not be engaged for quarrying operation.

7. The applicant ensure that will appoint should have valid certified persons (Mines Manager, Foreman, Mate) during quarrying operation.

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8. Environmental parameters,

i) The area does not attract the Forest Conservation Act, 1980 as there is no forest around 10km radius.

ii) There is no interstate boundary around 1.2Kms radius.

iii) There is no wild life animal sanctuary within 10Kms radius from the project site area under the Wildlife (Protection) Act, 1972.

Therefore the project seeks clearance only from State Level Environmental Impact Assessment Authority (SEIAA).

9. Environmental measures to be adopted shall be,

i) Dust Control at source while drilling and blasting,

ii) Dust suppression at loading point and transport haul roads,

iii) Noise Control in blasting, control of fly rock missiles and vibration by doing peak particle velocity with in standard as prescribed by the DGMS and MOEF.

iv) Unnecessary land degradation should be avoided or damaged land should be reclaimed or rehabilitated.

v) Avoid uneven rat hole mining and follow scientific and systematic mining by safe bench system of open cast mining.

vi) Mining near major fracture zones if any should be avoided to control ground water fluctuation in the adjacent agricultural lands.

vii) Emission test of vehicles should be in tack to maintain minimum emission level of flue gases.

viii) Noise level should not exceed 80db and the vehicles should use only permitted Air Horn while on road near residential areas.

ix) Safety zones as prescribed by the Department of Geology and Mining from adjacent infrastructures should be strictly adhere to.

x) And any other conditions as stipulated by the concerned authorities should be followed to protect the environment.




**EXECUTIVE SUMMARY:**

| | | | |
|---|---|---|---|
| a. | Name of the Village Panchayat | : | Koraikeni |
| b. | Name of the Panchayat Union | : | Vanur |
| c. | The proposed total Minable Reserves | : | 14,12,880m³ of Rough Stone, 2,13,185m³ of gravel formation |
| d. | The proposed quantity of reserves (level of production) for Five years to be mined is (Recoverable reserves) | : | 12,00,260m³ of Rough Stone, 2,13,185m³ of gravel formation |
| e. | Total extent of the area | : | 4.84.5Ha |
| f. | Proposed Period of mining | : | Five Years |
| g. | Existing depth | : | It is fresh quarry lease applied area |
| h. | Proposed Depth of mining | : | 50m below ground level for the proposed mining plan. |
| i. | Method of mining/level of mechanization | : | Opencast, Semi-mechanized Mining with a bench height of 5m and bench width of 5m is proposed. |
| j. | Types of Machineries used in the quarry | : | Machineries like Tractor mounted compressor attached with Jack hammers, Excavators are proposed to deploy for quarrying operation. |
| k. | Cost of the Project<br>A. Fixed Assets Cost<br>B. Operational Cost<br>C. EMP Cost | | <br>Rs. 32,07,000/-<br>Rs. 82,50,000/-<br>Rs. 6,60,000/-<br>Total Project cost(A+B+C)=**Rs.1,21,17,000/-** |

l. The area applied for lease is bounded by Fourteen corners and the coordinates are clearly marked in plate no II.

| Corners | Co- ordinates | | Distance between the corners |
|---|---|---|---|
| | Latitude | Longitude | |
| 1 | 12° 02' 24.81"N | 79° 38' 21.41"E | 1-2 = 52.0m |
| 2 | 12° 02' 26.37"N | 79° 38' 22.06"E | 2-3 = 57.0m |
| 3 | 12° 02' 28.09"N | 79° 38' 22.78"E | 3-4 = 13.6m |
| 4 | 12° 02' 28.25"N | 79° 38' 22.36"E | 4-5 = 105.6m |
| 5 | 12° 02' 31.52"N | 79° 38' 23.45"E | 5-6 = 8.0m |
| 6 | 12° 02' 31.78"N | 79° 38' 23.50"E | 6-7 = 86.2m |
| 7 | 12° 02' 31.26"N | 79° 38' 26.30"E | 7-8 = 83.4m |
| 8 | 12° 02' 31.00"N | 79° 38' 29.04"E | 8-9 = 51.4m |
| 9 | 12° 02' 29.36"N | 79° 38' 29.37"E | 9-10 = 33.6m |
| 10 | 12° 02' 29.24"N | 79° 38' 30.47"E | 10-11 = 150.6m |
| 11 | 12° 02' 24.42"N | 79° 38' 29.61"E | 11-12 = 126.8m |
| 12 | 12° 02' 25.08"N | 79° 38' 25.47"E | 12-13 = 57.6m |




| | | | | | |
|---|---|---|---|---|---|
| | 13 | 12° 02' 23.31"N | 79° 38' 24.84"E | 13-14 = | 63.2m |
| | 14 | 12° 02' 24.05"N | 79° 38' 22.92"E | 14-1 = | 51.2m |

## 2.0 General Information:

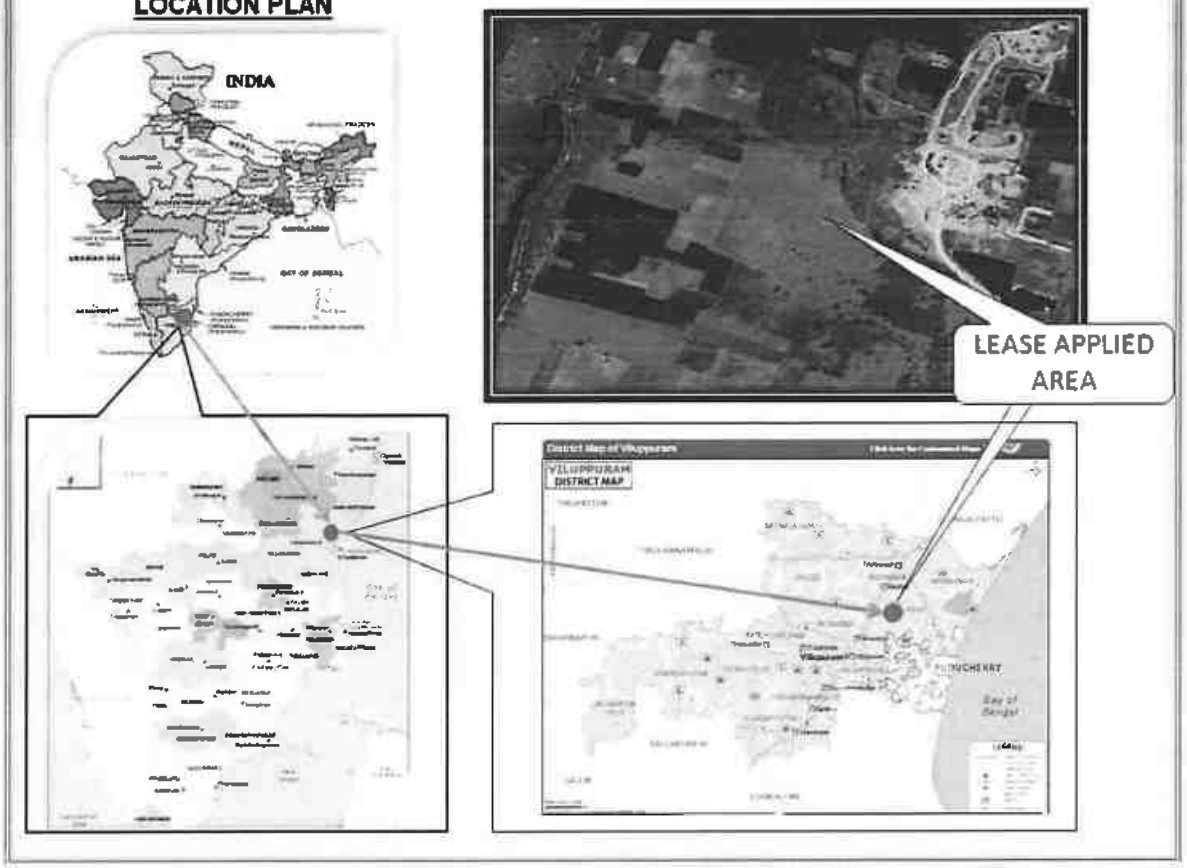
| | | | | |
|---|---|---|---|---|
| 2.1 | a. | Name of the Applicant | : | Thiru.S.Senthil Kumar, |
| | b. | Address of the Applicant with phone No and e-mail id if any | : | S/o.Sekar,<br>No.9, Selsiya Street,<br>Raja Annamalai Nagar,<br>Gorimedu,<br>Puducherry -605 006.<br>Cell No.: 94432 27349 |
| | c. | Status of the Applicant | : | Individual |
| 2.2 | a. | Mineral Which the applicant intends to mine | : | Rough Stone and Gravel. |
| | b. | Precise area communication letter No. | : | Precise area communication letter received from the Assistant Director, Department of Geology and Mining, Viluppuram, vide Rc. No.A/G(&)M/157/2024 dated 03.12.2024. |
| | c. | Period of permission / lease granted | : | The Assistant Director, Department of Geology and Mining, Viluppuram, has grant of lease period for **ten years.** |
| | d. | Name and Address of the QP preparing Mining Plan | : | **C.Natarajan, M.Sc.,M.Phil.,**<br>**Qualified Person**<br>No.93/36E2, Subramaniyar Kovil Street,<br>Omalur Taluk, Salem District,<br>Tamil Nadu, Pin-636 455.<br>Mobile: 97502 23535 & 94446 54520. |

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## 3.0 Location:

| S.No | | Details of the Area: |
|---|---|---|
| 1 | Corner Coordinates | Latitude: 12°02'23.31"N to 12°02'31.78"N<br>Longitude: 79°38'21.41"E to 79°38'30.47"E |
| 2 | Toposheet Number | 57- P/12 |
| 3 | The altitude of the area | 73m (MSL) |
| 4 | Extent | 4.84.5Ha |
| 5 | Survey Nos | 42/3A, 42/3B, 44/1, 44/2, 44/3, 44/4A(P) and 44/4B |
| 6 | Village | Koraikeni |
| 7 | Taluk | Vanur |
| 8 | District | Viluppuram |
| 9 | State | Tamil Nadu |

**LOCATION PLAN**



27 DEC 2024

| | | | |
|---|---|---|---|
| a. | Classification of the Area (Ryotwari / poramboke / others) | : | Patta land |
| b. | Ownership / Occupancy of the Applied area (Surface rights) | : | It is patta land registered in the name of Applicant vide patta no.1024, Please refer Annexure No: IV. |
| c. | Toposheet No. with Latitude and Longitude | : : : | Topo Sheet No: 57-P/ 12<br>Latitude: 12°02'23.31"N to 12°02'31.78"N<br>Longitude: 79°38'21.41"E to 79°38'30.47"E |
| d. | Existence of Public Road / Railway line if any nearby the area and approximate distance | : | There is an existing road from the area leads to Thiruvakkarai village road on Southeastern side of the area.<br>The Nearest Railway line is Viluppuram to Chennai line which is about 10.5Km on western side of the area. |




SATELLITE IMAGERY OF THE LEASE APPLIED AREA



TOPOGRAPHICAL VIEW OF LEASE APPLIED AREA

Fig. Location of the lease applied area

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**PART - A**

**4.0 Geology and Mineral Reserves:**

| | | | | |
|---|---|---|---|---|
| 4.1 | a. | Topography | : | ➢ The area applied for quarry lease is exhibits almost plain topography covered by Gravel formation. The massive Charnockite formation is noticed below 5m (Avg) Gravel formation and sloping towards southeastern side of the area, the altitude of the area is above 73m (maximum) from MSL.<br>➢ No major river is found nearby the lease applied area.<br>➢ Water table is found at a depth of 85m in summer and 82m in rainy seasons.<br>➢ Temperature of the area is reported to be 18°C to a maximum of 42°C during summer.<br>➢ Rainfall of this area is about 800mm to 900 mm during the both NE & SW monsoons. |
| | b. | General Geology of the Area | : | The area is underlain by the wide range of metamorphic rocks of peninsular gneissic complex. These rocks are extensively weathered and overlain by the recent valley fills and alluvium at places. The geological formations found in the district are Archaean rocks like Gneisses, Granites, Charnockites basic granulites and calc-gneisses. The younger formations are Quartz veins and pegmatite.<br>The rock type noticed in the area for lease is Charnockite which contains mostly Quartz and Feldspar with some ferromagnesian minerals. The Charnockite is part of peninsular Gneisses, a high grade metamorphic rock.<br>The strike of the Charnockite formation is N45°E –S45°W with dipping towards SE80°.<br>The general geological succession of the area is given as under. |

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| | | | | | |
|---|---|---|---|---|---|
| | | | | **AGE** | **ROCK TYPE** |
| | | | | Recent - | Gravelly soil<br>Unconformity |
| | | | | Archaean - | Dolerite dyke<br>Charnockite.<br>Peninsular Gneissic complex and Calc Gneiss |
| 4.2 | | Details of Exploration already carried out if any | : | No exploration was carried out, as the Rough stone formations are clearly visible from surrounding the lease applied area. | |
| 4.3 | a. | Estimation of Reserves | : | The Geological and Recoverable reserves are estimated by cross sectional method.<br>Totally three sections have been drawn, one section drawn length wise as (X-Y), and another two sections drawn width wise as (A-B), (C-D) to cover maximum area considered for lease.<br>The Plans and Sections have been drawn with a scale of 1:1000 and 1:500 respectively. Please refer plate No.III. | |

**a. Geological Resources**

The quarrying is restricted up to a depth of 70m below ground level only, availability of resources is given below.

Table -1

| Section | Bench | Length in (m) | Width in (m) | Depth in (m) | Volume in $m^3$ | Gravel in $m^3$ | Geological Resources of Rough stone in $m^3$ |
|---|---|---|---|---|---|---|---|
| XY-AB | I | 179 | 233 | 5 | 208535 | 208535 | |
| | II | 179 | 233 | 5 | 208535 | | 208535 |
| | III | 179 | 233 | 5 | 208535 | | 208535 |
| | IV | 179 | 233 | 5 | 208535 | | 208535 |
| | V | 179 | 233 | 5 | 208535 | | 208535 |
| | VI | 179 | 233 | 5 | 208535 | | 208535 |
| | VII | 179 | 233 | 5 | 208535 | | 208535 |
| | VIII | 179 | 233 | 5 | 208535 | | 208535 |
| | IX | 179 | 233 | 5 | 208535 | | 208535 |
| | X | 179 | 233 | 5 | 208535 | | 208535 |
| | XI | 179 | 233 | 5 | 208535 | | 208535 |
| | XII | 179 | 233 | 5 | 208535 | | 208535 |
| | XIII | 179 | 233 | 5 | 208535 | | 208535 |
| | XIV | 179 | 233 | 5 | 208535 | | 208535 |
| | **Total** | | | | | **208535** | **2710955** |




| | | | | | | | |
|---|---|---|---|---|---|---|---|
| XY-CD | I | 60 | 112 | 5 | 33600 | 33600 | |
| | II | 60 | 112 | 5 | 33600 | | 33600 |
| | III | 60 | 112 | 5 | 33600 | | 33600 |
| | IV | 60 | 112 | 5 | 33600 | | 33600 |
| | V | 60 | 112 | 5 | 33600 | | 33600 |
| | VI | 60 | 112 | 5 | 33600 | | 33600 |
| | VII | 60 | 112 | 5 | 33600 | | 33600 |
| | VIII | 60 | 112 | 5 | 33600 | | 33600 |
| | IX | 60 | 112 | 5 | 33600 | | 33600 |
| | X | 60 | 112 | 5 | 33600 | | 33600 |
| | XI | 60 | 112 | 5 | 33600 | | 33600 |
| | XII | 60 | 112 | 5 | 33600 | | 33600 |
| | XIII | 60 | 112 | 5 | 33600 | | 33600 |
| | XIV | 60 | 112 | 5 | 33600 | | 33600 |
| | **Total** | | | | | **33600** | **436800** |
| **Grand Total** | | | | | | **242135** | **3147755** |

Gravel Formation : 2,42,135m³

The Geological Resources of Rough stone : 31,47,755m³

**b. Mineable Reserve**

The mineable reserve calculated by deducting 7.5m safety distance and bench loss.

Table No-2

| Section | Bench | Length in (m) | Width in (m) | Depth in (m) | Volume in m³ | Gravel in m³ | Mineable Reserves of Rough stone in m³ |
|---|---|---|---|---|---|---|---|
| XY-AB | I | 172 | 218 | 5 | 187480 | 187480 | |
| | II | 167 | 208 | 5 | 173680 | | 173680 |
| | III | 162 | 198 | 5 | 160380 | | 160380 |
| | IV | 157 | 188 | 5 | 147580 | | 147580 |
| | V | 152 | 178 | 5 | 135280 | | 135280 |
| | VI | 147 | 168 | 5 | 123480 | | 123480 |
| | VII | 142 | 158 | 5 | 112180 | | 112180 |
| | VIII | 137 | 148 | 5 | 101380 | | 101380 |
| | IX | 132 | 138 | 5 | 91080 | | 91080 |
| | X | 127 | 128 | 5 | 81280 | | 81280 |
| | XI | 117 | 118 | 5 | 69030 | | 69030 |
| | XII | 107 | 108 | 5 | 57780 | | 57780 |
| | XIII | 97 | 98 | 5 | 47530 | | 47530 |
| | XIV | 87 | 88 | 5 | 38280 | | 38280 |
| | **Total** | | | | | **187480** | **1338940** |




| | | | | | | | |
|---|---|---|---|---|---|---|---|
| XY-CD | I | 53 | 97 | 5 | 25705 | 25705 | |
| | II | 48 | 87 | 5 | 20880 | | 20880 |
| | III | 43 | 77 | 5 | 16555 | | 16555 |
| | IV | 38 | 67 | 5 | 12730 | | 12730 |
| | V | 33 | 57 | 5 | 9405 | | 9405 |
| | VI | 28 | 47 | 5 | 6580 | | 6580 |
| | VII | 23 | 37 | 5 | 4255 | | 4255 |
| | VIII | 18 | 27 | 5 | 2430 | | 2430 |
| | IX | 13 | 17 | 5 | 1105 | | 1105 |
| | **Total** | | | | | **25705** | **73940** |
| **Grand Total** | | | | | | **213185** | **1412880** |

The mineable reserve is computed as 14,12,880m³ of Rough stone and 2,13,185m³ of Gravel formation upto a depth 70m below ground level only.

**5.0 <u>Mining</u>:**

| | | | |
|---|---|---|---|
| 5.1 | Method of Mining | : | 1. Opencast method of semi mechanized mining with 5.0m height 5m width of the bench.<br>2. However, as far as the quarrying of Rough stone is concerned, observance of the provisions of Regulation 106(2) (b) as above is seldom[possible due to various inherent petrogenetic factors coupled with mining difficulties. Hence it is proposed to obtain relaxation to the provisions of the above regulation from the Director of mines safety for which necessary provision is available with the regulation 106 (2) (b) of MMR-1961, under Mine Act-1952. |

| | | | |
|---|---|---|---|
| 5.2 | Mode of Working | : | The rough stone is proposed to quarry 5m bench height, 5m width with conventional opencast semi-Mechanized method.<br>The quarry operation involves shallow jack hammer drilling, slurry blasting, excavation, Loading and transportation of Rough stone to the needy crushers/other buyers. 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.<br>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/other buyers.<br>Occasionally hydraulic excavators are attached with rock breakers for fragmentation to avoid secondary blasting.<br>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 semi mechanized method of mining. |
| 5.3 | Proposed bench height & Width | : | Quarrying of Rough Stone is proposed bench height of 5m and bench width of 5m. |
| 5.4 | Details of Overburden / Mineral Production proposed for the first 5 years. | : | The overburden in the form of Gravel, after the excavation of Gravel and Rough stone will be directly loaded into tipper to the needy crushers/other buyers for road project and construction works for filling and leveling of low lying areas. |

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**The Yearwise Production and Development Table**

Table No –3

| Year | Section | Bench | Length in (m) | Width in (m) | Depth in (m) | Volume in $m^3$ | Gravel in $m^3$ | Mineable reserve of Rough stone in $m^3$ |
|---|---|---|---|---|---|---|---|---|
| I | XY-AB | I | 90 | 218 | 5 | 98100 | 98100 | |
| | | II | 85 | 208 | 5 | 88400 | | 88400 |
| | | III | 80 | 198 | 5 | 79200 | | 79200 |
| | | IV | 75 | 188 | 5 | 70500 | | 70500 |
| | **Total** | | | | | | **98100** | **238100** |
| II | XY-AB | I | 82 | 218 | 5 | 89380 | 89380 | |
| | | II | 82 | 208 | 5 | 85280 | | 85280 |
| | | III | 82 | 198 | 5 | 81180 | | 81180 |
| | | IV | 77 | 188 | 5 | 72380 | | 72380 |
| | **Total** | | | | | | **89380** | **238840** |
| III | XY-AB | IV | 5 | 188 | 5 | 4700 | | 4700 |
| | | V | 152 | 178 | 5 | 135280 | | 135280 |
| | | VI | 50 | 168 | 5 | 42000 | | 42000 |
| | XY-CD | I | 53 | 97 | 5 | 25705 | 25705 | |
| | | II | 48 | 87 | 5 | 20880 | | 20880 |
| | | III | 43 | 77 | 5 | 16555 | | 16555 |
| | | IV | 38 | 67 | 5 | 12730 | | 12730 |
| | | V | 33 | 57 | 5 | 9405 | | 9405 |
| | **Total** | | | | | | **25705** | **241550** |
| IV | XY-AB | VI | 97 | 168 | 5 | 81480 | | 81480 |
| | | VII | 142 | 158 | 5 | 112180 | | 112180 |
| | | VIII | 49 | 148 | 5 | 36260 | | 36260 |
| | XY-CD | VI | 28 | 47 | 5 | 6580 | | 6580 |
| | | VII | 23 | 37 | 5 | 4255 | | 4255 |
| | **Total** | | | | | | | **240755** |
| V | XY-AB | VIII | 88 | 148 | 5 | 65120 | | 65120 |
| | | IX | 132 | 138 | 5 | 91080 | | 91080 |
| | | X | 127 | 128 | 5 | 81280 | | 81280 |
| | XY-CD | VIII | 18 | 27 | 5 | 2430 | | 2430 |
| | | IX | 13 | 17 | 5 | 1105 | | 1105 |
| | **Total** | | | | | | | **241015** |
| **Grand Total** | | | | | | | **213185** | **1200260** |

The applicant has proposed to carry out 12,00,260$m^3$ of Rough stone and 2,13,185$m^3$ of Gravel formation upto a depth of 50m below ground level for the period of first five years and remaining quantity of 2,12,620$m^3$ of Rough Stone will be proposed for the period of second five years upto a depth of 70m (below ground level).

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**The proposed tentative yearwise production for 6th to 10th year is given below**

Table No-4

| Year | Section | Bench | Length in (m) | Width in (m) | Depth in (m) | Volume in $m^3$ | Mineable reserve of Rough stone in $m^3$ |
|---|---|---|---|---|---|---|---|
| VI | XY-AB | XI | 72 | 118 | 5 | 42480 | 42480 |
| | **Total** | | | | | | **42480** |
| VII | XY-AB | XI | 45 | 118 | 5 | 26550 | 26550 |
| | | XII | 29 | 108 | 5 | 15660 | 15660 |
| | **Total** | | | | | | **42210** |
| VIII | XY-AB | XII | 78 | 108 | 5 | 42120 | 42120 |
| | **Total** | | | | | | **42120** |
| IX | XY-AB | XIII | 87 | 98 | 5 | 42630 | 42630 |
| | **Total** | | | | | | **42630** |
| X | XY-AB | XIII | 10 | 98 | 5 | 4900 | 4900 |
| | | XIV | 87 | 88 | 5 | 38280 | 38280 |
| | **Total** | | | | | | **43180** |
| **Grand Total** | | | | | | | **212620** |

5.5 Machineries to be used

a. Drilling : It is proposed to use following machineries for quarrying rough stone

| S.No | Type | Nos | Dia Hole mm | Make | Motive power |
|---|---|---|---|---|---|
| 1 | Jack hammer | 12 | 32 | Atlas Copco | Compressed air |
| 2 | Compressor | 3 | - | Atlas Capco | Diesel Drive |

b. Loading : Excavator of 0.90$m^3$ bucket capacity (with Rock breaker attachment) (3No).

c. Transportation : Tipper 6Nos (5/10Ts) capacity.



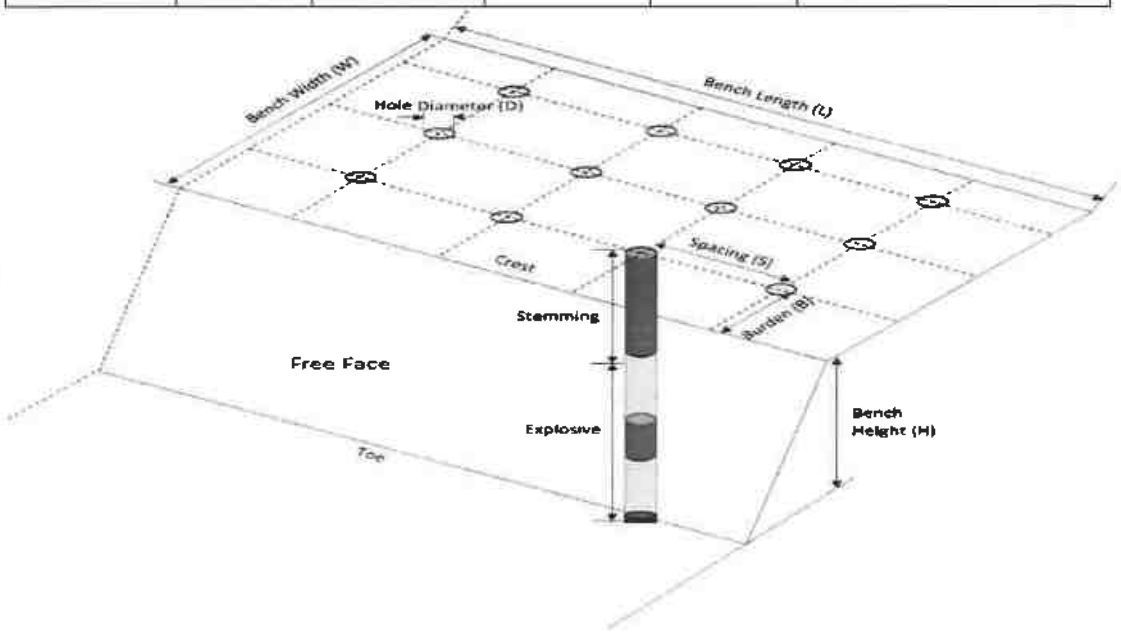
<table>
<tr><td>5.6</td><td></td><td>Disposal of Overburden</td><td>:</td><td>The overburden in the form of Gravel after the excavation gravel will be directly loaded into tipper to the needy buyers for road project and construction works for filling and leveling of low lying areas.</td></tr>
<tr><td>5.7</td><td></td><td>Brief Note on Conceptual Mining Plan for the entire lease period</td><td>:</td><td>Conceptual Mining Plan is prepared with an object of ten years of systematic development of bench lay outs, selection of ultimate pit limit, depth of quarrying, ultimate pit slope, selection of sites for construction of infrastructures etc.<br>Ultimate pit size is designed based on certain practical factors such as the economical depth of mining, safety zones, permissible areas etc. Ultimate Pit dimension is
<table>
<tr><td colspan="4">Ultimate Pit dimension (M) end of Mining plan Period</td></tr>
<tr><td>Pit No</td><td>Length (max) in (m)</td><td>Width (Avg) in (m)</td><td>Depth(max) in(m)</td></tr>
<tr><td>I</td><td>225</td><td>181</td><td>50</td></tr>
<tr><td colspan="4">Ultimate pit dimension End of the lease period</td></tr>
<tr><td>Pit No</td><td>Length (max) in (m)</td><td>Width (Avg) in (m)</td><td>Depth(max) in(m)</td></tr>
<tr><td>I</td><td>225</td><td>181</td><td>70</td></tr>
</table>
Afforestation has been proposed on all along the boundary barrier by planting trees.<br>All the baseline information studies like Air Quality monitoring, Noise and Vibration monitoring, Water Analysis studies will be carried out every year as per the MOEF norms.</td></tr>
</table>

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## 6.0 Blasting:

| | | | |
|---|---|---|---|
| 6.1 | Blasting Pattern | : | The massive formation shall be broken into pieces of portable size by drilling and blasting using jack hammers and shot hole blasting. Powder factor of explosives for breaking such hard rock shall be in the order of 6 to 7 Tonnes per K.g of explosives. Blasting parameters are as follows. |

| Diameter of the hole | Spacing | Depth | Burden for hole | Pattern of hole | Inclination of hole |
|---|---|---|---|---|---|
| 32-36mm | 0.6m | 1 to 1.5m | 0.6m | Zig Zag | 70° from the horizontal |




| | | | |
|---|---|---|---|
| 6.2 | Types of Explosives | : | Small dia, 25mm slurry explosive 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. |

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| | | | |
|---|---|---|---|
| 6.3 | Measures proposed to minimize ground vibration due to blasting | : | ➢ Controlled blasting measures will be adopted for minimizing ground vibration and fly rock.<br>➢ Shallow depths jackhammer drilling and blasting is proposed to be carried out with minimum use of explosive mainly to give shattering effect in rough stone for easy excavation and to control fly rock. |

| | | |
|---|---|---|
| Number of holes | : | 694 |
| Powder factor | : | 6Ts/Kg of explosives |
| Total explosive required | : | 347Kg slurry explosives |
| Charge / hole | : | 0.5Kg |
| Blasting time | : | 12-2 Pm |

| | | | |
|---|---|---|---|
| 6.4 | Storage of Explosives and safety measures to be taken while blasting. | : | ➢ The applicant will engage an authorized explosive agency to carry out the small amount of blasting and it will be supervised by competent and statutory foreman/ mines manager.<br>➢ ***The applicant ensure that will appoint the Mate (Should have Valid Blaster Certificate) during Blasting Operation.*** |

**7.0 Mine Drainage:**

| | | | |
|---|---|---|---|
| 7.1 | Depth of Water table | : | The ground water table is reported as 85m below ground level. In the proposed mining plan only 50m (below ground level) and 70m depth has been envisaged as workable depth for safe & economic quarrying for the entire lease period. Hence the quarrying operation may not affect the ground water. |
| 7.2 | Arrangement and Places where the mine water is finally proposed to be discharged | : | The ground water may not rise immediately in this type of mining. However, the rain water percolation and collection of water from the seepage shall be less than 300lpm and it shall be pumped about periodically by a stand by diesel powered Centrifugal pump motivated with 7.5H.P.Motor. The quality of water is potable and it is not contaminated with any hazardous things. Hence, water stored in the quarry pit will be pumped into the adjacent agricultural fields. Further the water stored in the old pit will also be used for plantation purposes |

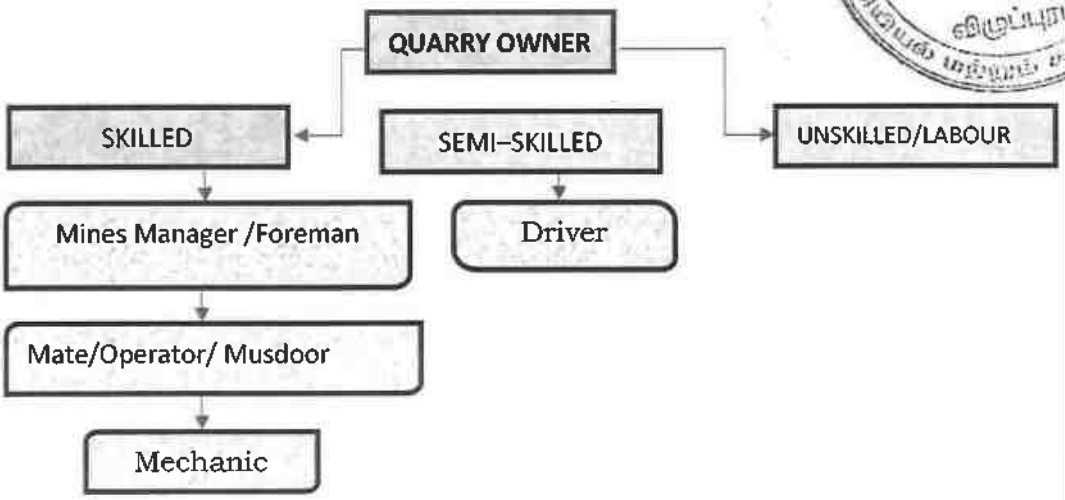



| | | | |
|---|---|---|---|
| **8.0** | **Other Permanent Structures:** | | |
| 8.1 | Habitations / Village | : | There are no habitations within a radius of 300m. |
| 8.2 | Power lines (HT/LT) | : | There is no Power line (HT/LT) passing within a radius of 50m. |
| 8.3 | Water bodies (River, Pond, Lake, Odai, Channel etc) | : | There is Tank situated on Western side of the area and is 287m away from the area. There is seasonal odai passing on eastern side of the area and is 53m away from the area. |
| 8.4 | Archeological / Historical Monuments | : | There are no Archaeological / Historical Monuments within a radius of 300m. |
| 8.5 | Road (NH, SH, Village Road etc) | : | The National Highway (NH-179B) Viluppuram – Chennai is about 10.3km on western side of the area.<br>The State Highway (SH-136) Mailam – Vanur is about 4.5Km on Northeastern side of the area. |
| 8.6 | Places of Worship | : | There are no Places of Worship within a radius of 50m. |
| 8.7 | Reserved Forest / Forest / Social Forest / Wild Life Sanctuary etc., | : | There is no Reserved Forest / Wild Life Sanctuary etc., within a radius of 1Km. |
| 8.8 | Any Interstate Border, Protected areas under the Wild Life (Protection) Act, 1972, Critically Polluted Areas as Identified by Central Pollution Control Board and Notified Eco sensitive areas | : | There are No inter State border within a radius of 1.2Kms. |
| 8.9 | Any Other Structures | : | Nil |

## 9.0 Employment Potential & Welfare Measures:

9.1 Employment Potential (Management & Supervisory personal)

**The proposed organization chart**




| | | | |
|---|---|---|---|
| 1. | Skilled | Mines Manager | 1 No. |
| | | Foreman / Mate | 2 No. |
| | | Operator | 12 No. |
| | | Mechanic | 1 No. |
| 2. | Semi-skilled | Driver | 6 No. |
| 3. | Unskilled | Labours | 12Nos |
| | | Total = | 34Nos |

Allowing 10% absentee, the no. of men of roll will be around 31.

The above man power is adequate to meet out the production schedule and the machinery strength envisaged in the mining plan and to comply the statutory provisions of Mines Safety Regulations.

- **It is been ensured that, child labours under 18 years of age will not be engaged for quarrying operation.**
- **Necessary life insurance policies will be taken by the applicant to all the employees up to the end of the lease period.**

| | | | | |
|---|---|---|---|---|
| 9.2 | | Welfare Measures | | |
| | a. | Drinking Water | : | Packaged drinking water is available from the nearby approved water vendors in Koraikeni village which is about 1.2Km on Southwestern side of the area. |

| | | | | |
|---|---|---|---|---|
| | b. | Sanitary facilities | : | Semi-permanent latrines & urinals shall be maintained at convenient places for use of labours as per the provisions of Rule (33) of the Mines Rules, 1960 separately for males and females. Washing facilities shall also be arranged as per rule (36) of the Mines Rules, 1960. |
| | c. | First Aid Facility | : | First aid kits are kept in Mines office room, in case of such eventualities the victim will be given first aid immediately at the site and injured person will be taken to the hospital. Hospital is available at distance of 9.8Km (SE) in Vanur the competent and Statutory foreman/ permit manager will be in charge of first aid. |
| | d. | Labour Health | : | As per Mines Rule, Periodic medical examination related to occupational health safety will be conducted to all the workers in applicant's own cost. |
| | e. | Precautionary safety measures to the Labourers: | | |
| | | Safety provisions like helmet, goggles, safety shoes, Dust mask, Ear muffs etc., have to be provided as per the circulars and amendments made for Mine labours under the guidance of DGMS being a mechanized operation.<br>Necessary training will be conducted once in a year to all the employees with the help of qualified and experienced officers to train about the safe and systematic quarrying operation. | | |






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## PART – B

**10.0 Environmental Management Plan:**

| | | | |
|---|---|---|---|
| 10.1 | Existing Land Use Pattern | : | 1. The area is exhibits almost plain topography covered by Gravel formation.<br>2. Quarrying operation is proposed up to a depth of 50m (below ground level) for the proposed mining plan period.<br>3. Fluctuation of Water table in this area is in between 85m and 82m during a year.<br>4. This region receives the average annual rainfall of 800mm to 900mm. The surrounding area is practiced by the seasonal cultivation.<br>The existing land use pattern is given as under. |

Table No-5

| Sl. No. | Land Use | Present Area (Ha) | Area in use during the quarrying period (Ha) |
|---|---|---|---|
| 1. | Quarrying Pit | Nil | 4.08.0 |
| 2. | Infrastructure | Nil | 0.01.0 |
| 3. | Roads | Nil | 0.01.0 |
| 4. | Green Belt | Nil | 0.74.5 |
| 5. | Unutilized | 4.84.5 | Nil |
| | Total = | **4.84.5** | **4.84.5** |

| | | | |
|---|---|---|---|
| 10.2 | Water Regime | : | Water table in this area is noticed at a depth of 85m and presently, in the proposed mining plan only 50m (below ground level) and 70m depth has been envisaged as workable depth for safe & economic quarrying for the entire lease period. hence, it will not affect the ground water depletion of this area. |
| 10.3 | Flora and Fauna | : | Except acacia bushes, no other valuable trees are noticed in the applied area. Further, neither flora of botanical interest nor fauna of zoological interest is noticed in this area. |
| 10.4 | Climatic conditions | : | Generally subtropical climatic condition prevails throughout the year and there is no sharp variation in climate.<br>This District receives rain both in south west and north east monsoon.<br>The average rainfall is about 800mm to 900mm and the temperature ranges from 18°C during winter and to a maximum of 42°C during the summer. |

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<table>
<tr><td>10.5</td><td>Human Settlement</td><td>:</td><td>The nearest habitations with the population is given as under.<br>Table No-6<table><tr><th>S. No</th><th>Name of the Village</th><th>Approximate distance & Direction from lease applied area</th><th>Approximate population</th></tr><tr><td>1.</td><td>Ambuzhukai</td><td>1.2km - NE</td><td>300</td></tr><tr><td>2.</td><td>Ponnampundi</td><td>1.5km - NW</td><td>400</td></tr><tr><td>3.</td><td>Thiruvakkarai</td><td>2.0km - SE</td><td>2000</td></tr><tr><td>4.</td><td>Koraikeni</td><td>1.2km - SW</td><td>400</td></tr></table></td></tr>
<tr><td>10.6</td><td>Plan for Air, Dust Suppression</td><td>:</td><td>Air or dust expected to be generated from drilling process, hauling roads, places of excavation etc., will be suppressed by periodical wetting of land by water spraying. Wet drilling and dust extractor arrangements will be provided to drilling units so as to control raise of dust from the site of drilling. Operators, those exposed directly to such conditions will be provide such protective equipment like mask, ear plug, helmet, gloze etc., as per the Mines Act.</td></tr>
<tr><td>10.7</td><td>Plan for Noise Control</td><td>:</td><td>Quarrying of Rough Stone will be carried out by drilling and blasting by using low power explosives, and hence, noise will be very minimum. However, periodical noise level monitoring will be carried out to check the noise level in and around the quarry site. Nowhere the noise level should exceed the permissible limit of 80db during the quarry working hours.</td></tr>
<tr><td>10.8</td><td>Environmental Impact Assessment Statement Describing Impact on mining on the next Five years</td><td>:</td><td>The mining plan proposed is for a small production of Rough stone without involving deep hole drilling and heavy blasting. Such limited mining activity is not likely to cause any impact adversely on environment as far as pollution of air, water and noise is concerned, anyhow environmental impact studies will be conducted as per EIA notification issued by MOEF.</td></tr>
</table>

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| | | | |
|---|---|---|---|
| 10.9 | Proposal for Waste Management | : | There is no waste anticipated in this rough stone quarry operation. |
| 10.10 | Proposal of Reclamation of Land affected during mining activities and at the end of mining. | : | In the proposed mining plan 50m (below ground level) and 70m depth has been envisaged as workable depth for safe & economic mining during the lease period. Hence, after quarry reaches ultimate pit limit (for this lease period) of 70m depth, fencing will be constructed around the quarried pits to prevent inherent entry of the public and cattle. |
| 10.11 | Program for Afforestation | : | The 7.5m safety distance along the lease boundary has been identified to be utilized for afforestation Appropriate native species of Neem/Pungan trees will be planted in the first year. Nearly 7450 Sqm area is proposed to use under afforestation by planting 894nos of Neem/Pungan trees during first year with an anticipated survival rate of 80%. The Quarry landuse, layout and afforestation plan is shown in Plate No.III. |
| 10.12 | Proposed Financial Estimate / Budget for (EMP) Environment Management | | |
| | **A. Fixed Asset Cost**: | | |
| | 1. Land Cost (600000/1Ha)= | | Rs. 29,07,000 |
| | 2. First aid room and accessories | | Rs.1,00,000 |
| | 3. Labour Shed | | Rs.1,00,000 |
| | 4. Sanitary Facility | | Rs.1,00,000 |
| | **Total=** | | **Rs. 32,07,000/-** |
| | **B. Operational Cost**: | | |
| | 1. Machineries | : | Rs.80,00,000- |
| | 2. Fencing cost | : | Rs. 2,50,000 |
| | **Total** | : | **Rs.82,50,000/-** |




| | | | |
|---|---|---|---|
| | **C.EMP Cost:** | : | Budget Provision for the entire quarrying period. |
| | | : | Air Quality Sampling = Rs. 40,000/- |
| | | : | Water Quality Sampling = Rs. 40,000/- |
| | | : | Noise Monitoring = Rs. 20,000/- |
| | | : | Ground vibration test = Rs. 20,000/- |
| | **Expenditure**<br>1. Drinking water facility<br>2. Sanitary Arrangements<br>3. Safety kids<br>4. Water sprinkling<br>5. Afforestation<br>**Total=** | | Rs.1,50,000/-<br>Rs. 50,000/-<br>Rs. 50,000/-<br>Rs. 1,50,000/-<br>Rs. 1,40,000/-<br>**Rs. 6,60,000/-** |
| | **Total Project Cost (A+B+C)** | : | **Rs. 1,21,17,000/-** |
| | **CSR Cost(2% of Total Project Cost)** | : | **Rs. 2,42,340/-** |

**11.0 Mine Closure Plan:**

| | | | |
|---|---|---|---|
| 11.1 | Steps proposed for phased restoration, reclamation of already mined out area. | : | There is no proposal for back filling, reclamation and rehabilitation. The quarried pits after the end of the life of lease will be fenced to prevent inherent entry of public and cattles. |
| 11.2 | Measures to be under taken on mine closure as per Act & Rules | : | Measures will be taken as per the Acts and Rules. The quarried pit will be fenced by using Barbed wire fencing to prevent inherent entry of public and cattle. |
| 11.3 | Mitigation measures to be undertaken for safety and restoration/ reclamation of the already mined out area | : | Mitigation measures: Drilling will be carried out by wet drilling mode to control the dust propagation into the air.<br>Blasting will be carried out on limited scale. Mist Water spraying on haul road is proposed to prevent the dust propagation into the air. |

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**12.0 Any Other Details Intend to Furnish by the Applicant:**

(i) Permission will be obtained from the District Mines Office to extract the Rough Stone from the Boundary barriers and for slopes.

(ii) Care and precautionary measures will be taken for the safety of workers as per Rules and Acts.

(iii) The applicant will endeavor every attempt to quarry the Rough Stone economically without any wastage and to improve the environment and ecology.

(iv) The Mining Plan is prepared by incorporating the conditions stipulated in the precise area communication issued and relevant mining laws in force.

(v) Any violation pointed out by the inspecting authorities shall be rectified as per the guidelines of the Department.

Prepared by

**C.Natarajan, M.Sc.,M.Phil.,**

**Qualified Person**

C.NATARAJAN M.Sc.,M.Phil.,
Qualified Person

Place : Salem
Date : 05.12.2024

This mining plan is approved based on the instructions in G.O. guidelines issued by the Commissioner of Geology and Chennai vide letter Rc.No.3808/MC/2018 dated 19-12- and based on incorporation of the conditions laid by the Assistant Director (i/c), Geology and Mining, Viluppuram in precise area communication letter Rc.No. B/4824/157/2024 Dated : 03.12.2024.

Assistant Director 27/12/2024
Geology and Mining,
Viluppuram.

Dated : 27.12.2024.

27.12.24

27.12.24.

ANNEXURE I

ந.க.ஆ/புவி(ம)சுர/157/2024
நாள்: 03.12.2024.

உதவி இயக்குநர்,
புவியியல் மற்றும் சுரங்கத்துறை அலுவலகம்,
விழுப்புரம்.

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**குறிப்பாணை**

பொருள்: கனிமங்களும் குவாரிகளும் - சிறுகனிமம் - சாதாரண கற்கள் மற்றும் கிராவல் - விழுப்புரம் மாவட்டம் - வானூர் வட்டம் - கோரைக்கேணி கிராமம் - பட்டா எண்கள்: 42/3A - 0.13.5 ஏர்ஸ், 42/3B - 0.91.5 ஏர்ஸ், 44/1 - 0.26.5 ஏர்ஸ், 44/2 - 0.26.0 ஏர்ஸ், 44/3 - 0.25.5 ஏர்ஸ், 44/4A (பகுதி) - 2.85.5 ஹெக்டேர் மற்றும் 44/4B - 0.16.0 ஏர்ஸ் ஆக மொத்தம் 4.84.5 ஹெக்டேர் பரப்பளவில் பத்தாண்டுகளுக்கு சாதாரண கற்கள் மற்றும் கிராவல் குவாரி வெட்டியெடுக்க குவாரி குத்தகை அனுமதி கோரி திரு.எஸ். செந்தில்குமார் த-பெ. சேகர் என்பவர் விண்ணப்பம் செய்தது - குவாரி குத்தகை உரிமம் வழங்குவதற்கான தகுதியான நிலப்பரப்பிற்கான சுரங்கத்திட்டம் சமர்பிக்க கோரியது - தொடர்பாக.

