

**DRAFT EIA & EMP FOR
PROPOSED ROUGH STONE AND GRAVEL QUARRY
CATEGORY – B1**

(Public Hearing Upgraded after Terms of Reference (ToR) as per the provisions of
EIA Notification 2006 & amendments thereof)

ToR Identification No. TO24B0108TN5225806N (F.No. 11053), dated 22.10.2024

PROPOSED QUARRY LEASE DETAILS	
SURVEY NOS	5/1, 5/2 & 4/2
VILLAGE	CHOKKANTHANGAL
TALUK	MARAKKANAM
DISTRICT	VILUPPURAM
EXTENT	3.00.00 Ha
CLUSTER EXTENT	9.91.15 Ha
PROPOSED PRODUCTION QUANTITY	ROUGH STONE - 4,85,805 m³, GRAVEL - 41,818 m³ ROUGH STONE - 4,40,825 m³, GRAVEL - 41,818 m³ (1-5 Year) ROUGH STONE - 44,980 m³, (6-10 Year)
LAND	PATTA LAND

(Sector No. 1(a) Sector No.1 as per NABET)

Category of the Project: B1 Cluster Mining, Total Cluster Area – 9.91.15 Ha

Baseline Monitoring Period – March 2024 to May 2024

APPLICANT

**TVL. J.M. MINERALS,
NO.P-II/M29, TNHB, J.J. NAGAR,
KURUMBANCHAVADI ARIYALUR DISTRICT- 621 713.**

ORGANIZATION

**M/s. GLOBAL MINING SOLUTIONS
(NABET ACCREDITED & ISO 9001 CERTIFIED CONSULTANT)
PLOT NO.6, SF NO. 13/2, A2, VS CITY, RC CHETTYPATY,
KOTTAMETTUPATTY, OMALUR, SALEM, TAMIL NADU – 636 455
NABET ACCREDITATION NO – NABET/EIA/2326/IA 0110
CONTACT: 97502 23535, 94446 54520**

Email: infoglobalmining@gmail.com, globalminingsolutionssalem@gmail.com

FEB- 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						
2						
3						
4						
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ACKNOWLEDGEMENT

M/s. Global Mining Solutions, Salem is very much Tvl. J. M. Minerals, Lessee for the confidence and trust placed on the organization for carrying out Environmental Impact Assessment (EIA) study for the proposed Rough Stone and Gravel quarry over a lease extent of 3.00.00 Ha., & Cluster extent of 9.91.15 Ha., located at Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu State 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 Draft EIA/EMP report. Our sincere thanks to the local people of Chokkanthangal 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. Prabu)

Managing Director

UNDERTAKING

In line with MoEF 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 a lease extent of 3.00.00 Ha., & Cluster extent of 9.91.15 Ha., located at Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu State.

For: M/s. Global Mining Solutions



Name: M.Manikandan

EIA Coordinator – Mining of Minerals

UNDERTAKING

In Line with OM no. J-11013/41/2006-IA.II (1) dated 4th Aug 2009 and its 3.00.00 Ha., & Cluster extent of 9.91.15 Ha., located at Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu State for the production of 4,85,805 m³ of Rough Stone and 41,818 m³ of Gravel formation from the proposed lease area and the details has been complied in the Draft 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/2326/IA 0110, valid till 04.01.2026.

For: M/s. Global Mining Solutions



Name: M.Manikandan

EIA Coordinator – Mining of Minerals

**QUALITY COUNCIL
OF INDIA**
Creating an Ecosystem for Quality



**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

*The organization is accredited as **Category-B** under the QCI-NABET Scheme for Accreditation of EIA Consultant Organizations, Version 3: for preparing EIA-EMP reports in the following Sectors –*

S. No	Sector Description	Sector (as per)		Cat.
		NABET	MoEFCC	
1	Mining of minerals-opencast mining only	1	1 (a) (i)	A

Note: Names of approved EIA Coordinators and Functional Area Experts are mentioned in IAAC minutes dated February 10, 2023, posted on the QCI-NABET website.

The Accreditation shall remain in force subject to continued compliance with the terms and conditions mentioned in QCI-NABET's letter of accreditation bearing no. QCI/NABET/ENV/ACO/23/2724 dated March 31, 2023. The accreditation needs to be renewed before the expiry date by Global Mining Solutions, Salem following the due process of assessment.


Sr. Director, NABET
Date: March 31, 2023

Certificate No.
NABET/EIA/2326/IA 0110

Valid up to
January 4, 2026

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

Declaration By Expert

Declaration by Experts contributing to the proposed Rough Stone and Gravel Quarry over a lease extent of over a lease extent of 3.00.00 Ha, & Cluster extent of 9.91.15Ha., located at Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu State.

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

EIA Coordinator Name: M. Manikandan



Signature & Date

Period of involvement: March 2024 to May 2024.

Contact information:

M/s Global Mining Solutions

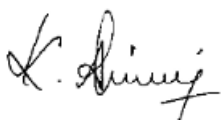
Plot No.6, SF No. 13/2, A2, VS City, RC Chettypatty,

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. Period: March 2024 to May 2024.	

DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF TVL.J.M.MINERALS OVER AN EXTENT OF 3.00.0 HA AT S.F.NOS. 5/1, 5/2 & 4/2 OF CHOKKANTHANGAL VILLAGE, MARAKKANAM TALUK, VILLUPURAM DISTRICT, TAMIL NADU STATE.

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. <u>Period: March 2024 to May 2024</u>	
3	SHW	Ramadoss N	Assessment of waste generated from the project, suggested waste management practices. <u>Period: March 2024 to May 2024</u>	
4	SE	Sarasvathy K	Baseline SE studies. Data compilation and assessment. Impact of the project on SE status of the area. Formulation of CER plan. <u>Period: March 2024 to May 2024</u>	
5	EB	Saravanan S	Baseline data collection of related to ecology of the area. <u>Period: March 2024 to May 2024</u>	
6	HG	Ravinthiran N	Hydrogeological feature of the area. Ground water depth and impact of project on ground water of the area. <u>Period: March 2024 to May 2024</u>	
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. <u>Period: March 2024 to May 2024</u>	

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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. <u>Period: March 2024 to May 2024</u>	R. Dhanu
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. <u>Period: March 2024 to May 2024</u>	T. Srilatha
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. <u>Period: March 2024 to May 2024</u>	S. Prashanth
11	SC	Shisupal Sing	Soil monitoring, secondary data collection on soil type, soil management practices, utilization of topsoil. <u>Period: March 2024 to May 2024</u>	Shisupal Singh
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. <u>Period: March 2024 to May 2024</u>	V. Meyyappan

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COMPLIANCE TO

TERMS OF REFERENCE

DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF TVL.J.M.MINERALS OVER AN EXTENT OF 3.00.0 HA AT S.F.NOS. 5/1, 5/2 & 4/2 OF CHOKKANTHANGAL VILLAGE, MARAKKANAM TALUK, VILLUPURAM DISTRICT, TAMIL NADU STATE.

S.No	ToR Points	Reply	Pg. No
1. Applicability of Specific Conditions :			
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	Agreed	-
2	The above-mentioned proposal has been considered by (SEIAA) Appraisal Committee of SEIAA in the meeting held on 17/10/2024. 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.	Agreed	
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 (1).	Agreed	
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 Tvl.J M Minerals under the provisions of EIA Notification, 2006 and as amended thereof.	Agreed	
5	The Ministry/SEIAA-TN reserves the right to stipulate additional conditions, if found necessary	Agreed	

DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF TVL.J.M.MINERALS OVER AN EXTENT OF 3.00.0 HA AT S.F.NOS. 5/1, 5/2 & 4/2 OF CHOKKANTHANGAL VILLAGE, MARAKKANAM TALUK, VILLUPURAM DISTRICT, TAMIL NADU STATE.

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	Agreed	
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 OMNo.J-11013/41/2006-IA-II(I)(part) dated 29th August, 2017	Agreed	
2	SEAC Conditions - Site Specific		
2.1	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 statutory personnel, appropriate environmental monitoring, good maintenance of haul roads and village/panchayat roads, authorized blasting operation etc. The PP shall submit the following details in the form of an Affidavit during the EIA appraisal: (i) Copy of the agreement forming CMC. (ii) The Organization chart of the Committee with defining the role of the members (iii) The 'Standard Operating Procedures' (SoP) executing the planned activities.	Agreed	-

DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF TVL.J.M.MINERALS OVER AN EXTENT OF 3.00.0 HA AT S.F.NOS. 5/1, 5/2 & 4/2 OF CHOKKANTHANGAL VILLAGE, MARAKKANAM TALUK, VILLUPURAM DISTRICT, TAMIL NADU STATE.

2	The structures within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m & upto 1km 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. and spell out the mitigation measures to be proposed for the protection of the above structures, if any during the quarrying operations.	Complied.	Complied. Enclosed as Annexure 10.
3	The PP shall carry out tree plantation in the safety distance of 55m since the school is located at the NW direction of the proposed project site. The same shall be included in the Final EIA report	Agreed. Will be complied.	
4	The proponent shall furnish photographs of adequate fencing, garland drainage built with siltation tank & green belt along the periphery including replantation of existing trees; maintaining the safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan.	There are no trees within ML area. Fencing and plantations are under process. Greenbelt / Plantation will be carried out in the safety zone to enhance the vegetative growth and aesthetic in the safety zone area. In the post mining stage, an area of 0.79.5 Ha will be under greenbelt and plantation.	-
5	The Proponent shall carry out Bio diversity study as a part of EIA study and the same shall be included in the Report.	Complied. The details are given in Chapter 3.	116
6	The PP shall prepare the EMP for the entire project life of mine, i.e, 10 years and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine.	Agreed. Will be complied.	-
7	The PP shall prepare a conceptual working plan accommodating the inclusion of haul road accessibility keeping the benches intact, by ensuring the slope stability of the working benches to be constructed and existing quarry wall.	Agreed. Will be complied.	

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3	SEAC Standard Condition		
1	In the case of existing/operation mines, a letter obtained from the concerned AD (Mines) shall be submitted and it shall include the following: (i) Original pit dimension (ii) Quantity achieved Vs EC Approved Quantity (iii) Balance Quantity as per Mineable Reserve calculated (iv) Mined out Depth as on date Vs EC Permitted depth (v) Details of illegal/illicit mining (vi) Violation in the quarry during the past working (vii) Quantity of material mined out outside the lining lease area (viii) Condition of Safety zone/benches (ix) Revised/Modified Mining Plan showing the benches of not exceeding 6m height and ultimate depth of not exceeding 50m.	Not applicable. This is a fresh quarry.	-
2	Details of habitations around the proposed mining area and latest VAO Certificate regarding the location of habitations within 300m radius from the periphery of the site.	Complied.	Enclosed as Annexure 5
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.	Complied.	Enclosed as Annexure 10.
4	The PP shall submit a detailed hydrogeological report indicating the impact of proposed quarrying operations on the water bodies like	The study is under progress. It will be incorporated in the final EIA & EMP.	-

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	lake, water tanks, etc are located within 1 km of the proposed quarry.		
5	The Project Proponent shall carry out Bio-diversity study through reputed institution and the same shall be included in the EIA report.	Complied. The biodiversity report of the study area to be incorporated at the time of final EIA submission.	116
6	The DFO letter stating that the proximity distance of Reserve Forests, Protected Areas, Sanctuaries. Tiger reserve etc. upto a radius of 25 km from the proposed site.	The DFO letter stating that the proximity distance of RF & PF to be incorporated at the time of final EIA submission.	-
7	In case of proposed lease in an existing (or old) quarry where the benches are not formed(or) partially formed as per the approved Mining Plan, the Project Proponent (PP) shall the PP shall carry out the scientific studies to assess the slope stability of the working benches to be constructed and existing quarry wall, by involving any one of the reputed Research and Academic institutions- CSIR Central Institute of Mining & Fuel Research/Dhanbad, NIRM/ Bangalore, Division of Geotechnical Engineering- IIT-Madras, NIT-Dept of Mining Engg, Suratkal 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 project 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 30m below ground level.	It will be complied at the timing of EC appraisal.	-
9	The PP shall furnish the affidavit stating that the blasting operation in the proposed quarry is carried out by the statutory competent person as per the MMR 1961 such as blaster, mining mate, mine foreman, II/I Class mines manager appointed by the proponent	Proponent undertaking agreement enclosed	-

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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	Agreed. Will be complied.	-
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 details to be incorporated at the time of final EIA Submission.	-
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?	Not applicable. This is a fresh quarry project.	-
14	Quantity of minerals mined out. • Highest production achieved in any one year. • Detail of approved depth of mining. • Actual depth of the mining achieved earlier. • Name of the person already mined in that leases area. • If EC and CTO already obtained, the copy of the same shall be submitted. • Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches	Not applicable. This is a fresh quarry project.	-
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).	Project coordinates superimposed in satellite imagery and given as Figure No – 2.2 in Chapter – 2. The geology and geomorphology map are provided in Figure No.3.23, 3.24 Chapter 3. The 10km Radius Index plan showing buffer zone is given in Figure No.3.1 & Figure 3.2 in Chapter – 3.	67 &135

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16	The PP shall carry out Drone video survey covering the cluster, green belt, fencing etc.,	This is fresh quarry. The condition will be complied after commencement of the mining operation.	-
17	The proponent shall furnish photographs of adequate fencing, greenbelt along the periphery including replantation of existing trees & safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan	There are no trees within ML area. Fencing and plantations are under process. Greenbelt / Plantation will be carried out in the safety zone to enhance the vegetative growth and aesthetic in the safety zone area. In the post mining stage, an area of 0.79.5 Ha will be under greenbelt and plantation.	-
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 are estimated to be rough stone 13,47,795m ³ and Gravel 59,902 m ³ . The mineable reserves of rough stone 4,85,808 m ³ and Gravel 41,818 m ³ .	83
19	The Project Proponent shall provide the Organization chart indicating the appointment of various statutory officials and other competent persons to be appointed as per the provisions of Mines Act'1952 and the MMR" 1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment.	Complied. Please refer Fig. 10.1	194
20	The Project Proponent shall conduct the Hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD/TWAD so as to assess the impacts on the wells due to mining	The hydrogeological study from a reputed institute is in progress; however, the final EIA submission report will be incorporated into Chapter 3.	132

	activity. Based on actual monitoring data, it may clearly be shown whether working all intersect ground water. Necessary data and documentation in this regard may be provided.		
21	The proponent shall furnish the baseline data for the environmental and ecological parameters with regard to surface water/ground water quality, air quality, soil quality& flora/fauna including traffic/vehicular movement study.	The baseline data for all environments is collected for the Summer season (March to May 2024).	93
22	The Proponent shall carry out the cumulative impact study due to mining operations carried out in the quarry specifically with reference to the specific environment in terms of air pollution, water pollution, & health impacts. Accordingly, the Environment Management plan should be prepared keeping the concerned quarry and the surrounding habitations in the mind.	Detailed cumulative impact study has been carried and the same is incorporated in the Chapter 4. Accordingly, a detailed Environment Management Plan is prepared considering air, water, noise and soil environment and the details are given in Chapter 7.	151 & 178
23	Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.	- The runoff water during rainy season will be collected in the bottom quarry through proper drainage pattern and the collected water will be used for plantation and dust suppression during dry season. - Rain water harvesting Plan is given in section 4.5.5 of chapter 4. The water balance is given in Figure 4.1 of chapter 4	146
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.	Satellite imagery has been used to study the lease area and the details of land use is given in Chapter 3.	97

25	Details of the land for storage of Overburden/Waste Dumps (or) Rejects outside the mine lease, such as extent of land area distance from mine lease, its land use, R&R issues, if any, should be provided.	Not applicable. There is no generation of the OB & waste.	-
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.	No proximity to Critically polluted areas.	-
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 impact of the mining operations due to this quarry on water environment is studied and mitigation measures are proposed. Rain water harvesting plan is given Chapter 4.	141
28	Impact on local transport infrastructure due to the Project should be indicated	Since the production is very less, only few trucks of 5/10T will be used for transport. The effect of transport on local transport will be negligible.	-
29	A tree survey shall be carried out (Nos. name of species, age, diameter, etc) both within the mining lease applied area & 300m buffer zone and its management during mining activity	There are no trees within 300m buffer zone of the project area.	-
30	A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific	Detailed mine closure plan is given in Chapter 7.	186
31	As 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, where ever 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 to improving the aesthetics. A wide range of indigenous plant species should be planted as given in the appendix – I in consultation with the DFO, State Agriculture University and local school/college authorities. The plant species with dense/moderate canopy of native origin should be chosen. Species of small/medium/tall trees alternating with shrubs should be planted in a mixed manner.	Green belt is proposed in an area of 0.79.5 ha. Green belt development plan provided.	88
33	Taller/one year old saplings raised in appropriate size of bags; preferably eco-friendly bags should be planted as per the advice of local forest authorities/botanist/horticulturist with regard to site-specific choices. The proponent shall earmark the green belt area with GPS coordinates all along the boundary of the project site with at least 3 m wide and in between blocks in an organized manner	Accepted. The photographs showing green belt will be provided once it is completed.	-
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 is prepared and the details are given in Chapter 7.	186
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	Risk assessment and its management is given in Chapter 7.	176
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 are detailed under Chapter 4.	166

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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 major impact on public health will be there since the villages are located more than 1km from the lease area. Details of CER and CSR are discussed under Chapter No. 8	-
38	The Socio-economic studies should be carried out within a 5km buffer zone from the mining activity. Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.	Socio economic study is conducted both by visits and secondary data collection. Details are given in Chapter 3	164
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	-
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	187
41	If any quarrying operations were carried out in the proposed quarrying site for which now 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/TNPCCB.	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.	-	-
43	Concealing any factual information or submission of false/fabricated data and failure to comply with any of the condition mentioned above may result in withdrawal of this Terms of Conditions besides attracting penal provisions in the Environment (Protection) Act, 1986	Agreed	-

Seiaa Specific Conditions:

1	After detailed discussions, the Authority accepts the recommendation of SEAC and decided to grant Terms of Reference (ToR) along with Public Hearing under cluster for the production should not exceed 4,40,825 m³ of Rough stone & 41,818 m³ of Gravel and the annual peak production should not exceed 96,725 m³ of Rough stone & 34,872 m³ of Gravel up to depth of mining 37m BGL, for undertaking the combined Environment Impact Assessment Study and preparation of separate Environment Management Plan subject to the conditions as recommended by SEAC & normal conditions and conditions in Annexure 'B' of this minutes in addition to the following conditions 1. There are three water bodies at a distance of 135m, 350m & 580m respectively. Also, agriculture activities are around. Hence, The PP shall carry out the scientific studies to assess the hydrogeological condition of the quarry for ensuring the safety of the persons working in the mine and to determine impacts of the mining operation on the ground water conditions in the waterbodies, by involving any one of the reputed Research and Academic Institution - CSIR-Central Institute of Mining & Fuel Research / Dhanbad, NIRM/Bangalore, Division of Geotechnical Engineering-IIT-Madras, NIT-Dept of Mining Engg, Surathkal, University of Madras – Centre for Environmental Studies, and Anna University Chennai-Dept of Geology, CEG Campus. The same shall be submitted during EIA appraisal.	Agreed	-
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Cluster Management Committee			
1	Cluster management committee shall be framed which must include all the proponents in the cluster as members including the existing as well as proposed quarry.	There are five quarries 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 as well as the other proposed quarry.	-
2	The members must coordinate among themselves for the effective implementation of EMP as committed including Green Belt Development, Water sprinkling, tree plantation, blasting etc.,	Agreed. 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.	-
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 for all quarries proposed in the cluster area.	-
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 and the same will be submitted to the EIA.	-
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.	-

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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 mining as well as the health of the public in the vicinity.	Agreed. It will be complied as mentioned in the Point No.4.	-
Agriculture & Agro-Biodiversity			
9	Impact on surrounding agricultural fields around the proposed mining Area.	Agreed. It is described in the point no. 12 (e) of this ToR Compliance Annexure-1	-
10	Impact on soil flora & vegetation around the project site.	Complied. The details are given in Chapter 3.	116
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.	Complied. The details are given in Chapter 3.	116
12	The Environmental Impact Assessment should study the biodiversity, the natural ecosystem, the soil micro flora, fauna and soil seed banks and suggest measures to maintain the natural Ecosystem.	Complied. The details are given in Chapter 3.	116
13	Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.	The detailed action plan has been described in the EMP (Chapter 10) for the sustainable management for the project area and its surroundings.	116
14	The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands, Horticulture, Agriculture and livestock.	Complied. The details are given in Chapter 4.	124
Forests			
15	The project proponent shall detailed study on impact of mining on Reserve Forests free ranging wildlife.	Sevur R.F - 1.7km (NW), Kumalumpattu R.F - 6.0 km (SW)	91
16	The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.	Complied. The details are given in Chapter 3.	

17	The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection.	Not Applicable. This is a dry barren land.	-
18	The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site.	Sevur R.F - 1.7km (NW), Kumalumpattu R.F - 6.0 km (SW)	91
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 1 km (radius) so as to assess the impacts on the nearby waterbodies due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided, covering the entire mine lease period.	The hydrogeological study from a reputed institute is in progress; however, the final EIA submission report will be incorporated into Chapter 7.	188
20	Erosion Control measures.	There is no waste generation (OB) in this quarry has been envisaged. However, there may be erosion due to rainy season and that is limited within quarry area.	
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.	Complied. The details are incorporated in Chapter 3.	91
22	The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir.	Not applicable.	-
23	The project proponent shall study and furnish the details on potential fragmentation impact on natural environment, by the activities.	Fragmentation impact on environment may be due to drilling and blasting. The anticipated impacts and mitigation measures are discussed in Chapter 4.	144

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.	An ecological and biodiversity study has been conducted and the same is incorporated in the Chapter 3 of the Draft EIA/EMP report. However, there is no any features mentioned in this condition within the M.L area. However, the impacts anticipated with respect to the environment of the project area is very negligible and it will be minimized within the project area. The details are described in Chapter 10.	116
25	The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components.	Agreed.	-
26	The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites.	Complied. The details are described in Chapter 3.	116
27	The EIA shall include the impact of mining activity on the following: a) Hydrothermal/Geothermal effect due to destruction in the Environment. b) Bio-geochemical processes and its foot prints including environmental stress. c) Sediment geochemistry in the surface streams.	There is no wastewater generation from this Quarry, so this is not applicable.	
Energy			
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.	Complied. The details are described in Chapter 4.	151
30	The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock.	Complied. The details are described in Chapter 4.	151

31	Impact of mining on pollution leading to GHGs emissions and the impact of the same on the local livelihood		
Mine Closure Plan			
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.	193
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.	Complied. The details are described in Chapter 10.	193
Risk Assessment			
Disaster Management Plan			
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.	-	-
38	As per the MoEF& CC office memorandum F.NO.22-65/2017-1A.11I dated: 30.09.2020 and 20.10.2020 the proponent shall address the concerns raised during the public consultation and all the activities proposed shall be part of the Environment Management Plan.	Noted. It will be complied in the Final EIA/EMP 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.	Nil	-

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Standard Terms of Reference for (Mining of minerals)			
1.1	An EIA-EMP Report shall be prepared for peak capacity (.....MTPA) operation in an ML/project area of.....ha based on the generic structure specified in Appendix III of the EIA Notification, 2006.	Complied.	-
1.2	An EIA-EMP Report would be prepared for peak capacity operation to cover the impacts and environment management plan for the project specific activities on the environment of the region, and the environmental quality encompassing air, water, land, biotic community, etc. through collection of data and information, generation of data on impacts including prediction modeling for.... MTPA of mineral production based on approved project/Mining Plan for.... MTPA. Baseline data collection can be for any season (three months) except monsoon.	Anticipated Environmental Impacts and Mitigation Measures is given in Chapter 4.	143
1.3	Proper KML file with pin drop and coordinate of mine at 500-1000 m interval be provided.	Agreed	-
1.4	A Study area map of the core zone (project area) and 10 km area of the buffer zone (1: 50,000 scale) clearly delineating the major topographical features such as the land use, surface drainage pattern including rivers/streams/nullahs/canals, locations of human habitations, major constructions including railways, roads, pipelines, major industries, mines, and other polluting sources. In case of ecologically sensitive areas such as Biosphere Reserves/National Parks/WL Sanctuaries/ Elephant Reserves, forests (Reserved/Protected), migratory corridors of fauna, and areas where endangered fauna and plants of medicinal and economic importance found in the 15 km study area should be given. The above details to be furnished in tabular form also	Land Use Pattern of 10 km Radial Buffer Area of Project Site is given page chapter-3.	123

1.5	Map showing the core zone delineating the agricultural land (irrigated and un-irrigated, uncultivable land as defined in the revenue records, forest areas (as per records), along with other physical features such as water bodies, etc should be furnished.	Land Use Pattern of 10 km Radial Buffer Area of Project Site is given page chapter-3.	123
1.6	A contour map showing the area drainage of the core zone and 25 km of the study area (where the water courses of the core zone ultimately join the major rivers/streams outside the lease/project area) should also be clearly indicated in the separate map.	Contour map, Physiography and Drainage is given Chapter-3.	134
1.7	Catchment area with its drainage map of 25 km area within and outside the mine shall be provided with names, details of rivers/ riverlet system and its respective order. The map should clearly indicate drainage pattern of the catchment area with basin of major rivers. Diversion of drains/ river need 36laboration in form of lengthe, quantity and quality of water to be diverted	Drainage map is given Chapter-3.	134
1.8	Details of mineral reserves, geological status of the study area and the seams to be worked, ultimate working depth and progressive stage-wise working scheme until the end of mine life should be provided on the basis of the approved rated capacity and calendar plans of production from the approved Mining Plan. Geological maps and sections should be included. The Progressive mine development and Conceptual Final Mine Closure Plan should also be shown in figures. Details of mine plan and mine closure plan approval of Competent Authority should be furnished for green field and expansion projects.	Mineral reserves, geological status of the study area is given chapter-2.	82
1.9	Details of mining methods, technology, equipment to be used, etc., rationale for selection of specified technology and equipment proposed to be used vis-à-vis the potential impacts should be provided.	Method of mining Details is Given Chapter-2.	79

1.10	Impact of mining on hydrology, modification of natural drainage, diversion and channeling of the existing rivers/water courses flowing through the ML and adjoining the lease/project and the impact on the existing users and impacts of mining operations thereon.	Details given chapter-2	134
1.11	A detailed Site plan of the mine showing the proposed break-up of the land for mining operations such as the quarry area, OB dumps, green belt, safety zone, buildings, infrastructure, Stockyard, township/colony (within and adjacent to the ML), undisturbed area –if any, and landscape features such as existing roads, drains/natural water bodies to be left undisturbed along with any natural drainage adjoining the lease /project areas, and modification of thereof in terms of construction of embankments/bunds, proposed diversion/re-channeling of the water courses, etc., approach roads, major haul roads, etc should be indicated.	Land Use Pattern of 10 km Radial Buffer Area of Project Site is given page chapter-3.	123
1.12	Original land use (agricultural land/forestland/grazing land/wasteland/water bodies) of the area should be provided as per the tables given below. Impacts of project, if any on the land use, in particular, agricultural land/forestland/grazing land/water bodies falling within the lease/project and acquired for mining operations should be analyzed. Extent of area under surface rights and under mining rights should be specified. Area under Surface Rights Area under Mining Rights(ha) S.N ML/Project Land use Rights(ha) (ha) Area under Both (ha) 1 Agricultural land 2 Forest Land 3 Grazing Land 4 Settlements 5 Others (specify) S.N. Details Area (ha) 1 Buildings 2 Infrastructure 3. Roads 4 Others (specify) Total	Land Use Pattern of 10 km Radial Buffer Area of Project Site is given page chapter-3.	123

1.13	Study on the existing flora and fauna in the study area (10km) should be carried out by an institution of relevant discipline. The list of flora and fauna duly authenticated separately for the core and study area and a statement clearly specifying whether the study area forms a part of the migratory corridor of any endangered fauna should be given. If the study area has endangered flora and fauna, or if the area is occasionally visited or used as a habitat by Schedule-I species, or if the project falls within 15 km of an ecologically sensitive area, or used as a migratory corridor then a Comprehensive Conservation Plan along with the appropriate budgetary provision should be prepared and submitted with EIA-EMP Report; and comments/observation from the CWLW of the State Govt. should also be obtained and furnished.	Flora & fauna of 10 km Radial Buffer Area of Project Site is given page chapter-3.	116
1.14	One-season (other than monsoon) primary baseline data on environmental quality – air (PM10, PM2.5, Sox, Nox and heavy metals such as Hg, Pb, Cr, As, etc), noise, water (surface and groundwater), soil – along with one-season met data coinciding with the same season for AAQ collection period should be provided. The detail of NABL/MoEF&CC certification of the respective laboratory and NABET accreditation of the consultant to be provided.	Details given under description of the environment chapter-3.	103
1.15	Map (1: 50, 000 scale) of the study area (core and buffer zone) showing the location of various sampling stations superimposed with location of habitats, other industries/mines, polluting sources, should be provided. The number and location of the sampling stations in both core and buffer zones should be selected on the basis of size of lease/project area, the proposed impacts in the downwind (air)/downstream (surface water)/groundwater regime (based on	Details given under description of the environment chapter-3.	103

	flow). One station should be in the upwind/upstream/non-impact/non-polluting area as a control station. The monitoring should be as per CPCB guidelines and parameters for water testing for both ground water and surface water as per ISI standards and CPCB classification wherever applicable. Observed values should be provided along with the specified standards.		
1.16	For proper baseline air quality assessment, Wind rose pattern in the area should be reviewed and accordingly location of AAQMS shall be planned by the collection of air quality data by adequate monitoring stations in the downwind areas. Monitoring location for collecting baseline data should cover overall the 10 km buffer zone i.e. dispersed in 10 km buffer area. In case of expansion, the displayed data of CAAQMS and its comparison with the monitoring data to be provided	Details given under description of the environment chapter-3.	103
1.17	A detailed traffic study along with presence of habitation in 100 mts distance from both side of road, the impact on the air quality with its proper measures and plan of action with timeline for widening of road. The project will increase the no. of vehicle along the road which will indirectly contribute to carbon emission so what will be the compensatory action plan should be clearly spell out in EIA/ EMP report	Details given under chapter-7.	187
1.18	The socio-economic study to conducted with actual survey report and a comparative assessment to be provided from the census data should be provided in EIA/ EMP report also occupational status & economic status of the study area and what economically project will contribute should be clearly mention. The study should also include the status of infrastructural facilities and amenities present in the study area and a comparative assessment with census	Socioeconomic Environment Details Given Chapter-3.	126

	data to be provided and to link it with the initialization and quantification of need based survey for CSR activities to be followed.		
1.19	The Ecology and biodiversity study should also indicate the likely impact of change in forest area for surface infrastructural development or mining activity in relation to the climate change of that area and what will be the compensatory measure to be adopted by PP to minimize the impact of forest diversion.	Biological Environment Details Given Chapter-3.	116
1.20	Baseline data on the health of the population in the impact zone and measures for occupational health and safety of the personnel and manpower for the mine should be submitted.	Health Details Given Chapter-3.	133
1.21	Impact of proposed project/activity on hydrological regime of the area shall be assessed and report be submitted. Hydrological studies as per GEC 2015 guidelines to be prepared and submitted	The hydrogeological study from a reputed institute is in progress; however, the final EIA submission report will be incorporated into Chapter 7.	188
1.22	Impact of mining and water abstraction from the mine on the hydrogeology and groundwater regime within the core zone and 10 km buffer zone including long-term monitoring measures should be provided. Details of rainwater harvesting and measures for recharge of groundwater should be reflected in case there is a declining trend of groundwater availability and/or if the area falls within dark/grey zone.	Abstraction from the mine on the hydrogeology and groundwater regime details is given chapter-3	134
1.23	Study on land subsidence including modeling for prediction, mitigation/prevention of subsidence, continuous monitoring measures, and safety issues should be carried out.	Land subsidence is given chapter-3	123
1.24	Detailed water balance should be provided. The breakup of water requirement as per different activities in the mining operations, including use of water for sand stowing should be given separately. Source of water for use in mine, sanction of the Competent Authority in the State	Impact due to Water use in Mines and water balance given chapter-4.	139

	Govt. and impacts vis-à-vis the competing users should be provided.		
1.25	PP shall submit design details of all Air Pollution control equipment (APCEs) to be implemented as part of Environment Management Plan vis-à-vis reduction in concentration of emission for each APCEs	Air Pollution control equipment (APCEs) to be implemented as part of Environment Management Plan details given chapter-10	148
1.26	PP shall propose to use LNG/CNG based mining machineries and trucks for mining operation and transportation of mineral. The measures adopted to conserve energy or use of renewable sources shall be explored	Agreed.	
1.27	PP to evaluate the greenhouse emission gases from the mine operation and corresponding carbon absorption plan.	Greenhouse emission gases details given chapter-4	151
1.28	Site specific Impact assessment with its mitigation measures, Risk Assessment and Disaster Preparedness and Management Plan should be provided.	Impact assessment with its mitigation measures, Risk Assessment and Disaster Preparedness and Management Plan given chapter-7.	173
1.29	Impact of choice of mining method, technology, selected use of machinery and impact on air quality, mineral transportation, handling & storage/stockyard, etc, Impact of blasting, noise and vibrations should be provided.	Mining method, technology details given chapter-1.	82
1.30	Impacts of mineral transportation within the mining area and outside the lease/project along with flow-chart indicating the specific areas generating fugitive emissions should be provided. Impacts of transportation, handling, transfer of mineral and waste on air quality, generation of effluents from workshop etc, management plan for maintenance of HEMM and other machinery/equipment should be given. Details of various facilities such as rest areas and canteen for workers and effluents/pollution load emanating from these activities should also be provided.	Mineral transportation details given chapter-2.	82

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1.31	Details of various facilities to be provided to the workers in terms of parking, rest areas and canteen, and effluents/pollution load resulting from these activities should also be given.	Parking, rest areas and canteen, and effluents/pollution load details given chapter -4	200
1.32	The number and efficiency of mobile/static water jet, Fog cannon sprinkling system along the main mineral transportation road inside the mine, approach roads to the mine/stockyard/siding, and also the frequency of their use in impacting air quality should be provided.	PP will provide mobile water tankers with a cost of 1.0 lakhs under EMP.	200
1.33	Conceptual Final Mine Closure Plan and post mining land use and restoration of land/habitat to the pre-mining status should be provided. A Plan for the ecological restoration of the mined out area and post mining land use should be prepared with detailed cost provisions. Impact and management of wastes and issues of re-handling (wherever applicable) and backfilling and progressive mine closure and reclamation should be furnished.	Final Mine Closure Plan and post mining land use details given in chapter-7	189
1.34	Adequate greenbelt nearby areas, mineral stock yard and transportation area of mineral shall be provided with details of species selected and survival rate Greenbelt development should be undertaken particularly around the transport route.	Agreed	-
1.35	Cost of EMP (capital and recurring) should be included in the project cost and for progressive and final mine closure plan.	EMP cost details given chapter-2	83
1.36	Details of R&R. Detailed project specific R&R Plan with data on the existing socio- economic status of the population (including tribals, SC/ST, BPL families) found in the study area and broad plan for resettlement of the displaced population, site for the resettlement colony, alternate livelihood concerns/employment for the displaced people, civic and housing amenities being offered, etc and costs along with the schedule of	Not applicable.	-

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	the implementation of the R&R Plan should be given.		
1.37	CSR Plan along with details of villages and specific budgetary provisions (capital and recurring) for specific activities over the life of the project should be given.	CSR details given chapter-11	219
1.38	Corporate Environment Responsibility:	CSR details given chapter-11	219
1.39	a) The Company must have a well laid down Environment Policy approved by the Board of Directors.	Environment policy details given chapter- 10.	197
1.40	b) The Environment Policy must prescribe for standard operating process/procedures to bring into focus any infringements/deviation/violation of the environmental or forest norms/conditions.	Environment policy details given chapter- 10.	197
1.41	c) The hierarchical system or Administrative Order of the company to deal with environmental issues and for ensuring compliance with the environmental clearance conditions must be furnished.	-	-
1.42	d) To have proper checks and balances, the company should have a well laid down system of reporting of non-compliances/violations of environmental norms to the Board of Directors of the company and/or shareholders or stakeholders at large.	-	-
1.43	e) Environment Managment Cell and its responsibilities to be clearly spell out in EIA/ EMP report	EMP cell details given Chapter-10.	197
1.44	f) In built mechanism of self-monitoring of compliance of environmental regulations should be indicated.	Agreed	-
1.45	Status of any litigations/ court cases filed/pending on the project should be provided	Nil	
1.46	PP shall submit clarification from DFO that mine does not fall under corridors of any National Park and Wildlife Sanctuary with certified map showing distance of nearest sanctuary.	Noted	-

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1.47	Copy of clearances/approvals such as Forestry clearances, Mining Plan Approval, mine closer plan approval. NOC from Flood and Irrigation Dept. (if req.), etc. wherever applicable.	Noted	-
1.48	Details on the Forest Clearance should be given as per the format given: Total ML Total Project Area Forest (ha) land (ha) Date of FC Extent of Forest Land Balance area for which FC is yet to be obtained Status of appl for diversion of forest land If more than one provides details of each FC	Noted	-
1.49	In case of expansion of the proposal, the status of the work done as per mining plan and approved mine closure plan shall be detailed in EIA/ EMP report	Noted	-
1.50	Details on Public Hearing should cover the information relating to notices issued in the newspaper, proceedings/minutes of Public Hearing, the points raised by the general public and commitments made by the proponent and the time bound action proposed with budgets in suitable time frame. These details should be presented in a tabular form. If the Public Hearing is in the regional language, an authenticated English Translation of the same should be provided.	Noted	-
1.51	PP shall carry out survey through drone highlighting the ground reality for atleast 10 minutes	Noted	-
1.52	Detailed Chronology of the project starting from the first lease deed allotted/Block allotment/ Land acquired to its No. of renewals, CTO /CTE with details of no. renewals, previous EC(s) granted details and its compliance details, NOC details from various Govt bodies like Forest NOC(s), CGWA permissions, Power permissions, etc as per the requisites respectively to be furnished in tabular form	Noted	-

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1.53	The first page of the EIA/ EMP report must mention the peak capacity production, area, detail of PP, Consultant (NABET accreditation) and Laboratory (NABL / MoEF & CC certification)	Noted	-
1.54	The compliances of ToR must be properly cited with respective chapter section and page no in tabular form and also mention sequence of the respective ToR complied within the EIA-EMP report in all the chapter,s section	Noted	-
STANDARD TERMS OF REFERENCE			
1	Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification 1994 came into force, w.r.t. the highest production achieved prior to 1994.	Not applicable. This is not a Violation Category Project. This proposal is for Environmental Clearance for B1 Category Cluster Situation.	
2	A copy of the document in support of the fact that the Proponent is the rightful lessee of the mine should be given.	The copy of LOI i.e. Precise Area Communication Letter in the name of all Lessee is attached as Annexure2,	
3	All documents including approved mine plan, EIA and Public Hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and should be in the name of the lessee.	Noted & agreed.	
4	All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/ 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 given as Figure No – 2.2 in Chapter – 2. The geology and geomorphology map are provided in Figure No.3.23, 3.24 Chapter 3.	67 &136
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	The geology and geomorphology map are provided in Figure No.3.23, 3.24 Chapter 3.	67 &136

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	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.	The applied area is inspected by the VAO, Revenue Inspector of Mines, Assistant Director and confirmed the land is suitable for Rough stone quarrying operation with the land use policy of the state. VAO Certificate is attached as Annexure 5 ,	
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.	Environment policy details given chapter- 10.	197
8	Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.	It is an open cast mining project. Blasting details are incorporated in Chapter-2	80
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.	The study area comprise of 10 km zone around the mine lease from. in Chapter 2	
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	Satellite imagery has been used to study the lease area and the details of land use is given in Chapter 3.	97

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	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	There is no proposal for use of land outside the mine lease area for OB dumps, etc. There are no R&R issues involved in the project.	
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.	No forest land involved in the project.	
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 since no forest land involved within mine lease area.	
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 since no forest land involved in mine lease area.	
15	The vegetation in the RF / PF areas in the study area, with necessary details, should be given.	No wildlife sanctuary, national park or biosphere reserve within 10 m radius of mine lease area.	
16	A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished.	Impact on Biological Environment is given in Chapter 3	116

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	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.	Not Applicable since no National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/ Elephant Reserves/ (existing as well as proposed) within 10 km radius.	
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.	Details biological study (flora & fauna) within 10 km radius of the project site have been incorporated in Chapter 3	116
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	There is no critically polluted area within 10 km radius of the mining area. Also, the project does not come under the 'Aravali Range'.	

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	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).	The project does not fall under CRZ.	
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.	There is no Rehabilitation and resettlement is involved. Land classified as Patta land	
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	Baseline environmental monitoring was conducted in the core zone and buffer zone during Summer March 2024 to May 2024 . Site specific meteorological data was also collected during the study period. The monitoring location details and the monitoring results are discussed in Chapter 3 .	94

	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.	Air quality modeling was carried out for the rough stone mining project using AERMOD as incorporated in Chapter-4	151
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.	Water requirement for the project and source are given in detail in Chapter 2	74
25	Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.	Not Applicable Water will be taken from out sources	
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.	Proposed water conservation measures including rainwater harvesting measures are discussed in Chapter 4	
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 of the project on the surface and ground water environment and necessary control measures are discussed in Chapter 4	148
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	Hydro Geological Study will be submitted in final EIA	149

	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.	There is no seasonal stream or nallah flowing through the mining area.	
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.	Highest elevation: 76 AMSL Depth: 65 m (below from existing ground profile) i.e. 47m Below Ground Level as per TOR	
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.	There are no trees within ML area. Fencing and plantations are under process. Greenbelt / Plantation will be carried out in the safety zone to enhance the vegetative growth and aesthetic in the safety zone area. In the post mining stage, an area of 0.57.00 Ha will be under greenbelt and plantation.	
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	Traffic study details in chapter 7	187

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	(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.	Details of onsite facilities to be provided	
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.	Conceptual Plan and Section of the mine lease area is given in chapter-2	86
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 anticipated occupational health impacts and proposed preventive measures are discussed in Chapter 4	166
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 major impact on public health will be there since the villages are located more than 1km from the lease area.	
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.	Details of CER and CSR are discussed under Chapter No. 8	
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	Environmental Management Plan for the project is discussed in detail in Chapter-10 .	

DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF TVL.J.M.MINERALS OVER AN EXTENT OF 3.00.0 HA AT S.F.NOS. 5/1, 5/2 & 4/2 OF CHOKKANTHANGAL VILLAGE, MARAKKANAM TALUK, VILLUPURAM DISTRICT, TAMIL NADU STATE.

	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	The Final EIA/EMP report is submitted for public hearing. Issues raised in the public hearing along with time bound action plan will be incorporated in the final EIA/EMP report.	
40	Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.	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.	501.06 Lakhs	
42	A Disaster management Plan shall be prepared and included in the EIA/EMP Report.	Disaster Management Plan is included in Chapter 7	176
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.	The Project benefits are clearly spelt out in Chapter 11 .	187
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.	All general are followed while preparing EIA/EMP.	

DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF TVL.J.M.MINERALS OVER AN EXTENT OF 3.00.0 HA AT S.F.NOS. 5/1, 5/2 & 4/2 OF CHOKKANTHANGAL VILLAGE, MARAKKANAM TALUK, VILLUPURAM DISTRICT, TAMIL NADU STATE.

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. J11013/41/2006-IA.II(I) dated 4th August, 2009, which are available on the website of this Ministry, should be followed. h) Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the PFR for securing the TOR) should be brought to the attention of MoEF&CC with reasons for such changes and permission should be sought, as the ToR may also have to be altered. Post Public Hearing changes in structure and content of the draft EIA/EMP (other than modifications arising out of the P.H. process) will entail conducting the PH again with the revised documentation. i) As per the circular no. J-11011/618/2010-IA.II(I) dated 30.5.2012, certified report of the status of compliance of the conditions stipulated in the Environment Clearance for the existing operations of the project, should be obtained from the Regional Office of Ministry of Environment, Forest and Climate Change, as may be applicable. J) The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and sections and (iii) sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area.		
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CHAPTER 1

INTRODUCTION

1.1 PURPOSE OF THE REPORT

Environmental Impact Assessment (EIA) as a tool used to identify the environmental, social and economic impacts of a project prior to decision-making. It aims to predict environmental impacts at an early stage in project planning and design, find ways and means to reduce adverse impacts, shape projects to suit the local environment and present the predictions and options to decision-makers.

M/s. J.M. Minerals Lessee, has obtained Precise Area communication letter from the Assistant Director, Department of Geology and Mining, Viluppuram to quarry out total production is 4,85,805 m³ of Rough Stone 41,818 m³ of Gravel, in which 4,40825 m³ of rough stone & 41,818 m³ of Gravel will be mined out in first five years and remaining 44,980 m³ rough stone will be mined out in second 5 year Over an extent of 3.00.00 ha., located at the Survey No. S.F.No. 5/1, 5/2 & 4/2 of Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu u State. Hence, this proposed quarry falls under the cluster situation due to the following proposed and abandoned quarries located within 500m radius. The details are given below.

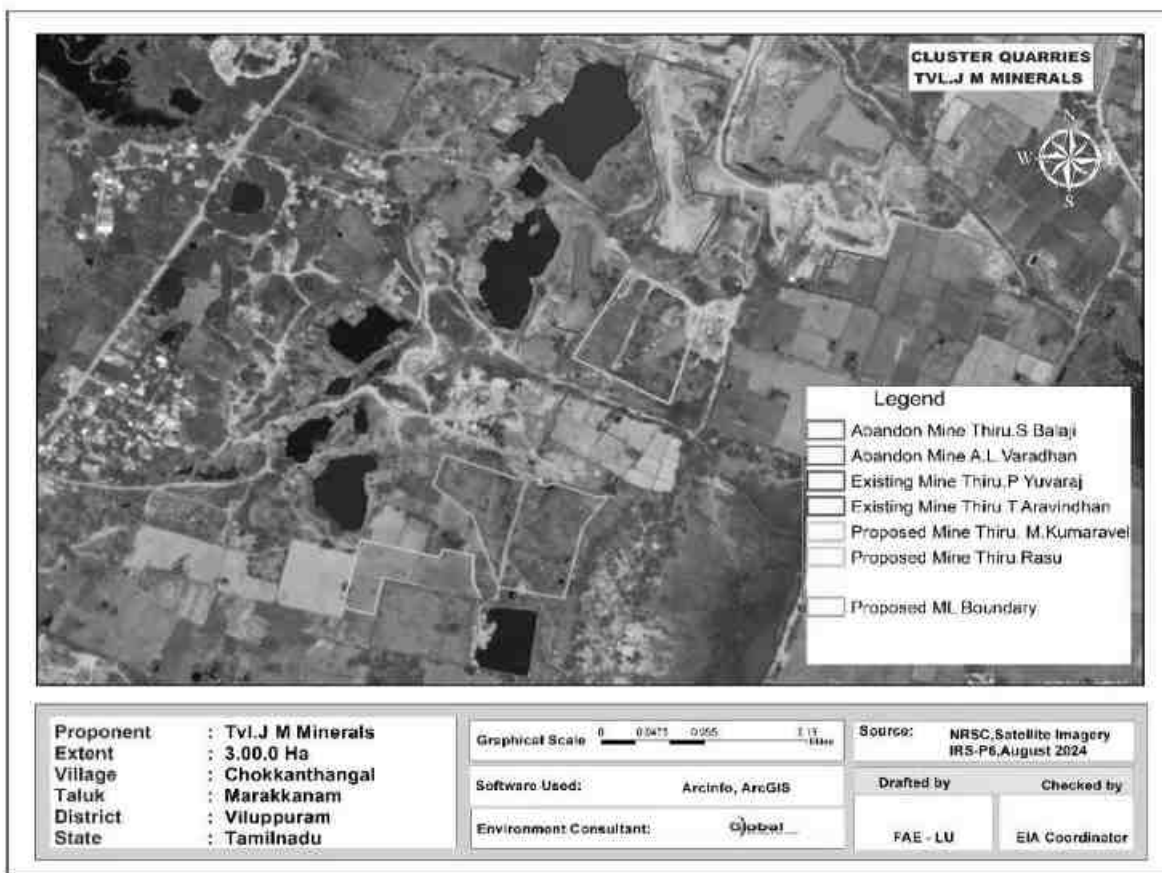
Table 1.1 500m Radius Cluster Mines Details					
Sl. No	Name and address	Village and Taluk	S.F.Nos.	Extent (in Ha)	Period of lease
Abandoned Quarries					
1.	Thiru.S.Balaji, S/o.Soundirarajan, Panangoor Village, Sundakudi Post, Ariyalur District.	Marakkanam Taluk Azhagiyapakkam Village,	14/6 15/3 15/4 15/5 16/5	0.50.0 0.43.0 0.41.0 0.61.0 <u>0.54.0</u> 2.49.0	22.08.2014 to 21.08.2019
2.	Thiru.A.L.Varadhan, S/o.Loganathan, School street, Keelarungundam, Marakkanam Taluk, Viluppuram District.	Marakkanam Taluk Keelarungunam Village	81/1 (P)	0.60.0	02.07.2012 to 01.07.2017

DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF TVL.J.M.MINERALS OVER AN EXTENT OF 3.00.0 HA AT S.F.NOS. 5/1, 5/2 & 4/2 OF CHOKKANTHANGAL VILLAGE, MARAKKANAM TALUK, VILLUPURAM DISTRICT, TAMIL NADU STATE.

Existing Quarries					
1.	Thiru.T.Aravindhan, S/o.Dinakaran salai, PMD Nagar,Kovilampakkam, Chennai-600 129.	Chokkanthangal Village, Marakkanam Taluk	2/1A(P) 8/1(P) 9/1(P) 9/3(P) 9/4 9/6(P)	0.79.0 0.02.0 0.04.0 1.15.5 0.32.5 <u>0.10.0</u> <u>2.43.0</u>	18.08.2023 To 17.08.2033
2.	Thiru.P.Yuvaraj, S/o.Palanisamy, No.7/12 Doming Kuppam, Santhome, Chennai.	Chokkanthangal Village, Marakkanam Taluk	8/4(P) 8/7 8/8 8/9	0.37.5 0.10.5 0.03.5 <u>0.25.0</u> <u>1.15.15</u>	23.09.2022 To 22.09.2032
Proposed Quarry					
1.	Thiru.Rasu, S/o.Ramakrishana gounder, Perumukkal, village, Marakkanam Taluk	Azhagiyapakkam Village, Marakkanam Taluk	2/2(P) 14/1(P) 15/2	0.32.5 0.18.0 <u>0.76.5</u> 1.27.0	
2.	Thiru.M.Kumaravel, S/o.Mani Gounder, Keelarungunam Village,Marakkanam Taluk	Chokkanthangal Village, Marakkanam Taluk	1/2(P) 2/1B(P) 2/1C(P)	0.46.0 0.40.5 <u>1.20.0</u> 2.06.0	
3.	Tvl.J M Minerals, No. P-II/M29, TNHB, J.J.Nagar, Kurumbanchavadi, Ariyalur District	Chokkanthangal Village, Marakkanam Taluk	4/2 5/1 5/2	0.64.0 0.96.0 <u>1.40.0</u> 3.00.0	

As per EIA notification, 2006 and its subsequent amendments the proposed Tvl.J M Minerals Rough Stone & Gravel Quarry, cluster is falls under Schedule 1(a) Mining of Minerals. It is further classified under Category B1 due to the overall extent of cluster area is 9.91.15 Ha which is >5 Ha. Satellite image of Quarries in Cluster is shown in Fig 1.1.

Figure.1.1 Satellite Image showing cluster quarries



The ToR for preparation of EIA/EMP was approved vide ToR Identification No. TO24B0108TN5225806N (F.No. 11053), dated 22.10.2024. This report has been prepared in line with the approved TOR for production of maximum excavation of 4,85,805 m³ of Rough Stone 41,818 m³ of Gravel, in which 4,40825 m³ of rough stone & 41,818 m³ of Gravel will be mined out in first five years and remaining 44,980m³ rough stone will be mined out in second 5 year.

1.2 IDENTIFICATION OF PROJECT AND PROJECT PROPONENT

The proposed project is for mining of Rough Stone and gravel (under cluster) from the S.F.No. 5/1, 5/2 & 4/2 over an extent of 3.00.00 Ha., Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu State. 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). The proposed project details are given below.

(a) Proposed project details

Sl. No.	Description	Status/Remarks
1.	Sector	Non-coal mining
2.	Category of the project	B1
3.	Proposed mineral	Rough Stone and Gravel quarry
4.	Type of Lease	New Quarry
5.	Extent of the lease	3.00.00 Ha
6.	Proposed depth of mining	47m BGL
7.	Method of mining	Opencast Mechanized Mining with drilling and blasting.
8.	Proposed lease period	10 Years
9.	Proposed Environmental Clearance	10 Years
10.	Proposed production quantity	Rough Stone - 4,85,805 m ³ , Gravel - 41,818 m ³ Rough stone - 4,40,825 m ³ , gravel - 41,818 m ³ (1-5 Year) Rough Stone - 44,980 m ³ , (6-10 Year)

(b) Profile of the project proponent

The proposed lessee M/s. J.M. Minerals 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 consented patta land, please refer **Annexure no -6.**

(c) Project proponent details

Name of the proponent : M/s. J.M. Minerals
 Status of the Proponent : Partnership firm
 Address : M/s. J.M. Minerals, No.P-II/M29,
 TNHB, J.J. Nagar,
 Kurumbanchavadi
 Ariyalur District- 621 713

1.3 BRIEF DESCRIPTION OF NATURE OF THE PROJECT

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

Table1.2 Proposed project details		
Sl. No.	Feature	Description
1	Type of land	Patta land
2	Extent of lease area	3.00.00 Ha
3	Type of lease	New Quarry
4	Geological Resource	Rough Stone – 13,47,795 m ³ Gravel – 59,902 m ³
5	Mineable Reserve	Rough Stone – 4,85,805 m ³ Gravel – 41,818 m ³
6	Proposed production quantity	Rough Stone - 4,85,805 m ³ , Gravel - 41,818 m ³ Rough stone - 4,40,825 m ³ , gravel - 41,818 m ³ (1-5 Year) Rough Stone – 44,980 m ³ , (6-10 Year)
7	Proposed depth of mining	47m BGL

(b) Location of the project

The proposed project site is located in Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu and its Latitude : 12°12'46.89"N to 12°12'54.41"N and Longitude: 79°45'11.54"E to 79°45'20.00"E. with Survey of India Topo Sheet No. 57- P/16.

1.3.2 IMPORTANCE OF THE PROJECT TO THE COUNTRY AND 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 WITH DETAILS OF REGULATORY SCOPING

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. TO24B0108TN5225806N (F.No. 11053), dated 22.10.2024 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 summer season 2024 (March 2024 to May 2024) 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 STATUS OF LITIGATIONS

This is a fresh Rough Stone and Gravel Quarry project. There is no litigation/court case pending against this project.

a. Precise Area Communication:

The Project Proponent has obtained Precise Area Communication from the Assistant Director, Department of Geology and Mining, Viluppuram, vide Rc.No. A/G(&)M/16/2023 dated 10.05.2024. The letter copy enclosed as **Annexure – 2**.

b. Mining Plan Approval Letter:

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, Viluppuram vide Rc.No. A/G(&)M/16/2023 dated 03.10.2024. The revised mining plan approval letter along with approved plan is enclosed as **Annexure – 3**.

c. 500m radius quarry features:

The project proponent has obtained an official letter from the Assistant Director (i/c), Dept. of Geology & Mining, Viluppuram vide Rc.No.A/G&M/16/2021, dated 22.05.2024. The letter copy enclosed as **Annexure – 4**.

d. Project Proponent undertaking affidavit:

The project proponent has issued an affidavit under in matter of Common Cause vs Union of India & Ors. The Affidavit copy is enclosed as **Annexure – 12.**

e. Land document of the proposed lease area:

The applied area is fresh and it is a Patta land in the name of Thiru.P.S. Jayaraman vide Patta Nos.302 and 309, the applicant has obtained consent from Pattadars and got it registered are enclosed as **Annexure - 6.**

CHAPTER 2

PROJECT DESCRIPTION

2.1 TYPE OF PROJECT

The type of the project is Opencast Mechanized Mining to excavate Rough Stone and Gravel within the proposed Mine Lease area with drilling, blasting, loading and transportation. This project is located at S.F. No5/1, 5/2 & 4/2 over an extent of 3.00.00 Ha., in Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu State.

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 9.91.15 Ha. The details of mines located in the cluster area is certified by Assistant Director, Dept. of Geology & Mining, Viluppuram vide Rc.No.A/G&M/16/2023 dated 22.05.2024.

Table 2.1 500m Radius Cluster Mines Details					
Sl. No	Name and address	Village and Taluk	S.F.Nos.	Extent (in Ha)	Period of lease
Abandoned Quarries					
1.	Thiru.S.Balaji, S/o.Soundirarajan, Panangoor Village, Sundakudi Post, Ariyalur District.	Marakkanam Taluk Azhagiyapakkam Village,	14/6 15/3 15/4 15/5 16/5	0.50.0 0.43.0 0.41.0 0.61.0 <u>0.54.0</u> 2.49.0	22.08.2014 to 21.08.2019
2.	Thiru.A.L.Varadhan, S/o.Loganathan, School street, Keelarungundam, Marakkanam Taluk, Viluppuram District.	Marakkanam Taluk Keelarungunam Village	81/1 (P)	0.60.0	02.07.2012 to 01.07.2017

DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF TVL.J.M.MINERALS OVER AN EXTENT OF 3.00.0 HA AT S.F.NOS. 5/1, 5/2 & 4/2 OF CHOKKANTHANGAL VILLAGE, MARAKKANAM TALUK, VILLUPURAM DISTRICT, TAMIL NADU STATE.

Existing Quarries					
1.	Thiru.T.Aravindhan, S/o.Dinakaran salai, PMD Nagar,Kovilampakkam, Chennai-600 129.	Chokkanthangal Village, Marakkanam Taluk	2/1A(P) 8/1(P) 9/1(P) 9/3(P) 9/4 9/6(P)	0.79.0 0.02.0 0.04.0 1.15.5 0.32.5 <u>0.10.0</u> 2.43.0	18.08.2023 To 17.08.2033
2.	Thiru.P.Yuvaraj, S/o.Palanisamy, No.7/12 Doming Kuppam, Santhome, Chennai.	Chokkanthangal Village, Marakkanam Taluk	8/4(P) 8/7 8/8 8/9	0.37.5 0.10.5 0.03.5 <u>0.25.0</u> 1.15.15	23.09.2022 To 22.09.2032
Proposed Quarry					
1.	Thiru.Rasu, S/o.Ramakrishana gounder, Perumukkal, village, Marakkanam Taluk	Azhagiyapakkam Village, Marakkanam Taluk	2/2(P) 14/1(P) 15/2	0.32.5 0.18.0 <u>0.76.5</u> 1.27.0	
2.	Thiru.M.Kumaravel, S/o.Mani Gounder, Keelarungunam Village,Marakkanam Taluk	Chokkanthangal Village, Marakkanam Taluk	1/2(P) 2/1B(P) 2/1C(P)	0.46.0 0.40.5 <u>1.20.0</u> 2.06.0	
3.	Tvl.J M Minerals, No. P- II/M29, TNHB, J.J.Nagar, Kurumbanchavadi, Ariyalur District	Chokkanthangal Village, Marakkanam Taluk	4/2 5/1 5/2	0.64.0 0.96.0 <u>1.40.0</u> 3.00.0	

The proposed total production is 4,85,805 m³ of Rough Stone 41,818 m³ of Gravel, in which 4,40825 m³ of rough stone & 41,818 m³ of Gravel will be mined out in first five years and remaining 44,980 m³ rough stone will be mined out in second 5 year by open cast mechanized mining method.

2.2 SALIENT FEATURES OF THE PROJECT

The salient features of the proposed Rough Stone quarry of Tvl.J M Minerals.

Table 2.1a Salient features of the project		
S.No.	Type of Detail	Description
1	Sector	1(a) Non coal mining
2	Fresh/Existing project	New
3	Category	B1
4	Nature of mineral	Minor Mineral
5	Life of the mine	10 years
6	Production Quantity	Rough Stone - 4,85,805 m ³ , Gravel - 41,818 m ³ Rough stone - 4,40,825 m ³ , gravel - 41,818 m ³ (1-5 Year) Rough Stone – 44,980 m ³ , (6-10 Year)
7	Waste generation and management	Nil
8	Bench height and width	Proposed bench height & width is 5.0m respectively and number of proposed benches is 10 Nos.
9	Ultimate pit depth	47 m BGL
10	End use	The excavated Rough Stone and Gravel is used for construction industries for Government & Public sector projects besides catering domestic housing and infrastructure projects in and around the district.

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

This project site is located in Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu State. The Nearest Railway line is Viluppuram to Chennai line which is about 9.5 km on West side of the area. The National Highway (NH-32) Thindivanam – Thoothukud is about 7.8 km on south west side of the area. The State Highway (SH-134) Tindivanam – Marakkanam about 1.2 Km on south side of the area. The general location is given in Figure 2.7. The specific location is given in Figure 2.8.

FIGURE 2.1 LOCATION MAP

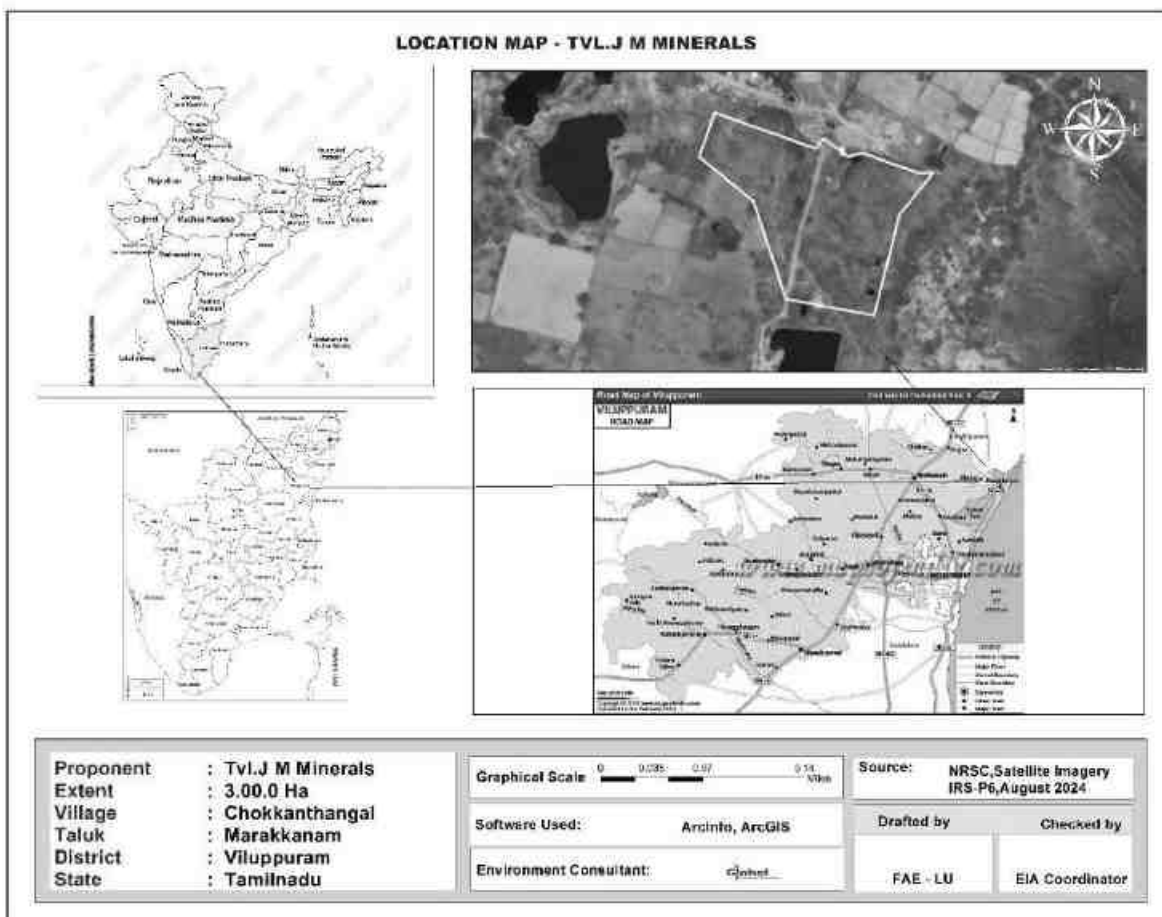
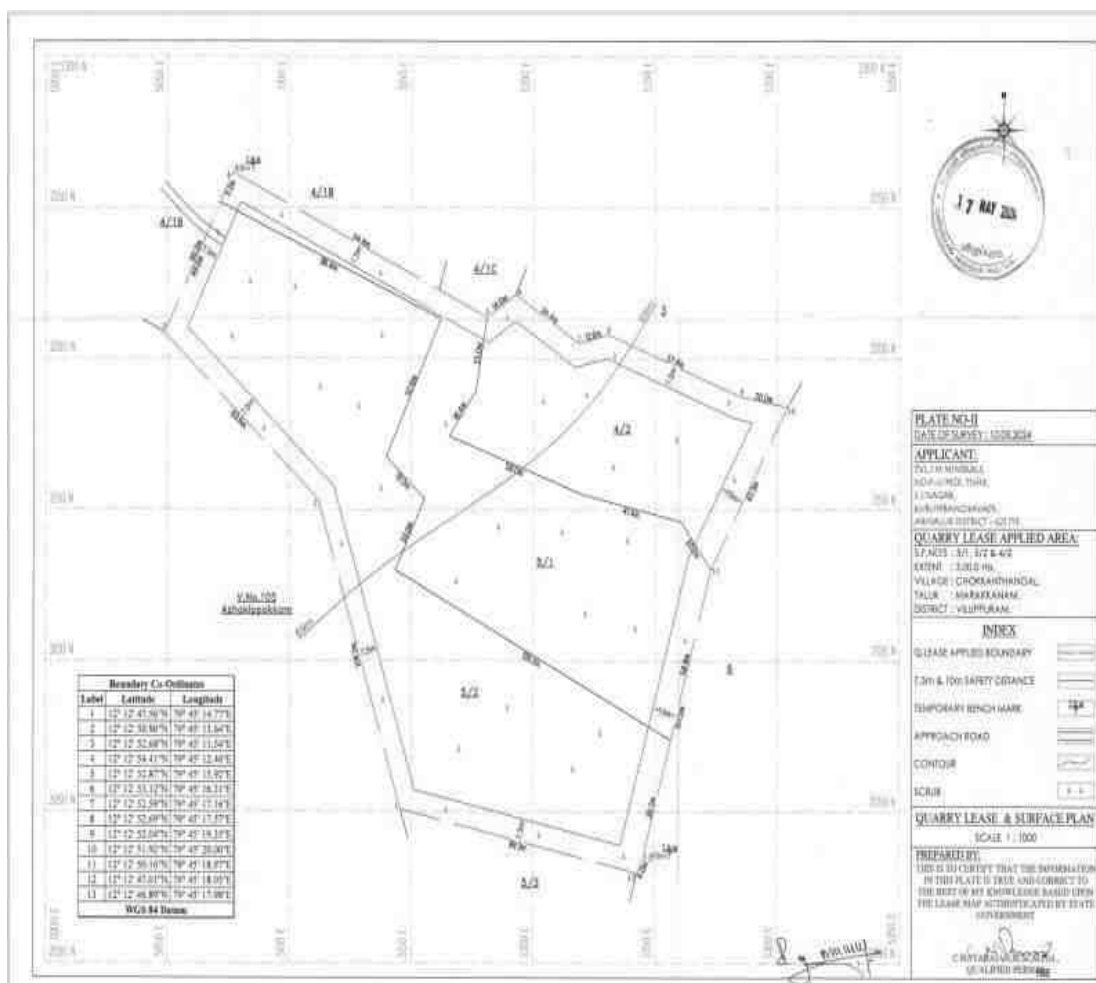


Table 2.2 Co-Ordinates of the Project Site

Corners	Co- ordinates		Distance between the corners
	Latitude	Longitude	
1	12° 12' 47.56"N	79° 45' 14.77"E	1-2 = 108.2m
2	12° 12' 50.90"N	79° 45' 13.64"E	2-3 = 83.6m
3	12° 12' 52.68"N	79° 45' 11.54"E	3-4 = 60.2m
4	12° 12' 54.41"N	79° 45' 12.46"E	4-5 = 114.8m
5	12° 12' 52.87"N	79° 45' 15.92"E	5-6 = 14.0m
6	12° 12' 53.12"N	79° 45' 16.31"E	6-7 = 30.4m
7	12° 12' 52.59"N	79° 45' 17.16"E	7-8 = 12.6m
8	12° 12' 52.69"N	79° 45' 17.57"E	8-9 = 57.4m
9	12° 12' 52.04"N	79° 45' 19.35"E	9-10 = 20.0m
10	12° 12' 51.92"N	79° 45' 20.00"E	10-11 = 62.2m
11	12° 12' 50.16"N	79° 45' 18.97"E	11-12 = 101.0m
12	12° 12' 47.01"N	79° 45' 18.05"E	12-13 = 4.0m
13	12° 12' 46.89"N	79° 45' 17.98"E	13-1 = 99.2m

FIGURE 2.3 SURFACE PLAN OF THE PROJECT AREA



2.3.1 PROJECT SITE LAYOUT

The proposed Mine Lease area is patta land and the Land use pattern of the project site is given below Table 2.3.

Table 2.3 Current Land Use Pattern			
S. No.	Land Use	Present Area (Ha)	Area in use during the quarrying period (Ha)
1	Quarrying Pit	Nil	2.18.5
2	Infrastructure	Nil	0.01.0
3	Roads	Nil	0.01.0
4	Green Belt	Nil	0.79.5
5	Unutilized	3.00.00	Nil
	Total	3.00.00	3.00.00

2.3.2 LAND USE AT MINE CLOSURE STAGE

Table 2.4 Land Use at Mine Closure Stage		
S. No.	Land Use	Area in use during the quarrying period (Ha)
1	Area left for water body	2.18.5
2	Green Belt	0.79.5
3	Remaining area	0.02.0
Total		3.00.00

2.3.3 SALIENT FEATURES OF THE LEASE AREA

Sr.No	Salient Features	Description
1	Nearest Roadway	National Highway (NH-32) Thindivanam – Thoothukudi - 7.8km (SW). State Highway (SH-134) Vellemedupettai – Marakkanam 1.2km (S). Tindivanam (9.8km NW) & Chennai Airport (96.0 km NE).
2	Nearest Village	Kilarungunam Village –380m (W)
3	Nearest Railway station	Tindivanam (9.8km NW)
4	Nearest Airport	Pudhucherry Airport (28.5 km SE)

DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF TVL J.M.MINERALS OVER AN EXTENT OF 3.00.00 HA AT S.F.NOS. 5/1, 5/2 & 4/2 OF CHOKKANTHANGAL VILLAGE, MARAKKANAM TALUK, VILLUPURAM DISTRICT, TAMIL NADU STATE.

Figure 2.4 Topo Map showing existing site features

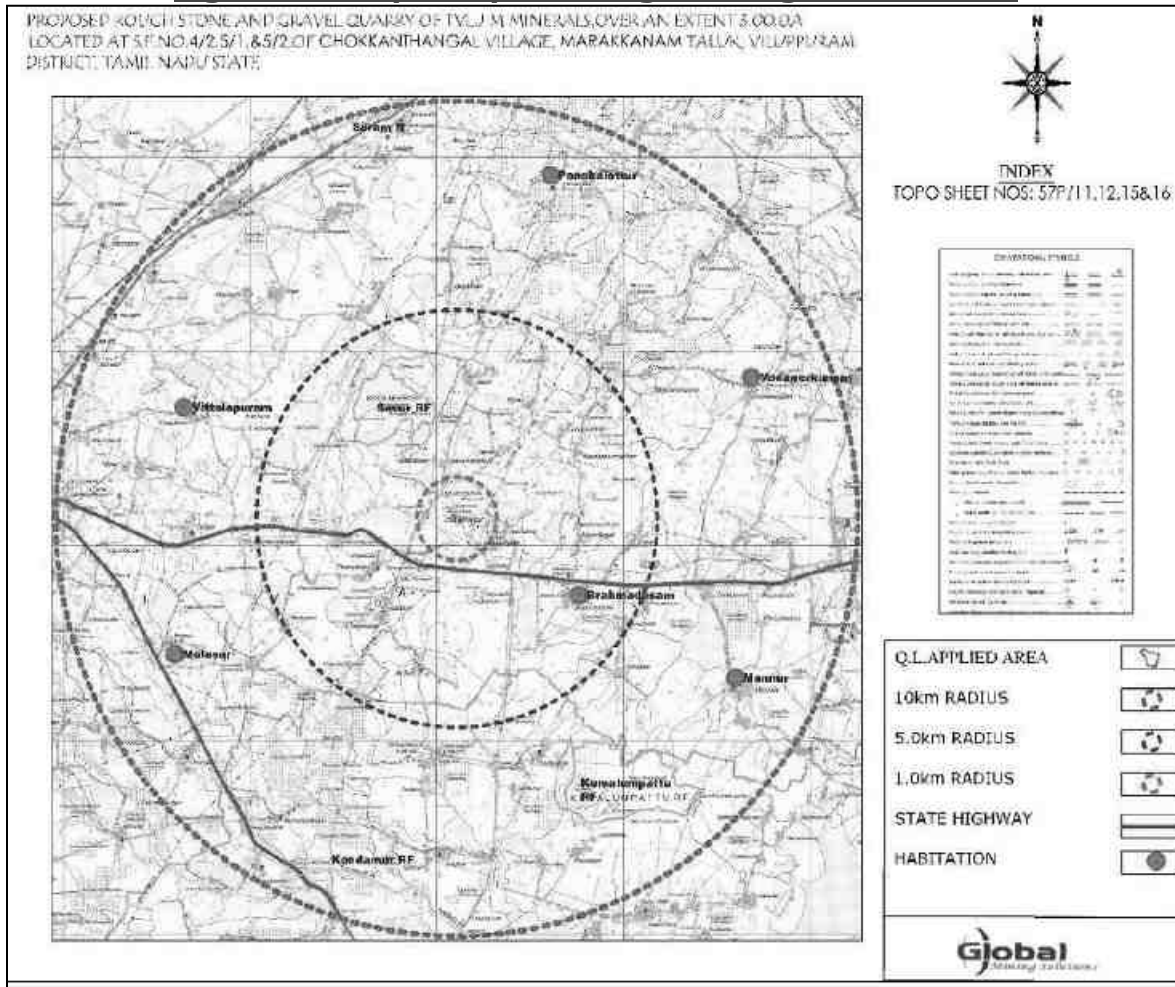
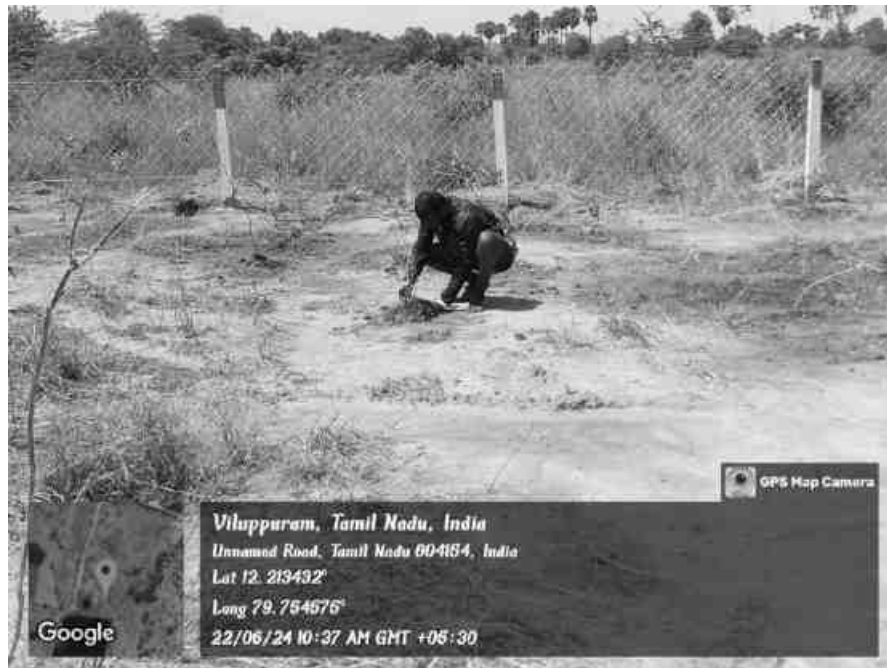


FIGURE 2.5 SITE PHOTOS



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

The proposed production is rough stone – 4, 85,805 m³ and 41,818 m³ Gravel by Opencast Mechanized mining method.

2.4.1 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 the Assistant Director, Dept. of Geology & Mining, Viluppuram vide Rc.No. A/G&M/16/2023 dated 22.05.2024.
2	Environment Clearance Status	ToR Letter Received vide file no TO24B0108TN5225806N, dated 22.10.2024.
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)

2.5 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	April 2025	May 2025	Jun 2025	July 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 on 03.04.2024, ToR was granted on 22.10.2024. Baseline data Collection during Summer Season (March to May 2024). 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).

2.5.1 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. A/G&M/16/2023dated 22.05.2024.

2.6 TECHNOLOGY & PROCESS DESCRIPTION

2.6.1 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.

2.6.2 WATER REQUIREMENTS

In the proposed mines water will be mainly used for domestic purpose, dust suppression & plantation. Total water requirement for the project is 6.0 KLD 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.

FIG 2.6 WATER BALANCE DIAGRAM

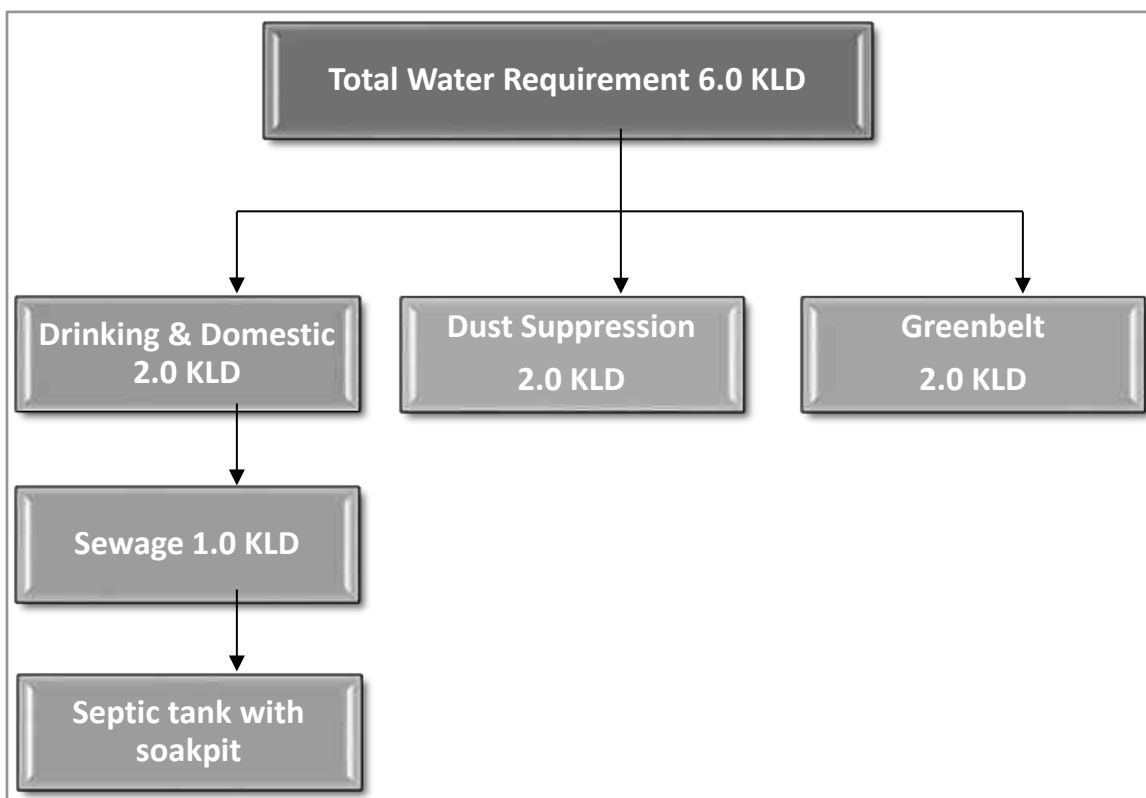


Table - 2.7 Water Requirement

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

2.6.3 POWER REQUIREMENT

No electricity is needed for mining operations.

2.6.4 MAN POWER REQUIREMENT

Total Manpower requirement will be 35 persons which out of 16 persons (Mines manager, Foreman, Mining Mate, etc.,) and other are drivers and workman's categories. Beside this, 19 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	4 Nos.
6	Labours	15 Nos
Total		35 Nos

2.6.5 EXTENT OF MECHANIZATION

Table 2.8 Machineries involved in the project				
S.No.	Particulars	capacity	Motive Power	Nos
1.	Jack hammer	32mm dia	Compressed air	8
2.	Compressor	1 psi	Diesel drive	2
3.	Excavator with Bucket and Rock Breaker	0.90 m3	Diesel drive	2
4.	Tippers	5/10 Ts	Diesel drive	4

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 in the ML area.

2.6.6 GEOLOGY AND TOPOGRAPHY

Topography

The mine lease area of 3.00.00 Ha is covered in the Survey of India Toposheet 57 P/16 and is bounded by Latitude: 12°12'46.89"N to 12°12'54.41"N and Longitude: 79°45'11.54"E to 79°45'20.00"E. No major river is found nearby the lease applied area. Water table is found at a depth of 65 m. Temperature of the area is reported to be 18° C to a maximum of 42° 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 2.1 and Satellite map showing proposed lease area is given in Figure 2.2.

The elevation of the proposed quarry is 69 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.

2.6.7 Regional Geology

The Core and 10 Km buffered zone geological features (Figure 2.28) shows that the Villupuram District is mostly underlain by the lithologies of southern granulite Terrain Super Group (SGT) with age ranging from Neoarchaean to Mesoproterozoic except coastal belt in the eastern part of the district. The calc granulite with limestone of Khondalite Group is occurs at north of Mugaiyur. The Charnockite Group contain 3 lithologies such as Charnockite, banded magnetite quartzite and pyroxene granulite. The Charnockite occur at north of Valatti and covers large area from Vikravandi to Ollakur. The linear bands of pyroxene granulite are occurring mostly in the NW parts of the district near valatti and few patches occur at west of Odiyattur. The Migmatite Group contains biotite gneiss which cover large area in the central and NW parts of the district such as west of Muttatur and Mugaiyur and in and around valatti. The grey hornblende biotite gneiss occurs as linear band at east of Vikravandi. The hornblende biotite gneiss occurs in the larger area of the district from Mugaiyur to north of Gingee. The Migmatite gneiss occur at south of Olakkur and NW of Odiyattur. The bands of pink migmatite are occurs at NE of Gingee and NW of Valatti. The Archaean to Paleoproterozoic in age Closepet Granite within the biotite gneiss of Migmatite Group at west of Valatti. The Proterozoic epidote hornblende gneiss is occurring in and around Gingee with shearing activity. The Mesoproterozoic in age basic intrusive like dolerite dykes are intruded into rocks of Southern Granulite Terrain and these dykes are trending into NW-SE to E-W direction.

The late carboniferous-early permian in age, boulder conglomerate bed of Talchir Formation is occurs in linear belt at northern part of the district near Olakkur and Ongur. The Late Cretaceous period contains Pondicherry Group which contain sandstone-shale sequence and divided into Vanur and Nesal Formations and occurs in the eastern part of the district. The Cenozoic laterites occurs at west of Marakkanam. The early palaeocene age contains Pondicherry Group and it is divided into Karasur and Manaveli Formations which contains lithologies such as limestone and clay and occurs at east of vanur. The Miocene-Pliocene period are marked by deposits of thick sediments sequence and classified into Panamparai Formation and Cuddalore Formation and contains lithologies such as sandstone, conglomerate and mottled sandstone.

FIGURE 2.7 REGIONAL GEOLOGY MAP - 10 Km RADIUS

2.6.8 Local Geology

Geological Resources

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°E – S45°W with dipping towards SE80°.

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

The Geological resources are calculated in area method.

2.7 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.

2.7.1 PROCESS DESCRIPTION

METHOD OF MINING

Opencast mechanized method with 5.0 m height 5.0m width and overall, 45° slope of the bench. It is proposed to excavate 4,85,805 m³ of Rough Stone and 41,818 m³ Gravel. 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 90° with the horizontal.

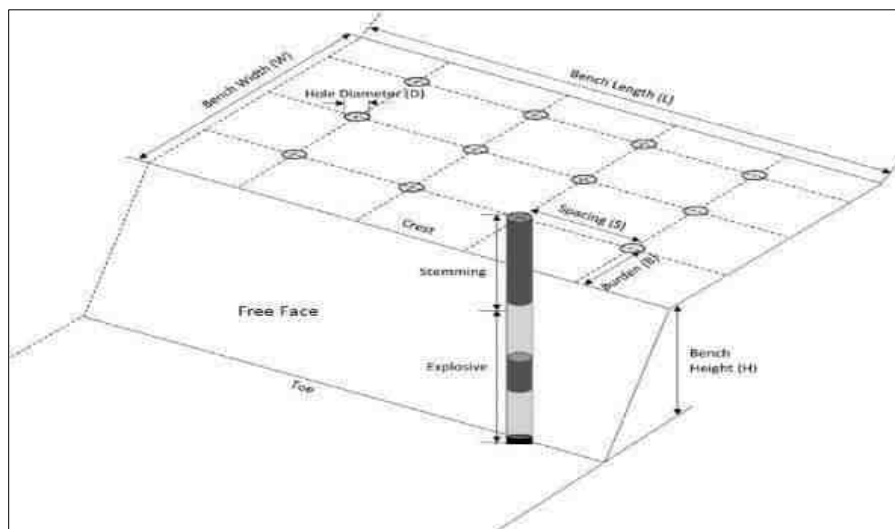
DEVELOPMENT OF MINING FACES

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 October 2025.

DRILLING & BLASTING

Drilling will be done up to maximum depth of 47 m BGL (Drilling diameter will be 32 mm). Jackhammer will be used for drilling with water spray. Powder factor of explosives for breaking such hard rock shall be in the order of 6 Tonnes per Kg of explosives. Small dia 25 mm slurry explosive is proposed to be used for shattering and heaving effect for removal of Rough Stone & Gravel. The proposed blasting pattern is given as Figure 2.8.

FIGURE 2.8 BLASTING PATTERN



LOADING& TRANSPORTATION OF ROUGH STONE AND GRAVEL

Hydraulic excavator will be used for lifting and loading of the rough stone and Gravel. This excavator in combination with Tippers (10MT) capacity of 4 nos will be used.

FIGURE 2.9 FLOW CHART OF THE QUARRY OPERATION

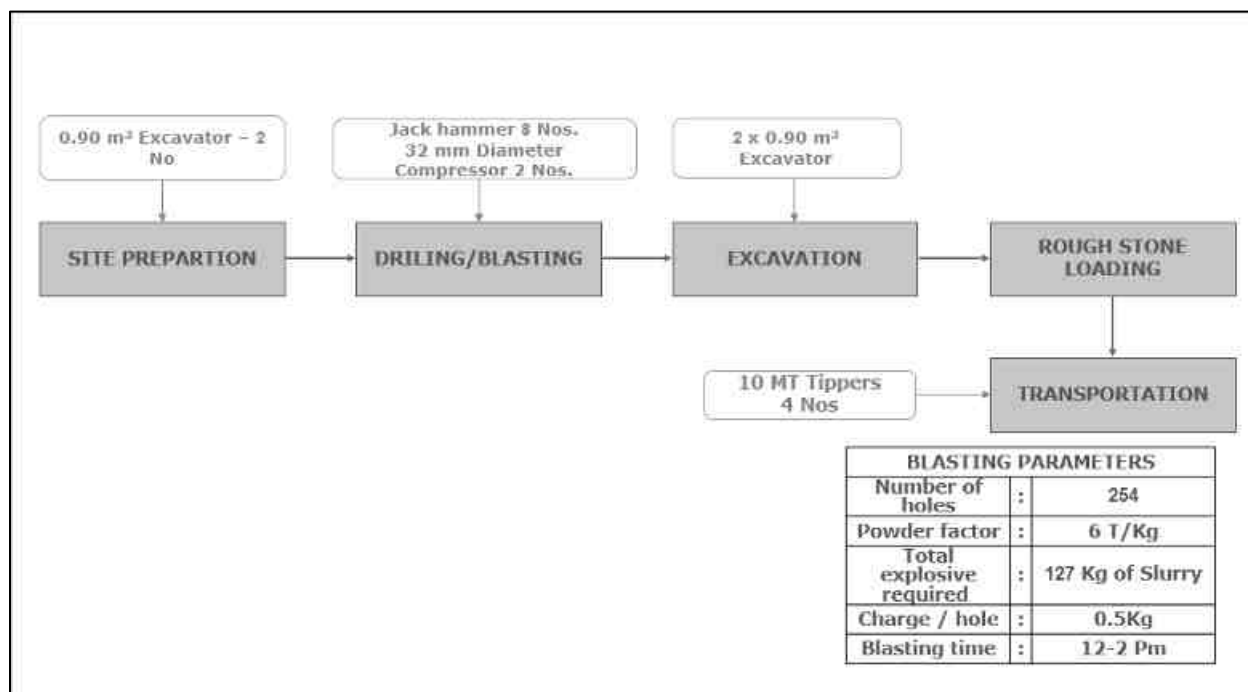


TABLE - 2.9 MINING DETAILS

S.No	Description	Details	Remarks
1.	Method of Mining	Opencast method of mechanized mining with 5.0 m height 5.0 m width and overall 45° slope of the bench. Hydraulic excavator will be used for the excavation and 5/10T tippers will be used for the Hauling.	Excavator – 2 No Tippers - 4 Nos.
2.	Mineral Use	The excavated Rough Stone and Gravel, will be used for construction industries for Government & Public sector projects besides catering	-

DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF TVL.J.M.MINERALS OVER AN EXTENT OF 3.00.0 HA AT S.F.NOS. 5/1, 5/2 & 4/2 OF CHOKKANTHANGAL VILLAGE, MARAKKANAM TALUK, VILLUPURAM DISTRICT, TAMIL NADU STATE.

		domestic housing and infrastructure projects in and around the district			
3.	Proposed Depth	47m BGL	Water table in the area is around 65m BGL		
4.	Proposed Production quantity	4,40,825m3 of Rough Stone 41,818m3 of Gravel	ten years		
5.	Ultimate pit dimension				
		Ultimate pit dimension end of mining plan period			
		PIT NO	Length in (m)	Width in (m)	Depth in (m)
		PIT 1	172	127	37 (BGL)
		End of the lease period			
	I	172	127	47 (BGL)	
5.	Safety Zone	Out of 3.00.0 Ha, 0.79.5Ha will be maintained as safety zone during mining operation as well as at the conceptual stage of the project.	Around 1500 nos. of saplings will be planted in this safety		
6.	Water requirement	6.0 KLD	Procured from the outside watervendors		
7.	Energy requirement	-	All the equipment will be diesel operated. No electricity is needed for mining operation		
8.	Manpower	35 Nos			
9.	Shift	General Shift	8.00 AM – 5.00 PM		
10.	Project Cost	501.06 Lakhs	(Including Fixed Asset + Operational & EMP cost)		
11.	EMP Cost	383.86 Lakhs	-		
12.	CER Cost	As per MOEF & CC Notification CER cost is arrived for an amount of 2,18,400/- Lakhs @ 2% of the project cost. However, the project proponent has revised CER cost as 8.0 Lakhs.	The amount will be utilized for the development of nearby Government Schools.		

2.7.2 YEAR WISE PRODUCTION & EXCAVATION DETAILS

Year wise Production of Rough stone and Gravel from the area will be upto maximum capacity. The recovery factor is up to 100% hence no waste expected to be generated. All excavated quantity is saleable. The summary of proposed development and production during the mine plan period is given in Table 2.10.

Table 2.10 Summary of production for 5 Years								
Year	Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in m³	Gravel in m³	Mineable reserve of Rough stone in m³
I	XY-AB	I	61	68	2	8296	8296	
		II	58	63	5	18270		18270
	XY-CD	I	88	151	2	26576	26576	
		II	88	146	5	64240		64240
Total							34872	82510
II	XY-CD	I	23	151	2	6946	6946	
		II	20	146	5	14600		14600
		III	103	136	5	70040		70040
Total							6946	84640
III	XY-AB	III	53	53	5	14045		14045
		IV	48	43	5	10320		10320
	XY-CD	IV	98	126	5	61740		61740
Total								86105
IV	XY-CD	V	93	116	5	53940		53940
		VI	48	106	5	25440		25440
	XY-AB	V	43	33	5	7095		7095
		VI	38	23	5	4370		4370
Total								90845
V	XY-CD	VI	40	106	5	21200		21200
		VII	83	96	5	39840		39840
		VIII	78	86	5	33540		33540
	XY-AB	VII	33	13	5	2145		2145
Total								96725
Grand Total							41818	440825

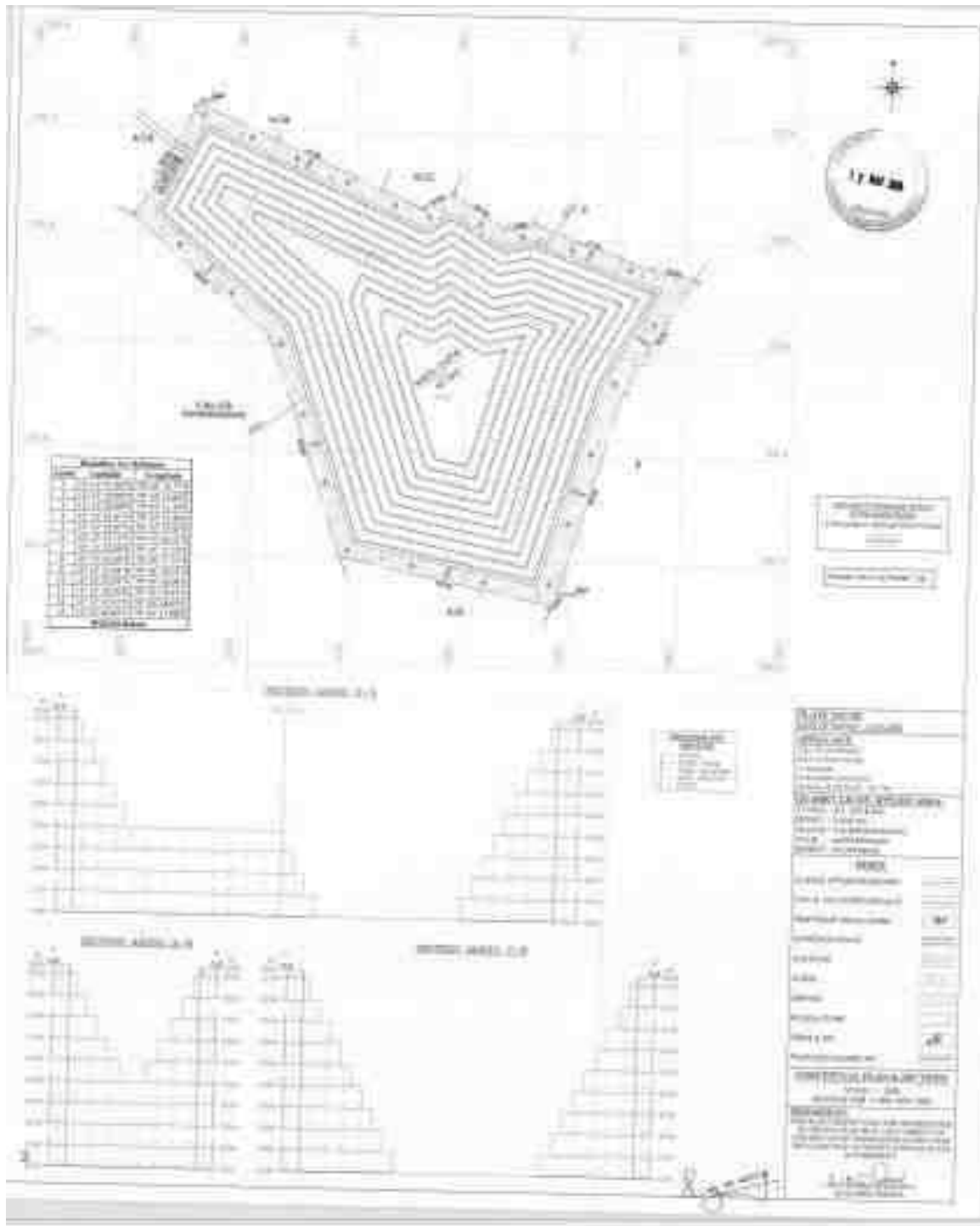
2.7.3 CONCEPTUAL PERIOD

During conceptual stage the mined-out area will be converted into water reservoir and safety zone as well as upper benches will be used for plantation at the conceptual period. It will also serve the purpose as socio economic and corporate social responsibility of the lessee by way of supplying water for irrigation purpose or at will of the local people. This will help in ground water recharging as well. The conceptual plan and section of mine lease area is given in Figure 2.11. Ultimate extent and size of the quarry at the conceptual stage is given below as Table 2.11 and Land Use pattern is given as Table 2.12. The conceptual plan is given as Figure 2.11.

TABLE 2.11 Ultimate Pit Dimension			
Pit No.	Length (max) (m)	Width (Avg) (m)	Depth (max) (m)
Ultimate Pit dimension at the end of Mining Plan Period as per approved Mining Plan			
I	172	127	37m BGL
Ultimate Pit dimension at the end of the lease period			
I	172	127	47m BGL

TABLE 2.12 Land Use at Mine Closure Stage		
S. No.	Land Use	Area in use during the quarrying period (Ha)
1	Area left for water body	2.18.5
2	Green Belt	0.79.5
3	Remaining area	0.02.0
Total		3.00.00

FIGURE 2.10 CONCEPTUAL PLAN



2.8 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:

2.8.1 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

2.8.2 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.

2.8.3 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 0.79.5 Ha. Trees like Pungai, Vagai, Vembu, Manjal konrai, Naval, Puvarasu, etc., will be planted around the mine lease area. A total of 1500 trees are planned to be planted. Spacing will be 3m x 3m.

2.9 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.

CHAPTER 3

DESCRIPTION OF THE ENVIRONMENT

3.1. DESCRIPTION OF THE STUDY AREA

The project area is located in Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu State over an extent of 3.00.00 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. March 2024 to May 2024 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.

DESCRIPTION OF ENVIRONMENT IN THE STUDY AREA

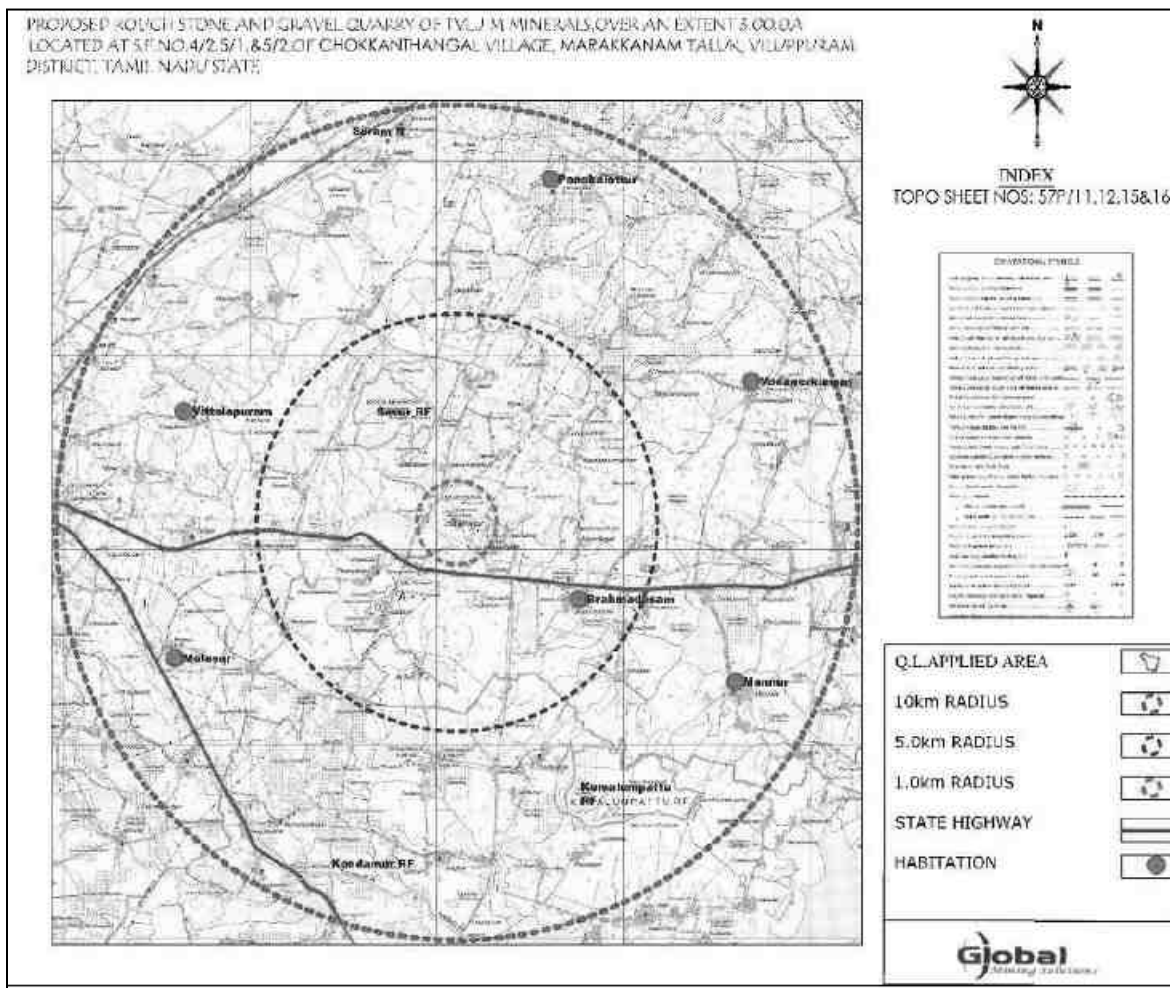
Table 3.1 Description of the lease area		
S.No.	Areas	Distance from project site
1	Areas protected under international conventions, national or local legislation for their ecological, landscape, cultural or other related value	Nil within 15km radius
2	Areas which are important or sensitive for ecological reasons	

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A	Wetlands, water courses or other water bodies,	Water bodies	Distance	Direction
		Tank	120m	E
		Tank	360m	SW
		Tank	630m	NW
		Tank	687m	NE
		Perumukkal Lake	1.1km	SW
B	Coastal zone, biospheres,	Nil within 10km radius		
C	Mountains, forests	Sevur R.F - 1.7km (NW), Kumalumpattu R.F - 6.0 km (SW)		
3	Areas used by protected, important or sensitive species of flora or fauna for breeding, nesting, foraging, resting, overwintering, migration	Nil within 15km radius		
4	Inland, coastal, marine or underground waters	Nil within 15km radius		
5	State, National boundaries	Nil within 15km radius		
6	Routes or facilities used by the public for access to recreation or other tourist, pilgrim areas	Nil within 15km radius		
7	Defense installations	Nil within 15km radius		
8	Densely populated or built-up area	Tindivanam – 11.0km (west)		
9	Areas occupied by sensitive man-made land uses (hospitals, schools, places of worship, community facilities)	Tindivanam – 11.0km (west)		
10	Areas containing important, high quality or scarce resources (ground water resources, surface resources, forestry, agriculture, fisheries, tourism, minerals)	Nil		
11	Areas already subjected to pollution or environmental damage. (those where existing legal environmental standards are exceeded)	Nil		
12	Areas susceptible to natural hazard which could cause the project to present environmental problems (earth quakes, subsidence, landslides, erosion, flooding or extreme or adverse climatic conditions) similar effects	No. The area is not prone to earthquakes, floods, etc.		

DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF TVL J.M. MINERALS OVER AN EXTENT OF 3.00.0 HA AT S.F.NOS. 5/1, 5/2 & 4/2 OF CHOKKANATHANGAL VILLAGE, MARAKKANAM TALUK, VILLUPURAM DISTRICT, TAMIL NADU STATE.

FIG 3.1 ENVIRONMENTAL SETTING OF THE 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 Summer Season (March., to May., 2024) 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
- ✚ 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 (March., to May., 2024) to assess the present scenario of the area. Details are given in the table given below.

Baseline data collection During Post Monsoon Season (March., to May., 2024)

Sr.No	Environment al Component	Primary data		
		Parameters	Frequency	Monitoring/ Sampling locations
1	Land	Agriculture, Habitation, Industry, Stony waste/ Quarries, Forest area, Plantation/ Vegetation, Open scrub, Water bodies etc.	Once in a Season	10 km radius study area
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

ENUMERATION OF THE STRUCTURES LOCATED WITHIN 500 M RADIUS FROM THE PROPOSED QUARRY SITE

A site survey has been conducted to identify and list structures located within a 500m radius from the proposed Quarry and are detailed below. There are permanent structures within a 500m radius from the project site. The PP has obtained a letter from Village Administrative Office (VAO), Chokkanthangal stating that there are no structures situated within 300 Km radius.

FIG 3.2 GOOGLE MAP SHOWING 50M INTERVAL FOR 500M RADIUS FROM THE LEASE AREA

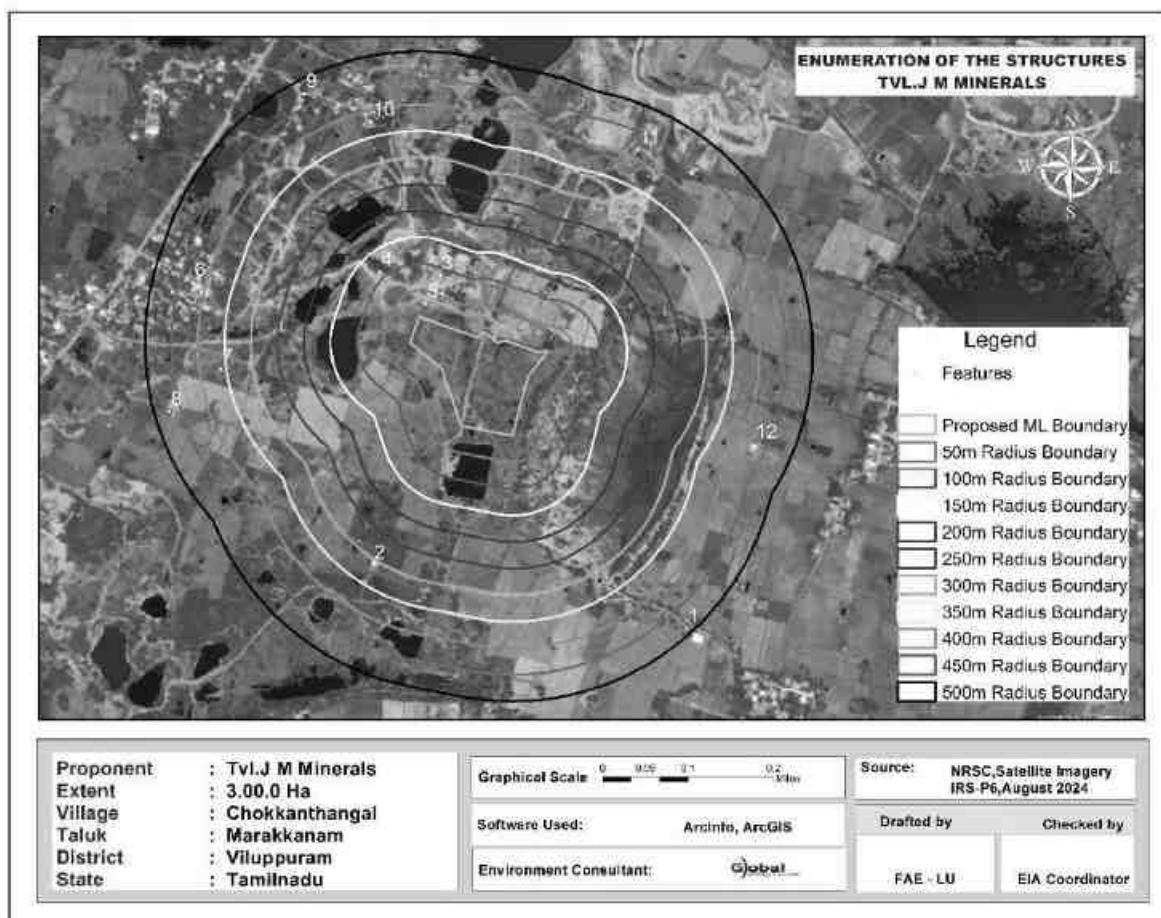
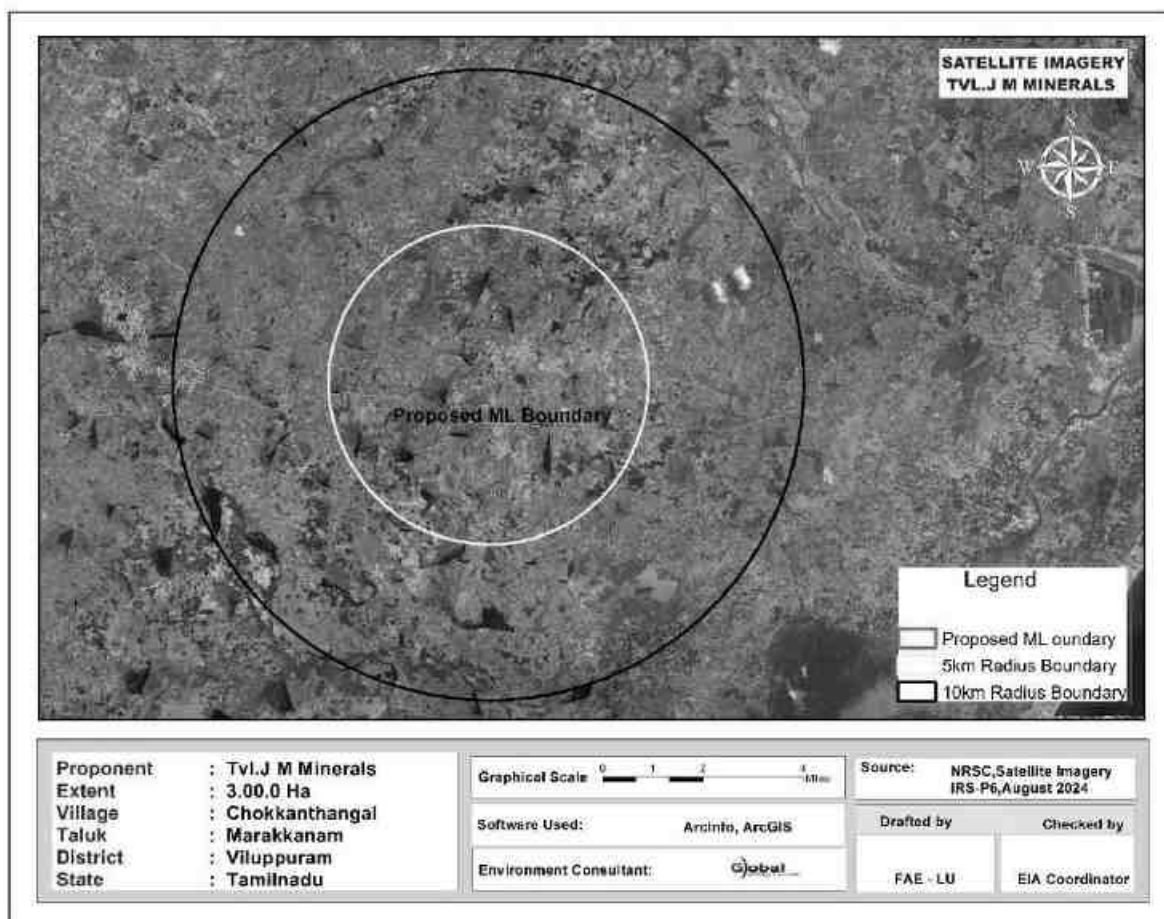


FIGURE - 3.2.A SATELLITE MAP OF THE PROJECT AREA (10 KM RADIUS)



3.3.1 METEOROLOGICAL ENVIRONMENT

Meteorological conditions prevailing in the buffer zone is given below

Climate

The climate of Viluppuram District is tropical. The period from the weather is pleasant during the period from November to January. The normal temperature varies between 18°C to a maximum of 42°C during summer, whereas the hottest climate experiences from March to May with mercury reaching 38.5°C at the highest.

Rainfall

Viluppuram district generally experiences hot and humid climate conditions. The district receives rain under the influence of both southwest and northeast monsoons. Most of the precipitation occurs in the form of cyclonic storm caused due to depressions in Bay of Bengal chiefly during NE monsoon period. The SW monsoon is highly erratic and summer rains are negligible. Rainfall of this area is about 800 mm to 900 mm during the both NE & SW monsoons. The excess rainfall is 192% (Source: Mausam.imd.gov.in)

Rainfall received from 2017 to 2021 is given below.

Table 3.2 Rainfall data					
Actual Rainfall in mm					Normal rainfall in mm
2017	2018	2019	2020	2021	
1231.8	750.3	1022.6	1077	1521.2	980

Relative Humidity

The relative humidity, in general around the year is between 55 and 65% in most parts of the district, except during the north-east monsoon season when it is over 65%. However, the coastal areas will be comparatively more humid.

Seismic information

The study area falls in Zone II, which comes under the least active zone. The seismic map of India is given as Fig 3.2.

FIG 3.3 SEISMIC MAP OF INDIA

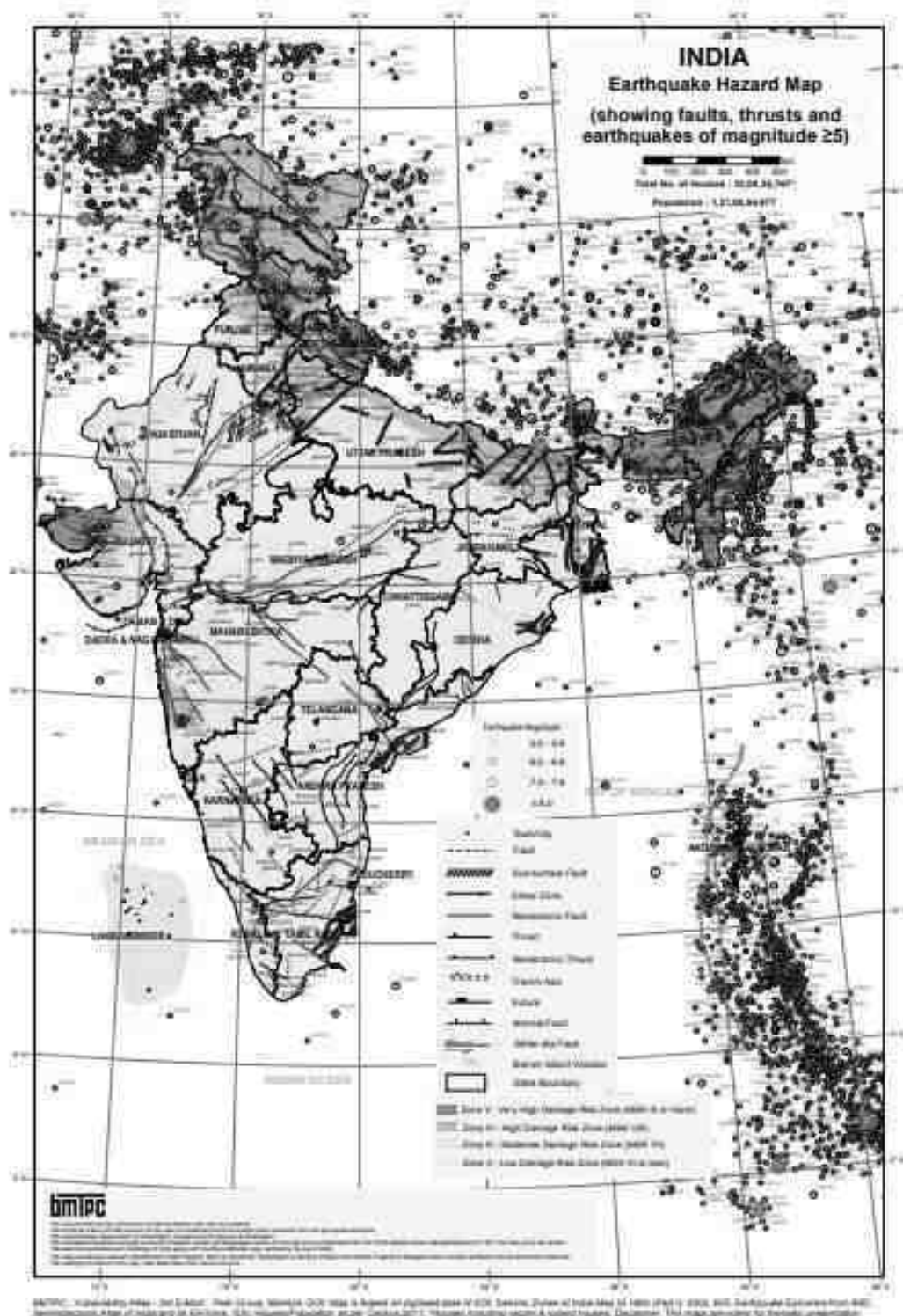
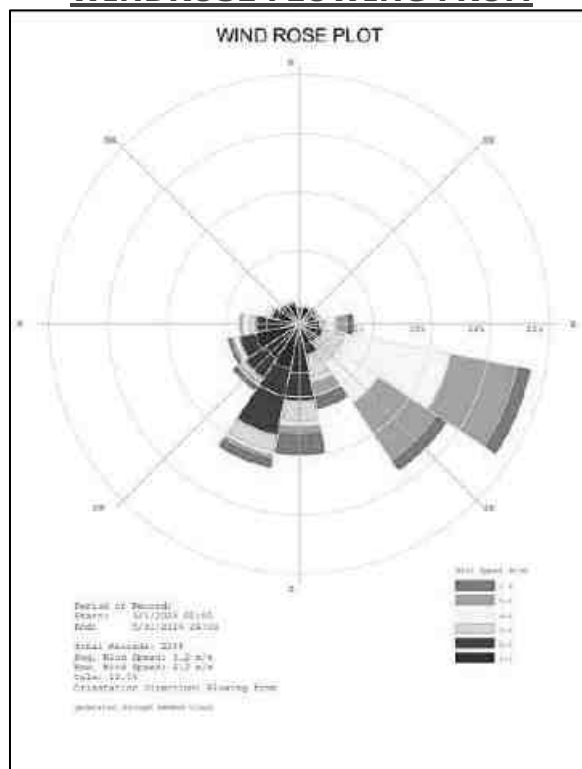


FIG 3.4 WIND ROSE PLOT DURING MARCH TO MAY 2024
WINDROSE FLOWING FROM



Meteorological data of the project area

The meteorological data collected in the study area from March 2024 to May 2024 which includes Temperature, Wind speed, Wind direction and Relative humidity. The predominant wind blows from West. The temperature of the area is reported to be 24.4°C and 27.1°C during summer.

3.5 AMBIENT AIR MONITORING DATA

Ambient air quality monitoring has been carried out in 6 locations. One in the core zone and remaining four locations in the buffer zone areas. Monitoring locations have been chosen such that the measurement represents the overall air condition prevailing in the area. The study area represents mostly rural environment with stone mining quarries & crushers.

The regional climatologically data, was used as a guideline to know the predominant wind direction during study period. The locations were identified keeping in view predominant wind directions prevailing during study period, sensitive receptors, human settlements, and mining activities around.

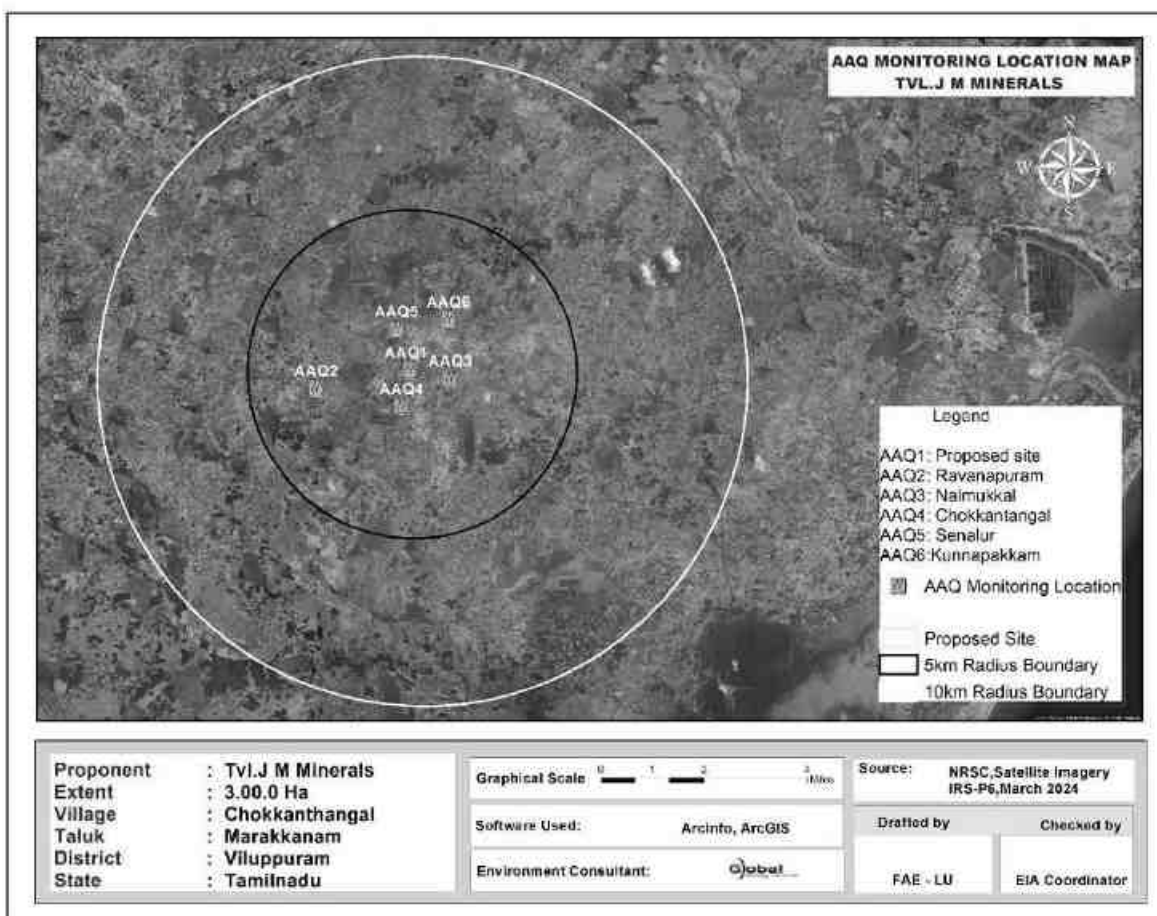
The levels of Respirable Particulate Matter (PM₁₀), Fine Particulates (PM_{2.5}), Sulphur Dioxide (SO₂) and Oxides of Nitrogen (NO_x) were monitored for establishing the baseline status. PM₁₀ were sampled with the help of Respirable Dust Samplers on filter papers and SO₂ & NO_x were absorbed in the respective absorption media in the impingers attached to RD samplers and analyzed Spectro-photometrically. PM_{2.5} was monitored with the help of Fine Particulate Samplers. The monitoring locations for ambient air study are given in Table – 3.3 and Figure 3.5 below.

DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF TVL.J.M.MINERALS OVER AN EXTENT OF 3.00.0 HA AT S.F.NOS. 5/1, 5/2 & 4/2 OF CHOKKANTHANGAL VILLAGE, MARAKKANAM TALUK, VILLUPURAM DISTRICT, TAMIL NADU STATE.

Table 3.3: Details Of Ambient Air Quality Monitoring Locations

S. No.	Station Code	Locations	Distance & Direction	Coordinates
1	AAQ 1	Project site	Core Zone	12°12'50.23"N 79°45'16.1"E
2	AAQ 2	Ravanapuram	2.8 km, W	12°12'34.38"N 79°43'39.71"E
3	AAQ 3	Nalmukkal	1.89 km, E	12°12'41.53"N 79°45'57.32"E
4	AAQ 4	Chokkantangal	1.06 km, S	12°12'13.81"N 79°45'7.33"E
5	AAQ 5	Senalur	1.21 Km, N	12°13'32.96"N 79°45'3.25"E
6	AAQ6	Kunnappakkam	1.88 Km, N	12°13'41.57"N 79°45'56.57"E

FIG 3.5 AMBIENT AIR MONITORING LOCATIONS



The concentrations of various air pollutants at the 6 locations are given below. For all the components in the table, the unit are in $\mu\text{g}/\text{m}^3$.

Table.3.4 Results of Air sampling Analysis in 6 locations

Station ID	Min	Max	Avg.
Particulate matter PM-2.5 ($\mu\text{g}/\text{m}^3$)			
AAQ-1	19.4	32.2	25.8
AAQ-2	18.3	30.4	24.35
AAQ-3	18.1	26.0	22.05
AAQ-4	20.4	25.8	23.1
AAQ-5	17.38	25.3	21.34
AAQ-6	16.64	25.1	20.87
CPCB NAAQS 2009 for PM_{2.5} - 60 $\mu\text{g}/\text{m}^3$			
Particulate matter PM-10 ($\mu\text{g}/\text{m}^3$)			
AAQ-1	41.6	67.1	54.35
AAQ-2	38.4	59.0	48.7
AAQ-3	36.4	52.6	44.5
AAQ-4	43.7	55.0	49.35
AAQ-5	36.2	51.2	43.7
AAQ-6	35.2	56.7	45.95
CPCB NAAQS 2009 for PM₁₀ - 100 $\mu\text{g}/\text{m}^3$			
Sulphur Di-oxide as SO₂ ($\mu\text{g}/\text{m}^3$)			
AAQ-1	4.6	7.7	12.3
AAQ-2	4.0	7.4	11.4
AAQ-3	3.9	7.0	10.9
AAQ-4	3.6	6.2	9.8
AAQ-5	4.1	5.8	9.9
AAQ-6	3.2	5.4	8.6
CPCB NAAQS 2009 for SO₂ - 80 $\mu\text{g}/\text{m}^3$			
Oxide of Nitrogen as NO₂ ($\mu\text{g}/\text{m}^3$)			
AAQ-1	6.9	10.3	8.6
AAQ-2	6.7	9.5	8.1
AAQ-3	6.2	9.3	7.75
AAQ-4	7.1	10.3	8.7
AAQ-5	5.5	8.2	6.85
AAQ-6	5.7	7.9	6.8
CPCB NAAQS 2009 for NO₂ - 80 $\mu\text{g}/\text{m}^3$			

The results are summarized in graph and given as below Fig. 3.6

FIG 3.6 AMBIENT AIR QUALITY DATA A1 - MINE LEASE AREA

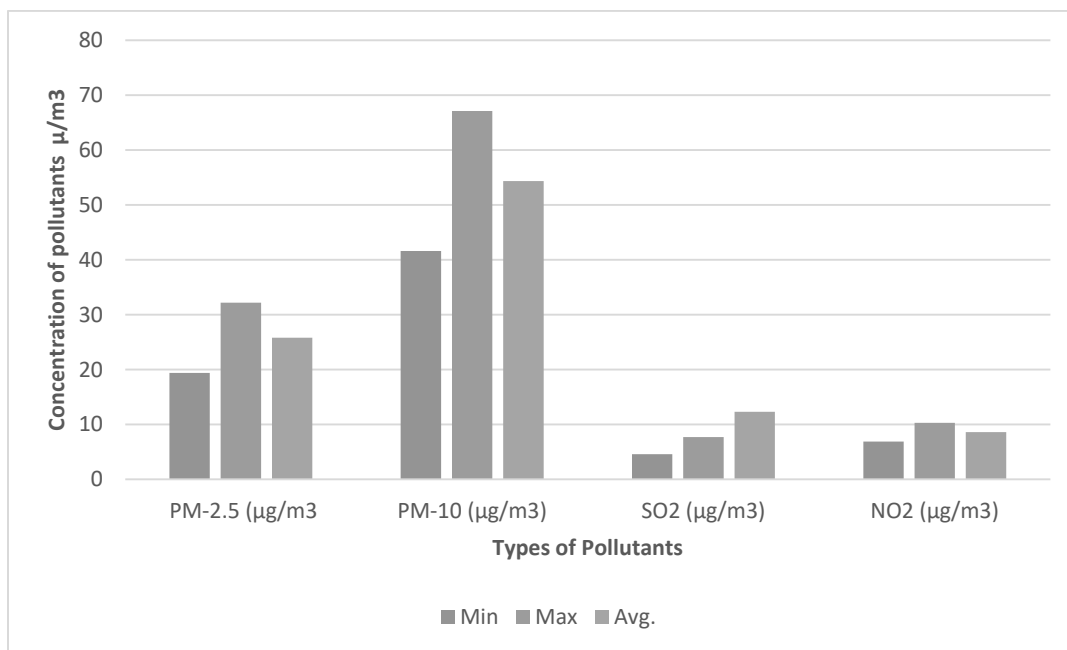


FIG 3.7 AMBIENT AIR QUALITY DATA A2 - RAVANAPURAM VILLAGE

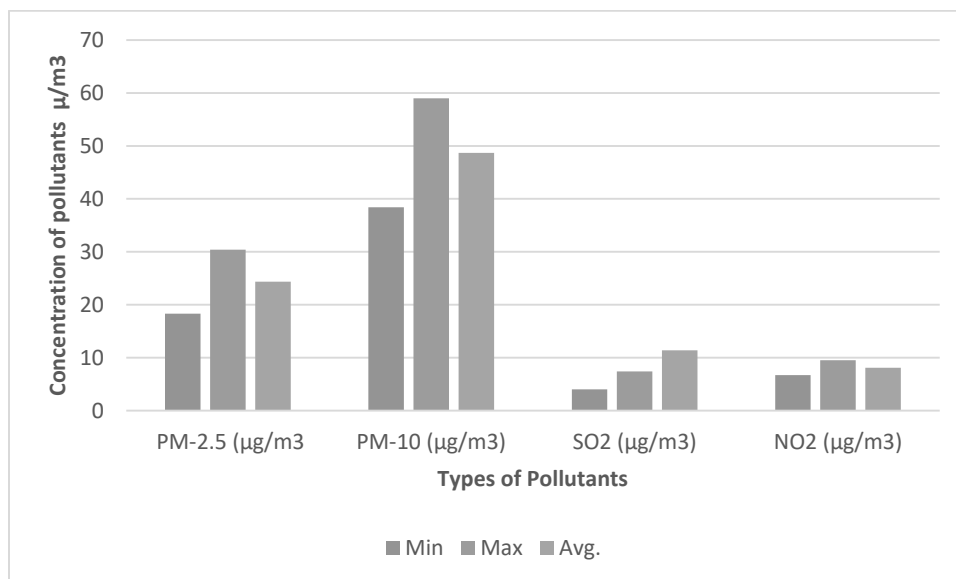


FIG 3.8 AMBIENT AIR QUALITY DATA A3 - NALMUKKAL VILLAGE

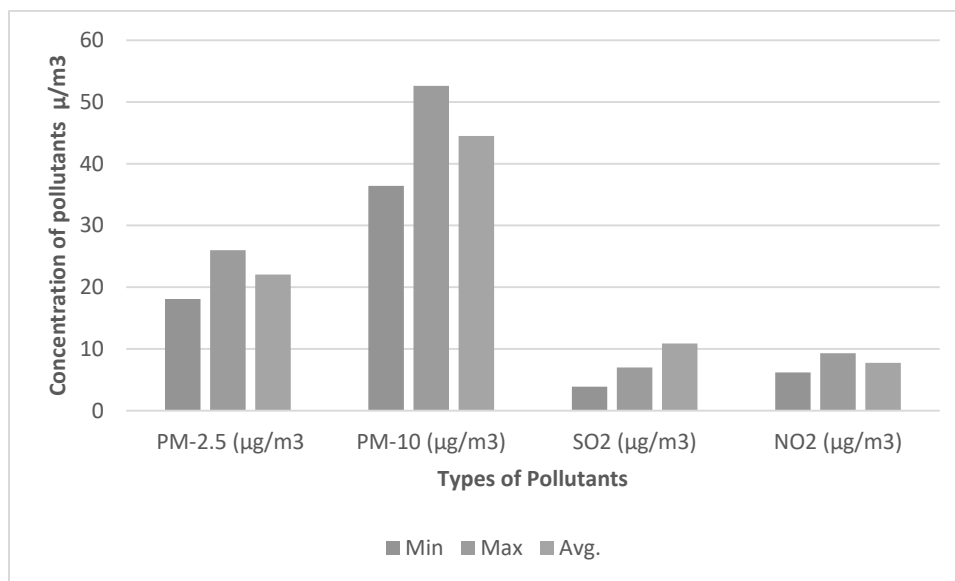


FIG 3.9 AAQ DATA A4 - CHOKKANTANGAL VILLAGE

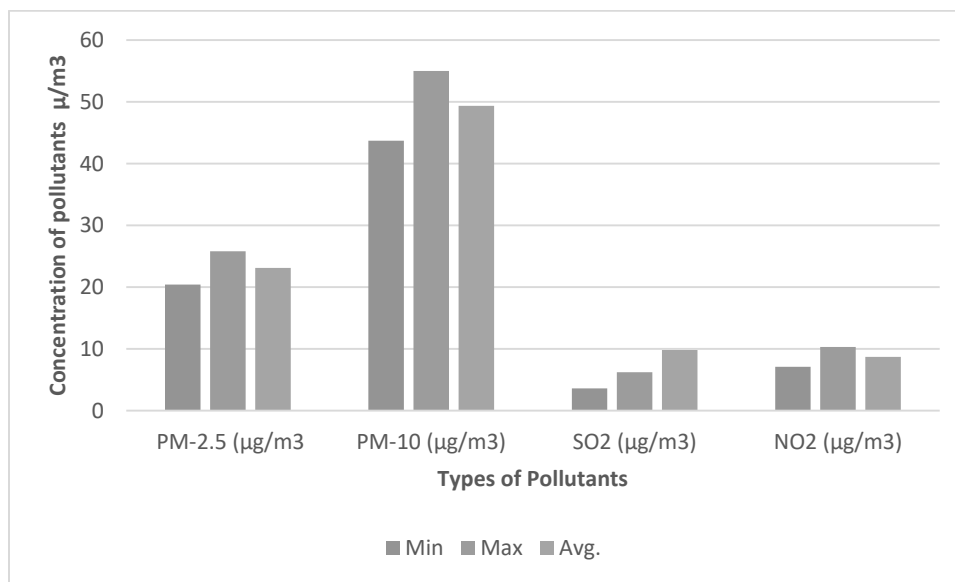


FIG 3.10 AMBIENT AIR QUALITY DATA A5 - SENALUR VILLAGE

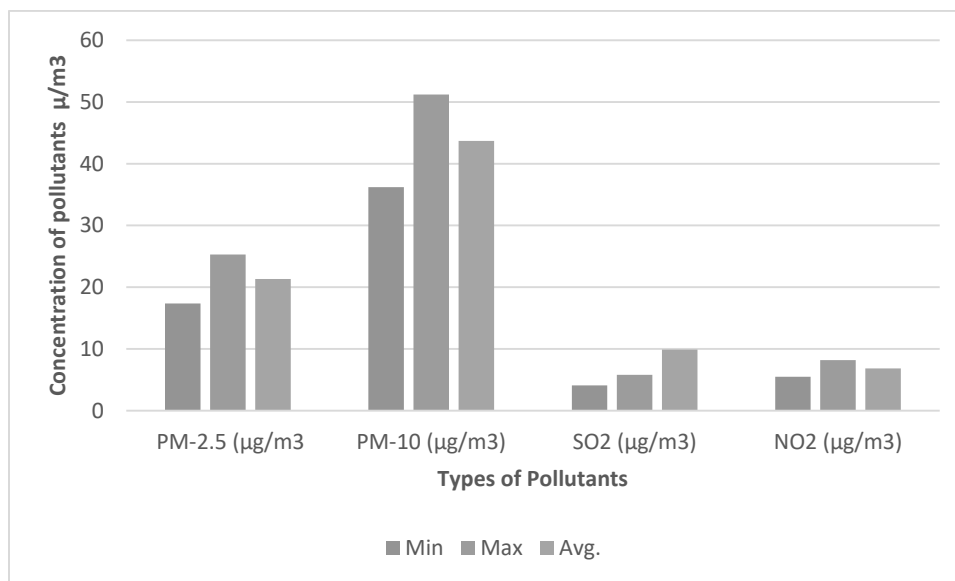
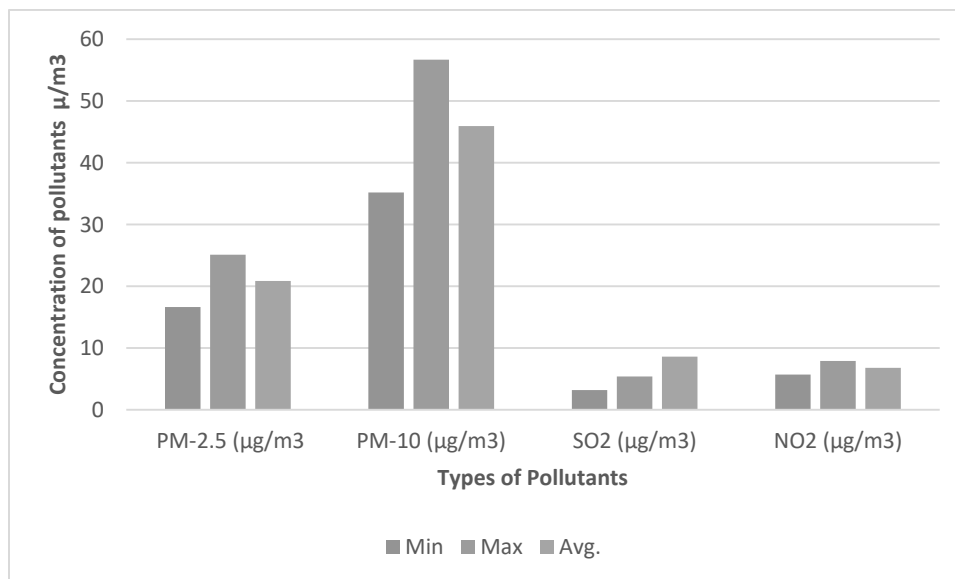


FIG 3.11 AMBIENT AIR QUALITY DATA A6 - KUNNAPAKKAM VILLAGE



From the above results, it is observed that the ambient air quality with respect to PM₁₀, PM_{2.5}, SO₂, and NO₂ at all the monitoring locations was within the permissible limits specified by CPCB.

3.3.2 WATER ENVIRONMENT

Assessment of baseline data on water environment includes:

- Identification of water resources
- Collection of water samples
- Analyzing water samples collected for physico-chemical parameters as per standards.

Surface Water

There is tank located is located at a distance of 120 m in east direction of lease area. 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. The prevailing status of surface water quality has been assessed during the study period. Surface water quality locations and results are provided in Table 3-14 and Figure 3.11.

Ground Water

The rainfall is the main source for the availability of water both in surface and sub-surface. The quantum of rainfall varies every year depending upon the monsoon. However, the extraction of surface and sub-surface water is increasing year by year. It leads to environmental impact on the water sources like depletion of water level, deterioration of water quality. It makes the demand for the quantification of available water and also its quality for various purposes like agriculture, industries, drinking and domestic purposes. Total six (06) ground water monitoring locations were identified for assessment in different villages around the project site based on the usage of sub surface water by the settlements/ villages in the study area. The groundwater results are compared with the acceptable and permissible water quality standards as per IS: 10500 (2012) for drinking water. Groundwater quality monitoring locations and results are given in Table 3.5 and Figure 3.11.

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 water bodies. The samples were analysed as per the procedures specified by CPCB, IS-10500:2012. The water sampling locations are given in Table 3.5 and shown as Figure 3.11.

The monitoring locations were selected based on:

- Location of the major water bodies
- Location of project site,
- Likely areas that can represent baseline conditions

Water bodies nearby

Table 3.5 Water Sampling Locations

S.NO	Location Code	Monitoring Locations	Latitude and longitude
Surface Water			
1	SW1	Nalmukkal village tank	12°12'56.72"N 79°45'54.15"E
2	SW2	Kulapakkam village tank	12°13'25.2"N 79°44'50.28"E
Ground Water			
1	GW1	Project site	12°12'50.23"N 79°45'16.1"E
2	GW2	Ravanapuram	12°12'34.38"N 79°43'39.71"E
3	GW3	Nalmukkal	12°12'41.53"N 79°45'57.32"E
4	GW4	Chokkantangal	12°12'13.81"N 79°45'7.33"E
5	GW5	Senalur	12°13'32.96"N 79°45'3.25"E
6	GW6	Kunnapakkam	12°13'41.57"N 79°45'56.57"E

FIG 3.12a BASE MAP OF GROUND WATER SAMPLING LOCATIONS

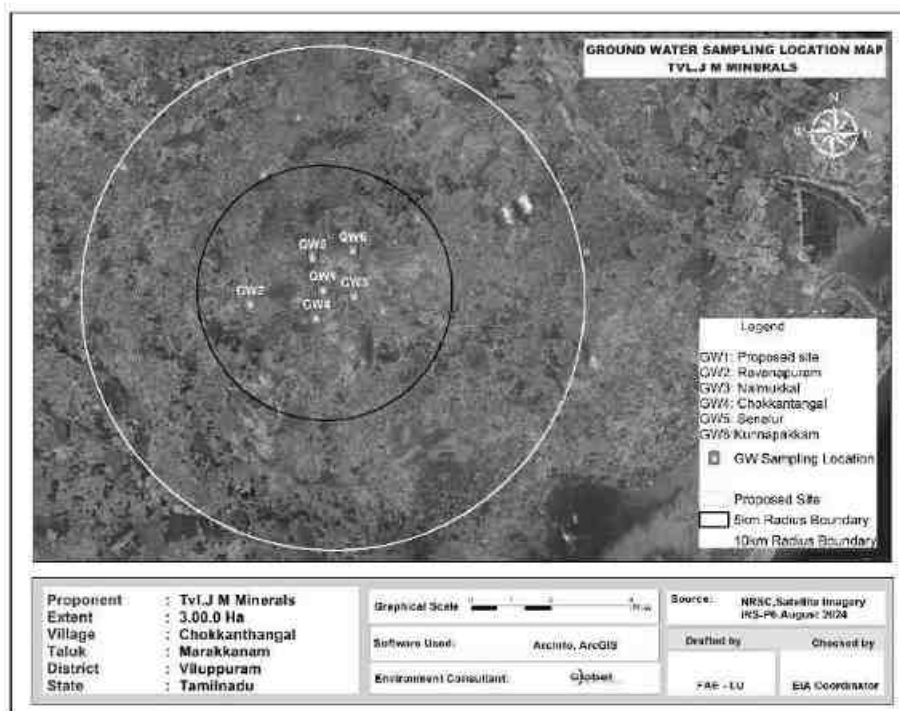


FIG 3.12b BASE MAP OF SURFACE WATER SAMPLING LOCATIONS

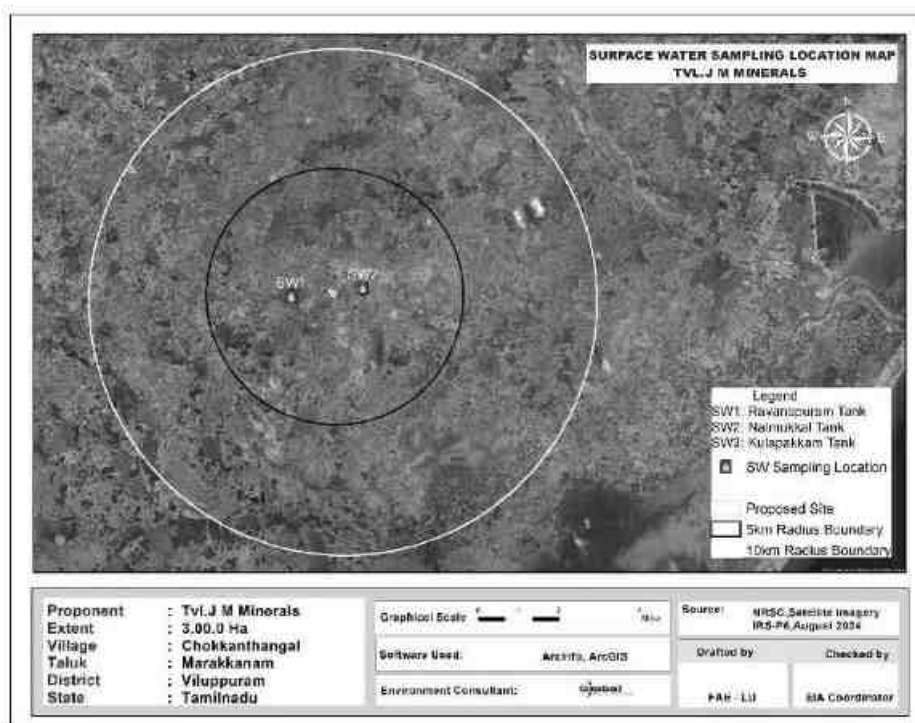


Table 3.6 Surface Water Analysis Results

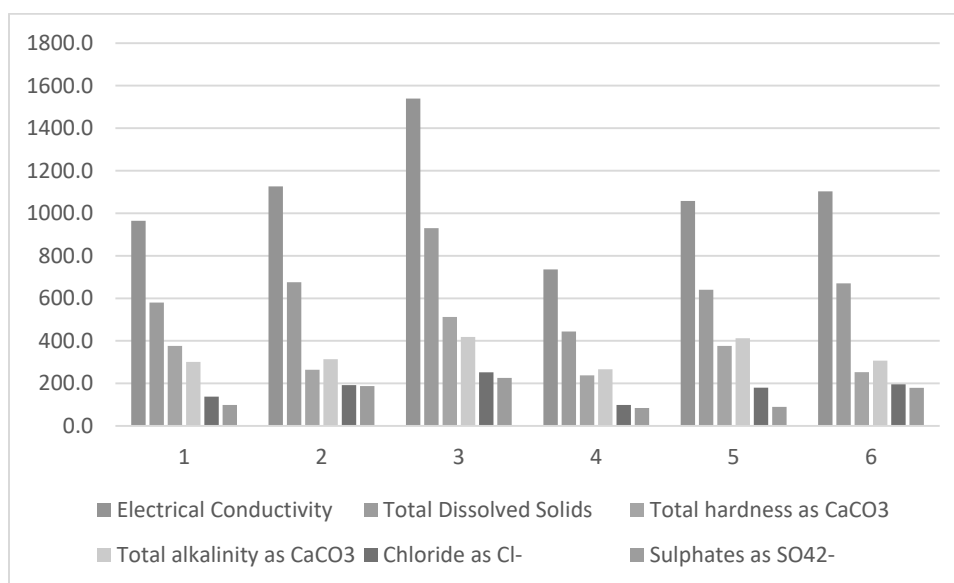
Sr.No	Parameter	Unit	SW1	SW2	Surface water standard s (IS 2296 Class-A)
1	Odour	-	Agreeable	Agreeable	-
2	Turbidity	NTU	<1	<1	1
3	pH at 25 °C	-	7.24	7.35	6.5-8.5
4	Electrical Conductivity	µs/cm	664.5	902	-
5	Total Dissolved Solids	mg/l	402	540	500
6	Total hardness as CaCO ₃	mg/l	232	264	-
7	Calcium as Ca	mg/l	65.6	74.4	300
8	Magnesium as Mg	mg/l	16.3	13.4	-
9	Calcium as CaCO ₃	mg/l	164	186	-
10	Magnesium as Mg	mg/l	68	56.0	-
11	Total alkalinity as CaCO ₃	mg/l	201	232	-
12	Chloride as Cl ⁻	mg/l	121	146	-
13	Free Residual chlorine as Cl ⁻	mg/l	BDL (D.L - 0.2)	BDL (D.L - 0.2)	250
14	Sulphates as SO ₄ ²⁻	mg/l	94.5	124	400
15	Iron as Fe	mg/l	0.12	0.11	1.0
16	Nitrate as NO ₃	mg/l	5.24	3.66	20
17	Fluoride as F	mg/l	0.46	0.59	1.5
18	Manganese as Mn	mg/l	BDL (D.L - 0.05)	BDL (D.L - 0.05)	0.5
19	COD	mg/l	12.6	15.8	
20	BOD	mg/l	BDL	BDL	
21	TSS	mg/l	4	10	

The samples were analyzed by Shrient Analytical & Research Labs Private Limited; Chennai and the results are summarized below.

Table 3.7 Results of Ground Water sampling Analysis in 6 locations							Specification/ Limit (As per IS:10500: 2012)	
	W1	W2	W3	W4	W5	W6	Desirable	Permissible
Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
Turbidity	<1	<1	<1	<1	<1	<1	Agreeable	Agreeable
pH at 25 °C	7.19	7.35	7.08	6.79	7.12	7.48	6.5 - 8.5	No Relaxation
Electrical Conductivity	964.5	1126	1539	735.8	1058	1103	1	5
Total Dissolved Solids	580	676	930	444	640	670	500	2000
Total hardness as CaCO ₃	376	264	512	238	376	253	1	15
Calcium as Ca	106	83.2	108	65.6	63.4	76.0	200	600
Magnesium as Mg	27.2	13.6	58.6	18.0	52.3	15.2	200	600
Calcium as CaCO ₃	264	208	271	164	158	190	75	200
Magnesium as CaCO ₃	112	56.0	241	74.0	218	63.4		
Total alkalinity as CaCO ₃	301	314	418	266	412	307		
Chloride as Cl ⁻	138	192	252	98.5	180.0	196	250	1000
Free Residual chlorine as Cl ⁻	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)	30	100
Sulphates as SO ₄ ²⁻	98.9	187	226	84.5	89.2	179.0	45	No Relaxation
Iron as Fe	0.06	0.05	0.08	0.03	0.02	0.05	200	400
Nitrate as NO ₃	3.45	3.97	5.54	3.62	1.69	3.64	1	No Relaxation
Fluoride as F	0.28	0.34	0.39	0.38	0.44	0.41	0.1	0.3
Manganese as Mn	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)	Not Specified	Not Specified

Some of the common parameters including EC, TDS, Total Hardness, Total Alkalinity, Chlorides and Sulphates in the 6 locations were plotted and the graph is provided below.

FIG 3.13 VALUES OF FEW COMMON PARAMETERS IN WATER ANALYSIS



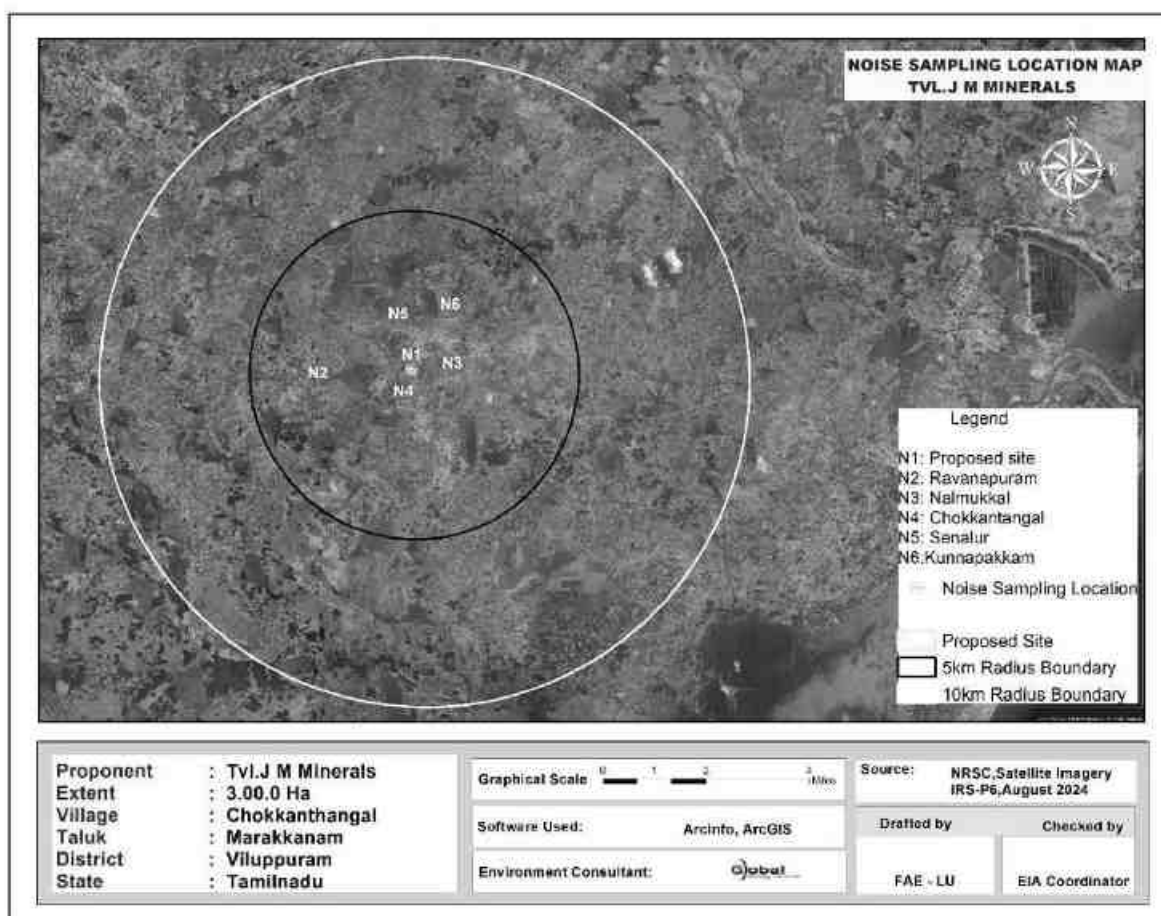
All the values were found to be within the permissible limits.

3.3.4 NOISE MONITORING

Noise level monitoring was calculated using a noise level meter by NABL Accredited lab and the results are summarized below.

The noise monitoring locations are given in Fig 3.14

FIG 3.14 NOISE MONITORING LOCATIONS

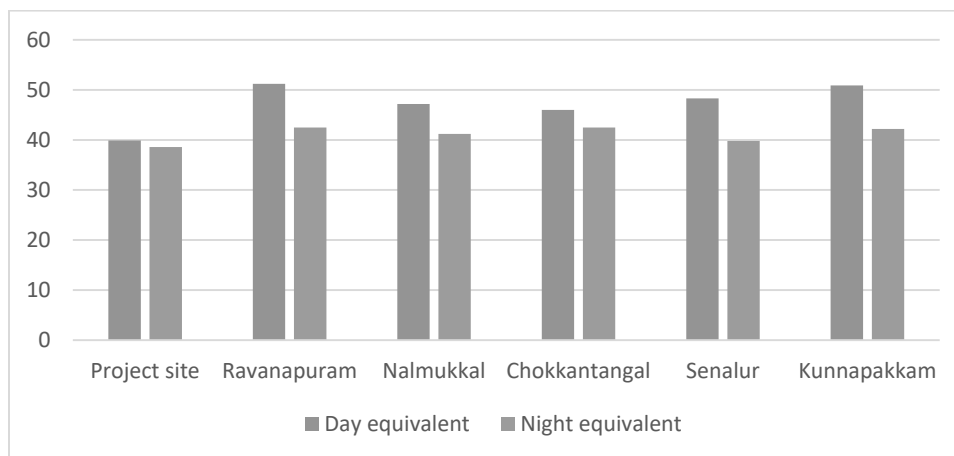


The results are given in Table below.