பார்வை:
1. திரு.எஸ். செந்தில்குமார் த-பெ. சேகர், நெ.9, செல்சியா தெரு, ராஜா அண்ணாமலை நகர், கோரிமேடு, புதுச்சேரி என்பவரது விண்ணப்பம் நாள்: 13.05.2024
2. விழுப்புரம் வருவாய் கோட்டாட்சியர் (மு.கூ.பொ) அவர்களின் கடித எண். ந.க.அ4/1864/2024, நாள்.09.09.2024.
3. விழுப்புரம் புவியியல் மற்றும் சுரங்கத்துறை உதவி புவியியலாளர் புலத்தணிக்கை அறிக்கை நாள்: 30.09.2024
4. திரு.எஸ். செந்தில்குமார் த-பெ. சேகர், நெ.9, செல்சியா தெரு, ராஜா அண்ணாமலை நகர், கோரிமேடு, புதுச்சேரி என்பவரது மனு நாள்: 13.11.2024

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விழுப்புரம் மாவட்டம், வானூர் வட்டம், கோரைக்கேணி கிராமம், பட்டா புல எண்கள்: 42/3A - 0.13.5 ஏர்ஸ், 42/3B - 0.91.5 ஏர்ஸ், 44/1 - 0.26.5 ஏர்ஸ், 44/2 - 0.26.0 ஏர்ஸ், 44/3 - 0.25.5 ஏர்ஸ், 44/4A - 3.05.5 ஏர்ஸ் மற்றும் 44/4B - 0.16.0 ஏர்ஸ் ஆக மொத்தம் 5.04.5 ஹெக்டேர் பரப்பளவில் பத்தாண்டுகளுக்கு சாதாரண கற்கள் மற்றும் கிராவல் வெட்டியெடுப்பது தொடர்பாக 1959-ஆம் ஆண்டு தமிழ்நாடு சிறுவகை கனிமச்சலுகை விதிகள், விதி எண். 19-ன்கீழ் குவாரிபணி செய்ய உரிமம் வழங்கிட கோரி பார்வை 1-ல் கண்டவாறு விண்ணப்பம் செய்துள்ளீர்.

மேற்படி விண்ணப்பம் தொடர்பாக, விழுப்புரம் வருவாய் கோட்டாட்சியர் மற்றும் விழுப்புரம் மாவட்ட புவியியல் மற்றும் சுரங்கத்துறை உதவி புவியியலாளர் ஆகியோரின் விசாரணை மற்றும் பரிந்துரை அறிக்கையினை பரிசீலனை செய்ததில் விழுப்புரம் மாவட்டம், வானூர் வட்டம், கோரைக்கேணி கிராமம், பட்டா புல எண்கள்: 42/3A - 0.13.5 ஏர்ஸ், 42/3B - 0.91.5 ஏர்ஸ், 44/1 - 0.26.5 ஏர்ஸ், 44/2 - 0.26.0 ஏர்ஸ், 44/3 - 0.25.5 ஏர்ஸ், 44/4A - 3.05.5 ஏர்ஸ் மற்றும் 44/4B - 0.16.0 ஏர்ஸ் ஆக மொத்தம் 5.04.5 ஹெக்டேர் பரப்பளவில் உள்ள பட்டா நிலத்தில் திரு.எஸ். செந்தில்குமார் த-பெ. சேகர் என்பவருக்கு பத்தாண்டுகளுக்கு




சாதாரணக்கற்கள் மற்றும் கிராவல் குவாரி உரிமம் வழங்க கீழ்கண்ட நிபந்தனைகளுக்குட்பட்டு அனுமதி வழங்கலாம் என பரிந்துரை செய்துள்ளனர்.

i. குவாரி குத்தகை அனுமதி வழங்க கோரும் புலன்களுக்கு அருகிலுள்ள பட்டா நிலங்களுக்கு 7.5 மீட்டர் பாதுகாப்பு இடைவெளியும் மற்றும் அரசு புறம்போக்கு நிலங்களுக்கு 10 மீட்டர் பாதுகாப்பு இடைவெளியும் விட்டு குவாரிப்பணி மேற்கொள்ளப்பட வேண்டும்.

ii. குவாரி குத்தகை உரிமம் கோரும் புலன்களை சுற்றியுள்ள மின்கம்பி பாதைகளுக்கு 50 மீட்டர் பாதுகாப்பு இடைவெளி விடப்பட வேண்டும்.

iii. குவாரி குத்தகை கோரும் புலன்களுக்கு அருகில் உள்ள ஓடை புறம்போக்கு புல எண்: 43/-க்கு போதிய பாதுகாப்பு இடைவெளி விடப்பட வேண்டும்.

iv. குவாரி பணிக்கான சாலை அமைக்கும்போது புல எண்: 43/-ல் உள்ள ஓடைக்கு எந்த பாதிப்பும் ஏற்படுத்தக் கூடாது.

v. குவாரிப்பணி மேற்கொள்ளும் போது அருகிலுள்ள பட்டா மற்றும் அரசு புறம்போக்கு நிலங்களுக்கு எவ்வித இடையூறும் இல்லாமல் குவாரிப்பணி செய்ய வேண்டும்.

vi. குவாரி குத்தகை வழங்கும் முன்பு விண்ணப்பித்துள்ள இடத்தினை DGPS சர்வே பணி மேற்கொண்டு அதன் அறிக்கையை சமர்பிக்க வேண்டும்.

vii. தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 1959 விதி-41ன்படி தகுதிவாய்ந்த நபரால் சுரங்க திட்டம் தயார் செய்து உதவி இயக்குநர் அவர்களின் ஒப்புதல் பெறவேண்டும்.

viii. தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 1959 விதி-42ன்படி மாநில சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணையத்திடமிருந்து சுற்றுச்சூழல் சான்று பெற்று சமர்பிக்கப்படவேண்டும்.

இந்நேர்வில், குவாரி குத்தகை வழங்க கோரும் விழுப்புரம் மாவட்டம், வானூர் வட்டம், கோரைக்கேணி கிராமம், பட்டா புல எண்: 44/4A - 3.05.5 ஹெக்டேரில் பகுதியளவு 2.85.5 ஹெக்டேர் என குறைத்து மொத்த பரப்பளவு 4.84.5 ஹெக்டேர் பரப்பினை தகுதியான நிலப்பரப்பாக கருதி குவ்ாரி பணி செய்வதற்கு சுரங்கதிட்டம் தயார் செய்திட குறிப்பாணை வழங்குமாறு பார்வை 4-ல் காணும் மனுவில் கோரியுள்ளீர்.

எனவே, விண்ணப்பத்தாரரின் கோரிக்கை மற்றும் விழுப்புரம் வருவாய் கோட்டாட்சியர் அவர்களின் பரிந்துரை அறிக்கை, விழுப்புரம் மாவட்ட புவியியல் மற்றும் சுரங்கத்துறை உதவிப்புவியியலாளர் விசாரணை மற்றும் புலத்தணிக்கை அறிக்கை ஆகியவற்றினை பரிசீலனை செய்யப்பட்டு, விழுப்புரம் மாவட்டம், வானூர் வட்டம், கோரைக்கேணி கிராம பட்டா எண்கள்: 42/3A - 0.13.5 ஏர்ஸ், 42/3B - 0.91.5 ஏர்ஸ், 44/1 - 0.26.5 ஏர்ஸ், 44/2 - 0.26.0 ஏர்ஸ், 44/3 - 0.25.5 ஏர்ஸ், 44/4A (பகுதி) - 2.85.5 ஹெக்டேர் மற்றும் 44/4B - 0.16.0 ஏர்ஸ் ஆக மொத்தம் 4.84.5 ஹெக்டேர் பரப்பளவில் திரு.எஸ். செந்தில்குமார் த-பெ. சேகர் என்பவருக்கு அரசு நிபந்தனைகளுக்குட்பட்டு 10 (பத்து) வருட காலத்திற்கு சாதாரண கற்கள் மற்றும் கிராவல் வெட்டியெடுக்க குவாரி குத்தகை உரிமம் வழங்குவதற்குரிய தகுதியான நிலப்பரப்பாக கருதப்படுகிறது.

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மேலும், தமிழ்நாடு சிறு கனிம சலுகை விதிகள் 1959 விதி எண்.41-ன்படி குவாரிப்பணி மேற்கொள்வது தொடர்பாக, வரைவு சுரங்க திட்டத்தினை தகுதிவாய்ந்த நபர் (QP) மூலமாக கீழ்கண்ட நிபந்தனைகளுக்குட்பட்டு தயாரித்து அதனை 90 தினங்களுக்குள் உதவி இயக்குநர் (புவியியல் மற்றும் சுரங்கத்துறை) அவர்களின் பரிசீலனைக்கு சமர்ப்பிக்குமாறு விண்ணப்பதாரரை கேட்டுக் கொள்ளப்படுகிறது.

மேலும் ஏற்பளிக்கப்பட்ட சுரங்கத்திட்டத்தின் தொடர்ச்சியாக 1959-ம் வருடத்திய தமிழ்நாடு சிறுகனிம சலுகை விதிகள், விதி எண்.42-ன்படி சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணையத்தின் தடையின்மை சான்று பெற்று சமர்பிக்கும் பட்சத்தில் மட்டுமே குவாரி குத்தகை உரிமம் வழங்கப்படும் என இதன் மூலம் தெரிவிக்கப்படுகிறது.

நிபந்தனைகள்:

i. குவாரி குத்தகை அனுமதி வழங்க கோரும் புலன்களுக்கு அருகிலுள்ள பட்டா நிலங்களுக்கு 7.5 மீட்டர் பாதுகாப்பு இடைவெளியும் மற்றும் அரசு புறம்போக்கு நிலங்களுக்கு 10 மீட்டர் பாதுகாப்பு இடைவெளியும் விட்டு குவாரிப்பணி மேற்கொள்ளப்பட வேண்டும்.

ii. குவாரி குத்தகை உரிமம் கோரும் புலன்களை சுற்றியுள்ள மின்கம்பி பாதைகளுக்கு 50 மீட்டர் பாதுகாப்பு இடைவெளி விடப்பட வேண்டும்.

iii. குவாரி குத்தகை கோரும் புலன்களுக்கு அருகில் உள்ள ஓடை புறம்போக்கு புல எண்: 43/-க்கு போதிய பாதுகாப்பு இடைவெளி விடப்பட வேண்டும்.

iv. குவாரி பணிக்கான சாலை அமைக்கும்போது புல எண்: 43/-ல் உள்ள ஓடைக்கு எந்த பாதிப்பும் ஏற்படுத்தக் கூடாது.

v. குவாரிப்பணி மேற்கொள்ளும் போது அருகிலுள்ள பட்டா மற்றும் அரசு புறம்போக்கு நிலங்களுக்கு எவ்வித இடையூறும் இல்லாமல் குவாரிப்பணி செய்ய வேண்டும்.

vi. குவாரி குத்தகை வழங்கும் முன்பு விண்ணப்பித்துள்ள இடத்தினை DGPS சர்வே பணி மேற்கொண்டு அதன் அறிக்கையை சமர்பிக்க வேண்டும்.

உதவி இயக்குநர்,,
புவியியல் மற்றும் சுரங்கத்துறை,
விழுப்புரம்.

பெறுநர்:-
திரு.எஸ். செந்தில்குமார்
த-பெ. சேகர்,
நெ.9, செல்சியா தெரு,
ராஜா அண்ணாமலை நகர்,
கோரிமேடு, புதுச்சேரி - 605 006.

நகல்:-
1. மாநில சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணையம், சென்னை.
2. ஆணையர், புவியியல் மற்றும் சுரங்கத்துறை, கிண்டி, சென்னை.

ANNEXURE II

District : Viluppuram

Taluk : Vanur

Village : Koraikeni [59]

Survey No : 42

Area : Hect 05 Ares 89.00

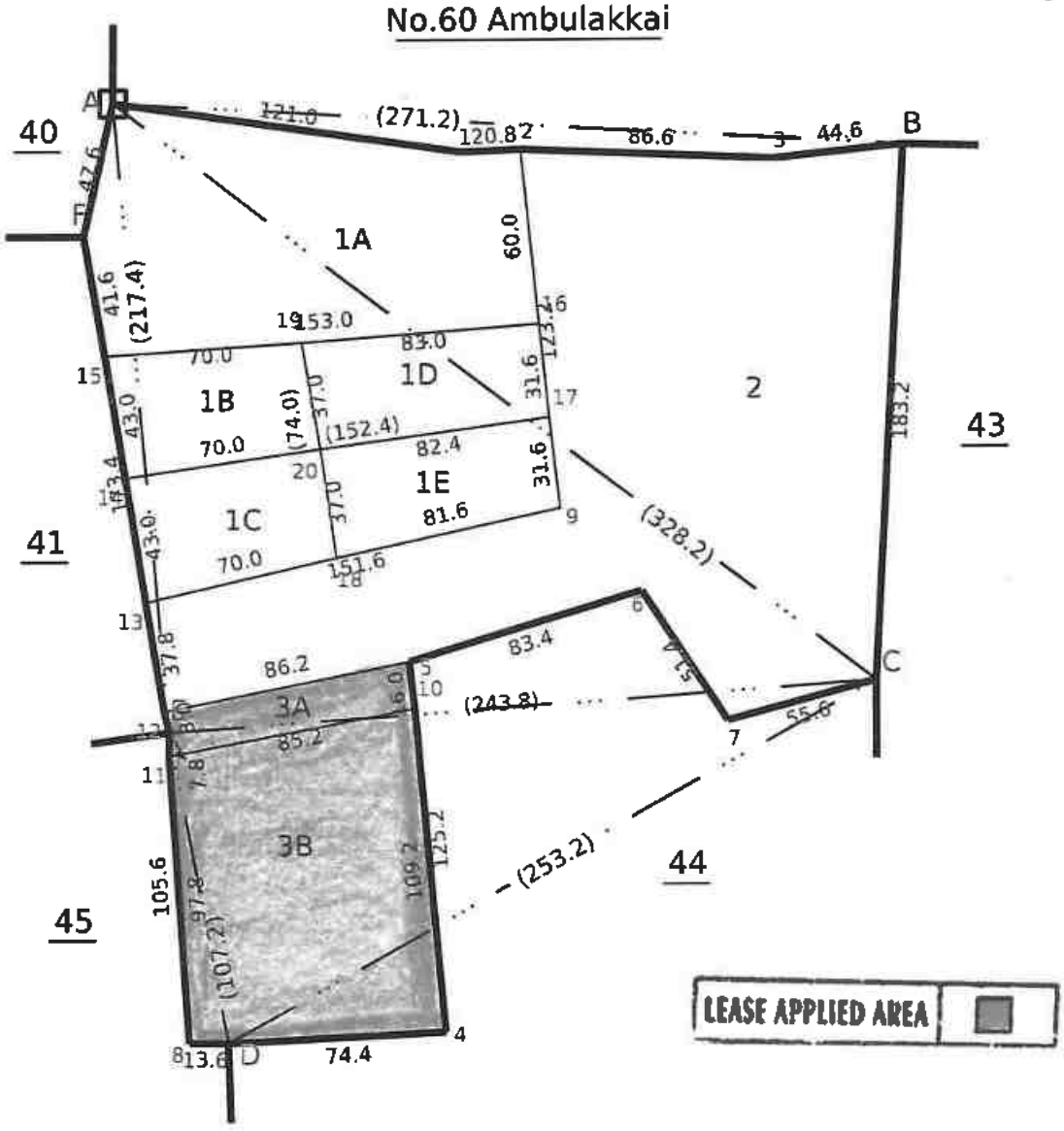
Scale : 1 : 2528

27 DEC 2024

விழுப்புரம்

N

No.60 Ambulakkai




Signed By Tahsildar

Name of approver : vanta

Date of Approval : 29-12-2017

Date of Issue: 04-12-2024 12:43:45

240 fv 2

District : Viluppuram

Taluk : Vanur

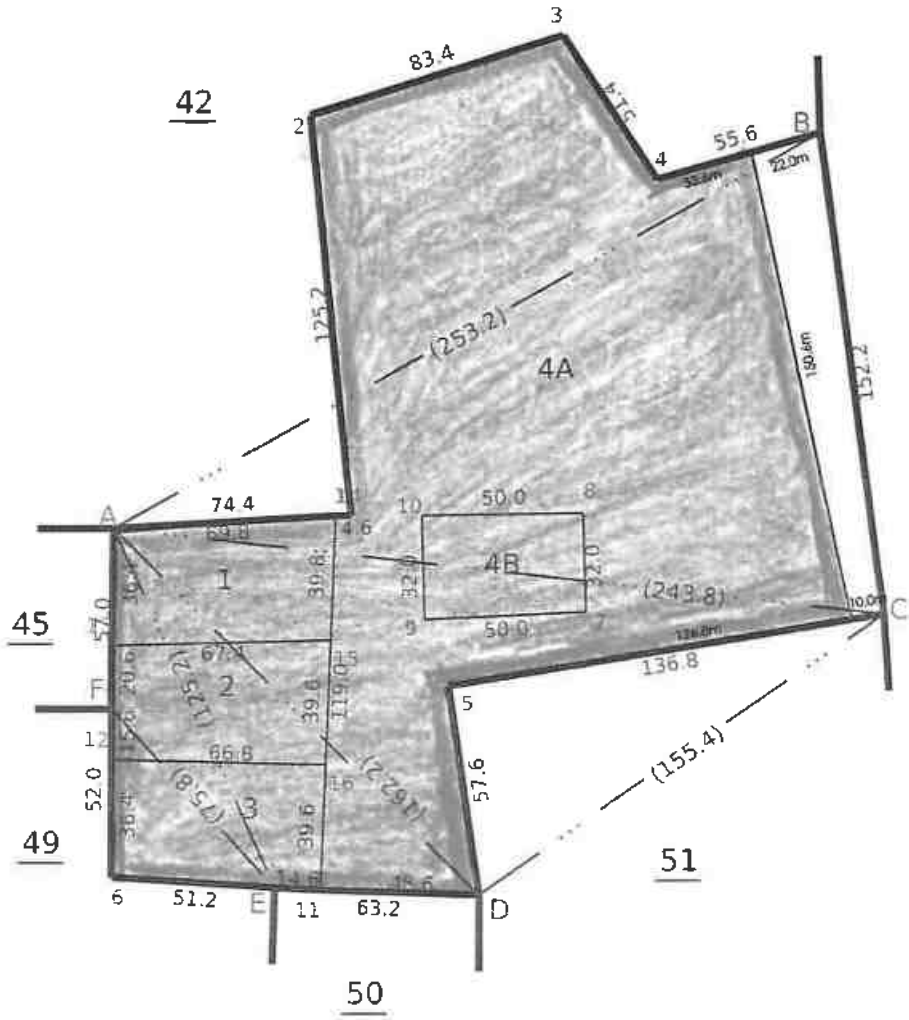
Village : Koraikeni [59]

Survey No : 44

Area : Hect 03 Ares 99.50

Scale : 1 : 2264

27 DEC 2024



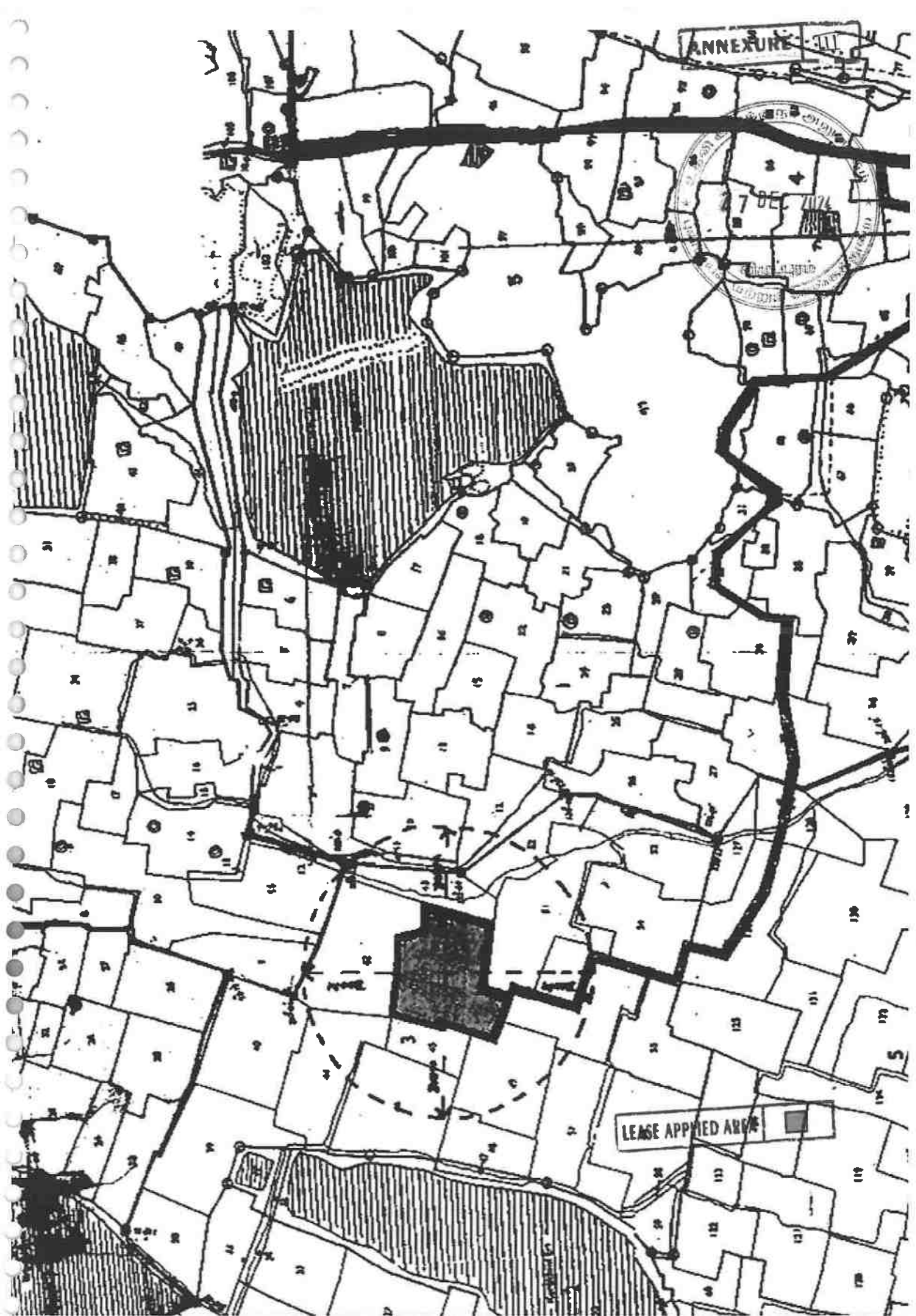

LEASE APPLIED AREA

Signed By Tahsildar

Name of approver : vanta

Date of Approval : 29-12-2017

Date of Issue: 01-03-2024 07:19:06


ANNEXURE - III
LEASE APPLIED AREA

ANNEXURE IV



27 DEC 2024

தமிழ்நாடு அரசு

வருவாய்த் துறை

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

மாவட்டம் : விழுப்புரம் வட்டம் : வானூர்

வருவாய் கிராமம் : கோரைக்கேணி பட்டா எண் : 1024

உரிமையாளர்கள் பெயர்

1. சேகர் தந்தை செந்தில்குமார்

| புல எண் | உட்பிரிவு | புன்செய் | | நன்செய் | | மற்றவை | | குறிப்புரைகள் |
|---|---|---|---|---|---|---|---|---|
| | | பரப்பு | தீர்வை | பரப்பு | தீர்வை | பரப்பு | தீர்வை | |
| | | ஹெக் - ஏர் | ரூ - பை | ஹெக் - ஏர் | ரூ - பை | ஹெக் - ஏர் | ரூ - பை | |
| 41 | 7B | 0 - 13.50 | 0.46 | -- | -- | -- | -- | 2024/0103/07/366294--2024/07/02/000172SD -------- 14-03-2024 |
| 42 | 3A | 0 - 13.50 | 0.46 | -- | -- | -- | -- | 2024/0103/07/366294--8a84/2009 -------- 14-03-2024 |
| 42 | 3B | 0 - 91.50 | 3.11 | -- | -- | -- | -- | 2024/0103/07/366294--8a84/2009 -------- 14-03-2024 |
| 44 | 1 | 0 - 26.50 | 0.90 | -- | -- | -- | -- | 2024/0103/07/366294-- -------- 14-03-2024 |
| 44 | 2 | 0 - 26.00 | 0.88 | -- | -- | -- | -- | 2024/0103/07/366294-- -------- 14-03-2024 |
| 44 | 3 | 0 - 25.50 | 0.87 | -- | -- | -- | -- | 2024/0103/07/366294-- -------- 14-03-2024 |
| 44 | 4A | 3 - 5.50 | 10.40 | -- | -- | -- | -- | 2024/0103/07/366294--291/1415 -------- 14-03-2024 |
| 44 | 4B | 0 - 16.00 | 0.60 | -- | -- | -- | -- | 2024/0103/07/366294--291/1415 -------- 14-03-2024 |
| 45 | 2 | 0 - 43.50 | 1.48 | -- | -- | -- | -- | 2024/0103/07/366294--2024/07/02/000172SD -------- 14-03-2024 |
| 46 | 4B1 | 0 - 13.88 | 0.47 | -- | -- | -- | -- | 2024/0103/07/366294--2023/07/02/000169SD -------- 14-03-2024 |
| 46 | 4B5 | 0 - 14.50 | 0.49 | -- | -- | -- | -- | 2024/0103/07/366294--2023/07/02/000169SD -------- 14-03-2024 |
| 49 | 4B | 0 - 13.00 | 0.55 | -- | -- | -- | -- | 2024/0103/07/366294--2024/07/02/000172SD -------- 14-03-2024 |
| 51 | 1A1 | 0 - 66.00 | 2.20 | -- | -- | -- | -- | 2024/0103/07/366294--334/1415-1 -------- 14-03-2024 |
| 51 | 1C | 0 - 27.50 | 0.95 | -- | -- | -- | -- | 2024/0103/07/366294-- -------- 14-03-2024 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 51 | 3 | 0 - 14.00 | 0.48 | -- | -- | -- | -- | 2024/0103/07/366294-2024 ---------- 14-03-2024 |
| | | 7 - 10.38 | 24.30 | | | | | |

27 DEC 2024

விழுப்புரம்

**குறிப்பு :**

1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் **https://eservices.tn.gov.in** என்ற இணையதளத்தில் **07/02/059/01024/20967** என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 14-03-2024 அன்று 03:35:13 PM நேரத்தில் அச்சடிக்கப்பட்டது.
3. கைப்பேசி கேமராவின்2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

ANNEXURE V

27 DEC 2024

விழுப்புரம்

கிராமக் கணக்கு

133 – ஆம் பசலியில் விழுப்புரம் மாவட்டம் விழுப்புரம் வட்டம் 59 - திருவெண்ணெய்நல்லூர் தேர்தல்

| நில நூலைவு எண் (1) | உட்பிரிவு எண் (2) | நிலவரித் திட்டத்தின்படி புலன்களின் விபரம். பரப்பு (3) | தீர்வை (4) | ஒரு போகம் அல்லது இரு போகம் (5) | கைப்பற்று தாரருடைய பெயரும் எண்ணும் அல்லது அனுபோக தாரருடைய பெயர். (6) | சாகுபடியாளின் பெயர். நிலத்தின் எந்த பகுதி யாவது சாகுபடியாளரால் பயிரிடப்பட்டுள்ளதா. (7) | முதல் போகம். எந்த மாதத்தில் பயிர் செய்யப்பட்டது அல்லது எந்த மாதத்தில் செய்யப்படும். (8) | பயிரின் பெயர். (9) | பயிரான / அறுவடையான பரப்பு. (10) | உண்மையான பாய்ச்சல் ஆதாரம். (11) | விளைச்சல் ஏனைய விபரக்குறிப்பு. (12) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 42 | 3A | 0.135 | 0.46 | 1024 | திருத்தியவர் | | | நெல் | | | |
| 42 | 3B | 0.135 | 3.11 | 1024 | -do- | | | நெல் | | | |
| 44 | 1 | 0.265 | 0.90 | 1024 | -do- | | | நெல் | | | |
| 44 | 2 | 0.260 | 0.88 | 1024 | -do- | | | நெல் | | | |
| 44 | 3 | 0.255 | 0.87 | 1024 | -do- | | | நெல் | | | |
| 44 | 4A | 3.550 | 10.40 | 1024 | -do- | | | நெல் | | | |
| 44 | 4B | 0.160 | 0.60 | 1024 | -do- | | | நெல் | | | |
| | | | | | // வண்ணமாகும் // | | | | | | |
| | | | | | இவ்வூர் கிராம நிர்வாக அலுவலர் | | தன் கையாரி பணி செய்வதற்கு | | | | |
| | | | | | அதிகாரப்பட்டவர் ஆவார்கள் | | மாறுதல் செய்யப்பட்டுள்ளது | | | | |
| | | | | | ஒப்பம் : | | | | | | |
| | | | | | நாள் : 08.05.2024 | | | | | | |

380/18-R.F.III-A10-5,00,000 Cps.-GSP.-Mdu-7-2021.

ANNEXURE VI

27 DEC 2024

விழுப்புரம்

## அ-பதிவேடு விவரங்கள் - ஊரகம்

**மாவட்டம் : விழுப்புரம்**

**வட்டம் : வானூர்**

**கிராமம் : கோரைக்கேணி**

| | | | |
|---|---|---|---|
| 1. புல எண் | **42** | 9. மண் வயனமும் ரகமும் | **4 - 5** |
| 2. உட்பிரிவு எண் | **3A** | 10. மண் தரம் | **6** |
| 3. பழைய புல உட்பிரிவு எண் | **42-3** | 11. தீர்வை (ரூ - ஹெ) | **3.40** |
| 4. பகுதி | **P** | 12. பரப்பு (ஹெக்டேர் - ஏர்) | **0 - 13.50** |
| 5. அரசு / ரயத்துவாரி | **ரயத்துவாரி** | 13. மொத்த தீர்வை (ரூ - பை) | **0.46** |
| 6. நிலத்தின் வகை | **புஞ்சை** | 14. பட்டா எண் | **1024** |
| 7. பாசன ஆதாரம் | **-** | 15. குறிப்பு | **-** |
| 8. இரு போகமா | **0** | 16. பெயர் | **1.செந்தில்குமார்** |

**குறிப்பு:**

1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் **https://eservices.tn.gov.in** என்ற இணைய தளத்தில் **07/02/059/42/3A/50967** என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

## அ-பதிவேடு விவரங்கள் - ஊரகம்

27 DEC 2024
விழுப்புரம்

**மாவட்டம் : விழுப்புரம்**

**வட்டம் : வானூர்**

**கிராமம் : கோரைக்கேணி**

| | | | |
|---|---|---|---|
| 1. புல எண் | **42** | 9. மண் வயனமும் ரகமும் | **4 - 5** |
| 2. உட்பிரிவு எண் | **3B** | 10. மண் தரம் | **6** |
| 3. பழைய புல உட்பிரிவு எண் | **42-3** | 11. தீர்வை (ரூ - ஹெ) | **3.40** |
| 4. பகுதி | **P** | 12. பரப்பு (ஹெக்டேர் - ஏர்) | **0 - 91.50** |
| 5. அரசு / ரயத்துவாரி | **ரயத்துவாரி** | 13. மொத்த தீர்வை (ரூ - பை) | **3.11** |
| 6. நிலத்தின் வகை | **புஞ்சை** | 14. பட்டா எண் | **1024** |
| 7. பாசன ஆதாரம் | **-** | 15. குறிப்பு | **-** |
| 8. இரு போகமா | **0** | 16. பெயர் | **1.செந்தில்குமார்** |

**குறிப்பு:**

1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் **https://eservices.tn.gov.in** என்ற இணைய தளத்தில் **07/02/059/42/3B/50967** என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

# அ-பதிவேடு விவரங்கள் - ஊரகம்

**மாவட்டம் : விழுப்புரம்**

**வட்டம் : வானூர்**

**கிராமம் : கோரைக்கேணி**




| | | | |
|---|---|---|---|
| 1. புல எண் | **44** | 9. மண் வயனமும் ரகமும் | **4 - 5** |
| 2. உட்பிரிவு எண் | **1** | 10. மண் தரம் | **6** |
| 3. பழைய புல உட்பிரிவு எண் | **2-1A** | 11. தீர்வை (ரூ - ஹெ) | **3.40** |
| 4. பகுதி | - | 12. பரப்பு (ஹெக்டேர் - ஏர்) | **0 - 26.50** |
| 5. அரசு / ரயத்துவாரி | **ரயத்துவாரி** | 13. மொத்த தீர்வை (ரூ - பை) | **0.90** |
| 6. நிலத்தின் வகை | **புஞ்சை** | 14. பட்டா எண் | **1024** |
| 7. பாசன ஆதாரம் | - | 15. குறிப்பு | - |
| 8. இரு போகமா | - | 16. பெயர் | **1.செந்தில்குமார்** |

**குறிப்பு:**

1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் **https://eservices.tn.gov.in** என்ற இணைய தளத்தில் **07/02/059/44/1/50967** என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

## அ-பதிவேடு விவரங்கள் - ஊரகம்




**மாவட்டம் : விழுப்புரம்**

**வட்டம் : வானூர்**

**இராமம் : கோரைக்கேணி**

| | | | |
|---|---|---|---|
| 1. புல எண் | **44** | 9. மண் வயனமும் ரகமும் | **4 - 5** |
| 2. உட்பிரிவு எண் | **2** | 10. மண் தரம் | **6** |
| 3. பழைய புல உட்பிரிவு எண் | **2-1B** | 11. தீர்வை (ரூ - ஹெ) | **3.40** |
| 4. பகுதி | - | 12. பரப்பு (ஹெக்டேர் - ஏர்) | **0 - 26.00** |
| 5. அரசு / ரயத்துவாரி | **ரயத்துவாரி** | 13. மொத்த தீர்வை (ரூ - பை) | **0.88** |
| 6. நிலத்தின் வகை | **புஞ்சை** | 14. பட்டா எண் | **1024** |
| 7. பாசன ஆதாரம் | - | 15. குறிப்பு | - |
| 8. இரு போகமா | - | 16. பெயர் | **1.செந்தில்குமார்** |

**குறிப்பு:**

1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் **https://eservices.tn.gov.in** என்ற இணைய தளத்தில் **07/02/059/44/2/50967** என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

## அ-பதிவேடு விவரங்கள் - ஊரகம்




**மாவட்டம் : விழுப்புரம்**

**வட்டம் : வானூர்**

**கிராமம் : கோரைக்கேணி**

| | | | |
|---|---|---|---|
| 1. புல எண் | **44** | 9. மண் வயனமும் ரகமும் | **4 - 5** |
| 2. உட்பிரிவு எண் | **3** | 10. மண் தரம் | **6** |
| 3. பழைய புல உட்பிரிவு எண் | **2-1C** | 11. தீர்வை (ரூ - ஹெ) | **3.40** |
| 4. பகுதி | - | 12. பரப்பு (ஹெக்டேர் - ஏர்) | **0 - 25.50** |
| 5. அரசு / ரயத்துவாரி | **ரயத்துவாரி** | 13. மொத்த தீர்வை (ரூ - பை) | **0.87** |
| 6. நிலத்தின் வகை | **புஞ்சை** | 14. பட்டா எண் | **1024** |
| 7. பாசன ஆதாரம் | - | 15. குறிப்பு | - |
| 8. இரு போகமா | - | 16. பெயர் | **1.செந்தில்குமார்** |

**குறிப்பு:**

1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் **https://eservices.tn.gov.in** என்ற இணைய தளத்தில் **07/02/059/44/3/50967** என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

## அ-பதிவேடு விவரங்கள் - ஊரகம்

27 DEC 2024
விழுப்புரம்

**மாவட்டம் : விழுப்புரம்**

**வட்டம் : வானூர்**

**கிராமம் : கோரைக்கேணி**

| | | | |
|---|---|---|---|
| 1. புல எண் | **44** | 9. மண் வயனமும் ரகமும் | **4 - 5** |
| 2. உட்பிரிவு எண் | **4A** | 10. மண் தரம் | **6** |
| 3. பழைய புல உட்பிரிவு எண் | **2-2** | 11. தீர்வை (ரூ - ஹெ) | **3.40** |
| 4. பகுதி | **P** | 12. பரப்பு (ஹெக்டேர் - ஏர்) | **3 - 5.50** |
| 5. அரசு / ரயத்துவாரி | **ரயத்துவாரி** | 13. மொத்த தீர்வை (ரூ - பை) | **10.40** |
| 6. நிலத்தின் வகை | **புஞ்சை** | 14. பட்டா எண் | **1024** |
| 7. பாசன ஆதாரம் | **-** | 15. குறிப்பு | **-** |
| 8. இரு போகமா | **-** | 16. பெயர் | **1.செந்தில்குமார்** |

**குறிப்பு:**

1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் **https://eservices.tn.gov.in** என்ற இணைய தளத்தில் **07/02/059/44/4A/50967** என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

## அ-பதிவேடு விவரங்கள் - ஊரகம்

27 DEC 2024
விழுப்புரம்

**மாவட்டம் : விழுப்புரம்**

**வட்டம் : வானூர்**

**கிராமம் : கோரைக்கேணி**

| | | | |
|---|---|---|---|
| 1. புல எண் | **44** | 9. மண் வயனமும் ரகமும் | **4 - 5** |
| 2. உட்பிரிவு எண் | **4B** | 10. மண் தரம் | **6** |
| 3. பழைய புல உட்பிரிவு எண் | **2-2** | 11. தீர்வை (ரூ - ஹெ) | **3.40** |
| 4. பகுதி | **P** | 12. பரப்பு (ஹெக்டேர் - ஏர்) | **0 - 16.00** |
| 5. அரசு / ரயத்துவாரி | **ரயத்துவாரி** | 13. மொத்த தீர்வை (ரூ - பை) | **0.60** |
| 6. நிலத்தின் வகை | **புஞ்சை** | 14. பட்டா எண் | **1024** |
| 7. பாசன ஆதாரம் | - | 15. குறிப்பு | - |
| 8. இரு போகமா | - | 16. பெயர் | **1.செந்தில்குமார்** |

**குறிப்பு:**

1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் **https://eservices.tn.gov.in** என்ற இணைய தளத்தில் **07/02/059/44/4B/50967** என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

ANNEXURE VII

27 DEC 2024

விழுப்புரம்

भारतीय विशिष्ट पहचान प्राधिकरण
भारत सरकार
Unique Identification Authority of India
Government of India

E-Aadhaar Letter

பதிவேட்டு எண்/ Enrolment No.: 1111/11158/01791

Date: 10/05/2013

S Senthil Kumar /சே செந்தில் குமார்)
S/O: Sekar, Plot No 9, Selsiya Street Rajaannamalai Nagar - Gorimedu, Dhanvantry Nagar, Dhanvantry Nagar, Puducherry
Puducherry, 605005

தகவல்

- ஆதார் அடையாளத்திற்கான சான்று குடியுரிமைக்கு அல்ல
- அடையாள சான்றை ஆன்லைன் அதன்மூலமாக பெறவும்
- இது எலக்ட்ரானிக் செயல்முறை மூலம் தயாரிக்கப்பட்ட கடிதமாகும்

உங்கள் ஆதார் எண்/ Your Aadhaar No.:

**7293 9635 6300**

ஆதார் - சாதாரண மனிதனின் அதிகாரம்

INFORMATION

- Aadhaar is proof of identity, not of citizenship
- To establish identity, authenticate online
- This is electronically generated letter

Digitally signed by
Khurshid Ahmed
Date: 10th, 2013

1947 help@uidai.gov.in www.uidai.gov.in P.O. Box No.1947, Bangalore-560 001

- ஆதார் நாடு முழுவதிலும் செல்லுபடியாகும்
- ஆதார் ஆதார் பெறுவதற்கு ஒரே ஒரு முறை மட்டுமே நீங்கள் விண்ணப்பத்தை பூர்த்தி செய்து பதிவு செய்ய வேண்டிய அவசியம் ஏற்படும்
- தயவுசெய்து உங்களின் சமீபத்திய புதிய மொபைல் நம்பர் மற்றும் e-மெயில் முகவரியை பதிவு செய்யவும். இதனால் உங்களுக்கு பல்வேறு வசதிகளை பெற்றுக் கொள்ளும் சௌகரியம் கிடைக்கும்.

- Aadhaar is valid throughout the country
- You need to enrol only once for Aadhaar.
- Please update your mobile number and e-mail address. This will help you to avail various services in future.

भारत सरकार
GOVERNMENT OF INDIA



சே செந்தில் குமார்
S Senthil Kumar
பிறந்த ஆண்டு/ YoB: 1974
ஆண் Male

7293 9635 6300

भारतीय विशिष्ट पहचान प्राधिकरण
UNIQUE IDENTIFICATION AUTHORITY OF INDIA

முகவரி:
S/O: சேகர் பிளாட் எண் 9
செல்சியா வீதி
ராஜான்னாமலை நகர் -
கோரிமேடு தன்வந்தரி
நகர், தன்வந்தரி நகர்,
புதுச்சேரி
புடுசெர்ரி 605005

Address:
S/O, Sekar, Plot No 9
Selsiya Street
Rajaannamalai Nagar -
Gorimedu, Dhanvantry
Nagar, Dhanvantry
Nagar, Puducherry
Puducherry, 605005

ஆதார் - சாதாரண மனிதனின் அதிகாரம்

Aadhaar - Aam Aadmi ka Adhikar

ANNEXURE VIII

# CHETTINAD CEMENT CORPORATION LTD.

(Regd. Office: RANI SEETHAI HALL BUILDING IV & V FLOORS, 603, ANNA SALAI, MADRAS-600006.)
WORKS OFFICE : PULIYUR.

TELE: PHONE 21144 22744 21745 KARUR
GRAM "CEMENT" Puliyur C.F.
Telex: 0456-215.
STD Code: 04324

All Correspondences to
Kumararajah Muthiah Nagar,
PULIYUR CEMENT FACTORY POST 639114
(Karur Taluk. Trichy Dt.)

27 OCT 2014

T.RAJU.,B.E.,
MINES MANAGER & DY.GENERAL MANAGER.

22 September,1987.

## CERTIFICATE.

This is to certify that Mr.C.Natarajan has been working as a Geologist from 14-12-1979 to till date. He has been incharge of supervision of day to day functions in respect of Exploration, Preparation of Geological Plans & Sections, Preparation of Mines Plans, and Quality control and other allied mining activities in the following Pits of our Seethainagar Limestone Mines in Anna District.

| Name of the Pit. | | Average Raising/day. |
|---|---|---|
| 1. Alambadi Pit. | - | 1,700 T. |
| 2. Mallapuram Pit. | - | 900 T. |
| 3. Karikkali Pit. | - | 150 T. |
| Total. | - | 2,750 T. |

He has got nearly Eight years of total experience in our Mines in the above supervisory capacity.

for CHETTINAD CEMENT CORPORATION LTD.,

(T.RAJU).
Mines Manager & Dy. General Manager.

3209.

27 DEC 2024

# ANNAMALAI UNIVERSITY

## Faculty of Science

The Senate of the Annamalai University hereby makes known that C. Natarajan has been admitted to the Degree of Master of Science (by Examination) in Zoology, he having been certified by duly appointed Examiners at the examination held in April 1976, to be qualified to receive the same and that he was placed in the First Class.

Given under the seal of the University.

Annamalainagar
8th December, 1976.

A. Chandrasekhar
Vice-Chancellor.

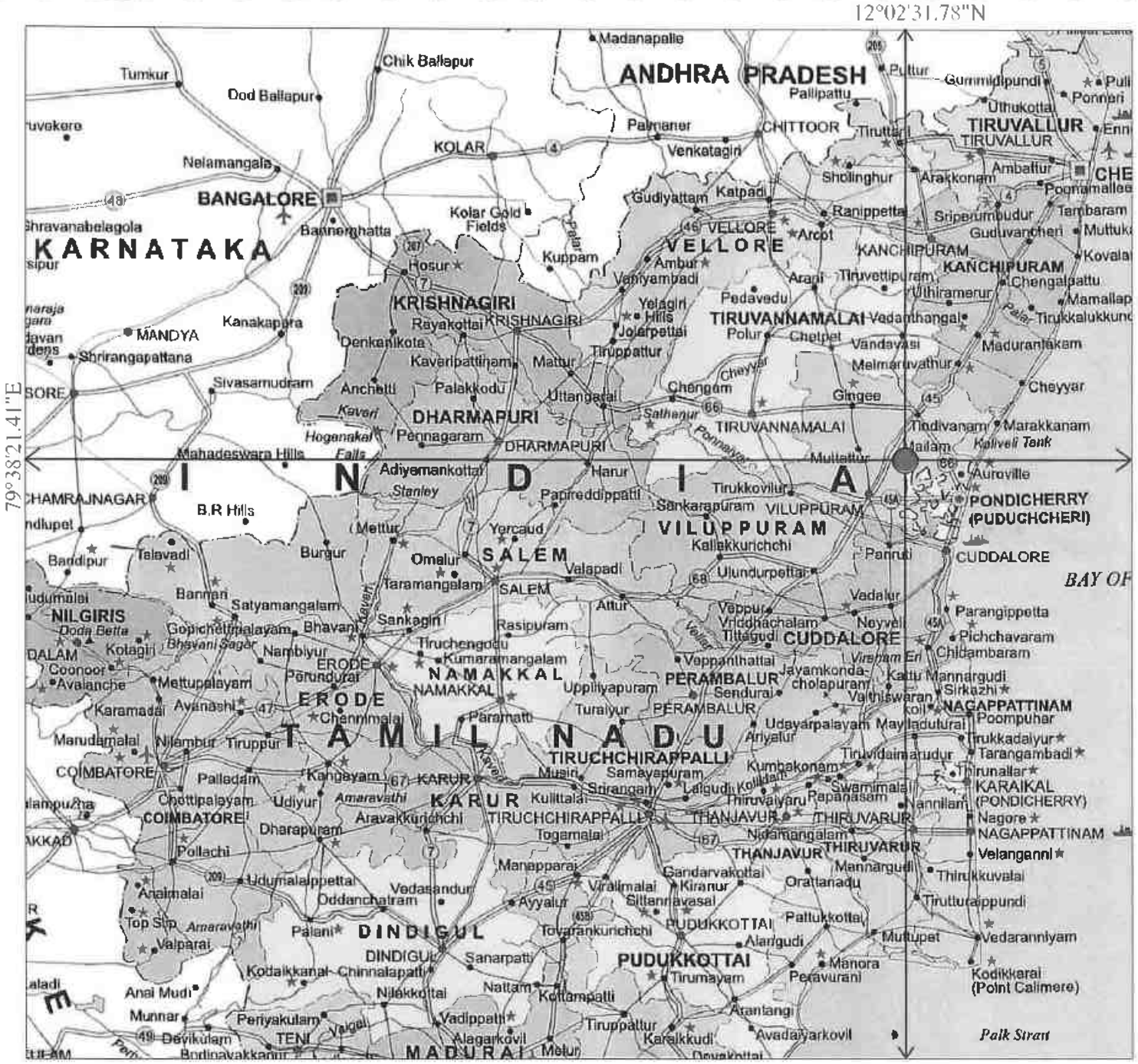



PLATE NO-I

DATE OF SURVEY : 04.12.2024

## APPLICANT:

THIRU.S.SENTHIL KUMAR,
S/o.SEKAR,
No.9, SELSIYA STREET,
RAJA ANNAMALAI NAGAR,
GORIMEDU, PUDUCHERRY - 605 006.

## QUARRY LEASE APPLIED AREA:

S.F.NO'S : 42/3A, 42/3B, 44/1, 44/2, 44/3, 44/4A(P) & 44/4B,
EXTENT : 4.84.5 Ha,
VILLAGE : KORAIKENI,
TALUK : VANUR,
DISTRICT : VILUPPURAM.

## INDEX

Q. LEASE APPLIED AREA :

TOPO SHEET No. : 57 P/ 12

LATITUDE : 12°02'23.31"N to 12°02'31.78"N

LONGITUDE : 79°38'21.41"E to 79°38'30.47"E

## LOCATION PLAN

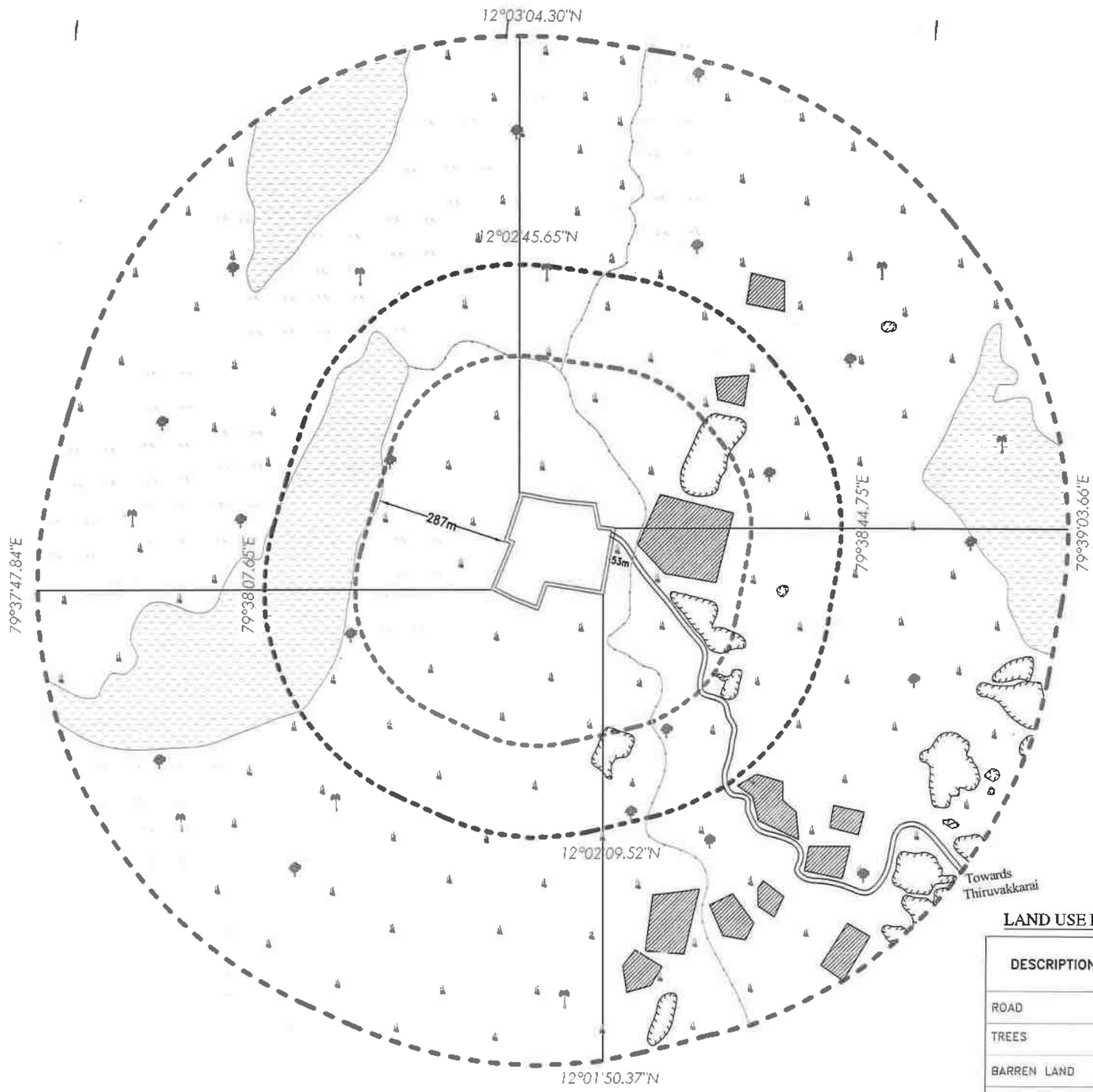
NOT TO SCALE

PREPARED BY:

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS PLAN IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE BASED UPON THE LEASE MAP AUTHENTICATED BY STATE GOVERNMENT

C.NATARAJAN, M.Sc.,M.Phil.,
QUALIFIED PERSON

**PLATE NO-IA**
DATE OF SURVEY : 04.12.2024




**APPLICANT:**
THIRU.S.SENTHIL KUMAR,
S/o.SEKAR,
No.9, SELSIYA STREET,
RAJA ANNAMALAI NAGAR,
GORIMEDU, PUDUCHERRY – 605 006.

27 DEC 2024

**QUARRY LEASE APPLIED AREA**
S.F.NO'S : 42/3A, 42/3B, 44/1, 44/3, 44/4A(P) & 44/4B,
EXTENT : 4.84.5 Ha,
VILLAGE : KORAIKENI,
TALUK : VANUR,
DISTRICT : VILUPPURAM.

**INDEX**

TOPO SHEET No. : 57 P/ 12

LATITUDE : 12°02'23.31"N to 12°02'31.78"N

LONGITUDE : 79°38'21.41"E to 79°38'30.47"E

Q.LEASE APPLIED BOUNDARY
7.5m SAFETY DISTANCE
300M RADIUS
500M RADIUS
1KM RADIUS
APPROACH ROAD
ODAI
BARREN LAND
TREES
SEASONAL AGRICULTURE
QUARRY PIT
TANK
CRUSHER PLANT

**LAND USE PATTERN**

| DESCRIPTION | AREA IN (%) |
|---|---|
| ROAD | 01 |
| TREES | 12 |
| BARREN LAND | 51 |
| AGRICUTURE LAND | 18 |
| WATER BODIES | 14 |
| CRUSHER PLANT | 04 |

**ENVIRONMENTAL PLAN**
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 LEASE MAP AUTHENTICATED BY STATE GOVERNMENT

C.NATARAJAN.M.Sc.M.Phil.,
QUALIFIED PERSON




N

27 DEC 2024

விழுப்புரம்

**PLATE NO-IB**
DATE OF SURVEY : 04.12.2024

**APPLICANT:**
THIRU.S.SENTHIL KUMAR,
S/o.SEKAR,
No.9, SELSIYA STREET,
RAJA ANNAMALAI NAGAR,
GORIMEDU, PUDUCHERRY - 605 006.

**QUARRY LEASE APPLIED AREA:**
S.F.NO'S : 42/3A, 42/3B, 44/1, 44/2, 44/3, 44/4A(P) & 44/4B,
EXTENT : 4.84.5 Ha,
VILLAGE : KORAIKENI,
TALUK : VANUR,
DISTRICT : VILUPPURAM.

**INDEX**

TOPO SHEET No. : 57 P/ 12
LATITUDE : 12°02'23.31"N to 12°02'31.78"N
LONGITUDE : 79°38'21.41"E to 79°38'30.47"E

Q.LEASE APPLIED BOUNDARY
7.5m SAFETY DISTANCE
300M RADIUS
500M RADIUS
1KM RADIUS
APPROACH ROAD

**SATELLITE IMAGERY MAP**
SCALE 1: 10,000

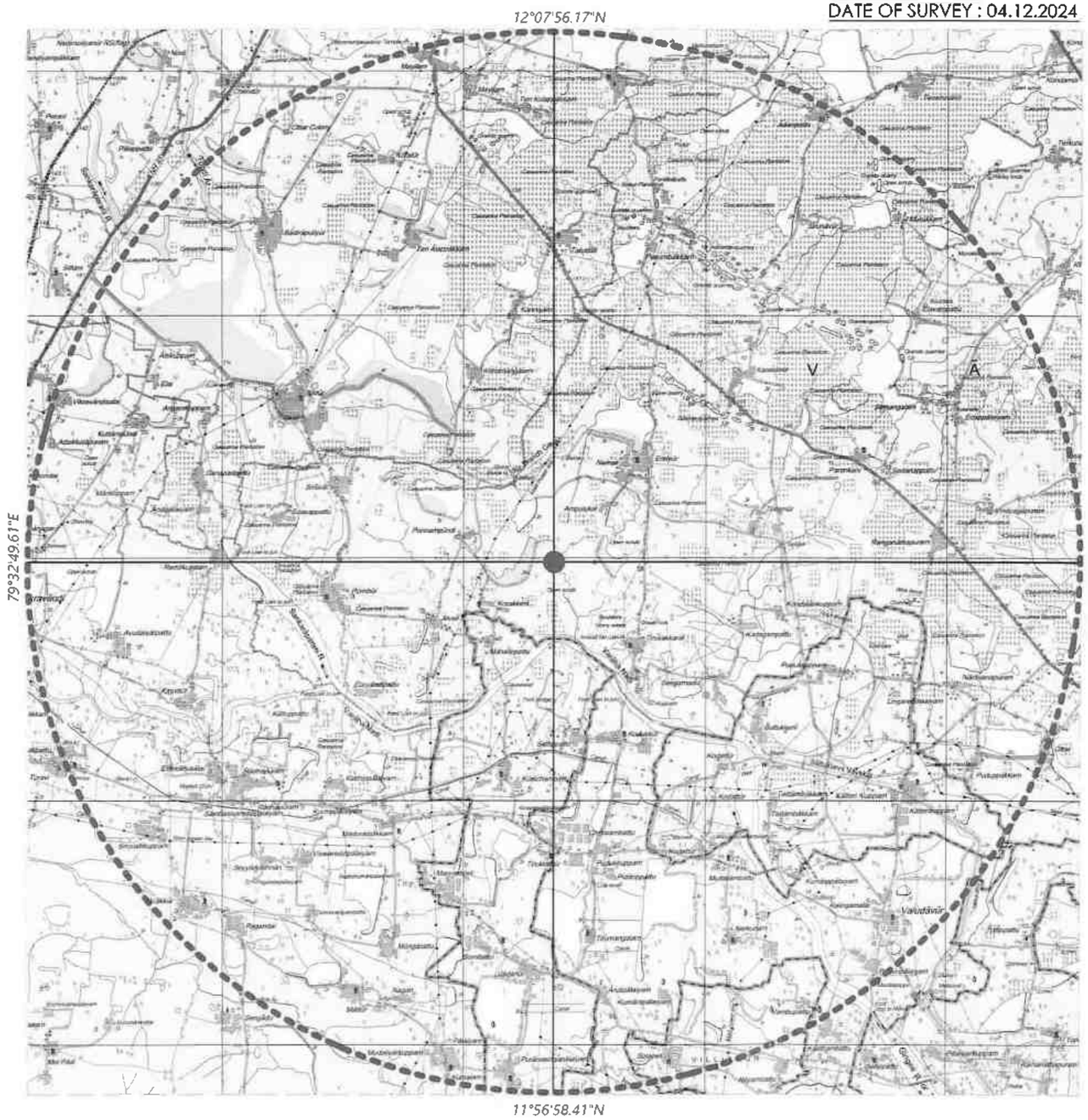
**PREPARED BY :**

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS PLATE IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE BASED UPON THE LEASE MAP AUTHENTICATED BY STATE GOVERNMENT

C.NATARAJAN, M.Sc.,M.Phil.,
QUALIFIED PERSON

## PLATE NO-I C

DATE OF SURVEY : 04.12.2024




**APPLICANT:**

THIRU.S.SENTHIL KUMAR,
S/o.SEKAR,
No.9, SELSIYA STREET,
RAJA ANNAMALAI NAGAR,
GORIMEDU, PUDUCHERRY - 605 006.

**QUARRY LEASE APPLIED AREA:**

S.F.NO'S : 42/3A, 42/3B, 44/1, 44/2, 44/3, 44/4A(P) & 44/4B,
EXTENT : 4.84.5 Ha,
VILLAGE : KORAIKENI,
TALUK : VANUR,
DISTRICT : VILUPPURAM.

27 DEC 2024

**INDEX**

TOPO SHEET No. : 57 P/ 12

LATITUDE : 12°02'23.31"N to 12°02'31.78"N

LONGITUDE : 79°38'21.41"E to 79°38'30.47"E

Q. LEASE APPLIED AREA

10KM RADIUS



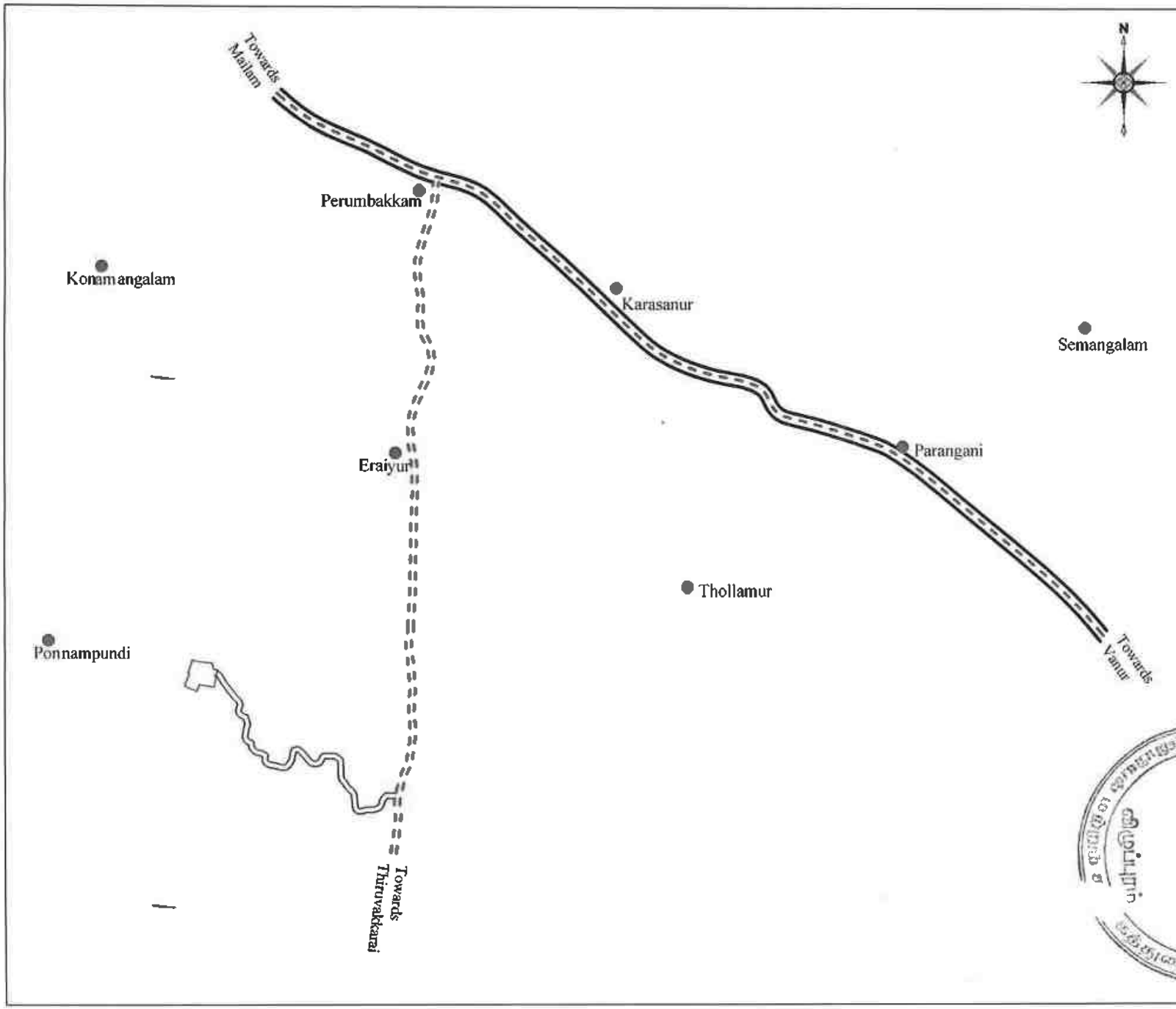

## TOPO SKETCH OF QUARRY LEASE APPLIED AREA FOR 10Km RADIUS

SCALE- 1:100000

Prepared By:

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS PLATE IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE BASED UPON THE LEASE MAP AUTHENTICATED BY STATE GOVERNMENT

C.NATARAJAN,M.Sc,M.Phil.,
QUALIFIED PERSON




## PLATE NO-ID

DATE OF SURVEY : 04.12.2024

## APPLICANT:

THIRU.S.SENTHIL KUMAR,
S/o.SEKAR,
No.9, SELSIYA STREET,
RAJA ANNAMALAI NAGAR,
GORIMEDU, PUDUCHERRY - 605 006.

## QUARRY LEASE APPLIED AREA:

S.F.NO'S : 42/3A, 42/3B, 44/1, 44/2, 44/3, 44/4A(P) & 44/4B,
EXTENT : 4.84.5 Ha,
VILLAGE : KORAIKENI,
TALUK : VANUR,
DISTRICT : VILUPPURAM.

## INDEX

- Q.LEASE APPLIED BOUNDARY
- APPROACH ROAD
- MAJOR DISTRICT ROAD
- STATE HIGHWAY
- HABITATIONS

## KEY PLAN

Not To Scale

PREPARED BY:
THIS IS TO CERTIFY THAT THE INFORMATION IN THIS PLATE IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE BASED UPON THE LEASE MAP AUTHENTICATED BY STATE GOVERNMENT

DEC 2024

C.NATARAJAN,M.Sc,M.Phil.,
QUALIFIED PERSON

| Boundary Co-Ordinates | | |
|---|---|---|
| Label | Latitude | Longitude |
| 1 | 12° 02' 24.81"N | 79° 38' 21.41"E |
| 2 | 12° 02' 26.37"N | 79° 38' 22.06"E |
| 3 | 12° 02' 28.09"N | 79° 38' 22.78"E |
| 4 | 12° 02' 28.25"N | 79° 38' 22.36"E |
| 5 | 12° 02' 31.52"N | 79° 38' 23.45"E |
| 6 | 12° 02' 31.78"N | 79° 38' 23.50"E |
| 7 | 12° 02' 31.26"N | 79° 38' 26.30"E |
| 8 | 12° 02' 31.00"N | 79° 38' 29.04"E |
| 9 | 12° 02' 29.36"N | 79° 38' 29.37"E |
| 10 | 12° 02' 29.24"N | 79° 38' 30.47"E |
| 11 | 12° 02' 24.42"N | 79° 38' 29.61"E |
| 12 | 12° 02' 25.08"N | 79° 38' 25.47"E |
| 13 | 12° 02' 23.31"N | 79° 38' 24.84"E |
| 14 | 12° 02' 24.05"N | 79° 38' 22.92"E |
| WGS 84 Datum | | |

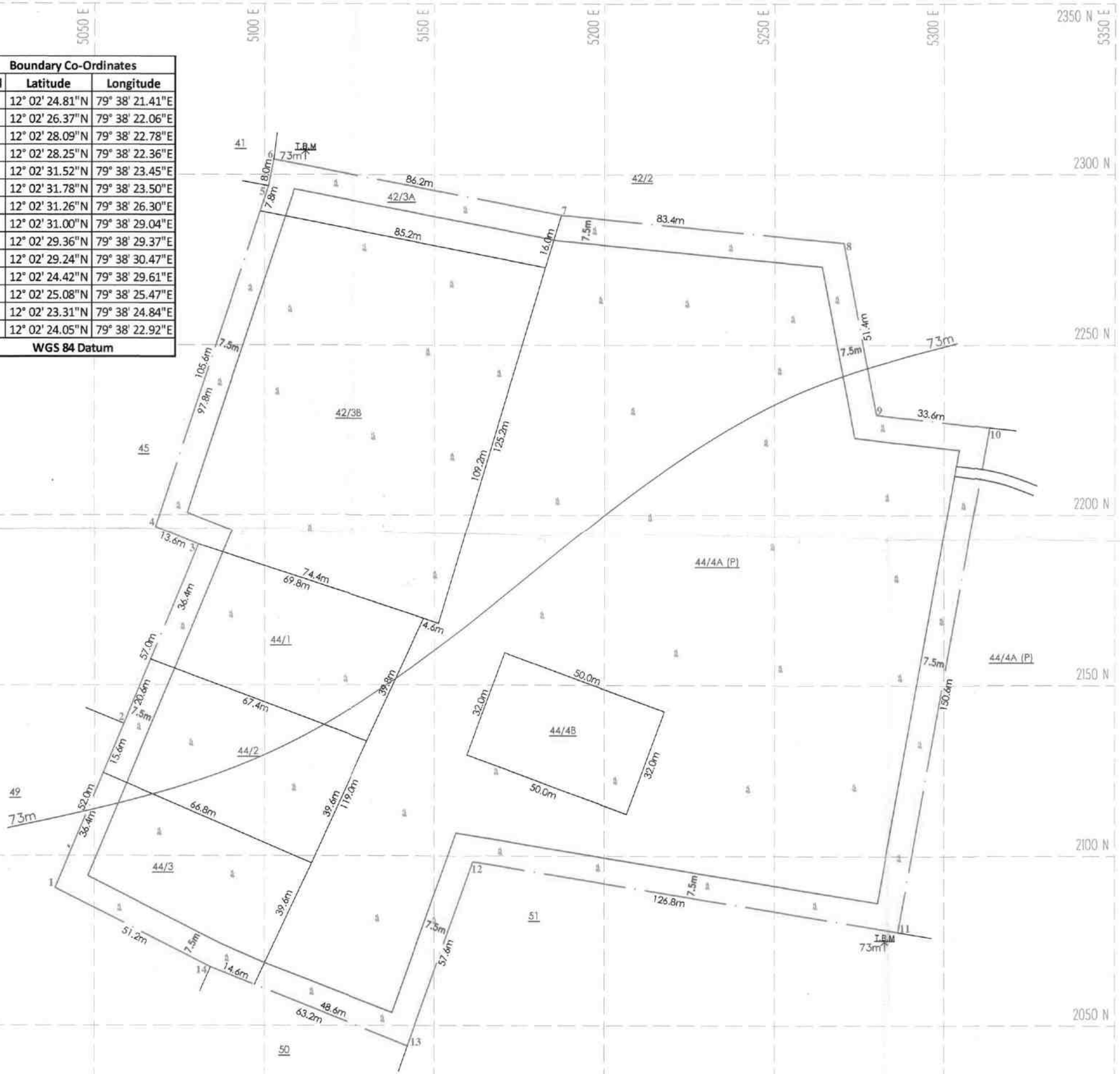



**PLATE NO-II**

DATE OF SURVEY : 04.12.2024

**APPLICANT:**

THIRU.S.SENTHIL KUMAR,
S/o.SEKAR,
No.9, SELSIYA STREET,
RAJA ANNAMALAI NAGAR,
GORIMEDU, PUDUCHERRY - 605 006.

27 DEC 2024

**QUARRY LEASE APPLIED AREA:**

S.F.NO'S : 42/3A, 42/3B, 44/1, 44/2, 44/3, 44/4A(P) & 44/4B,
EXTENT : 4.84.5 Ha,
VILLAGE : KORAIKENI,
TALUK : VANUR,
DISTRICT : VILUPPURAM.

**INDEX**

- Q.LEASE APPLIED BOUNDARY
- 7.5m SAFETY DISTANCE
- TEMPORARY BENCH MARK
- APPROACH ROAD
- CONTOUR
- SCRUB

**QUARRY LEASE & SURFACE PLAN**

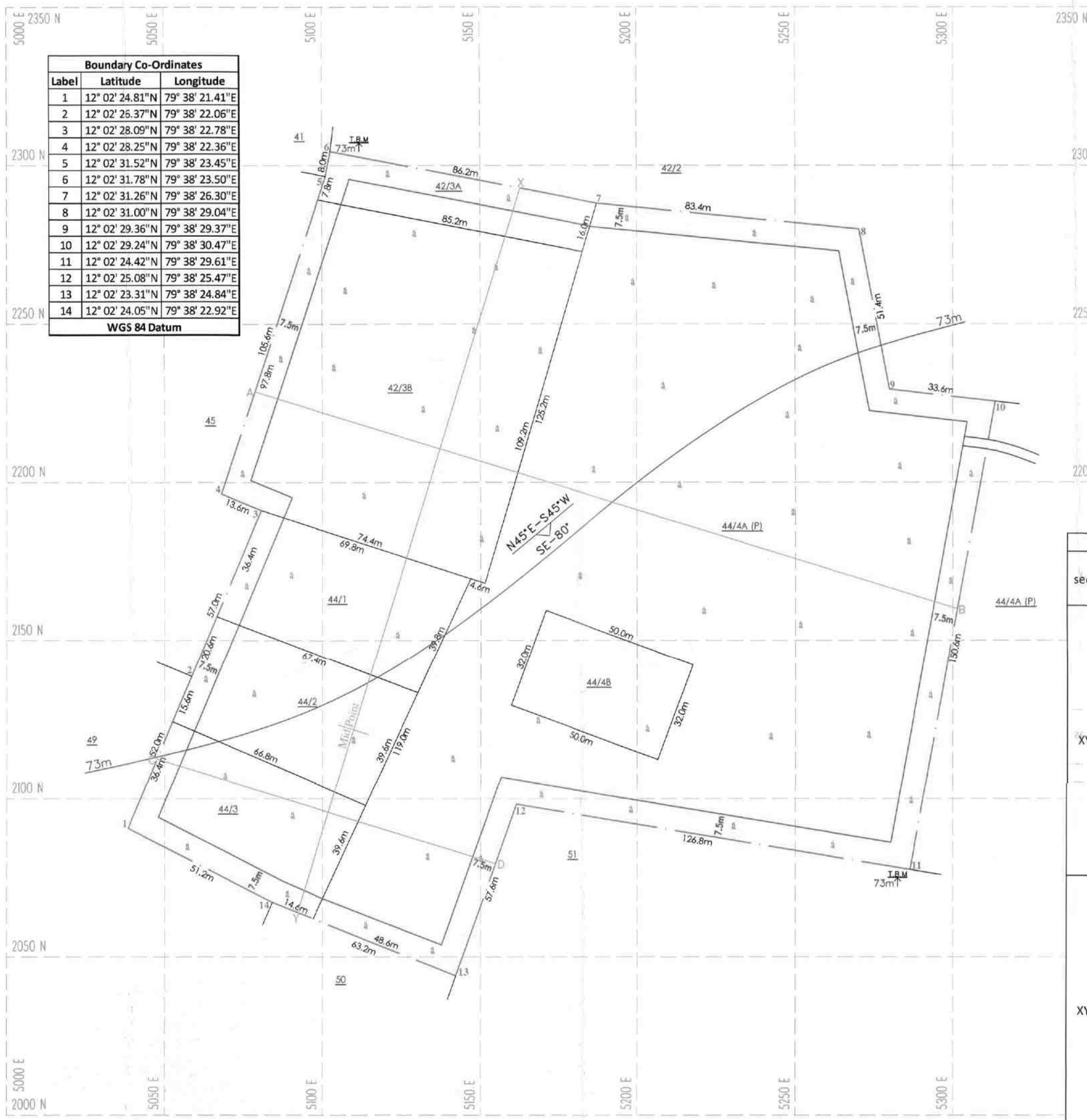
SCALE 1 : 1000

**PREPARED BY:**

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS PLATE IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE BASED UPON THE LEASE MAP AUTHENTICATED BY STATE GOVERNMENT

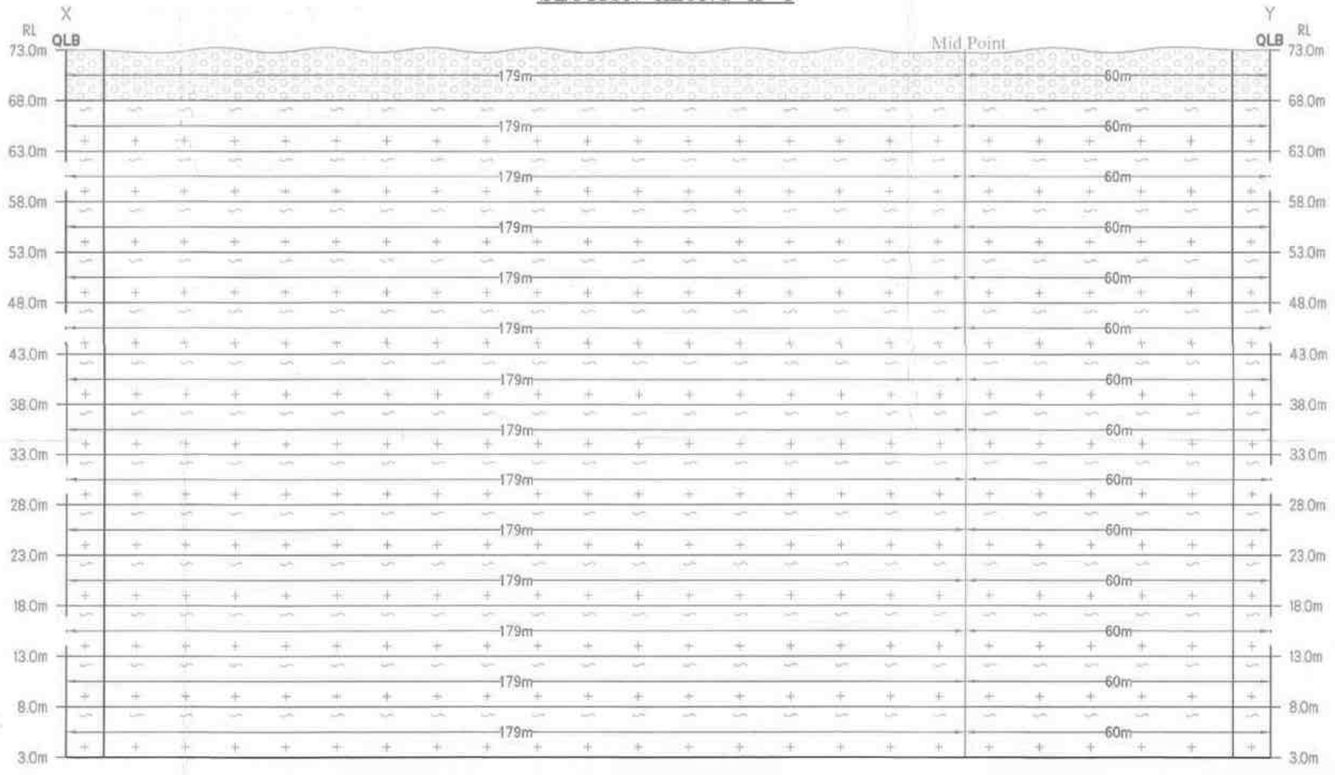
C.NATARAJAN,M.Sc,M.Phil.,
QUALIFIED PERSON

| Boundary Co-Ordinates | | |
|---|---|---|
| Label | Latitude | Longitude |
| 1 | 12° 02' 24.81"N | 79° 38' 21.41"E |
| 2 | 12° 02' 26.37"N | 79° 38' 22.06"E |
| 3 | 12° 02' 28.09"N | 79° 38' 22.78"E |
| 4 | 12° 02' 28.25"N | 79° 38' 22.36"E |
| 5 | 12° 02' 31.52"N | 79° 38' 23.45"E |
| 6 | 12° 02' 31.78"N | 79° 38' 23.50"E |
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| 8 | 12° 02' 31.00"N | 79° 38' 29.04"E |
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| 13 | 12° 02' 23.31"N | 79° 38' 24.84"E |
| 14 | 12° 02' 24.05"N | 79° 38' 22.92"E |
| WGS 84 Datum | | |

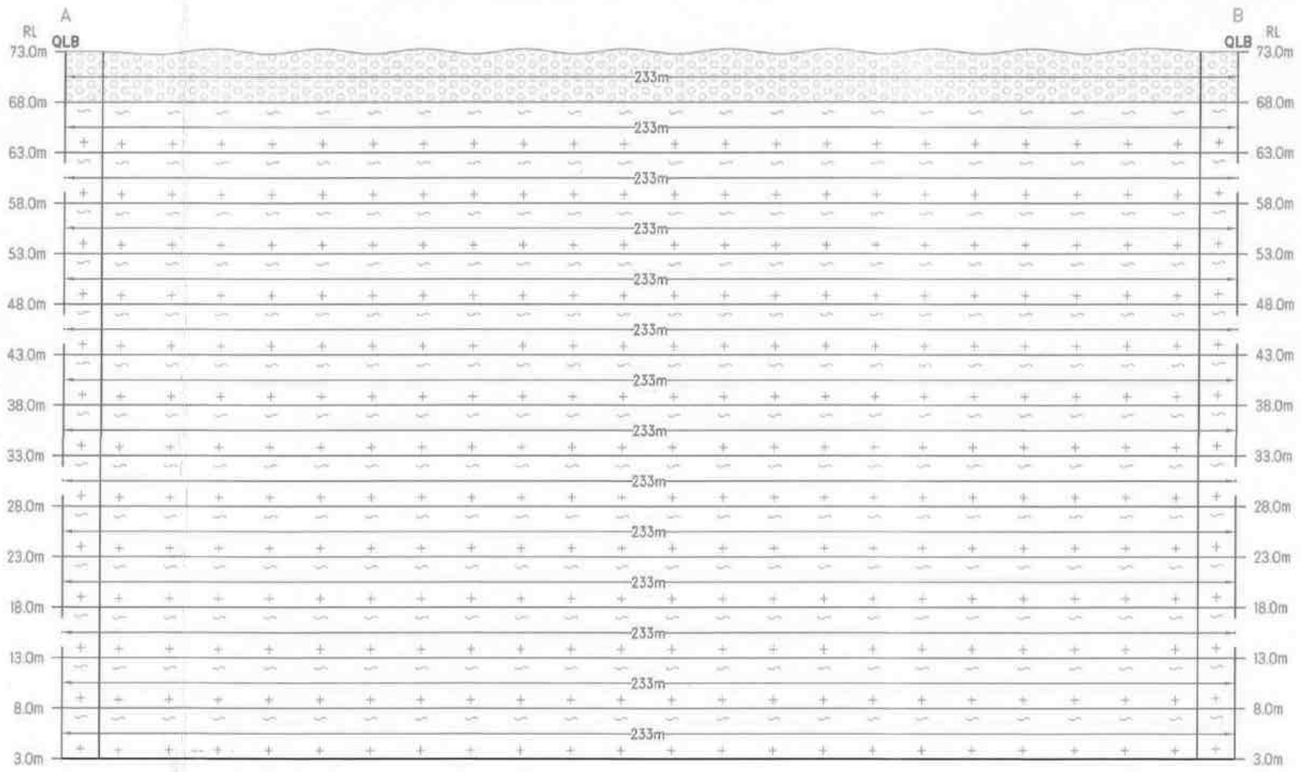



| Geological Resources | | | | | | | |
|---|---|---|---|---|---|---|---|
| section | Bench | length in (m) | Width in (m) | Depth in (m) | Volume m3 | Gravel in m3 | Geological Resources in m3 |
| XY-AB | I | 179 | 233 | 5 | 208535 | 208535 | |
| | II | 179 | 233 | 5 | 208535 | | 208535 |
| | III | 179 | 233 | 5 | 208535 | | 208535 |
| | IV | 179 | 233 | 5 | 208535 | | 208535 |
| | V | 179 | 233 | 5 | 208535 | | 208535 |
| | VI | 179 | 233 | 5 | 208535 | | 208535 |
| | VII | 179 | 233 | 5 | 208535 | | 208535 |
| | VIII | 179 | 233 | 5 | 208535 | | 208535 |
| | IX | 179 | 233 | 5 | 208535 | | 208535 |
| | X | 179 | 233 | 5 | 208535 | | 208535 |
| | XI | 179 | 233 | 5 | 208535 | | 208535 |
| | XII | 179 | 233 | 5 | 208535 | | 208535 |
| | XIII | 179 | 233 | 5 | 208535 | | 208535 |
| | XIV | 179 | 233 | 5 | 208535 | | 208535 |
| | **Total** | | | | | **208535** | **2710955** |
| XY-CD | I | 60 | 112 | 5 | 33600 | 33600 | |
| | II | 60 | 112 | 5 | 33600 | | 33600 |
| | III | 60 | 112 | 5 | 33600 | | 33600 |
| | IV | 60 | 112 | 5 | 33600 | | 33600 |
| | V | 60 | 112 | 5 | 33600 | | 33600 |
| | VI | 60 | 112 | 5 | 33600 | | 33600 |
| | VII | 60 | 112 | 5 | 33600 | | 33600 |
| | VIII | 60 | 112 | 5 | 33600 | | 33600 |
| | IX | 60 | 112 | 5 | 33600 | | 33600 |
| | X | 60 | 112 | 5 | 33600 | | 33600 |
| | XI | 60 | 112 | 5 | 33600 | | 33600 |
| | XII | 60 | 112 | 5 | 33600 | | 33600 |
| | XIII | 60 | 112 | 5 | 33600 | | 33600 |
| | XIV | 60 | 112 | 5 | 33600 | | 33600 |
| | **Total** | | | | | **33600** | **436800** |
| **Grand Total** | | | | | | **242135** | **3147755** |

## SECTION ALONG X–Y




## SECTION ALONG A–B




## SECTION ALONG C–D

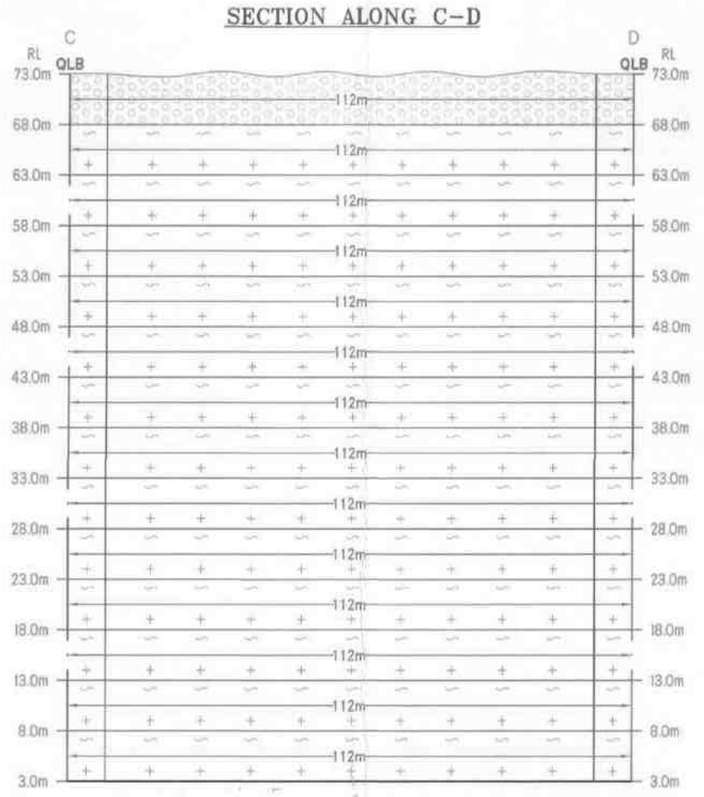



PLATE NO-III

DATE OF SURVEY : 04.12.2024

**APPLICANT:**

THIRU.S.SENTHIL KUMAR,
S/o.SEKAR,
No.9, SELSIYA STREET,
RAJA ANNAMALAINAGAR,
GORIMEDU, PUDUCHERRY - 605 006.

**QUARRY LEASE APPLIED AREA:**

S.F.NO'S : 42/3A, 42/3B, 44/1, 44/2, 44/3, 44/4A(P) & 44/4B,
EXTENT : 4.84.5 Ha.
VILLAGE : KORAIKENI,
TALUK : VANUR,
DISTRICT : VILUPPURAM.