Table 3.8 Noise monitoring results					
S. No	Location	Day equivalent	Night equivalent	Day equivalent limits by CPCB	Night equivalent limits by CPCB
1	Project site	39.9	38.6	75	70
2	Ravanapuram	51.2	42.5		
3	Nalmukkal	47.2	41.2		
4	Chokkantangal	46.0	42.5		
5	Senalur	48.3	39.8		
6	Kunnappakkam	50.9	42.2		

The results are plotted as below.

FIG 3.15 DAY AND NIGHT EQUIVALENT VALUES IN 6 LOCATIONS

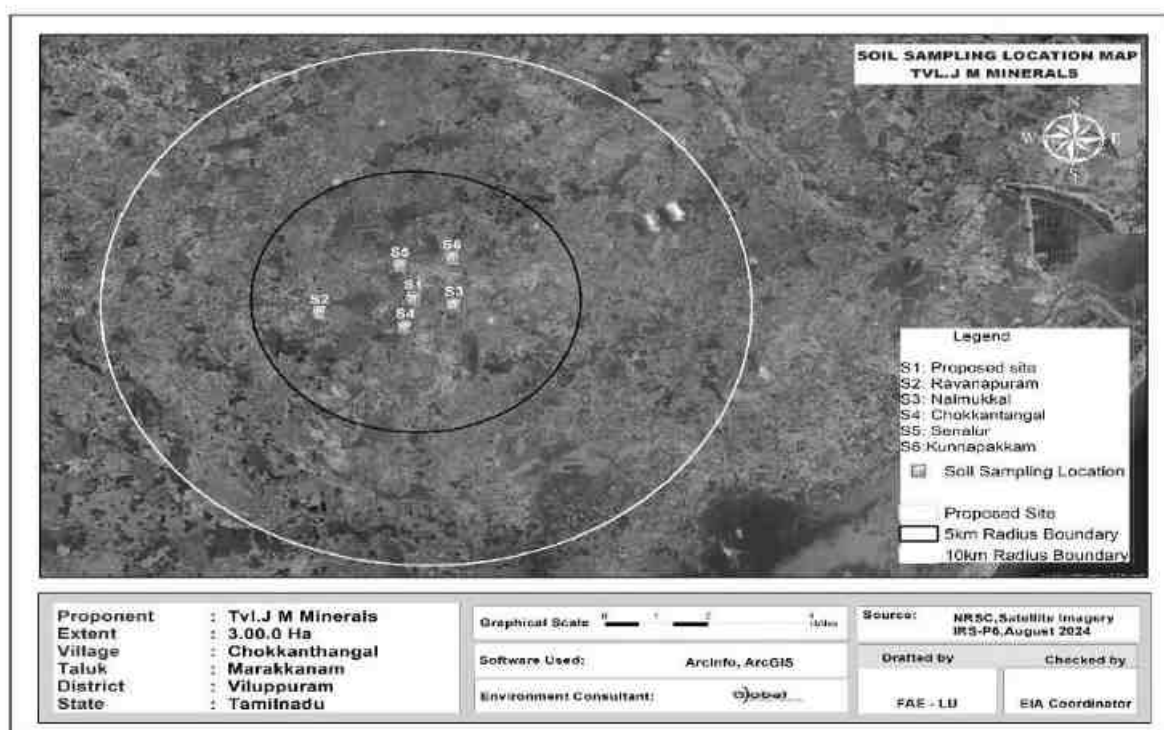


All the values are found to be within CPCB norms.

3.3.5 SOIL SAMPLING ANALYSIS

Soil samples have been collected from the mine lease area and 5 other locations from Ravanapuram, Nalmukkal, Chokkantangal, Senalur and Kunnapakkam Villages. The locations are shown in figure below.

FIG 3.16 SOIL SAMPLING LOCATIONS



The results are summarized in the table below.

Table 3.9 Results of Soil Sample Analysis								
S. No	Parameter	Unit	S1	S2	S3	S4	S5	S6
1	pH at 25 °C	-	6.08	7.74	7.65	7.36	7.03	8.73
2	Electrical Conductivity	µmhos/cm	78.65	295.4	122.4	209.7	100.8	509.8
3	Dry matter content	%	92.54	89.72	90.38	92.06	90.40	91.15
4	Water Content	%	7.46	10.28	9.62	7.94	9.60	8.85
5	Organic Matter	%	1.69	2.34	1.87	1.26	1.71	0.8
6	Soil texture	-	SILT LOAM	SILTY CLAY LOAM	SILTY CLAY LOAM	SILTY CLAY LOAM	SILT LOAM	SILTY CLAY LOAM
7	Grain Size Distribution	%	36.99	5.05	4.38	5.84	41.47	5.78
	i. Sand							
	ii. Silt							
	iii. Clay							
8	Phosphorous as P	mg/kg	1.21	0.59	0.74	0.82	1.03	0.82
11	Sodium as Na	mg/kg	854	932	646	1015	976	1002
12	Potassium as K	mg/kg	410	645	802	674	724	669
13	Nitrogen and Nitrogenous Compounds	mg/kg	216	275	176	349	312	340
14	Total Soluble Sulphate	%	BDL(D.L. 0.02)	BDL(D.L. 0.02)	BDL(D.L. 0.02)	BDL(D.L. 0.02)	BDL(D.L. 0.02)	BDL(D.L. 0.02)
15	Porosity	%	12.80	13.1	13.8	13.5	11.9	13.2
16	Water Holding Capacity	Inches/foot	41	43	46	45	44	48

3.3.6 BIOLOGICAL ENVIRONMENT

The biological study of the area has been conducted in order to understand the ecological status of the existing flora and fauna to generate baseline information and evaluate the probable impacts on the biological environment. The details are given below.

Flora in the study area

Field survey is done. For measuring the extent of flora present in the study area, the area is divided in to 4 quadrants. The flora population in each quadrant is summed up for the total population in the study area. Also, data from the State Forest department is used.

Core Zone

During the field visit, it is observed that there are no national parks / Sanctuaries / forests in the 10km buffer area. The study area is devoid of any major plantations.

Table 3.10 Flora in Core Zone			
S.No.	Scientific name	Vernacular/English name	Type of flora
1	Calotropis gigantea	Erukku	Shrubs
2	Cassia auriculata	Aavarai	
3	Achyranthes aspera	Nayuruvi	

Buffer zone

Only common trees, shrubs, bushes, etc. are found. The list is given below.

Table 3.11 Flora in Buffer zone			
S.No.	Scientific name	Vernacular/English name	Type of flora
1	Azadirachta indica	Neem	Trees
2	Carica papaya	Papaya	
3	Mangifera indica	Mango	
4	Acacia leucophloea	Velamaram	
5	Acacia nilotica	Karu- velamaram	
6	Moringa oleifera	Murungai	
7	Tamarindus indica	Puli	
8	Tectona grandis	Theku	
9	Manilkara zapota	Sappota	
10	Musa paradisiaca	Valzhlai	
11	Borassus flabelliformis	Panna-maram	
12	Ficus benghalensis	Alamaram	
13	Ficus religiosa	Arasamaram	
14	Phyllanthus emblica	Nelli	
15	Calotropis gigantea	Yerukku	Shrubs
16	Cassia auriculata	Aavarai	

17	Ricinus communis	Aamanakku	Herbs
18	Tecoma stans	Arali	
19	Aloe vera	Kathalai	
20	Catharanthus roseus	Nithyakalyani	
21	Acalypha indica	Kuppaimeni	Climbers
22	Coccinia grandis	Kovai	
23	Cissus quadrangularis	Pirandai	
24	Jasminum angustifolium	malli	
25	Ziziphus oenopia	Ilandai	Grasses
26	Cymbopogon	Kanam	
27	Cyperus rotundus	Kora grass	
28	Cynodon dactylon	Arugu	

Fauna in the study area

There is no specific Fauna found within ML area. The buffer zone Fauna in the area is studied by direct observation method. Secondary data collected from Forest department and the same is used in this report. People in the nearby locality were also consulted. The commonly found fauna in the area are given below.

Table 3.12 Fauna in buffer zone				
S.No.	Scientific name	Common name	Type of fauna	Schedule to which the species belong
1	Canis familiaris	Common dog	Mammals	IV
2	Felis catus domesticus	Domestic cat		IV
3	Golunda ellioti	Indian bush rat		IV
4	Funambus palmarum	Squirrel		IV
5	Lepus nigricollis	Indian hare		IV
6	Bos indicus	Domestic cow		IV
7	Common Crow	Corvus splendens	Birds	V
8	House Sparrow	Passer domesticus		IV
9	Common Myna	Acridotheres tristis		IV
10	Streptopelia chinensis	Pigeon		IV
11	Calotes versicolor	Lizard	Amphibia	IV
12	Ptyas mucosa	Snake		IV
13	Rana hexadactyla	Frog		IV

3.3.7 LAND USE

Remote Sensing Satellite Data Used for the Study

For Land-use and land cover study, sensing satellite data of Geo EYE has been used as per Figure No. 1. A land use map showing 10 Km radial distance. The geographical coordinates of the project are Latitude 12°12'46.89"N to 12°12'54.41"N and Longitude: 79°45'11.54"E to 79°45'20.00"E.

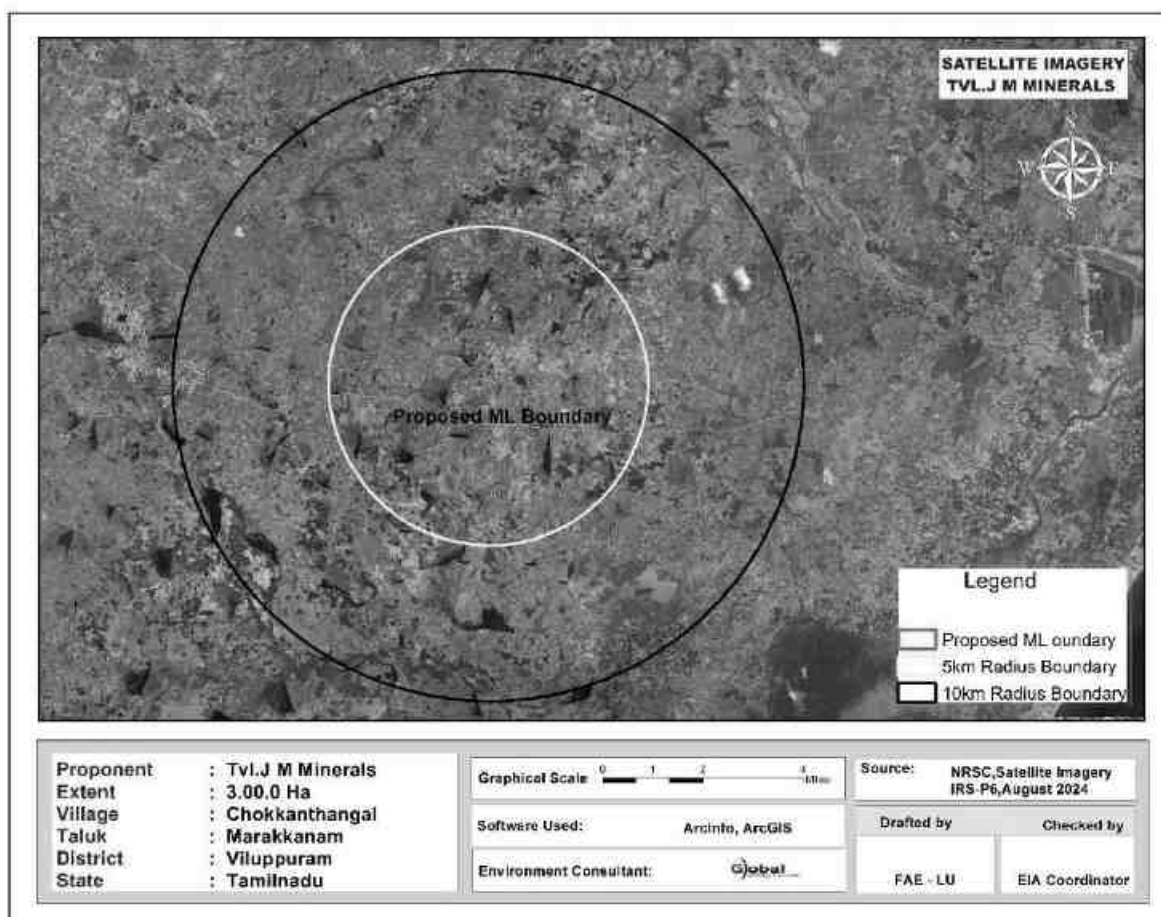


Figure No. 3.17: Remote Sensing Satellite Image

Selection of remote sensing satellite image (RSI) is on the availability of cloud free data and interpretability of predominant landuse and land cover (LULC) category. The examination of satellite data showed that the region is always covered by clouds with lesser percentage during summer due to cluster habitation. But rained crops are

cultivated during southwest monsoon and hence a data acquired during first onset of precipitation is preferred so as to delineate crop and fallow land parcels of agricultural category. Delineation of scrub land is also possible since land with scrub could be easily distinguished from crop vegetation and separated. This may be an arduous task during monsoon since the entire area would be witnessed with sudden sprout of lush natural vegetation, mostly *prosopis*, with first onset of precipitation.

Methodology Adopted for the Land Use Study

Present study involves micro level analysis of landuse pattern showing 10 km radius and changes in landuse pattern using satellite data. This necessitates a careful analysis of satellite data adopting a well-defined methodology.

To cater the requirement, a preliminary assessment of terrain using digital analysis helping to infer relationship between terrain and landuse has been carried out. Such an approach provides lucid understanding of landuse units and enhances the knowledge on the landuse pattern assisting in impact assessment.

The knowledge base thus generated is used to delineate various landuse units while carrying out interpretation of the satellite image. The derived landuse information is transformed into a GIS based spatial database using geo-referencing techniques. Besides, a limited but well focused field investigation also carried out and coordinates of significant landuse units using handheld GPS (Global Positioning System) are gathered to be used as control points for geo-referencing. Interpreted landuse units are verified in the field to carryout necessary corrections wherever is required before preparing final landuse map.

Using the image elements such as color, tone, texture, size, shape and associated elements various landuse units are delineated following the categorization and nomenclature adopted for the national level landuse classification system as recommended by National Remote Sensing Centre (NRSC), Department of Space, Government of India. Some of the landuse units that are identified in the study area are listed in **Table No. 1** given below.

Field Verification:

Field verification involved collection, verification and record of the different surface features that create specific spectral signatures / image expressions on FCC. In the study area, doubtful areas identified in course of interpretation of imagery is systematically listed and transferred on to the corresponding SOI topographical maps for ground verification. In addition to these, traverse routes were planned with reference to SOI topographical maps to verify interpreted LU/LC classes in such a manner that all the different classes are covered by at least 5 sampling areas, evenly distributed in the area. Ground truth details involving LU/LC classes and other ancillary information about crop growth stage, exposed soils, landform, nature and type of land degradation are recorded and the different land use classes are taken the Land use map.

Table No.3.13: Major Land use Units of the Study Area

Sr. No.	1 st level classification	2 nd level classification
1	Built-Up Or Habitation	Residential
		Commercial / Industrial
2	Agriculture	Crop / Fallow Land
		Plantation
3	Water Bodies	Reservoir / Lake / Pond
		River
4	Vegetation Cover	Scrub
		Open Vegetation
		Close Vegetation
		Mangroves
5	Waste Land	Open Without Scrub
		Open With Scrub
6	Others	Mudflow
		Salt Pan
		Brick Manufacturing

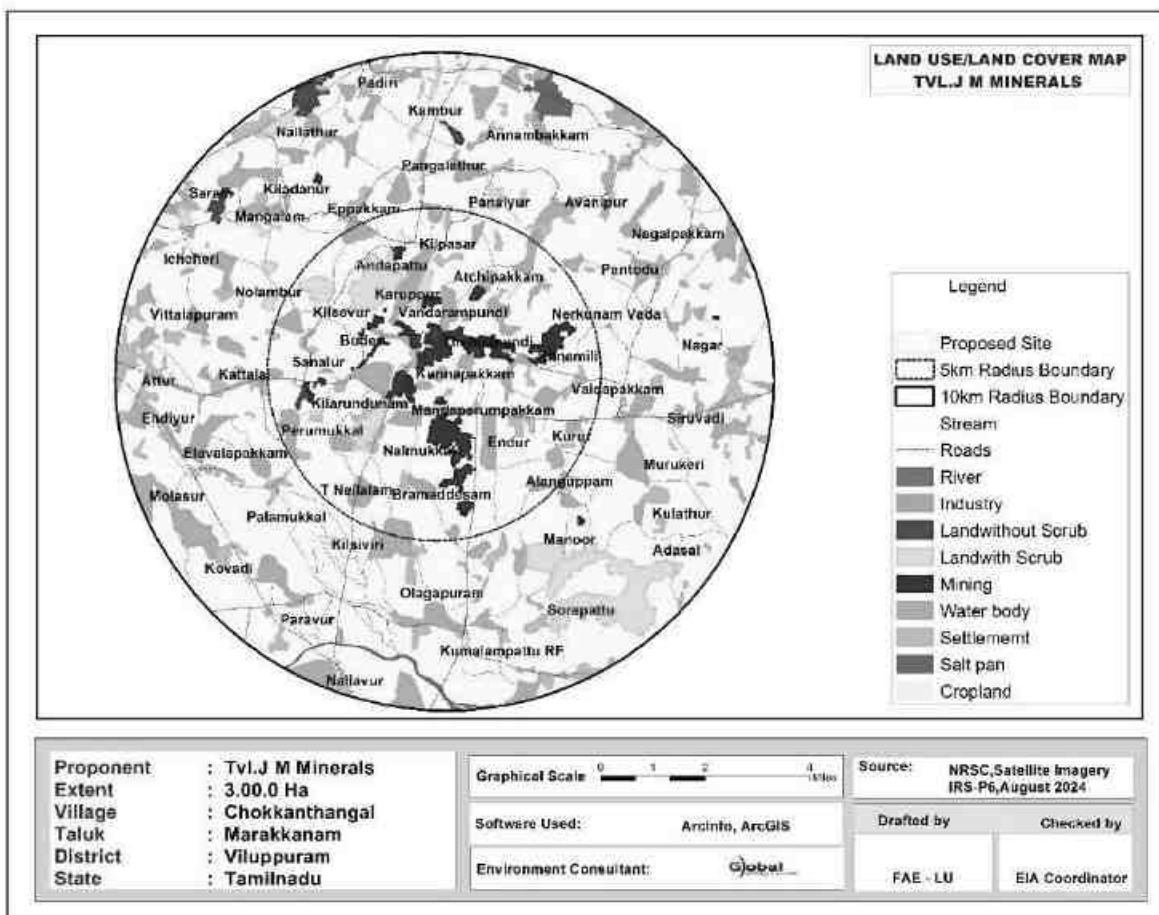
Land Use Pattern of 10 km Radial Buffer Area of Project Site

The existing land use pattern and land cover distribution of the whole acquired block, have been studied from the satellite imagery and subsequent ground checking during the field surveys.

It mainly comprises of agricultural land with bi-annual crops of Kharif (Kharif: Jowar, Bajra, Cotton, etc. Season: July to October) and Rabi (Rabi: Wheat, Rai etc. Season: December to March). The presence of the agricultural land is followed by few dense settlements Nalmukkal village natural or man-made pond etc. The shortage of rainfall, availability of ground water at deeper level and other climatic condition do not support good agricultural productivity inspite of having enough land. There is no demarcated forest land within the study area, however, some scattered forest is found throughout the 10 km radius, especially along the periphery of the villages.

The general landuse pattern of the core and buffer may be broadly classified into four major types – Buildup or habitation, Agriculture, Water Bodies, Waste land and Other categories. Under buildup or habitation category covered villages, town and infrastructure. Under agriculture category considered crop land/fallow land and plantation. Under the water body categories Reservoir/ lake, pond, River and stream. Under wasteland category considered land with scrub and land without scrub is interpreted. Lastly other category's covered Mines area and forest are interpreted under this category. These categories are delineated from the selected satellite image using image elements such as color, tone, texture, size, shape and associated elements. The delineated land use units are transformed into a spatial database in GIS environment. Estimated for area and representation of each category in the study area. The total area of LULC in the study area is calculated as 322 sq. km and spatial distribution of various LULC categories within buffer area are discussed below. The 5km and 10km radius land use map is shown above. The details are given below.

FIG 3.18 LAND USE/LAND COVER MAP OF THE STUDY AREA



Land Use / Land Cover Classification classified into first level classification and second level classification and major land use/land cover classes were demarcated in the study area following Level II classification. A thematic map of 1:50,000 scale was generated incorporating these classified categories considering the area of the project.

Built-up / Settlements

Settlements in the study area are generally small to medium size in stature and area scattered. Marakkanam is the relatively larger settlements observed at the north part of the study area.

Interpretation of settlement from the satellite image is based upon the image elements such as color, tone, texture and association. It is delineated by their typical red color. Association with linear features such as roads reaffirmed the presence of delineation of settlements. The spatial extent of settlement is estimated as 25.76 sq. km representing 8.05 % of the study area and Industrial + Commercial area covers 2.02 sq. km with 0.63%.

Agricultural Land

Under the broad category of agriculture crop land, fallow land and plantation is delineated. Cultivation is mostly dependent upon river water for irrigational activities are good. River, Ponds and tanks in each village act as rainwater storage units and do support domestic requirement and even cultivation to some extent. Because of these conditions, minimal water requiring crops such as corn, sunflower, oil seeds, grams, millets and coriander are cultivated. Cultivation is the most predominant crop cultivated and even if it failed their stalks are used as fodder for cattle.

Crop and Fallow land are interpreted using their image elements such as light to green, smooth to medium tone, they are the second most predominant landuse category delineated in the buffer area. As explained earlier, cultivation mostly depends upon river, canal and rainfall and majority of the land parcels are tilled and ready for cultivation with even a scanty Canal. Hence, cropland is the predominant category estimated at 247.3 Sq.km representing 76.80 % of the buffer area.

Wasteland

The last category of the landuse units in the study area is "Wasteland" which denotes land parcels that could not be utilized for cultivation even after conservation measures – such as land with scrub, land without scrub area.

Next to agricultural area, natural vegetation such as land with scrub forms the predominant LULC category of the buffer area. Land with scrub is sparse and delineated as patches scattered in all the parts of the buffer area. The spatial pattern of scrub suggests it is closely associated with water courses. This category occupies

land with scrub an area of 11.02 sq.km representing 3.42 % of the total core and buffer area.

Land without scrub, on the other hand is interpreted using brown to white color, medium tone and medium texture and is generally restricted around land covered with scrub and fallow land. They occur as small patches and very minimal area covering 2.37 sq.km representing 0.74 % of the buffer area.

Water bodies

Many Streams small and big water bodies are seen in the study area distributed all over the study area. They support the domestic water requirements and for cattle. At some places, they may also use for irrigation purpose and are very limited. Few dry stream courses are also seen in the study area. In the satellite image, water bodies are interpreted by their light blue to greyish blue color, smooth tone and smooth texture.

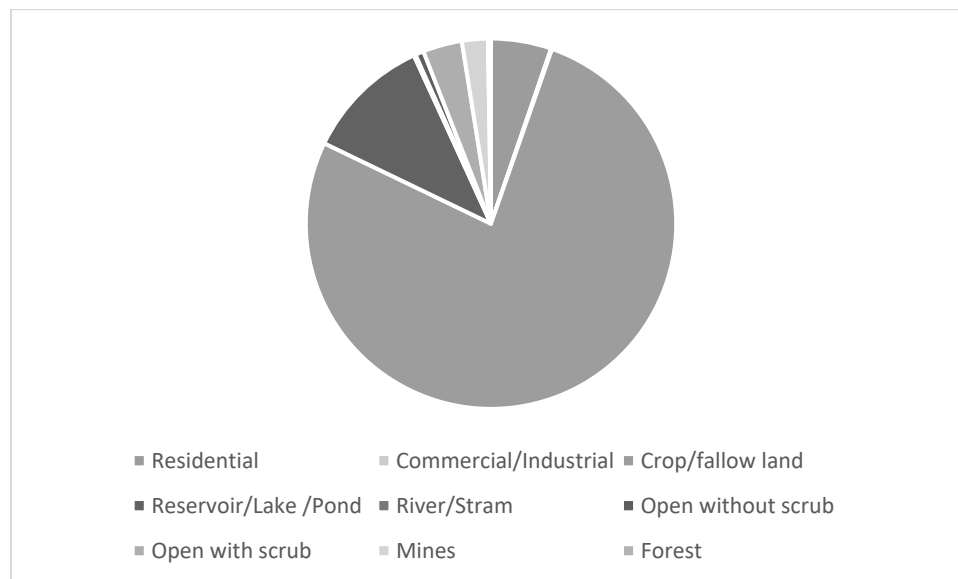
Most of the water bodies retain water for a shorter period after precipitation due to the soil constraint and hence go dry soon. Spatial extent of rivers, stream and water bodies is estimated at 35.45 sq.km and 11.01 %.

Mining area

Mining area seen in the study area distributed all over the study area. Major domestic income from mining business. Spatial extent of mining is estimated at 7.28 sq.km 2.26 %.

Table No. 3.14: Major Land Use Units of the Study Area in Percentage

S. No	1st Level Classification	Area in (sq.km)	Percentage (%)	2nd Level Classification	Area in (sq.km)	Percentage (%)
1	Built-up or habitation	17.23	5.35	Residential	16.94	5.26
				Commercial/Industrial	0.29	0.09
2	Agriculture	247.3	76.80	Crop/fallow land	247.3	76.80
3	Water bodies	35.96	11.17	Reservoir/Lake /Pond	35.45	11.01
				River/Stram	0.51	0.16
4	Waste Land	13.39	4.16	Open without scrub	2.37	0.74
				Open with scrub	11.02	3.42
5	Mines	7.28	2.26	Mines	7.28	2.26
6	Forest	0.85	0.26	Forest	0.85	0.26
Total		322	100	Total	322	100



3.4 SOCIOECONOMIC ENVIRONMENT

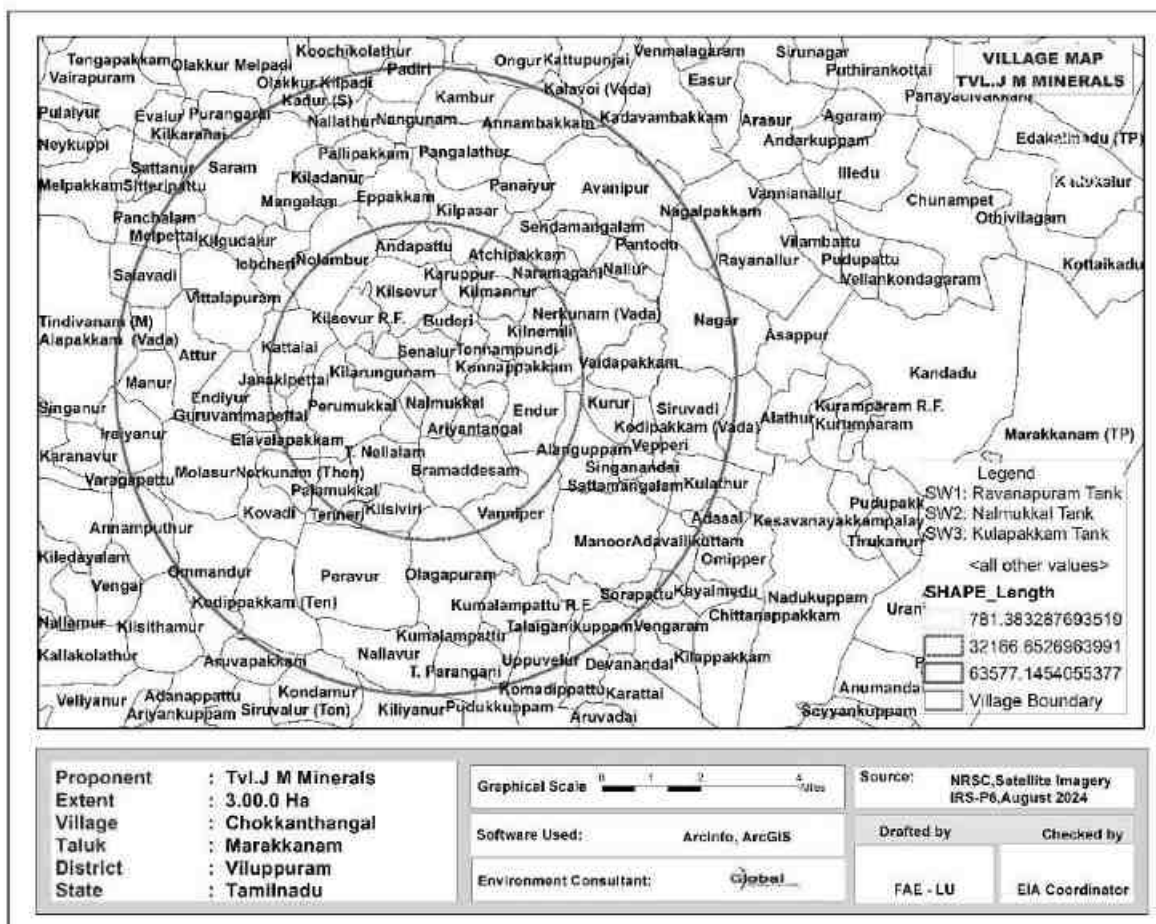
The socio-economic environment of the study area is studied by conducting primary sites through site visits and conducting sample surveys. The secondary data obtained from Census 2011 is also used. The following data area collected from secondary data:

- Demographic pattern.
- Health pattern
- Occupational structure.

3.11.1 DETAILS OF VILLAGES

The profile of the villages located in the study area is given in Fig 3.16 below.

FIG 3.19 VILLAGE MAP OF THE STUDY AREA



DETAILS OF VILLAGES

The project is located in Chokkanthangal Village, Marakkanam Taluk, Villupuram District. The total population is 106478 which comprise of 53580 males and 52898 females. There are 36 rural villages and one urban area in the study area. List of villages are given below.

Table 3.15 Village details in study area				
S.No.	Village/Town Name	Radius	Taluk Name	District Name
1	Kilpasar	1-5km	Tindivanam	Villupuram
2	Atchipakkam			
3	Sendamangalam			
4	Andapattu			
5	Kilsevir			
6	Karuppur			
7	Kilmannur			
8	Kilnemili			
9	Buderi			
10	Tennampundi			
11	Kunnappakkam			
12	Senalur			
13	Perumukkal		Marakanam	
14	Kilarungunam			
15	Mandaperumpakkam			
16	Endur			
17	Kurur			
18	Alanguppam			
19	Alagaipakkam			
20	Bramaddesam			
21	Ongur	6-10km	Tindivanam	
22	Olakkur Kilpadi			
23	Padiri			
24	Kambur			
25	Kalavoi Vada			
26	Annambakkam			
27	Kadavambakkam			
28	Kadur S			
29	Nallathur			
30	Nangunam			
31	Saram			
32	Pallipakkam			
33	Avanipur			
34	Kiladanur			
35	Eppakkam			
36	Panaiyur			
37	Nagalpakkam			

DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF TVL.J.M.MINERALS OVER AN EXTENT OF 3.00.0 HA AT S.F.NOS. 5/1, 5/2 & 4/2 OF CHOKKANTHANGAL VILLAGE, MARAKKANAM TALUK, VILLUPURAM DISTRICT, TAMIL NADU STATE.

38	Nolambur			
39	Ichcheri			
40	Vittalapuram			
41	Naramagani			
42	Attur			
43	Kattalai			
44	Endiyur			
45	Janakipettai			
46	Guruvammappettai			
47	Elavalapakkam			
48	Molasur			
49	Nerkunam Then			
50	Kovadi			
51	Ommandur			
52	Nagalpakkam			
53	Rayanallur			
54	Nallur			
55	Nagar			
56	Nerkunam Vada			
57	Asappur			
58	Kulapakkam Vada			
59	Kodipakkam Vada			
60	Alathur			
61	Chokkantangal			
62	Ariyantangal			
63	Vepperi			
64	T Nellalam			
65	Murukeri			
66	Singanandai			
67	Vanniper			
68	Palamukkal			
69	Kulathur			
70	Sattamangalam			
71	Kilsiviri			
72	Manoor			
73	Adasal			
74	Adavallikuttam			
75	Omipper			
76	Sorapattu			
77	Olagapuram			
78	Peravur			
79	Talaiganikuppam			
80	Kumalampattu R F			

Marakanam

Vanur

Table 3.16 Population profile of the study area		
Particulars	No of Population	Percentage (%)
A. Population break-up by Gender		
Male Population	53580	50
Female Population	52898	50
Total	106478	100
B. Population break-up by Caste		
Scheduled Caste	43384	40
Scheduled Tribes	1861	2
Others	61233	58
Total	106478	100
C. Literacy Level		
Male Literate Population	37714	35
Female Literate Population	28514	27
Male Illiterate	15866	15
Female Illiterate	24384	23
Total	106478	100
D. Occupational structure		
Main workers	37737	-
Marginal workers	17377	-
Total Workers	55114	52
Total non-workers	51364	48
Total	106478	100

The above table shows that the male and female population ratios are almost equal. Among the total population 2 % belong to Scheduled Tribes, 40 % are Scheduled Caste and the balance 58 % people belong to other castes. Among the total population 62 % of the people are literate. Among the total population 35 % are literate males and 27 % are literate females. This shows that the male literates are higher than the female literates. The results are plotted in figures below.

FIG 3.20 GENDER-WISE POPULATION DISTRIBUTION

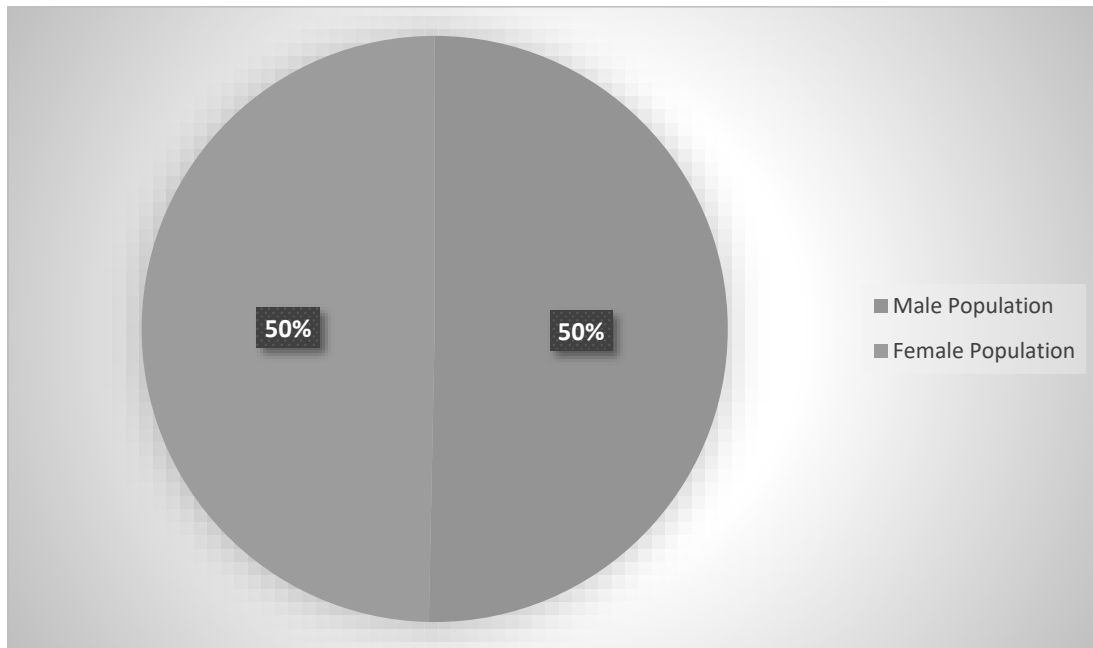


FIG 3.21 GENDER WISE LITERACY DISTRIBUTION

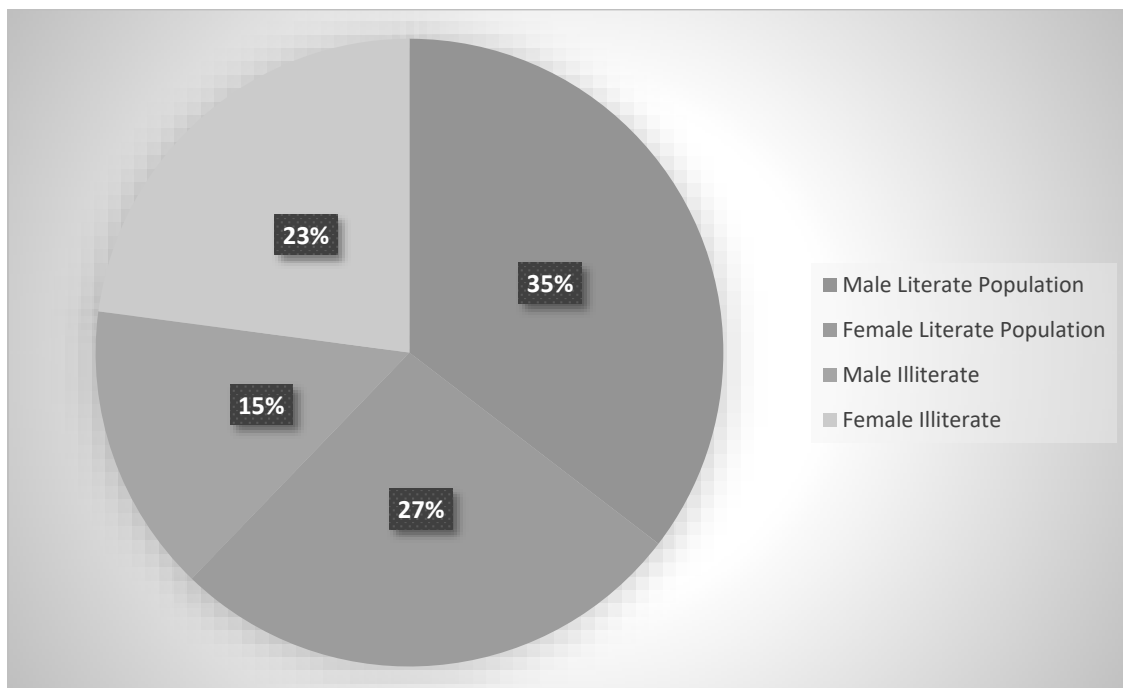
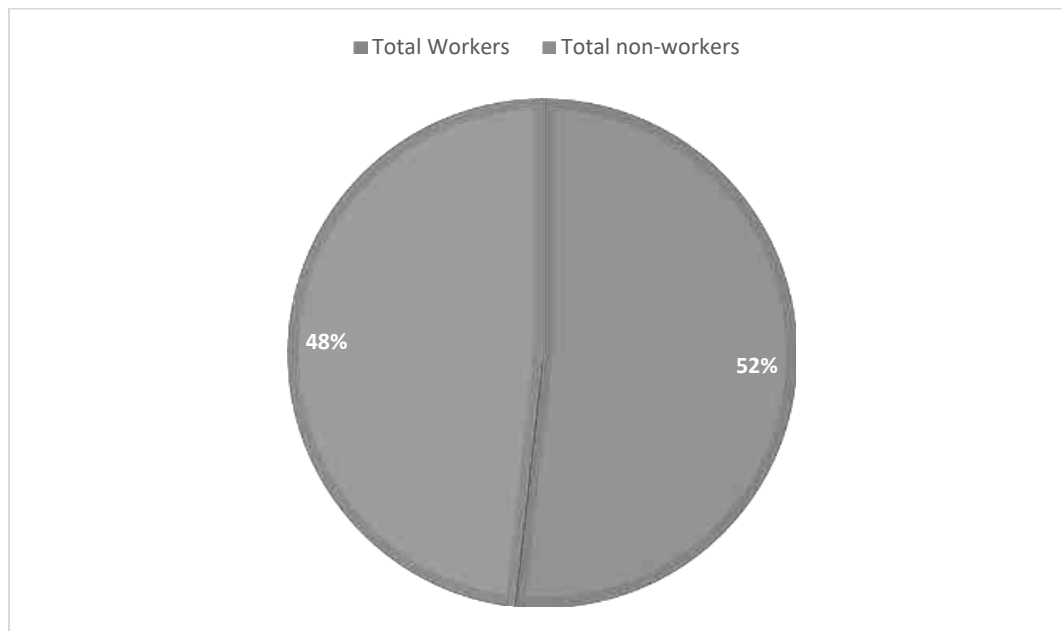


FIG 3.22 OCCUPATIONAL STRUCTURE WITHIN BUFFER ZONE



Infrastructure facilities in the study area

Education

Table 3.17 Educational infrastructure -10 km radius from proposed mine lease		
S. No.	Particulars	Available in village (Nos)
1	Govt. Primary School	Marakkanam - 25
2	Govt. Middle School	23
3	Govt. Secondary School	18
4	Govt. Senior Secondary School	15
5	Govt. Arts and Science Degree College	39
6	Govt. Engineering College	0
7	Govt. Medicine College	0
8	Govt. Management Institute	0
9	Govt. Polytechnic	0
10	Govt. Vocational Training School/ITI	0

In the study area, there are totally 25 Primary Schools functioning in these 23 urban areas. Among them 80 villages have 15 primary school, 27 villages have 10 primary schools & 23 villages have more than 12 primary school.

Healthcare

In the study area, the following facilities are available.

Table 3.18 Medical Infrastructure-10 km radius from proposed mine lease		
S.No.	Particulars	Available in village (Nos)
1	Community Health Centre	10
2	Primary Health Centre	6
3	Primary Health Sub Centre	25
4	Maternity And Child Welfare Centre	16
5	TB Clinic	10
6	Hospital Allopathic	0

Other Infrastructure

The other infrastructure facilities available are given below.

Table 3.19 Other Infrastructure-10 km radius from proposed mine lease		
S.No.	Particulars	Available in village
1	Tap Water-Treated	45
2	Covered Well	15
3	Hand Pump	18
4	Tube Wells/Borehole	16
5	Post office	9
6	Public bus services	30
7	Commercial Bank	16
8	Cooperative bank	24

Sample Survey

The expert visited 5 villages in the study area namely Ravanapuram, Nalmukkal, Chokkantangal, Senalur and Kunnappakkam villages. Discussions were held with the people from nearby locality to study the social and economic conditions prevailing in the area. The expert also visited nearby hospitals, primary health centers and Chokkantangal. The following observations were made.

Primary schools are available in many villages. For hospital facilities, people in the locality have to go to hospital in Kilarungunam Village which is about 380 m from the lease area. Major schools with higher secondary and senior secondary schools are located in Chokkantangal. The major Nalmukkal Union located in the area is Villupuram. Facilities like petrol pump stations, ATM facility are available in Kilarungunam Village.

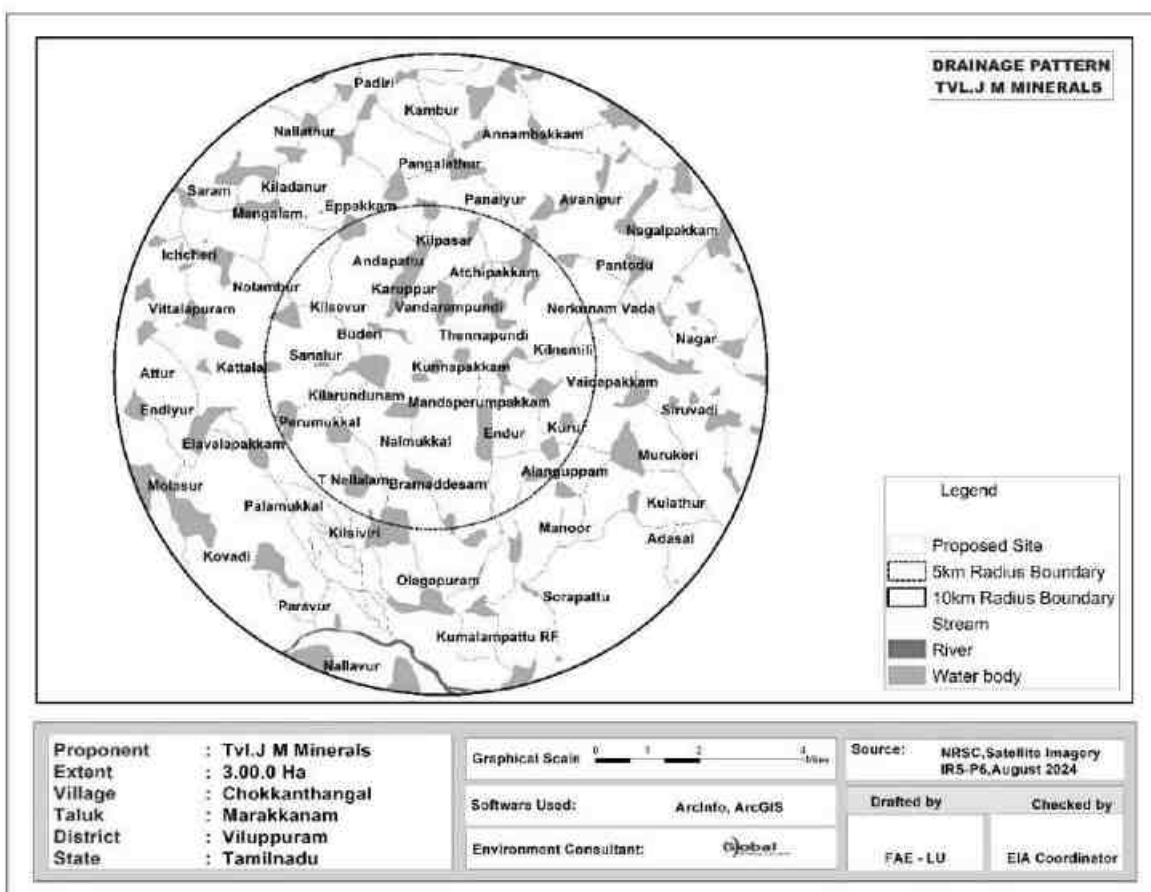
3.3.9 HYDROGEOLOGY OF THE STUDY AREA

There is tank is located at a distance of 120 m in east direction of lease area. The hydrological and hydrogeological pattern of the study area is studied in detail using satellite imagery.

HYDROGEOLOGICAL STUDY

To assess the hydrogeological condition of the surrounding proposed mine lease area. The study area is located in Chokkantangal Village, Marakkanam Taluk, Viluppuram District, Tamil Nadu State is considered to understand the nature of the general hydrogeological conditions of the surrounding proposed mine lease area.

FIGURE 3. 23 10 KILOMETER RADIUS OF THE DRAINAGE MAP



PHYSIOGRAPHY AND DRAINAGE

Physiography: The area applied for quarry lease is exhibits almost plain topography covered by rough stone and Gravel formation. The massive Charnockite formation is noticed below 2m ground level and gentle towards Southeastern side of the area, the altitude of the area is above 68 m (maximum) from MSL.

Drainage: The drainage pattern study reveals that from the proposed mine lease area with around 1 Km radius and 10 Km study observed in Figure 3.20. There is Vada Penniyaru River is located at a distance of 10.9 km in Southeast direction of lease area of the proposed site.

GEOLOGY, GEOMORPHOLOGY AND SOIL

Geology:

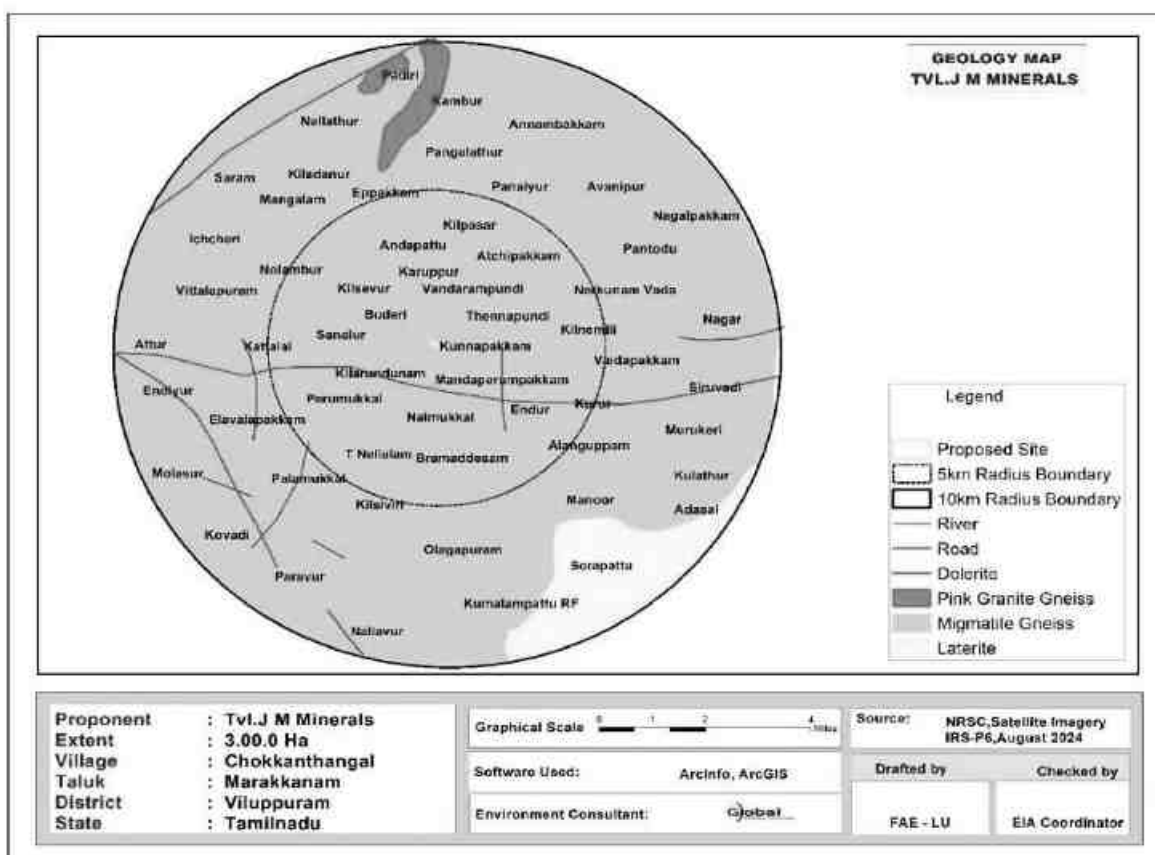
The Core and 10 Km buffered zone geological features (Figure 3.21) shows that the Villupuram District is mostly underlain by the lithologies of southern granulite Terrain Super Group (SGT) with age ranging from Neoarchaean to Mesoproterozoic except coastal belt in the eastern part of the district. The calc granulite with limestone of Khondalite Group is occurs at north of Mugaiyur. The Charnockite Group contain 3 lithologies such as Charnockite, banded magnetite quartzite and pyroxene granulite. The Charnockite occur at north of Valatti and covers large area from Vikravandi to Ollakur. The linear bands of pyroxene granulite are occurring mostly in the NW parts of the district near valatti and few patches occur at west of Odiyattur. The Migmatite Group contains biotite gneiss which cover large area in the central and NW parts of the district such as west of Muttatur and Mugaiyur and in and around valatti. The grey hornblende biotite gneiss occurs as linear band at east of Vikravandi. The hornblende biotite gneiss occurs in the larger area of the district from Mugaiyur to north of Gingee. The Migmatite gneiss occur at south of Olakkur and NW of Odiyattur. The bands of pink migmatite are occurs at NE of Gingee and NW of Valatti. The Archaeian to Paleoproterozoic in age Closepet Granite within the biotite gneiss of Migmatite Group at west of Valatti. The Proterozoic epidote hornblende gneiss is occurring in and around Gingee with shearing activity. The Mesoproterozoic in age

DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF TVL.J.M.MINERALS OVER AN EXTENT OF 3.00.0 HA AT S.F.NOS. 5/1, 5/2 & 4/2 OF CHOKKANTHANGAL VILLAGE, MARAKKANAM TALUK, VILLUPURAM DISTRICT, TAMIL NADU STATE.

basic intrusive like dolerite dykes are intruded into rocks of Southern Granulite Terrain and these dykes are trending into NW-SE to E-W direction.

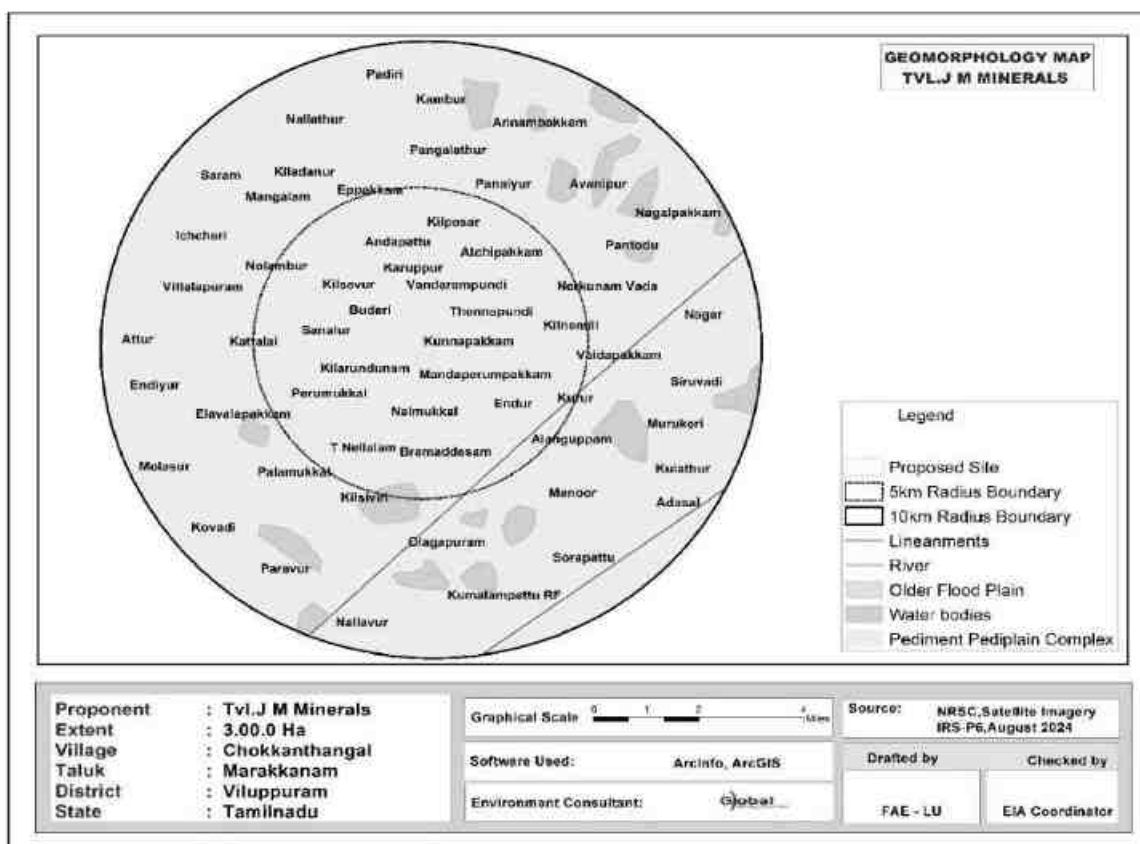
The late carboniferous-early permian in age, boulder conglomerate bed of Talchir Formation occurs in linear belt at northern part of the district near Olakkur and Ongur. The Late Cretaceous period contains Pondicherry Group which contains sandstone-shale sequence and divided into Vanur and Nesal Formations and occurs in the eastern part of the district. The Cenozoic laterites occur at west of Marakkanam. The early palaeocene age contains Pondicherry Group and it is divided into Karasur and Manaveli Formations which contain lithologies such as limestone and clay and occurs at east of Vanur. The Miocene-Pliocene period are marked by deposits of thick sediments sequence and classified into Panamparai Formation and Cuddalore Formation and contains lithologies such as sandstone, conglomerate and mottled sandstone.

FIGURE 3. 24 10 KILOMETER RADIUS OF THE GEOLOGY MAP



Geomorphology: The Core and 10 Km buffered zone geomorphological features (Figure 3.22) shows that the viluppuram district forms part of the upland plateau region of Tamil Nadu with many hill ranges, hillocks and undulating terrain with a gentle slope towards east. The prominent geomorphic units identified in the district through interpretation of Satellite imagery are 1) Structural hills, 2) Bazada zone, 3) Valleyfill, 4) Pediments, 5) Shallow Pediments and (6) Deep Pediments. A number of hill ranges are located in the eastern and north-eastern parts of the district, whereas the southern, western and northern parts of the district are plain to undulating, dotted with a few isolated hillocks. The important hill ranges in the district are Karuvakshi Malai. 292 m (prom: 185 m), Athima Malai. 273 m (prom: 108 m), Kadaiya Malai. 263 m (prom: 132 m), Velliampattu Malai. 256 m (prom: 152 m), Palayam Malai. 255 m (prom: 148 m), Muttattur Malai. 200 m (prom: 126 m), Adangulam Malai. 161 m (prom: 68 m), Papa Malai. 304 m (prom: 174 m).

FIGURE 3. 25 10 KM RADIUS OF THE STUDY AREA GEOMORPHOLOGY MAP



BELOW GROUND LEVEL (BGL)

Figure 3.26 & 3.27 shows the Non-Monsoon and Monsoon water level map of the study area.

FIGURE 3.27 NON-MONSOON WATER LEVEL MAP OF THE STUDY AREA

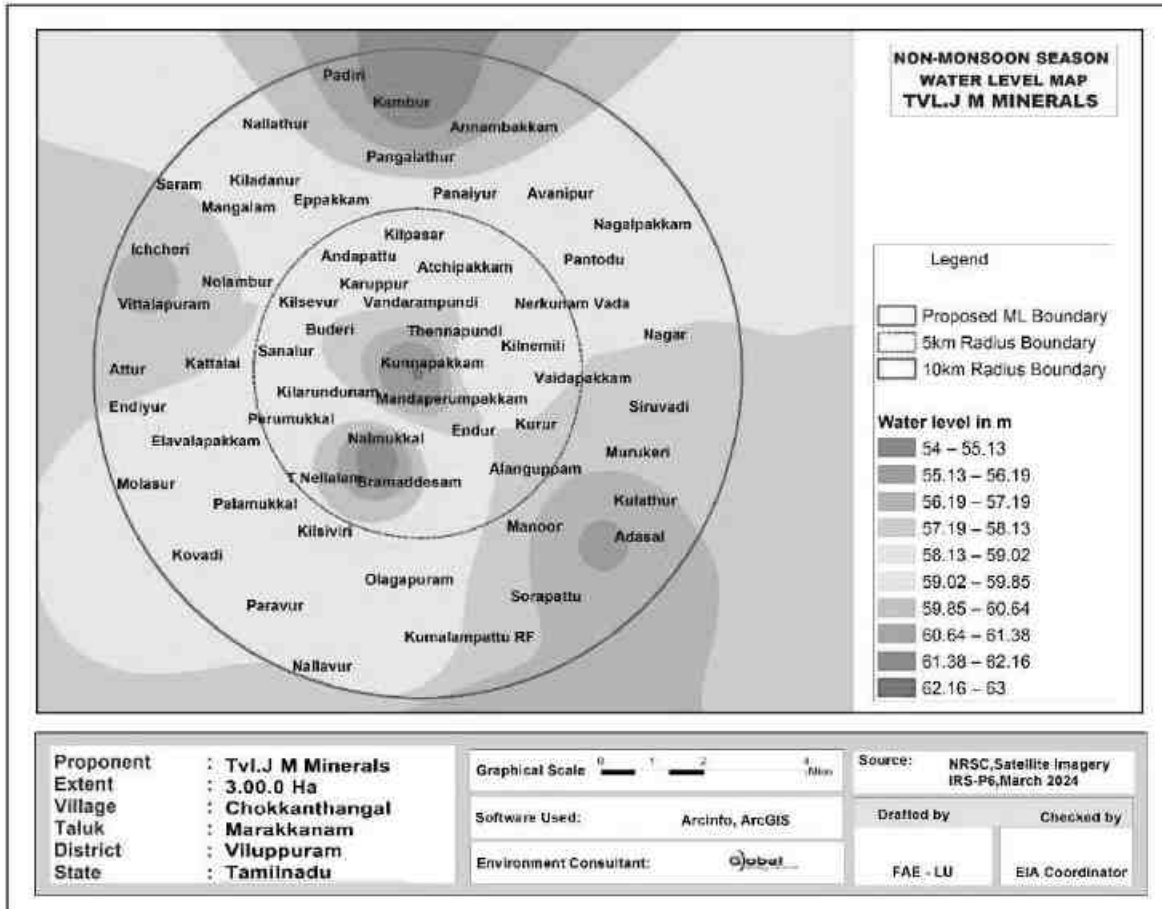
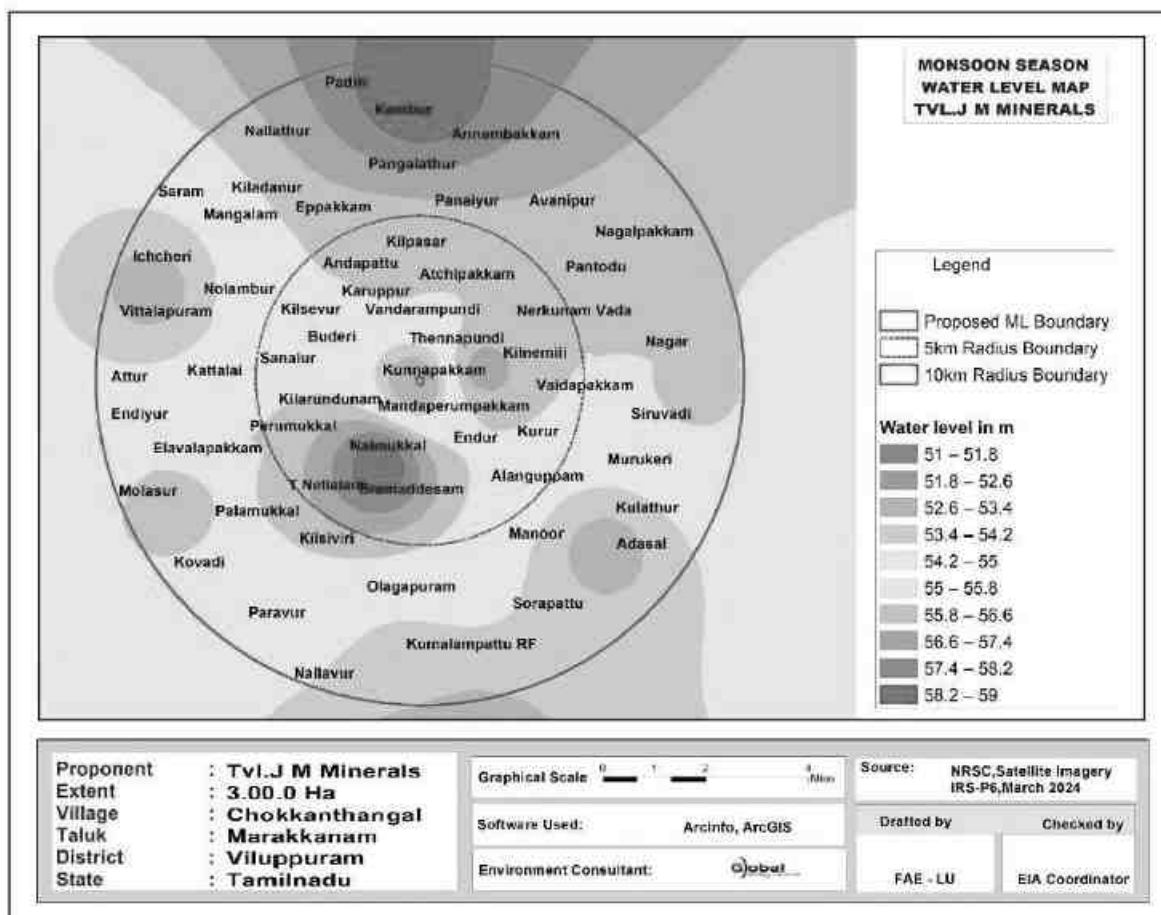


FIGURE 3.28 NON-MONSOON WATER LEVEL MAP OF THE STUDY AREA



FIELD INVESTIGATION

The temporary seasonal streams water flow from center to outer most area. There is tank is located at a distance of 120m in east direction.

The water is temporarily found only during the rainy season.

In this representation in the two seasons, the water level substantially gets fall-down in the non-monsoon season, because of the rainfall impact and it extended up to the Monsoon season. Some of the wells water level is shallow depth in both seasons.

These dug wells are located nearby water bodies. So, clearly shows that surface water is impact in these wells.

The shallow depth of groundwater level in the monsoon season. It is interesting to note that the water level is increased because of heavy rainfall during the southwest and northeast monsoon. The groundwater table level is substantially increased in the monsoon season.

In the study area, the shallow aquifer is developed through dug wells and deeper aquifer through tube wells. The study has revealed that potential fractures are encountered at deeper levels. The water in the wells are available mainly monsoon and it reduces during non-monsoon demanding the groundwater. Bore wells are deep and it reflects that the yield is only better at deeper water levels.

Rain water collected in the tanks in the region acts as a good source of water during monsoon season. In order to increase the recharge, tanks, and percolation ponds may be provided with the recharge wells/recharge shafts penetrating this impervious layer to make it more effective in recharging the aquifer.

CHAPTER 4

ANTICIPATED ENVIRONMENTAL IMPACTS AND **MITIGATION MEASURES**

INTRODUCTION

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. The above activities may affect the surrounding environment like removal of rock mass, Loss of flora and fauna of the area, surface water discharge, change in air and water quality, etc., If adequate measures are not taken for the proposed operations, it will cause the environmental degradation of the area and it will lead to affect to the ecosystem of the surrounding environment.

In order to maintain the existing environmental scenario of the proposed mine lease area it is mandatorily required to assess the present ecology and environment of the proposed mine lease area and buffer area of the project before starting mining operations. The various environmental impacts which are identified by the proposed quarrying activities have been discussed below and its subsequent paragraphs.

- ❖ Land Environment
- ❖ Soil Environment
- ❖ Water Environment
- ❖ Air Environment
- ❖ Noise Environment
- ❖ Biological Environment
- ❖ Socio Economic Environment

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. 5/1, 5/2 & 4/2 over an extent of 3.00.00 Ha in Chokkanthangal Village, Marakkanam 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 excavate to 4,85,805 m³ of Rough Stone 41,818 m³ of Gravel, in which 4,40825 m³ of rough stone & 41,818 m³ of Gravel will be mined out in first five years and remaining 44,980 m³ rough stone will be mined out in second 5 year up to a depth of 47m (BGL) for the period of ten years. 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. The project area of 3.00.00 Ha boundary barrier except in eastern direction. It is proposed to be altered by effective quarrying operation such as excavation (2.18.5 Ha), Infrastructure (0.01.0), Road (0.01.0 Ha) and green belt will be developed in the safety zone of 0.79.5Ha. The ultimate depth of quarrying is proposed with maximum depth of 47m BGL and will not intersect the ground water table.

4.2 MEASURES FOR MINIMIZING AND /OR OFFSETTING ADVERSE IMPACTS IDENTIFIED

Aspect	Impact	Mitigation measures																															
Topography	The area is exhibits almost plain topography covered by rough stone and 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 SO₂, NO_x, PM₁₀, 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>2.18.5</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>0.79.5</td></tr><tr><td>Unutilized</td><td>3.00.0</td><td>Nil</td></tr><tr><td>Total</td><td>3.00.00</td><td>3.00.0</td></tr></table>	Land Use	Present Area (Hect)	Area in use during the quarrying period (Hect)	Quarrying Pit	Nil	2.18.5	Infrastructure	Nil	0.01.0	Roads	Nil	0.01.0	Green Belt	Nil	0.79.5	Unutilized	3.00.0	Nil	Total	3.00.00	3.00.0	The major impact due to this project on land environment is the change in land use. Mining activity will be carried out upto a depth of 47m Below ground level. At the end of mining period, the quarried pit will act as a water reservoir to store the rain water. 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>2.18.5</td></tr><tr><td>Green Belt</td><td>0.79.5</td></tr><tr><td>Remaining area</td><td>0.02.0</td></tr><tr><td>Total</td><td>3.00.00</td></tr></table> At the mine closure stage 2.18.5 Ha of lease area will be left as rain water harvesting pond 0.79.5 Ha will be developed with green belt. Greenbelt shall be developed around the mine lease area and the details has been given below.	Land Use	Area in use during the quarrying period (Hect)	Area left for water body	2.18.5	Green Belt	0.79.5	Remaining area	0.02.0	Total	3.00.00
		Land Use	Present Area (Hect)	Area in use during the quarrying period (Hect)																													
		Quarrying Pit	Nil	2.18.5																													
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		Roads	Nil	0.01.0																													
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Green Belt	0.79.5																																
Remaining area	0.02.0																																
Total	3.00.00																																

	The ultimate pit dimension of the mine lease area is given below. <table><tr><th colspan="4">Ultimate Pit dimension at the end of Mining plan Period</th></tr><tr><th>Pit No.</th><th>Length (max) (m)</th><th>Width (Avg) (m)</th><th>Depth (max) (m)</th></tr><tr><td>I</td><td>172</td><td>127</td><td>37 m Below ground level</td></tr><tr><th colspan="4">Ultimate Pit dimension at the end of quarry lease Period</th></tr><tr><td>I</td><td>172</td><td>127</td><td>47 m Below ground level</td></tr></table> If mining is not done systematically it will leads to the dumping failure in the mining area.	Ultimate Pit dimension at the end of Mining plan Period				Pit No.	Length (max) (m)	Width (Avg) (m)	Depth (max) (m)	I	172	127	37 m Below ground level	Ultimate Pit dimension at the end of quarry lease Period				I	172	127	47 m Below ground level	<table><tr><th>Year</th><th>Species</th><th>No. of trees</th><th>Spacing</th><th>Survival</th></tr><tr><td>I</td><td rowspan="5">Azadirachta indica</td><td>1500</td><td rowspan="5">3m x 3m</td><td rowspan="5">80%</td></tr><tr><td>II</td><td>-</td></tr><tr><td>III</td><td>-</td></tr><tr><td>IV</td><td>-</td></tr><tr><td>V</td><td>-</td></tr><tr><td colspan="2">Total</td><td>1500</td><td></td><td></td></tr></table> Due to the thick vegetation around the mine lease area and sprinkling of water around the haul roads the dust emissions arise from the vehicles will be controlled. 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. The rough stone and Gravel are proposed to quarry 5m bench height and 5m width with 45° slope and with conventional opencast Mechanized method. As per the approved mining plan a safety distance of 7.5m shall be provided. There is no overburden anticipated during the entire Rough Stone and Gravel quarrying operation. The excavated rough stone and Gravel will be directly loaded into tipper to the needy crusher/other buyers.	Year	Species	No. of trees	Spacing	Survival	I	Azadirachta indica	1500	3m x 3m	80%	II	-	III	-	IV	-	V	-	Total		1500		
Ultimate Pit dimension at the end of Mining plan Period																																													
Pit No.	Length (max) (m)	Width (Avg) (m)	Depth (max) (m)																																										
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III		-																																											
IV		-																																											
V		-																																											
Total		1500																																											
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 is 47m (BGL). The ground water table is reported as 65 m. In the proposed mining plan only 37m below ground level and 47m 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.																																											

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 47m below ground level and the nearby water table is 65m. 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 47m. In the post mining stage, the quarried out pit will be used for rainwater harvesting.

4.2.1 SOLID WASTE GENERATION AND MANAGEMENT

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.

- Identification of solid waste generations
- Providing dustbins to collect with different color coding
- Creating awareness among the employees
- Developing common storage yards
- Disposal to the nearby municipal yards
- Record keeping
- Review once in quarter

4.2.2 WATER ENVIRONMENT

Impact on Surface Water Resources

There is no seasonal or perennial Odai within the M.L area. The drainage pattern of the region is plane to sub-dendritic. Surface run-off water of the M.L. area is drained through proposed drainage and collected in the bottom of the quarry and collected water will be used for same quarry operation as such for plantation & dust suppression.

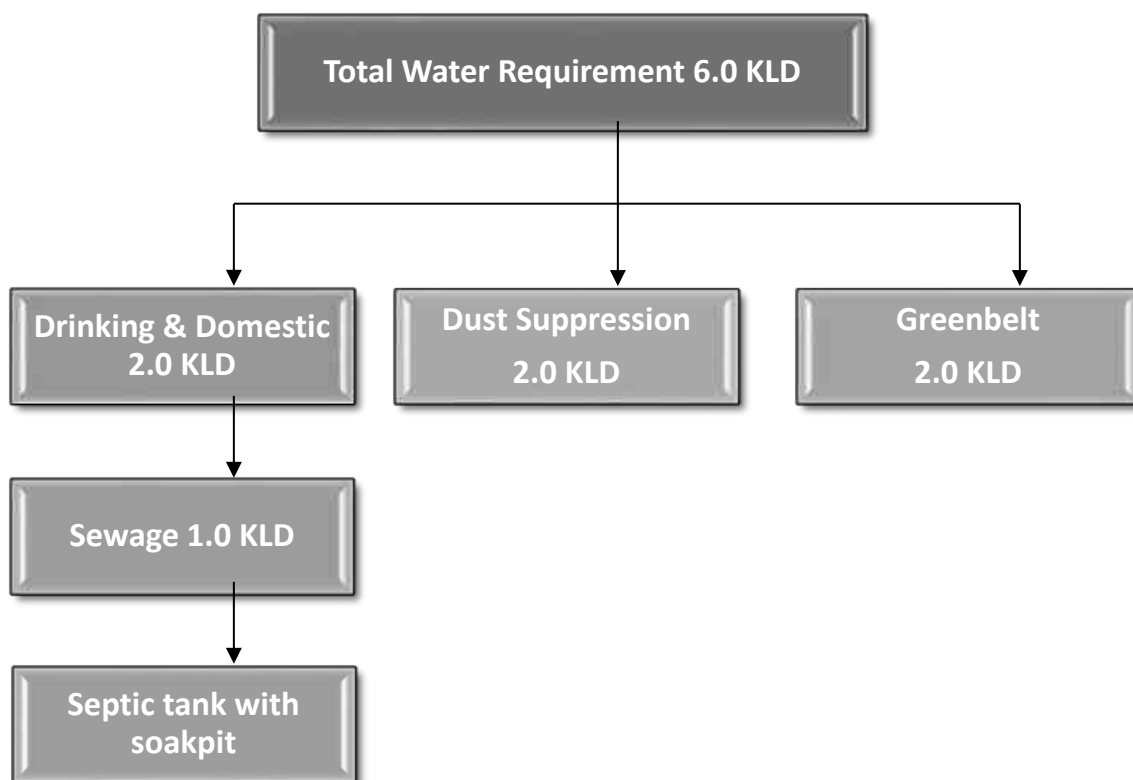
Tank is located at a distance of 120 m in east direction. Water table is found at a depth of 65m.

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 into these water bodies, there is no major impact. The project proponent will restrict the mining operation only within the lease and no other work will be carried out near the canal or any area outside the mining lease.

Impact due to Water use in Mines

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.

FIG 4.1 WATER BALANCE DIAGRAM



4.5.2 Impact on Ground Water

The mining activity is not likely to intersect ground water as the ground water table occurs at a depth of 65 m. The mining will go up to the maximum depth of 47 m BGL. So, there will be no chance of intersecting the ground water table by the mining activity. So, the impact of mining on the ground water is not envisaged.

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, Marakanam Taluk is given below.

TABLE 4.1 Ground Water Level Status in Villupuram District							
S. No.	Assessment Unit (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	Marakanam	1572.03	1898.95	46.96	1945.91	124 %	Over Exploited

Source: nwm.gov.in

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

4.2.2 VEGETATION

VEGETATION IN THE CORE ZONE

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 0.79.5Ha. Trees like Pongamia pinnata, Syzigium cumini, Albizia lebbeck, Thespesia populnea, Bauhinia racemose, Cassia siamea, Azadirachta indica will be planted around the mine lease area. A total of 1500 trees are planned to be planted. Spacing will be 3m x 3m.

FAUNA

There are no sanctuaries/national parks in the buffer zone of 10km study area. The commonly found fauna in the buffer zone are given in Chapter III. During mining activity the impacts and mitigation measures for Fauna are given in below table.

Table 4.2 Impacts and mitigation measures for Fauna		
S.No.	Impact	Mitigation measure
1	Fauna is affected due to noise and vibration.	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.
2	Dust generation due to mining activities	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.
3	Change in land use of the lease area	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.
4	Accidental falling of animals	To prevent entry of animals, the mine lease surrounding area will be properly fenced with barbed wire.

4.3 AIR ENVIRONMENT

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 impacts on air environment from a mining activity depend on various factors like production capacity, machinery involved, operations and maintenance of various equipments and vehicle. Apart from these, there will be other activities associated viz transportation of mineral and waste, stocking facilities and dump management within the mine lease area that may contribute to pollution.

4.3.3 Air Emissions

The impacts on air environment from a mining activity depend on various factors like production capacity, machinery involved, operations and maintenance of various equipments and vehicle. Apart from these, there will be other activities associated viz transportation of mineral and waste, stocking facilities and dump management within the mine lease area that may contribute to pollution.

4.3.4 Quantitative Estimation of Impacts on Air Environment

An attempt has been made to predict the incremental rise of various ground level concentrations above the baseline status in respect of air pollution due to proposed is 4,85,805m³ of Rough Stone, 41,818 m³ of gravel formation by the open-cast mechanised mining method.

The pollutants released into the atmosphere will disperse in the down wind direction and finally reach the ground at farther distance from the source. The concentration of ground level concentrations mainly depends upon the strength of the emission source and micrometeorology of the study area.

In order to estimate the ground level concentrations due to the emission from the proposed project, EPA approved Industrial Source Complex ISC AERMOD View Model has been employed.

The mathematical model used for predictions on air quality impact in the present study is ISC-AERMOD View-6.8.6. It is the next generation air dispersion model, which incorporates planetary boundary layer concepts.

The AERMOD is actually a modeling system with three separate components:

AERMOD (AERMIC Dispersion Model), AERMAP (AERMOD Terrain Preprocessor) and AERMET (AERMOD Meteorological Preprocessor).

Special features of AERMOD include its ability to treat the vertical inhomogeneity of the planetary boundary layer special treatment of surface releases, irregularly shaped area sources, a plume model for the convective boundary layer, limitation of vertical mixing in the stable boundary layer, and fixing the reflecting surface at the stack base.

The AERMET is the meteorological preprocessor for the AERMOD. Input data can come from hourly cloud cover observations, surface meteorological observations and twice-a-day upper air soundings. Output includes surface meteorological observations and parameters and vertical profiles of several atmospheric parameters.

The AERMAP is a terrain preprocessor designed to simplify and standardize the input of terrain data for the AERMOD. Input data include receptor terrain elevation data. Output includes, for each receptor, location and height scale, which are elevations used for the computation of airflow around hills.

Salient features of the AERMOD model are given hereunder:

- ❖ Excavation operations are considered as area sources.
- ❖ Transportation of material on haulage roads has been considered as line source

The predicted ground level concentrations for study period computed using AERMOD model are plotted as isopleths.

4.3.5 Sources of Dust Emission

The proposed mining is carried out by mechanized opencast method. The air borne particulate matter generated by ore handling operations, transportation and screening of ore is the main air pollutant. The emissions of sulphur dioxide (SO₂), Oxides of Nitrogen (NO_x) contributed by diesel operated excavation/loading equipment and vehicles plying on haul roads are marginal. Prediction of impacts on

air environment has been carried out taking into consideration proposed production and net increase in emissions. Based on the various operations involved in the production of minerals, the various emission sources has been identified as given below.

- a. Area sources.
- b. Line sources.

Extraction of mineral from mine, are considered as area sources. Transportation of material from mining benches to various end points are considered as line sources. The impact of above sources on air environment is discussed below:

The other sources of air pollution are the dust generated during the movement of tippers on the haul road. Water tankers with spraying arrangement will be used for regular water sprinkling on the haul roads to ensure effective dust suppression. The tippers are well maintained so that exhaust smoke does not contribute abnormal values of noxious gases and un-burnt hydrocarbons.

4.3.6 Emission Details

All the emissions discussed above are quantified for proposed maximum production of is 4,85,805m³ of Rough Stone, 41,818 m³ of gravel formation by the open-cast mechanised mining method. The existing air quality levels are covered in the baseline scenario. Excavation, loading and transportation through tippers are the major sources, which are of significance. Therefore, the emissions considered for modeling are from drilling blasting, excavation & transportation rough stone and Gravel.

The emissions are computed based on AP-42 emission factors. Operational hours, activity rate, wind speed and moisture content have been considered for estimation of emissions from point and area sources. For line source, apart from operational hours, activity rate, moisture, silt content and vehicle weight have been considered. Predictions are carried out for the worst-case scenario of simultaneous operation of excavators (area sources) and tippers for transportation from mine pit to loading pit (line sources) over a distance of 500 m.

The number of working days has been taken at 300 days per year with 8 hours of operation/day, hence the concentrations predicted are considered to be the worst case. With control measures, the emissions have been taken at 30% of uncontrolled emissions for handling and 10% of uncontrolled emissions for transportation.

4.3.7 Meteorological Data

The meteorological data recorded continuously during the month of March 2024 – May 2024 on hourly basis on wind speed, wind direction and temperature has been processed to extract the 24- hourly mean meteorological data as per the guidelines of IMD and MoEF for application of AERMOD model. Stability classes computed for the mean hours is based on guidelines issued by CPCB on modeling. Mixing heights representative of the region have been taken from the available published literature.

4.3.8 Summary of Predicted Ground Level Concentrations

Ground level concentrations due to the mining activities have been estimated to know the incremental raise and extent of impact in the study area.

The maximum ground level concentration is estimated to be about 1.83 $\mu\text{g}/\text{m}^3$ of PM 2.5 & 3.91 $\mu\text{g}/\text{m}^3$ of PM10 within the mine area and surrounding cluster area 2.72 $\mu\text{g}/\text{m}^3$ of PM 2.5 & 5.06 $\mu\text{g}/\text{m}^3$ of PM10, where mining operations are being carried out. The impact of mining operations would be negligible beyond 0.5 km.

Figure – 4.1 represents the spatial distribution of the predicted ground level concentrations of PM₁₀ due to emissions from mine.

4.3.9 Emission sources & Quantification

Various point and non-point sources of emissions from Proposed Rough Stone and Gravel Quarry of Tvl.J M Minerals is quantified and presented below:

Area Emissions – Total Material handling (Rough Stone& Gravel)

Quantity, TPA	Rough Stone: 4,85,825m ³ Gravel: 41,818m ³
Operational Hours Per Year	2400
Activity Rate, t/hr.	365.9765
Emission of dust, g/t.	0.14
Emission of dust, g /hr.	51.34525
Area of influence, m ²	625
Uncontrolled emission rate g/s/m ²	0.000018080
Controlled emission rate, PM10 g/s/m ²	0.00000180801
Controlled emission rate, PM2.5 g/s/m ²	0.0000045385

Area Emissions – Total Material handling (Cluster Rough Stone & Gravel)

Quantity, m ³	Existing Quarries: • Thiru. Thiru.T.Aravindhan (Extent – 2.43.0 Ha) • Thiru.P.Yuvaraj of Thiru.D. Durai Quarry (Extent – 1.15.15 Ha) • Thiru.Rasu (Extent – 1.39.0 Ha)- Rough Stone (1,21,070 m³) & Gravel quarry (9024 m³).
Operational Hours Per Year	2400
Activity Rate, t/hr.	390.2151
Emission of dust, g/t.	0.20
Emission of dust, g /hr.	57.638785
Area of influence, m ²	625
Uncontrolled emission rate g/s/m ²	0.00072569
Controlled emission rate, PM10 g/s/m ²	0.000725690
Controlled emission rate, PM2.5 g/s/m ²	0.0000483793

(I) Line Source – Transport of Rough Stone & Gravel from Pit to Boundary

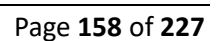
Quantity, TPA	Rough Stone: 4,85,805m ³ Gravel: 41,818m ³
Operational Hours Per Year	2400
Capacity of each Dumper (T)	10
Total No. of Tippers/ year	19718
Lead length/trip, Km	0.16
Total VKT/Year	63947
Emission Kg/VKT	0.25
Total emission Kg/Year	18314.02
Uncontrolled emission rate g/s/m	2.39377
Controlled emission rate, PM10 g/s/m	0.239377
Controlled emission rate, PM2.5 g/s/m	0.14013

Line Source – Transport of Rough Stone & Gravel (Cluster)

Quantity, m ³	Existing Quarries: • Thiru. Thiru.T.Aravindhan (Extent – 2.43.0 Ha) • Thiru.P.Yuvaraj of Thiru.D. Durai Quarry (Extent – 1.15.15 Ha) • Thiru.Rasu (Extent – 1.39.0 Ha)- Rough Stone (1,21,070 m³) & Gravel quarry (9024 m³).
Operational Hours Per Year	2400
Capacity of each Dumper (T)	10
Total No. of Tippers/ year	99628
Lead length/trip, Km	0.9
Total VKT/Year	11200
Emission Kg/VKT	0.24
Total emission Kg/Year	224561
Uncontrolled emission rate g/s/m	1209484
Controlled emission rate, PM10 g/s/m	0.1209484
Controlled emission rate, PM2.5 g/s/m	0.0354143

Note: *Emission factor computed based on wind speed of 2 m/s, and moisture content of 10 %. + Emission factor computed based on silt content of 10 % and moisture content of 10 %

FIG 4.5 Isopleth of GLC Prediction –Cumulative for PM₁₀



PREDICTED AMBIENT AIR QUALITY:

The post project Concentrations of PM₁₀, PM_{2.5}, (GLC) (base line + incremental) after adopting necessary control measures is given in Table No - 4.7 to 4.8.

Station ID	Min	Max	Avg.
Particulate matter PM-_{2.5} (µg/m³)			
AAQ-1	19.4	32.2	25.8
AAQ-2	18.3	30.4	24.35
AAQ-3	18.1	26.0	22.05
AAQ-4	20.4	25.8	23.1
AAQ-5	17.38	25.3	21.34
AAQ-6	16.64	25.1	20.87
CPCB NAAQS 2009 for PM_{2.5} - 60 µg/m³			
Particulate matter PM-₁₀ (µg/m³)			
AAQ-1	41.6	67.1	54.35
AAQ-2	38.4	59.0	48.7
AAQ-3	36.4	52.6	44.5
AAQ-4	43.7	55.0	49.35
AAQ-5	36.2	51.2	43.7
AAQ-6	35.2	56.7	45.95
CPCB NAAQS 2009 for PM₁₀ - 100 µg/m³			
Sulphur Di-oxide as SO₂ (µg/m³)			
AAQ-1	4.6	7.7	12.3
AAQ-2	4.0	7.4	11.4
AAQ-3	3.9	7.0	10.9
AAQ-4	3.6	6.2	9.8
AAQ-5	4.1	5.8	9.9
AAQ-6	3.2	5.4	8.6
CPCB NAAQS 2009 for SO₂ - 80 µg/m³			
Oxide of Nitrogen as NO₂ (µg/m³)			
AAQ-1	6.9	10.3	8.6
AAQ-2	6.7	9.5	8.1
AAQ-3	6.2	9.3	7.75
AAQ-4	7.1	10.3	8.7
AAQ-5	5.5	8.2	6.85
AAQ-6	5.7	7.9	6.8
CPCB NAAQS 2009 for NO₂ - 80 µg/m³			

Table 4.3 Concentrations of PM2.5 after Project Implementation

SL. No	Location	Background Concentration	Predicted incremental Concentration	Post Project Concentration	Statutory Limits in $\mu\text{g}/\text{m}^3$
1	Project site	25.8	1.83	27.63	60
2	Ravanapuram	24.35	1.60	25.95	
3	Nalmukkal	22.05	1.37	23.43	
4	Chokkantangal	23.1	1.14	24.24	
5	Senalur	21.34	0.92	22.26	
6	Kunnapakkam	20.87	0.69	21.56	

Table 4.3a Cluster Concentrations of PM2.5 after Project Implementation

SL. No	Location	Background Concentration	Predicted incremental Concentration	Post Project Concentration	Statutory Limits in $\mu\text{g}/\text{m}^3$
1	Project site	25.8	2.72	28.52	60
2	Ravanapuram	24.35	2.38	26.73	
3	Nalmukkal	22.05	2.04	24.09	
4	Chokkantangal	23.1	1.70	24.8	
5	Senalur	21.34	1.36	22.7	
6	Kunnapakkam	20.87	1.02	21.89	

Table 4.3b Concentrations of PM10 after Project Implementation

SL. No	Location	Background Concentration	Predicted incremental Concentration	Post Project Concentration	Statutory Limits in $\mu\text{g}/\text{m}^3$
1	Project site	54.35	3.91	58.26	100
2	Ravanapuram	48.7	3.42	52.12	
3	Nalmukkal	44.5	2.93	47.43	
4	Chokkantangal	49.35	2.44	51.79	
5	Senalur	43.7	1.95	45.65	
6	Kunnapakkam	45.95	1.46	47.41	

Table 4.3c Cluster Concentrations of PM10 after Project Implementation					
SL. No	Location	Background Concentration	Predicted incremental Concentration	Post Project Concentration	Statutory Limits in $\mu\text{g}/\text{m}^3$
1	Project site	54.35	5.06	59.41	100
2	Ravanapuram	48.7	4.43	53.13	
3	Nalmukkal	44.5	3.80	48.3	
4	Chokkantangal	49.35	3.16	52.51	
5	Senalur	43.7	2.53	46.23	
6	Kunnapakkam	45.95	1.90	47.85	

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 $45.65 \mu\text{g}/\text{m}^3$ to $58.26 \mu\text{g}/\text{m}^3$ and for $\text{PM}_{2.5}$ are in the range of $21.56 \mu\text{g}/\text{m}^3$ to $27.63 \mu\text{g}/\text{m}^3$ and PM_{10} are surrounding area range of $46.23 \mu\text{g}/\text{m}^3$ to $59.41 \mu\text{g}/\text{m}^3$ and for $\text{PM}_{2.5}$ are in the range of $21.89 \mu\text{g}/\text{m}^3$ to $28.52 \mu\text{g}/\text{m}^3$ 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 main noise generating source during mining operation and related activities are drilling, excavation, loading and transportation. Intermittent noise is generated due to operation of diesel generator.

4.4.2 Likely Noise Levels in Lease Area due to mining activity

S.No.	Source Name	Noise Level in dB (A)
1	Diesel generator	90
2	Excavator Operation	86
3	Trucks movement	82
4	Drilling	96
5	Blasting	102

It is expected that the generated noise will be limited within the mine lease area and there will be no profound effect of noise on the buffer zone. The noise level will be maintained below the threshold limit by vigorous maintenance of the machineries. Wet drilling with dust extractor is being used to reduce the noise level during the mining operation.

Noise levels were measured in the lease area and in the nearby villages Ravanapuram, Nalmukkal, Chokkantangal, Senalur and Kunnappakkam Village, the values are given below.

TABLE 4.4 Noise Levels in Monitoring Locations				
S. No.	Location	Distance and direction from Mine lease area	Day Equivalent (in dBA)	Night Equivalent (dBA)
1	Project site	Core Zone	39.9	38.6
2	Ravanapuram	2.8 km, W	51.2	42.5
3	Nalmukkal	1.89 km, E	47.2	41.2
4	Chokkantangal	1.06 km, S	46.0	42.5
5	Senalur	1.21 Km, N	48.3	39.8
6	Kunnappakkam	1.88 Km, N	50.9	42.2

The noise levels are within the MoEF & CC limits of 70 dB(A) in the working area and in the buffer areas, the values are below the limit of 75 dB(A). Since, the residential area norm has been considered for all five locations mentioned above, during mining operation mine lease area will be considered as industrial area/quarry area for which DGMS norms 85 dB(A)/CPCB guidelines 75 dB(A).

4.4.3 Impact of Noise due to mining

- ✚ 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) limits, the acceptable noise level is 85 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.

4.5 MITIGATION MEASURES

4.5.1 Noise level control.

- ✚ As the distance between the source and receptor increases, the noise level decreases. Hence, there will be a natural attenuation.
- ✚ The proponent has planned to develop green belt in the periphery of the lease area which diminishes sound volume by dampening them.
- ✚ All the equipment/machinery/tippers 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.
- ✚ Providing green walls/nets wherever possible.

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

4.5.2 IMPACTS DUE TO VIBRATION

There will be negligible vibration of ground due to the following activities.

- ✚ Due to Blasting
- ✚ Due to Drilling
- ✚ Due to movement of machinery

Impacts

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

Mitigation measures

- ✚ The DG set will be kept within the acoustic enclosure made by the stone blocks.
- ✚ Drills will be equipped with sharp bits and wet drilling will be adopted.
- ✚ A well-planned green belt is proposed for the mining to reduce noise level.
- ✚ Proper warning system before blasting will be adopted and clearance of the area before blasting will be ensured.
- ✚ Regular maintenance of the machineries and vehicles to reduce the noise level.
- ✚ Use of ear muffs by the workers with occupational exposure to noise.
- ✚ 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 within the standard as prescribed by the DGMS and MOEF & CC.
- ✚ Shallow depth jackhammer drilling and blasting is proposed to be carried out with minimum use of explosive.
- ✚ Supervising blasting by competent and statutory Foreman/ Mines Manager.

4.5.3 SOCIO ECONOMIC IMPACT

The lease area is Patta land. The proponent has planned to spend INR 8,00,000 for CER activities.

4.5.4 OCCUPATIONAL HEALTH

Impacts on humans due to various mining activities

The occupational risk due to proposed mining may be due to drilling, blasting, excavation and transportation. A total of 35 workers will be engaged in the mining activity. Mining activity may cause various health problems to the mines workers as follows:

- Dust generated during excavation, drilling, stone cutting, sizing and transportation may cause health problems like Silicosis, Asthma, Tuberculosis and other respiratory lungs disorders.
- Heavy weight lifting by the workers may cause injuries to arms, legs and back.
- Noise generated during the mining activity may cause Noise Induced Hearing Loss (NIHL).

Table 4.5 Impacts on humans due to various mining activities		
S.No.	Type of activity	Impact
1	Dust generation due to drilling and blasting	Continuous exposure to dust causes Pneumonia, Tuberculosis, Rhematic arthritis and Segmental Vibration
2	Noise generation due to drilling and blasting	Short term impact will be lack of sleep, high blood pressure and heart ailments. Long term exposure may lead to partial or permanent deafness
3	Unexpected accidents	Risks include fly rocks, cracks or fissures due to improper mining methods

Mitigation measures

- The mines worker will be provided with dust mask to minimize the inhalation of the dust.
- Water sprinkling twice in a day is in practice on the haul roads, near excavation and roads to reduce the fugitive dust emission.
- Wet drilling and drilling with dust extractor will be practiced.
- Ear muffs will be supplied to the workers working in the noise prone area

- The mining site will be supplied with first aid facilities and the entire mines worker will have access to that.
- The mines workers will be well trained about the safety practices in the mining activities.
- As per Mines Rules, 1955, medical examination of employees at the initial stage and periodically, shall be done by a team of qualified medical officers provided by the project proponent.
- Regular medical checkup camps shall also be arranged for detection of occupational diseases and minor disease in the nearby rural population.
- Free checkup and medicine for treatment for their acute and chronic illness shall be provided by the lessee. Conducting periodical Medical Examination as per DGMS.
- 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.

4.5.5 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 1.0 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 hoses. The said hazardous waste are very negligible quantity, it will be properly collected in the source level, stored in impervious storage yards and disposed of 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.

CHAPTER 5

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, Viluppuram vide Rc.No. A/G&M/16/2024 dated 22.05.2024.

- 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 II.

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.

CHAPTER 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	Leq, L _{max} , L _{min} , Leq Day & Leq 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 – 3.4, 3.10, 3.12 & 3.14.

6.1.5 **MEASUREMENT METHODOLOGY**

(a) Ambient Air Quality

Ambient air quality will be monitored for SO₂, NO_x, PM₁₀ 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

6.2 DETAILED BUDGET AND PROCUREMENT SCHEDULES

The budget planned for environmental monitoring is given below.

Table 6.3 - Environmental Management Plan Budget

Table 6.3 - Environmental Management Plan Budget (in Lakhs)		
Mitigation Measures	Capital cost	Recurring Cost /Annum
Air Environment	11.00	2.12
Noise Environment	0.50	12.11
Waste Management	0.30	0.22
Mine Closure	9.85	0.60
Implementation of EC, Mining Plan & DGMS Condition	5.40	12.24
Total	27.05	27.29
The total EMP Cost is 383.86Lakhs (For 10 Years) i.e., Rs. 40.58 Lakhs of Capital Cost (Rs. 27.05 Lakhs for 1 st first years and Rs. 13.53 Lakhs for 2 nd five years) + Rs. 343.28 Lakhs of Recurring cost (For 10 Years)		
*Life of Capital - 5 years, augmented by 50% in 6 th year		

CHAPTER 7

ADDITIONAL STUDIES

The additional studies covered for this EIA / EMP report are,

- Public consultation
- Risk Assessment
- Social Impact Assessment, R&R Action Plans
- Cumulative Environmental Impact Assessment Study
- A detailed Hydrogeological Study
- Slope Stability plan

7.1 PUBLIC CONSULTATION

After the preparation of the draft EIA/EMP report, it must be submitted to the State Pollution Control Board. A public consultation will be conducted on behalf of the Pollution Control Board through the District Collector and the officials from the PCB. A prior notice must be issued about the event, along with the time and date, in two leading newspapers. The opinions, suggestions, demands, and objections of people, NGO environmentalists, etc. are sought, and the proceedings are recorded. The replies of the proponent and corresponding officials will be recorded in the final EIA/EMP report.

7.2 RISK ASSESSMENT & MANAGEMENT

(a) Objectives

Risk assessment is a method in which possible threats/hazards which may arise during mining operations are identified so that adequate machinery/equipment are made available in precaution. The objectives of environmental risk assessment are governed by the following, which excludes natural calamities:

- ✚ To identify the potentially hazardous areas so that necessary design safety measures can be adopted to minimize the probability of accidental events.
- ✚ To identify the potential areas of environmental disaster which can be prevented by proper design of the installations and its controlled operation.
- ✚ To manage the emergency situation or a disastrous event, if any, from the mining operation.

The major hazards related to the mining activities are as follows

- ✚ Open cast bench slope failure
- ✚ Accident due to fall of quarry sides
- ✚ Accident due to machineries
- ✚ Accident due to explosives
- ✚ Accident due to large block cutting, separation and loading

Some of the common hazards are identified and the corresponding precautionary measures are drafted.

Table 7.1 Hazards and Precautionary measures		
S.No.	Hazard	Precautionary measures
1	Fire	Fire suppressants will be made available at mines office and explosive storage room.
2	Explosion	Controlled blasting will be done. DGMS norms will be strictly followed during blasting. Blasting will be done only by trained professionals.
3	Combustion of chemicals or hazardous substances	Combustible Substances are stored with all precautionary measures. Fire suppressant is made available at storage site
4	Landslide	Width, height and slope will be maintained as suggested by DGMS
5	Accidents during handlings	All vehicles will be properly maintained. Overloading will not be done. Only trained/certified people will be employed.
6	Accidental fall of people or animals	The lease area will be fenced properly. Only people working in the mines will be permitted to enter.

7.3 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.

7.3.1 CUMULATIVE ENVIRONMENTAL IMPACT ASSESSMENT STUDY

The details of other quarries located within the 500m radius of this project are provided below:

Table 7.2 500m Radius Cluster Mines Details					
Sl. No	Name and address	Village and Taluk	S.F.Nos.	Extent (in Ha)	Period of lease
Abandoned Quarries					
1.	Thiru.S.Balaji, S/o.Soundirarajan, Panangoor Village, Sundakudi Post, Ariyalur District.	Marakkanam Taluk Azhagiyapakkam Village,	14/6 15/3 15/4 15/5 16/5	0.50.0 0.43.0 0.41.0 0.61.0 <u>0.54.0</u> 2.49.0	22.08.2014 to 21.08.2019
2.	Thiru.A.L.Varadhan, S/o.Loganathan, School street, Keelarungundam, Marakkanam Taluk, Viluppuram District.	Marakkanam Taluk Keelarungunam Village	81/1 (P)	0.60.0	02.07.2012 to 01.07.2017
Existing Quarries					
1.	Thiru.T.Aravindhan, S/o.Dinakaran salai, PMD Nagar,Kovilampakkam, Chennai-600 129.	Chokkanthangal Village, Marakkanam Taluk	2/1A(P) 8/1(P) 9/1(P) 9/3(P) 9/4 9/6(P)	0.79.0 0.02.0 0.04.0 1.15.5 0.32.5 <u>0.10.0</u> 2.43.0	18.08.2023 To 17.08.2033
2.	Thiru.P.Yuvaraj, S/o.Palanisamy, No.7/12 Doming Kuppam, Santhome, Chennai.	Chokkanthangal Village, Marakkanam Taluk	8/4(P) 8/7 8/8 8/9	0.37.5 0.10.5 0.03.5 <u>0.25.0</u> 1.15.15	23.09.2022 To 22.09.2032
Proposed Quarry					
1.	Thiru.Rasu,	Azhagiyapakkam Village,	2/2(P) 14/1(P)	0.32.5 0.18.0	

	S/o.Ramakrishana gounder, Perumukkal, village, Marakkanam Taluk	Marakkanam Taluk	15/2	<u>0.76.5</u> 1.27.0	
2.	Thiru.M.Kumaravel, S/o.Mani Gounder, Keelarungunam Village,Marakkanam Taluk	Chokkanthangal Village, Marakkanam Taluk	1/2(P) 2/1B(P) 2/1C(P)	0.46.0 0.40.5 <u>1.20.0</u> 2.06.0	
3.	Tvl.J M Minerals, No. P-II/M29, TNHB, J.J.Nagar, Kurumbanchavadi, Ariyalur District	Chokkanthangal Village, Marakkanam Taluk	4/2 5/1 5/2	0.64.0 0.96.0 <u>1.40.0</u> 3.00.0	

A cumulative impact of these two proposed quarries has been studied and the details are given in Chapter IV.

7.3.2 AIR QUALITY IMPACT PREDICTION FOR THE CLUSTER

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

Emission sources & Quantification of the cluster area.