**INDEX**

- Q.LEASE APPLIED BOUNDARY
- 7.5m SAFETY DISTANCE
- TEMPORARY BENCH MARK (TBM)
- APPROACH ROAD
- CONTOUR
- SCRUB
- GRAVEL
- ROUGH STONE
- STRIKE & DIP

**TOPOGRAPHY, GEOLOGICAL PLAN & SECTIONS**

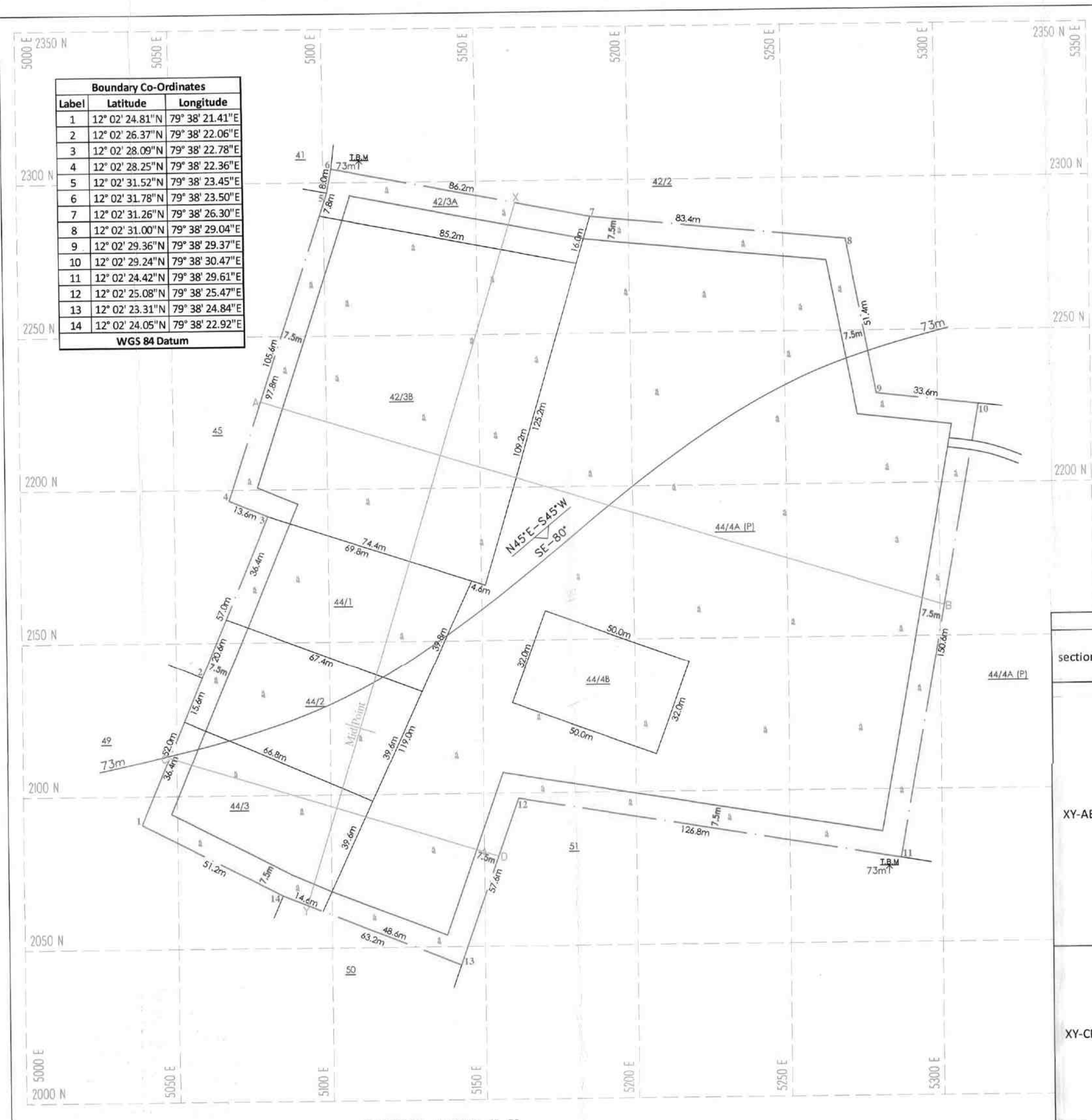
SCALE 1 : 1000
SECTIONS HOR 1:1000, VER 1:500

**PREPARED BY:**

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS PLATE IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE BASED UPON THE LEASE MAP AUTHENTICATED BY STATE GOVERNMENT

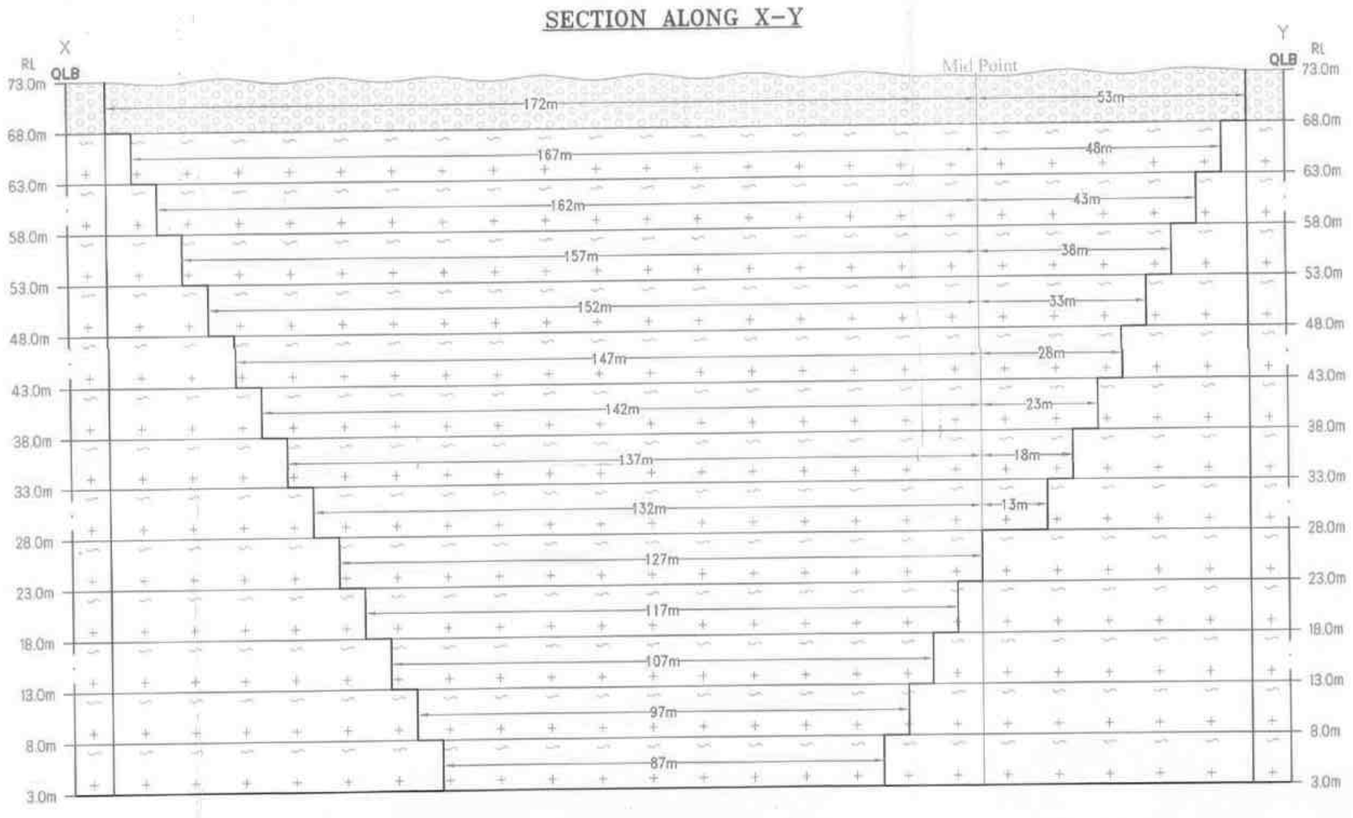
C.NATARAJAN,M.Sc,M.Phil.,
QUALIFIED PERSON

| Boundary Co-Ordinates | | |
|---|---|---|
| Label | Latitude | Longitude |
| 1 | 12° 02' 24.81"N | 79° 38' 21.41"E |
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| 13 | 12° 02' 23.31"N | 79° 38' 24.84"E |
| 14 | 12° 02' 24.05"N | 79° 38' 22.92"E |
| WGS 84 Datum | | |

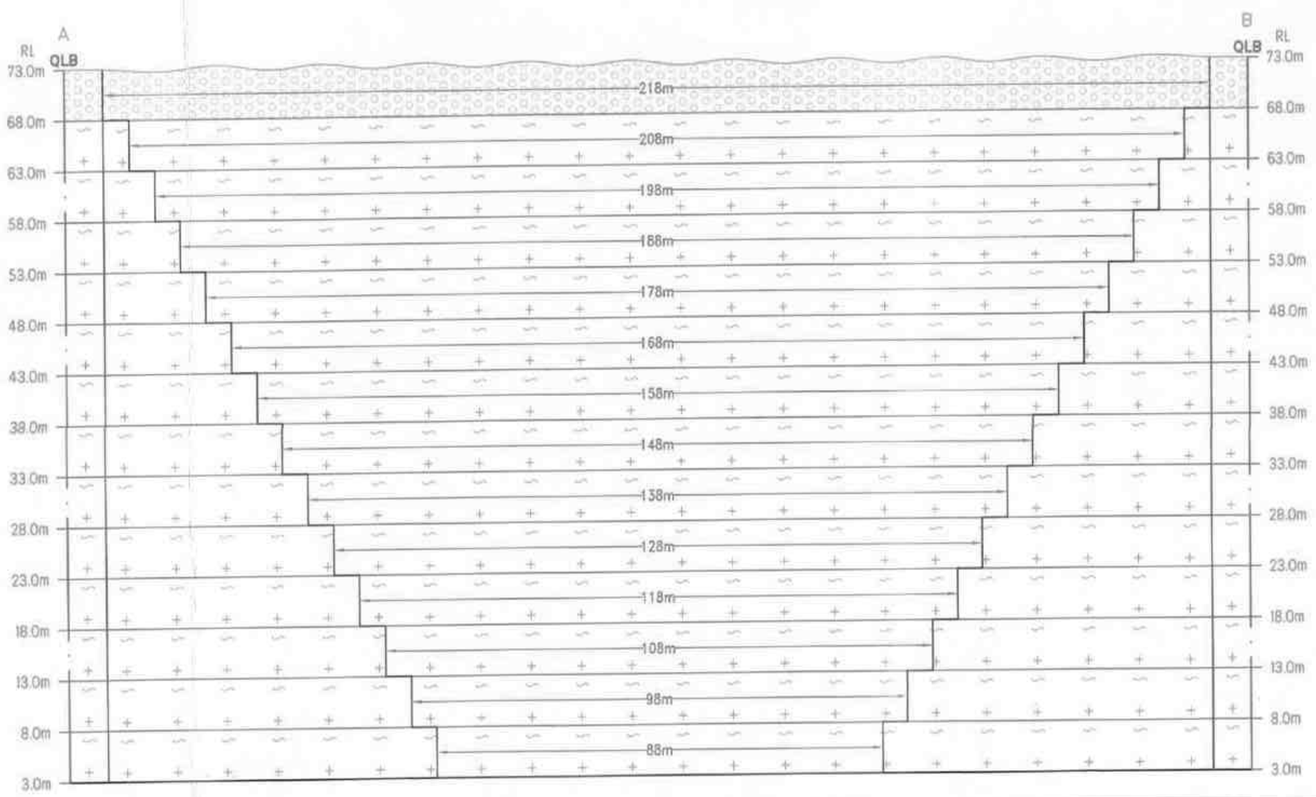



| Mineable Reserves | | | | | | | |
|---|---|---|---|---|---|---|---|
| section | Bench | length in (m) | Width in (m) | Depth in (m) | Volume m3 | Gravel in m3 | Mineable Reserves in m3 |
| XY-AB | I | 172 | 218 | 5 | 187480 | 187480 | |
| | II | 167 | 208 | 5 | 173680 | | 173680 |
| | III | 162 | 198 | 5 | 160380 | | 160380 |
| | IV | 157 | 188 | 5 | 147580 | | 147580 |
| | V | 152 | 178 | 5 | 135280 | | 135280 |
| | VI | 147 | 168 | 5 | 123480 | | 123480 |
| | VII | 142 | 158 | 5 | 112180 | | 112180 |
| | VIII | 137 | 148 | 5 | 101380 | | 101380 |
| | IX | 132 | 138 | 5 | 91080 | | 91080 |
| | X | 127 | 128 | 5 | 81280 | | 81280 |
| | XI | 117 | 118 | 5 | 69030 | | 69030 |
| | XII | 107 | 108 | 5 | 57780 | | 57780 |
| | XIII | 97 | 98 | 5 | 47530 | | 47530 |
| | XIV | 87 | 88 | 5 | 38280 | | 38280 |
| | Total | | | | | 187480 | 1338940 |
| XY-CD | I | 53 | 97 | 5 | 25705 | 25705 | |
| | II | 48 | 87 | 5 | 20880 | | 20880 |
| | III | 43 | 77 | 5 | 16555 | | 16555 |
| | IV | 38 | 67 | 5 | 12730 | | 12730 |
| | V | 33 | 57 | 5 | 9405 | | 9405 |
| | VI | 28 | 47 | 5 | 6580 | | 6580 |
| | VII | 23 | 37 | 5 | 4255 | | 4255 |
| | VIII | 18 | 27 | 5 | 2430 | | 2430 |
| | IX | 13 | 17 | 5 | 1105 | | 1105 |
| | Total | | | | | 25705 | 73940 |
| Grand Total | | | | | | 213185 | 1412880 |

## SECTION ALONG X-Y




## SECTION ALONG A-B




## SECTION ALONG C-D

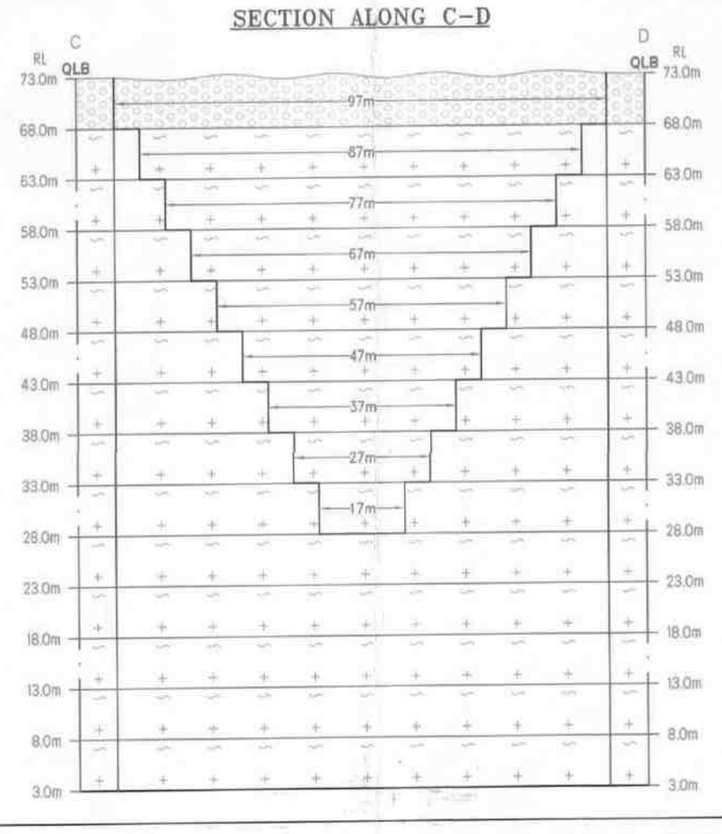



PLATE NO-IV
DATE OF SURVEY : 04.12.2024

**APPLICANT:**
THIRU.S.SENTHIL KUMAR,
S/o.SEKAR,
No.9, SELSIYA STREET,
RAJA ANNAMALAI NAGAR,
GORIMEDU, PUDUCHERRY - 605 006.

27 DEC 2024

**QUARRY LEASE APPLIED AREA:**
S.F.NO'S : 42/3A, 42/3B, 44/1, 44/2, 44/3, 44/4A(P) & 44/4B,
EXTENT : 4.84.5 Ha,
VILLAGE : KORAIKENI,
TALUK : VANUR,
DISTRICT : VILUPPURAM.

**INDEX**

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- APPROACH ROAD
- CONTOUR
- SCRUB
- GRAVEL
- ROUGH STONE
- STRIKE & DIP

**MINEABLE PLAN & SECTIONS**

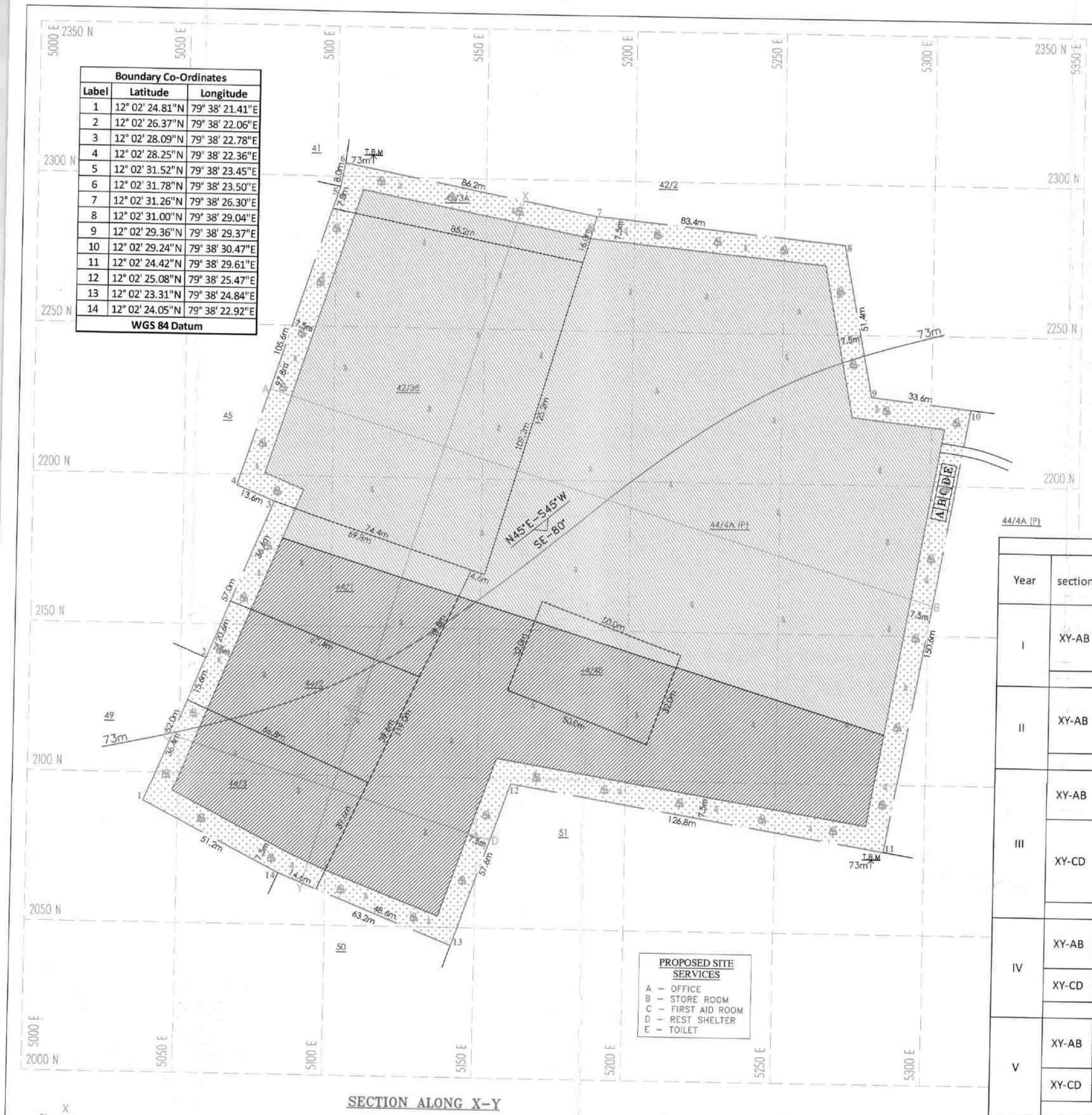
SCALE 1 : 1000
SECTIONS HOR 1:1000, VER 1:500

**PREPARED BY:**

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS PLATE IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE BASED UPON THE LEASE MAP AUTHENTICATED BY STATE GOVERNMENT

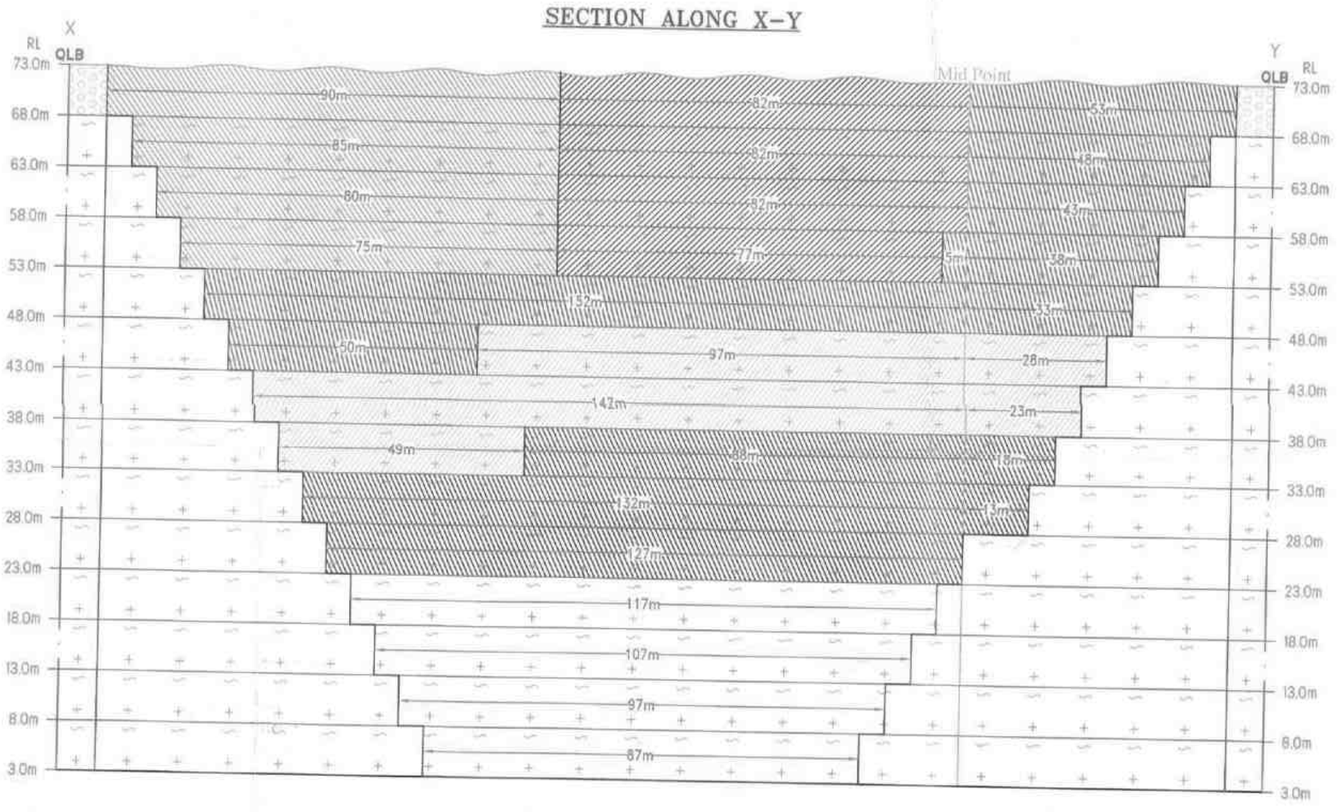
C.NATARAJAN,M.Sc,M.Phil.,
QUALIFIED PERSON

| Boundary Co-Ordinates | | |
|---|---|---|
| Label | Latitude | Longitude |
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| 13 | 12° 02' 23.31"N | 79° 38' 24.84"E |
| 14 | 12° 02' 24.05"N | 79° 38' 22.92"E |
| WGS 84 Datum | | |

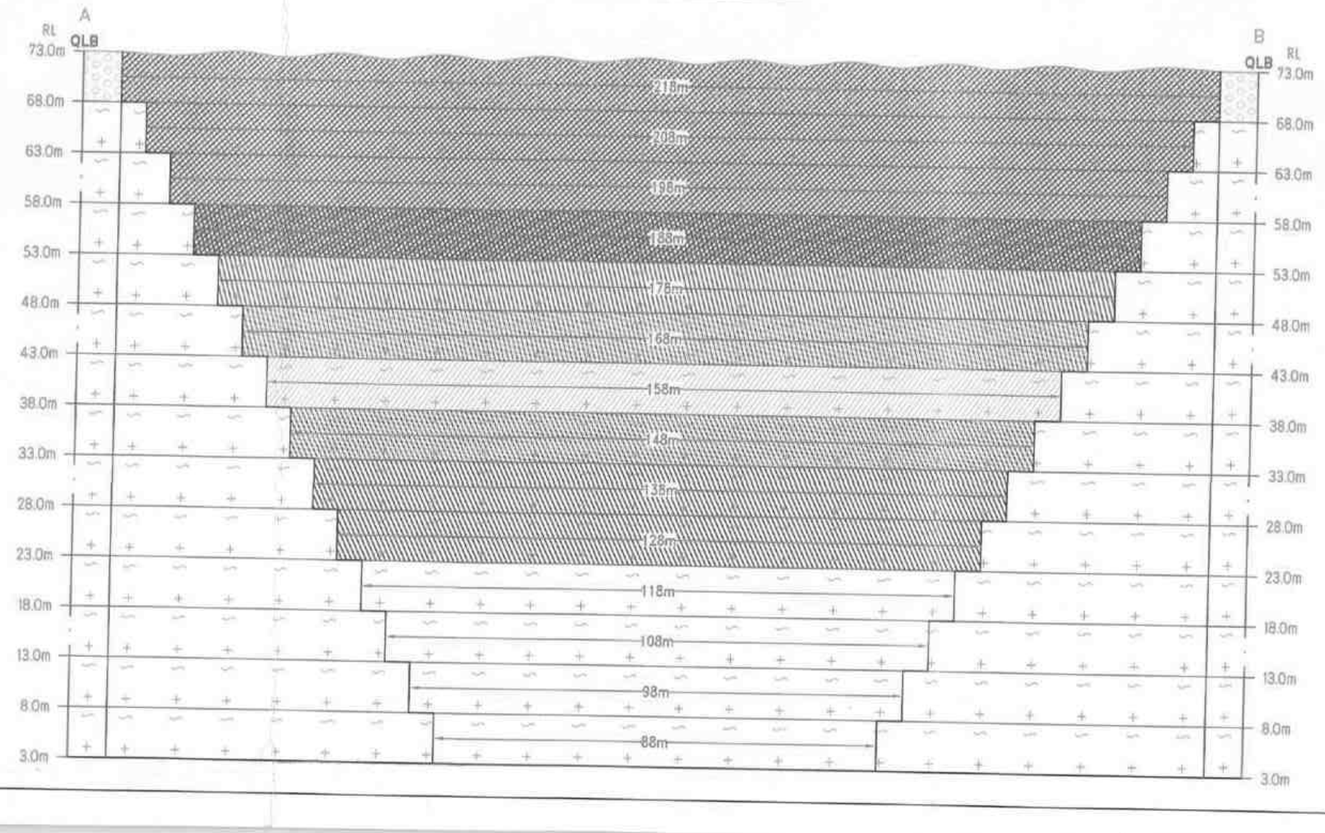



| 1st Five Year - Yearwise Production | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Year | section | Bench | length in (m) | Width in (m) | Depth in (m) | Volume m3 | Gravel in m3 | Yearwise Production in m3 |
| I | XY-AB | I | 90 | 218 | 5 | 98100 | 98100 | |
| | | II | 85 | 208 | 5 | 88400 | | 88400 |
| | | III | 80 | 198 | 5 | 79200 | | 79200 |
| | | IV | 75 | 188 | 5 | 70500 | | 70500 |
| | Total | | | | | | **98100** | **238100** |
| II | XY-AB | I | 82 | 218 | 5 | 89380 | 89380 | |
| | | II | 82 | 208 | 5 | 85280 | | 85280 |
| | | III | 82 | 198 | 5 | 81180 | | 81180 |
| | | IV | 77 | 188 | 5 | 72380 | | 72380 |
| | Total | | | | | | **89380** | **238840** |
| III | XY-AB | IV | 5 | 188 | 5 | 4700 | | 4700 |
| | | V | 152 | 178 | 5 | 135280 | | 135280 |
| | | VI | 50 | 168 | 5 | 42000 | | 42000 |
| | XY-CD | I | 53 | 97 | 5 | 25705 | 25705 | |
| | | II | 48 | 87 | 5 | 20880 | | 20880 |
| | | III | 43 | 77 | 5 | 16555 | | 16555 |
| | | IV | 38 | 67 | 5 | 12730 | | 12730 |
| | | V | 33 | 57 | 5 | 9405 | | 9405 |
| | Total | | | | | | **25705** | **241550** |
| IV | XY-AB | VI | 97 | 168 | 5 | 81480 | | 81480 |
| | | VII | 142 | 158 | 5 | 112180 | | 112180 |
| | | VIII | 49 | 148 | 5 | 36260 | | 36260 |
| | XY-CD | VI | 28 | 47 | 5 | 6580 | | 6580 |
| | | VII | 23 | 37 | 5 | 4255 | | 4255 |
| | Total | | | | | | | **240755** |
| V | XY-AB | VIII | 88 | 148 | 5 | 65120 | | 65120 |
| | | IX | 132 | 138 | 5 | 91080 | | 91080 |
| | | X | 127 | 128 | 5 | 81280 | | 81280 |
| | XY-CD | VIII | 18 | 27 | 5 | 2430 | | 2430 |
| | | IX | 13 | 17 | 5 | 1105 | | 1105 |
| | Total | | | | | | | **241015** |
| Grand Total | | | | | | | **213185** | **1200260** |

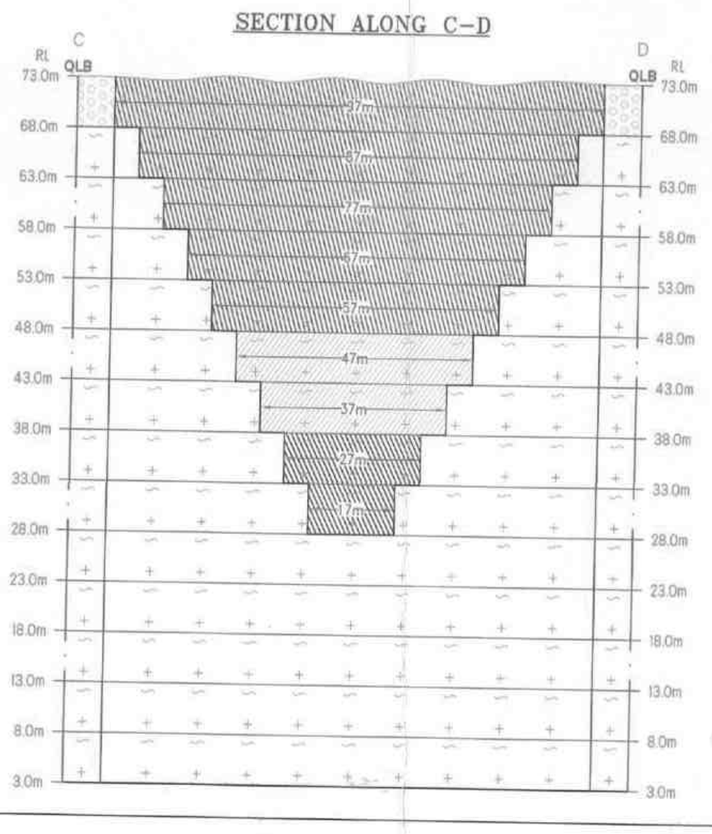
## SECTION ALONG X–Y




## SECTION ALONG A–B




## SECTION ALONG C–D




1st yr Proposed area to be Quarried

2nd yr Proposed area to be Quarried

3rd yr Proposed area to be Quarried

4th yr Proposed area to be Quarried

5th yr Proposed area to be Quarried

Proposed area to be Planted

**PLATE NO-V**

DATE OF SURVEY : 04.12.2024

**APPLICANT:**

THIRU.S.SENTHIL KUMAR,
S/o.SEKAR,
No.9, SELSIYA STREET,
RAJA ANNAMALAIPURAM,
GORIMEDU, PUDUCHERRY - 605 006.

27 DEC 2024

**QUARRY LEASE APPLIED AREA:**

S.F.NO'S : 42/3A, 42/3B, 44/1, 44/2, 44/3, 44/4A(P) & 44/4B,
EXTENT : 4.84.5 Ha,
VILLAGE : KORAIKENI,
TALUK : VANUR,
DISTRICT : VILUPPURAM.

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- CONTOUR
- SCRUB
- GRAVEL
- ROUGH STONE
- STRIKE & DIP

**YEAR WISE DEVELOPMENT & PRODUCTION PLAN & SECTIONS**

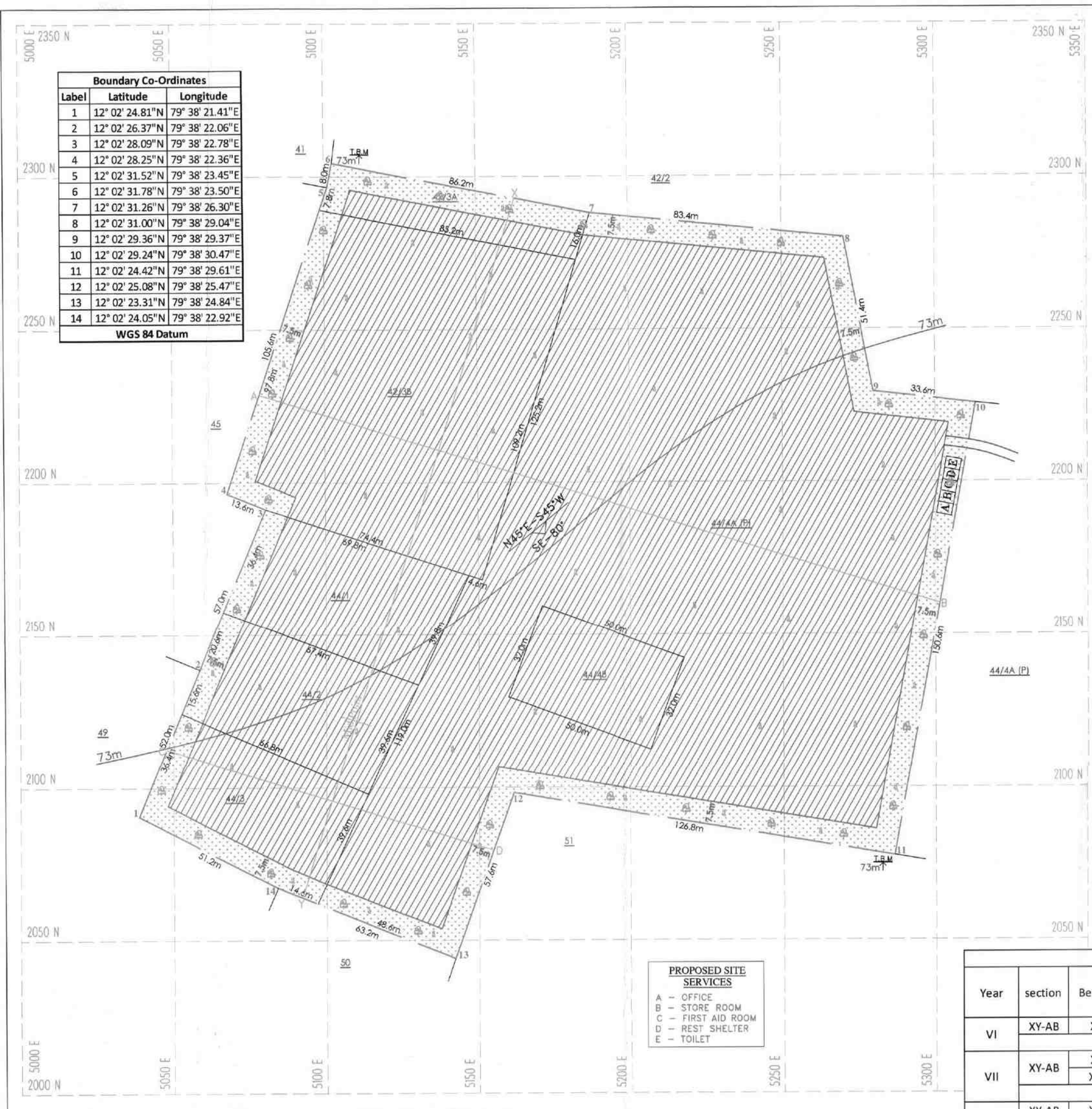
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SECTIONS HOR 1:1000, VER 1:500

**PREPARED BY:**

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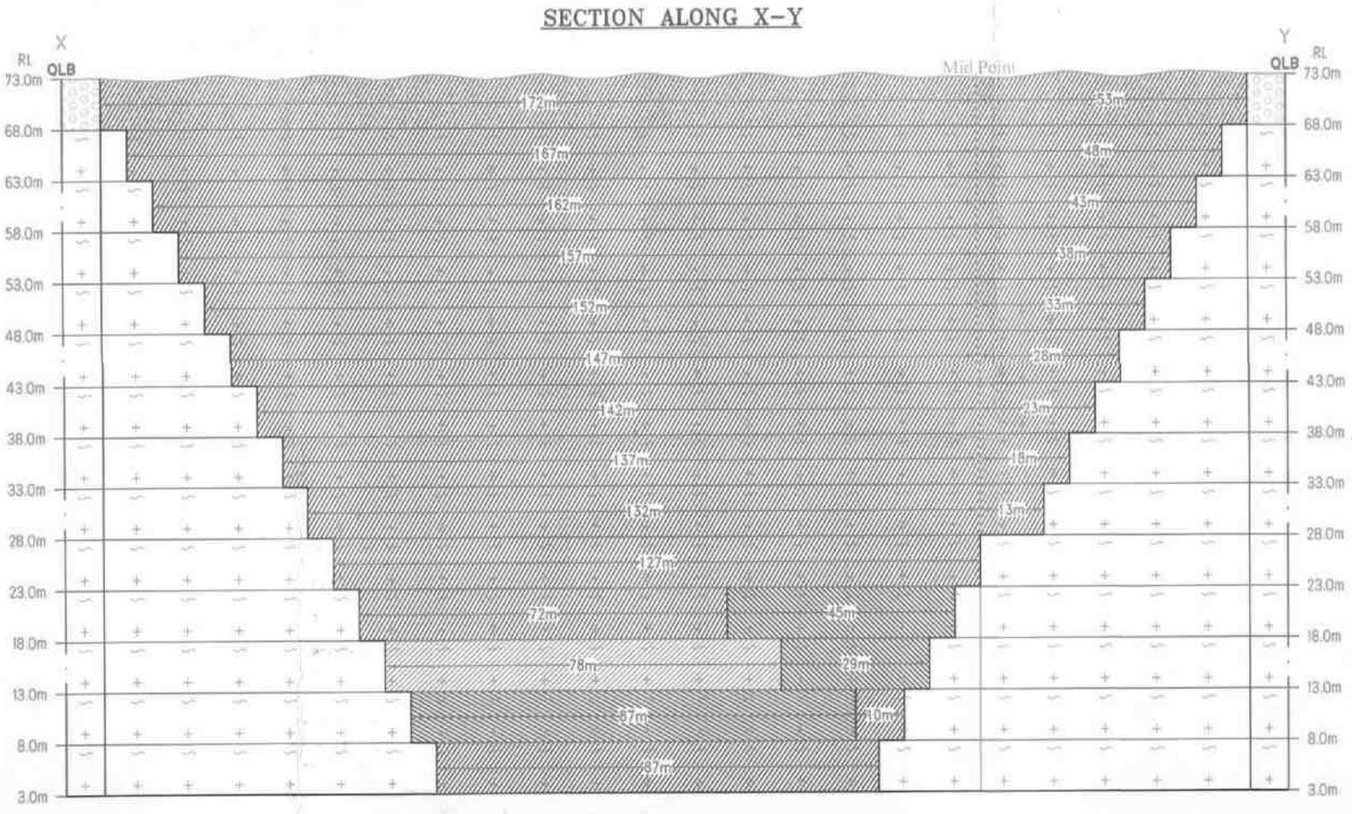
C.NATARAJAN,M.Sc.,M.Phil.,
QUALIFIED PERSON

| Boundary Co-Ordinates | | |
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| 13 | 12° 02' 23.31"N | 79° 38' 24.84"E |
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| WGS 84 Datum | | |

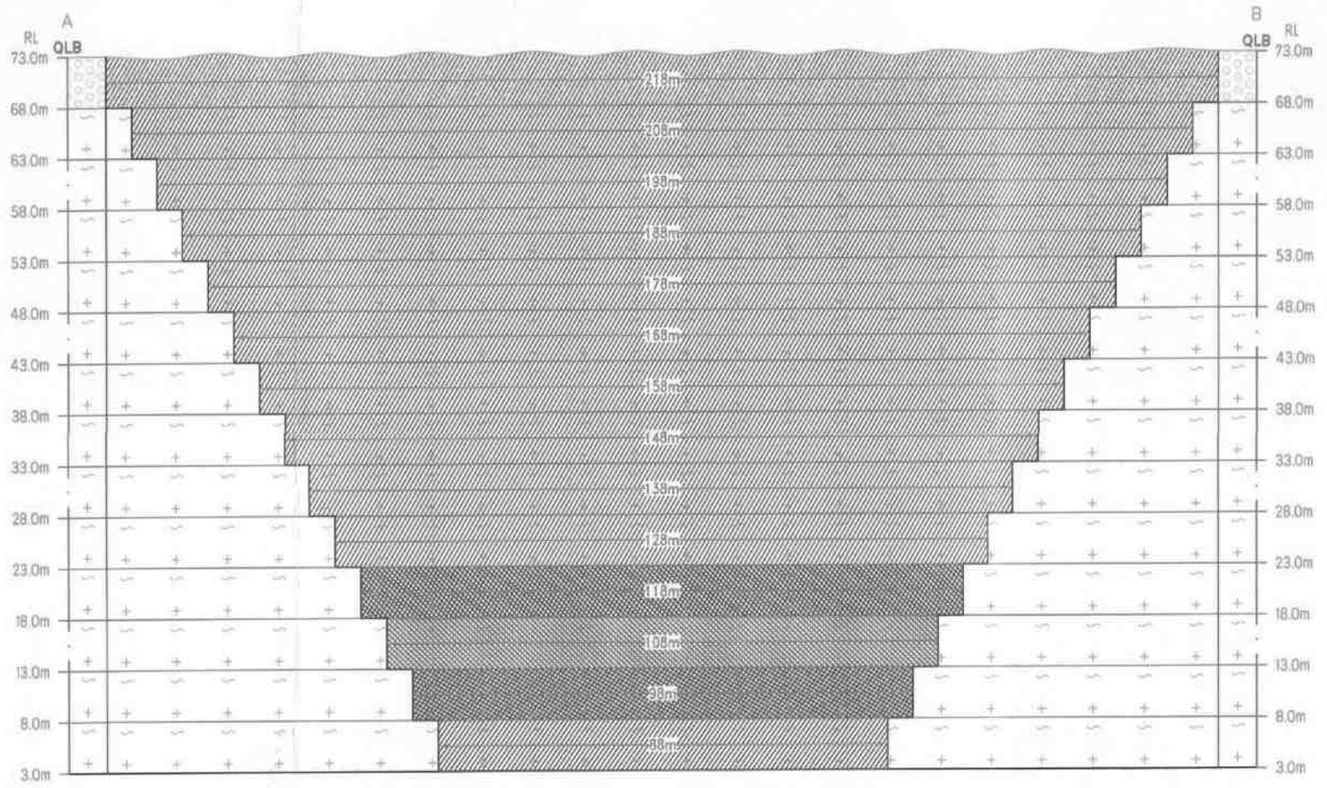



| 2nd Five Year - Yearwise Production | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Year | section | Bench | length in (m) | Width in (m) | Depth in (m) | Volume m3 | Gravel in m3 | Yearwise Production in m3 |
| VI | XY-AB | XI | 72 | 118 | 5 | 42480 | | 42480 |
| | Total | | | | | | | 42480 |
| VII | XY-AB | XI | 45 | 118 | 5 | 26550 | | 26550 |
| | | XII | 29 | 108 | 5 | 15660 | | 15660 |
| | Total | | | | | | | 42210 |
| VIII | XY-AB | XII | 78 | 108 | 5 | 42120 | | 42120 |
| | Total | | | | | | | 42120 |
| IX | XY-AB | XIII | 87 | 98 | 5 | 42630 | | 42630 |
| | Total | | | | | | | 42630 |
| X | XY-AB | XIII | 10 | 98 | 5 | 4900 | | 4900 |
| | | XIV | 87 | 88 | 5 | 38280 | | 38280 |
| | Total | | | | | | | 43180 |
| Grand Total | | | | | | | | 212620 |

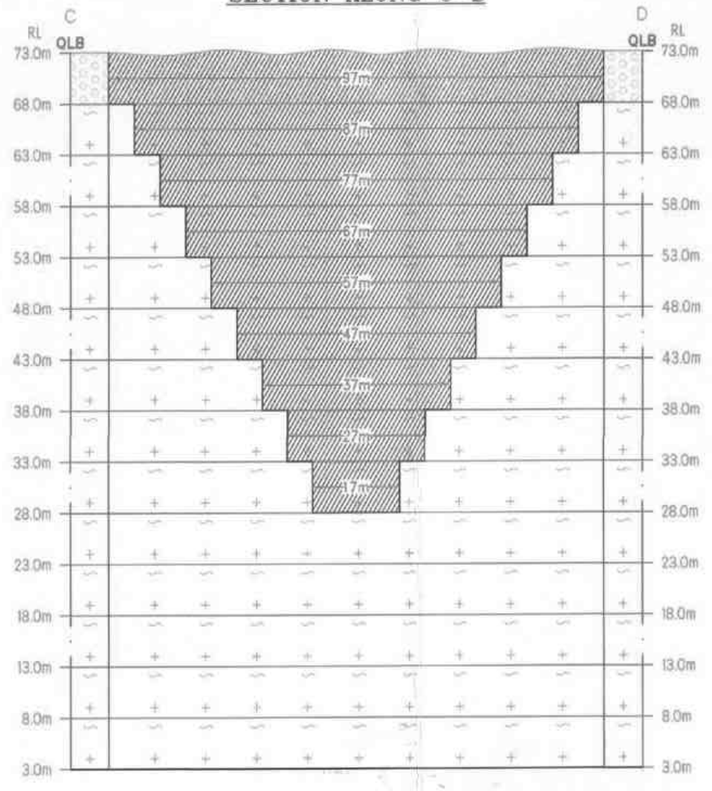
## SECTION ALONG X–Y




## SECTION ALONG A–B




## SECTION ALONG C–D




1st 5 Year Proposed area to be Quarried

6th Year Proposed area to be Quarried
7th Year Proposed area to be Quarried
8th Year Proposed area to be Quarried
9th Year Proposed area to be Quarried
10th Year Proposed area to be Quarried

Proposed area to be Planted

PLATE NO-VA
DATE OF SURVEY : 04.12.2024

**APPLICANT:**
THIRU.S.SENTHIL KUMAR,
S/o.SEKAR,
No.9, SELSIYA STREET,
RAJA ANNAMALAI NAGAR,
GORIMEDU, PUDUCHERRY - 605 006.

**QUARRY LEASE APPLIED AREA:**
S.F.NO'S : 42/3A, 42/3B, 44/1, 44/2, 44/3, 44/4A(P) & 44/4B,
EXTENT : 4.84.5 Ha,
VILLAGE : KORAIKENI,
TALUK : VANUR,
DISTRICT : VILUPPURAM.

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- CONTOUR
- SCRUB
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- ROUGH STONE
- STRIKE & DIP

**SECOND FIVE YEARWISE DEVELOPMENT & PRODUCTION PLAN & SECTIONS**

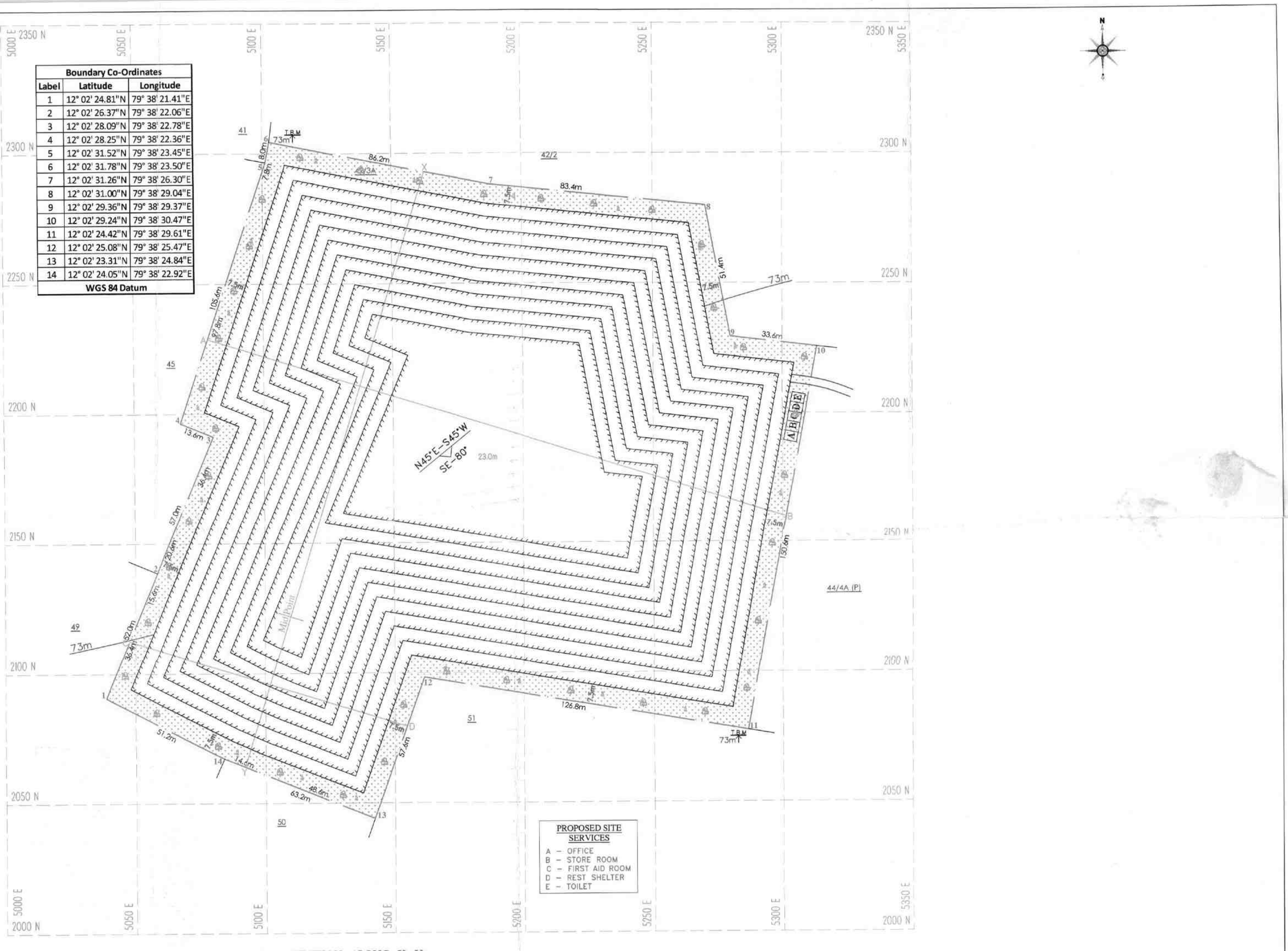
SCALE 1 : 1000
SECTIONS HOR 1:1000, VER 1:500

**PREPARED BY:**

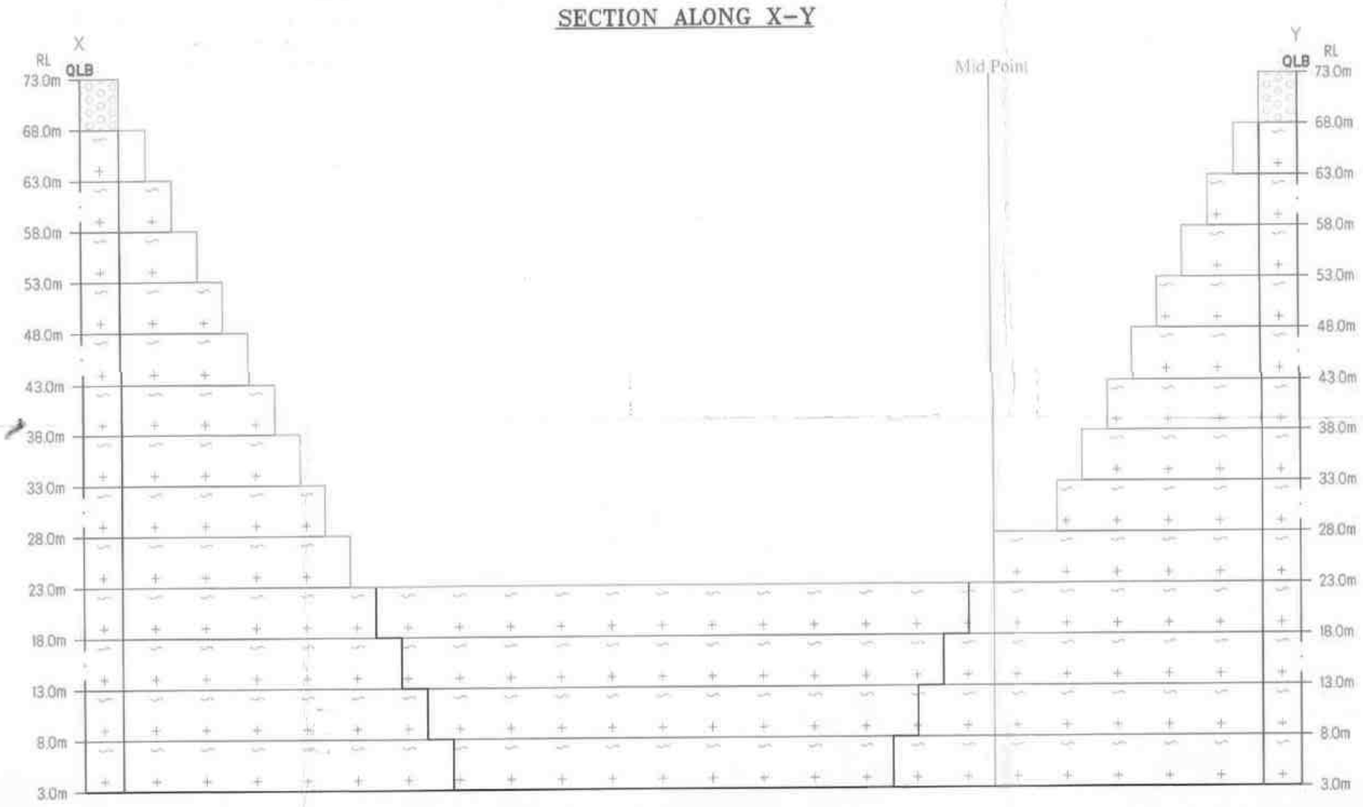
THIS IS TO CERTIFY THAT THE INFORMATION IN THIS PLATE IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE BASED UPON THE LEASE MAP AUTHENTICATED BY STATE GOVERNMENT

C.NATARAJAN,M.Sc,M.Phil.,
QUALIFIED PERSON

| Boundary Co-Ordinates | | |
|---|---|---|
| Label | Latitude | Longitude |
| 1 | 12° 02' 24.81"N | 79° 38' 21.41"E |
| 2 | 12° 02' 26.37"N | 79° 38' 22.06"E |
| 3 | 12° 02' 28.09"N | 79° 38' 22.78"E |
| 4 | 12° 02' 28.25"N | 79° 38' 22.36"E |
| 5 | 12° 02' 31.52"N | 79° 38' 23.45"E |
| 6 | 12° 02' 31.78"N | 79° 38' 23.50"E |
| 7 | 12° 02' 31.26"N | 79° 38' 26.30"E |
| 8 | 12° 02' 31.00"N | 79° 38' 29.04"E |
| 9 | 12° 02' 29.36"N | 79° 38' 29.37"E |
| 10 | 12° 02' 29.24"N | 79° 38' 30.47"E |
| 11 | 12° 02' 24.42"N | 79° 38' 29.61"E |
| 12 | 12° 02' 25.08"N | 79° 38' 25.47"E |
| 13 | 12° 02' 23.31"N | 79° 38' 24.84"E |
| 14 | 12° 02' 24.05"N | 79° 38' 22.92"E |
| WGS 84 Datum | | |




## SECTION ALONG X-Y




## PRESENT & POST LAND USE PATTERN

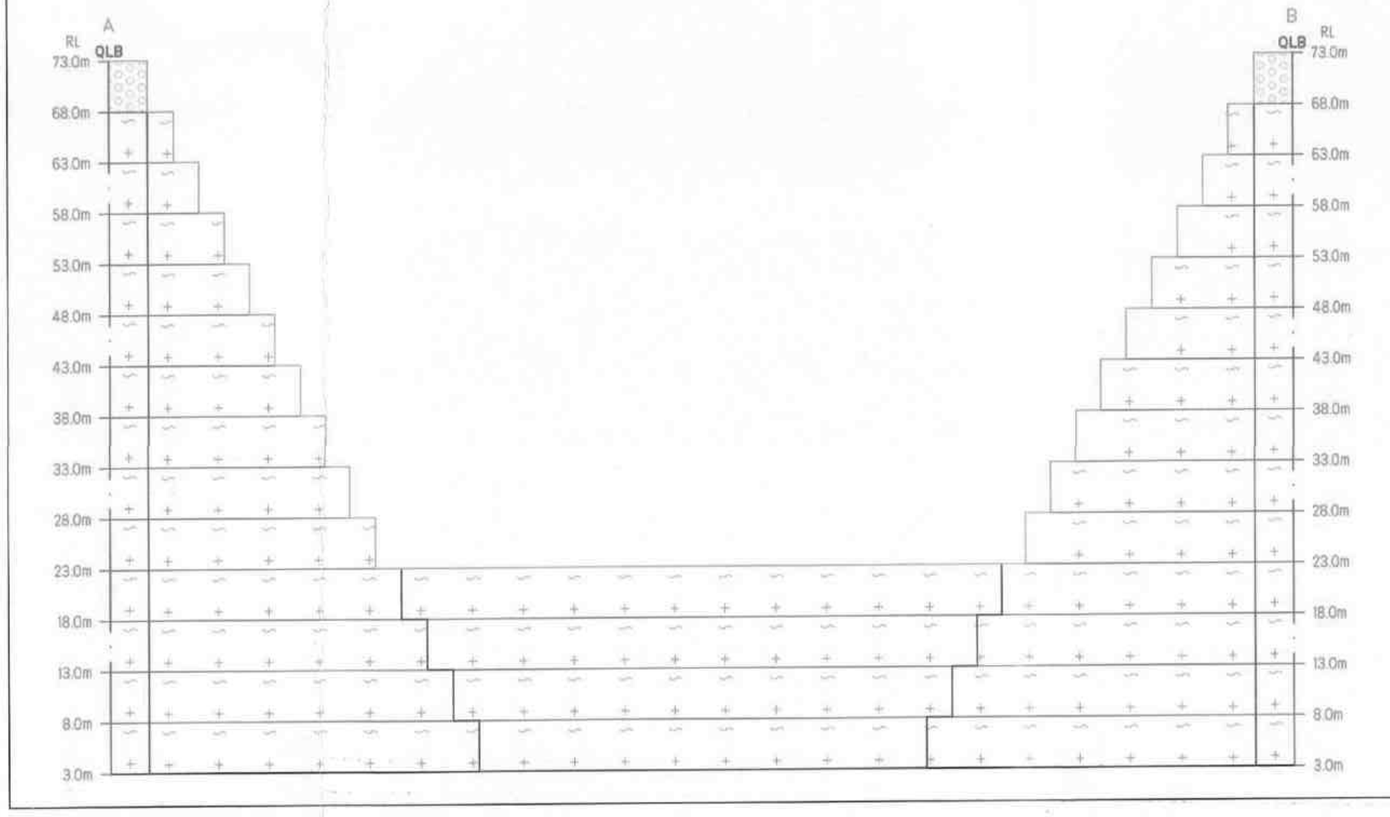
| DESCRIPTION | PRESENT AREA (Ha) | AREA AT THE END OF THIS QUARRYING PERIOD (Ha) |
|---|---|---|
| AREA UNDER QUARRYING | Nil | 4.08.0 |
| INFRASTRUCTURE | Nil | 0.01.0 |
| ROADS | Nil | 0.01.0 |
| GREEN BELT | Nil | 0.74.5 |
| UN-UTILIZED AREA | 4.84.5 | Nil |
| GRAND TOTAL | 4.84.5 | 4.84.5 |

Ultimate Pit Dimension of End of the Mining Plan Period

L225m(Max)X181(Avg)mXD50m(Max)

Proposed area to be Planted

## SECTION ALONG A-B




## SECTION ALONG C-D

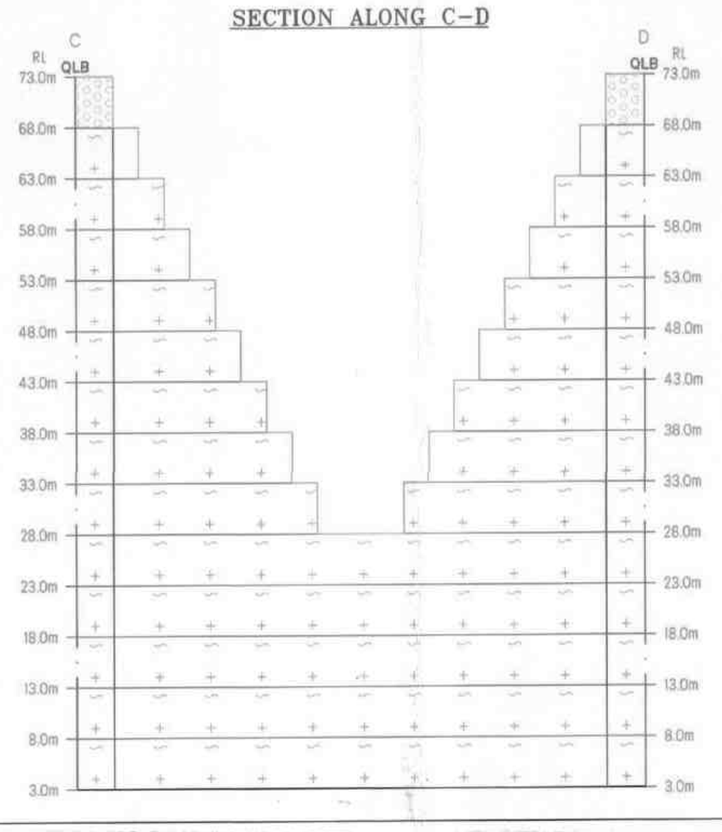



PLATE NO-VI

DATE OF SURVEY : 04.12.2024

APPLICANT:

THIRU.S.SENTHIL KUMAR,
S/o.SEKAR,
No.9, SELSIYA STREET,
RAJA ANNAMALAI NAGAR,
GORIMEDU, PUDUCHERRY - 605 006.

27 DEC 2024

QUARRY LEASE APPLIED AREA:

S.F.NO'S : 42/3A, 42/3B, 44/1, 44/2, 44/3, 44/4A(P) & 44/4B,
EXTENT : 4.84.5 Ha:-
VILLAGE : KORAIKENI,
TALUK : VANUR,
DISTRICT : VILUPPURAM.

### INDEX

- Q.LEASE APPLIED BOUNDARY
- 7.5m SAFETY DISTANCE
- TEMPORARY BENCH MARK (T.B.M)
- APPROACH ROAD
- CONTOUR
- SCRUB
- GRAVEL
- ROUGH STONE
- STRIKE & DIP
- PROPOSED QUARRY PIT

## PROGRESSIVE QUARRY CLOSER PLAN & SECTIONS

SCALE 1 : 1000

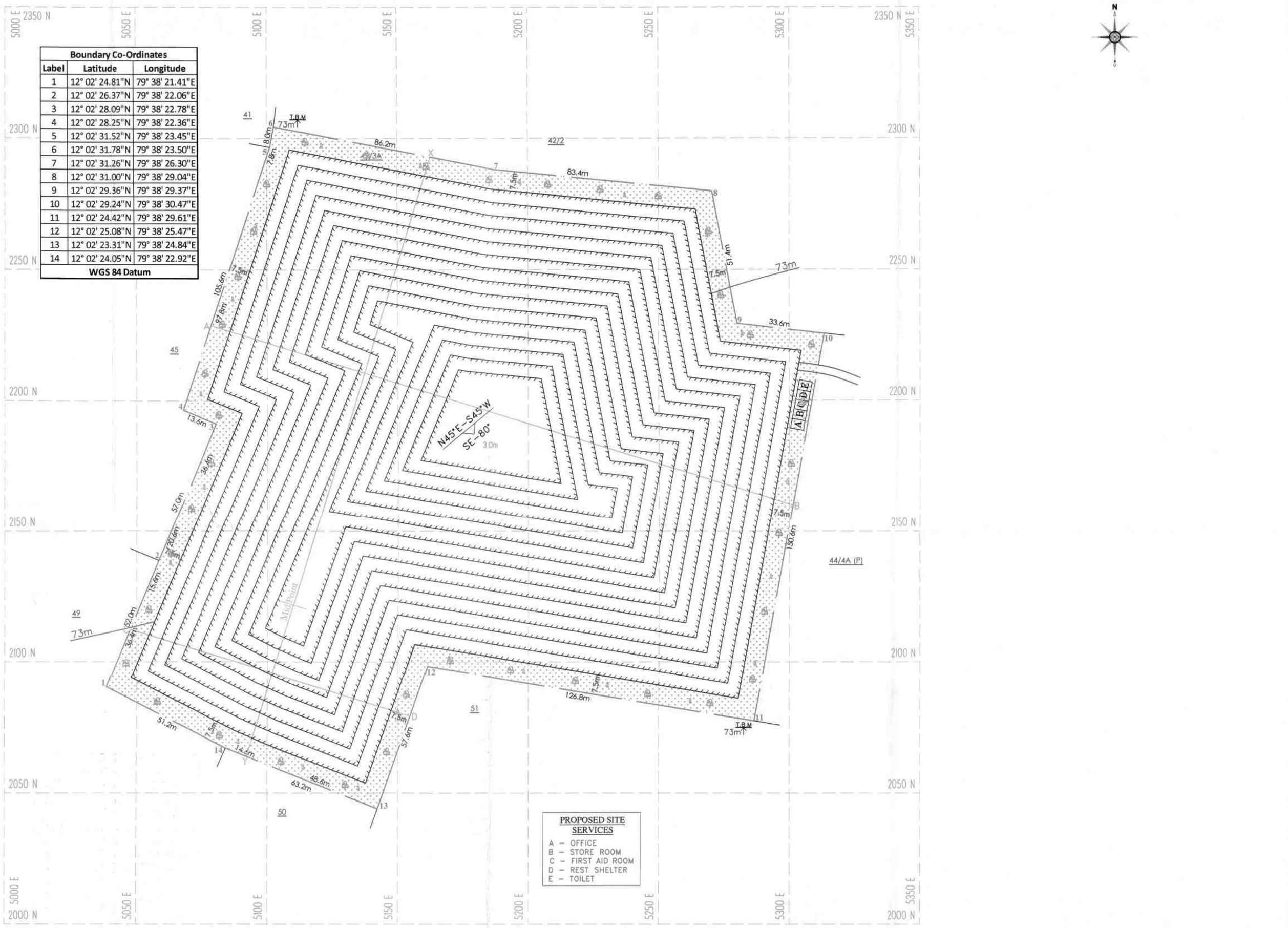
SECTIONS HOR 1:1000, VER 1:500

PREPARED BY:

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS PLATE IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE BASED UPON THE LEASE MAP AUTHENTICATED BY STATE GOVERNMENT

C.NATARAJAN,M.Sc,M.Phil.,
QUALIFIED PERSON

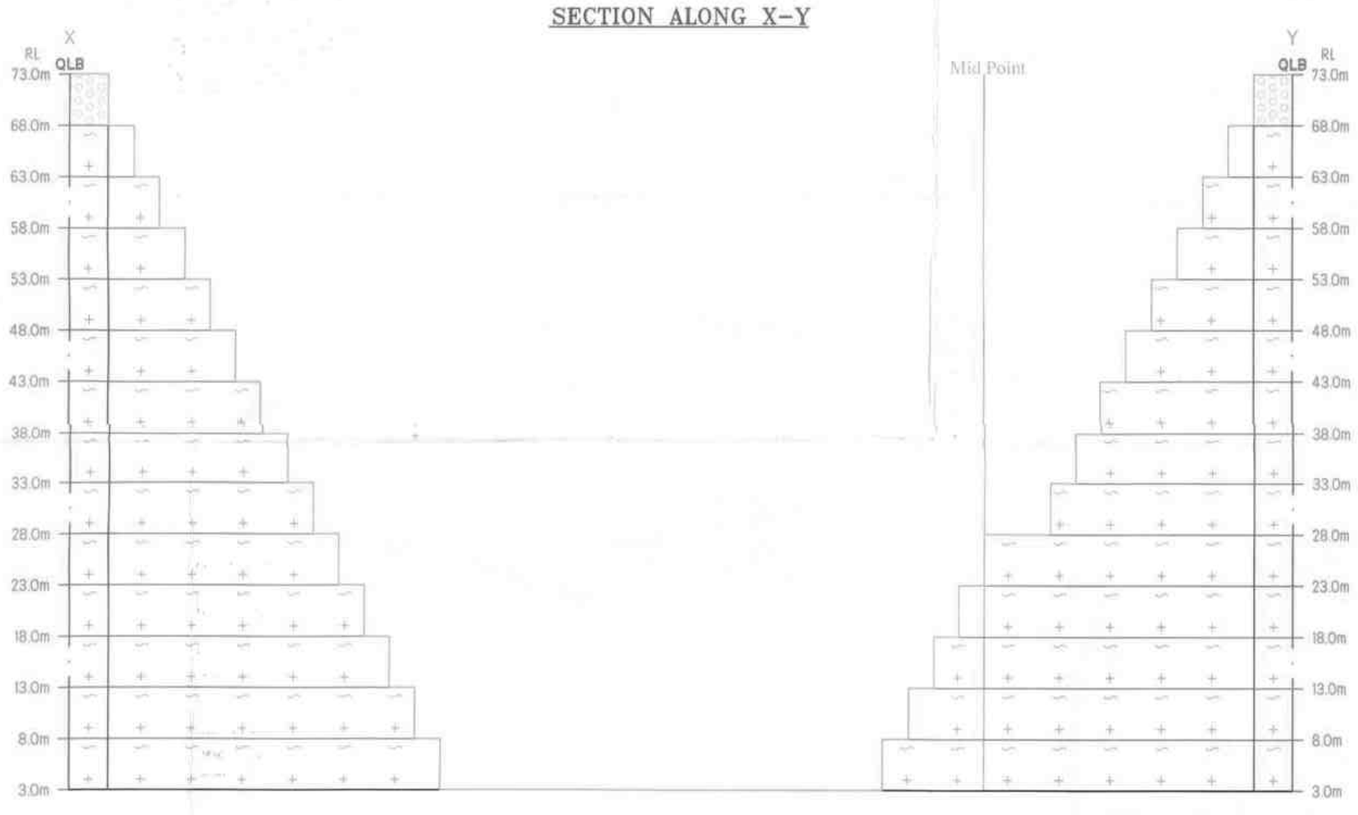
| Boundary Co-Ordinates | | |
|---|---|---|
| Label | Latitude | Longitude |
| 1 | 12° 02' 24.81"N | 79° 38' 21.41"E |
| 2 | 12° 02' 26.37"N | 79° 38' 22.06"E |
| 3 | 12° 02' 28.09"N | 79° 38' 22.78"E |
| 4 | 12° 02' 28.25"N | 79° 38' 22.36"E |
| 5 | 12° 02' 31.52"N | 79° 38' 23.45"E |
| 6 | 12° 02' 31.78"N | 79° 38' 23.50"E |
| 7 | 12° 02' 31.26"N | 79° 38' 26.30"E |
| 8 | 12° 02' 31.00"N | 79° 38' 29.04"E |
| 9 | 12° 02' 29.36"N | 79° 38' 29.37"E |
| 10 | 12° 02' 29.24"N | 79° 38' 30.47"E |
| 11 | 12° 02' 24.42"N | 79° 38' 29.61"E |
| 12 | 12° 02' 25.08"N | 79° 38' 25.47"E |
| 13 | 12° 02' 23.31"N | 79° 38' 24.84"E |
| 14 | 12° 02' 24.05"N | 79° 38' 22.92"E |
| WGS 84 Datum | | |



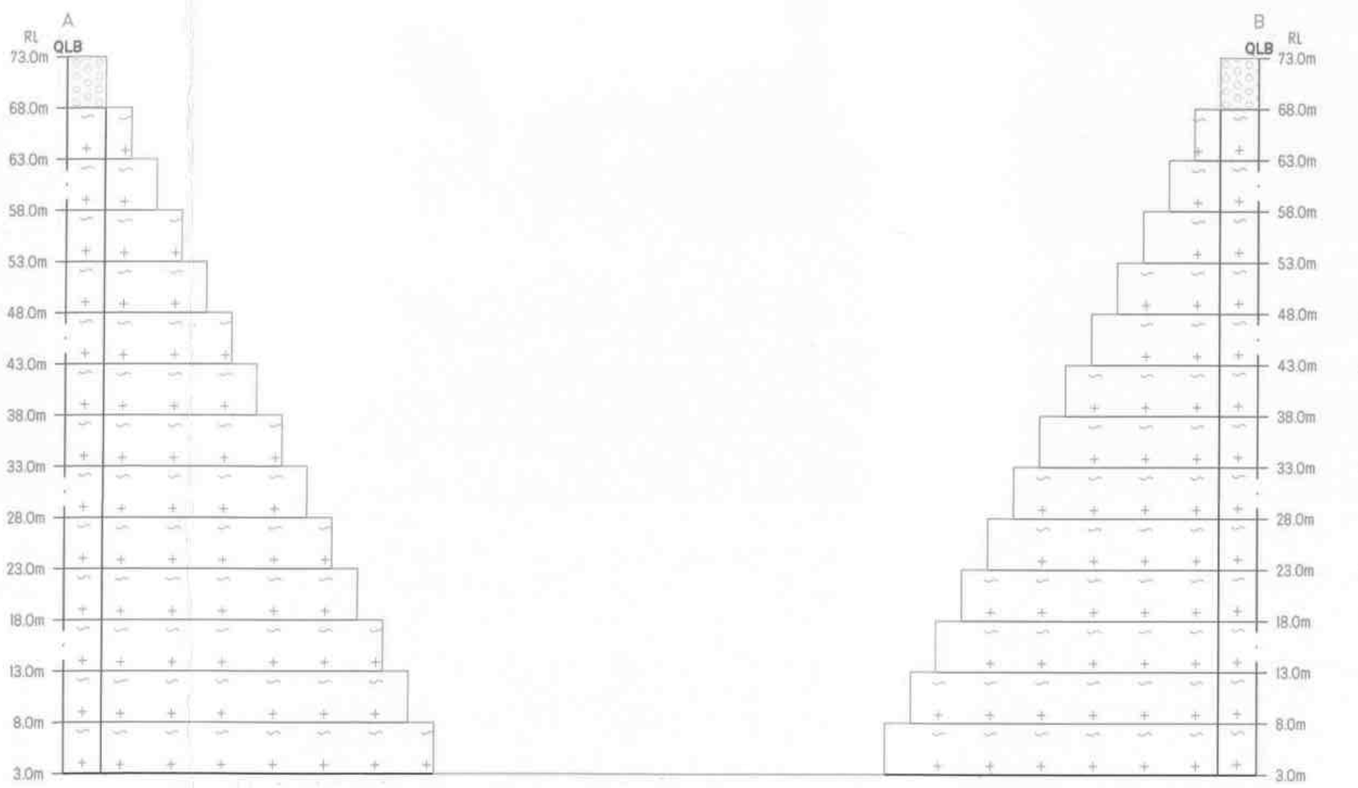

**PROPOSED SITE SERVICES**

A – OFFICE
B – STORE ROOM
C – FIRST AID ROOM
D – REST SHELTER
E – TOILET

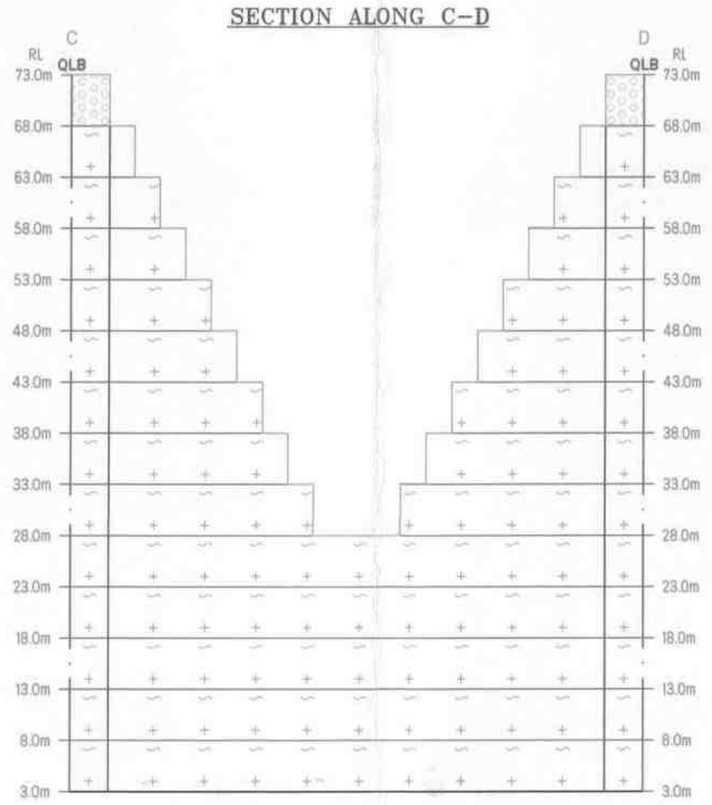
## SECTION ALONG X–Y




## SECTION ALONG A–B




## SECTION ALONG C–D




Ultimate Pit Dimension of End of the Lease Period
L225m(Max)X181(Avg)mXD70m(Max)

Proposed area to be Planted

**PLATE NO-VII**
DATE OF SURVEY : 04.12.2024

**APPLICANT:**
THIRU.S.SENTHIL KUMAR,
S/o.SEKAR,
No.9, SELSIYA STREET,
RAJA ANNAMALAI NAGAR,
GORIMEDU, PUDUCHERRY - 605 006.

27 DEC 2024

**QUARRY LEASE APPLIED AREA:**
S.F.NO'S : 42/3A, 42/3B, 44/1, 44/2, 44/3, 44/4A(P) & 44/4B,
EXTENT : 4.84.5 Ha,
VILLAGE : KORAIKENI,
TALUK : VANUR,
DISTRICT : VILUPPURAM.

**INDEX**

- Q.LEASE APPLIED BOUNDARY
- 7.5m SAFETY DISTANCE
- TEMPORARY BENCH MARK (T.B.M)
- APPROACH ROAD
- CONTOUR
- SCRUB
- GRAVEL
- ROUGH STONE
- STRIKE & DIP
- PROPOSED QUARRY PIT

**CONCEPTUAL PLAN & SECTIONS**
SCALE 1 : 1000
SECTIONS HOR 1:1000, VER 1:500

**PREPARED BY:**
THIS IS TO CERTIFY THAT THE INFORMATION IN THIS PLATE IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE BASED UPON THE LEASE MAP AUTHENTICATED BY STATE GOVERNMENT

C.NATARAJAN,M.Sc,M.Phil.,
QUALIFIED PERSON

# ANNEXURE-4

From
Tmt. S.Safiya, M.Sc.,
Assistant Director,
Geology and Mining,
Viluppuram.

To
Thiru.S.Senthilkumar,
S/o.Sekar,
No.9, Selsiya Street,
Raja Annamalai Nagar,
Gorimedu,
Puducherry – 605006.

**Rc.No.B/G&M/157/2024 Dated 27.12.2024**

Sub: Mines & Minerals – Minor Mineral – Rough stone and Gravel - Viluppuram District – Vanur Taluk – Koraikeni Village - over an extent of 4.84.5 hectares of patta lands – S.F.Nos.42/3A (0.13.5), 42/3B (0.91.5), 44/1 (0.26.5), 44/2 (0.26.0), 44/3 (0.25.5), 44/4A (Part) (2.85.5) & 44/4B (0.16.0) – Quarry lease application preferred by Thiru.S.Senthilkumar, S/o.Sekar – Details of quarries situated within 500 meter radial distance – furnished - Regarding.

Ref: 1. Assistant Director, Geology and Mining, Viluppuram Letter Rc.No.B/G&M/157/2024 Dated 03.12.2024.

2. Representation received from Thiru.S.Senthilkumar, S/o.Sekar Dated 24.12.2024.

*******

With reference to your letter in the reference 2nd cited, the details of existing, proposed and abandoned quarries located within 500 mts. radial distance from the periphery of the proposed Rough stone and Gravel quarry over an extent of 4.84.5 hectares of patta lands in S.F.Nos.42/3A (0.13.5), 42/3B (0.91.5), 44/1 (0.26.5), 44/2 (0.26.0), 44/3 (0.25.5), 44/4A (Part) (2.85.5) & 44/4B (0.16.0) of Koraikeni Village, Vanur Taluk, Villupuram District are as follows.

**1. Existing quarries:**

| Sl. No. | Name of the lessee / permit holder | Name of the Mineral | Taluk & Village | S.F. Nos. | Extent (in hects) | Lease period | Remarks |
|---|---|---|---|---|---|---|---|
| 1. | C.Prabakar, S/o.M.C. Chinnasamy, No.133A, Pillaiyar Kovil Street, Guruvammapettai, Endiyur Post, Tindivanam Taluk, Viluppuram District. | Rough stone & Gravel | Vanur Taluk Koraikeni Village | 54/1<br>54/2D<br>54/3 | 0.78.5<br>0.62.0<br>1.33.5<br>**2.74.0** | 25.02.2021 to 24.02.2031 | - |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 2. | S. Senthilkumar,<br>S/o.Sekar,<br>No.9, Selsia Street,<br>Raja Annamalai Nagar,<br>Gorimedu,<br>Puducherry. | Rough stone & Gravel | Vanur Taluk & Thiruvakkarai Village | 26/11<br>(P)<br>26/13<br>26/14<br>27/3<br>27/4<br>27/5<br>27/8A<br>27/8B<br>27/9<br>27/13<br>27/14<br>27/15<br>27/16<br>27/17 | 0.05.28<br>0.20.00<br>0.08.00<br>0.26.00<br>0.13.00<br>0.14.00<br>0.21.00<br>0.39.00<br>0.17.00<br>0.17.00<br>0.08.00<br>0.08.00<br>0.07.00<br>0.08.00<br>**2.11.28** | 20.06.2022<br>to<br>19.06.2032 | - |

## II. Proposed Area :

| Sl. No. | Name of the lessee / permit holder | Name of the Mineral | Taluk & Village | S.F. Nos. | Extent (in hects) | Remarks |
|---|---|---|---|---|---|---|
| 1. | Thiru.S.Senthilkumar,<br>S/o.Sekar,<br>No.9, Selsiya Street,<br>Raja Annamalai Nagar,<br>Gorimedu,<br>Puducherry – 605006. | Rough stone & Gravel | Vanur Taluk<br>Koraikeni<br>Village | 42/3A<br>42/3B<br>44/1<br>44/2<br>44/3<br>44/4A (P)<br>44/4B | 0.13.5<br>0.91.5<br>0.26.5<br>0.26.0<br>0.25.5<br>2.85.5<br>0.16.0<br>**4.84.5** | - |

## III. Abandoned quarries :

| Sl. No. | Name of the lessee / permit holder | Name of the Mineral | Taluk & Village | S.F. Nos. | Extent (in hects) | Lease period | Remarks |
|---|---|---|---|---|---|---|---|
| 1. | S. Thirumurugan,<br>S/o.<br>Sivaprakasam,<br>Vinayagar Kovil Street,<br>Kathirkamam,<br>Puducherry. | Rough stone & Gravel | Vanur Taluk & Thiruvakkarai Village | 3/2B<br>3/3<br>10/1 | 0.69.0<br>1.29.0<br>0.94.0<br>**2.92.0** | 15.02.2019 to 14.02.2024 | - |
| 2. | R.Ramkumar,<br>S/o.Rasu Gounder,<br>No.29, Pillaiyar Koil Street,<br>Thirukkanur,<br>Mannadipattu Commune,<br>Puducherry. | Rough stone & Gravel | Vanur Taluk & Thiruvakkarai Village | 12/1B<br>12/4B<br>12/4C<br>26/3 | 0.70.0<br>0.40.0<br>0.17.0<br>0.34.5<br>1.61.5 | 30.05.2013 to 29.05.2018 | - |

Assistant Director,
Dept. of Geology and Mining,
Viluppuram.

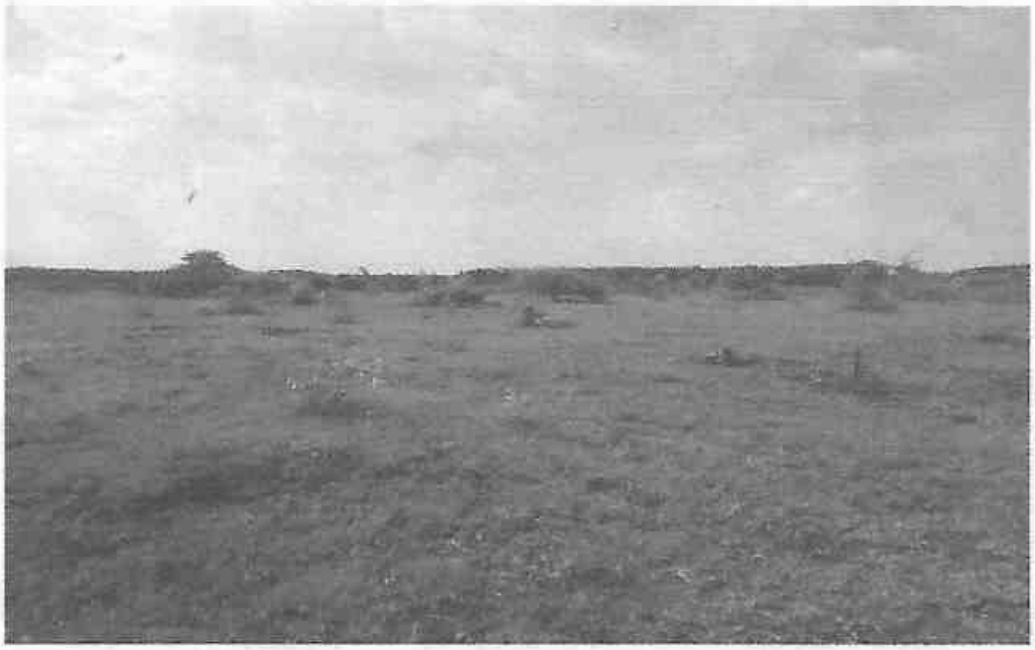
27.12.24

# ANNEXURE-5

TOPOGRAPICAL VIEW OF

KORAIKENI - S.SENTHIL KUMAR

ROUGH STONE AND GRAVEL QUARRY LEASE APPLIED AREA



LOCATION DETAILS:

Name and Address of the Applicant : S.Senthil Kumar,
S/o.Sekar,
No.9, Selsiya Street,
Raja Annamalai Nagar, Gorimedu,
Puducherry -605 006

Survey No. : 42/3A, 42/3B, 44/1, 44/2, 44/3, 44/4A(P) and 44/4B
Extent : 4.84.5Ha
Village : Koraikeni
Taluk : Vanur
District : Viluppuram
State : Tamil Nadu

Village
Administrative Officer

22/01/2025.

Signature of the Applicant

விருப்புரும் மாவட்டம் வானூர் வட்டம் கோனாரக்குப்பம்
கிராமத்தில் அயன் புறமை ரீர்வு எண்கள் 42/3A,
42/3B, 44/1, 44/2, 44/3, 44/4A, 44/4B
ஆகிய புலங்கள் எந்தும் நிலை. இதன்
என்பவர் பெயரில் நாங்களாகுப்புள்ளது. இதற்பி
புல எண்களில் உள்ளின் அருந்த கம்பாதன்
ஏதும் இல்லை. 360 மீட்டர் தூரத்தில் எந்த
வித குடியுரிப்புகள் ஏதும் இல்லை. பாரவாரம்
நிறுப்பு மிக்க பிறதான நிலைங்கள் இதாலைங்கள்
ஏதுவும் இல்லை. ஒடைகள் ஏதுமில்லை
மேற்படி இடத்தில் கருகல் மர்றும் சரல்
மொட்டு எதுக்க கிராமத்தில் நாளது தேதில்
ஆட்சேபனை ஏதும் இல்லை என தாழ்மையுடன்
தொள்கிறேன்.

ப. தேவிந்த

2 இராமர்/2 உரிமையாளர்

59, கோரைக்கேணி கிராமம்
வானூர் வட்டம்.

# ANNEXURE-6

ANNEXURE II

District : Viluppuram

Taluk : Vanur

Village : Koraikeni [59]

Survey No : 42

Area : Hect 05 Ares 89.00

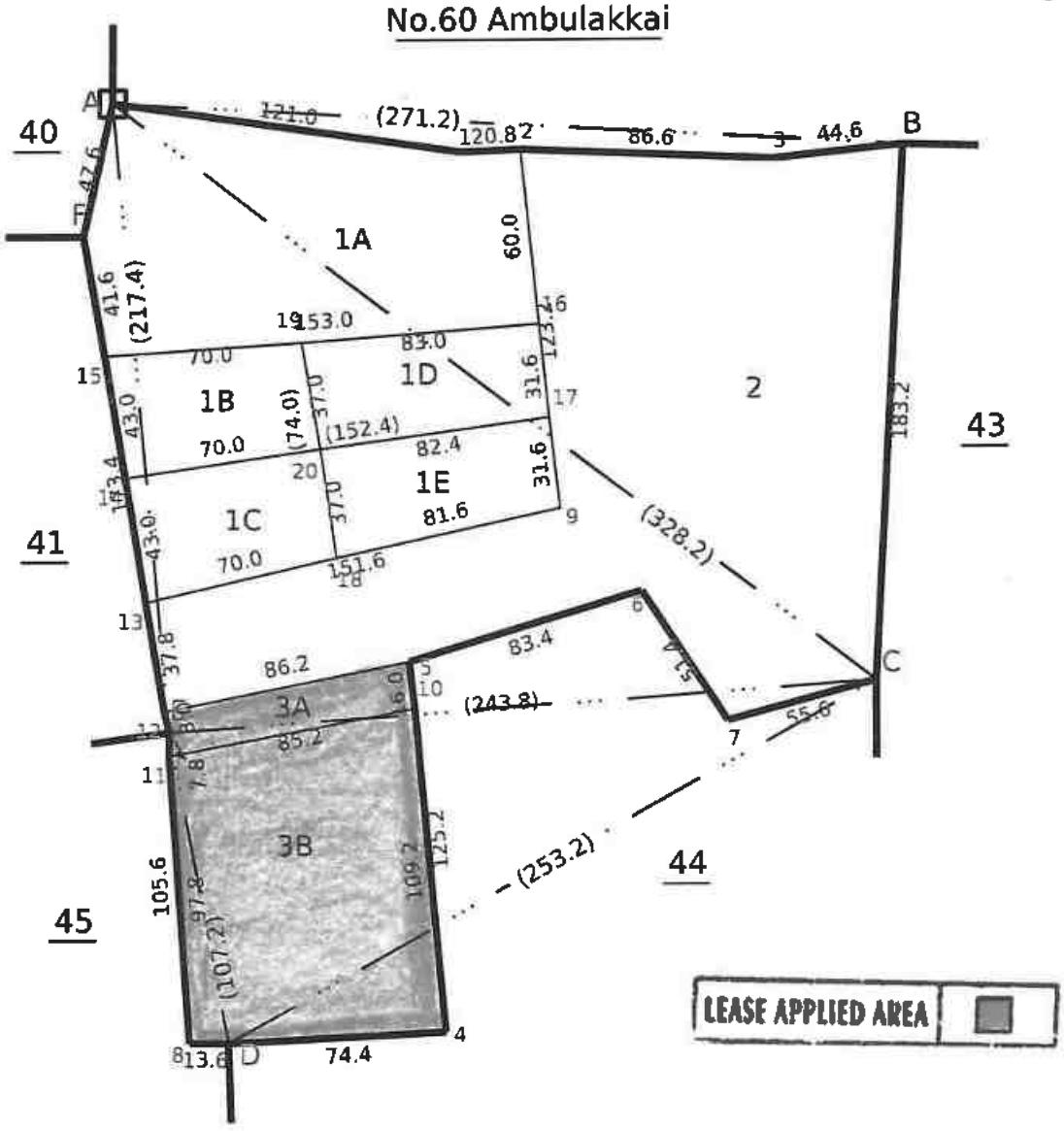
Scale : 1 : 2528

27 DEC 2024

விழுப்புரம்

N

No.60 Ambulakkai




Signed By Tahsildar

Name of approver : vanta

Date of Approval : 29-12-2017

Date of Issue: 04-12-2024 12:43:45

240 fv 2

District : Viluppuram

Taluk : Vanur

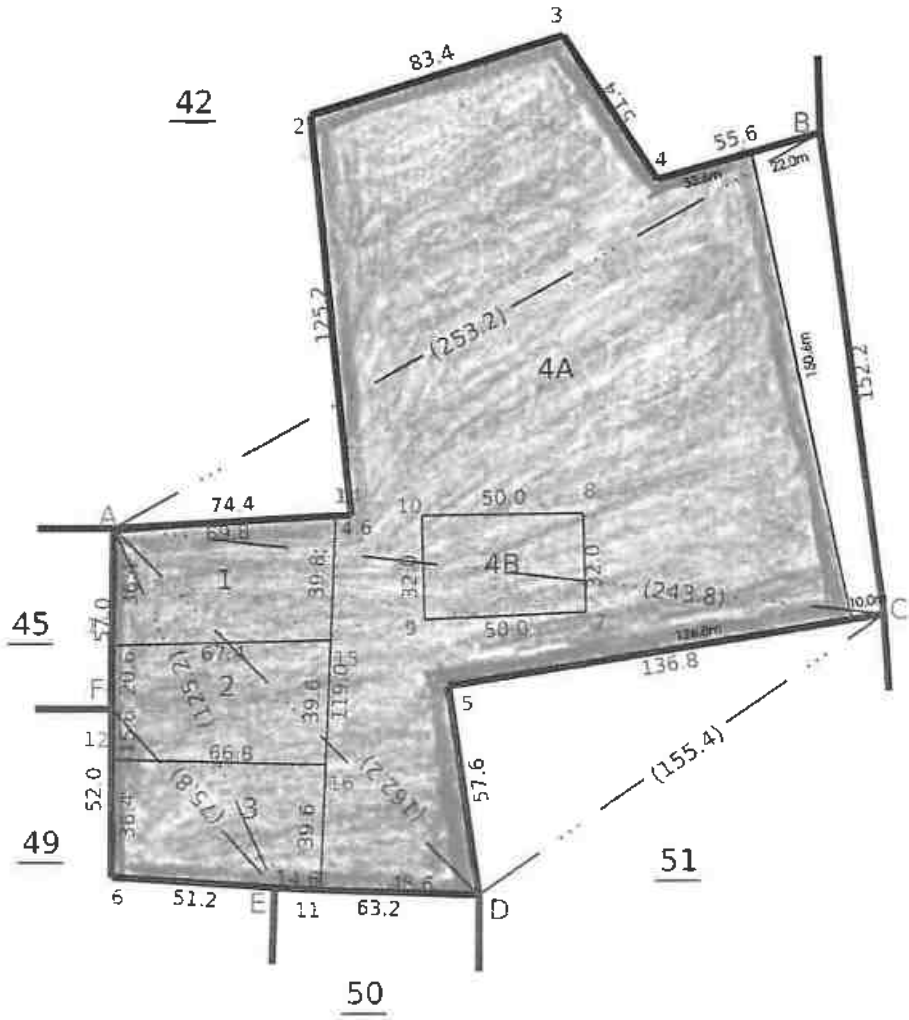
Village : Koraikeni [59]