Various point and non-point sources of emissions from Proposed Rough Stone and Gravel Quarry of Tvl.J M Minerals is quantified and presented below:

Area Emissions – Total Material handling (Rough Stone& Gravel)

Quantity, TPA	Rough Stone: 4,85,805m ³ Gravel: 41,818m ³
Operational Hours Per Year	2400
Activity Rate, t/hr.	365.9765
Emission of dust, g/t.	0.14
Emission of dust, g /hr.	51.34525
Area of influence, m ²	625
Uncontrolled emission rate g/s/m ²	0.000018080
Controlled emission rate, PM10 g/s/m ²	0.00000180801
Controlled emission rate, PM2.5 g/s/m ²	0.0000045385

Area Emissions – Total Material handling (Cluster Rough Stone & Gravel)

Quantity, m ³	Existing Quarries: • Thiru. Thiru.T.Aravindhan (Extent – 2.43.0 Ha) • Thiru.P.Yuvaraj of Thiru.D. Durai Quarry (Extent – 1.15.15 Ha). • Thiru.Rasu (Extent – 1.39.0 Ha)- Rough Stone (1,21,070 m³) & Gravel quarry (9024 m³).
Operational Hours Per Year	2400
Activity Rate, t/hr.	390.2151
Emission of dust, g/t.	0.20
Emission of dust, g /hr.	57.638785
Area of influence, m ²	625
Uncontrolled emission rate g/s/m ²	0.00072569
Controlled emission rate, PM10 g/s/m ²	0.000725690
Controlled emission rate, PM2.5 g/s/m ²	0.0000483793

(II) Line Source – Transport of Rough Stone & Gravel from Pit to Boundary

Quantity, TPA	Rough Stone: 4,85,805m ³ Gravel: 41,818m ³
Operational Hours Per Year	2400
Capacity of each Dumper (T)	10
Total No. of Tippers/ year	19718
Lead length/trip, Km	0.16
Total VKT/Year	63947
Emission Kg/VKT	0.25
Total emission Kg/Year	18314.02
Uncontrolled emission rate g/s/m	2.39377
Controlled emission rate, PM10 g/s/m	0.239377
Controlled emission rate, PM2.5 g/s/m	0.14013

Line Source – Transport of Rough Stone & Gravel (Cluster)

Quantity, m ³	Existing Quarries: • Thiru. Thiru.T.Aravindhan (Extent – 2.43.0 Ha) • Thiru.P.Yuvaraj of Thiru.D. Durai Quarry (Extent – 1.15.15 Ha) • Thiru.Rasu (Extent – 1.39.0 Ha)- Rough Stone (1,21,070 m³) & Gravel quarry (9024 m³).
Operational Hours Per Year	2400
Capacity of each Dumper (T)	10
Total No. of Tippers/ year	99628
Lead length/trip, Km	0.9
Total VKT/Year	11200
Emission Kg/VKT	0.24
Total emission Kg/Year	224561
Uncontrolled emission rate g/s/m	1209484
Controlled emission rate, PM10 g/s/m	0.1209484
Controlled emission rate, PM2.5 g/s/m	0.0354143

Note: *Emission factor computed based on wind speed of 2 m/s, and moisture content of 10 %. + Emission factor computed based on silt content of 10 % and moisture content of 10 %

FIG 7.1 Isopleth of GLC Prediction for PM_{2.5}

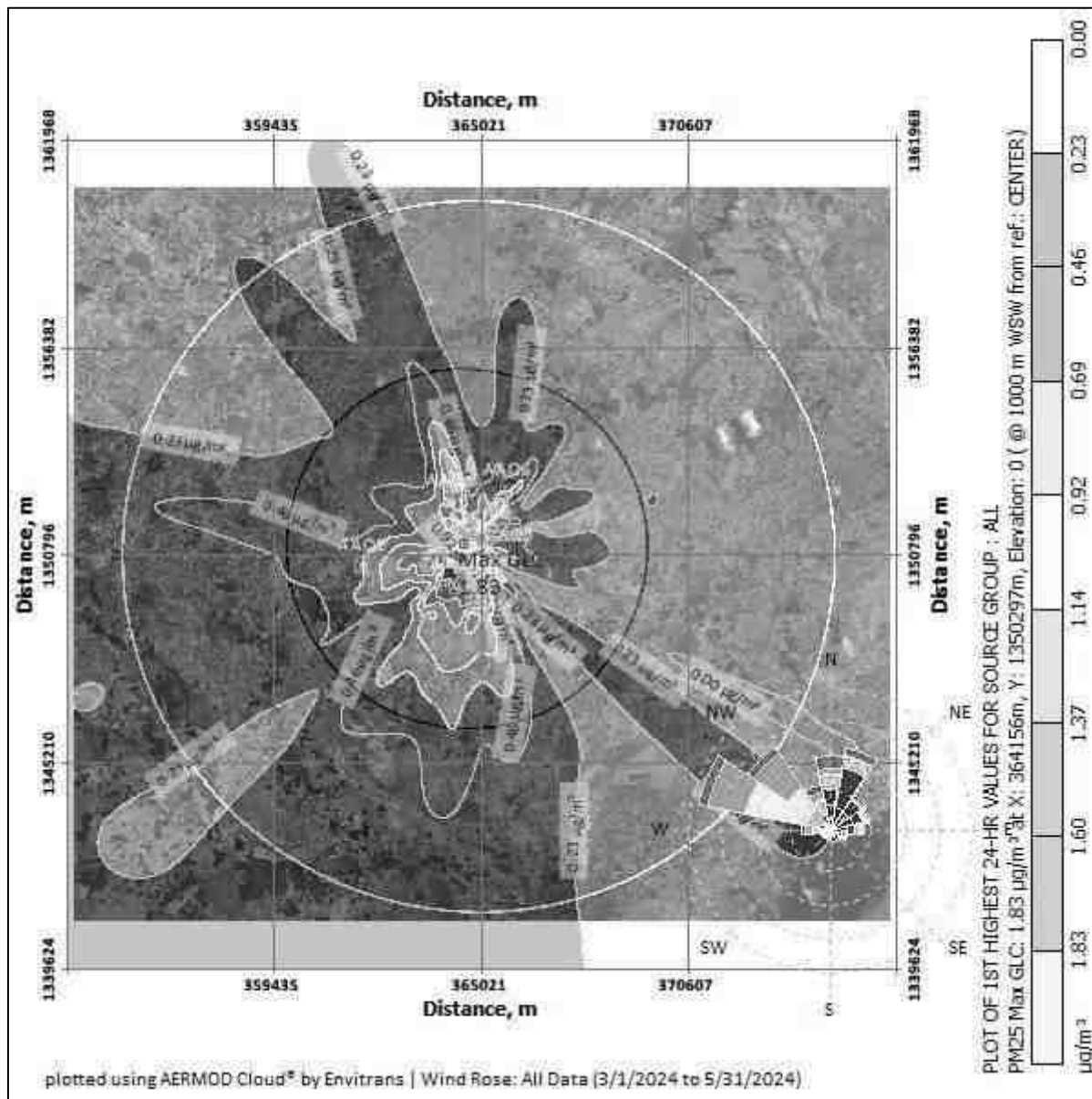


Table 7.3 Concentrations of PM2.5 after Project Implementation

SL. No	Location	Background Concentration	Predicted incremental Concentration	Post Project Concentration	Statutory Limits in $\mu\text{g}/\text{m}^3$
1	Project site	25.8	1.83	27.63	60
2	Ravanapuram	24.35	1.60	25.95	
3	Nalmukkal	22.05	1.37	23.43	
4	Chokkantangal	23.1	1.14	24.24	
5	Senalur	21.34	0.92	22.26	
6	Kunnapakkam	20.87	0.69	21.56	

Table 7.4 Cluster Concentrations of PM2.5 after Project Implementation

SL. No	Location	Background Concentration	Predicted incremental Concentration	Post Project Concentration	Statutory Limits in $\mu\text{g}/\text{m}^3$
1	Project site	25.8	2.72	28.52	60
2	Ravanapuram	24.35	2.38	26.73	
3	Nalmukkal	22.05	2.04	24.09	
4	Chokkantangal	23.1	1.70	24.8	
5	Senalur	21.34	1.36	22.7	
6	Kunnapakkam	20.87	1.02	21.89	

Table 7.5 Concentrations of PM10 after Project Implementation

SL. No	Location	Background Concentration	Predicted incremental Concentration	Post Project Concentration	Statutory Limits in $\mu\text{g}/\text{m}^3$
1	Project site	54.35	3.91	58.26	100
2	Ravanapuram	48.7	3.42	52.12	
3	Nalmukkal	44.5	2.93	47.43	
4	Chokkantangal	49.35	2.44	51.79	
5	Senalur	43.7	1.95	45.65	
6	Kunnapakkam	45.95	1.46	47.41	

Table 7.5A Cluster Concentrations of PM10 after Project Implementation					
SL. No	Location	Background Concentration	Predicted incremental Concentration	Post Project Concentration	Statutory Limits in $\mu\text{g}/\text{m}^3$
1	Project site	54.35	5.06	59.41	100
2	Ravanapuram	48.7	4.43	53.13	
3	Nalmukkal	44.5	3.80	48.3	
4	Chokkantangal	49.35	3.16	52.51	
5	Senalur	43.7	2.53	46.23	
6	Kunnapakkam	45.95	1.90	47.85	

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 $45.65 \mu\text{g}/\text{m}^3$ to $58.26 \mu\text{g}/\text{m}^3$ and for $\text{PM}_{2.5}$ are in the range of $21.56 \mu\text{g}/\text{m}^3$ to $27.63 \mu\text{g}/\text{m}^3$ and PM_{10} are surrounding area range of $46.23 \mu\text{g}/\text{m}^3$ to $59.41 \mu\text{g}/\text{m}^3$ and for $\text{PM}_{2.5}$ are in the range of $21.89 \mu\text{g}/\text{m}^3$ to $28.52 \mu\text{g}/\text{m}^3$ 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.

Cumulative Impact on Traffic

The mined-out minerals will be transported by means of trucks to the consumers like crusher units for producing stone aggregates of different sizes or construction of roads, bridges, buildings and other buyers etc. The cumulative impact on traffic due to transportation of minerals from these four leases are provided below:

Table 7.6 – Impact on Traffic

Description	Rough Stone & Gravel Poduction Per day in tons	No. of Lorry Load per day
P1 (Proposed quarry)	657	65
P2 (Cluster quarry)	3320	332
Total		397

The proposed projects will bring 397 trips per day including cluster quarries. 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.

7.3.3 HYDROGEOLOGICAL STUDY

There is Vada Penniyaru is located at a distance of 10.9 km in North east direction of lease area. Due to the presence of these water bodies nearby, a detailed hydrogeological study has been done. As suggested in the Precise Area Communication letter, safety distances of 7.5m to adjacent Patta land.

7.3.4 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 47m (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

7.3.5 DISASTER MANAGEMENT PLAN

Proper preventive mechanism exists already in the mines.

- Precautionary measures are well explained to all staff by the mines in-charge.
- PPE necessary for all staff are available in the quarry. No person is allowed to enter inside without PPE. Avoiding quarrying during unfavorable environmental conditions.
- Carrying out safe blasting by following DGMS norms
- Safety equipment like fire extinguisher, first aid kit, etc are present in the mine.
- Proper maintenance of machinery used for mining
- In case of any emergency, the contact numbers of mines in-charge, mines manager, Management contact are available in the mine's office.

7.3.6 MINE CLOSURE PLAN

The quarrying operation is proposed up to a depth of 47m (BGL) only, which will be achieved in 10 years. The ultimate pit dimension will be length 172 m x Width 127 m x Depth 47 m. After completion of quarrying operation, the mined-out pit will be left as rain water harvesting pond. The quarry will be properly fenced with barbed wire.

CHAPTER 8

PROJECT BENEFITS

INTRODUCTION

Tvl.J M Minerals has proposed Rough stone and gravel quarry over an extent of 3.00.0 ha located at S.F.No. 5/1, 5/2 and 4/2 of Chokkanthangal Village, Marakkanam Taluk, Viluppuram District, Tamilnadu 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 activity at proposed Rough Stone and Gravel of Tvl.J M Minerals will create direct employment opportunity for 35 local people. As per MOEF & CC Notification CER cost is arrived for an amount of 8 Lakhs, it will be utilized as per the CER letter received from the competent authority.

8.4 OTHER TANGIBLE €

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.

CHAPTER 9

ENVIRONMENTAL COST BENEFIT ANALYSIS

As per EIA Notification dated 14th Sept., 2006, as amended from time to time, 'Environmental Cost Benefit Analysis' is applicable only if the same is recommended at the Scoping stage.

As per the ToR points issued by SEIAA-TN vide ToR Identification No. TO24B0108TN5225806N, dated 22.10.2024 for the proposed project, the 'Environmental Cost Benefit Analysis' is not prescribed.

CHAPTER 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 developed to ensure that a project is implemented in an environmentally sustainable manner, where all contractors and subcontractors, including consultants, 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 the project's life cycle. The impacts due to this mining project are detailed in Chapter 4 and Mitigation measures at the source level and an overall Management Plan at the site level are elaborated on in this chapter.

10.1.2 BASIC OF EMP

The Environmental Management Plan for the proposed project activities is formulated taking into considerations the following key environmental issues.

- ✚ Project activities
- ✚ Studies on Environmental Impact Assessment
- ✚ Air & water pollution control
- ✚ Working zone environment improvement
- ✚ Occupational hazards & safety
- ✚ Environmental monitoring facilities
- ✚ Environmental management costs

EMP covers all phases of the project considering the impacts with mitigation measures and monitoring programme. The plan outlines the measures that will be undertaken to ensure compliance with environmental legislations and to minimize adverse impact. Details of EMP measures for implementation in the mine are given below.

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.
	6.0 KLD 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.
Surface water	There is Perumukkal Lake is located at a distance of 1.1km in SW direction. Adequate safety distance is left. No dumping of material or discharge will be done in or near the river or water body.
	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.
	Monthly or after rainfall, inspection will do to ensure performance of water management structures and systems. There is no discharge of any effluent into nearby water bodies.

Ground Water	The quarrying operation is proposed upto a depth of 47 m above ground level, Water table is found at a depth of 65 m, hence the project will not intersect the Ground water table during entire quarry period.
Water Consumption and Wastewater generation	Water required for this project will be sourced from vendors.
	Domestic wastewater generation of 2.0 KLD will be treated in septic tank with soak pit.
	Conduct ground water and surface water monitoring for parameters specified by CPCB
Noise	The workers employed are provided with protection equipment, 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 safety Zone (7.5 m and 10m) 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.
	Annual ambient noise level monitoring is carried out in the project area and in surrounding villages to assess the impact due to the mining activities and the efficacy of the adopted noise control measures. Additional noise control measures will be adopted if required as per the observations during monitoring.
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.
	Will be Ensured that blast holes are adequately stemmed for the depth of the hole and stemmed with suitable angular material.
	To be Undertake noise or vibration monitoring.
Land Environment	At conceptual stage, the mining pits will be converted into Rain Water Harvesting pit. Remaining area will be converted into greenbelt area.

	No external dumping i.e., outside the project area. The entire material will be sold.
	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 overburden anticipated during the quarrying operation.
Biological Environment	During mining, thick plantation will be carried out on the mentioned safety zone areas.
	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 III will be monitored.

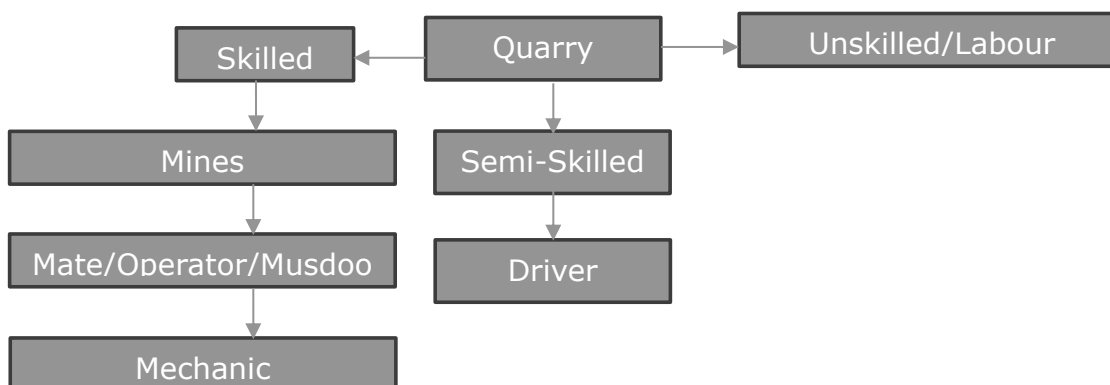
10.1.3 ADMINISTRATION AND TECHNICAL SETUP

Since this is a very small quarry, the mines in-charge will take care of all environment related aspects. He will ensure effective implementation of environment management plan and to ensure compliance of environmental statutory guidelines through Mine Management Level. 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.
- ✚ Collection of health statistics of the workers and population of the surrounding villages.
- ✚ Green belt development.
- ✚ Monitoring the progress of implementation of the environmental monitoring programme.
- ✚ Compliance to statutory provisions, norms of State Pollution Control Board, Ministry of Environment and Forests and the conditions of the environmental clearance as well as the consents to establish and consents to operate.

Fig. 10.1 Organization Chart



1	Skilled	Mines Manager(II Class)	1 No
		Foreman/Mine Mate	2 Nos
		Operator	12 Nos
		Mechanic	1 No
2	Semi-Skilled	Diver	4 Nos
3	Un-skilled	Labours	15 Nos
Total			35 Nos

10.1.4 ENVIRONMENTAL POLICY

- The Project Proponent has stipulated a well-defined Environmental policy by which the lessee is committed to conducting business with a strong environmental conscience towards the community, customers, and employees.

The Environment policy is given as below.

- The lessee is committed to efficient use of natural resources based on the reduce, recycle and reuse method.
- The project is committed to the identification of possible impacts and will take the necessary management steps to mitigate the impacts.
- Environment performance will be regularly monitored and reported for continual improvement of our environment and health performance.

10.1.5 OCCUPATIONAL SAFETY & HEALTH MANAGEMENT

Occupational safety and health are very closely related to productivity and a good employer-employee relationship. The main factors affecting occupational health in quarries are fugitive dust and noise. Safety of employees during quarrying operations and maintenance of mining equipment will be taken care of as per the Mines Act 1952 and Rule 29 of the 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 will be regularly monitored under an occupational surveillance programme. Under this programme, all employees are subjected to a detailed medical examination at the time of employment. Before the induction of employees, a pre-medical checkup is done. In addition, a periodical medical checkup will be done annually for all employees.

10.1.6 COST OF ENVIRONMENTAL CONTROL MEASURES

The effective implementation of EMP is not only reduce pollution load and comply the regulatory requirement but also increase productivity and improve marketability of product. The capital and recurring cost of EMP for the cluster of mines has been given in below table.

Table 10.2 – Environmental Management Plan Budget

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	0.30	0.30
	Fixed Water Sprinkling Arrangements + Water sprinkling by own water tankers	8.00	0.50
	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	2.00	0.20
	No overloading of trucks/tippers/tractors	0.00	0.10
	Stone carrying trucks will be covered by tarpaulin	0.00	0.10
	Enforcing speed limits of 20 km/hr within ML area	0.20	0.05
	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	0.60
	Installing wheel wash system near gate of quarry	0.50	0.20
Sub-Total (A)		11.00	2.12
Noise Environment	Provision for Portable blaster shed	0.50	0.02
	NONEL Blasting will be practiced to control Ground vibration and fly rocks	0.00	12.09
Sub-Total (B)		0.50	12.11
Waste Management	Provision for domestic waste collection and disposal through authorized agency	0.25	0.20
	Installation of dust bins	0.05	0.02
Sub-Total €		0.30	0.22

Mine Closure	Provision for garland drain @ Rs. 10,000/- per Hectare with maintenance of Rs. 5,000/- per annum	0.30	0.05
	Per Hectare fencing Cost @ Rs. 2,00,000/- with Maintenance of Rs 10,000/- per annum	6.00	0.10
	Plantation inside ML area (950 Nos.)	1.90	0.29
	Plantation outside ML area (550 Nos.)	1.65	0.17
Sub-Total (D)		9.85	0.60
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	0.10	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	1.40	0.35
	Health checkup for workers will be provisioned	0.00	0.35
	First Aid facility Provision	0.00	0.06
	Signage & boards for safety precautions	0.10	0.02
	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	1.50	0.10
	Installation of CCTV cameras in the mines and mine entrance	0.30	0.05
	Implementation as per Mining Plan and ensure safe quarry working (Statutory)	0.00	10.80
Sub-Total €		5.40	12.24
Grant Total		27.05	27.29

Environmental Management Plan Budget for 10 years			
Sl. No	Year	Capital cost* (Lakhs)	Recurring Cost @ 5% Escalation (Lakhs)
1	1 st	27.05	27.29
2	2 nd	0.0	28.66
3	3 rd	0.0	30.09
4	4 th	0.0	31.59
5	5 th	0.0	33.17
6	6 th	13.53	34.83
7	7 th	0.0	36.57
8	8 th	0.0	38.40
9	9 th	0.0	40.32
10	10 th	0.0	42.34
Total		40.58	343.28
Grand Total (Lakhs)		383.83	
The total EMP Cost is 383.86Lakhs (For 10 Years)			
i.e., Rs. 40.58 Lakhs of Capital Cost (Rs. 27.05 Lakhs for 1 st first years and Rs. 13.53 Lakhs for 2 nd five years) + Rs. 343.28 Lakhs of Recurring cost (For 10 Years)			
*Life of Capital – 5 years, augmented by 50% in 6 th year			

10.1.7 CONCLUSION

Various aspects of mining activities were considered, and related impacts were evaluated. Considering all the possible ways to mitigate the Environmental concerns, an Environmental Management Plan was prepared, and INR 383.83 lakhs has been allocated for the same. The EMP is dynamic, flexible, and subjected to periodic review. For projects where major environmental impacts are associated, EMP will be under regular review. Thus, the proper steps will be taken to accomplish all the goals mentioned in the EMP, and the project will have a positive impact on the study area.

CHAPTER 11

SUMMARY& CONCLUSION

11.1 OVER ALL JUSTIFICATION FOR IMPLEMENTATION OF THE PROJECT

INTRODUCTION

M/s. J.M. Minerals Lessee, has obtained Precise Area communication letter from the Assistant Director, Department of Geology and Mining, Viluppuram to quarry out total production is 4,85,805 m³ of Rough Stone 41,818 m³ of Gravel, in which 4,40825 m³ of rough stone & 41,818 m³ of Gravel will be mined out in first five years and remaining 44,980 m³ rough stone will be mined out in second 5 year. Over an extent of 3.00.00 ha., located at the Survey No. S.F.No. 5/1, 5/2 & 4/2 of Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu State.

As per EIA notification, 2006 and its subsequent amendments the proposed "Rough Stone and Gravel Quarry of M/s. J.M. Minerals mines cluster falls under Schedule 1(a) of EIA Notification and its subsequent amendments the project comes under Category B1. The ToR for preparation of EIA/EMP was approved vide ToR Identification No. TO24B0108TN5225806N (F.No. 11053), dated 22.10.2024. This report has been prepared in line with the approved TOR for production of maximum excavation of 4,85,805 m³ of Rough Stone and 41,818 m³.

S.No.	Description	Status/Remarks
1.	Sector	Non-coal mining
2.	Category of the project	B1
3.	Proposed mineral	Rough Stone and Gravel quarry
4.	Type of Lease	New Quarry
5.	Extent of the lease	3.00.00 Ha
6.	Proposed depth of Mining	47m BGL
7.	Method of mining	Opencast Mechanized Mining with drilling and blasting.
8.	Proposed lease period	10 Years
9.	Proposed Environmental Clearance	10 Years
10.	Proposed production quantity	Rough Stone - 4,85,805 m ³ , Gravel - 41,818 m ³ Rough stone - 4,40,825 m ³ , gravel - 41,818 m ³ (1-5 Year) Rough Stone - 44,980 m ³ , (6-10 Year)

The proposed lessee M/s. J.M. Minerals 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 consented patta land, please refer **Annexure no -6.**

11.1.1 LOCATION

The proposed project site is located in Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu and its Latitude : 12°12'46.89"N to 12°12'54.41"N and Longitude: 79°45'11.54"E to 79°45'20.00"E. with Survey of India Topo Sheet No. 57- P/16. To conduct the study, the proposed mine lease area (core zone) and an impact zone of 10 km radius (called buffer zone) around the proposed mine site were considered. The EIA report is based on three months baseline data (i.e. March 2024 to May 2024)

11.1.2 GEOLOGY

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°E-S45°W with dipping towards SE80°.

11.1.3 PROJECT DESCRIPTION

This is a proposed Rough Stone quarry by Opencast Mechanized mining method with drilling and blasting. The quarrying is restricted up to a depth of 47m below ground level. The geological reserves are estimated to be 13,47,795 m³ of Rough Stone and 59,902 m³ in Gravel. The mineable reserve calculated by deducting 7.5m , 10m safety distance and bench loss. The mineable reserves 4,85,805m³ of Rough Stone and 41,818m³ Gravel which will be recovered at the rate of 100% recovery upto a depth of 47 m Below ground level for the period of five years.

- It is proposed to quarry out rough stone with 5m bench height, 5m width with 45° slope using conventional Open cast Mechanized method. The quarry operation involves shallow jack hammer drilling, slurry blasting, excavation, Loading and transportation of Rough Stone.
- There is no overburden anticipated during entire rough stone & Gravel quarrying operation.

S.No.	Type of Detail	Description
1	Sector	1(a) Non coal mining
2	Fresh/Existing project	New
3	Category	B1
4	Nature of mineral	Minor mineral
5	Production	10 years
6	Life	10 years
7	Waste generation and management	Nil
8	Bench height and width	Proposed bench height & width is 5.0m respectively and number of proposed benches is 10 Nos.
9	Ultimate pit depth	47 m BGL
10	End use	The excavated Rough Stone and Gravel is used for construction industries for Government & Public sector projects besides catering domestic housing and infrastructure projects in and around the district.

11.1.4 PROJECT REQUIREMENTS

The requirements of the project is given below.7

S.No.	Nature of requirement	Description
1	Water requirement	Total water requirement of 6.0 KLD which will be procured from the outside agencies.
2	Power requirement	All the equipment will be diesel operated. No electricity is needed for mining operation
3	Manpower requirement	35 Nos
4	Financial requirement	The total project cost as per PFR will be INR 501.06 Lakhs including Operational cost, Fixed Asset cost and EMP cost
5	Funds for Socio economic development	INR 8 Lakhs is allocated. In addition, any demand raised by people during public hearing will also be met.

11.1.5 DESCRIPTION OF LEASE AREA

The features in the study area is given below.

Table 11.1 Description of the lease area				
S.No.	Areas	Distance from project site		
1	Areas protected under international conventions, national or local legislation for their ecological, landscape, cultural or other related value	Nil within 15km radius		
2	Areas which are important or sensitive for ecological reasons			
A	Wetlands, water courses or other water bodies,	Water bodies	Distance	Direction
		Tank	120m	E
		Tank	360m	SW
		Tank	630m	NW
		Tank	687m	NE
		Perumukkal Lake	1.1km	SW
B	Coastal zone, biospheres,	Nil within 10km radius		

DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF TVL.J.M.MINERALS OVER AN EXTENT OF 3.00.0 HA AT S.F.NOS. 5/1, 5/2 & 4/2 OF CHOKKANTHANGAL VILLAGE, MARAKKANAM TALUK, VILLUPURAM DISTRICT, TAMIL NADU STATE.

C	Mountains, forests	Sevur R.F - 1.7km (NW), Kumalumpattu R.F - 6.0 km (SW)
3	Areas used by protected, important or sensitive species of flora or fauna for breeding, nesting, foraging, resting, overwintering, migration	Nil within 15km radius
4	Inland, coastal, marine or underground waters	Nil within 15km radius
5	State, National boundaries	Nil within 15km radius
6	Routes or facilities used by the public for access to recreation or other tourist, pilgrim areas	Nil within 15km radius
7	Defense installations	Nil within 15km radius
8	Densely populated or built-up area	Tindivanam – 11.0km (west)
9	Areas occupied by sensitive man-made land uses (hospitals, schools, places of worship, community facilities)	Tindivanam – 11.0km (west)
10	Areas containing important, high quality or scarce resources (ground water resources, surface resources, forestry, agriculture, fisheries, tourism, minerals)	Nil
11	Areas already subjected to pollution or environmental damage. (those where existing legal environmental standards are exceeded)	Nil
12	Areas susceptible to natural hazard which could cause the project to present environmental problems (earth quakes, subsidence, landslides, erosion, flooding or extreme or adverse climatic conditions) similar effects	No. The area is not prone to earthquakes, floods, etc.

The baseline data collection for meteorology, air, water, noise and soil environments have been carried out during March to May 2024.

Air, water, noise and soil samples are collected and analyzed through NABL accredited lab.

11.2 EXPLANATION OF HOW ADVERSE EFFECTS HAVE BEEN MITIGATED

11.2.1 AIR ENVIRONMENT

The air monitoring have been carried out in 6 locations and the results are given below.

Table 11.2 Details Of Ambient Air Quality Monitoring Locations

S. No.	Station Code	Locations	Distance & Direction	Coordinates
1	AAQ 1	Project site	Core Zone	12°12'50.23"N 79°45'16.1"E
2	AAQ 2	Ravanapuram	2.8 km, W	12°12'34.38"N 79°43'39.71"E
3	AAQ 3	Nalmukkal	1.89 km, E	12°12'41.53"N 79°45'57.32"E
4	AAQ 4	Chokkantangal	1.06 km, S	12°12'13.81"N 79°45'7.33"E
5	AAQ 5	Senalur	1.21 Km, N	12°13'32.96"N 79°45'3.25"E
6	AAQ6	Kunnappakkam	1.88 Km, N	12°13'41.57"N 79°45'56.57"E

All the values of pollutant concentrations were found to be within the NAAQs Standards.

Station ID	Min	Max	Avg.
Particulate matter PM_{2.5} (µg/m³)			
AAQ-1	19.4	32.2	25.8
AAQ-2	18.3	30.4	24.35
AAQ-3	18.1	26.0	22.05
AAQ-4	20.4	25.8	23.1
AAQ-5	17.38	25.3	21.34
AAQ-6	16.64	25.1	20.87
CPCB NAAQS 2009 for PM_{2.5} - 60 µg/m³			
Particulate matter PM₁₀ (µg/m³)			
AAQ-1	41.6	67.1	54.35
AAQ-2	38.4	59.0	48.7
AAQ-3	36.4	52.6	44.5
AAQ-4	43.7	55.0	49.35
AAQ-5	36.2	51.2	43.7
AAQ-6	35.2	56.7	45.95
CPCB NAAQS 2009 for PM₁₀ - 100 µg/m³			
Sulphur Di-oxide as SO₂ (µg/m³)			
AAQ-1	4.6	7.7	12.3
AAQ-2	4.0	7.4	11.4
AAQ-3	3.9	7.0	10.9
AAQ-4	3.6	6.2	9.8
AAQ-5	4.1	5.8	9.9
AAQ-6	3.2	5.4	8.6
CPCB NAAQS 2009 for SO₂ - 80 µg/m³			
Oxide of Nitrogen as NO₂ (µg/m³)			
AAQ-1	6.9	10.3	8.6
AAQ-2	6.7	9.5	8.1
AAQ-3	6.2	9.3	7.75
AAQ-4	7.1	10.3	8.7
AAQ-5	5.5	8.2	6.85
AAQ-6	5.7	7.9	6.8
CPCB NAAQS 2009 for NO₂ - 80 µg/m³			

11.2.2 WATER ENVIRONMENT

Table 11.3 Results of Ground Water sampling Analysis in 6 locations							IS:10500: 2012	
	W1	W2	W3	W4	W5	W6	Desir able	Permi ssible
Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agre eable	Agree able
Turbidity	<1	<1	<1	<1	<1	<1	Agre eable	Agree able
pH at 25 °C	7.19	7.35	7.08	6.79	7.12	7.48	6.5 - 8.5	No Relaxa tion
Electrical Conductivity	964.5	1126	1539	735.8	1058	1103	1	5
Total Dissolved Solids	580	676	930	444	640	670	500	2000
Total hardness as CaCO ₃	376	264	512	238	376	253	1	15
Calcium as Ca	106	83.2	108	65.6	63.4	76.0	200	600
Magnesium as Mg	27.2	13.6	58.6	18.0	52.3	15.2	200	600
Calcium as CaCO ₃	264	208	271	164	158	190	75	200
Magnesium as CaCO ₃	112	56.0	241	74.0	218	63.4		
Total alkalinity as CaCO ₃	301	314	418	266	412	307		
Chloride as Cl ⁻	138	192	252	98.5	180.0	196	250	1000
Free Residual chlorine as Cl ⁻	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)	30	100
Sulphates as SO ₄ ²⁻	98.9	187	226	84.5	89.2	179.0	45	No Relaxa tion
Iron as Fe	0.06	0.05	0.08	0.03	0.02	0.05	200	400
Nitrate as NO ₃	3.45	3.97	5.54	3.62	1.69	3.64	1	No Relaxa tion
Fluoride as F	0.28	0.34	0.39	0.38	0.44	0.41	0.1	0.3
Manganese as Mn	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)	Not Speci fied	Not Specifi ed

All the values were found to be within permissible limits

11.2.3 NOISE ENVIRONMENT

Noise levels were measured in 6 locations and the results are given below.

Noise monitoring results					
S. No	Location	Day equivalent	Night equivalent	Day equivalent limits by CPCB	Night equivalent limits by CPCB
1	Project site	39.9	38.6	75	70
2	Ravanapuram	51.2	42.5		
3	Nalmukkal	47.2	41.2		
4	Chokkantangal	46.0	42.5		
5	Senalur	48.3	39.8		
6	Kunnapakkam	50.9	42.2		

11.2.4 SOIL ENVIRONMENT

Soil samples are collected from 6 locations and the results are given below.

Table 11.5 Results of Soil Sample Analysis								
S. No	Parameter	Unit	S1	S2	S3	S4	S5	S6
1	pH at 25 °C	-	6.08	7.74	7.65	7.36	7.03	8.73
2	Electrical Conductivity	µmhos/cm	78.65	295.4	122.4	209.7	100.8	509.8
3	Dry matter content	%	92.54	89.72	90.38	92.06	90.40	91.15
4	Water Content	%	7.46	10.28	9.62	7.94	9.60	8.85
5	Organic Matter	%	1.69	2.34	1.87	1.26	1.71	0.8
6	Soil texture	-	SILT LOAM	SILTY CLAY LOAM	SILTY CLAY LOAM	SILTY CLAY LOAM	SILT LOAM	SILTY CLAY LOAM
7	Grain Size Distribution	%	36.99	5.05	4.38	5.84	41.47	5.78
	i. Sand							
8	ii. Silt	%	53.77	66.32	62.17	55.47	50.41	55.84
9	iii. Clay	%	9.24	28.63	33.45	38.69	8.12	38.38
10	Phosphorous as P	mg/kg	1.21	0.59	0.74	0.82	1.03	0.82
11	Sodium as Na	mg/kg	854	932	646	1015	976	1002
12	Potassium as K	mg/kg	410	645	802	674	724	669
13	Nitrogen and Nitrogenous Compounds	mg/kg	216	275	176	349	312	340
14	Total Soluble Sulphate	%	BDL(D.L. 0.02)	BDL(D.L. 0.02)	BDL(D.L. 0.02)	BDL(D.L. 0.02)	BDL(D.L. 0.02)	BDL(D.L. 0.02)
15	Porosity	%	12.80	13.1	13.8	13.5	11.9	13.2
16	Water Holding Capacity	Inches/foot	41	43	46	45	44	48

11.2.5 BIOLOGICAL ENVIRONMENT

FLORA

For measuring the extent of flora present in the study area, the area is divided in to 4 quadrants. The flora population in each quadrant is summed up for the total population in the study area. Field survey is done. Erukku, Aavarai and Nayuruvi are found in lease area. In the buffer zone, common trees like Neem, papaya, mango, teak, etc and shrubs like Avarai, Aloe vera, etc, climbers like Kovai,jasmine etc are found.

FAUNA

In the study area, commonly found animals like dogs, cats, bush rat, cows, birds like crow, Myna, Sparrow, etc were found.

11.2.6 LAND USE

The land use land cover data is found using the LANDSAT – 9 satellite imagery. The number of bands used are 11. The land use pattern is given below:

Table No. 11.6: Major Land Use Units of the Study Area in Percentage

S. No	1st Level Classification	Area in (sq.km)	Percentage (%)	2nd Level Classification	Area in (sq.km)	Percentage (%)
1	Built-up or habitation	17.23	5.35	Residential	16.94	5.26
				Commercial/Industrial	0.29	0.09
2	Agriculture	247.3	76.80	Crop/fallow land	247.3	76.80
3	Water bodies	35.96	11.17	Reservoir/Lake /Pond	35.45	11.01
				River/Stram	0.51	0.16
4	Waste Land	13.39	4.16	Open without scrub	2.37	0.74
				Open with scrub	11.02	3.42
5	Mines	7.28	2.26	Mines	7.28	2.26
6	Forest	0.85	0.26	Forest	0.85	0.26
Total		322	100	Total	322	100

11.2.7 SOCIO ECONOMIC ENVIRONMENT

The socio economic environment of the study area is studied by conducting primary sites through site visits and conducting sample surveys. The secondary data obtained from Census 2011 is also used.

The following data area collected from secondary data.

- Demographic pattern.
- Health pattern
- Occupational structure.
- Amenities available.

The project is located in Chokkanthangal Village, Marakkanam Taluk, Villupuram District. The total population is 106478 which comprise of 53580 males and 52898 females. There are 36 rural villages and one urban area in the study area.

11.2.8 HYDROGEOLOGY OF THE LEASE AREA

There is tank is located at a distance of 120 m in east direction of lease area. The hydrological and hydrogeological pattern of the study area is studied in detail using satellite imagery.

11.2.9 GROUND WATER STUDY

For Ground water study, satellite imagery is used. Water levels from monitoring levels are collected through imaging. The pre-monsoon and post-monsoon data are collected and the results are analyzed.

During field visit, it is observed that water is available in wells only after monsoon. The yield is obtained at deep levels only.

As far as the mining lease area is considered, the area is rocky and no major seepage is envisaged. The production quantity is very less and the depth proposed is 47 m BGL. Hence, there will not be any major impact due to mining on water levels or ground water levels in the area.

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

11.2.10 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 47 m BGL. Other than quarrying of minerals, no other change will be done since there is no dumping. 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 0.79.5 Ha. Trees like Pongamia pinnata, Syzigium cumini, Albizia lebbeck, Thespesia populnea, Bauhinia racemose, Cassia siamea, Azadirachta indica will be planted around the mine lease area. A total of 1500 trees are planned to be planted. Spacing will be 3m x 3m.

WATER ENVIRONMENT: IMPACT AND MITIGATION MEASURES

There is no water body present inside the lease area. The entire water requirement for the project is 6.0 KLD which will be sourced from outside agencies. Negligible sewage 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 47m (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 major water bodies found in the buffer zone are.

Water bodies	Distance	Direction
Tank	120m	E
Tank	360m	SW
Tank	630m	NW
Tank	687m	NE
Perumukkal Lake	1.1km	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. For the canal, adequate safety distance is left. The proponent will restrict the mining operation only within the lease and no other work will be carried out near the canal or any area outside the lease.

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

11.2.11 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.

11.2.12 AIR ENVIRONMENT: IMPACT AND MITIGATION MEASURES

The major air pollutants due to mining operations are fugitive emissions like PM₁₀, PM_{2.5}. Other than these pollutants, gaseous emissions of sulfur dioxide (SO₂) 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 10m and 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.

11.2.13 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.

11.2.14 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 within 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

11.2.15 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 8,00,000 for CER activities. This amount will be subjected to change after public hearing.

11.2.16 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, Rheumatic 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.

11.2.17 ENVIRONMENTAL MONITORING PROGRAMME

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. For EMP, a budget of INR 383.86 Lakhs is allocated.

11.2.18 PROJECT BENEFITS

Financial benefits

- This project will contribute financially through payment of taxes like royalty, GST, etc
- The project will also contribute via CSR.
- The demands of people during public hearing will also be considered by the project proponent

Social benefits

- This project provides employment to 35 people directly. Local people will be hired for unskilled labour.
- Through CSR, nearby schools, hospitals will be benefitted.
- For CSR, INR 8,00,000 is allocated.
- Based on the demand of the people during public hearing, further funds will be allocated, if necessary.

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 383.86 lakhs for the ten years has been allocated as EMP cost. 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. Thus, the proper steps will be taken to accomplish all the goals mentioned in the EMP and the project will bring the positive impact in the study area.

CHAPTER 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 3.00.0 Ha, while total cluster area of 9.91.15 Ha at Chokkanthangal Village, Marakkanam Taluk, Viluppuram District, Tamil Nadu State.

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

EIA Coordinator Name: M. Manikandan


Signature & Date

Period of involvement: March 2024 to May 2024.

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

DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF TVL.J.M.MINERALS OVER AN EXTENT OF 3.00.0 HA AT S.F.NOS. 5/1, 5/2 & 4/2 OF CHOKKANTHANGAL VILLAGE, MARAKKANAM TALUK, VILLUPURAM DISTRICT, TAMIL NADU STATE.

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. <u>Period: March 2024 to May 2024.</u>	R. Dhanalakshmi
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. <u>Period: March 2024 to May 2024</u>	K. Abirami
3	SHW	Ramadoss N	Assessment of waste generated from the project, suggested waste management practices. <u>Period: March 2024 to May 2024</u>	N. Ramadoss
4	SE	Sarasvathy K	Baseline SE studies. Data compilation and assessment. Impact of the project on SE status of the area. Formulation of CER plan. <u>Period: March 2024 to May 2024</u>	K. Sarasvathy
5	EB	Saravanan S	Baseline data collection of related to ecology of the area. <u>Period: March 2024 to May 2024</u>	S. Saravanan
6	HG	Ravinthiran N	Hydrogeological feature of the area. Ground water depth and impact of project on ground water of the area. <u>Period: March 2024 to May 2024</u>	N. Ravinthiran

DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF TVL.J.M.MINERALS OVER AN EXTENT OF 3.00.0 HA AT S.F.NOS. 5/1, 5/2 & 4/2 OF CHOKKANTHANGAL VILLAGE, MARAKKANAM TALUK, VILLUPURAM DISTRICT, TAMIL NADU STATE.

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. <u>Period: March 2024 to May 2024</u>	T. Srilatha
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. <u>Period: March 2024 to May 2024</u>	R. Dhanam
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. <u>Period: March 2024 to May 2024</u>	T. Srilatha
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. <u>Period: March 2024 to May 2024</u>	S. Prashanth
11	SC	Shisupal Sing	Soil monitoring, secondary data collection on soil type, soil management practices, utilization of topsoil. <u>Period: March 2024 to May 2024</u>	Shisupal Sing
12	GEO	Valliappan Meyyappan	Geological map, stability of quarry and dump, management plan for mine stability, after use of mining	V. Meyyappan

DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF TVL.J.M.MINERALS OVER AN EXTENT OF 3.00.0 HA AT S.F.NOS. 5/1, 5/2 & 4/2 OF CHOKKANTHANGAL VILLAGE, MARAKKANAM TALUK, VILLUPURAM DISTRICT, TAMIL NADU STATE.

			quarry and geological feature of the area.	
			Period: March 2024 to May 2024	

TM-FAA:

S. No	Name of TM (FAA)	Functional Area	Approved FAE (to work under)	Period of involvement	Type of work	Signature
1	Suresh	WP	Abirami Kaliaperumal	March 2024 to May 2024	Associated with the expert in assessing existing water quality, studying impact of the project on surface and ground water quality, suggesting mitigation measures for minimizing impact	M. Suresh
		AP	Dhanalakshmi Ramanathan		Associated with expert in	

DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF TVL.J.M.MINERALS OVER AN EXTENT OF 3.00.0 HA AT S.F.NOS. 5/1, 5/2 & 4/2 OF CHOKKANTHANGAL VILLAGE, MARAKKANAM TALUK, VILLUPURAM DISTRICT, TAMIL NADU STATE.

					assessing existing air quality, impact of the project on ambient air and suggesting mitigation measures for air pollution	
2	S. Kamaraj	SC	Shishupal Singh	March 2024 to May 2024	Associated with the expert in Soil monitoring, secondary data collection on soil type, soil management practices, utilization of top soil	
		RH	S.V.Prashant		Associated with the expert in	

DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF TVL.J.M.MINERALS OVER AN EXTENT OF 3.00.0 HA AT S.F.NOS. 5/1, 5/2 & 4/2 OF CHOKKANTHANGAL VILLAGE, MARAKKANAM TALUK, VILLUPURAM DISTRICT, TAMIL NADU STATE.

					Identificati on of the Risk related to the mining activities. Preparation of emergency disaster manageme nt plan. Plan for supply of safety equipment for the workers	
3.	S. Asan Ali	WP	Abirami Kaliaperumal	March 2024 to May 2024	Associated with the expert in assessing existing water quality, studying impact of the project on surface and ground	S. Asan ali

DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF TVL.J.M.MINERALS OVER AN EXTENT OF 3.00.0 HA AT S.F.NOS. 5/1, 5/2 & 4/2 OF CHOKKANTHANGAL VILLAGE, MARAKKANAM TALUK, VILLUPURAM DISTRICT, TAMIL NADU STATE.

					water quality, suggesting mitigation measures for minimizing impact	
		GEO	Valliappan Meyyappan		Associated with the expert in preparing Geological map, assessing stability of quarry slope faces and dump, management plan for mine stability, after use of mining quarry and geological features of the area	
		AP	Dhanalakshmi Ramanathan		Associated	

					with expert in assessing existing air quality, impact of the project on ambient air and suggesting mitigation measures for air pollution	
		NV	Dhanalakshmi Ramanathan		Associated with the expert in monitoring and analysis of blast induced ground vibration in order to develop the site-specific equation for its	

DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF TVL.J.M.MINERALS OVER AN EXTENT OF 3.00.0 HA AT S.F.NOS. 5/1, 5/2 & 4/2 OF CHOKKANTHANGAL VILLAGE, MARAKKANAM TALUK, VILLUPURAM DISTRICT, TAMIL NADU STATE.

					prediction, monitoring of fly rocks & air blast (noise), preparation of SOP's for the safety blasting practice in the mines.	
4.	Mownica. B	AP	Dhanalakshmi Ramanathan	March 2024 to May 2024	Associated with expert in assessing existing air quality, impact of the project on ambient air and suggesting mitigation measures for air pollution	Mownica. B
		NV	Dhanalakshmi Ramanathan		Associated with the expert in	

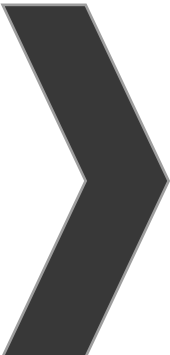
DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF TVL.J.M.MINERALS OVER AN EXTENT OF 3.00.0 HA AT S.F.NOS. 5/1, 5/2 & 4/2 OF CHOKKANTHANGAL VILLAGE, MARAKKANAM TALUK, VILLUPURAM DISTRICT, TAMIL NADU STATE.

					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.	
5.	G.Balasubramani	GEO	Valliappan Meyyappan	March 2024 to May 2024	with the expert in preparing Geological	

					map, assessing stability of quarry slope faces and dump, manageme nt plan for mine stability, after use of mining quarry and geological features of the area	
			Dhanalakshmi Ramanathan		Associated with the expert in monitoring and analysis of blast induced ground vibration in order to develop the site- specific	

DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE AND GRAVEL QUARRY OF TVL.J.M.MINERALS OVER AN EXTENT OF 3.00.0 HA AT S.F.NOS. 5/1, 5/2 & 4/2 OF CHOKKANTHANGAL VILLAGE, MARAKKANAM TALUK, VILLUPURAM DISTRICT, TAMIL NADU STATE.

					equation for its prediction, monitoring of fly rocks & air blast (noise), preparation of SOP's for the safety blasting practice in the mines.	
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ANNEXURE-1



File No: 11053
Government of India
Ministry of Environment, Forest and Climate Change
(Issued by the State Environment Impact Assessment
Authority(SEIAA), TAMIL NADU)



Dated 22/10/2024



To,

Tvl.J M Minerals
Tvl.J M Minerals, No. P-II/M29, TNHB, J.J.Nagar, Kurumbanchavadi, Ariyalur District-621713,
Viluppuram , VILLUPURAM, TAMIL NADU, Viluppuram , 621713
jmminerals11@gmail.com

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

Sir/Madam,

SEIAA, Tamil Nadu – Proposed Rough Stone and Gravel quarry over an extent of 3.00.0 Ha at S.F.No. 5/1, 5/2 & 4/2 of Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu by TVL.J.M. Minerals - 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/484607/2024, Dated: 29.06.2024.
2. Your application submitted for Terms of Reference dated: 09.07.2024.
3. Minutes of the 503rd Meeting of SEAC held on 04.10.2024.
4. Minutes of the 766th Meeting of Authority held on 17.10.2024.

2. The particulars of the proposal are as below :

(i) TOR Identification No.	TO24B0108TN5225806N
(ii) File No.	11053
(iii) Clearance Type	TOR
(iv) Category	B1
(v) Project/Activity Included Schedule No.	1(a) Mining of minerals
(vii) Name of Project	Rough Stone and Gravel Quarry of Tvl.J M Minerals
(viii) Name of Company/Organization	J M MINERALS
(ix) Location of Project (District, State)	VILLUPURAM, TAMIL NADU
(x) Issuing Authority	SEIAA
(xii) Applicability of General 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) Appraisal Committee of SEIAA in the meeting held on 17/10/2024. 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 Tvl.J M Minerals 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 OMNo.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, Villuppuram District
7. The Commissioner of Geology and Mines, Guindy, Chennai-32
8. The Assistant Director, Department of Geology & Mining, Villuppuram District
9. EI Division, Ministry of Environment & Forests, Paryavaran Bhawan, New Delhi.
10. Integrated Regional office of MoEF&CC, Sastri Bhawan, Nungambakkam, Chennai
11. File Copy

Annexure 1

Specific Terms of Reference for (Mining Of Minerals)

1. Seac Conditions - Site Specific

S. No	Terms of Reference
1.1	1. 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 statutory personnel, appropriate environmental monitoring, good maintenance of haul roads and

S. No	Terms of Reference
	village/panchayat roads, authorized blasting operation etc. The PP shall submit the following details in the form of an Affidavit during the EIA appraisal: (i) Copy of the agreement forming CMC. (ii) The Organisation chart of the Committee with defining the role of the members (iii) The 'Standard Operating Procedures' (SoP) executing the planned activities. 2. The structures within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m & upto 1km 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. and spell out the mitigation measures to be proposed for the protection of the above structures, if any during the quarrying operations. 3. The PP shall carry out tree plantation in the safety distance of 55m since the school is located at the NW direction of the proposed project site. The same shall be included in the Final EIA report. 4. The proponent shall furnish photographs of adequate fencing, garland drainage built with siltation tank & green belt along the periphery including replantation of existing trees; maintaining the safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan. 5. The Proponent shall carry out Bio diversity study as a part of EIA study and the same shall be included in the Report. 6. 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. 7. The PP shall prepare a conceptual working plan accommodating the inclusion of haul road accessibility keeping the benches intact, by ensuring the slope stability of the working benches to be constructed and existing quarry wall.

2. Seac Standard Conditions

S. No	Terms of Reference
2.1	1. In the case of existing/operating mines, a letter obtained from the concerned AD (Mines) shall be submitted and it shall include the following: (i) Original pit dimension (ii) Quantity achieved Vs EC Approved Quantity (iii) Balance Quantity as per Mineable Reserve calculated. (iv) Mined out Depth as on date Vs EC Permitted depth (v) Details of illegal/illicit mining (vi) Violation in the quarry during the past working. (vii) Quantity of material mined out outside the mine lease area (viii) Condition of Safety zone/benches (ix) Revised/Modified Mining Plan showing the benches of not exceeding 6 m height and ultimate depth of not exceeding 50m. 2. Details of habitations around the proposed mining area and latest VAO certificate regarding the location of habitations within 300m radius from the periphery of the site. 3. The proponent is requested to carry out a survey and enumerate on the structures located within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m (v) 500m shall be enumerated with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places of worship, industries, factories, sheds, etc with indicating the owner of the building, nature of construction, age of the building, number of residents, their profession and income, etc. 4. The PP shall submit a detailed hydrological report indicating the impact of proposed quarrying operations on the waterbodies like lake, water tanks, etc are located within 1 km of the proposed quarry. 5. The Proponent shall carry out Bio diversity study through reputed Institution and the same shall

S. No	Terms of Reference
	be included in EIA Report. 6. The DFO letter stating that the proximity distance of Reserve Forests, Protected Areas, Sanctuaries, Tiger reserve etc., up to a radius of 25 km from the proposed site. 7. In the case of proposed lease in an existing (or old) quarry where the benches are not formed (or) partially formed as per the approved Mining Plan, the Project Proponent (PP) shall the PP shall carry out the scientific studies to assess the slope stability of the working benches to be constructed and existing quarry wall, by involving any one of the reputed Research and Academic Institutions - CSIR-Central Institute of Mining & Fuel Research / Dhanbad, NIRM/Bangalore, Division of Geotechnical Engineering-IIT-Madras, NIT-Dept of Mining Engg, Surathkal, and Anna University Chennai-CEG Campus. The PP shall submit a copy of the aforesaid report indicating the stability status of the quarry wall and possible mitigation measures during the time of appraisal for obtaining the EC. 8. However, in case of the fresh/virgin quarries, the Proponent shall submit a conceptual 'Slope Stability Plan' for the proposed quarry during the appraisal while obtaining the EC, when the depth of the working is extended beyond 30 m below ground level. 9. The PP shall furnish the affidavit stating that the blasting operation in the proposed quarry is carried out by the statutory competent person as per the MMR 1961 such as blaster, mining mate, mine foreman, II/I Class mines manager appointed by the proponent. 10. The PP shall present a conceptual design for carrying out only controlled blasting operation involving line drilling and muffle blasting in the proposed quarry such that the blast-induced ground vibrations are controlled as well as no fly rock travel beyond 30 m from the blast site. 11. The EIA Coordinators shall obtain and furnish the details of quarry/quarries operated by the proponent in the past, either in the same location or elsewhere in the State with video and photographic evidences. 12. If the proponent has already carried out the mining activity in the proposed mining lease area after 15.01.2016, then the proponent shall furnish the following details from AD/DD, mines, 13. What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines? 14. Quantity of minerals mined out. · Highest production achieved in any one year · Detail of approved depth of mining. · Actual depth of the mining achieved earlier. · Name of the person already mined in that leases area. · If EC and CTO already obtained, the copy of the same shall be submitted. · Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches. 15. All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/Topo sheet, topographic sheet, geomorphology, lithology and geology of the mining lease area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone). 16. The PP shall carry out Drone video survey covering the cluster, green belt, fencing, etc., 17. The proponent shall furnish photographs of adequate fencing, green belt along the periphery including replantation of existing trees & safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan. 18. The Project Proponent shall provide the details of mineral reserves and mineable reserves, planned production capacity, proposed working methodology with justifications, the anticipated impacts of the mining operations on the surrounding environment, and the remedial measures for the same. 19. The Project Proponent shall provide the Organization chart indicating the appointment of various statutory officials and other competent persons to be appointed as per the provisions of the Mines Act' 1952 and the MMR, 1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment.