Survey No : 44

Area : Hect 03 Ares 99.50

Scale : 1 : 2264

27 DEC 2024



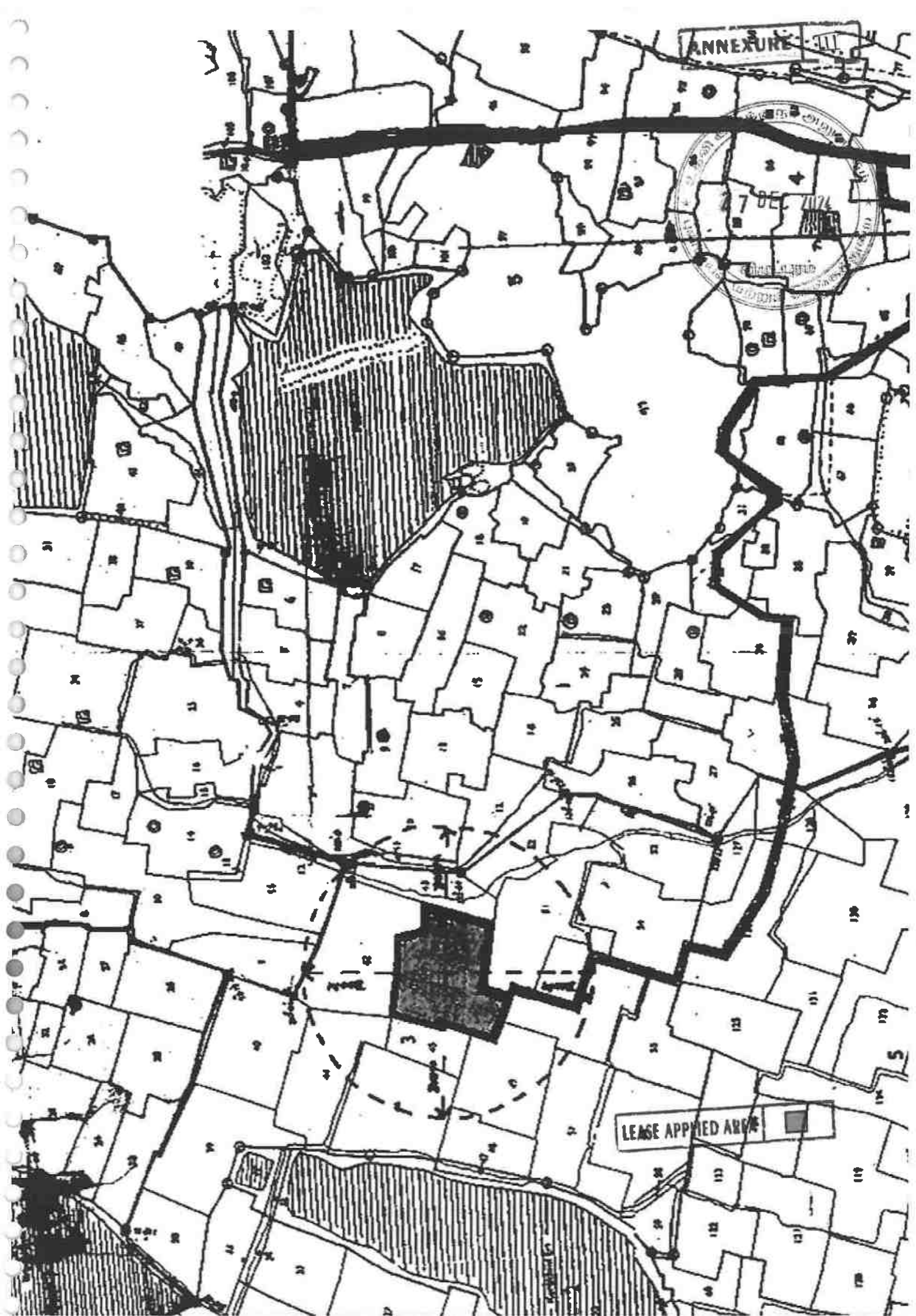

LEASE APPLIED AREA

Signed By Tahsildar

Name of approver : vanta

Date of Approval : 29-12-2017

Date of Issue: 01-03-2024 07:19:06


ANNEXURE - III
LEASE APPLIED AREA

ANNEXURE IV



27 DEC 2024

தமிழ்நாடு அரசு

வருவாய்த் துறை

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

மாவட்டம் : விழுப்புரம் வட்டம் : வானூர்

வருவாய் கிராமம் : கோரைக்கேணி பட்டா எண் : 1024

உரிமையாளர்கள் பெயர்

1. சேகர் தந்தை செந்தில்குமார்

| புல எண் | உட்பிரிவு | புன்செய் | | நன்செய் | | மற்றவை | | குறிப்புரைகள் |
|---|---|---|---|---|---|---|---|---|
| | | பரப்பு | தீர்வை | பரப்பு | தீர்வை | பரப்பு | தீர்வை | |
| | | ஹெக் - ஏர் | ரூ - பை | ஹெக் - ஏர் | ரூ - பை | ஹெக் - ஏர் | ரூ - பை | |
| 41 | 7B | 0 - 13.50 | 0.46 | -- | -- | -- | -- | 2024/0103/07/366294--2024/07/02/000172SD -------- 14-03-2024 |
| 42 | 3A | 0 - 13.50 | 0.46 | -- | -- | -- | -- | 2024/0103/07/366294--8a84/2009 -------- 14-03-2024 |
| 42 | 3B | 0 - 91.50 | 3.11 | -- | -- | -- | -- | 2024/0103/07/366294--8a84/2009 -------- 14-03-2024 |
| 44 | 1 | 0 - 26.50 | 0.90 | -- | -- | -- | -- | 2024/0103/07/366294-- -------- 14-03-2024 |
| 44 | 2 | 0 - 26.00 | 0.88 | -- | -- | -- | -- | 2024/0103/07/366294-- -------- 14-03-2024 |
| 44 | 3 | 0 - 25.50 | 0.87 | -- | -- | -- | -- | 2024/0103/07/366294-- -------- 14-03-2024 |
| 44 | 4A | 3 - 5.50 | 10.40 | -- | -- | -- | -- | 2024/0103/07/366294--291/1415 -------- 14-03-2024 |
| 44 | 4B | 0 - 16.00 | 0.60 | -- | -- | -- | -- | 2024/0103/07/366294--291/1415 -------- 14-03-2024 |
| 45 | 2 | 0 - 43.50 | 1.48 | -- | -- | -- | -- | 2024/0103/07/366294--2024/07/02/000172SD -------- 14-03-2024 |
| 46 | 4B1 | 0 - 13.88 | 0.47 | -- | -- | -- | -- | 2024/0103/07/366294--2023/07/02/000169SD -------- 14-03-2024 |
| 46 | 4B5 | 0 - 14.50 | 0.49 | -- | -- | -- | -- | 2024/0103/07/366294--2023/07/02/000169SD -------- 14-03-2024 |
| 49 | 4B | 0 - 13.00 | 0.55 | -- | -- | -- | -- | 2024/0103/07/366294--2024/07/02/000172SD -------- 14-03-2024 |
| 51 | 1A1 | 0 - 66.00 | 2.20 | -- | -- | -- | -- | 2024/0103/07/366294--334/1415-1 -------- 14-03-2024 |
| 51 | 1C | 0 - 27.50 | 0.95 | -- | -- | -- | -- | 2024/0103/07/366294-- -------- 14-03-2024 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 51 | 3 | 0 - 14.00 | 0.48 | -- | -- | -- | -- | 2024/0103/07/366294-2024 ---------- 14-03-2024 |
| | | 7 - 10.38 | 24.30 | | | | | |

27 DEC 2024

விழுப்புரம்

**குறிப்பு :**

1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் **https://eservices.tn.gov.in** என்ற இணையதளத்தில் **07/02/059/01024/20967** என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 14-03-2024 அன்று 03:35:13 PM நேரத்தில் அச்சடிக்கப்பட்டது.
3. கைப்பேசி கேமராவின்2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

ANNEXURE V

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விழுப்புரம்

கிராமக் கணக்கு

133 – ஆம் பசலியில் விழுப்புரம் மாவட்டம் விழுப்புரம் வட்டம் 59 - திருவெண்ணெய்நல்லூர் தேர்தல்

| நில நூலைவு எண் (1) | உட்பிரிவு எண் (2) | நிலவரித் திட்டத்தின்படி புலன்களின் விபரம். பரப்பு (3) | தீர்வை (4) | ஒரு போகம் அல்லது இரு போகம் (5) | கைப்பற்று தாரருடைய பெயரும் எண்ணும் அல்லது அனுபோக தாரருடைய பெயர். (6) | சாகுபடியாளின் பெயர். நிலத்தின் எந்த பகுதி யாவது சாகுபடியாளரால் பயிரிடப்பட்டுள்ளதா. (7) | முதல் போகம். எந்த மாதத்தில் பயிர் செய்யப்பட்டது அல்லது எந்த மாதத்தில் செய்யப்படும். (8) | பயிரின் பெயர். (9) | பயிரான / அறுவடையான பரப்பு. (10) | உண்மையான பாய்ச்சல் ஆதாரம். (11) | விளைச்சல் ஏனைய விபரக்குறிப்பு. (12) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 42 | 3A | 0.135 | 0.46 | 1024 | திருத்தியவர் | | | நெல் | | | |
| 42 | 3B | 0.135 | 3.11 | 1024 | -do- | | | நெல் | | | |
| 44 | 1 | 0.265 | 0.90 | 1024 | -do- | | | நெல் | | | |
| 44 | 2 | 0.260 | 0.88 | 1024 | -do- | | | நெல் | | | |
| 44 | 3 | 0.255 | 0.87 | 1024 | -do- | | | நெல் | | | |
| 44 | 4A | 3.550 | 10.40 | 1024 | -do- | | | நெல் | | | |
| 44 | 4B | 0.160 | 0.60 | 1024 | -do- | | | நெல் | | | |
| | | | | | // வண்ணமாகும் // | | | | | | |
| | | | | | இவ்வூர் கிராம நிர்வாக அலுவலர் | | தன் கையாரி பணி செய்வதற்கு | | | | |
| | | | | | அதிகாரப்பட்டவர் | | மாறுதல் செய்யப்பட்டுள்ளார் | | | | |
| | | | | | பெயர் : | | | | | | |
| | | | | | நாள் : 08.05.2024 | | | | | | |

380/18-R.F.III-A10-5,00,000 Cps.-GSP.-Mdu-7-2021.

ANNEXURE VI

27 DEC 2024

விழுப்புரம்

## அ-பதிவேடு விவரங்கள் - ஊரகம்

**மாவட்டம் : விழுப்புரம்**

**வட்டம் : வானூர்**

**கிராமம் : கோரைக்கேணி**

| | | | |
|---|---|---|---|
| 1. புல எண் | **42** | 9. மண் வயனமும் ரகமும் | **4 - 5** |
| 2. உட்பிரிவு எண் | **3A** | 10. மண் தரம் | **6** |
| 3. பழைய புல உட்பிரிவு எண் | **42-3** | 11. தீர்வை (ரூ - ஹெ) | **3.40** |
| 4. பகுதி | **P** | 12. பரப்பு (ஹெக்டேர் - ஏர்) | **0 - 13.50** |
| 5. அரசு / ரயத்துவாரி | **ரயத்துவாரி** | 13. மொத்த தீர்வை (ரூ - பை) | **0.46** |
| 6. நிலத்தின் வகை | **புஞ்சை** | 14. பட்டா எண் | **1024** |
| 7. பாசன ஆதாரம் | **-** | 15. குறிப்பு | **-** |
| 8. இரு போகமா | **0** | 16. பெயர் | **1.செந்தில்குமார்** |

**குறிப்பு:**

1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் **https://eservices.tn.gov.in** என்ற இணைய தளத்தில் **07/02/059/42/3A/50967** என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

## அ-பதிவேடு விவரங்கள் - ஊரகம்

27 DEC 2024
விழுப்புரம்

**மாவட்டம் : விழுப்புரம்**

**வட்டம் : வானூர்**

**கிராமம் : கோரைக்கேணி**

| | | | |
|---|---|---|---|
| 1. புல எண் | **42** | 9. மண் வயனமும் ரகமும் | **4 - 5** |
| 2. உட்பிரிவு எண் | **3B** | 10. மண் தரம் | **6** |
| 3. பழைய புல உட்பிரிவு எண் | **42-3** | 11. தீர்வை (ரூ - ஹெ) | **3.40** |
| 4. பகுதி | **P** | 12. பரப்பு (ஹெக்டேர் - ஏர்) | **0 - 91.50** |
| 5. அரசு / ரயத்துவாரி | **ரயத்துவாரி** | 13. மொத்த தீர்வை (ரூ - பை) | **3.11** |
| 6. நிலத்தின் வகை | **புஞ்சை** | 14. பட்டா எண் | **1024** |
| 7. பாசன ஆதாரம் | **-** | 15. குறிப்பு | **-** |
| 8. இரு போகமா | **0** | 16. பெயர் | **1.செந்தில்குமார்** |

**குறிப்பு:**

1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் **https://eservices.tn.gov.in** என்ற இணைய தளத்தில் **07/02/059/42/3B/50967** என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

# அ-பதிவேடு விவரங்கள் - ஊரகம்

**மாவட்டம் : விழுப்புரம்**

**வட்டம் : வானூர்**

**கிராமம் : கோரைக்கேணி**




| | | | |
|---|---|---|---|
| 1. புல எண் | **44** | 9. மண் வயனமும் ரகமும் | **4 - 5** |
| 2. உட்பிரிவு எண் | **1** | 10. மண் தரம் | **6** |
| 3. பழைய புல உட்பிரிவு எண் | **2-1A** | 11. தீர்வை (ரூ - ஹெ) | **3.40** |
| 4. பகுதி | - | 12. பரப்பு (ஹெக்டேர் - ஏர்) | **0 - 26.50** |
| 5. அரசு / ரயத்துவாரி | **ரயத்துவாரி** | 13. மொத்த தீர்வை (ரூ - பை) | **0.90** |
| 6. நிலத்தின் வகை | **புஞ்சை** | 14. பட்டா எண் | **1024** |
| 7. பாசன ஆதாரம் | - | 15. குறிப்பு | - |
| 8. இரு போகமா | - | 16. பெயர் | **1.செந்தில்குமார்** |

**குறிப்பு:**

1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் **https://eservices.tn.gov.in** என்ற இணைய தளத்தில் **07/02/059/44/1/50967** என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

## அ-பதிவேடு விவரங்கள் - ஊரகம்




**மாவட்டம் : விழுப்புரம்**

**வட்டம் : வானூர்**

**இராமம் : கோரைக்கேணி**

| | | | |
|---|---|---|---|
| 1. புல எண் | **44** | 9. மண் வயனமும் ரகமும் | **4 - 5** |
| 2. உட்பிரிவு எண் | **2** | 10. மண் தரம் | **6** |
| 3. பழைய புல உட்பிரிவு எண் | **2-1B** | 11. தீர்வை (ரூ - ஹெ) | **3.40** |
| 4. பகுதி | - | 12. பரப்பு (ஹெக்டேர் - ஏர்) | **0 - 26.00** |
| 5. அரசு / ரயத்துவாரி | **ரயத்துவாரி** | 13. மொத்த தீர்வை (ரூ - பை) | **0.88** |
| 6. நிலத்தின் வகை | **புஞ்சை** | 14. பட்டா எண் | **1024** |
| 7. பாசன ஆதாரம் | - | 15. குறிப்பு | - |
| 8. இரு போகமா | - | 16. பெயர் | **1.செந்தில்குமார்** |

**குறிப்பு:**

1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் **https://eservices.tn.gov.in** என்ற இணைய தளத்தில் **07/02/059/44/2/50967** என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

## அ-பதிவேடு விவரங்கள் - ஊரகம்




**மாவட்டம் : விழுப்புரம்**

**வட்டம் : வானூர்**

**கிராமம் : கோரைக்கேணி**

| | | | |
|---|---|---|---|
| 1. புல எண் | **44** | 9. மண் வயனமும் ரகமும் | **4 - 5** |
| 2. உட்பிரிவு எண் | **3** | 10. மண் தரம் | **6** |
| 3. பழைய புல உட்பிரிவு எண் | **2-1C** | 11. தீர்வை (ரூ - ஹெ) | **3.40** |
| 4. பகுதி | - | 12. பரப்பு (ஹெக்டேர் - ஏர்) | **0 - 25.50** |
| 5. அரசு / ரயத்துவாரி | **ரயத்துவாரி** | 13. மொத்த தீர்வை (ரூ - பை) | **0.87** |
| 6. நிலத்தின் வகை | **புஞ்சை** | 14. பட்டா எண் | **1024** |
| 7. பாசன ஆதாரம் | - | 15. குறிப்பு | - |
| 8. இரு போகமா | - | 16. பெயர் | **1.செந்தில்குமார்** |

**குறிப்பு:**

1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் **https://eservices.tn.gov.in** என்ற இணைய தளத்தில் **07/02/059/44/3/50967** என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

## அ-பதிவேடு விவரங்கள் - ஊரகம்

27 DEC 2024
விழுப்புரம்

**மாவட்டம் : விழுப்புரம்**

**வட்டம் : வானூர்**

**கிராமம் : கோரைக்கேணி**

| | | | |
|---|---|---|---|
| 1. புல எண் | **44** | 9. மண் வயனமும் ரகமும் | **4 - 5** |
| 2. உட்பிரிவு எண் | **4A** | 10. மண் தரம் | **6** |
| 3. பழைய புல உட்பிரிவு எண் | **2-2** | 11. தீர்வை (ரூ - ஹெ) | **3.40** |
| 4. பகுதி | **P** | 12. பரப்பு (ஹெக்டேர் - ஏர்) | **3 - 5.50** |
| 5. அரசு / ரயத்துவாரி | **ரயத்துவாரி** | 13. மொத்த தீர்வை (ரூ - பை) | **10.40** |
| 6. நிலத்தின் வகை | **புஞ்சை** | 14. பட்டா எண் | **1024** |
| 7. பாசன ஆதாரம் | **-** | 15. குறிப்பு | **-** |
| 8. இரு போகமா | **-** | 16. பெயர் | **1.செந்தில்குமார்** |

**குறிப்பு:**

1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் **https://eservices.tn.gov.in** என்ற இணைய தளத்தில் **07/02/059/44/4A/50967** என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

## அ-பதிவேடு விவரங்கள் - ஊரகம்

27 DEC 2024
விழுப்புரம்

**மாவட்டம் : விழுப்புரம்**

**வட்டம் : வானூர்**

**கிராமம் : கோரைக்கேணி**

| | | | |
|---|---|---|---|
| 1. புல எண் | **44** | 9. மண் வயனமும் ரகமும் | **4 - 5** |
| 2. உட்பிரிவு எண் | **4B** | 10. மண் தரம் | **6** |
| 3. பழைய புல உட்பிரிவு எண் | **2-2** | 11. தீர்வை (ரூ - ஹெ) | **3.40** |
| 4. பகுதி | **P** | 12. பரப்பு (ஹெக்டேர் - ஏர்) | **0 - 16.00** |
| 5. அரசு / ரயத்துவாரி | **ரயத்துவாரி** | 13. மொத்த தீர்வை (ரூ - பை) | **0.60** |
| 6. நிலத்தின் வகை | **புஞ்சை** | 14. பட்டா எண் | **1024** |
| 7. பாசன ஆதாரம் | - | 15. குறிப்பு | - |
| 8. இரு போகமா | - | 16. பெயர் | **1.செந்தில்குமார்** |

**குறிப்பு:**

1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் **https://eservices.tn.gov.in** என்ற இணைய தளத்தில் **07/02/059/44/4B/50967** என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

# ANNEXURE-7

# Shrient Analytical and Research Labs Pvt. Ltd

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Phone Number +91 82208 36377 Email: - **info@shrientanalytical.com**
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# TEST REPORT

| Report No. | SARL/24/4950 |
|---|---|

| Report Date. | 16.12.2024 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A1-Within Mine Lease area |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-4950 | Sample Received on | 09.12.2024 |
| Sample Collected by | LABORATORY | Test Commenced on | 09.12.2024 |
| Sample Collected on | 03.12.2024 | Test Completed on | 16.12.2024 |
| Temperature | 36°C | Relative Humidity | 25% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 60.8 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 29.3 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 7.4 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 11.5 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

Shrient Analytical & Research Labs Pvt. Ltd. Chennai - 45.

*****END OF THE REPORT*****

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

Please Contact:
For any Technical Issues & Complaints: technical@shrientanalytical.com

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# TEST REPORT

| Report No. | SARL/24/4951 |
|---|---|

| Report Date. | 16.12.2024 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A2-Thiruvakkarai Village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-4951 | Sample Received on | 09.12.2024 |
| Sample Collected by | LABORATORY | Test Commenced on | 09.12.2024 |
| Sample Collected on | 03.12.2024 | Test Completed on | 16.12.2024 |
| Temperature | 36°C | Relative Humidity | 25% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 51.7 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 23.3 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 5.4 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 9.8 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

Shrient Analytical & Research Labs Pvt. Ltd. Chennai - 45

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/24/4952 |
|---|---|

| Report Date. | 16.12.2024 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A1-Within Mine Lease area |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-4952 | Sample Received on | 09.12.2024 |
| Sample Collected by | LABORATORY | Test Commenced on | 09.12.2024 |
| Sample Collected on | 04.12.2024 | Test Completed on | 16.12.2024 |
| Temperature | 36°C | Relative Humidity | 27% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 64.7 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 31.1 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 7.7 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 12.9 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

Shrient Analytical & Research Labs Pvt Ltd Chennai - 45

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/24/4953 |
|---|---|

| Report Date. | 16.12.2024 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A2-Thiruvakkarai Village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-4953 | Sample Received on | 09.12.2024 |
| Sample Collected by | LABORATORY | Test Commenced on | 09.12.2024 |
| Sample Collected on | 04.12.2024 | Test Completed on | 16.12.2024 |
| Temperature | 34°C | Relative Humidity | 28% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 49.2 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 22.1 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 6.3 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 10.6 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

***END OF THE REPORT***

**Authorized Signatory**
**S. BALAMURUGAN**
**Asst.Technical Manager**

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# TEST REPORT

| Report No. | SARL/24/4954 | Report Date. | 16.12.2024 |
|---|---|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A3-Ponnampudi village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-4954 | Sample Received on | 09.12.2024 |
| Sample Collected by | LABORATORY | Test Commenced on | 09.12.2024 |
| Sample Collected on | 05.12.2024 | Test Completed on | 16.12.2024 |
| Temperature | 34°C | Relative Humidity | 28% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 54.2 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 26.0 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 6.9 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 10.2 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

Shrient Analytical & Research Labs Pvt. Ltd Chennai - 45

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/24/4955 |
|---|---|

| Report Date. | 16.12.2024 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A4-Eraiyur Village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-4955 | Sample Received on | 09.12.2024 |
| Sample Collected by | LABORATORY | Test Commenced on | 09.12.2024 |
| Sample Collected on | 05.12.2024 | Test Completed on | 16.12.2024 |
| Temperature | 36°C | Relative Humidity | 27% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 48.5 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 23.3 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 8.7 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 9.9 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/24/4956 |
|---|---|

| Report Date. | 16.12.2024 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A3-Ponnampudi village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-4956 | Sample Received on | 09.12.2024 |
| Sample Collected by | LABORATORY | Test Commenced on | 09.12.2024 |
| Sample Collected on | 06.12.2024 | Test Completed on | 16.12.2024 |
| Temperature | 36°C | Relative Humidity | 27% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 61.8 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 29.7 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 7.6 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 11.1 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/24/4957 |
|---|---|

| Report Date. | 16.12.2024 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A4-Eraiyur Village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-4957 | Sample Received on | 09.12.2024 |
| Sample Collected by | LABORATORY | Test Commenced on | 09.12.2024 |
| Sample Collected on | 06.12.2024 | Test Completed on | 16.12.2024 |
| Temperature | 36°C | Relative Humidity | 28% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 47.8 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 22.9 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 7.6 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 9.6 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

***END OF THE REPORT***

Please Contact:
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# TEST REPORT

| Report No. | SARL/24/4958 |
|---|---|

| Report Date. | 16.12.2024 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A5-koddukkur village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-4958 | Sample Received on | 09.12.2024 |
| Sample Collected by | LABORATORY | Test Commenced on | 09.12.2024 |
| Sample Collected on | 07.12.2024 | Test Completed on | 16.12.2024 |
| Temperature | 36°C | Relative Humidity | 26% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 53.8 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 25.8 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 9.2 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 12.2 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

Shrient Analytical & Research Labs Pvt. Ltd. Chennai - 45

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/24/4959 |
|---|---|

| Report Date. | 16.12.2024 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A6-Pombur Village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-4959 | Sample Received on | 09.12.2024 |
| Sample Collected by | LABORATORY | Test Commenced on | 09.12.2024 |
| Sample Collected on | 07.12.2024 | Test Completed on | 16.12.2024 |
| Temperature | 36°C | Relative Humidity | 28% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 45.8 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 22.0 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 7.6 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 8.5 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

Shrient Analytical & Research Labs Pvt. Ltd. Chennai - 45

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/24/4960 |
|---|---|

| Report Date. | 16.12.2024 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A5-koddukkur village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-4960 | Sample Received on | 09.12.2024 |
| Sample Collected by | LABORATORY | Test Commenced on | 09.12.2024 |
| Sample Collected on | 08.12.2024 | Test Completed on | 16.12.2024 |
| Temperature | 35°C | Relative Humidity | 32% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 48.6 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 23.3 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 8.4 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 10.9 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/24/4961 |
|---|---|

| Report Date. | 16.12.2024 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A6-Pombur Village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-4961 | Sample Received on | 09.12.2024 |
| Sample Collected by | LABORATORY | Test Commenced on | 09.12.2024 |
| Sample Collected on | 08.12.2024 | Test Completed on | 16.12.2024 |
| Temperature | 35°C | Relative Humidity | 32% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 48.4 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 23.2 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 8.3 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 9.2 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/24/5003 |
|---|---|

| Report Date. | 23.12.2024 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A5-koddukkur village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-5003 | Sample Received on | 16.12.2024 |
| Sample Collected by | LABORATORY | Test Commenced on | 16.12.2024 |
| Sample Collected on | 10.12.2024 | Test Completed on | 23.12.2024 |
| Temperature | 36°C | Relative Humidity | 30% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 56.2 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 27.0 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 9.5 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 12.3 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

***END OF THE REPORT***

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/24/5004 |
|---|---|

| Report Date. | 23.12.2024 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A6-Pombur Village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-5004 | Sample Received on | 16.12.2024 |
| Sample Collected by | LABORATORY | Test Commenced on | 16.12.2024 |
| Sample Collected on | 10.12.2024 | Test Completed on | 23.12.2024 |
| Temperature | 36°C | Relative Humidity | 30% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 53.6 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 25.7 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 9.1 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 10.1 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

Shrient Analytical & Research Labs Pvt. Ltd * Chennai - 45

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/24/5005 | Report Date. | 23.12.2024 |
|---|---|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A5-koddukkur village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-5005 | Sample Received on | 16.12.2024 |
| Sample Collected by | LABORATORY | Test Commenced on | 16.12.2024 |
| Sample Collected on | 11.12.2024 | Test Completed on | 23.12.2024 |
| Temperature | 36°C | Relative Humidity | 30% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 52.4 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 25.2 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 8.8 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 11.9 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/24/5006 | Report Date. | 23.12.2024 |
|---|---|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A6-Pombur Village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-5006 | Sample Received on | 16.12.2024 |
| Sample Collected by | LABORATORY | Test Commenced on | 16.12.2024 |
| Sample Collected on | 11.12.2024 | Test Completed on | 23.12.2024 |
| Temperature | 37°C | Relative Humidity | 21% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 51.7 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 24.8 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 8.9 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 9.8 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

***END OF THE REPORT***

**Authorized Signatory**
**S. BALAMURUGAN**
**Asst.Technical Manager**

Please Contact:
For any Technical Issues & Complaints: technical@shrientanalytical.com

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# TEST REPORT

| Report No. | SARL/24/5007 |
|---|---|

| Report Date. | 23.12.2024 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A3-Ponnampudi village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-5007 | Sample Received on | 16.12.2024 |
| Sample Collected by | LABORATORY | Test Commenced on | 16.12.2024 |
| Sample Collected on | 12.12.2024 | Test Completed on | 23.12.2024 |
| Temperature | 37°C | Relative Humidity | 23% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 58.1 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 27.9 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 7.3 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 10.8 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/24/5008 | Report Date. | 23.12.2024 |
|---|---|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A4-Eraiyur Village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-5008 | Sample Received on | 16.12.2024 |
| Sample Collected by | LABORATORY | Test Commenced on | 16.12.2024 |
| Sample Collected on | 12.12.2024 | Test Completed on | 23.12.2024 |
| Temperature | 37°C | Relative Humidity | 23% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 55.3 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 26.5 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 9.1 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 10.5 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

***END OF THE REPORT***

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# TEST REPORT

| Report No. | SARL/24/5009 |
|---|---|

| Report Date. | 23.12.2024 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A3-Ponnampudi village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-5009 | Sample Received on | 16.12.2024 |
| Sample Collected by | LABORATORY | Test Commenced on | 16.12.2024 |
| Sample Collected on | 13.12.2024 | Test Completed on | 23.12.2024 |
| Temperature | 36°C | Relative Humidity | 30% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 54.5 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 26.2 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 7.0 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 10.1 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

***END OF THE REPORT***

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/24/5010 |
|---|---|

| Report Date. | 23.12.2024 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A4-Eraiyur Village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-5010 | Sample Received on | 16.12.2024 |
| Sample Collected by | LABORATORY | Test Commenced on | 16.12.2024 |
| Sample Collected on | 13.12.2024 | Test Completed on | 23.12.2024 |
| Temperature | 36°C | Relative Humidity | 30% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 53.0 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 25.4 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 8.8 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 9.6 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/24/5011 |
|---|---|

| Report Date. | 23.12.2024 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A1-Within Mine Lease area |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-5011 | Sample Received on | 16.12.2024 |
| Sample Collected by | LABORATORY | Test Commenced on | 16.12.2024 |
| Sample Collected on | 14.12.2024 | Test Completed on | 23.12.2024 |
| Temperature | 36°C | Relative Humidity | 30% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 59.2 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 28.4 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 7.3 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 11.1 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/24/5012 | Report Date. | 23.12.2024 |
|---|---|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A2-Thiruvakkarai Village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-5012 | Sample Received on | 16.12.2024 |
| Sample Collected by | LABORATORY | Test Commenced on | 16.12.2024 |
| Sample Collected on | 14.12.2024 | Test Completed on | 23.12.2024 |
| Temperature | 35°C | Relative Humidity | 30% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 54.6 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 24.6 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 7.6 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 11.9 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

***END OF THE REPORT***

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/24/5013 |
|---|---|

| Report Date. | 23.12.2024 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A1-Within Mine Lease area |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-5013 | Sample Received on | 16.12.2024 |
| Sample Collected by | LABORATORY | Test Commenced on | 16.12.2024 |
| Sample Collected on | 15.12.2024 | Test Completed on | 23.12.2024 |
| Temperature | 35°C | Relative Humidity | 30% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 68.9 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 33.1 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 8.1 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 14.3 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

Shrient Analytical & Research Labs Pvt. Ltd. Chennai - 45.

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/24/5014 |
|---|---|

| Report Date. | 23.12.2024 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A2-Thiruvakkarai Village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-5014 | Sample Received on | 16.12.2024 |
| Sample Collected by | LABORATORY | Test Commenced on | 16.12.2024 |
| Sample Collected on | 15.12.2024 | Test Completed on | 23.12.2024 |
| Temperature | 35°C | Relative Humidity | 30% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 49.8 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 22.4 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 6.4 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 10.8 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

***END OF THE REPORT***

Please Contact:
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# TEST REPORT

| Report No. | SARL/24/5057 |
|---|---|

| Report Date. | 30.12.2024 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A1-Within Mine Lease area |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-5057 | Sample Received on | 23.12.2024 |
| Sample Collected by | LABORATORY | Test Commenced on | 23.12.2024 |
| Sample Collected on | 17.12.2024 | Test Completed on | 30.12.2024 |
| Temperature | 36°C | Relative Humidity | 25% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 71.5 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 34.6 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 8.2 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 14.9 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

Shrient Analytical & Research Labs Pvt. Ltd. Chennai - 45.

**Authorized Signatory**
**S. BALAMURUGAN**
**Asst.Technical Manager**

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# TEST REPORT

| Report No. | SARL/24/5058 |
|---|---|

| Report Date. | 30.12.2024 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A2-Thiruvakkarai Village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-5058 | Sample Received on | 23.12.2024 |
| Sample Collected by | LABORATORY | Test Commenced on | 23.12.2024 |
| Sample Collected on | 17.12.2024 | Test Completed on | 30.12.2024 |
| Temperature | 36°C | Relative Humidity | 25% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 46.5 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 20.9 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 5.7 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 9.7 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/24/5059 |
|---|---|

| Report Date. | 30.12.2024 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A1-Within Mine Lease area |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-5059 | Sample Received on | 23.12.2024 |
| Sample Collected by | LABORATORY | Test Commenced on | 23.12.2024 |
| Sample Collected on | 18.12.2024 | Test Completed on | 30.12.2024 |
| Temperature | 36°C | Relative Humidity | 27% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 73.1 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 35.1 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 8.1 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 15.5 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

Shrient Analytical & Research Labs Pvt. Ltd. Chennai - 45.

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/24/5060 |
|---|---|

| Report Date. | 30.12.2024 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A2-Thiruvakkarai Village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-5060 | Sample Received on | 23.12.2024 |
| Sample Collected by | LABORATORY | Test Commenced on | 23.12.2024 |
| Sample Collected on | 18.12.2024 | Test Completed on | 30.12.2024 |
| Temperature | 34°C | Relative Humidity | 28% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 48.7 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 21.9 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 6.2 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 10.8 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/24/5061 |
|---|---|

| Report Date. | 30.12.2024 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A3-Ponnampudi village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-5061 | Sample Received on | 23.12.2024 |
| Sample Collected by | LABORATORY | Test Commenced on | 23.12.2024 |
| Sample Collected on | 19.12.2024 | Test Completed on | 30.12.2024 |
| Temperature | 34°C | Relative Humidity | 28% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 51.7 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 24.8 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 6.4 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 9.5 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/24/5062 |
|---|---|

| Report Date. | 30.12.2024 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A4-Eraiyur Village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-5062 | Sample Received on | 23.12.2024 |
| Sample Collected by | LABORATORY | Test Commenced on | 23.12.2024 |
| Sample Collected on | 19.12.2024 | Test Completed on | 30.12.2024 |
| Temperature | 36°C | Relative Humidity | 27% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 51.4 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 24.7 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 8.7 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 10.5 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/24/5063 |
|---|---|

| Report Date. | 30.12.2024 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A3-Ponnampudi village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-5063 | Sample Received on | 23.12.2024 |
| Sample Collected by | LABORATORY | Test Commenced on | 23.12.2024 |
| Sample Collected on | 20.12.2024 | Test Completed on | 30.12.2024 |
| Temperature | 36°C | Relative Humidity | 27% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 56.9 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 27.3 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 7.3 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 10.7 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/24/5064 |
|---|---|

| Report Date. | 30.12.2024 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A4-Eraiyur Village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-5064 | Sample Received on | 23.12.2024 |
| Sample Collected by | LABORATORY | Test Commenced on | 23.12.2024 |
| Sample Collected on | 20.12.2024 | Test Completed on | 30.12.2024 |
| Temperature | 36°C | Relative Humidity | 28% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 54.0 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 25.9 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 8.9 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 10.1 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

Shrient Analytical & Research Labs Pvt. Ltd. Chennai - 45.

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

***END OF THE REPORT***

Please Contact:
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# TEST REPORT

| Report No. | SARL/24/5065 |
|---|---|

| Report Date. | 30.12.2024 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A5-koddukkur village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-5065 | Sample Received on | 23.12.2024 |
| Sample Collected by | LABORATORY | Test Commenced on | 23.12.2024 |
| Sample Collected on | 21.12.2024 | Test Completed on | 30.12.2024 |
| Temperature | 36°C | Relative Humidity | 26% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 52.9 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 25.4 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 9.1 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 12.0 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

Shrient Analytical & Research Labs Pvt. Ltd. Chennai - 45.

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/24/5066 |
|---|---|

| Report Date. | 30.12.2024 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A6-Pombur Village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-5066 | Sample Received on | 23.12.2024 |
| Sample Collected by | LABORATORY | Test Commenced on | 23.12.2024 |
| Sample Collected on | 21.12.2024 | Test Completed on | 30.12.2024 |
| Temperature | 36°C | Relative Humidity | 28% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 47.9 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 23.0 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 8.1 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 9.0 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

Shrient Analytical & Research Labs Pvt. Ltd. Chennai - 45.

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/24/5067 | Report Date. | 30.12.2024 |
|---|---|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A5-koddukkur village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-5067 | Sample Received on | 23.12.2024 |
| Sample Collected by | LABORATORY | Test Commenced on | 23.12.2024 |
| Sample Collected on | 22.12.2024 | Test Completed on | 30.12.2024 |
| Temperature | 35°C | Relative Humidity | 32% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 51.1 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 24.5 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 8.7 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 11.6 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

Shrient Analytical & Research Labs Pvt. Ltd. Chennai - 45

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/24/5068 |
|---|---|

| Report Date. | 30.12.2024 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A6-Pombur Village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-5068 | Sample Received on | 23.12.2024 |
| Sample Collected by | LABORATORY | Test Commenced on | 23.12.2024 |
| Sample Collected on | 22.12.2024 | Test Completed on | 30.12.2024 |
| Temperature | 35°C | Relative Humidity | 32% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 50.8 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 24.4 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 8.8 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 9.5 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

Shrient Analytical & Research Labs Pvt. Ltd. Chennai - 45

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0280 |
|---|---|

| Report Date. | 06.01.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A5-koddukkur village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0280 | Sample Received on | 30.12.2024 |
| Sample Collected by | LABORATORY | Test Commenced on | 30.12.2024 |
| Sample Collected on | 24.12.2024 | Test Completed on | 06.01.2025 |
| Temperature | 36°C | Relative Humidity | 30% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 46.4 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 22.3 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 7.9 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 10.7 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0281 |
|---|---|

| Report Date. | 06.01.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A6-Pombur Village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0281 | Sample Received on | 30.12.2024 |
| Sample Collected by | LABORATORY | Test Commenced on | 30.12.2024 |
| Sample Collected on | 24.12.2024 | Test Completed on | 06.01.2025 |
| Temperature | 36°C | Relative Humidity | 30% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 50.0 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 24.0 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 8.6 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 9.4 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0282 | Report Date. | 06.01.2025 |
|---|---|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A5-koddukkur village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0282 | Sample Received on | 30.12.2024 |
| Sample Collected by | LABORATORY | Test Commenced on | 30.12.2024 |
| Sample Collected on | 25.12.2024 | Test Completed on | 06.01.2025 |
| Temperature | 36°C | Relative Humidity | 30% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 50.3 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 24.1 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 8.7 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 11.5 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0283 | Report Date. | 06.01.2025 |
|---|---|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A6-Pombur Village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0283 | Sample Received on | 30.12.2024 |
| Sample Collected by | LABORATORY | Test Commenced on | 30.12.2024 |
| Sample Collected on | 25.12.2024 | Test Completed on | 06.01.2025 |
| Temperature | 37°C | Relative Humidity | 21% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 47.6 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 22.8 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 8.0 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 8.9 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

Shrient Analytical & Research Labs Pvt. Ltd. Chennai - 45.

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

***END OF THE REPORT***

Please Contact:
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Phone Number +91 82208 36377 Email: - **info@shrientanalytical.com**
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# TEST REPORT

| Report No. | SARL/25/0284 |
|---|---|

| Report Date. | 06.01.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A3-Ponnampudi village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0284 | Sample Received on | 30.12.2024 |
| Sample Collected by | LABORATORY | Test Commenced on | 30.12.2024 |
| Sample Collected on | 26.12.2024 | Test Completed on | 06.01.2025 |
| Temperature | 37°C | Relative Humidity | 23% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 53.5 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 25.7 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 6.7 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 9.6 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0285 | Report Date. | 06.01.2025 |
|---|---|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A4-Eraiyur Village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0285 | Sample Received on | 30.12.2024 |
| Sample Collected by | LABORATORY | Test Commenced on | 30.12.2024 |
| Sample Collected on | 26.12.2024 | Test Completed on | 06.01.2025 |
| Temperature | 37°C | Relative Humidity | 23% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 56.2 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 27.0 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 8.8 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 9.3 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0286 |
|---|---|

| Report Date. | 06.01.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A3-Ponnampudi village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0286 | Sample Received on | 30.12.2024 |
| Sample Collected by | LABORATORY | Test Commenced on | 30.12.2024 |
| Sample Collected on | 27.12.2024 | Test Completed on | 06.01.2025 |
| Temperature | 36°C | Relative Humidity | 30% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 59.2 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 28.4 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 7.4 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 10.8 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

Shrient Analytical & Research Labs Pvt. Ltd. Chennai - 45.

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0287 | Report Date. | 06.01.2025 |
|---|---|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A4-Eraiyur Village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0287 | Sample Received on | 30.12.2024 |
| Sample Collected by | LABORATORY | Test Commenced on | 30.12.2024 |
| Sample Collected on | 27.12.2024 | Test Completed on | 06.01.2025 |
| Temperature | 36°C | Relative Humidity | 30% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 48.1 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 23.1 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 8.0 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 10.0 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

Shrient Analytical & Research Labs Pvt. Ltd. Chennai - 45

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0288 |
|---|---|

| Report Date. | 06.01.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A1-Within Mine Lease area |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0288 | Sample Received on | 30.12.2024 |
| Sample Collected by | LABORATORY | Test Commenced on | 30.12.2024 |
| Sample Collected on | 28.12.2024 | Test Completed on | 06.01.2025 |
| Temperature | 36°C | Relative Humidity | 30% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 68.3 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 32.8 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 7.7 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 13.7 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0289 | Report Date. | 06.01.2025 |
|---|---|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A2-Thiruvakkarai Village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0289 | Sample Received on | 30.12.2024 |
| Sample Collected by | LABORATORY | Test Commenced on | 30.12.2024 |
| Sample Collected on | 28.12.2024 | Test Completed on | 06.01.2025 |
| Temperature | 35°C | Relative Humidity | 30% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 51.1 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 23.0 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 7.0 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 11.1 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0290 |
|---|---|

| Report Date. | 06.01.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A1-Within Mine Lease area |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0290 | Sample Received on | 30.12.2024 |
| Sample Collected by | LABORATORY | Test Commenced on | 30.12.2024 |
| Sample Collected on | 29.12.2024 | Test Completed on | 06.01.2025 |
| Temperature | 35°C | Relative Humidity | 30% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 63.6 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 30.5 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 7.3 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 11.8 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0291 |
|---|---|

| Report Date. | 06.01.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A2-Thiruvakkarai Village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0291 | Sample Received on | 30.12.2024 |
| Sample Collected by | LABORATORY | Test Commenced on | 30.12.2024 |
| Sample Collected on | 29.12.2024 | Test Completed on | 06.01.2025 |
| Temperature | 35°C | Relative Humidity | 30% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 47.9 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 21.6 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 6.1 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 10.2 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

***END OF THE REPORT***

Please Contact:
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# TEST REPORT

| Report No. | SARL/25/0334 |
|---|---|

| Report Date. | 13.01.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A1-Within Mine Lease area |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0334 | Sample Received on | 06.01.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 06.01.2025 |
| Sample Collected on | 31.12.2024 | Test Completed on | 13.01.2025 |
| Temperature | 36°C | Relative Humidity | 25% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 68.2 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 32.7 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 7.9 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 13.9 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

Shrient Analytical & Research Labs Pvt. Ltd. Chennai - 45.

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0335 |
|---|---|

| Report Date. | 13.01.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A2-Thiruvakkarai Village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0335 | Sample Received on | 06.01.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 06.01.2025 |
| Sample Collected on | 31.12.2024 | Test Completed on | 13.01.2025 |
| Temperature | 36°C | Relative Humidity | 25% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 55.5 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 25.0 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 7.7 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 11.9 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0336 |
|---|---|

| Report Date. | 13.01.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A1-Within Mine Lease area |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0336 | Sample Received on | 06.01.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 06.01.2025 |
| Sample Collected on | 01.01.2025 | Test Completed on | 13.01.2025 |
| Temperature | 36°C | Relative Humidity | 27% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 61.7 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 29.6 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 7.5 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 11.8 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0337 |
|---|---|

| Report Date. | 13.01.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A2-Thiruvakkarai Village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0337 | Sample Received on | 06.01.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 06.01.2025 |
| Sample Collected on | 01.01.2025 | Test Completed on | 13.01.2025 |
| Temperature | 34°C | Relative Humidity | 28% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 52.8 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 23.8 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 7.3 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 11.5 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

Shrient Analytical & Research Labs Pvt. Ltd. Chennai - 45.

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0338 |
|---|---|

| Report Date. | 13.01.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A3-Ponnampudi village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0338 | Sample Received on | 06.01.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 06.01.2025 |
| Sample Collected on | 02.01.2025 | Test Completed on | 13.01.2025 |
| Temperature | 34°C | Relative Humidity | 28% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 60.5 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 29.0 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 7.6 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 11.3 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0339 |
|---|---|

| Report Date. | 13.01.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A4-Eraiyur Village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0339 | Sample Received on | 06.01.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 06.01.2025 |
| Sample Collected on | 02.01.2025 | Test Completed on | 13.01.2025 |
| Temperature | 36°C | Relative Humidity | 27% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 46.3 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 22.2 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 7.3 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 9.2 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0340 |
|---|---|

| Report Date. | 13.01.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A3-Ponnampudi village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0340 | Sample Received on | 06.01.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 06.01.2025 |
| Sample Collected on | 03.01.2025 | Test Completed on | 13.01.2025 |
| Temperature | 36°C | Relative Humidity | 27% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 54.0 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 25.9 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 6.8 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 10.0 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

Shrient Analytical & Research Labs Pvt. Ltd. Chennai - 45.

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0341 |
|---|---|

| Report Date. | 13.01.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A4-Eraiyur Village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0341 | Sample Received on | 06.01.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 06.01.2025 |
| Sample Collected on | 03.01.2025 | Test Completed on | 13.01.2025 |
| Temperature | 36°C | Relative Humidity | 28% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 49.8 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 23.9 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 8.2 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 9.9 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

***END OF THE REPORT***

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# TEST REPORT

| Report No. | SARL/25/0342 | Report Date. | 13.01.2025 |
|---|---|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A5-koddukkur village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0342 | Sample Received on | 06.01.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 06.01.2025 |
| Sample Collected on | 04.01.2025 | Test Completed on | 13.01.2025 |
| Temperature | 36°C | Relative Humidity | 26% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 49.6 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 23.8 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 8.4 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 11.2 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

Shrient Analytical & Research Labs Pvt. Ltd. Chennai - 45

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0343 |
|---|---|

| Report Date. | 13.01.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A6-Pombur Village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0343 | Sample Received on | 06.01.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 06.01.2025 |
| Sample Collected on | 04.01.2025 | Test Completed on | 13.01.2025 |
| Temperature | 36°C | Relative Humidity | 28% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 46.8 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 22.5 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 7.8 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 8.6 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

Shrient Analytical & Research Labs Pvt. Ltd. Chennai - 45.

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0344 | Report Date. | 13.01.2025 |
|---|---|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A5-koddukkur village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0344 | Sample Received on | 06.01.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 06.01.2025 |
| Sample Collected on | 05.01.2025 | Test Completed on | 13.01.2025 |
| Temperature | 35°C | Relative Humidity | 32% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 47.0 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 22.6 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 8.1 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 10.8 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

Shrient Analytical & Research Labs Pvt. Ltd. Chennai - 45

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0345 |
|---|---|

| Report Date. | 13.01.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A6-Pombur Village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0345 | Sample Received on | 06.01.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 06.01.2025 |
| Sample Collected on | 05.01.2025 | Test Completed on | 13.01.2025 |
| Temperature | 35°C | Relative Humidity | 32% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 49.1 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 23.6 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 8.3 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 9.2 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0388 |
|---|---|

| Report Date. | 20.01.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A5-koddukkur village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0388 | Sample Received on | 13.01.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 13.01.2025 |
| Sample Collected on | 07.01.2025 | Test Completed on | 20.01.2025 |
| Temperature | 36°C | Relative Humidity | 30% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 54.5 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 26.2 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 9.3 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 12.3 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

Shrient Analytical & Research Labs Pvt. Ltd. Chennai - 45.

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0389 |
|---|---|

| Report Date. | 20.01.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A6-Pombur Village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0389 | Sample Received on | 13.01.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 13.01.2025 |
| Sample Collected on | 07.01.2025 | Test Completed on | 20.01.2025 |
| Temperature | 36°C | Relative Humidity | 30% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 50.3 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 24.1 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 9.4 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 10.5 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0390 | Report Date. | 20.01.2025 |
|---|---|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A5-koddukkur village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0390 | Sample Received on | 13.01.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 13.01.2025 |
| Sample Collected on | 08.01.2025 | Test Completed on | 20.01.2025 |
| Temperature | 36°C | Relative Humidity | 30% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | µg/m$^3$ | 52.0 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | µg/m$^3$ | 25.0 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | µg/m$^3$ | 9.0 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | µg/m$^3$ | 11.8 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | mg/m$^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

Shrient Analytical & Research Labs Pvt. Ltd. Chennai - 45

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0391 | Report Date. | 20.01.2025 |
|---|---|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A6-Pombur Village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0391 | Sample Received on | 13.01.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 13.01.2025 |
| Sample Collected on | 08.01.2025 | Test Completed on | 20.01.2025 |
| Temperature | 37°C | Relative Humidity | 21% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 49.5 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 23.8 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 9.0 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 10.0 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

Shrient Analytical & Research Labs Pvt. Ltd. Chennai - 45.

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

*****END OF THE REPORT*****

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# TEST REPORT

| Report No. | SARL/25/0392 | Report Date. | 20.01.2025 |
|---|---|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A3-Ponnampudi village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0392 | Sample Received on | 13.01.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 13.01.2025 |
| Sample Collected on | 09.01.2025 | Test Completed on | 20.01.2025 |
| Temperature | 37°C | Relative Humidity | 23% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 55.8 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 26.8 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 7.0 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 10.2 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0393 | Report Date. | 20.01.2025 |
|---|---|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A4-Eraiyur Village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0393 | Sample Received on | 13.01.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 13.01.2025 |
| Sample Collected on | 09.01.2025 | Test Completed on | 20.01.2025 |
| Temperature | 37°C | Relative Humidity | 23% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 51.3 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 24.6 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 8.6 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 10.3 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0394 | Report Date. | 20.01.2025 |
|---|---|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A3-Ponnampudi village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0394 | Sample Received on | 13.01.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 13.01.2025 |
| Sample Collected on | 10.01.2025 | Test Completed on | 20.01.2025 |
| Temperature | 36°C | Relative Humidity | 30% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 52.1 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 25.0 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 6.7 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 9.8 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

Shrient Analytical & Research Labs Pvt. Ltd. Chennai - 45

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0395 |
|---|---|

| Report Date. | 20.01.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A4-Eraiyur Village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0395 | Sample Received on | 13.01.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 13.01.2025 |
| Sample Collected on | 10.01.2025 | Test Completed on | 20.01.2025 |
| Temperature | 36°C | Relative Humidity | 30% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 49.2 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 23.6 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 8.0 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 10.0 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0396 |
|---|---|

| Report Date. | 20.01.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A1-Within Mine Lease area |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0396 | Sample Received on | 13.01.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 13.01.2025 |
| Sample Collected on | 11.01.2025 | Test Completed on | 20.01.2025 |
| Temperature | 36°C | Relative Humidity | 30% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 73.9 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 35.5 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 8.4 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 15.6 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0397 | Report Date. | 20.01.2025 |
|---|---|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A2-Thiruvakkarai Village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0397 | Sample Received on | 13.01.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 13.01.2025 |
| Sample Collected on | 11.01.2025 | Test Completed on | 20.01.2025 |
| Temperature | 35°C | Relative Humidity | 30% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 52.2 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 23.5 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 7.0 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 11.2 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

***END OF THE REPORT***

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0398 |
|---|---|

| Report Date. | 20.01.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A1-Within Mine Lease area |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0398 | Sample Received on | 13.01.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 13.01.2025 |
| Sample Collected on | 12.01.2025 | Test Completed on | 20.01.2025 |
| Temperature | 35°C | Relative Humidity | 30% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 67.1 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 32.2 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 7.7 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 13.5 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

Shrient Analytical & Research Labs Pvt. Ltd. Chennai - 45.

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0399 | Report Date. | 20.01.2025 |
|---|---|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A2-Thiruvakkarai Village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0399 | Sample Received on | 13.01.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 13.01.2025 |
| Sample Collected on | 12.01.2025 | Test Completed on | 20.01.2025 |
| Temperature | 35°C | Relative Humidity | 30% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 46.9 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 21.1 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 5.8 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 10.0 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

***END OF THE REPORT***

Please Contact:
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# TEST REPORT

| Report No. | SARL/25/0442 |
|---|---|

| Report Date. | 27.01.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A1-Within Mine Lease area |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0442 | Sample Received on | 20.01.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 20.01.2025 |
| Sample Collected on | 14.01.2025 | Test Completed on | 27.01.2025 |
| Temperature | 36°C | Relative Humidity | 25% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 62.8 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 30.1 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 7.5 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 12.1 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

Shrient Analytical & Research Labs Pvt. Ltd. Chennai - 45.

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0443 |
|---|---|

| Report Date. | 27.01.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A2-Thiruvakkarai Village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0443 | Sample Received on | 20.01.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 20.01.2025 |
| Sample Collected on | 14.01.2025 | Test Completed on | 27.01.2025 |
| Temperature | 36°C | Relative Humidity | 25% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 53.3 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 24.0 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 7.4 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 11.7 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

Shrient Analytical & Research Labs Pvt. Ltd. Chennai - 45

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0444 |
|---|---|

| Report Date. | 27.01.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A1-Within Mine Lease area |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0444 | Sample Received on | 20.01.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 20.01.2025 |
| Sample Collected on | 15.01.2025 | Test Completed on | 27.01.2025 |
| Temperature | 36°C | Relative Humidity | 27% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 66.5 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 31.9 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 7.9 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 13.3 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

***END OF THE REPORT***

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0445 |
|---|---|

| Report Date. | 27.01.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A2-Thiruvakkarai Village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0445 | Sample Received on | 20.01.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 20.01.2025 |
| Sample Collected on | 15.01.2025 | Test Completed on | 27.01.2025 |
| Temperature | 34°C | Relative Humidity | 28% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 51.0 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 23.0 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 6.6 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 11.1 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

Shrient Analytical & Research Labs Pvt. Ltd. Chennai - 45.

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0446 |
|---|---|

| Report Date. | 27.01.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A3-Ponnampudi village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0446 | Sample Received on | 20.01.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 20.01.2025 |
| Sample Collected on | 16.01.2025 | Test Completed on | 27.01.2025 |
| Temperature | 34°C | Relative Humidity | 28% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 57.9 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 27.8 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 7.5 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 10.9 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0447 | Report Date. | 27.01.2025 |
|---|---|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A4-Eraiyur Village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0447 | Sample Received on | 20.01.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 20.01.2025 |
| Sample Collected on | 16.01.2025 | Test Completed on | 27.01.2025 |
| Temperature | 36°C | Relative Humidity | 27% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 54.1 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 26.0 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 8.7 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 9.1 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

Shrient Analytical & Research Labs Pvt. Ltd. Chennai - 45.

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0448 | Report Date. | 27.01.2025 |
|---|---|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A3-Ponnampudi village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0448 | Sample Received on | 20.01.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 20.01.2025 |
| Sample Collected on | 17.01.2025 | Test Completed on | 27.01.2025 |
| Temperature | 36°C | Relative Humidity | 27% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 55.5 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 26.6 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 7.3 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 10.6 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0449 | Report Date. | 27.01.2025 |
|---|---|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A4-Eraiyur Village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0449 | Sample Received on | 20.01.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 20.01.2025 |
| Sample Collected on | 17.01.2025 | Test Completed on | 27.01.2025 |
| Temperature | 36°C | Relative Humidity | 28% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 49.8 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 23.9 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 9.1 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 11.2 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

Shrient Analytical & Research Labs Pvt. Ltd. Chennai - 45.

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

***END OF THE REPORT***

Please Contact:
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Phone Number +91 82208 36377 Email: - **info@shrientanalytical.com**
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# TEST REPORT

| Report No. | SARL/25/0450 |
|---|---|

| Report Date. | 27.01.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A5-koddukkur village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0450 | Sample Received on | 20.01.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 20.01.2025 |
| Sample Collected on | 18.01.2025 | Test Completed on | 27.01.2025 |
| Temperature | 36°C | Relative Humidity | 26% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 57.8 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 27.7 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 10.4 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 13.6 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

Shrient Analytical & Research Labs Pvt. Ltd. Chennai - 45.

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0451 |
|---|---|

| Report Date. | 27.01.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A6-Pombur Village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0451 | Sample Received on | 20.01.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 20.01.2025 |
| Sample Collected on | 18.01.2025 | Test Completed on | 27.01.2025 |
| Temperature | 36°C | Relative Humidity | 28% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 50.2 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 24.1 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 9.2 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 10.2 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0452 | Report Date. | 27.01.2025 |
|---|---|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A5-koddukkur village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0452 | Sample Received on | 20.01.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 20.01.2025 |
| Sample Collected on | 19.01.2025 | Test Completed on | 27.01.2025 |
| Temperature | 35°C | Relative Humidity | 32% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 54.9 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 26.4 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 9.5 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 12.5 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0453 |
|---|---|

| Report Date. | 27.01.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A6-Pombur Village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0453 | Sample Received on | 20.01.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 20.01.2025 |
| Sample Collected on | 19.01.2025 | Test Completed on | 27.01.2025 |
| Temperature | 35°C | Relative Humidity | 32% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 52.0 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 25.0 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 9.8 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 10.9 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0496 |
|---|---|

| Report Date. | 06.02.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A5-koddukkur village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0496 | Sample Received on | 28.01.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 28.01.2025 |
| Sample Collected on | 21.01.2025 | Test Completed on | 06.02.2025 |
| Temperature | 36°C | Relative Humidity | 30% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 56.8 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 27.3 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 10.2 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 13.2 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

***END OF THE REPORT***

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0497 |
|---|---|

| Report Date. | 06.02.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A6-Pombur Village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0497 | Sample Received on | 28.01.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 28.01.2025 |
| Sample Collected on | 21.01.2025 | Test Completed on | 06.02.2025 |
| Temperature | 36°C | Relative Humidity | 30% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 54.1 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 26.0 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 10.3 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 11.4 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0498 | Report Date. | 06.02.2025 |
|---|---|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A5-koddukkur village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0498 | Sample Received on | 28.01.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 28.01.2025 |
| Sample Collected on | 22.01.2025 | Test Completed on | 06.02.2025 |
| Temperature | 36°C | Relative Humidity | 30% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 54.1 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 26.0 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 9.3 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 12.3 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0499 | Report Date. | 06.02.2025 |
|---|---|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A6-Pombur Village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0499 | Sample Received on | 28.01.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 28.01.2025 |
| Sample Collected on | 22.01.2025 | Test Completed on | 06.02.2025 |
| Temperature | 37°C | Relative Humidity | 21% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 51.6 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 24.8 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 9.5 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 10.6 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

***END OF THE REPORT***

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0500 |
|---|---|

| Report Date. | 06.02.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A3-Ponnampudi village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0500 | Sample Received on | 28.01.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 28.01.2025 |
| Sample Collected on | 23.01.2025 | Test Completed on | 06.02.2025 |
| Temperature | 37°C | Relative Humidity | 23% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 52.0 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 25.0 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 6.6 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 9.5 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0501 |
|---|---|

| Report Date. | 06.02.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A4-Eraiyur Village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0501 | Sample Received on | 28.01.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 28.01.2025 |
| Sample Collected on | 23.01.2025 | Test Completed on | 06.02.2025 |
| Temperature | 37°C | Relative Humidity | 23% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 55.5 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 26.6 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 7.9 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 9.6 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0502 |
|---|---|

| Report Date. | 06.02.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A3-Ponnampudi village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0502 | Sample Received on | 28.01.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 28.01.2025 |
| Sample Collected on | 24.01.2025 | Test Completed on | 06.02.2025 |
| Temperature | 36°C | Relative Humidity | 30% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 56.7 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 27.2 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 7.4 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 10.8 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0503 |
|---|---|

| Report Date. | 06.02.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A4-Eraiyur Village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0503 | Sample Received on | 28.01.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 28.01.2025 |
| Sample Collected on | 24.01.2025 | Test Completed on | 06.02.2025 |
| Temperature | 36°C | Relative Humidity | 30% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 45.7 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 21.9 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 8.4 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 10.1 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

***END OF THE REPORT***

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0504 |
|---|---|

| Report Date. | 06.02.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A1-Within Mine Lease area |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0504 | Sample Received on | 28.01.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 28.01.2025 |
| Sample Collected on | 25.01.2025 | Test Completed on | 06.02.2025 |
| Temperature | 36°C | Relative Humidity | 30% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 64.2 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 30.7 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 7.7 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 12.6 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0505 |
|---|---|

| Report Date. | 06.02.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A2-Thiruvakkarai Village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0505 | Sample Received on | 28.01.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 28.01.2025 |
| Sample Collected on | 25.01.2025 | Test Completed on | 06.02.2025 |
| Temperature | 35°C | Relative Humidity | 30% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 53.8 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 24.2 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 7.5 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 11.8 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0506 |
|---|---|

| Report Date. | 06.02.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A1-Within Mine Lease area |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0506 | Sample Received on | 28.01.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 28.01.2025 |
| Sample Collected on | 27.01.2025 | Test Completed on | 06.02.2025 |
| Temperature | 35°C | Relative Humidity | 30% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 67.6 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 32.4 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 8.2 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 13.8 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0507 |
|---|---|

| Report Date. | 06.02.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A2-Thiruvakkarai Village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0507 | Sample Received on | 28.01.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 28.01.2025 |
| Sample Collected on | 27.01.2025 | Test Completed on | 06.02.2025 |
| Temperature | 35°C | Relative Humidity | 30% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 49.1 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 22.1 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 6.7 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 10.9 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

***END OF THE REPORT***

Please Contact:
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# TEST REPORT

| Report No. | SARL/25/0550 |
|---|---|

| Report Date. | 10.02.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A1-Within Mine Lease area |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0550 | Sample Received on | 03.02.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 03.02.2025 |
| Sample Collected on | 28.01.2025 | Test Completed on | 10.02.2025 |
| Temperature | 36°C | Relative Humidity | 25% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 68.8 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 33.0 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 8.1 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 14.2 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

Shrient Analytical & Research Labs Pvt. Ltd. Chennai - 45.

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0551 |
|---|---|

| Report Date. | 10.02.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A2-Thiruvakkarai Village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0551 | Sample Received on | 03.02.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 03.02.2025 |
| Sample Collected on | 28.01.2025 | Test Completed on | 10.02.2025 |
| Temperature | 36°C | Relative Humidity | 25% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 46.7 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 21.0 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 5.8 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 10.0 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

***END OF THE REPORT***

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0552 |
|---|---|

| Report Date. | 10.02.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A1-Within Mine Lease area |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0552 | Sample Received on | 03.02.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 03.02.2025 |
| Sample Collected on | 29.01.2025 | Test Completed on | 10.02.2025 |
| Temperature | 36°C | Relative Humidity | 27% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 70.6 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 33.9 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 8.3 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 14.5 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0553 |
|---|---|

| Report Date. | 10.02.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A2-Thiruvakkarai Village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0553 | Sample Received on | 03.02.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 03.02.2025 |
| Sample Collected on | 29.01.2025 | Test Completed on | 10.02.2025 |
| Temperature | 34°C | Relative Humidity | 28% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 50.6 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 22.8 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 6.6 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 10.8 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0554 |
|---|---|

| Report Date. | 10.02.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A3-Ponnampudi village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0554 | Sample Received on | 03.02.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 03.02.2025 |
| Sample Collected on | 30.01.2025 | Test Completed on | 10.02.2025 |
| Temperature | 34°C | Relative Humidity | 28% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 53.2 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 25.5 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 7.0 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 10.0 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0555 |
|---|---|

| Report Date. | 10.02.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A4-Eraiyur Village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0555 | Sample Received on | 03.02.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 03.02.2025 |
| Sample Collected on | 30.01.2025 | Test Completed on | 10.02.2025 |
| Temperature | 36°C | Relative Humidity | 27% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 49.8 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 23.9 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 8.0 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 9.8 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0556 |
|---|---|

| Report Date. | 10.02.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A3-Ponnampudi village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0556 | Sample Received on | 03.02.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 03.02.2025 |
| Sample Collected on | 31.01.2025 | Test Completed on | 10.02.2025 |
| Temperature | 36°C | Relative Humidity | 27% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 49.9 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 24.0 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 6.1 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 9.3 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

Shrient Analytical & Research Labs Pvt. Ltd. Chennai - 45.

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0557 |
|---|---|

| Report Date. | 10.02.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A4-Eraiyur Village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0557 | Sample Received on | 03.02.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 03.02.2025 |
| Sample Collected on | 31.01.2025 | Test Completed on | 10.02.2025 |
| Temperature | 36°C | Relative Humidity | 28% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 47.0 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 22.6 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 8.3 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 10.3 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

Shrient Analytical & Research Labs Pvt. Ltd. Chennai - 45.

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0558 |
|---|---|

| Report Date. | 10.02.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A5-koddukkur village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0558 | Sample Received on | 03.02.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 03.02.2025 |
| Sample Collected on | 01.02.2025 | Test Completed on | 10.02.2025 |
| Temperature | 36°C | Relative Humidity | 26% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 52.6 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 25.2 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 9.1 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 11.9 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

Shrient Analytical & Research Labs Pvt. Ltd. Chennai - 45.

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0559 |
|---|---|

| Report Date. | 10.02.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A6-Pombur Village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0559 | Sample Received on | 03.02.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 03.02.2025 |
| Sample Collected on | 01.02.2025 | Test Completed on | 10.02.2025 |
| Temperature | 36°C | Relative Humidity | 28% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 48.1 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 23.1 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 8.6 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 9.8 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

Shrient Analytical & Research Labs Pvt. Ltd. Chennai - 45

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0560 |
|---|---|

| Report Date. | 10.02.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A5-koddukkur village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0560 | Sample Received on | 03.02.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 03.02.2025 |
| Sample Collected on | 02.02.2025 | Test Completed on | 10.02.2025 |
| Temperature | 35°C | Relative Humidity | 32% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 55.1 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 26.4 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 9.6 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 12.6 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0561 |
|---|---|

| Report Date. | 10.02.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A6-Pombur Village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0561 | Sample Received on | 03.02.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 03.02.2025 |
| Sample Collected on | 02.02.2025 | Test Completed on | 10.02.2025 |
| Temperature | 35°C | Relative Humidity | 32% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 46.5 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 22.3 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 8.2 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 9.3 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0604 |
|---|---|

| Report Date. | 17.02.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A5-koddukkur village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0604 | Sample Received on | 10.02.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 10.02.2025 |
| Sample Collected on | 04.02.2025 | Test Completed on | 17.02.2025 |
| Temperature | 36°C | Relative Humidity | 30% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 51.7 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 24.8 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 8.8 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 11.7 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

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**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0605 |
|---|---|

| Report Date. | 17.02.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A6-Pombur Village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0605 | Sample Received on | 10.02.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 10.02.2025 |
| Sample Collected on | 04.02.2025 | Test Completed on | 17.02.2025 |
| Temperature | 36°C | Relative Humidity | 30% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 52.9 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 25.4 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 10.1 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 11.2 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

Shrient Analytical & Research Labs Pvt. Ltd Chennai - 45

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0606 |
|---|---|

| Report Date. | 17.02.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A5-koddukkur village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0606 | Sample Received on | 10.02.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 10.02.2025 |
| Sample Collected on | 05.02.2025 | Test Completed on | 17.02.2025 |
| Temperature | 36°C | Relative Humidity | 30% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 50.5 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 24.2 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 8.4 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 11.4 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

Shrient Analytical & Research Labs Pvt. Ltd. Chennai - 45

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0607 | Report Date. | 17.02.2025 |
|---|---|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A6-Pombur Village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0607 | Sample Received on | 10.02.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 10.02.2025 |
| Sample Collected on | 05.02.2025 | Test Completed on | 17.02.2025 |
| Temperature | 37°C | Relative Humidity | 21% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 47.8 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 22.9 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 8.4 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 9.6 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

Shrient Analytical & Research Labs Pvt. Ltd. Chennai - 45.

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0608 |
|---|---|

| Report Date. | 17.02.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A3-Ponnampudi village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0608 | Sample Received on | 10.02.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 10.02.2025 |
| Sample Collected on | 06.02.2025 | Test Completed on | 17.02.2025 |
| Temperature | 37°C | Relative Humidity | 23% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 52.5 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 25.2 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 6.8 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 9.8 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0609 | Report Date. | 17.02.2025 |
|---|---|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A4-Eraiyur Village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0609 | Sample Received on | 10.02.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 10.02.2025 |
| Sample Collected on | 06.02.2025 | Test Completed on | 17.02.2025 |
| Temperature | 37°C | Relative Humidity | 23% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 48.6 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 23.3 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 9.1 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 11.5 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0610 |
|---|---|

| Report Date. | 17.02.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A3-Ponnampudi village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0610 | Sample Received on | 10.02.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 10.02.2025 |
| Sample Collected on | 07.02.2025 | Test Completed on | 17.02.2025 |
| Temperature | 36°C | Relative Humidity | 30% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 50.8 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 24.4 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 6.3 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 9.2 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

Shrient Analytical & Research Labs Pvt. Ltd. Chennai - 45

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0611 | Report Date. | 17.02.2025 |
|---|---|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A4-Eraiyur Village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0611 | Sample Received on | 10.02.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 10.02.2025 |
| Sample Collected on | 07.02.2025 | Test Completed on | 17.02.2025 |
| Temperature | 36°C | Relative Humidity | 30% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 56.2 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 27.0 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 8.8 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 10.9 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

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**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0612 | Report Date. | 17.02.2025 |
|---|---|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A1-Within Mine Lease area |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0612 | Sample Received on | 10.02.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 10.02.2025 |
| Sample Collected on | 08.02.2025 | Test Completed on | 17.02.2025 |
| Temperature | 36°C | Relative Humidity | 30% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 61.8 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 29.7 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 7.1 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 10.1 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

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**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0613 |
|---|---|

| Report Date. | 17.02.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A2-Thiruvakkarai Village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0613 | Sample Received on | 10.02.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 10.02.2025 |
| Sample Collected on | 08.02.2025 | Test Completed on | 17.02.2025 |
| Temperature | 35°C | Relative Humidity | 30% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 45.3 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 20.4 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 5.4 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 9.6 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

***END OF THE REPORT***

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0614 |
|---|---|

| Report Date. | 17.02.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A1-Within Mine Lease area |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0614 | Sample Received on | 10.02.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 10.02.2025 |
| Sample Collected on | 09.02.2025 | Test Completed on | 17.02.2025 |
| Temperature | 35°C | Relative Humidity | 30% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 66.5 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 31.9 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 7.6 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 13.2 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

Shrient Analytical & Research Labs Pvt. Ltd. Chennai - 45.

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0615 | Report Date. | 17.02.2025 |
|---|---|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A2-Thiruvakkarai Village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0615 | Sample Received on | 10.02.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 10.02.2025 |
| Sample Collected on | 09.02.2025 | Test Completed on | 17.02.2025 |
| Temperature | 35°C | Relative Humidity | 30% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 49.0 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 22.1 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 6.3 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 10.7 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

***END OF THE REPORT***

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# TEST REPORT

| Report No. | SARL/25/0658 |
|---|---|

| Report Date. | 24.02.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A1-Within Mine Lease area |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0658 | Sample Received on | 17.02.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 17.02.2025 |
| Sample Collected on | 11.02.2025 | Test Completed on | 24.02.2025 |
| Temperature | 36°C | Relative Humidity | 25% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 64.3 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 30.8 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 7.4 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 12.2 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

Shrient Analytical & Research Labs Pvt. Ltd. Chennai - 45.

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0659 | Report Date. | 24.02.2025 |
|---|---|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A2-Thiruvakkarai Village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0659 | Sample Received on | 17.02.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 17.02.2025 |
| Sample Collected on | 11.02.2025 | Test Completed on | 24.02.2025 |
| Temperature | 36°C | Relative Humidity | 25% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 48.2 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 21.7 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 6.1 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 10.2 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0660 |
|---|---|

| Report Date. | 24.02.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A1-Within Mine Lease area |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0660 | Sample Received on | 17.02.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 17.02.2025 |
| Sample Collected on | 12.02.2025 | Test Completed on | 24.02.2025 |
| Temperature | 36°C | Relative Humidity | 27% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 65.8 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 31.7 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 7.7 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 12.8 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0661 |
|---|---|

| Report Date. | 24.02.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A2-Thiruvakkarai Village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0661 | Sample Received on | 17.02.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 17.02.2025 |
| Sample Collected on | 12.02.2025 | Test Completed on | 24.02.2025 |
| Temperature | 34°C | Relative Humidity | 28% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 52.9 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 23.8 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 7.4 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 11.5 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

Shrient Analytical & Research Labs Pvt. Ltd. Chennai - 45.

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0662 |
|---|---|

| Report Date. | 24.02.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A3-Ponnampudi village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0662 | Sample Received on | 17.02.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 17.02.2025 |
| Sample Collected on | 13.02.2025 | Test Completed on | 24.02.2025 |
| Temperature | 34°C | Relative Humidity | 28% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 58.6 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 28.1 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 7.6 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 10.8 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0663 | Report Date. | 24.02.2025 |
|---|---|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A4-Eraiyur Village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0663 | Sample Received on | 17.02.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 17.02.2025 |
| Sample Collected on | 13.02.2025 | Test Completed on | 24.02.2025 |
| Temperature | 36°C | Relative Humidity | 27% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 53.5 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 25.7 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 9.3 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 11.8 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

Shrient Analytical & Research Labs Pvt. Ltd. Chennai - 45.

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0664 |
|---|---|

| Report Date. | 24.02.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A3-Ponnampudi village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0664 | Sample Received on | 17.02.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 17.02.2025 |
| Sample Collected on | 14.02.2025 | Test Completed on | 24.02.2025 |
| Temperature | 36°C | Relative Humidity | 27% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 55.9 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 26.8 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 7.4 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 10.5 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

Shrient Analytical & Research Labs Pvt. Ltd. Chennai - 45

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0665 |
|---|---|

| Report Date. | 24.02.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A4-Eraiyur Village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0665 | Sample Received on | 17.02.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 17.02.2025 |
| Sample Collected on | 14.02.2025 | Test Completed on | 24.02.2025 |
| Temperature | 36°C | Relative Humidity | 28% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 58.1 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 27.9 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 9.0 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 11.4 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

Shrient Analytical & Research Labs Pvt. Ltd. Chennai - 45

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

*****END OF THE REPORT*****

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Phone Number +91 82208 36377 Email: - **info@shrientanalytical.com**
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# TEST REPORT

| Report No. | SARL/25/0666 |
|---|---|

| Report Date. | 24.02.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A5-koddukkur village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0666 | Sample Received on | 17.02.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 17.02.2025 |
| Sample Collected on | 15.02.2025 | Test Completed on | 24.02.2025 |
| Temperature | 36°C | Relative Humidity | 26% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 52.1 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 25.0 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 8.6 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 11.8 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

Shrient Analytical & Research Labs Pvt. Ltd. Chennai - 45.

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0667 |
|---|---|

| Report Date. | 24.02.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A6-Pombur Village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0667 | Sample Received on | 17.02.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 17.02.2025 |
| Sample Collected on | 15.02.2025 | Test Completed on | 24.02.2025 |
| Temperature | 36°C | Relative Humidity | 28% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 46.1 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 22.1 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 8.0 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 10.1 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0668 | Report Date. | 24.02.2025 |
|---|---|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A5-koddukkur village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0668 | Sample Received on | 17.02.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 17.02.2025 |
| Sample Collected on | 16.02.2025 | Test Completed on | 24.02.2025 |
| Temperature | 35°C | Relative Humidity | 32% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 50.2 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 24.1 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 8.3 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 11.2 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

Shrient Analytical & Research Labs Pvt. Ltd. Chennai - 45

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0669 |
|---|---|

| Report Date. | 24.02.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A6-Pombur Village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0669 | Sample Received on | 17.02.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 17.02.2025 |
| Sample Collected on | 16.02.2025 | Test Completed on | 24.02.2025 |
| Temperature | 35°C | Relative Humidity | 32% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 49.7 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 23.9 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 8.9 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 10.3 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0712 |
|---|---|

| Report Date. | 10.03.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A5-koddukkur village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0712 | Sample Received on | 24.02.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 24.02.2025 |
| Sample Collected on | 18.02.2025 | Test Completed on | 10.03.2025 |
| Temperature | 36°C | Relative Humidity | 30% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 56.6 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 27.2 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 9.9 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 13.3 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

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S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0713 | Report Date. | 10.03.2025 |
|---|---|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A6-Pombur Village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0713 | Sample Received on | 24.02.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 24.02.2025 |
| Sample Collected on | 18.02.2025 | Test Completed on | 10.03.2025 |
| Temperature | 36°C | Relative Humidity | 30% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 52.5 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 25.2 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 9.7 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 11.0 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

***END OF THE REPORT***

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0714 | Report Date. | 10.03.2025 |
|---|---|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A5-koddukkur village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0714 | Sample Received on | 24.02.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 24.02.2025 |
| Sample Collected on | 19.02.2025 | Test Completed on | 10.03.2025 |
| Temperature | 36°C | Relative Humidity | 30% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 54.7 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 26.3 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 9.7 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 12.2 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0715 | Report Date. | 10.03.2025 |
|---|---|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A6-Pombur Village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0715 | Sample Received on | 24.02.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 24.02.2025 |
| Sample Collected on | 19.02.2025 | Test Completed on | 10.03.2025 |
| Temperature | 37°C | Relative Humidity | 21% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 50.6 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 24.3 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 9.3 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 10.5 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

Shrient Analytical & Research Labs Pvt. Ltd. Chennai - 45.

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

***END OF THE REPORT***

Please Contact:
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Phone Number +91 82208 36377 Email: - **info@shrientanalytical.com**
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# TEST REPORT

| Report No. | SARL/25/0716 | Report Date. | 10.03.2025 |
|---|---|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A3-Ponnampudi village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0716 | Sample Received on | 24.02.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 24.02.2025 |
| Sample Collected on | 20.02.2025 | Test Completed on | 10.03.2025 |
| Temperature | 37°C | Relative Humidity | 23% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 53.8 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 25.8 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 7.0 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 9.9 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

Shrient Analytical & Research Labs Pvt. Ltd. Chennai - 45

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0717 |
|---|---|

| Report Date. | 10.03.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A4-Eraiyur Village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0717 | Sample Received on | 24.02.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 24.02.2025 |
| Sample Collected on | 20.02.2025 | Test Completed on | 10.03.2025 |
| Temperature | 37°C | Relative Humidity | 23% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 54.6 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 26.2 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 8.7 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 10.7 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0718 |
|---|---|

| Report Date. | 10.03.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A3-Ponnampudi village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0718 | Sample Received on | 24.02.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 24.02.2025 |
| Sample Collected on | 21.02.2025 | Test Completed on | 10.03.2025 |
| Temperature | 36°C | Relative Humidity | 30% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 50.3 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 23.6 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 6.4 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 9.3 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

Shrient Analytical & Research Labs Pvt. Ltd. Chennai - 45.

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0719 | Report Date. | 10.03.2025 |
|---|---|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A4-Eraiyur Village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0719 | Sample Received on | 24.02.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 24.02.2025 |
| Sample Collected on | 21.02.2025 | Test Completed on | 10.03.2025 |
| Temperature | 36°C | Relative Humidity | 30% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 52.2 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 25.1 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 9.2 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 11.3 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0720 | Report Date. | 10.03.2025 |
|---|---|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A1-Within Mine Lease area |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0720 | Sample Received on | 24.02.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 24.02.2025 |
| Sample Collected on | 22.02.2025 | Test Completed on | 10.03.2025 |
| Temperature | 36°C | Relative Humidity | 30% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 62.7 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 30.1 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 7.1 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 11.5 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0721 |
|---|---|

| Report Date. | 10.03.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A2-Thiruvakkarai Village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0721 | Sample Received on | 24.02.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 24.02.2025 |
| Sample Collected on | 22.02.2025 | Test Completed on | 10.03.2025 |
| Temperature | 35°C | Relative Humidity | 30% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 51.8 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 23.3 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 6.9 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 11.1 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

***END OF THE REPORT***

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0722 |
|---|---|

| Report Date. | 10.03.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A1-Within Mine Lease area |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0722 | Sample Received on | 24.02.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 24.02.2025 |
| Sample Collected on | 23.02.2025 | Test Completed on | 10.03.2025 |
| Temperature | 35°C | Relative Humidity | 30% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 64.9 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 30.3 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 7.8 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 12.7 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

Shrient Analytical & Research Labs Pvt. Ltd. Chennai - 45.

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0723 |
|---|---|

| Report Date. | 10.03.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | AMBIENT AIR QUALITY |
| Sampling Procedure | IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines |

| | |
|---|---|
| Sample Location | A2-Thiruvakkarai Village |
| Positioned height of Sampler | 1.5 M above Ground Level |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Duration | 24 hrs |
| Sample Reference No | SARL/A/CHE-0723 | Sample Received on | 24.02.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 24.02.2025 |
| Sample Collected on | 23.02.2025 | Test Completed on | 10.03.2025 |
| Temperature | 35°C | Relative Humidity | 30% |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results | *Limits |
|---|---|---|---|---|---|
| 1 | Particulate Matter less than 10micron size ($PM_{10}$) | IS:5182: Part 23:2006 | $\mu g/m^3$ | 47.3 | 100 |
| 2 | Particulate Matter less than 2.5micron size ($PM_{2.5}$) | IS 5182 (Part 24):2019 | $\mu g/m^3$ | 21.3 | 60 |
| 3 | Sulphur dioxide ($SO_2$) | IS:5182: Part 02:2001 | $\mu g/m^3$ | 6.0 | 80 |
| 4 | Nitrogen Dioxide ($NO_2$) | IS:5182: Part 06:2006 | $\mu g/m^3$ | 10.5 | 80 |
| 5 | Carbon monoxide (CO) | SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023) | $mg/m^3$ | BDL (D.L – 1.1) | - |

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

.

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

***END OF THE REPORT***

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# TEST REPORT

| Report No. | SARL/25/0738 |
|---|---|

| Report Date. | 10.03.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | NOISE LEVEL DATA |

| | | | |
|---|---|---|---|
| Customer Reference | As per work order | Sampling Method | SARL/IOP/023 |
| Sample Reference No | SARL/NO/CHE-0738 | Date of Monitoring | 22.02.2025/ 23.02.2025 |
| Sample Collected by | LABORATORY | | |

| Time in hrs | N1 | N2 | N3 | N4 | N5 | N6 |
|---|---|---|---|---|---|---|
| **06.00** | 40.7 | 42.3 | 46.1 | 44.8 | 46.4 | 41.9 |
| **07.00** | 42.9 | 43.1 | 45.8 | 47.0 | 48.1 | 43.2 |
| **08.00** | 45.0 | 47.4 | 47.4 | 46.7 | 49.8 | 46.4 |
| **09.00** | 48.7 | 49.7 | 52.6 | 52.2 | 47.7 | 51.0 |
| **10.00** | 53.1 | 54.9 | 54.0 | 53.8 | 51.9 | 51.8 |
| **11.00** | 56.0 | 56.2 | 53.1 | 49.6 | 48.7 | 47.1 |
| **12.00** | 54.9 | 53.8 | 54.0 | 49.0 | 49.4 | 48.8 |
| **13.00** | 52.6 | 56.3 | 52.8 | 55.1 | 51.3 | 47.2 |
| **14.00** | 49.8 | 52.4 | 52.3 | 56.2 | 48.4 | 47.9 |
| **15.00** | 50.3 | 51.9 | 52.6 | 53.7 | 49.1 | 50.8 |
| **16.00** | 56.9 | 48.4 | 45.8 | 54.6 | 45.7 | 52.3 |
| **17.00** | 55.1 | 49.9 | 44.7 | 54.3 | 48.0 | 54.0 |
| **18.00** | 55.8 | 53.1 | 47.3 | 50.2 | 47.3 | 51.1 |
| **19.00** | 50.9 | 53.7 | 48.9 | 47.1 | 45.4 | 51.9 |
| **20.00** | 46.3 | 51.2 | 45.4 | 45.3 | 45.6 | 48.4 |
| **21.00** | 45.8 | 52.1 | 44.0 | 43.9 | 43.1 | 46.9 |
| **22.00** | 42.7 | 48.7 | 44.4 | 43.7 | 44.2 | 44.8 |
| **23.00** | 41.9 | 42.0 | 43.8 | 42.1 | 44.7 | 44.1 |
| **24.00** | 41.4 | 42.6 | 43.4 | 43.0 | 41.8 | 42.0 |
| **01.00** | 40.5 | 41.4 | 42.0 | 42.9 | 44.0 | 41.2 |
| **02.00** | 42.3 | 41.1 | 41.8 | 42.0 | 42.1 | 41.7 |
| **03.00** | 45.1 | 43.4 | 42.3 | 41.3 | 41.3 | 43.0 |
| **04.00** | 44.8 | 43.0 | 42.5 | 44.2 | 42.4 | 44.3 |
| **05.00** | 43.7 | 41.8 | 41.3 | 45.3 | 43.8 | 43.4 |

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## TEST REPORT

| Report No. | SARL/25/0738 |
|---|---|

| Report Date. | 10.03.2025 |
|---|---|

| | N1 | N2 | N3 | N4 | N5 | N6 |
|---|---|---|---|---|---|---|
| **DAY EQUIVALENT** | **52.5** | **52.4** | **50.6** | **51.9** | **48.4** | **49.8** |
| **NIGHT EQUIVALENT** | **43.1** | **43.8** | **42.8** | **43.2** | **43.2** | **43.2** |
| **DAY & NIGHT EQUIVALENT** | **51.0** | **51.0** | **49.2** | **50.4** | **47.3** | **48.5** |

Remarks:

**LOCATIONS:**

N1-Within Mine Lease area
N2-Thiruvakkarai Village
N3-Ponnampudi village
N4-Eraiyur Village
N5- koddukkur village
N6-Pombur Village

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0732 | Report Date. | 10.03.2025 |
|---|---|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | SOIL |
| Sample Mark | S1-Within Mine Lease area |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Procedure | - |
| Sample Reference No | SARL/SO/CHE-0732 | Sample Received on | 24.02.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 24.02.2025 |
| Sample Collected on | 23.02.2025 | Test Completed on | 10.03.2025 |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results |
|---|---|---|---|---|
| 1 | pH at 25 °C | IS 2720: Part 26: 1987 | - | 8.50 |
| 2 | Electrical Conductivity | IS 14767: 2000 | µmhos/cm | 226.4 |
| 3 | Dry matter content | IS 15106: 2002 | % | 97.88 |
| 4 | Water Content | IS 15106: 2002 | % | 2.12 |
| 5 | Organic Matter | IS 2720: Part 22: 1972 | % | 2.05 |
| 6 | Nitrogen and Nitrogenous compounds | IS 14684: 1999 | mg/kg | 120 |
| 7 | Soil Texture | Methods Manual - Soil testing in India - P. No-67: 2011 | % | SILT CLAY LOAM |
| 8 | Grain Size Distribution<br>i. Sand | Methods Manual - Soil testing in India - P. No-67: 2011 | % | 14.97 |
| | ii. Silt | Methods Manual - Soil testing in India - P. No-67: 2011 | % | 57.79 |
| | iii. Clay | Methods Manual - Soil testing in India - P. No-67: 2011 | % | 27.23 |
| 9 | Phosphorus as P | IS 10158: 1982 | mg/kg | BDL(D.L.0.02) |
| 10 | Sodium as Na | USEPA 3050 B: 1996 | mg/kg | 456 |
| 11 | Potassium as K | USEPA 3050 B: 1996 | mg/kg | 248 |
| 12 | Total soluble sulphates | IS 2720: Part 27: 1977 | % | BDL (D.L.0.02) |
| 13 | Porosity | SARL/SOP/SO/001 (Issue No:01, Issue Date – 01.03.2023): 2023 | % | 35.7 |
| 14 | Water holding capacity | Methods Manual - Soil testing in India - P. No-76: 2011 | Inches/foot | 39 |

BDL – Below Detectable limit (DL - Detectable limit).

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**

S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0733 |
|---|---|

| Report Date. | 10.03.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | SOIL |
| Sample Mark | S2-Thiruvakkarai Village |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Procedure | - |
| Sample Reference No | SARL/SO/CHE-0733 | Sample Received on | 24.02.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 24.02.2025 |
| Sample Collected on | 23.02.2025 | Test Completed on | 10.03.2025 |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results |
|---|---|---|---|---|
| 1 | pH at 25 °C | IS 2720: Part 26: 1987 | - | 7.40 |
| 2 | Electrical Conductivity | IS 14767: 2000 | µmhos/cm | 1024 |
| 3 | Dry matter content | IS 15106: 2002 | % | 88.91 |
| 4 | Water Content | IS 15106: 2002 | % | 1.51 |
| 5 | Organic Matter | IS 2720: Part 22: 1972 | % | 20.64 |
| 6 | Nitrogen and Nitrogenous compounds | IS 14684: 1999 | mg/kg | 145 |
| 7 | Soil Texture | Methods Manual - Soil testing in India - P. No-67: 2011 | % | SILT CLAY |
| 8 | Grain Size Distribution<br>i. Sand | Methods Manual - Soil testing in India - P. No-67: 2011 | % | 4.80 |
| | ii. Silt | Methods Manual - Soil testing in India - P. No-67: 2011 | % | 50.30 |
| | iii. Clay | Methods Manual - Soil testing in India - P. No-67: 2011 | % | 44.90 |
| 9 | Phosphorus as P | IS 10158: 1982 | mg/kg | 14.5 |
| 10 | Sodium as Na | USEPA 3050 B: 1996 | mg/kg | 482 |
| 11 | Potassium as K | USEPA 3050 B: 1996 | mg/kg | 264 |
| 12 | Total soluble sulphates | IS 2720: Part 27: 1977 | % | BDL (D.L.0.02) |
| 13 | Porosity | SARL/SOP/SO/001 (Issue No:01, Issue Date – 01.03.2023): 2023 | % | 37.5 |
| 14 | Water holding capacity | Methods Manual - Soil testing in India - P. No-76: 2011 | Inches/foot | 42 |

BDL – Below Detectable limit (DL - Detectable limit).

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**

S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0734 | Report Date. | 10.03.2025 |
|---|---|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | SOIL |
| Sample Mark | S3-Ponnampudi village |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Procedure | - |
| Sample Reference No | SARL/SO/CHE-0734 | Sample Received on | 24.02.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 24.02.2025 |
| Sample Collected on | 23.02.2025 | Test Completed on | 10.03.2025 |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results |
|---|---|---|---|---|
| 1 | pH at 25 °C | IS 2720: Part 26: 1987 | - | 5.03 |
| 2 | Electrical Conductivity | IS 14767: 2000 | µmhos/cm | 346.7 |
| 3 | Dry matter content | IS 15106: 2002 | % | 98.49 |
| 4 | Water Content | IS 15106: 2002 | % | 1.51 |
| 5 | Organic Matter | IS 2720: Part 22: 1972 | % | 15.67 |
| 6 | Nitrogen and Nitrogenous compounds | IS 14684: 1999 | mg/kg | 59 |
| 7 | Soil Texture | Methods Manual - Soil testing in India - P. No-67: 2011 | % | CLAY |
| 8 | Grain Size Distribution<br>i. Sand | Methods Manual - Soil testing in India - P. No-67: 2011 | % | 2.84 |
| | ii. Silt | Methods Manual - Soil testing in India - P. No-67: 2011 | % | 24.64 |
| | iii. Clay | Methods Manual - Soil testing in India - P. No-67: 2011 | % | 72.52 |
| 9 | Phosphorus as P | IS 10158: 1982 | mg/kg | 354 |
| 10 | Sodium as Na | USEPA 3050 B: 1996 | mg/kg | 199 |
| 11 | Potassium as K | USEPA 3050 B: 1996 | mg/kg | 264 |
| 12 | Total soluble sulphates | IS 2720: Part 27: 1977 | % | BDL (D.L.0.02) |
| 13 | Porosity | SARL/SOP/SO/001 (Issue No:01, Issue Date – 01.03.2023): 2023 | % | 42.9 |
| 14 | Water holding capacity | Methods Manual - Soil testing in India - P. No-76: 2011 | Inches/foot | 44 |

BDL – Below Detectable limit (DL - Detectable limit).

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**

S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0735 | Report Date. | 10.03.2025 |
|---|---|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | SOIL |
| Sample Mark | S4-Eraiyur Village |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Procedure | - |
| Sample Reference No | SARL/SO/CHE-0735 | Sample Received on | 24.02.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 24.02.2025 |
| Sample Collected on | 23.02.2025 | Test Completed on | 10.03.2025 |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results |
|---|---|---|---|---|
| 1 | pH at 25 °C | IS 2720: Part 26: 1987 | - | 7.56 |
| 2 | Electrical Conductivity | IS 14767: 2000 | µmhos/cm | 1133 |
| 3 | Dry matter content | IS 15106: 2002 | % | 70.34 |
| 4 | Water Content | IS 15106: 2002 | % | 29.66 |
| 5 | Organic Matter | IS 2720: Part 22: 1972 | % | 21.49 |
| 6 | Nitrogen and Nitrogenous compounds | IS 14684: 1999 | mg/kg | 86 |
| 7 | Soil Texture | Methods Manual - Soil testing in India - P. No-67: 2011 | % | Silty Clay |
| 8 | Grain Size Distribution<br>i. Sand | Methods Manual - Soil testing in India - P. No-67: 2011 | % | 4.22 |
| | ii. Silt | Methods Manual - Soil testing in India - P. No-67: 2011 | % | 43.39 |
| | iii. Clay | Methods Manual - Soil testing in India - P. No-67: 2011 | % | 52.39 |
| 9 | Phosphorus as P | IS 10158: 1982 | mg/kg | BDL (D.L.0.02) |
| 10 | Sodium as Na | USEPA 3050 B: 1996 | mg/kg | 512 |
| 11 | Potassium as K | USEPA 3050 B: 1996 | mg/kg | 258 |
| 12 | Total soluble sulphates | IS 2720: Part 27: 1977 | % | BDL (D.L.0.02) |
| 13 | Porosity | SARL/SOP/SO/001 (Issue No:01, Issue Date – 01.03.2023): 2023 | % | 21.4 |
| 14 | Water holding capacity | Methods Manual - Soil testing in India - P. No-76: 2011 | Inches/foot | 42 |

BDL – Below Detectable limit (DL - Detectable limit).