S. No	Terms of Reference
	20. The Project Proponent shall conduct the hydro-geological study considering the contour map of the water table detailing the number of groundwater pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds, etc. within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD / TWAD so as to assess the impacts on the wells due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. 21. The proponent shall furnish the baseline data for the environmental and ecological parameters with regard to surface water/ground water quality, air quality, soil quality & flora/fauna including traffic/vehicular movement study. 22. The Proponent shall carry out the Cumulative impact study due to mining operations carried out in the quarry specifically with reference to the specific environment in terms of soil health, biodiversity, air pollution, water pollution, climate change and flood control & health impacts. Accordingly, the Environment Management plan should be prepared keeping the concerned quarry and the surrounding habitations in the mind. 23. Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted. 24. Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given. 25. Details of the land for storage of Overburden/Waste Dumps (or) Rejects outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be provided. 26. Proximity to Areas declared as 'Critically Polluted' (or) the Project areas which attracts the court restrictions for mining operations, should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the TNPCB (or) Dept. of Geology and Mining should be secured and furnished to the effect that the proposed mining activities could be considered. 27. Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided. 28. Impact on local transport infrastructure due to the Project should be indicated. 29. A tree survey study shall be carried out (nos., name of the species, age, diameter etc.,) both within the mining lease applied area & 300m buffer zone and its management during mining activity. 30. A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific. 31. As a part of the study of flora and fauna around the vicinity of the proposed site, the EIA coordinator shall strive to educate the local students on the importance of preserving local flora and fauna by involving them in the study, wherever possible. 32. The purpose of Green belt around the project is to capture the fugitive emissions, carbon sequestration and to attenuate the noise generated, in addition to improving the aesthetics. A wide range of indigenous plant species should be planted as given in the appendix-I in consultation with the DFO, State Agriculture University. The plant species with dense/moderate canopy of native origin should be chosen. Species of small/medium/tall trees alternating with shrubs should be planted in a mixed manner. 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

S. No	Terms of Reference
	34. A Disaster management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period. 35. A Risk Assessment and management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period. 36. Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed. 37. Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations. 38. The Socio-economic studies should be carried out within a 5 km buffer zone from the mining activity. Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation. 39. Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given. 40. Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc. 41. If any quarrying operations were carried out in the proposed quarrying site for which now the EC is sought, the Project Proponent shall furnish the detailed compliance to EC conditions given in the previous EC with the site photographs which shall duly be certified by MoEF&CC, Regional Office, Chennai (or) the concerned DEE/TNPCB. 42. The PP shall prepare the EMP for the entire life of mine and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine. 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.

3. Seiaa Specific Conditions:

S. No	Terms of Reference
3.1	After detailed discussions, the Authority accepts the recommendation of SEAC and decided to grant Terms of Reference (ToR) along with Public Hearing under cluster for the production should not exceed 4,40,825 m³ of Rough stone & 41,818 m³ of Gravel and the annual peak production should not exceed 96,725 m³ of Rough stone & 34,872 m³ of Gravel up to depth of mining 37m BGL, for undertaking the combined Environment Impact Assessment Study and preparation of separate Environment Management Plan subject to the conditions as recommended by SEAC & normal conditions and conditions in Annexure 'B' of this minutes in addition to the following conditions 1. There are three water bodies at a distance of 135m, 350m & 580m respectively. Also, agriculture activities are around. Hence, The PP shall carry out the scientific studies to assess the hydrogeological condition of the quarry for ensuring the safety of the persons working in the mine and to determine impacts of the mining operation on the ground water conditions in the waterbodies, by involving any one of the reputed Research and Academic Institution - CSIR-Central Institute of Mining & Fuel Research / Dhanbad, NIRM/Bangalore, Division of Geotechnical Engineering-IIT-Madras, NIT-Dept of Mining Engg, Surathkal, University of Madras – Centre for Environmental Studies, and Anna University Chennai-Dept of Geology, CEG Campus. The same shall be submitted during EIA appraisal.

4. Seiaa Standard Conditions:

S. No	Terms of Reference
4.1	<u>Cluster Management Committee</u> 1. Cluster Management Committee shall be framed which must include all the proponents in the cluster as members including the existing as well as proposed quarry. 2. The members must coordinate among themselves for the effective implementation of EMP as committed including Green Belt Development, Water sprinkling, tree plantation, blasting etc., 3. The List of members of the committee formed shall be submitted to AD/Mines before the execution of mining lease and the same shall be updated every year to the AD/Mines. 4. Detailed Operational Plan must be submitted which must include the blasting frequency with respect to the nearby quarry situated in the cluster, the usage of haul roads by the individual quarry in the form of route map and network. 5. The committee shall deliberate on risk & 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. 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. 7. The committee shall furnish action plan regarding the restoration strategy with respect to the individual quarry falling under the cluster in a holistic manner. 8. The committee shall deliberate on the health of the workers/staff involved in the mining as well as the health of the public in the vicinity. <u>Agriculture & Agro-Biodiversity</u> 9. Impact on surrounding agricultural fields around the proposed mining Area. 10. Impact on soil flora & vegetation around the project site. 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. 12. The Environmental Impact Assessment should study the agro-biodiversity, agro-forestry, horticultural plantations, the natural ecosystem, the soil micro flora, fauna and soil seed banks and 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. 14. The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands, Horticulture, Agriculture and livestock. <u>Forests</u> 15. The project proponent shall detailed study on impact of mining on Reserve forests and free ranging wildlife. 16. The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna. 17. The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection. 18. The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site. <u>Water Environment</u> 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

S. No	Terms of Reference
	groundwater. Necessary data and documentation in this regard may be provided, covering the entire mine lease period. 20. Erosion Control measures. 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. 22. The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir. 23. The project proponent shall study and furnish the details on potential fragmentation impact on natural environment, by the activities. 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. 25. The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components. 26. The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites. 27. The EIA shall include the impact of mining activity on the following: - Hydrothermal/Geothermal effect due to destruction in the Environment. - Bio-geochemical processes and its foot prints including environmental stress. - Sediment geochemistry in the surface streams. <u>Energy</u> <u>Climate Change</u> 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. 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. 31. Impact of mining on pollution leading to GHGs emissions and the impact of the same on the local livelihood. <u>Mine Closure Plan</u> <u>EMP</u> 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. 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. <u>Risk Assessment</u> <u>Disaster Management Plan</u> <u>Others</u> 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. 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. 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.

1.

S. No	Terms of Reference
1.1	An EIA-EMP Report shall be prepared for peak capacity (.....MTPA)operation in an ML/project area of.....ha based on the generic structure specified in Appendix III of the EIA Notification, 2006.
1.2	An EIA-EMP Report would be prepared for peak capacity operation to cover the impacts and environment management plan for the project specific activities on the environment of the region, and the environmental quality encompassing air, water, land, biotic community, etc. through collection of data and information, generation of data on impacts including prediction modeling for..... MTPA of mineral production based on approved project/Mining Plan for.....MTPA. Baseline data collection can be for any season (three months) except monsoon.
1.3	Propoer KML file with pin drop and coordinate of mine at 500-1000 m interval be provided
1.4	A Study area map of the core zone (project area) and 10 km area of the buffer zone (1: 50,000 scale) clearly delineating the major topographical features such as the land use, surface drainage pattern including rivers/streams/nullahs/canals, locations of human habitations, major constructions including railways, roads, pipelines, major industries, mines and other polluting sources. In case of ecologically sensitive areas such as Biosphere Reserves/National Parks/WL Sanctuaries/ Elephant Reserves, forests (Reserved/Protected), migratory corridors of fauna, and areas where endangered fauna and plants of medicinal and economic importance found in the 15 km study area should be given. The above details to be furnished in tabular form also
1.5	Map showing the core zone delineating the agricultural land (irrigated and un-irrigated, uncultivable land as defined in the revenue records, forest areas (as per records), along with other physical features such as water bodies, etc should be furnished.
1.6	A contour map showing the area drainage of the core zone and 25 km of the study area (where the water courses of the core zone ultimately join the major rivers/streams outside the lease/project area) should also be clearly indicated in the separate map.
1.7	Catchment area with its drainage map of 25 km area within and outside the mine shall be provided with names, details of rivers/ riverlet system and its respective order. The map should clearly indicate drainage pattern of the catchment area with basin of major rivers. Diversion of drains/ river need eloboration in form of lengthe, quantity and quality of water to be diverted
1.8	(Details of mineral reserves, geological status of the study area and the seams to be worked, ultimate working depth and progressive stage-wise working scheme until the end of mine life should be provided on the basis of the approved rated capacity and calendar plans of production from the approved Mining Plan. Geological maps and sections should be included. The Progressive mine development and Conceptual Final Mine Closure Plan should also be shown in figures. Details of mine plan and mine closure plan approval of Competent Authority should be furnished for green field and expansion projects.
1.9	Details of mining methods, technology, equipment to be used, etc., rationale for selection of specified technology and equipment proposed to be used vis-à-vis the potential impacts should be provided.

S. No	Terms of Reference																																																
1.10	Impact of mining on hydrology, modification of natural drainage, diversion and channeling of the existing rivers/water courses flowing though the ML and adjoining the lease/project and the impact on the existing users and impacts of mining operations thereon.																																																
1.11	A detailed Site plan of the mine showing the proposed break-up of the land for mining operations such as the quarry area, OB dumps, green belt, safety zone, buildings, infrastructure, Stockyard, township/colony (within and adjacent to the ML), undisturbed area -if any, and landscape features such as existing roads, drains/natural water bodies to be left undisturbed along with any natural drainage adjoining the lease /project areas, and modification of thereof in terms of construction of embankments/bunds, proposed diversion/re-channelling of the water courses, etc., approach roads, major haul roads, etc should be indicated.																																																
1.12	Original land use (agricultural land/forestland/grazing land/wasteland/water bodies) of the area should be provided as per the tables given below. Impacts of project, if any on the land use, in particular, agricultural land/forestland/grazing land/water bodies falling within the lease/project and acquired for mining operations should be analyzed. Extent of area under surface rights and under mining rights should be specified. Area under Surface Rights <table><tr><th>S.N</th><th>ML/Project Land use</th><th>Area under Surface Rights(ha)</th><th>Area Under Mining Rights(ha)</th><th>Area under Both (ha)</th></tr><tr><td>1</td><td>Agricultural land</td><td></td><td></td><td></td></tr><tr><td>2</td><td>Forest Land</td><td></td><td></td><td></td></tr><tr><td>3</td><td>Grazing Land</td><td></td><td></td><td></td></tr><tr><td>4</td><td>Settlements</td><td></td><td></td><td></td></tr><tr><td>5</td><td>Others (specify)</td><td></td><td></td><td></td></tr></table> <table><tr><th>S.N.</th><th>Details</th><th>Area (ha)</th></tr><tr><td>1</td><td>Buildings</td><td></td></tr><tr><td>2</td><td>Infrastructure</td><td></td></tr><tr><td>3</td><td>Roads</td><td></td></tr><tr><td>4</td><td>Others (specify)</td><td></td></tr><tr><td></td><td>Total</td><td></td></tr></table>	S.N	ML/Project Land use	Area under Surface Rights(ha)	Area Under Mining Rights(ha)	Area under Both (ha)	1	Agricultural land				2	Forest Land				3	Grazing Land				4	Settlements				5	Others (specify)				S.N.	Details	Area (ha)	1	Buildings		2	Infrastructure		3	Roads		4	Others (specify)			Total	
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1.13	Study on the existing flora and fauna in the study area (10km) should be carried out by an institution of relevant discipline. The list of flora and fauna duly authenticated separately for the core and study area and a statement clearly specifying whether the study area forms a part of the migratory corridor of any endangered fauna should be given. If the study area has endangered flora and fauna, or if the area is occasionally visited or used as a habitat by Schedule-I species, or if the project falls within 15 km of an ecologically sensitive area, or used as a migratory corridor then a Comprehensive Conservation Plan along with the appropriate budgetary provision should be prepared and submitted with EIA-EMP Report; and comments/observation from the CWLW of the State Govt. should also be obtained and furnished.																																																
1.14	One-season (other than monsoon) primary baseline data on environmental quality - air (PM10, PM2.5, SOx, NOx and heavy metals such as Hg, Pb, Cr, As, etc), noise, water (surface and groundwater), soil - along with one-season met data coinciding with the same season for AAQ collection period should be provided. The detail of NABL/ MoEF&CC certification of the respective laboratory and NABET accreditation of the consultant to be provided.																																																

S. No	Terms of Reference
1.15	Map (1: 50, 000 scale) of the study area (core and buffer zone) showing the location of various sampling stations superimposed with location of habitats, other industries/mines, polluting sources, should be provided. The number and location of the sampling stations in both core and buffer zones should be selected on the basis of size of lease/project area, the proposed impacts in the downwind (air)/downstream (surface water)/groundwater regime (based on flow). One station should be in the upwind/upstream/non-impact/non-polluting area as a control station. The monitoring should be as per CPCB guidelines and parameters for water testing for both ground water and surface water as per ISI standards and CPCB classification wherever applicable. Observed values should be provided along with the specified standards.
1.16	For proper baseline air quality assessment, Wind rose pattern in the area should be reviewed and accordingly location of AAMSQ shall be planned by the collection of air quality data by adequate monitoring stations in the downwind areas. Monitoring location for collecting baseline data should cover overall the 10 km buffer zone i.e. dispersed in 10 km buffer area. In case of expansion, the displayed data of CAAQMS and its comparison with the monitoring data to be provided
1.17	A detailed traffic study along with presence of habitation in 100 mts distance from both side of road, the impact on the air quality with its proper measures and plan of action with timeline for widening of road. The project will increase the no. of vehicle along the road which will indirectly contribute to carbon emission so what will be the compensatory action plan should be clearly spell out in EIA/ EMP report.
1.18	The socio-economic study to conducted with actual survey report and a comparative assessment to be provided from the census data should be provided in EIA/ EMP report also occupational status & economic status of the study area and what economically project will contribute should be clearly mention. The study should also include the status of infrastructural facilities and amenities present in the study area and a comparative assessment with census data to be provided and to link it with the initialization and quantification of need based survey for CSR activities to be followed.
1.19	The Ecology and biodiversity study should also indicate the likely impact of change in forest area for surface infrastructural development or mining activity in relation to the climate change of that area and what will be the compensatory measure to be adopted by PP to minimize the impact of forest diversion.
1.20	Baseline data on the health of the population in the impact zone and measures for occupational health and safety of the personnel and manpower for the mine should be submitted.
1.21	Impact of proposed project/activity on hydrological regime of the area shall be assessed and report be submitted. Hydrological studies as per GEC 2015 guidelines to be prepared and submitted
1.22	Impact of mining and water abstraction from the mine on the hydrogeology and groundwater regime within the core zone and 10 km buffer zone including long-term monitoring measures should be provided. Details of rainwater harvesting and measures for recharge of groundwater should be reflected in case there is a declining trend of groundwater availability and/or if the area falls within dark/grey zone.
1.23	Study on land subsidence including modeling for prediction, mitigation/prevention of subsidence, continuous monitoring measures, and safety issues should be carried out.
1.24	Detailed water balance should be provided. The break up of water requirement as per different

S. No	Terms of Reference
	activities in the mining operations, including use of water for sand stowing should be given separately. Source of water for use in mine, sanction of the Competent Authority in the State Govt. and impacts vis-à-vis the competing users should be provided.
1.25	PP shall submit design details of all Air Pollution control equipment (APCEs) to be implemented as part of Environment Management Plan vis-à-vis reduction in concentration of emission for each APCEs
1.26	PP shall propose to use LNG/CNG based mining machineries and trucks for mining operation and transportation of mineral. The measures adopted to conserve energy or use of renewable sources shall be explored
1.27	PP to evaluate the green house emission gases from the mine operation and corresponding carbon absorption plan.
1.28	Site specific Impact assessment with its mitigation measures, Risk Assessment and Disaster Preparedness and Management Plan should be provided.
1.29	Impact of choice of mining method, technology, selected use of machinery and impact on air quality, mineral transportation, handling & storage/stockyard, etc, Impact of blasting, noise and vibrations should be provided.
1.30	Impacts of mineral transportation within the mining area and outside the lease/project along with flow-chart indicating the specific areas generating fugitive emissions should be provided. Impacts of transportation, handling, transfer of mineral and waste on air quality, generation of effluents from workshop etc, management plan for maintenance of HEMM and other machinery/equipment should be given. Details of various facilities such as rest areas and canteen for workers and effluents/pollution load emanating from these activities should also be provided.
1.31	Details of various facilities to be provided to the workers in terms of parking, rest areas and canteen, and effluents/pollution load resulting from these activities should also be given.
1.32	The number and efficiency of mobile/static water jet, Fog cannon sprinkling system along the main mineral transportation road inside the mine, approach roads to the mine/stockyard/siding, and also the frequency of their use in impacting air quality should be provided.
1.33	Conceptual Final Mine Closure Plan and post mining land use and restoration of land/habitat to the pre- mining status should be provided. A Plan for the ecological restoration of the mined out area and post mining land use should be prepared with detailed cost provisions. Impact and management of wastes and issues of re-handling (wherever applicable) and backfilling and progressive mine closure and reclamation should be furnished.
1.34	Adequate greenbelt nearby areas, mineral stock yard and transportation area of mineral shall be provided with details of species selected and survival rate Greenbelt development should be undertaken particularly around the transport route.
1.35	Cost of EMP (capital and recurring) should be included in the project cost and for progressive and final mine closure plan.
1.36	Details of R&R. Detailed project specific R&R Plan with data on the existing socio- economic

S. No	Terms of Reference							
	status of the population (including tribals, SC/ST, BPL families) found in the study area and broad plan for resettlement of the displaced population, site for the resettlement colony, alternate livelihood concerns/employment for the displaced people, civic and housing amenities being offered, etc and costs along with the schedule of the implementation of the R&R Plan should be given.							
1.37	CSR Plan along with details of villages and specific budgetary provisions (capital and recurring) for specific activities over the life of the project should be given.							
1.38	Corporate Environment Responsibility:							
1.39	a) The Company must have a well laid down Environment Policy approved by the Board of Directors.							
1.40	b) The Environment Policy must prescribe for standard operating process/procedures to bring into focus any infringements/deviation/violation of the environmental or forest norms/conditions.							
1.41	c) The hierarchical system or Administrative Order of the company to deal with environmental issues and for ensuring compliance with the environmental clearance conditions must be furnished.							
1.42	d) To have proper checks and balances, the company should have a well laid down system of reporting of non-compliances/violations of environmental norms to the Board of Directors of the company and/or shareholders or stakeholders at large.							
1.43	e) Environment Managament Cell and its responsibilities to be clearly spleel out in EIA/ EMP report							
1.44	f) In built mechanism of self-monitoring of compliance of environmental regulations should be indicated.							
1.45	Status of any litigations/ court cases filed/pending on the project should be provided.							
1.46	PP shall submit clarification from DFO that mine does not falls under corridors of any National Park and Wildlife Sanctuary with certified map showing distance of nearest sanctuary.							
1.47	Copy of clearances/approvals such as Forestry clearances, Mining Plan Approval, mine closer plan approval. NOC from Flood and Irrigation Dept. (if req.), etc. wherever applicable.							
1.48	Details on the Forest Clearance should be given as per the format given: <table><tr><td>Total Project Area (ha)</td><td>ML Forest land (ha)</td><td>Total Forest land (ha)</td><td>Date of FC</td><td>Extent of Forest Land</td><td>Balance area for which FC is yet to be obtained</td><td>Status of appl for diversion of forest land</td></tr></table> If more than one provide details of each FC	Total Project Area (ha)	ML Forest land (ha)	Total Forest land (ha)	Date of FC	Extent of Forest Land	Balance area for which FC is yet to be obtained	Status of appl for diversion of forest land
Total Project Area (ha)	ML Forest land (ha)	Total Forest land (ha)	Date of FC	Extent of Forest Land	Balance area for which FC is yet to be obtained	Status of appl for diversion of forest land		
1.49	In case of expansion of the proposal, the status of the work done as per mining plan and approved mine closure plan shall be detailed in EIA/ EMP report							

S. No	Terms of Reference
1.50	Details on Public Hearing should cover the information relating to notices issued in the newspaper, proceedings/minutes of Public Hearing, the points raised by the general public and commitments made by the proponent and the time bound action proposed with budgets in suitable time frame. These details should be presented in a tabular form. If the Public Hearing is in the regional language, an authenticated English Translation of the same should be provided.
1.51	PP shall carry out survey through drone highlighting the ground reality for atleast 10 minutes
1.52	Detailed Chronology of the project starting from the first lease deed allotted/Block allotment/ Land acquired to its No. of renewals, CTO /CTE with details of no. renewals, previous EC(s) granted details and its compliance details, NOC details from various Govt bodies like Forest NOC(s), CGWA permissions, Power permissions, etc as per the requisites respectively to be furnished in tabular form.
1.53	The first page of the EIA/ EMP report must mention the peak capacity production, area, detail of PP, Consultant (NABET accreditation) and Laboratory (NABL / MoEF & CC certification)
1.54	The compliances of ToR must be properly cited with respective chapter section and page no in tabular form and also mention sequence of the respective ToR complied within the EIA-EMP report in all the chapter,s section.

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 clearly indicating the area to be covered under plantation and the species to be planted. The details of plantation already done should be given. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution.
- 32) Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines.
- 33) Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.
- 34) Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report.
- 35) Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.
- 36) Public health implications of the Project and related activities for the population in the impact 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 submitted along with EIA report.
9. Obtain a letter /certificate from the Assistant Director of Geology and Mining standing that there is no other Minerals/resources like sand in the quarrying area within the approved depth of mining and below depth of mining and the same shall be furnished in

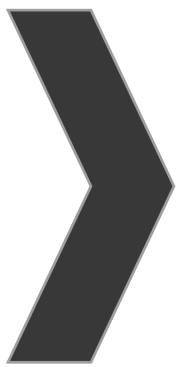
the EIA report.

10. EIA report should strictly follow the Environmental Impact Assessment Guidance Manual for Mining of Minerals published February 2010.
11. Detail plan on rehabilitation and reclamation carried out for the stabilization and restoration of the mined areas.
12. The EIA study report shall include the surrounding mining activity, if any.
13. Modeling study for Air, Water and noise shall be carried out in this field and incremental increase in the above study shall be substantiated with mitigation measures.
14. A study on the geological resources available shall be carried out and reported.
15. A specific study on agriculture & livelihood shall be carried out and reported.
16. Impact of soil erosion, soil physical chemical and biological property changes may be assumed.
17. Site selected for the project - Nature of land - Agricultural (single/double crop), barren, Govt./ private land, status of its acquisition, nearby (in 2-3 km.) water body, population, within 10km other industries, forest, eco-sensitive zones, accessibility, (note - in case of industrial estate this information may not be necessary)
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 will take further necessary action for obtaining environmental clearance in accordance with the procedure prescribed under the EIA Notification, 2006.
 - The final EIA report shall be submitted to the SEIAA, Tamil Nadu for obtaining Environmental Clearance.
 - The TORs with public hearing prescribed shall be **valid for a period of three years** from the date of issue, for submission of the EIA/EMP report as per OMNo.J-11013/41/2006-IA-II(I)(part) dated 29th August, 2017.



ANNEXURE-2

- 3 OCT 2024

ந.க.எண். ஆ/புவி(ம)சுர/16/2023
நாள்: 10.05.2024.

உதவி இயக்குநர்,
புவியியல் மற்றும் சுரங்கத்துறை அலுவலகம்,
விழுப்புரம்.

குறிப்பாணை

பொருள்: கனிமங்களும் குவாரிகளும் - சிறுகனிமம் - சாதாரண கற்கள் மற்றும் கிராவல் - விழுப்புரம் மாவட்டம் - மரக்காணம் வட்டம் - சொக்கந்தாங்கல் கிராமம் - சர்வே எண்கள்: கிராம சர்வே எண்கள்: 5/1 - 0.96.0 ஏர்ஸ், 5/2 - 1.40.0 ஏர்ஸ் மற்றும் 4/2 - 0.64.0 ஏர்ஸ் ஆக மொத்தம் 3.00.0 ஹெக்டேர் பரப்பளவில் பத்தாண்டுகளுக்கு சாதாரண கற்கள் மற்றும் கிராவல் வெட்டியெடுக்க குவாரி குத்தகை அனுமதி வழங்க கோரி அரியலூர் மாவட்டத்தினைச் சேர்ந்த தி/ள். J.M. மினரல்ஸ் நிறுவனத்தினரிடமிருந்து விண்ணப்பம் வரப்பெற்றது - உரிமம் வழங்க பரிந்துரை செய்து அறிக்கை வரப்பெற்றது - தகுதியான நிலப்பரப்பாக கருதி ஏற்பளிக்கப்பட்ட சுரங்க திட்டம் மற்றும் சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணைய இசைவினை பெற்று சமர்ப்பிக்கக் கோருதல் - தொடர்பாக.

பார்வை: 1. தி/ள். J.M. மினரல்ஸ், எண்.P-H/M29, THHB, ஜெ.ஜெ. நகர், குறும்பஞ்சாவடி, அரியலூர் மாவட்டம் என்பவரது விண்ணப்பம் நாள்: 23.11.2022 வரப்பெற்ற நாள்: 07.02.2023

2. திண்டிவனம் சார் ஆட்சியர் அவர்களின் கடித எண். ந.க.அ3/3666/2023, நாள்: 12.09.2023.

3. விழுப்புரம் மாவட்ட புவியியல் மற்றும் சுரங்கத்துறை உதவி இயக்குநர் அவர்களின் புலத்தணிக்கை அறிக்கை நாள்: 07.05.2024

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அரியலூர் மாவட்டம், குறும்பஞ்சாவடி, ஜெ.ஜெ. நகர், எண்.P-H/M29, THHB என்ற முகவரியைச் சேர்ந்த தி/ள். J.M. மினரல்ஸ் என்ற நிறுவனத்தினர் விழுப்புரம் மாவட்டம், மரக்காணம் வட்டம், சொக்கந்தாங்கல் கிராம சர்வே எண்கள்: 5/1 - 0.96.0 ஏர்ஸ், 5/2 - 1.40.0 ஏர்ஸ் மற்றும் 4/2 - 0.64.0 ஏர்ஸ் ஆக மொத்தம் 3.00.0 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 காணும் விண்ணப்பம் சமர்ப்பித்துள்ளீர்.

மேற்படி விண்ணப்பம் தொடர்பாக, திண்டிவனம் சார் ஆட்சியர் மற்றும் விழுப்புரம் மாவட்ட புவியியல் மற்றும் சுரங்கத்துறை, உதவி இயக்குநர் ஆகியோரின் புலத்தணிக்கை மற்றும் விசாரணை அறிக்கையின்பேரில், விழுப்புரம் மாவட்டம், மரக்காணம் வட்டம், சொக்கந்தாங்கல் கிராம சர்வே எண்கள்: 5/1 - 0.96.0 ஏர்ஸ், 5/2 - 1.40.0 ஏர்ஸ் மற்றும் 4/2 - 0.64.0 ஏர்ஸ் ஆக மொத்தம் 3.00.0 ஹெக்டேர் பரப்பளவில்



உள்ள பட்டா நிலத்தில் அரியலூர் மாவட்டத்தினைச் சேர்ந்த தி/ள். J.M. மினரல்ஸ் என்ற நிறுவனத்தினருக்கு பத்தாண்டுகளுக்கு சாதாரணக்கற்கள் மற்றும் கிராவல் குவாரி உரிமம் வழங்க கீழ்க்கண்ட நிபந்தனைகளுக்குட்பட்டு அனுமதி வழங்கலாம் என பரிந்துரை செய்துள்ளனர்.

- i. விண்ணப்ப புலன்களின் அருகில் உள்ள பட்டா நிலங்களுக்கு 7.5 மீட்டர் பாதுகாப்பு இடைவெளியும் மற்றும் அரசு புறம்போக்கு நிலங்களுக்கு 10 மீட்டர் பாதுகாப்பு இடைவெளியும் விட்டு குவாரிப்பணி மேற்கொள்ளப்பட வேண்டும்.
- ii. குவாரிப்பணி மேற்கொள்ளும் போது அருகிலுள்ள அரசு புறம்போக்கு மற்றும் பட்டா நிலங்களுக்கு எவ்வித இடையூறும் இல்லாமல் குவாரிப்பணி செய்ய வேண்டும்.
- iii. குவாரி குத்தகை வழங்கும் முன்பு விண்ணப்பித்துள்ள இடத்தினை DGPS சர்வே பணி மேற்கொண்டு அதன் அறிக்கையை சமர்ப்பிக்க வேண்டும்.
- iv. தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 1959 விதி-41ன்படி தகுதிவாய்ந்த நபரால் சுரங்க திட்டம் தயார் செய்து துணை இயக்குநர் அவர்களின் ஒப்புதல் பெறவேண்டும்.
- v. தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 1959 விதி-42ன்படி மாநில சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணையத்திடமிருந்து சுற்றுச்சூழல் சான்று பெற்று சமர்ப்பிக்கப்படவேண்டும்.

எனவே, திண்டிவனம் சார் ஆட்சியர் மற்றும் விழுப்புரம் மாவட்ட புவியியல் மற்றும் சுரங்கத்துறை, உதவி இயக்குநர் ஆகியோரின் பரிந்துரை அறிக்கையின் அடிப்படையில் விழுப்புரம் மாவட்டம், மரக்காணம் வட்டம், சொக்கந்தாங்கல் கிராம சர்வே எண்கள்: 5/1 - 0.96.0 ஏர்ஸ், 5/2 - 1.40.0 ஏர்ஸ் மற்றும் 4/2 - 0.64.0 ஏர்ஸ் ஆக மொத்தம் 3.00.0 ஹெக்டேர் பரப்பளவில் 1959-ம் வருட தமிழ்நாடு சிறுகனிம விதிகள், விதி எண்.19-ன்படி மேற்கண்ட நிபந்தனைகளுக்குட்பட்டு 10 (பத்து) வருட காலத்திற்கு தி/ள். J.M. மினரல்ஸ் என்ற நிறுவனத்தினருக்கு சாதாரணக்கற்கள் மற்றும் கிராவல் குவாரி உரிமம் வழங்குவதற்குரிய தகுதியான நிலப்பரப்பாக கருதப்படுகிறது.

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



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

- i. விண்ணப்ப புலன்களின் அருகில் உள்ள பட்டா நிலங்களுக்கு 7.5 மீட்டர் பாதுகாப்பு இடைவெளியும் மற்றும் அரசு புறம்போக்கு நிலங்களுக்கு 10 மீட்டர் பாதுகாப்பு இடைவெளியும் விட்டு குவாரிப்பணி மேற்கொள்ளப்பட வேண்டும்.
- ii. குவாரிப்பணி மேற்கொள்ளும் போது அருகிலுள்ள அரசு புறம்போக்கு மற்றும் பட்டா நிலங்களுக்கு எவ்வித இடையூறும் இல்லாமல் குவாரிப்பணி செய்ய வேண்டும்.
- iii. குவாரி குத்தகை வழங்கும் முன்பு விண்ணப்பித்துள்ள இடத்தினை DGPS சர்வே பணி மேற்கொண்டு அதன் அறிக்கையை சமர்ப்பிக்க வேண்டும்.

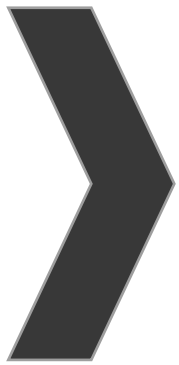
10.5.24
உதவி இயக்குநர்,
புவியியல் மற்றும் சுரங்கத்துறை,
விழுப்புரம்.

பெறுநர்:-

தி/ள். J.M. மினரல்ஸ்,
எண்.P-H/M29, THHB,
ஜெ.ஜெ. நகர்,
குறும்பஞ்சாவடி,
அரியலூர் மாவட்டம் - 621 713.

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,
Dept. of Geology and Mining,
Viluppuram District,
Viluppuram.

To

M/s. J.M. Minerals,
No. P - II/M29,
TNHB, J.J. Nagar,
Kurumbanchavadi,
Ariyalur District - 621 713.

Rc.No.A/G&M/16/2023, Dated: 03.10.2024

Sub: Mines & Minerals – Minor Mineral – Rough Stone and Gravel – Viluppuram District – Marakkanam Taluk – Chokkanthangal Village – S.F.Nos. 4/2 – 0.64.0, 5/1 – 0.96.0 & 5/2 – 1.40.0 an Total extend 3.00.0 Hectare of patta lands – Application seeking quarry lease preferred by M/s. J.M. Minerals, Ariyalur – Precise area communicated - Submission of Revised mining plan for approval – Revised Mining plan Approved – Regarding.

- Ref: 1. Quarry lease application preferred by M/s. J.M. Minerals, No. P – II/M29, TNHB, J.J. Nagar, Kurumbanchavadi, Ariyalur District Dated: 23.11.2022 (application received dated: 07.02.2023)
2. Assistant Director, Geology and Mining, Viluppuram Letter Rc.No.A/G&M/16/2023 Dated: 10.05.2024
3. Mining Plan submitted by M/s. J.M. Minerals, No. P - II/M29, TNHB, J.J. Nagar, Kurumbanchavadi, Ariyalur District Dated: 17.05.2024.
4. Mining Plan approved by the Assistant Director, Geology and Mining, Viluppuram letter Rc.No.A/G&M/16/2023 Dated: 22.05.2024 & 30.08.2024.
5. Revised Mining Plan submitted by M/s. J.M. Minerals, Ariyalur District Dated: 01.10.2024.

In response to the precise area communicated vide that the S.F.Nos. 4/2 – 0.64.0, 5/1 – 0.96.0 & 5/2 – 1.40.0 over an extent of 3.00.0 hectares of Chokkanthangal Village, Marakkanam Taluk, Villupuram District as precise area for grant of quarry lease for quarrying rough stone and gravel for a period of 10 years to M/s. J.M. Minerals, Ariyalur with a direction produce on Mining Plan for approval and to obtain Environment Clearance in respect of the precise area as per Rule 41 of Tamil Nadu Mineral Concession Rules, 1959.

2. Accordingly, the applicant has submitted the mining plan prepared by the Qualified Person for approval vide reference 3rd cited. The above mining plan and the revised mining plan were approved by the Assistant Director of Geology and Mining, Viluppuram vide reference 4th cited.

3. In the reference 5th cited, the applicant has stated that the Proposal was placed in 487th meeting of SEAC held on 01.08.2024 the applicant Tvl.J.M.Minerals, applied environment clearance for the period of ten years but the mining plan year wise proposed production was shown first five years only, as a result of the SEAC's objections, the applicant M/s. J.M. Minerals, Ariyalur has submitted three copies of Revised Mining Plan in respect of Rough stone and gravel quarry in the above area.

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

- (i) The field boundaries geographical co-ordinates (GPS readings) for the entire boundary corners (13 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.A/G&M/16/2023 dated 10.05.2024.
- (iii) The available geological and minable reserves as follows.

Depth in Mts.	Geological reserves in Cu.m.	Minal Reserves in Cu.m.
47 m. below ground level	Rough stone : 13,47,795 Gravel : 59,902	Rough stone : 485805 Gravel : 41818

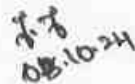
(iv) First five year production and tentative next five years has also shown in the Mining Plan.

5. In the above details, in exercise of the powers confirmed under Rule 14(7) of Tamil Nadu Minor Mineral Concession Rules, 1959 the mining plan in respect of Rough stone and gravel quarry to M/s. J M Minerals, Ariyalur is approved subject to the following conditions;

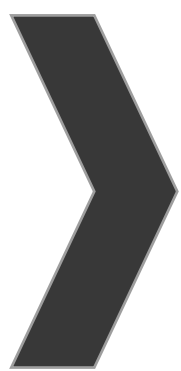
- (i) The revised mining plan is approved without prejudice to any other Law applicable to the quarry lease from time to time whether such laws are made by the Central Government, State Government or any other authority.
- (ii) This approval of the revised mining plan does not in any way imply the approval 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, 1980, 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 revised mining plan is approved without prejudice to any other order or direction from any court of competent jurisdiction.

Encl: Two copies of Approved Revised Mining Plan.


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


08.10.24

Copy to:
The Commissioner of Geology and Mining, Chennai-32.



APPROVAL MINING PLAN

REVISED MINING PLAN FOR CHOKKANTHANGAL ROUGH STONE & GRAVEL QUARRY



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

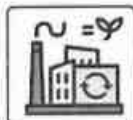
LOCATION OF THE QUARRY LEASE APPLIED AREA

STATE : TAMIL NADU
DISTRICT : VILUPPURAM
TALUK : MARAKKANAM
VILLAGE : CHOKKANTHANGAL
S.F.NOS : 5/1, 5/2 AND 4/2
EXTENT : 3.00.0Ha

ECO-FRIENDLY



SUSTAINABILITY



SAFETY



FOR APPLICANT

Tvl.J M Minerals,
No. P-II/M29, TNHB,
J.J.Nagar, Kurumbanchavadi,
Ariyalur District-621713.

PREPARED BY

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



(PPE)

Tvl.J M Minerals,
No. P-II/M29, TNHB,
J.J.Nagar, Kurumbanchavadi,
Ariyalur District-621713.



CONSENT LETTER FROM THE APPLICANT

The Revised Mining Plan in respect of **Rough Stone and Gravel** quarry over an extent of 3.00.0hectares of Patta lands in S.F.Nos.5/1, 5/2 and 4/2 of Chokkanthangal Village, Marakkanam 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 Revised Mining Plan with the said Qualified Person on this following address.

C.Natarajan, M.Sc.,M.Phil.,

Qualified Person

No.93/36E2, Subramaniam 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 Revised 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

For Tvl.J M Minerals

P.S.Jayaraman (Managing Partner)

Place: Ariyalur

Date:

Tvl.J M Minerals,
No. P-II/M29, TNHB,
J.J.Nagar, Kurumbanchavadi,
Ariyalur District-621713.



DECLARATION

The Revised Mining Plan in respect of **Rough Stone and Gravel** quarry over an extent of 3.00.0hectares of Patta lands in S.F.Nos.5/1, 5/2 and 4/2 of Chokkanthangal Village, Marakkanam 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

For Tvl.J M Minerals

P.S.Jayaraman (Managing Partner)

Place: Ariyalur

Date:

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.



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 Revised Mining Plan for the grant of **Rough Stone and Gravel** quarry lease over an extent of 3.00.0hectares of Patta lands in S.F.Nos.5/1, 5/2 and 4/2 of Chokkanthangal Village, Marakkanam Taluk, Viluppuram District, Tamil Nadu State applied by Tvl.J M Minerals, 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:

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.



CERTIFICATE

Certified that, in preparation of Revised Mining Plan for **Rough Stone and Gravel** quarry over an extent of 3.00.0hectares of Patta lands in S.F.Nos.5/1, 5/2 and 4/2 of Chokkanthangal Village, Marakkanam Taluk, Viluppuram District, Tamil Nadu State for Tvl.J M Minerals, 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:

CERTIFICATE



Certified that I, C.Natarajan, residing at No.93/36 E2, Subramaniam 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 Revised Mining Plan in respect of Rough Stone and Gravel quarry lease applied for an extent of 3.00.0hectares of Patta land in S.F.Nos.5/1, 5/2 and 4/2 of Chokkanthangal Village, Marakkanam Taluk, Viluppuram District by Tvl.J M Minerals, for a period of Ten years. Since the Revised 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:

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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
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7.0	Copy of Consent Document	VII
8.0	Copy of Partnership Deed	VIII
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LIST OF PLATES

S. No.	Description	Plate No.
1.0	Location Plan	I
2.0	Environmental Plan	I-A
3.0	Satellite imagery map	I-B
4.0	Topo sketch of Quarry lease applied area for 10Km Radius	I-C
5.0	Key Plan	I-D
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7.0	Topography, Geological Plan & Section	III
8.0	Mineable Plan & Section	IV
9.0	Year wise Development and Production Plan & Section	V
10.0	Second five Year Wise Development & Production Plan & Sections	VA
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REVISED MINING PLAN FOR MINOR MINERALS

ROUGH STONE AND GRAVEL

Over an extent of 3.00.0hectares of Patta land in S.F.Nos.5/1, 5/2 and 4/2 of Chokkanthangal Village, Marakkanam 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 Revised Mining Plan is prepared for Tvl.J M Minerals, No. P-II/M29, TNHB, J.J.Nagar, Kurumbanchavadi, Ariyalur District-621713.
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/16/2023 dated 10.05.2024 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 3.00.0 hectares of Patta lands in S.F.Nos. 5/1, 5/2 and 4/2 of Chokkanthangal Village, Marakkanam Taluk, Viluppuram District of Tamil Nadu State for a period of ten years. The proposal was placed in 487th meeting of SEAC held on 01.08.2024, due to the School situated at a distance of 434m. As a result of the SEAC's objections, the applicant has decided to modify the mining plan by leaving a 72-meter safety distance to the School. Hence This revised mining plan prepared and submitted to the Assistant Director, Department of Geology and Mining, Viluppuram for approval.
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 shall be maintained to the adjacent patta lands and safety distance of 10m shall be maintained to government poramboke land while quarrying operation.
 - b) The applicant should not cause any hindrance to adjoining government poramboke lands and patta lands while rough stone quarrying operations.
 - c) The applicant should be submit DGPS survey report before the grant of quarry lease.
4. Geological Resources is estimated at 13,47,795m³ of Rough stone and 59,902m³ of gravel formation and Mineable Reserves is estimated at 4,85,805m³ of Rough Stone and 41,818m³ 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 4,40,825m³ of Rough Stone, 41,818m³ of gravel formation for the period of first five years upto a depth of 37m below ground level and remaining quantity of 44,980m³ of Rough Stone will be proposed for the period of second five years upto a depth of 47m (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.
 8. Environmental parameters,
 - i) The area does not attract the Forest Conservation Act, 1980 as there is no forest around 1.7km radius.
 - ii) There is no interstate boundary around 10Kms 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	:	Chokkanthangal
b.	Name of the Panchayat Union	:	Marakkanam
c.	The proposed total Movable Reserves	:	4,85,805m ³ of Rough Stone, 41,818m ³ of gravel formation
d.	The proposed quantity of reserves (level of production) for Five years to be mined is(Recoverable reserves)	:	4,40,825m ³ of Rough Stone, 41,818m ³ of gravel formation
e.	Total extent of the area	:	3.00.0Ha
f.	Proposed Period of mining	:	Five Years
g.	Existing depth	:	It is fresh quarry lease applied area
h.	Proposed Depth of mining	:	37m 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 A. Fixed Assets Cost B. Operational Cost C. EMP Cost		Rs. 21,00,000/- Rs. 82,00,000/- Rs. 6,20,000/- Total Project cost(A+B+C)= Rs.1,09,20,000/-
l.	The area applied for lease is bounded by thirteen corners and the coordinates are clearly marked in plate no II.		
	Corners	Co- ordinates Latitude Longitude	Distance between the corners
	1	12° 12' 47.56"N 79° 45' 14.77"E	1-2 = 108.2m
	2	12° 12' 50.90"N 79° 45' 13.64"E	2-3 = 83.6m
	3	12° 12' 52.68"N 79° 45' 11.54"E	3-4 = 60.2m
	4	12° 12' 54.41"N 79° 45' 12.46"E	4-5 = 114.8m
	5	12° 12' 52.87"N 79° 45' 15.92"E	5-6 = 14.0m
	6	12° 12' 53.12"N 79° 45' 16.31"E	6-7 = 30.4m
	7	12° 12' 52.59"N 79° 45' 17.16"E	7-8 = 12.6m
	8	12° 12' 52.69"N 79° 45' 17.57"E	8-9 = 57.4m
	9	12° 12' 52.04"N 79° 45' 19.35"E	9-10 = 20.0m
	10	12° 12' 51.92"N 79° 45' 20.00"E	10-11 = 62.2m
	11	12° 12' 50.16"N 79° 45' 18.97"E	11-12 = 101.0m
	12	12° 12' 47.01"N 79° 45' 18.05"E	12-13 = 4.0m
	13	12° 12' 46.89"N 79° 45' 17.98"E	13-1 = 99.2m

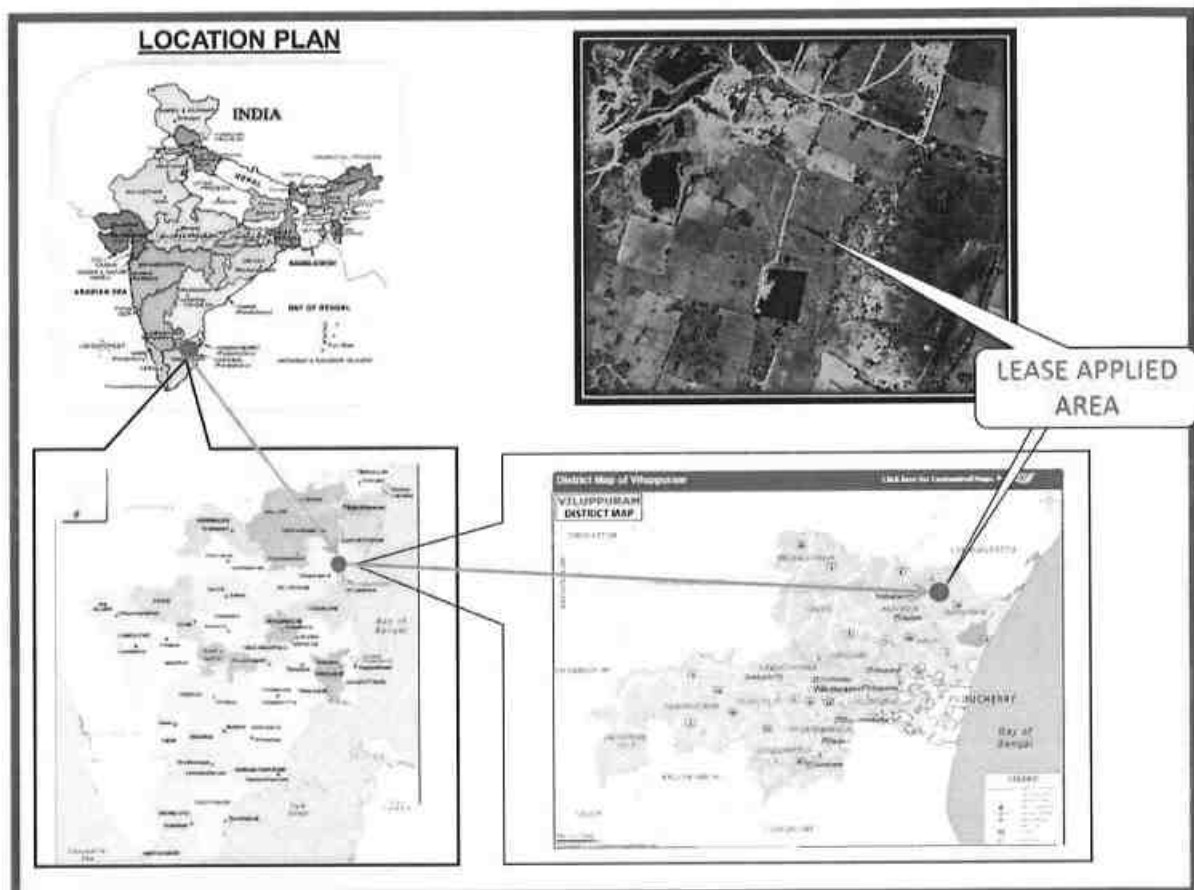


2.0 General Information:			
2.1	a.	Name of the Applicant	: Tvl.J M Minerals,
	b.	Address of the Applicant with phone No and e-mail id if any	: No.P-II/M29, TNHB, J.J.Nagar, Kurumbanchavadi, Ariyalur District. Pin Code- 621713 Cell No.:9443338672
	c.	Status of the Applicant	: Partnership firm
2.2	a.	Mineral 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/16/2023 dated 10.05.2024.
	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., Qualified Person No.93/36E2, Subramaniyar Kovil Street, Omalur Taluk, Salem District, Tamil Nadu, Pin-636 455. Mobile: 97502 23535 & 94446 54520.



3.0 Location:

S.No	Details of the Area:	
1	Corner Coordinates	Latitude :12°12'46.89"N to 12°12'54.41"N Longitude :79°45'11.54"E to 79°45'20.00"E
2	Toposheet Number	57- P/16
3	The altitude of the area	69m (MSL)
4	Extent	3.00.0Ha
5	Survey Nos	5/1, 5/2 and 4/2
6	Village	Chokkanthangal
7	Taluk	Marakkanam
8	District	Viluppuram
9	State	Tamil Nadu





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 Thiru.P.S.Jayaraman vide patta nos.302 and 309, the applicant has obtained consent from the pattadar, Please refer Annexure No: IV and VII.
c.	Toposheet No. with Latitude and Longitude	:	Topo Sheet No: 57-P/ 16 : Latitude:12°12'46.89"N to 12°12'54.41"N : Longitude:79°45'11.54"E to 79°45'20.00"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 Nallalam- Buderu village road on western side of the area. The Nearest Railway line is Viluppuram to Chennai line which is about 9.5Km on northwestern side of the area.