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**

S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0736 | Report Date. | 10.03.2025 |
|---|---|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | SOIL |
| Sample Mark | S5-Koddukkur Village |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Procedure | - |
| Sample Reference No | SARL/SO/CHE-0736 | Sample Received on | 24.02.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 24.02.2025 |
| Sample Collected on | 23.02.2025 | Test Completed on | 10.03.2025 |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results |
|---|---|---|---|---|
| 1 | pH at 25 °C | IS 2720: Part 26: 1987 | - | 7.07 |
| 2 | Electrical Conductivity | IS 14767: 2000 | µmhos/cm | 821.4 |
| 3 | Dry matter content | IS 15106: 2002 | % | 89.00 |
| 4 | Water Content | IS 15106: 2002 | % | 11.00 |
| 5 | Organic Matter | IS 2720: Part 22: 1972 | % | 7.72 |
| 6 | Nitrogen and Nitrogenous compounds | IS 14684: 1999 | mg/kg | 122 |
| 7 | Soil Texture | Methods Manual - Soil testing in India - P. No-67: 2011 | % | SILTY CLAY LOAM |
| 8 | Grain Size Distribution<br>i. Sand | Methods Manual - Soil testing in India - P. No-67: 2011 | % | 7.09 |
| | ii. Silt | Methods Manual - Soil testing in India - P. No-67: 2011 | % | 55.25 |
| | iii. Clay | Methods Manual - Soil testing in India - P. No-67: 2011 | % | 37.66 |
| 9 | Phosphorus as P | IS 10158: 1982 | mg/kg | 6.1 |
| 10 | Sodium as Na | USEPA 3050 B: 1996 | mg/kg | 643 |
| 11 | Potassium as K | USEPA 3050 B: 1996 | mg/kg | 374 |
| 12 | Total soluble sulphates | IS 2720: Part 27: 1977 | % | BDL (D.L.0.02) |
| 13 | Porosity | SARL/SOP/SO/001 (Issue No:01, Issue Date – 01.03.2023): 2023 | % | 37.5 |
| 14 | Water holding capacity | Methods Manual - Soil testing in India - P. No-76: 2011 | Inches/foot | 40 |

BDL – Below Detectable limit (DL - Detectable limit).

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**

S. BALAMURUGAN
Asst.Technical Manager

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# Shrient Analytical and Research Labs Pvt. Ltd

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Phone Number +91 82208 36377 Email: - **info@shrientanalytical.com**
www.shrientanalytical.com


# TEST REPORT

| Report No. | SARL/25/0737 |
|---|---|

| Report Date. | 10.03.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | SOIL |
| Sample Mark | S6-Pombur Village |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Procedure | - |
| Sample Reference No | SARL/SO/CHE-0737 | Sample Received on | 24.02.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 24.02.2025 |
| Sample Collected on | 23.02.2025 | Test Completed on | 10.03.2025 |
| Sample Condition | Fit for Analysis | | |

| S. No. | Parameters | Protocol | Unit | Results |
|---|---|---|---|---|
| 1 | pH at 25 °C | IS 2720: Part 26: 1987 | - | 7.05 |
| 2 | Electrical Conductivity | IS 14767: 2000 | µmhos/cm | 360.8 |
| 3 | Dry matter content | IS 15106: 2002 | % | 71.01 |
| 4 | Water Content | IS 15106: 2002 | % | 28.99 |
| 5 | Organic Matter | IS 2720: Part 22: 1972 | % | 29.09 |
| 6 | Nitrogen and Nitrogenous compounds | IS 14684: 1999 | mg/kg | 146 |
| 7 | Soil Texture | Methods Manual - Soil testing in India - P. No-67: 2011 | % | Clay |
| 8 | Grain Size Distribution<br>i. Sand | Methods Manual - Soil testing in India - P. No-67: 2011 | % | 7.24 |
| | ii. Silt | Methods Manual - Soil testing in India - P. No-67: 2011 | % | 37.91 |
| | iii. Clay | Methods Manual - Soil testing in India - P. No-67: 2011 | % | 54.85 |
| 9 | Phosphorus as P | IS 10158: 1982 | mg/kg | 12.1 |
| 10 | Sodium as Na | USEPA 3050 B: 1996 | mg/kg | 520 |
| 11 | Potassium as K | USEPA 3050 B: 1996 | mg/kg | 267 |
| 12 | Total soluble sulphates | IS 2720: Part 27: 1977 | % | BDL (D.L.0.02) |
| 13 | Porosity | SARL/SOP/SO/001 (Issue No:01, Issue Date – 01.03.2023): 2023 | % | 21.6 |
| 14 | Water holding capacity | Methods Manual - Soil testing in India - P. No-76: 2011 | Inches/foot | 40 |

BDL – Below Detectable limit (DL - Detectable limit).

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**

S. BALAMURUGAN
Asst.Technical Manager

***END OF THE REPORT***

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# TEST REPORT

| Report No. | SARL/25/0724 |
|---|---|

| Report Date. | 10.03.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | WATER |
| Sample Mark | W1-Within Mine Lease area |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Procedure | IS 17614: Part 14: 2021 |
| Sample Reference No | SARL/W/CHE-0724 | Sample Received on | 24.02.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 24.02.2025 |
| Sample Collected on | 23.02.2025 | Test Completed on | 10.03.2025 |
| Sample Condition | Fit for Analysis | | |

| Sl. No. | Parameters | Protocol | Unit | Result | *Limits Permissible |
|---|---|---|---|---|---|
| **A.** | **Physical parameters** | | | | |
| 1 | Odour | IS 3025 (Part 5): 2018 | - | Agreeable | Agreeable |
| 2 | Turbidity | APHA 24th Edition 2130 B: 2023 | NTU | <1.0 | 5.0 |
| 3 | pH at 25 ˚C | APHA 24th Edition 4500 – H+ B: 2023 | - | 7.66 | 6.50-8.50 |
| 4 | Electrical Conductivity | APHA 24th Edition 2510 B: 2023 | (µS/cm) | 1432 | - |
| **B.** | **Chemical parameters** | | | | |
| 5 | Total Dissolved Solids | APHA 24th Edition 2540-C: 2023 | mg/L | 860 | 2000 |
| 6 | Total hardness (as CaCO3) | APHA 24th Edition 2340 C: 2023 | mg/L | 432 | 600 |
| 7 | Calcium (as Ca) | IS 3025 (Part 40): 1991 | mg/L | 85.6 | 200 |
| 8 | Magnesium (as Mg) | IS 3025 (Part 46): 1994 | mg/L | 52.2 | 100 |
| 9 | Calcium Hardness (as CaCO3) | APHA 24th Edition 3500 Ca B: 2023 | mg/L | 214 | - |
| 10 | Magnesium Hardness (as CaCO3) | APHA 24th Edition 3500 Mg B: 2023 | mg/L | 218 | - |
| 11 | Total alkalinity (as CaCO3) | APHA 24th Edition 2320 B: 2023 | mg/L | 291 | 600 |
| 12 | Chloride (as Cl) | APHA 24th Edition 4500 Cl- B: 2023 | mg/L | 245 | 1000 |

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# TEST REPORT

| Report No. | SARL/25/0724 |
|---|---|

| Report Date. | 10.03.2025 |
|---|---|

| Sl. No. | Parameters | Protocol | Unit | Result | *Limits Permissible |
|---|---|---|---|---|---|
| 13 | Free Residual chlorine | APHA 24th Edition 4500 Cl- B: 2023 | mg/L | BDL (D.L - 0.2) | 1.0 |
| 14 | Sulphate as (SO42-) | APHA 24th Edition 4500 SO42- E: 2023 | mg/L | 192 | 400 |
| 15 | Iron (as Fe) | APHA 24th Edition 3500 Fe B: 2023 | mg/L | BDL (DL 0.01) | 0.3 |
| 16 | Nitrate (as NO3) | IS 3025 (Part 34): 1988 | mg/L | 2.58 | 45 |
| 17 | Fluoride (as F) | APHA 24th Edition 4500 F- D: 2023 | mg/L | 0.32 | 1.5 |
| 18 | Manganese (as Mn) | APHA 24th Edition 3500 Mn B: 2023 | mg/L | BDL (D.L - 0.05) | 0.3 |

Remarks: *Drinking Water Specifications as per IS – 10500:2012. BDL – Below Detectable limit (DL - Detectable limit).

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

Shrient Analytical & Research Labs Pvt. Ltd. Chennai - 45

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0725 |
|---|---|

| Report Date. | 10.03.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | WATER |
| Sample Mark | W2-Thiruvakkarai Village |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Procedure | IS 17614: Part 14: 2021 |
| Sample Reference No | SARL/W/CHE-0725 | Sample Received on | 24.02.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 24.02.2025 |
| Sample Collected on | 23.02.2025 | Test Completed on | 10.03.2025 |
| Sample Condition | Fit for Analysis | | |

| Sl. No. | Parameters | Protocol | Unit | Result | *Limits Permissible |
|---|---|---|---|---|---|
| **A.** | **Physical parameters** | | | | |
| 1 | Odour | IS 3025 (Part 5): 2018 | - | Agreeable | Agreeable |
| 2 | Turbidity | APHA 24th Edition 2130 B: 2023 | NTU | <1.0 | 5.0 |
| 3 | pH at 25 ˚C | APHA 24th Edition 4500 – H+ B: 2023 | - | 7.77 | 6.50-8.50 |
| 4 | Electrical Conductivity | APHA 24th Edition 2510 B: 2023 | (µS/cm) | 2532 | - |
| **B.** | **Chemical parameters** | | | | |
| 5 | Total Dissolved Solids | APHA 24th Edition 2540-C: 2023 | mg/L | 1520 | 2000 |
| 6 | Total hardness (as CaCO3) | APHA 24th Edition 2340 C: 2023 | mg/L | 434 | 600 |
| 7 | Calcium (as Ca) | IS 3025 (Part 40): 1991 | mg/L | 75.5 | 200 |
| 8 | Magnesium (as Mg) | IS 3025 (Part 46): 1994 | mg/L | 58.8 | 100 |
| 9 | Calcium Hardness (as CaCO3) | APHA 24th Edition 3500 Ca B: 2023 | mg/L | 189 | - |
| 10 | Magnesium Hardness (as CaCO3) | APHA 24th Edition 3500 Mg B: 2023 | mg/L | 245 | - |
| 11 | Total alkalinity (as CaCO3) | APHA 24th Edition 2320 B: 2023 | mg/L | 465 | 600 |
| 12 | Chloride (as Cl) | APHA 24th Edition 4500 Cl- B: 2023 | mg/L | 493 | 1000 |

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# TEST REPORT

| Report No. | SARL/25/0725 |
|---|---|

| Report Date. | 10.03.2025 |
|---|---|

| Sl. No. | Parameters | Protocol | Unit | Result | *Limits Permissible |
|---|---|---|---|---|---|
| 13 | Free Residual chlorine | APHA 24th Edition 4500 Cl- B: 2023 | mg/L | BDL (D.L - 0.2) | 1.0 |
| 14 | Sulphate as (SO42-) | APHA 24th Edition 4500 SO42- E: 2023 | mg/L | 291 | 400 |
| 15 | Iron (as Fe) | APHA 24th Edition 3500 Fe B: 2023 | mg/L | 0.04 | 0.3 |
| 16 | Nitrate (as NO3) | IS 3025 (Part 34): 1988 | mg/L | 3.65 | 45 |
| 17 | Fluoride (as F) | APHA 24th Edition 4500 F- D: 2023 | mg/L | 0.54 | 1.5 |
| 18 | Manganese (as Mn) | APHA 24th Edition 3500 Mn B: 2023 | mg/L | BDL (D.L - 0.05) | 0.3 |

Remarks: *Drinking Water Specifications as per IS – 10500:2012. BDL – Below Detectable limit (DL - Detectable limit).

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0726 |
|---|---|

| Report Date. | 10.03.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | WATER |
| Sample Mark | W3-Ponnampudi village |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Procedure | IS 17614: Part 14: 2021 |
| Sample Reference No | SARL/W/CHE-0726 | Sample Received on | 24.02.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 24.02.2025 |
| Sample Collected on | 23.02.2025 | Test Completed on | 10.03.2025 |
| Sample Condition | Fit for Analysis | | |

| Sl. No. | Parameters | Protocol | Unit | Result | *Limits Permissible |
|---|---|---|---|---|---|
| **A.** | **Physical parameters** | | | | |
| 1 | Odour | IS 3025 (Part 5): 2018 | - | Agreeable | Agreeable |
| 2 | Turbidity | APHA 24th Edition 2130 B: 2023 | NTU | <1.0 | 5.0 |
| 3 | pH at 25 ˚C | APHA 24th Edition 4500 – H+ B: 2023 | - | 7.44 | 6.50-8.50 |
| 4 | Electrical Conductivity | APHA 24th Edition 2510 B: 2023 | (µS/cm) | 1323 | - |
| **B.** | **Chemical parameters** | | | | |
| 5 | Total Dissolved Solids | APHA 24th Edition 2540-C: 2023 | mg/L | 794 | 2000 |
| 6 | Total hardness (as CaCO3) | APHA 24th Edition 2340 C: 2023 | mg/L | 446 | 600 |
| 7 | Calcium (as Ca) | IS 3025 (Part 40): 1991 | mg/L | 81.9 | 200 |
| 8 | Magnesium (as Mg) | IS 3025 (Part 46): 1994 | mg/L | 57.8 | 100 |
| 9 | Calcium Hardness (as CaCO3) | APHA 24th Edition 3500 Ca B: 2023 | mg/L | 205 | - |
| 10 | Magnesium Hardness (as CaCO3) | APHA 24th Edition 3500 Mg B: 2023 | mg/L | 241 | - |
| 11 | Total alkalinity (as CaCO3) | APHA 24th Edition 2320 B: 2023 | mg/L | 424 | 600 |
| 12 | Chloride (as Cl) | APHA 24th Edition 4500 Cl- B: 2023 | mg/L | 152 | 1000 |

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# TEST REPORT

| Report No. | SARL/25/0726 |
|---|---|

| Report Date. | 10.03.2025 |
|---|---|

| Sl. No. | Parameters | Protocol | Unit | Result | *Limits Permissible |
|---|---|---|---|---|---|
| 13 | Free Residual chlorine | APHA 24th Edition 4500 Cl- B: 2023 | mg/L | BDL (D.L - 0.2) | 1.0 |
| 14 | Sulphate as (SO42-) | APHA 24th Edition 4500 SO42- E: 2023 | mg/L | 176 | 400 |
| 15 | Iron (as Fe) | APHA 24th Edition 3500 Fe B: 2023 | mg/L | 0.06 | 0.3 |
| 16 | Nitrate (as NO3) | IS 3025 (Part 34): 1988 | mg/L | 2.98 | 45 |
| 17 | Fluoride (as F) | APHA 24th Edition 4500 F- D: 2023 | mg/L | 0.46 | 1.5 |
| 18 | Manganese (as Mn) | APHA 24th Edition 3500 Mn B: 2023 | mg/L | BDL (D.L - 0.05) | 0.3 |

Remarks: *Drinking Water Specifications as per IS – 10500:2012. BDL – Below Detectable limit (DL - Detectable limit).

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0727 |
|---|---|

| Report Date. | 10.03.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | WATER |
| Sample Mark | W4-Eraiyur Village |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Procedure | IS 17614: Part 14: 2021 |
| Sample Reference No | SARL/W/CHE-0727 | Sample Received on | 24.02.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 24.02.2025 |
| Sample Collected on | 23.02.2025 | Test Completed on | 10.03.2025 |
| Sample Condition | Fit for Analysis | | |

| Sl. No. | Parameters | Protocol | Unit | Result | *Limits Permissible |
|---|---|---|---|---|---|
| **A.** | **Physical parameters** | | | | |
| 1 | Odour | IS 3025 (Part 5): 2018 | - | Agreeable | Agreeable |
| 2 | Turbidity | APHA 24th Edition 2130 B: 2023 | NTU | <1.0 | 5.0 |
| 3 | pH at 25 ˚C | APHA 24th Edition 4500 – H+ B: 2023 | - | 6.65 | 6.50-8.50 |
| 4 | Electrical Conductivity | APHA 24th Edition 2510 B: 2023 | (µS/cm) | 537 | - |
| **B.** | **Chemical parameters** | | | | |
| 5 | Total Dissolved Solids | APHA 24th Edition 2540-C: 2023 | mg/L | 330 | 2000 |
| 6 | Total hardness (as CaCO3) | APHA 24th Edition 2340 C: 2023 | mg/L | 121 | 600 |
| 7 | Calcium (as Ca) | IS 3025 (Part 40): 1991 | mg/L | 27.3 | 200 |
| 8 | Magnesium (as Mg) | IS 3025 (Part 46): 1994 | mg/L | 12.5 | 100 |
| 9 | Calcium Hardness (as CaCO3) | APHA 24th Edition 3500 Ca B: 2023 | mg/L | 68.3 | - |
| 10 | Magnesium Hardness (as CaCO3) | APHA 24th Edition 3500 Mg B: 2023 | mg/L | 52.2 | - |
| 11 | Total alkalinity (as CaCO3) | APHA 24th Edition 2320 B: 2023 | mg/L | 120 | 600 |
| 12 | Chloride (as Cl) | APHA 24th Edition 4500 Cl- B: 2023 | mg/L | 89.6 | 1000 |

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# TEST REPORT

| Report No. | SARL/25/0727 |
|---|---|

| Report Date. | 10.03.2025 |
|---|---|

| Sl. No. | Parameters | Protocol | Unit | Result | *Limits Permissible |
|---|---|---|---|---|---|
| 13 | Free Residual chlorine | APHA 24th Edition 4500 Cl- B: 2023 | mg/L | BDL (D.L - 0.2) | 1.0 |
| 14 | Sulphate as (SO42-) | APHA 24th Edition 4500 SO42- E: 2023 | mg/L | 72.5 | 400 |
| 15 | Iron (as Fe) | APHA 24th Edition 3500 Fe B: 2023 | mg/L | BDL (DL 0.01) | 0.3 |
| 16 | Nitrate (as NO3) | IS 3025 (Part 34): 1988 | mg/L | 2.14 | 45 |
| 17 | Fluoride (as F) | APHA 24th Edition 4500 F- D: 2023 | mg/L | 0.42 | 1.5 |
| 18 | Manganese (as Mn) | APHA 24th Edition 3500 Mn B: 2023 | mg/L | BDL (D.L - 0.05) | 0.3 |

Remarks: *Drinking Water Specifications as per IS – 10500:2012. BDL – Below Detectable limit (DL - Detectable limit).

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

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# TEST REPORT

| Report No. | SARL/25/0728 |
|---|---|

| Report Date. | 10.03.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | WATER |
| Sample Mark | W5- koddukkur village |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Procedure | IS 17614: Part 14: 2021 |
| Sample Reference No | SARL/W/CHE-0728 | Sample Received on | 24.02.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 24.02.2025 |
| Sample Collected on | 23.02.2025 | Test Completed on | 10.03.2025 |
| Sample Condition | Fit for Analysis | | |

| Sl. No. | Parameters | Protocol | Unit | Result | *Limits Permissible |
|---|---|---|---|---|---|
| **A.** | **Physical parameters** | | | | |
| 1 | Odour | IS 3025 (Part 5): 2018 | - | Agreeable | Agreeable |
| 2 | Turbidity | APHA 24th Edition 2130 B: 2023 | NTU | <1.0 | 5.0 |
| 3 | pH at 25 ˚C | APHA 24th Edition 4500 – H+ B: 2023 | - | 7.95 | 6.50-8.50 |
| 4 | Electrical Conductivity | APHA 24th Edition 2510 B: 2023 | (µS/cm) | 829.2 | - |
| **B.** | **Chemical parameters** | | | | |
| 5 | Total Dissolved Solids | APHA 24th Edition 2540-C: 2023 | mg/L | 498 | 2000 |
| 6 | Total hardness (as CaCO3) | APHA 24th Edition 2340 C: 2023 | mg/L | 213 | 600 |
| 7 | Calcium (as Ca) | IS 3025 (Part 40): 1991 | mg/L | 56.2 | 200 |
| 8 | Magnesium (as Mg) | IS 3025 (Part 46): 1994 | mg/L | 17.4 | 100 |
| 9 | Calcium Hardness (as CaCO3) | APHA 24th Edition 3500 Ca B: 2023 | mg/L | 141 | - |
| 10 | Magnesium Hardness (as CaCO3) | APHA 24th Edition 3500 Mg B: 2023 | mg/L | 72.3 | - |
| 11 | Total alkalinity (as CaCO3) | APHA 24th Edition 2320 B: 2023 | mg/L | 246 | 600 |
| 12 | Chloride (as Cl) | APHA 24th Edition 4500 Cl- B: 2023 | mg/L | 132 | 1000 |

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# TEST REPORT

| Report No. | SARL/25/0728 |
|---|---|

| Report Date. | 10.03.2025 |
|---|---|

| Sl. No. | Parameters | Protocol | Unit | Result | *Limits Permissible |
|---|---|---|---|---|---|
| 13 | Free Residual chlorine | APHA 24th Edition 4500 Cl- B: 2023 | mg/L | BDL (D.L - 0.2) | 1.0 |
| 14 | Sulphate as (SO42-) | APHA 24th Edition 4500 SO42- E: 2023 | mg/L | 64.6 | 400 |
| 15 | Iron (as Fe) | APHA 24th Edition 3500 Fe B: 2023 | mg/L | BDL (DL 0.01) | 0.3 |
| 16 | Nitrate (as NO3) | IS 3025 (Part 34): 1988 | mg/L | 1.45 | 45 |
| 17 | Fluoride (as F) | APHA 24th Edition 4500 F- D: 2023 | mg/L | 0.38 | 1.5 |
| 18 | Manganese (as Mn) | APHA 24th Edition 3500 Mn B: 2023 | mg/L | BDL (D.L - 0.05) | 0.3 |

Remarks: *Drinking Water Specifications as per IS – 10500:2012. BDL – Below Detectable limit (DL - Detectable limit).

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

Shrient Analytical & Research Labs Pvt. Ltd. Chennai - 45

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

***END OF THE REPORT***

Please Contact:
For any Technical Issues & Complaints: technical@shrientanalytical.com

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# Shrient Analytical and Research Labs Pvt. Ltd

416/15, Dhargas Road, West Tambaram, Chennai- 600045
Phone Number +91 82208 36377 Email: - **info@shrientanalytical.com**
www.shrientanalytical.com


# TEST REPORT

| Report No. | SARL/25/0729 |
|---|---|

| Report Date. | 10.03.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | WATER |
| Sample Mark | W6-Pombur Village |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Procedure | IS 17614: Part 14: 2021 |
| Sample Reference No | SARL/W/CHE-0729 | Sample Received on | 24.02.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 24.02.2025 |
| Sample Collected on | 23.02.2025 | Test Completed on | 10.03.2025 |
| Sample Condition | Fit for Analysis | | |

| Sl. No. | Parameters | Protocol | Unit | Result | *Limits Permissible |
|---|---|---|---|---|---|
| **A.** | **Physical parameters** | | | | |
| 1 | Odour | IS 3025 (Part 5): 2018 | - | Agreeable | Agreeable |
| 2 | Turbidity | APHA 24th Edition 2130 B: 2023 | NTU | <1.0 | 5.0 |
| 3 | pH at 25 ˚C | APHA 24th Edition 4500 – H+ B: 2023 | - | 7.73 | 6.50-8.50 |
| 4 | Electrical Conductivity | APHA 24th Edition 2510 B: 2023 | (µS/cm) | 1143 | - |
| **B.** | **Chemical parameters** | | | | |
| 5 | Total Dissolved Solids | APHA 24th Edition 2540-C: 2023 | mg/L | 686 | 2000 |
| 6 | Total hardness (as CaCO3) | APHA 24th Edition 2340 C: 2023 | mg/L | 277 | 600 |
| 7 | Calcium (as Ca) | IS 3025 (Part 40): 1991 | mg/L | 70.7 | 200 |
| 8 | Magnesium (as Mg) | IS 3025 (Part 46): 1994 | mg/L | 24.1 | 100 |
| 9 | Calcium Hardness (as CaCO3) | APHA 24th Edition 3500 Ca B: 2023 | mg/L | 177 | - |
| 10 | Magnesium Hardness (as CaCO3) | APHA 24th Edition 3500 Mg B: 2023 | mg/L | 100 | - |
| 11 | Total alkalinity (as CaCO3) | APHA 24th Edition 2320 B: 2023 | mg/L | 291 | 600 |
| 12 | Chloride (as Cl) | APHA 24th Edition 4500 Cl- B: 2023 | mg/L | 186 | 1000 |

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# TEST REPORT

| Report No. | SARL/25/0729 |
|---|---|

| Report Date. | 10.03.2025 |
|---|---|

| Sl. No. | Parameters | Protocol | Unit | Result | *Limits |
|---|---|---|---|---|---|
| | | | | | Permissible |
| 13 | Free Residual chlorine | APHA 24th Edition 4500 Cl- B: 2023 | mg/L | BDL (D.L - 0.2) | 1.0 |
| 14 | Sulphate as (SO42-) | APHA 24th Edition 4500 SO42- E: 2023 | mg/L | 125.0 | 400 |
| 15 | Iron (as Fe) | APHA 24th Edition 3500 Fe B: 2023 | mg/L | BDL (DL 0.01) | 0.3 |
| 16 | Nitrate (as NO3) | IS 3025 (Part 34): 1988 | mg/L | 3.64 | 45 |
| 17 | Fluoride (as F) | APHA 24th Edition 4500 F- D: 2023 | mg/L | 0.57 | 1.5 |
| 18 | Manganese (as Mn) | APHA 24th Edition 3500 Mn B: 2023 | mg/L | BDL (D.L - 0.05) | 0.3 |

Remarks: *Drinking Water Specifications as per IS – 10500:2012. BDL – Below Detectable limit (DL - Detectable limit).

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

***END OF THE REPORT***

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# TEST REPORT

| Report No. | SARL/25/0730 |
|---|---|

| Report Date. | 10.03.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | WATER |
| Sample Mark | SW1-Sangarabarani River (Up Stream) |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Procedure | IS 17614: Part 14: 2021 |
| Sample Reference No | SARL/W/CHE-0730 | Sample Received on | 24.02.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 24.02.2025 |
| Sample Collected on | 23.02.2025 | Test Completed on | 10.03.2025 |
| Sample Condition | Fit for Analysis | | |

| Sl. No. | Parameters | Protocol | Unit | Result |
|---|---|---|---|---|
| **A.** | | | | |
| 1 | Odour | IS 3025 (Part 5): 2018 | - | Agreeable |
| 2 | Turbidity | APHA 24th Edition 2130 B: 2023 | NTU | <1 |
| 3 | pH at 25 ˚C | APHA 24th Edition 4500 – H+ B: 2023 | - | 8.12 |
| 4 | Electrical Conductivity | APHA 24th Edition 2510 B: 2023 | (µS/cm) | 734.6 |
| **B.** | **Chemical parameters** | | | |
| 5 | Total Dissolved Solids | APHA 24th Edition 2540-C: 2023 | mg/L | 442 |
| 6 | Total hardness (as CaCO3) | APHA 24th Edition 2340 C: 2023 | mg/L | 117 |
| 7 | Calcium (as Ca) | IS 3025 (Part 40): 1991 | mg/L | 11.3 |
| 8 | Magnesium (as Mg) | IS 3025 (Part 46): 1994 | mg/L | 14.6 |
| 9 | Calcium Hardness (as CaCO3) | APHA 24th Edition 3500 Ca B: 2023 | mg/L | 56.2 |
| 10 | Magnesium Hardness (as CaCO3) | APHA 24th Edition 3500 Mg B: 2023 | mg/L | 60.2 |
| 11 | Total alkalinity (as CaCO3) | APHA 24th Edition 2320 B: 2023 | mg/L | 136 |
| 12 | Chloride (as Cl) | APHA 24th Edition 4500 Cl- B: 2023 | mg/L | 144 |

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# TEST REPORT

| Report No. | SARL/25/0730 |
|---|---|

| Report Date. | 10.03.2025 |
|---|---|

| Sl. No. | Parameters | Protocol | Unit | Result |
|---|---|---|---|---|
| 13 | Free Residual chlorine | APHA 24th Edition 4500 Cl- B: 2023 | mg/L | BDL (D.L - 0.2) |
| 14 | Sulphate as (SO42-) | APHA 24th Edition 4500 SO42- E: 2023 | mg/L | 120 |
| 15 | Iron (as Fe) | APHA 24th Edition 3500 Fe B: 2023 | mg/L | BDL(D.L-0.01) |
| 16 | Nitrate (as NO3) | IS 3025 (Part 34): 1988 | mg/L | 3.65 |
| 17 | Fluoride (as F) | APHA 24th Edition 4500 F- D: 2023 | mg/L | 0.52 |
| 18 | Manganese (as Mn) | APHA 24th Edition 3500 Mn B: 2023 | mg/L | BDL(D.L-0.05) |
| 19 | Chemical Oxygen Demand | APHA 24th Edition 5220 B: 2023 | mg/L | 29.0 |
| 20 | Bio Chemical Oxygen Demand 3 Days at 27°c | IS 3025 (Part 44): 1993 | mg/L | 8.1 |
| 21 | Total Suspended Solids | APHA 24th Edition 2540 D: 2023 | mg/L | 16.0 |
| 22 | Dissolved Oxygen | IS 3025 (Part 38): 1989 | mg/L | 6.2 |

Remarks: *Drinking Water Specifications as per IS – 10500:2012. BDL – Below Detectable limit (DL - Detectable limit).

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

Shrient Analytical & Research Labs Pvt. Ltd. Chennai - 45

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

*****END OF THE REPORT*****

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Phone Number +91 82208 36377 Email: - **info@shrientanalytical.com**
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# TEST REPORT

| Report No. | SARL/25/0731 |
|---|---|

| Report Date. | 10.03.2025 |
|---|---|

| | |
|---|---|
| Customer Name & Address | Thiru.S. Senthil Kumar Over An Extent Of 4.84.50 Ha Located At S.F.No. 42/3a, 42/3b, 44/1, 44/2, 44/3, 44/4a(P) And 44/4b Of Koraikeni Village, Vanur Taluk, Viluppuram District, Tamil Nadu State. |
| Sample Description | WATER |
| Sample Mark | SW2-Sangarabarani River DOWN Stream) |

| | | | |
|---|---|---|---|
| Customer Reference | By Mail | Sampling Procedure | IS 17614: Part 14: 2021 |
| Sample Reference No | SARL/W/CHE-0731 | Sample Received on | 24.02.2025 |
| Sample Collected by | LABORATORY | Test Commenced on | 24.02.2025 |
| Sample Collected on | 23.02.2025 | Test Completed on | 10.03.2025 |
| Sample Condition | Fit for Analysis | | |

| Sl. No. | Parameters | Protocol | Unit | Result |
|---|---|---|---|---|
| **A.** | | | | |
| 1 | Odour | IS 3025 (Part 5): 2018 | - | Agreeable |
| 2 | Turbidity | APHA 24th Edition 2130 B: 2023 | NTU | <1.0 |
| 3 | pH at 25 ˚C | APHA 24th Edition 4500 – H+ B: 2023 | - | 8.19 |
| 4 | Electrical Conductivity | APHA 24th Edition 2510 B: 2023 | (µS/cm) | 735.2 |
| **B.** | **Chemical parameters** | | | |
| 5 | Total Dissolved Solids | APHA 24th Edition 2540-C: 2023 | mg/L | 445 |
| 6 | Total hardness (as CaCO3) | APHA 24th Edition 2340 C: 2023 | mg/L | 117 |
| 7 | Calcium (as Ca) | IS 3025 (Part 40): 1991 | mg/L | 12.1 |
| 8 | Magnesium (as Mg) | IS 3025 (Part 46): 1994 | mg/L | 13.7 |
| 9 | Calcium Hardness (as CaCO3) | APHA 24th Edition 3500 Ca B: 2023 | mg/L | 60.2 |
| 10 | Magnesium Hardness (as CaCO3) | APHA 24th Edition 3500 Mg B: 2023 | mg/L | 56.2 |
| 11 | Total alkalinity (as CaCO3) | APHA 24th Edition 2320 B: 2023 | mg/L | 140 |
| 12 | Chloride (as Cl) | APHA 24th Edition 4500 Cl- B: 2023 | mg/L | 152 |

# Shrient Analytical and Research Labs Pvt. Ltd

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# TEST REPORT

| Report No. | SARL/25/0731 |
|---|---|

| Report Date. | 10.03.2025 |
|---|---|

| Sl. No. | Parameters | Protocol | Unit | Result |
|---|---|---|---|---|
| 13 | Free Residual chlorine | APHA 24th Edition 4500 Cl- B: 2023 | mg/L | BDL(D.L-0.2) |
| 14 | Sulphate as (SO42-) | APHA 24th Edition 4500 SO42- E: 2023 | mg/L | 112 |
| 15 | Iron (as Fe) | APHA 24th Edition 3500 Fe B: 2023 | mg/L | 0.12 |
| 16 | Nitrate (as NO3) | IS 3025 (Part 34): 1988 | mg/L | 2.68 |
| 17 | Fluoride (as F) | APHA 24th Edition 4500 F- D: 2023 | mg/L | 0.48 |
| 18 | Manganese (as Mn) | APHA 24th Edition 3500 Mn B: 2023 | mg/L | BDL(D.L-0.05) |
| 19 | Chemical Oxygen Demand | APHA 24th Edition 5220 B: 2023 | mg/L | BDL (D.L - 4.0) |
| 20 | Bio Chemical Oxygen Demand 3 Days at 27°c | IS 3025 (Part 44): 1993 | mg/L | BDL (D.L - 2.0) |
| 21 | Total Suspended Solids | APHA 24th Edition 2540 D: 2023 | mg/L | 8.0 |
| 22 | Dissolved Oxygen | IS 3025 (Part 38): 1989 | mg/L | 6.4 |

Remarks: *Drinking Water Specifications as per IS – 10500:2012. BDL – Below Detectable limit (DL - Detectable limit).

**For Shrient Analytical and Research Labs Pvt. Ltd**

**Verified**

Shrient Analytical & Research Labs Pvt. Ltd. Chennai - 45

**Authorized Signatory**
S. BALAMURUGAN
Asst.Technical Manager

*****END OF THE REPORT*****

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# ANNEXURE-8

National Accreditation Board for Testing and Calibration Laboratories

# CERTIFICATE OF ACCREDITATION

## SHRIENT ANALYTICAL & RESEARCH LABS PRIVATE LIMITED

**has been assessed and accredited in accordance with the standard**

## ISO/IEC 17025:2017

## "General Requirements for the Competence of Testing & Calibration Laboratories"

**for its facilities at**

**416/15, DHARGAS ROAD, PERUNGALATHUR, WEST TAMBARAM, CHENNAI, KANCHIPURAM, TAMIL NADU, INDIA**

**in the field of**

## TESTING

**Certificate Number:** TC-12339

**Issue Date:** 30/09/2023 **Valid Until:** 29/09/2025

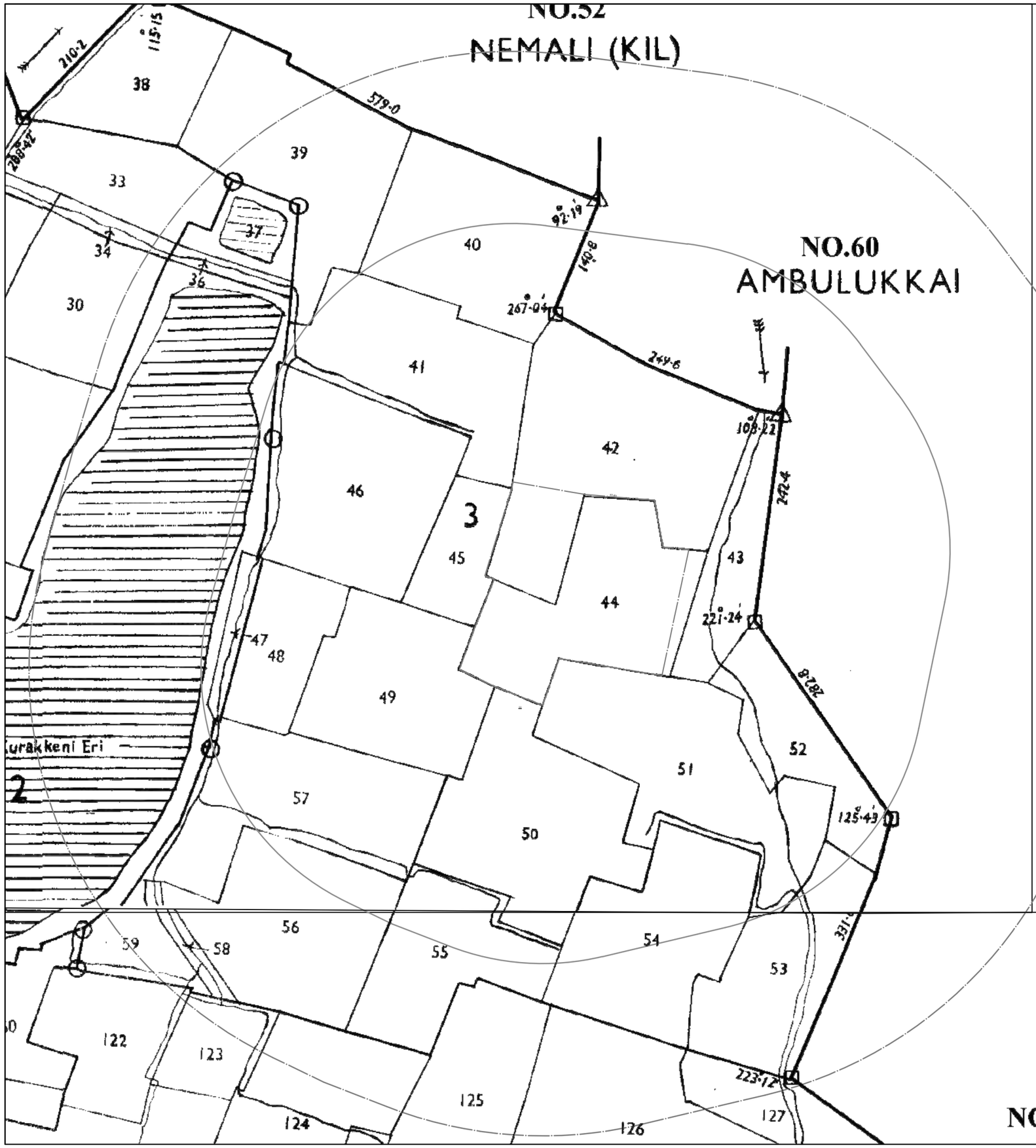
**This certificate remains valid for the Scope of Accreditation as specified in the annexure subject to continued satisfactory compliance to the above standard & the relevant requirements of NABL.**
**(To see the scope of accreditation of this laboratory, you may also visit NABL website www.nabl-india.org)**

**Name of Legal Entity:** SHRIENT ANALYTICAL AND RESEARCH LABS PRIVATE LIMITED

**Signed for and on behalf of NABL**

**N. Venkateswaran**
**Chief Executive Officer**

# ANNEXURE-9




## APPLICANT:

THIRU.S.SENTHIL KUMAR,
S/o.SEKAR,
No.9, SELSIYA STREET,
RAJA ANNAMALAI NAGAR,
GORIMEDU, PUDUCHERRY – 605 006.

## QUARRY LEASE APPLIED AREA:

S.F.NO'S : 42/3A, 42/3B, 44/1, 44/2, 44/3, 44/4A(P) & 44/4B,
EXTENT : 4.84.5 Ha,
VILLAGE : KORAIKENI,
TALUK : VANUR,
DISTRICT : VILUPPURAM.

## INDEX

Q.LEASE APPLIED BOUNDARY

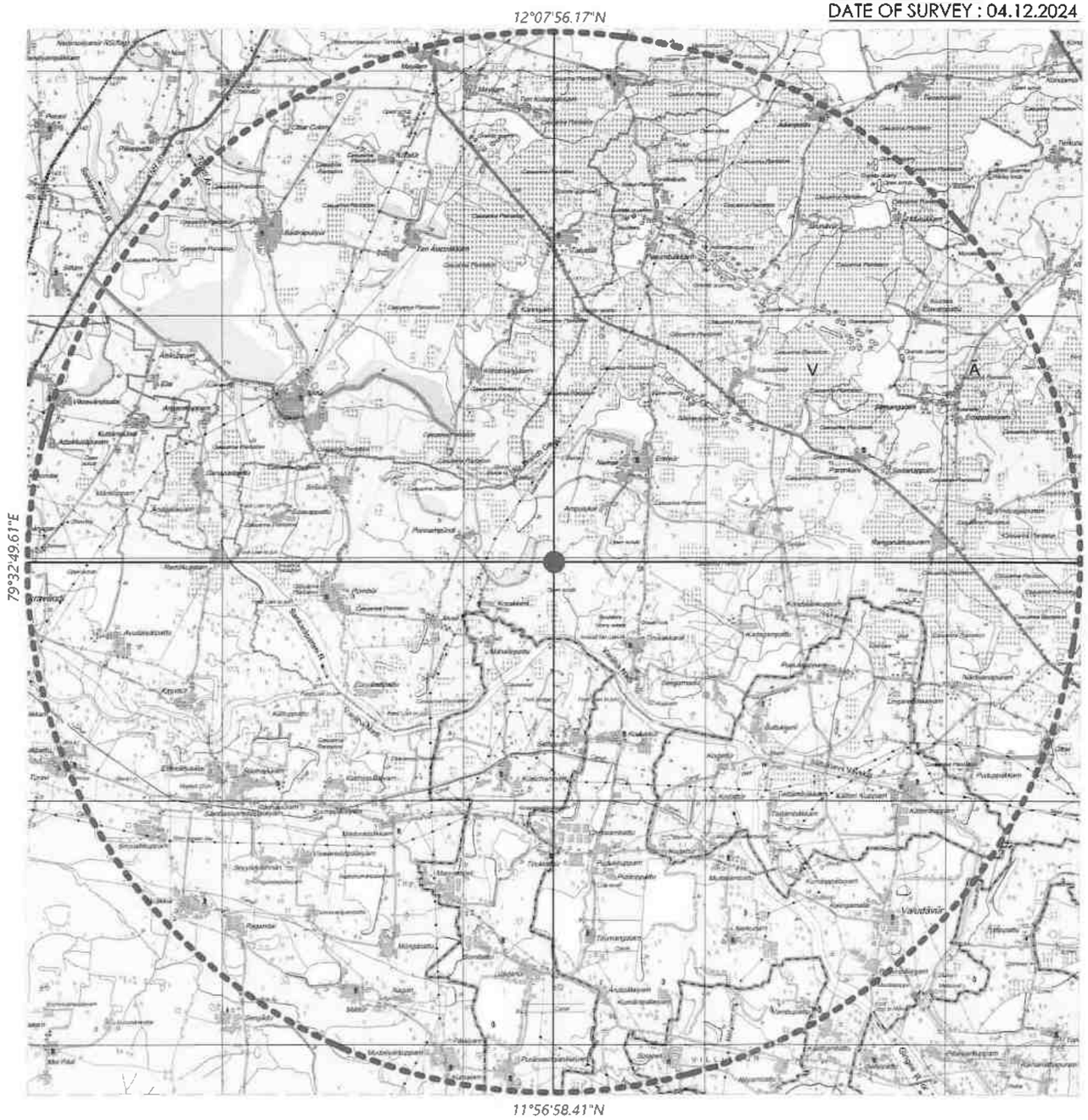
300M RADIUS

500M RADIUS

# ANNEXURE-10

## PLATE NO-I C

DATE OF SURVEY : 04.12.2024




**APPLICANT:**

THIRU.S.SENTHIL KUMAR,
S/o.SEKAR,
No.9, SELSIYA STREET,
RAJA ANNAMALAI NAGAR,
GORIMEDU, PUDUCHERRY - 605 006.

**QUARRY LEASE APPLIED AREA:**

S.F.NO'S : 42/3A, 42/3B, 44/1, 44/2, 44/3, 44/4A(P) & 44/4B,
EXTENT : 4.84.5 Ha,
VILLAGE : KORAIKENI,
TALUK : VANUR,
DISTRICT : VILUPPURAM.

27 DEC 2024

**INDEX**

TOPO SHEET No. : 57 P/ 12

LATITUDE : 12°02'23.31"N to 12°02'31.78"N

LONGITUDE : 79°38'21.41"E to 79°38'30.47"E

Q. LEASE APPLIED AREA

10KM RADIUS




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

SCALE- 1:100000

Prepared By:

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS PLATE IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE BASED UPON THE LEASE MAP AUTHENTICATED BY STATE GOVERNMENT

C.NATARAJAN,M.Sc,M.Phil.,
QUALIFIED PERSON

# ANNEXURE-11

அனுப்புதல்

K. ஜீவா
தலைமை ஆசிரியர்
ஊராட்சி ஒன்றிய தொடக்கப் பள்ளி.
கோரைக் கேணி.

பெறுதல்

திரு S. செந்தில் குமார
No:9 தென்னியா தெரு
அண்ணாமலை நகர்
கோரிமேடு, புதுச்சேரி.

பொருள் : கோரைக்கேணி கிராமத்திலுள்ள தொடக்கப் பள்ளிக்கு
தள்ளு வளைத்தி நிதி கோருதல் சார்ப.

வணக்கம்,

வரும்பும் மாவட்டம் வானூர்வட்டம் கோரைக்கேணி கிராமத்தில்
செந்தில் குமார் அவர்களுக்கு சுவாரி அமைய உள்ளதாக அறிகிறோம்.
மேலும் சர்வேண் 42/3A, 42/3B 44/1 44/2, 44/3, 44/4A 44/4B
என்பது எங்கள் பள்ளியில் 1 முதல் 5 வரை மாணவர்கள் பயில்கிறார்கள்.
எனவே எங்கள் பள்ளிகள் தீள்ள வளர்த்திக்காக தேவைப்படும் உதவரப்
பொருள்,

1. தண்ணீர் பாரீண்டர்.
2. Round Table, chairs.
3. பள்ள ஓளாகத்தீல் தரை போருதல்.
4. Table desk.
5. மதீர்சுவர் ஏதயம்.

இங்ஙனம்
எ. ஜீவா 22.1.2025.

HEADMASTER
PANCHAYAT UNION PRIMARY SCHOOL
KORAIKENI, VANUR BLOCK,
VILLUPURAM DISTRICT.