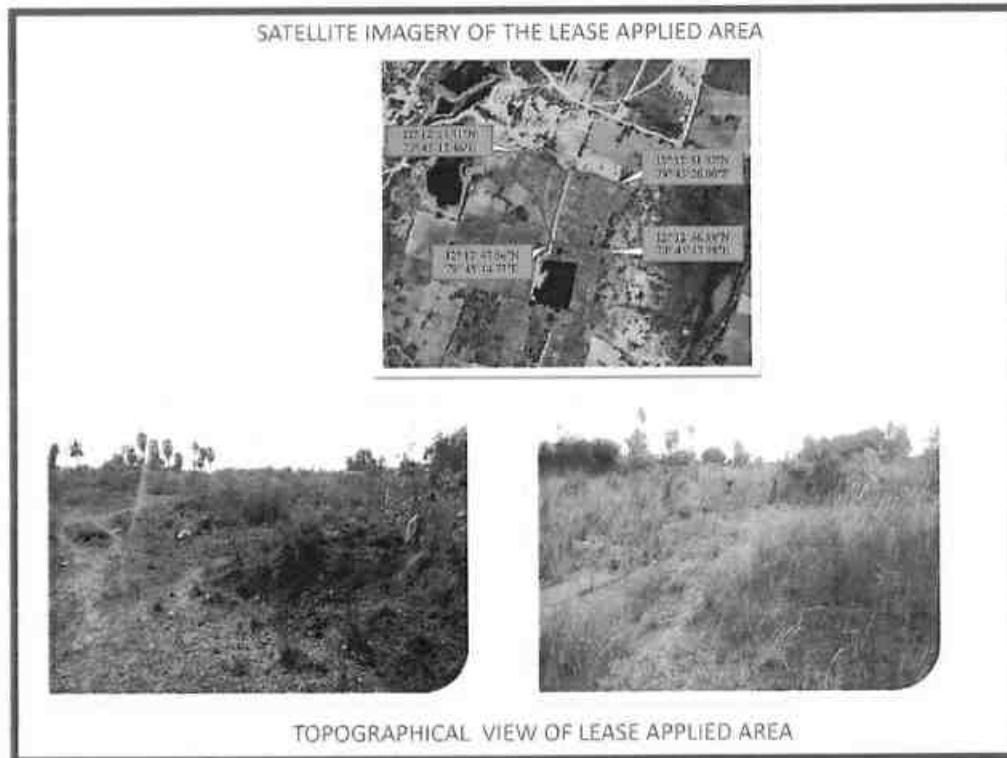


Fig. Location of the lease applied area



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 2m (Avg) Gravel formation and sloping towards southeastern side of the area, the altitude of the area is above 69m (maximum) from MSL. ➤ No major river is found nearby the lease applied area. ➤ Water table is found at a depth of 65m in summer and 62m in rainy seasons. ➤ Temperature of the area is reported to be 18°C to a maximum of 42°C during summer. ➤ 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. 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°E –S45°W with dipping towards SE80°. 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	
4.2		Details of Exploration already carried out if any	:	No exploration was carried out, as the Rough stone formations are clearly visible from adjacent existing quarry pit.	
4.3	a.	Estimation of Reserves	:	The Geological and Recoverable reserves are estimated by cross sectional method. 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. 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 47m 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 formation in m ³	Geological Resources of Rough stone in m ³
XY-AB	I	116	84	2	19488	19488	
	II	116	84	5	48720		48720
	III	116	84	5	48720		48720
	IV	116	84	5	48720		48720
	V	116	84	5	48720		48720
	VI	116	84	5	48720		48720
	VII	116	84	5	48720		48720
	VIII	116	84	5	48720		48720
	IX	116	84	5	48720		48720
	X	116	84	5	48720		48720
Total						19488	438480



XY-CD	I	121	167	2	40414	40414	
	II	121	167	5	101035		101035
	III	121	167	5	101035		101035
	IV	121	167	5	101035		101035
	V	121	167	5	101035		101035
	VI	121	167	5	101035		101035
	VII	121	167	5	101035		101035
	VIII	121	167	5	101035		101035
	IX	121	167	5	101035		101035
	X	121	167	5	101035		101035
Total						40414	909315
Grand Total						59902	1347795

Gravel Formation : 59,902m³

The Geological Resources of Rough stone : 13,47,795m³

b. Mineable Reserve

The mineable reserve calculated by deducting 7.5m, 10m and 55m safety distance and bench loss.

Table No-2

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	61	68	2	8296	8296	
	II	58	63	5	18270		18270
	III	53	53	5	14045		14045
	IV	48	43	5	10320		10320
	V	43	33	5	7095		7095
	VI	38	23	5	4370		4370
	VII	33	13	5	2145		2145
Total						8296	56245
XY-CD	I	111	151	2	33522	33522	
	II	108	146	5	78840		78840
	III	103	136	5	70040		70040
	IV	98	126	5	61740		61740
	V	93	116	5	53940		53940
	VI	88	106	5	46640		46640
	VII	83	96	5	39840		39840
	VIII	78	86	5	33540		33540
	IX	68	76	5	25840		25840
	X	58	66	5	19140		19140
Total						33522	429560
Grand Total						41818	485805

The mineable reserve is computed as 4,85,805m³ of Rough stone and 41,818m³ of Gravel formation upto a depth 47m below ground level only.



5.0 Mining:		
5.1	Method of Mining	1. Opencast method of semi mechanized mining with 5.0m height 5m width of the bench. 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. 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. 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. Occasionally hydraulic excavators are attached with rock breakers for fragmentation to avoid secondary blasting. The primary boulders thus splitted are removed from the pits by excavators and further made to smaller sizes by rock breakers attached in excavators. It is a conventional opencast 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.

The Yearwise Production and Development Table

Table No -3

Year	Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in m³	Gravel in m³	Mineable reserve of Rough stone in m³
I	XY-AB	I	61	68	2	8296	8296	
		II	58	63	5	18270		18270
	XY-CD	I	88	151	2	26576	26576	
		II	88	146	5	64240		64240
Total							34872	82510
II	XY-CD	I	23	151	2	6946	6946	
		II	20	146	5	14600		14600
		III	103	136	5	70040		70040
Total							6946	84640
III	XY-AB	III	53	53	5	14045		14045
		IV	48	43	5	10320		10320
	XY-CD	IV	98	126	5	61740		61740
Total								86105
IV	XY-CD	V	93	116	5	53940		53940
		VI	48	106	5	25440		25440
	XY-AB	V	43	33	5	7095		7095
		VI	38	23	5	4370		4370
Total								90845
V	XY-CD	VI	40	106	5	21200		21200
		VII	83	96	5	39840		39840
		VIII	78	86	5	33540		33540
	XY-AB	VII	33	13	5	2145		2145
Total								96725
Grand Total							41818	440825

The applicant has proposed to carry out 4,40,825m³ of Rough stone and 41,818m³ of Gravel formation upto a depth of 37m below ground level for the period of first five years and remaining quantity of 44,980m³ of Rough Stone will be proposed for the period of second five years upto a depth of 47m (below ground level).



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 m³	Mineable reserve of Rough stone in m³
VI	XY-CD	IX	23	76	5	8740	8740
	Total						8740
VII	XY-CD	IX	23	76	5	8740	8740
	Total						8740
VIII	XY-CD	IX	22	76	5	8360	8360
	Total						8360
IX	XY-CD	X	29	66	5	9570	9570
	Total						9570
X	XY-CD	X	29	66	5	9570	9570
	Total						9570
Grand Total							44980

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	8	32	Atlas Copco	Compressed air
		2	Compressor	2	-	Atlas Capco	Diesel Drive
	b.	Loading	:	Excavator of 0.90m ³ bucket capacity (with Rock breaker attachment) (2No).			
	c.	Transportation	:	Tipper 4Nos (5/10Ts) capacity.			
5.6		Disposal of Overburden	:	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.			



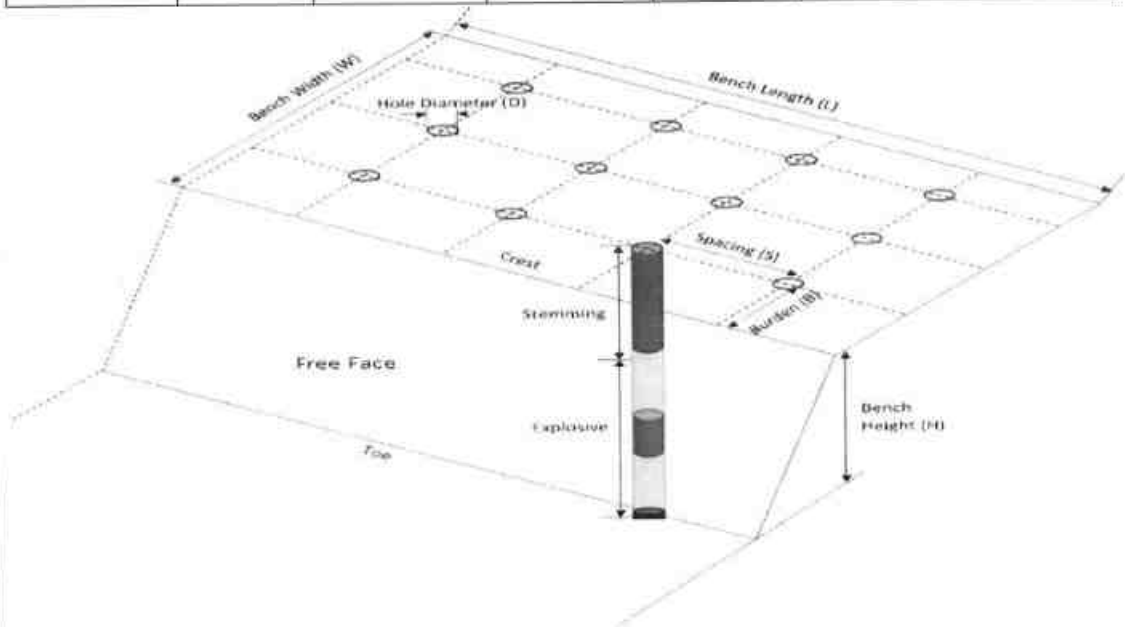
5.7	Brief Note on : Conceptual Mining Plan for the entire lease period	Conceptual Mining Plan is prepared with an object of ten years of systematic development of bench lay outs, selection of ultimate pit limit, depth of quarrying, ultimate pit slope, selection of sites for construction of infrastructures etc. 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><th colspan="4">Ultimate Pit dimension (M) end of Mining plan Period</th></tr><tr><th>Pit No</th><th>Length (max) in (m)</th><th>Width (Avg) in (m)</th><th>Depth(max) in(m)</th></tr><tr><td>I</td><td>172</td><td>127</td><td>37</td></tr></table> Ultimate pit dimension End of the lease period <table><tr><th>Pit No</th><th>Length (max) in (m)</th><th>Width (Avg) in (m)</th><th>Depth(max) in(m)</th></tr><tr><td>I</td><td>172</td><td>127</td><td>47</td></tr></table> Afforestation has been proposed on all along the boundary barrier by planting trees. 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.	Ultimate Pit dimension (M) end of Mining plan Period				Pit No	Length (max) in (m)	Width (Avg) in (m)	Depth(max) in(m)	I	172	127	37	Pit No	Length (max) in (m)	Width (Avg) in (m)	Depth(max) in(m)	I	172	127	47
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I	172	127	37																			
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I	172	127	47																			



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.
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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. ➤ 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. <table><tr><td>Number of holes</td><td>: 254</td></tr><tr><td>Powder factor</td><td>: 6Ts/Kg of explosives</td></tr><tr><td>Total explosive required</td><td>: 127Kg slurry explosives</td></tr><tr><td>Charge / hole</td><td>: 0.5Kg</td></tr><tr><td>Blasting time</td><td>: 12-2 Pm</td></tr></table>	Number of holes	: 254	Powder factor	: 6Ts/Kg of explosives	Total explosive required	: 127Kg slurry explosives	Charge / hole	: 0.5Kg	Blasting time	: 12-2 Pm
Number of holes	: 254											
Powder factor	: 6Ts/Kg of explosives											
Total explosive required	: 127Kg 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. ➤ <i>The applicant ensure that will appoint the Mate (Should have Valid Blaster Certificate) during Blasting Operation.</i>										

7.0 Mine Drainage:

7.1	Depth of Water table	: The ground water table is reported as 65m below ground level. In the proposed mining plan only 37m (below ground level) and 47m 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



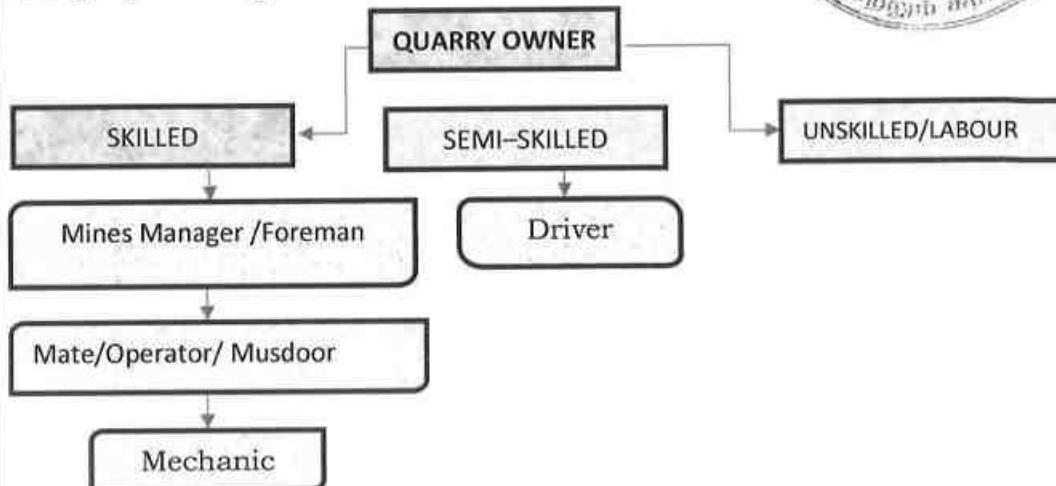
8.0 Other Permanent Structures:		
8.1	Habitations / Village	: There are no habitations within a radius of 300m.
8.2	Power lines (HT/LT)	: There is no Power line (HT/LT) passing within a radius of 50m.
8.3	Water bodies (River, Pond, Lake, Odai, Channel etc)	: There is tank situated on east and southern side of the area and is 80m and 340m 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-32) Thindivanam – Thoothukudi is about 7.8km on southwestern side of the area. The State Highway (SH-134) Vellemedupettai – Marakkanam is about 1.2Km on southern 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 10Kms.
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	4 No.
3.	Unskilled	Labours	15Nos
Total =			35Nos

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 Kilarungunam village which is about 0.5Km on western side of the area.

b.	Sanitary facilities	:	Semi-permanent latrines & urinals shall be maintained at convenient places for use of labourers 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 10.5Km (west) in Tindivanam 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. 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.



PART - B

10.0 Environmental Management Plan:

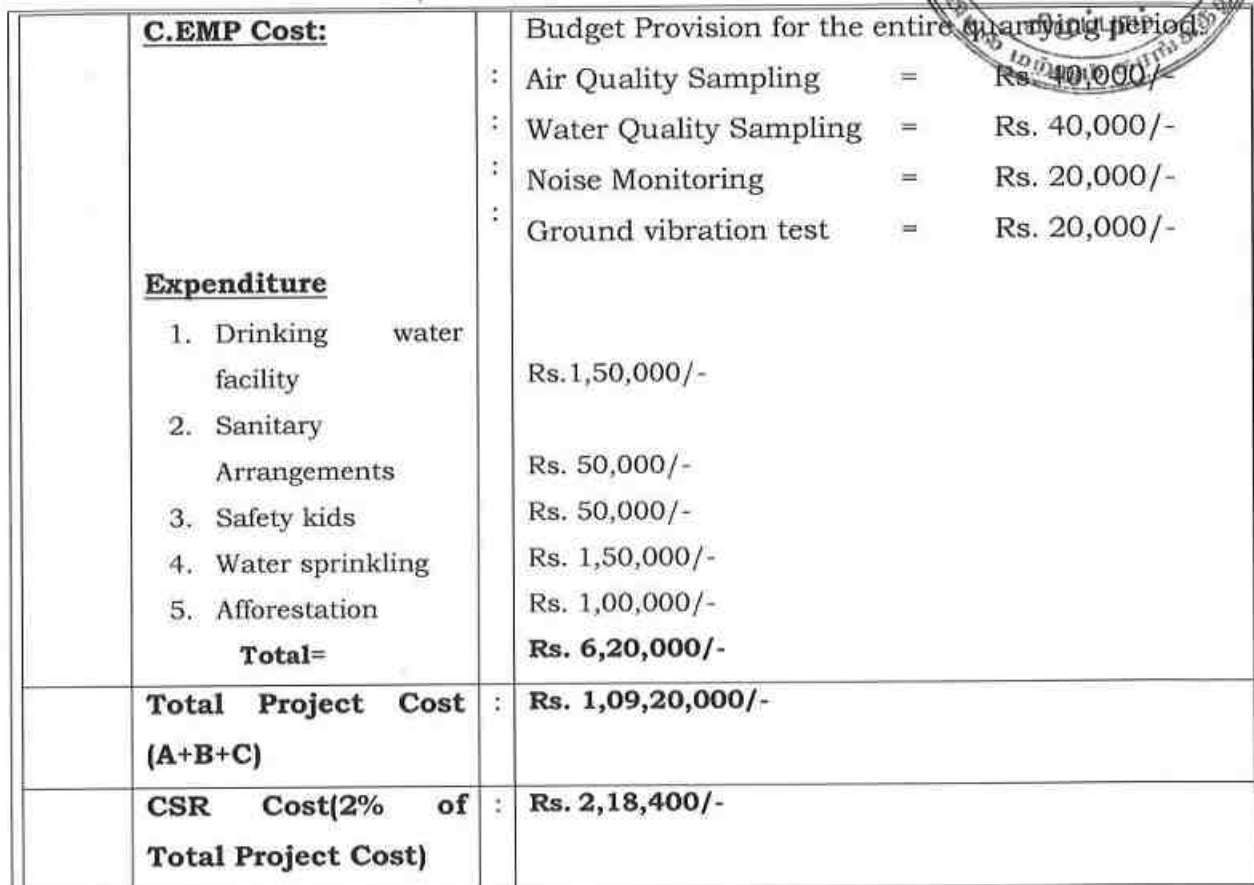
10.1	Existing Land Use Pattern	:	1. The area is exhibits almost plain topography covered by Gravel formation. 2. Quarrying operation is proposed up to a depth of 37m (below ground level) for the proposed mining plan period. 3. Fluctuation of Water table in this area is in between 65m and 62m during a year. 4. This region receives the average annual rainfall of 800mm to 900mm. The surrounding area is practiced by the seasonal cultivation. The existing land use pattern is given as under. Table No-5 <table><tr><th>Sl. No.</th><th>Land Use</th><th>Present Area (Ha)</th><th>Area in use during the quarrying period (Ha)</th></tr><tr><td>1.</td><td>Quarrying Pit</td><td>Nil</td><td>2.18.5</td></tr><tr><td>2.</td><td>Infrastructure</td><td>Nil</td><td>0.01.0</td></tr><tr><td>3.</td><td>Roads</td><td>Nil</td><td>0.01.0</td></tr><tr><td>4.</td><td>Green Belt</td><td>Nil</td><td>0.79.5</td></tr><tr><td>5.</td><td>Unutilized</td><td>3.00.0</td><td>Nil</td></tr><tr><td></td><td>Total =</td><td>3.00.0</td><td>3.00.0</td></tr></table>	Sl. No.	Land Use	Present Area (Ha)	Area in use during the quarrying period (Ha)	1.	Quarrying Pit	Nil	2.18.5	2.	Infrastructure	Nil	0.01.0	3.	Roads	Nil	0.01.0	4.	Green Belt	Nil	0.79.5	5.	Unutilized	3.00.0	Nil		Total =	3.00.0	3.00.0
Sl. No.	Land Use	Present Area (Ha)	Area in use during the quarrying period (Ha)																												
1.	Quarrying Pit	Nil	2.18.5																												
2.	Infrastructure	Nil	0.01.0																												
3.	Roads	Nil	0.01.0																												
4.	Green Belt	Nil	0.79.5																												
5.	Unutilized	3.00.0	Nil																												
	Total =	3.00.0	3.00.0																												
10.2	Water Regime	:	Water table in this area is noticed at a depth of 65m and presently, in the proposed mining plan only 37m (below ground level) and 47m 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. This District receives rain both in south west and north east monsoon. 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.																												



10.5	Human Settlement	:	The nearest habitations with the population is given as under.
Table No-6			
S. No	Name of the Village	Approximate distance & Direction from lease applied area	Approximate population
1.	Kunnappakam	0.8km - NE	400
2.	Senalur	1.1km - NW	300
3.	Vellakulam	1.2km - SE	800
4.	Nallalam	1.4km - SW	700
10.6	Plan for Air, Dust Suppression	:	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.
10.7	Plan for Noise Control	:	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.
10.8	Environmental Impact Assessment Statement Describing Impact on mining on the next Five years	:	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.



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 37m (below ground level) and 47m 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 47m 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, 10m and 55m 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 7950 Sqm area is proposed to use under afforestation by planting 954nos 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. 18,00,000
	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. 21,00,000/-
	B. Operational Cost:		
	1. Machineries	:	Rs.80,00,000-
	2. Fencing cost	:	Rs. 2,00,000
	Total	:	Rs.82,00,000/-



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. Blasting will be carried out on limited scale. Mist Water spraying on haul road is proposed to prevent the dust propagation into the air.



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

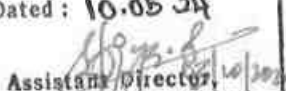

C.Natarajan, M.Sc., M.Phil.,
Qualified Person
C.NATARAJAN M.Sc., M.Phil.,
Qualified Person

Place : Salem

Date :

This mining plan is approved based on the instructions and guidelines issued by the Commissioner of Geology and mining, Chennai vide letter Rc.No.3868/LC/2012 dated 19-11-2012 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/G&M/16/2023

Dated : 10.05.24


Assistant Director,
Geology and Mining,
Viluppuram.

Dated : 03.10.24

- 3 OCT 2024

ந.க.எண். ஆ/புவி(ம)சுர/16/2023
நாள்: 10.05.2024.

உதவி இயக்குநர்,
புவியியல் மற்றும் சுரங்கத்துறை அலுவலகம்,
விழுப்புரம்.

குறிப்பாணை

பொருள்: கனிமங்களும் குவாரிகளும் - சிறுகனிமம் - சாதாரண கற்கள் மற்றும் கிராவல் - விழுப்புரம் மாவட்டம் - மரக்காணம் வட்டம் - சொக்கந்தாங்கல் கிராமம் - சர்வே எண்கள்: கிராம சர்வே எண்கள்: 5/1 - 0.96.0 ஏர்ஸ், 5/2 - 1.40.0 ஏர்ஸ் மற்றும் 4/2 - 0.64.0 ஏர்ஸ் ஆக மொத்தம் 3.00.0 ஹெக்டேர் பரப்பளவில் பத்தாண்டுகளுக்கு சாதாரண கற்கள் மற்றும் கிராவல் வெட்டியெடுக்க குவாரி குத்தகை அனுமதி வழங்க கோரி அரியலூர் மாவட்டத்தினைச் சேர்ந்த தி/ள். J.M. மினரல்ஸ் நிறுவனத்தினரிடமிருந்து விண்ணப்பம் வரப்பெற்றது - உரிமம் வழங்க பரிந்துரை செய்து அறிக்கை வரப்பெற்றது - தகுதியான நிலப்பரப்பாக கருதி ஏற்பளிக்கப்பட்ட சுரங்க திட்டம் மற்றும் சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணைய இசைவினை பெற்று சமர்ப்பிக்கக் கோருதல் - தொடர்பாக.

பார்வை: 1. தி/ள். J.M. மினரல்ஸ், எண்.P-H/M29, THHB, ஜெ.ஜெ. நகர், குறும்பஞ்சாவடி, அரியலூர் மாவட்டம் என்பவரது விண்ணப்பம் நாள்: 23.11.2022 வரப்பெற்ற நாள்: 07.02.2023

2. திண்டிவனம் சார் ஆட்சியர் அவர்களின் கடித எண். ந.க.அ3/3666/2023, நாள்: 12.09.2023.

3. விழுப்புரம் மாவட்ட புவியியல் மற்றும் சுரங்கத்துறை உதவி இயக்குநர் அவர்களின் புலத்தணிக்கை அறிக்கை நாள்: 07.05.2024

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அரியலூர் மாவட்டம், குறும்பஞ்சாவடி, ஜெ.ஜெ. நகர், எண்.P-H/M29, THHB என்ற முகவரியைச் சேர்ந்த தி/ள். J.M. மினரல்ஸ் என்ற நிறுவனத்தினர் விழுப்புரம் மாவட்டம், மரக்காணம் வட்டம், சொக்கந்தாங்கல் கிராம சர்வே எண்கள்: 5/1 - 0.96.0 ஏர்ஸ், 5/2 - 1.40.0 ஏர்ஸ் மற்றும் 4/2 - 0.64.0 ஏர்ஸ் ஆக மொத்தம் 3.00.0 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 காணும் விண்ணப்பம் சமர்ப்பித்துள்ளார்.

மேற்படி விண்ணப்பம் தொடர்பாக, திண்டிவனம் சார் ஆட்சியர் மற்றும் விழுப்புரம் மாவட்ட புவியியல் மற்றும் சுரங்கத்துறை, உதவி இயக்குநர் ஆகியோரின் புலத்தணிக்கை மற்றும் விசாரணை அறிக்கையின்பேரில், விழுப்புரம் மாவட்டம், மரக்காணம் வட்டம், சொக்கந்தாங்கல் கிராம சர்வே எண்கள்: 5/1 - 0.96.0 ஏர்ஸ், 5/2 - 1.40.0 ஏர்ஸ் மற்றும் 4/2 - 0.64.0 ஏர்ஸ் ஆக மொத்தம் 3.00.0 ஹெக்டேர் பரப்பளவில்



உள்ள பட்டா நிலத்தில் அரியலூர் மாவட்டத்தினைச் சேர்ந்த தி/ள். J.M. மினரல்ஸ் என்ற நிறுவனத்தினருக்கு பத்தாண்டுகளுக்கு சாதாரணக்கற்கள் மற்றும் கிராவல் குவாரி உரிமம் வழங்க கீழ்க்கண்ட நிபந்தனைகளுக்குட்பட்டு அனுமதி வழங்கலாம் என பரிந்துரை செய்துள்ளனர்.

- i. விண்ணப்ப புலன்களின் அருகில் உள்ள பட்டா நிலங்களுக்கு 7.5 மீட்டர் பாதுகாப்பு இடைவெளியும் மற்றும் அரசு புறம்போக்கு நிலங்களுக்கு 10 மீட்டர் பாதுகாப்பு இடைவெளியும் விட்டு குவாரிப்பணி மேற்கொள்ளப்பட வேண்டும்.
- ii. குவாரிப்பணி மேற்கொள்ளும் போது அருகிலுள்ள அரசு புறம்போக்கு மற்றும் பட்டா நிலங்களுக்கு எவ்வித இடையூறும் இல்லாமல் குவாரிப்பணி செய்ய வேண்டும்.
- iii. குவாரி குத்தகை வழங்கும் முன்பு விண்ணப்பித்துள்ள இடத்தினை DGPS சர்வே பணி மேற்கொண்டு அதன் அறிக்கையை சமர்ப்பிக்க வேண்டும்.
- iv. தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 1959 விதி-41ன்படி தகுதிவாய்ந்த நபரால் சுரங்க திட்டம் தயார் செய்து துணை இயக்குநர் அவர்களின் ஒப்புதல் பெறவேண்டும்.
- v. தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 1959 விதி-42ன்படி மாநில சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணையத்திடமிருந்து சுற்றுச்சூழல் சான்று பெற்று சமர்ப்பிக்கப்படவேண்டும்.

எனவே, திண்டிவனம் சார் ஆட்சியர் மற்றும் விழுப்புரம் மாவட்ட புவியியல் மற்றும் சுரங்கத்துறை, உதவி இயக்குநர் ஆகியோரின் பரிந்துரை அறிக்கையின் அடிப்படையில் விழுப்புரம் மாவட்டம், மரக்காணம் வட்டம், சொக்கந்தாங்கல் கிராம சர்வே எண்கள்: 5/1 - 0.96.0 ஏர்ஸ், 5/2 - 1.40.0 ஏர்ஸ் மற்றும் 4/2 - 0.64.0 ஏர்ஸ் ஆக மொத்தம் 3.00.0 ஹெக்டேர் பரப்பளவில் 1959-ம் வருட தமிழ்நாடு சிறுகனிம விதிகள், விதி எண்.19-ன்படி மேற்கண்ட நிபந்தனைகளுக்குட்பட்டு 10 (பத்து) வருட காலத்திற்கு தி/ள். J.M. மினரல்ஸ் என்ற நிறுவனத்தினருக்கு சாதாரணக்கற்கள் மற்றும் கிராவல் குவாரி உரிமம் வழங்குவதற்குரிய தகுதியான நிலப்பரப்பாக கருதப்படுகிறது.

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



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

- i. விண்ணப்ப புலன்களின் அருகில் உள்ள பட்டா நிலங்களுக்கு 7.5 மீட்டர் பாதுகாப்பு இடைவெளியும் மற்றும் அரசு புறம்போக்கு நிலங்களுக்கு 10 மீட்டர் பாதுகாப்பு இடைவெளியும் விட்டு குவாரிப்பணி மேற்கொள்ளப்பட வேண்டும்.
- ii. குவாரிப்பணி மேற்கொள்ளும் போது அருகிலுள்ள அரசு புறம்போக்கு மற்றும் பட்டா நிலங்களுக்கு எவ்வித இடையூறும் இல்லாமல் குவாரிப்பணி செய்ய வேண்டும்.
- iii. குவாரி குத்தகை வழங்கும் முன்பு விண்ணப்பித்துள்ள இடத்தினை DGPS சர்வே பணி மேற்கொண்டு அதன் அறிக்கையை சமர்ப்பிக்க வேண்டும்.

10.5.24
உதவி இயக்குநர்,
புவியியல் மற்றும் சுரங்கத்துறை,
விழுப்புரம்.

பெறுநர்:-

தி/ள். J.M. மினரல்ஸ்,
எண்.P-H/M29, THHB,
ஜெ.ஜெ. நகர்,
குறும்பஞ்சாவடி,
அரியலூர் மாவட்டம் - 621 713.

நகல்:-

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

District : Viluppuram

Taluk : Marakkanam

Village : Chokkanthangal [158]

Survey No : 4

Area : Hect 02 Ares 3.00

Scale : 1 : 1978



3



V.NO.105.

AZHAKIYA PAKKAM

LEASE APPLIED AREA

296



Data Digitally Signed By
P BALAMURUGAN

Date of Issue: 02-10-2024 15:11:09

Survey and Settlement Department, Government of TamilNadu

270 fv.5

District : Viluppuram

Taluk : Marakkanam

Village : Chokkanthangal [158]



Survey No : 5

Area : Hect 03 Ares 20.00

Scale : 1 : 2000



4



V.NO.105
AZHAKIPPAKKAM

LEASE APPLIED AREA

Date of Issue: 02-10-2024 15:26:26

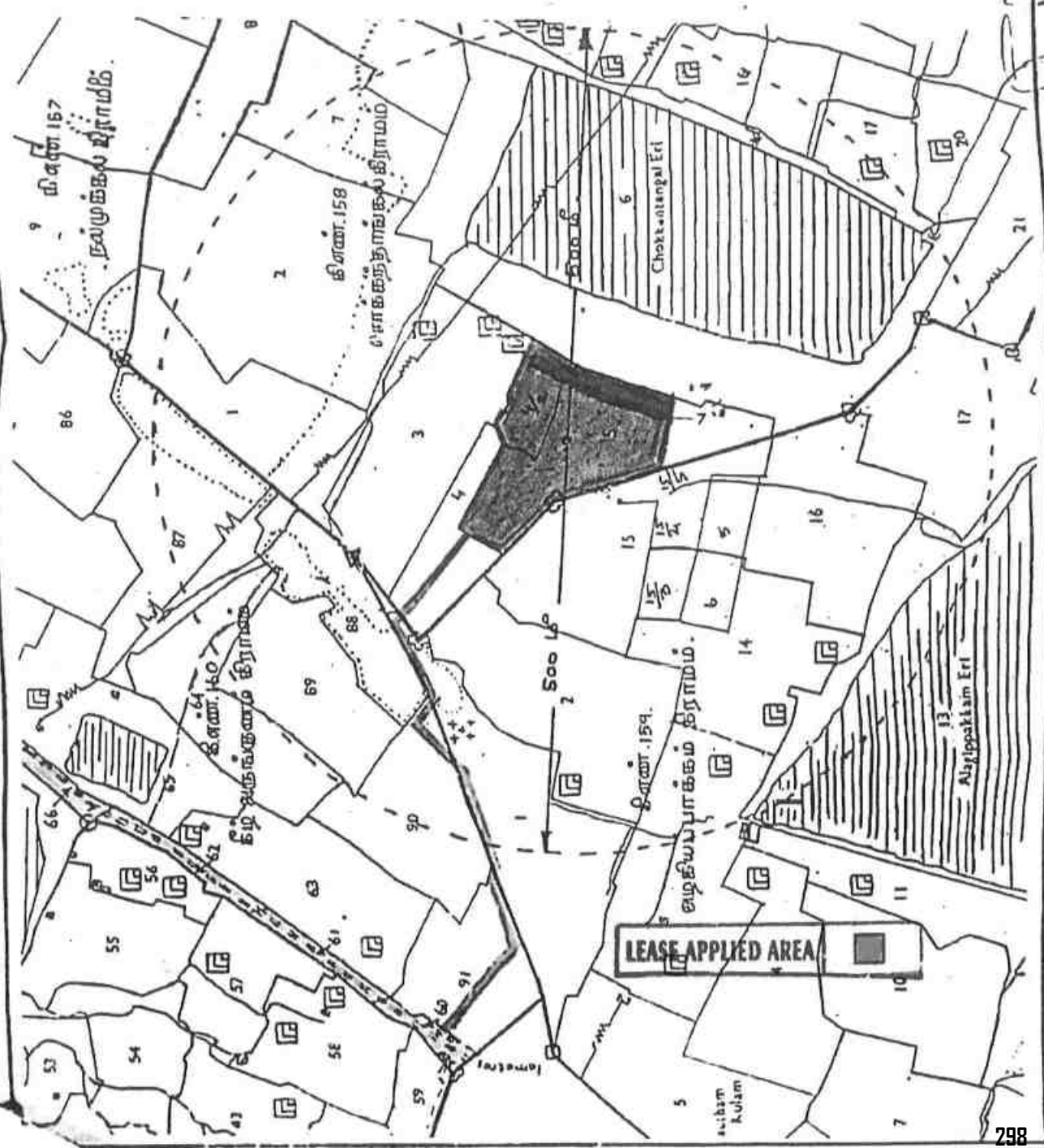
Survey and Settlement Department, Government of TamilNadu

Signed By Tahsildar
Name of approver : tahm
Date of Approval : 31-08-2021



கூட்டு உறுப்பியம் (தொகுதி நிரப்பல்)
அபிவிருத்தி
கட்டி அமைக்கப்படும்

மாவட்டம் : விழுப்புரம்
வட்டம் : மருக்காணி



உபத்தேசம் To கனகசுந்தர் குமார்
பாண்டி கனகசுந்தர் பதிவு.

சுமார் 157
தமிழகம் மற்றும் திருவள்ளூர்
மாநிலங்களில் கனகசுந்தர் குமார்
அமைந்திருக்கும் பகுதி.

புள்ளி	புள்ளி	புள்ளி
1.	4/2	0.64.0
2.	5/1	0.96.0
3.	5/2	0.96.0
4.	5/2	0.96.0
5.	5/2	0.96.0

கனகசுந்தர் குமார்
பாண்டி கனகசுந்தர் பதிவு.

புள்ளி	புள்ளி	புள்ளி
1.	4/2	0.64.0
2.	5/1	0.96.0
3.	5/2	0.96.0
4.	5/2	0.96.0
5.	5/2	0.96.0

சுமார் 157
தமிழகம் மற்றும் திருவள்ளூர்
மாநிலங்களில் கனகசுந்தர் குமார்
அமைந்திருக்கும் பகுதி.



தமிழக அரசு

வருவாய்த் துறை

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

மாவட்டம் : விழுப்புரம்

வட்டம் : மரக்காணம்

வருவாய் கிராமம் : சொக்கந்தாங்கல்

பட்டா எண் : 302

உரிமையாளர்கள் பெயர்

1. சிவகாமி தந்தை ஜெயராமன்

புல எண்	உட்பிரிவு	புன்செய்		தன்செய்		மற்றவை		குறிப்புகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	
4	1C	0 - 7.50	0.20	--	--	--	--	D-2290/13--- -- 08-04-2003
4	2	0 - 64.00	1.76	--	--	--	--	D-2290/13--- -- 08-04-2003
5	1	0 - 96.00	2.64	--	--	--	--	D-2290/13--- -- 08-04-2003
		1 - 67.50	4.60					

குறிப்பு 2 :



- மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 07/11/158/00302 / 100835 என்ற குறிப்பு எண்ணை உள்ளிடு செய்து உறுதி செய்துகொள்ளவும்.
- இத் தகவல்கள் 24-11-2022 ஆன்று 09:55:40 AM நேரத்தில் அச்சடிக்கப்பட்டது.
- கைப்பேசி கேமராவின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்



தமிழக அரசு

வருவாய்த் துறை

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

வட்டம் : மரக்காணம்

பட்டா எண் : 309

மாவட்டம் : விழுப்புரம்

வருவாய் கிராமம் : சொக்கத்தாங்கல்

உரிமையாளர்கள் பெயர்

P.S.ஜெயராமன்

1. சிவசாமி மூப்பனார்

தந்தை

புல எண்	உட்பிரிவு	புள்ளிசெய்		தள்ளுசெய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக்டர் - ஏர்	ரூ - பை	ஹெக்டர் - ஏர்	ரூ - பை	ஹெக்டர் - ஏர்	ரூ - பை	
5	2	1 - 40.00	3.85	--	--	--	--	2018/0103 /07/126889--- -- 25-09-2018
		1 - 40.00	3.85					

குறிப்பு2 :



1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விலாசங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை நாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 07/11/158/00309 / 100802 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 24-11-2022 அன்று 09:56:31 AM நேரத்தில் அச்சடிக்கப்பட்டது.
3. ஸ்கான்பேசி கேமராவின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்.



விழாப்படி

மரக்காணம்

7-9 OCT 2024

தமிழக அரசு					மாநில மக்களவை		மாநில மக்களவை		மாநில மக்களவை		மாநில மக்களவை		மாநில மக்களவை	
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மாநில மக்களவை					மாநில மக்களவை		மாநில மக்களவை		மாநில மக்களவை		மாநில மக்களவை		மாநில மக்களவை	
மாநில மக்களவை					மாநில மக்களவை		மாநில மக்களவை		மாநில மக்களவை		மாநில மக்களவை		மாநில மக்களவை	
மாநில மக்களவை					மாநில மக்களவை		மாநில மக்களவை		மாநில மக்களவை		மாநில மக்களவை		மாநில மக்களவை	
மாநில மக்களவை					மாநில மக்களவை		மாநில மக்களவை		மாநில மக்களவை		மாநில மக்களவை		மாநில மக்களவை	
மாநில மக்களவை					மாநில மக்களவை		மாநில மக்களவை							

/ 2 கண்ணாடி கல்

கிராம நிர்வாக அலுவலர்
கிழக்கு மாவட்டம்
மரக்காணம் வட்டம்
விழாப்படி மாவட்டம்

அ-பதிவேடு விவரங்கள்

மாவட்டம் : Viluppuram(07)

வட்டம் : Marakkanam(11)

இராணம் : Chokkanthangal(158)

1. புல எண்	4	9. மண் வயனமும் ரகமும்	8-4
2. உட்பிரிவு எண்	2	10. மண் தரம்	7
3. பழைய புல உட்பிரிவு எண்	5-7A1 7A2	11. தீர்வை (ரூ - ஹெ)	2.75
4. பகுதி	-	12. பரப்பு (ஹெக்டேர் - ஏர்)	0-64.00
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	1.76
6. நிலத்தின் வகை	பஞ்சை	14. பட்டா எண்	302
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	இல்லை	16. பெயர்	ஜெயராமன்

குறிப்பு 1:



மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://clip.tn.gov.in/clip> என்ற இணைய தளத்தில் உறுதி செய்துகொள்ளவும்.

1. ஆவண விவரங்களை மேலும் உறுதி செய்துகொள்ள வேண்டுமெனில் தாங்கள் வட்டாட்சியர் அலுவலகத்தை அணுகி உறுதிப் படுத்திக்கொள்ளவும்.

Further Certificate confirmation and details, you may approach Tahsildar concerned.

Print

ANNEXURE VI



அ-பதிவேடு விவரங்கள்

மாவட்டம் : Viluppuram(07)
வட்டம் : Marakkanam (11)
இராமம் : Chokkanthangal(158)

1. புல எண்	5	9. மண் வயனமும் ரகமும்	8-4
2. உட்பிரிவு எண்	1	10. மண் தரம்	7
3. பழைய புல உட்பிரிவு எண்	5-10	11. தீர்வை (ரூ - ஹெ)	2.75
4. பகுதி	-	12. பரப்பு (ஹெக்டேர் - ஏர்)	0-96.00
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	2.64
6. நிலத்தின் வகை	பஞ்சை	14. பட்டா எண்	302
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	இல்லை	16. பெயர்	ஜெயராமன்

குறிப்பு 1:



மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://clip.tn.gov.in/clip> என்ற இணைய தளத்தில் உறுதி செய்துகொள்ளவும்.

1. ஆவண விவரங்களை மேலும் உறுதி செய்துக்கொள்ள வேண்டுமெனில் தாங்கள் வட்டாட்சியர் அலுவலகத்தை அணுகி உறுதிப் படுத்திக்கொள்ளவும்.

Further Certificate confirmation and details, you may approach Tahsildar concerned.



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அ-பதிவேடு விவரங்கள்

மாவட்டம் : Viluppuram (07)

வட்டம் : Marakkanam (11)

இராமிம் : Chokkanthangal (158)

1. புல எண்	5	9. மண் வயனமும் ரகமும்	8-4
2. உட்பிரிவு எண்	2	10. மண் தரம்	7
3. பழைய புல உட்பிரிவு எண்	5-10	11. தீர்வை (ரூ - ஹெ)	2.75
4. பகுதி	-	12. பரப்பு (ஹெக்டேர் - ஏர்)	1-40.00
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	3.85
6. நிலத்தின் வகை	பஞ்சை	14. பட்டா எண்	309
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	இல்லை	16. பெயர்	P.S.ஜெயராமின்

குறிப்பு 1:



மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://clip.tn.gov.in/clip> என்ற இணைய தளத்தில் உறுதி செய்துகொள்ளவும்.

1. ஆவண விவரங்களை மேலும் உறுதி செய்துக்கொள்ள வேண்டுமெனில் தாங்கள் வட்டாட்சியர் அலுவலகத்தை அணுகி உறுதிப் படுத்திக்கொள்ளவும்.

Further Certificate confirmation and details, you may approach Tahsildar concerned.



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भारतीय गैर न्यायिक - 3 OCT 2024

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தமிழ்நாடு தமிழ்நாடு TAMIL NADU

நாள் 2-12-2023

செய்யுள்ள
சுமார்.S. ஜெயராஜன், M.A.
மு.வி. உரிமை எண்: 1/17
92, மார்த்தண்டி தெரு, அம்பலூர்,
தமிழ்நாடு. செல்: 8803044777

குத்தகை ஒதுக்கீடு

2023 ஆம் ஆண்டு பிப்ரவரி மாதம் 02 ஆம் தேதி அரியலூர் மாவட்டம், அரியலூர் நகரம், பெரியார் நகர், நெ.32, முதல் தெருவில் வசித்துவரும் சிலசாமி குமாரர் பி.எஸ்.ஜெயராஜன் ஆகிய நாள் விழுப்புரம் மாவட்டம், மரக்காணம் வட்டம், சொக்கந்தாங்கல் கிராம எல்லையில் புல எண். 5/1 ல் 0.96.0 ஏர்ஸ், 5/2 ல் 1.40.0 ஏர்ஸ், 4/2 ல் 0.64.0 ஏர்ஸ் ஆக ஹெக்டர்-3.00.0 ஏர்ஸ் நிலத்தை அரியலூர் மாவட்டம், குறும்பன்சாவடி, ஜெ.ஜெ.நகர், நெ.எம்29ஏ, தமிழ்நாடு வீட்டு வசதி வாரியத்தில் இயங்கிவரும் J.M.Minerals நிறுவனத்திற்கு குவாரி பணி செய்வதற்கு ஆண்டுக்கு ரூ.50,000 வீதம் 12 ஆண்டுகளுக்கு குத்தகைக்கு கொடுத்துள்ளேன்.

S. Jayaraj.



தமிழ்நாடு TAMILNADU
20038 P.S. ஜெயராஜன்
18.10.12 அரியலூர்

எஸ். அப்துல் அசைன் பாஷா
மு.தா.வி. சேடன் குட்டை
திண்டிவனம், தமிழ்நாடு.
L.No. 1215-2/ஆ1/2009

V 899530

கிரையம் ரூபாய் : 5,58,600/-
மதிப்பு ரூபாய் : 5,58,600/-

2012-ம் ஆண்டு அக்டோபர் மாதம் 18 - ம் தேதி, அரியலூர் மாவட்டம், அரியலூர் வட்டம், கஸ்பா அரியலூர், பெரியார் நகர் முதல் தெரு, 30 - ம் நெம்பர் வீட்டில் வசிக்கும், திரு. சிவசாமி மு.பனார் குமாரர் திரு. P.S. ஜெயராஜன் (Voter ID No. SSL 0239848) அவர்களுக்கு.

விழுப்புரம் மாவட்டம், திண்டிவனம் வட்டம், கீழ் அருங்குணம் கிராமத்தில் வசிக்கும், லேட். வைத்திரேட்டியார் குமாரர் திரு. V. குருசாமி (கு.அ.எண். 07/G/0410256) -1, மேற்படி முகவரியில் வசிக்கும், மேற்படி V. குருசாமி குமாரத்தியும், சீனுவாசன் மனைவியுமான திருமதி. சத்யபாமா (கு.அ.எண். 07/G/0410256) -2, மேற்படி முகவரியில் வசிக்கும், மேற்படி V. குருசாமி குமாரத்தியும், சங்கர் மனைவியுமான திருமதி. வசந்தபிரியா (கு.அ.எண். 07/G/0410256) -3, ஆகிய நாங்கள் மூவரும் சேர்ந்து எழுதிக் கொடுத்த சுத்த விக்கிரையப் பத்திரம்.

எழுதிக் கொடுப்பவர்கள்

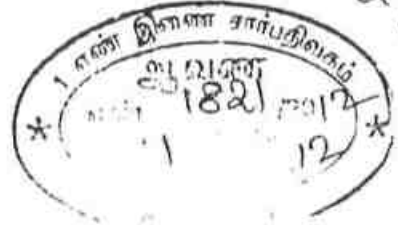
• V. [Signature]

• S Sathya bama

• a. vasanthi priya

எழுதிவாங்குபவர்

[Signature]





தமிழ்நாடு TAMILNADU
20039
18.10.12

P. S. சாதுராண்
அரியலூர்

எஸ். அப்துல் அசேன் பாஷா
மு.தா.வி. சேடன் குட்டை
திண்டிவனம், தமிழ்நாடு.
L.No. 1215-2/ஆ1/2009

V 899532

- 2 -

என்னவென்றால், இதனடியில் வரும் சொத்து எங்களில் 1-வது நபர் 11.10.1973 - ல் பொது குடும்பத்தில் ஏற்படுத்திக் கொண்ட பாக அட்டவணைப்பத்திரம் மூலம் கிடைத்து அந்தப்பத்திரம் திண்டிவனம் சார்பதிவுகத்தில் 1 புத்தகம் 1973 -ம் வருடத்திய 1968 -ம் எண்ணாக பதிவு செய்யப்பட்ட ஆவணத்தில் எங்களில் 1-வது நபருக்கு E ஷெப்யூல் சொத்தாக கிடைத்த சொத்துக்களில் திண்டிவனம் வட்டம், சொக்கந்தாங்கல் கிராமத்தில், எங்களில் 1-வது நபர் பெயரில் 58 -ம் நெம்பர் பட்டாவாய் தாக்கலாகி அனுபவித்து வரும் சொத்தும், எங்களில் 1-வது நபர் 22.8.1985 - ல் திண்டிவனம் வட்டம், நல்முக்கல் கிராமத்தில் வசிக்கும், பச்சையப்ப ஆச்சாரி மனைவி மீனாட்சி அம்மாளிடம் சுயமாய் கிரையம் பெற்று அந்தப்பத்திரம் எண்டியூர் சார்பதிவுகத்தில் 1 புத்தகம் 17 தொகுதி, 285 முதல் 287 வரை பக்கங்களில் 1985 -ம் வருடத்திய 605 -ம் எண்ணாக பதிவு செய்யப்பட்ட ஆவணத்தில் கண்ட சொத்தை எங்களில் 1-வது நபர் பெயரில் சொக்கந்தாங்கல் கிராமத்தில், 46 -ம் நெம்பர் கூட்டுப்பட்டாவாய் தாக்கலாகி அனுபவித்து வரும் சொத்தும் சேர்த்து அதுமுதல் இதுநாள் வரையில்

எழுதிக் கொடுப்பவர்கள்

எழுதிவாங்குபவர்

V. Sathya

S. Sathya

S. Sathya

avapathi reya





தமிழ்நாடு தமிழ்நாடு TAMILNADU
 80040 P.B. மதுராண்
 18.10.12 அரியலூர்

எஸ். அப்துல் அசேன் பாஷா
 மு.தா.வி. சேடன் குட்டை
 திண்டிவனம், தமிழ்நாடு.
 L.No. 1215-2/ஆ1/2009

V 899533

- 3 -

எங்களில் 1-வது நபரின் கவாத்தினத்தில் வந்து எங்களில் 1-வது நபர் சர்க்கார் தீர்வையும் செலுத்தி சர்வ சுதந்திரமாய் ஆண்டனுபவித்து வரும் இதனடியில் கண்ட எங்களுக்கு சொந்தமான சொத்துக்களை நாங்கள் தங்கள் பெயருக்கு சுத்த விக்கிரையம் செய்து கொடுத்து விட்டு கீழ்க்கண்ட சாட்சிகளின் முன்னிலையில் எங்கள் குடும்ப செலவிற்காக நாளது தேதியில் நாங்கள் தங்களிடத்தில் பெற்றுக் கொண்ட ரொக்கம் ரூபாய். 5,58,600/- இந்த ரூபாய். ஐந்து இலட்சத்து ஐம்பத்தி எட்டாயிரத்து அறநூறும் நாங்கள் பெற்றுக் கொண்ட படியால் இன்று முதல் இதனடியில் வரும் சொத்துக்களை தாங்களே கைப்பற்றி தானாதி வினிமய விற்கிரையங்களுக்கு உரித்தாய். புத்திர. பெளத்திர பாரம்பரியமாய் சர்வசுதந்திர பாத்தியத்துடன் ஆண்டனுபவித்துக் கொள்ள வேண்டியது.

சொத்து விபரத்தில் விவரிக்கப்பட்டுள்ள சொத்துக்களின் மீது எந்தவித கலனும் இல்லை அப்படி கலன் என்று தெரிய வந்து அதனால் தாங்கள் கிரையம் வாங்கும் சொத்துக்களுக்கு நஷ்டம் உண்டானால் அதனை நாங்களே முன்னின்று இதர சொத்துக்களைக் கொண்டு வில்லங்கத்தை தீர்த்துக்கொடுக்க சம்மதிக்கிறோம்.

எழுதிக் கொடுப்பவர்கள்

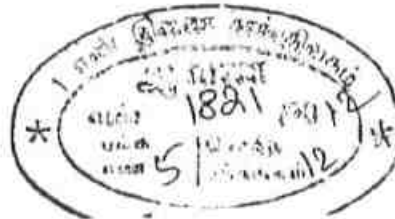
எழுதிவாங்குபவர்

V. Sathya

S. Sathya

S. Sathya bama

S. Sathya bama





தமிழ்நாடு தமிழ்நாடு TAMILNADU
2004/18.10.12
பி.பி. வையராணா
அரியலூர்

எஸ். அப்துல் அசேன் பாஷா
மு.தா.வி. சேடன் குட்டை
திண்டிவனம், தமிழ்நாடு.
L.No. 1215-2/ஆ1/2009



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சொத்து விபரத்தில் கண்டுள்ள சொத்துக்களை நாங்கள் தற்போது எந்தவிதமான ஒத்தி. உயில்தாவா. போக்கியம், குலாரிடல், அடமானம், முன்கிரைய ஒப்பந்தம், செட்டில்மெண்ட் கோர்ட் அட்டாசம்மெண்ட் போன்ற எந்த வித கலன்களும் உட்படுத்த வில்லை என்று உறுதிசெய்கிறோம்.

சொத்துவிபரத்தில் விவரிக்கப்பட்டுள்ள சொத்துகளுக்கு செலுத்த வேண்டிய வரி வகையறாக்கள் அனைத்தும் இன்றைய தேதிவரையில் பாக்கிஇல்லாமல் செலுத்தி விட்டோம், இனிமேல் கிரையம் பெறும் சொத்துக்களுக்குரிய வரி வகையறாக்களை தாங்களே தங்கள் பெயரில் செலுத்திக் கொள்ள வேண்டியது.

சொத்து விபரத்தில் விவரிக்கப்பட்டுள்ள சொத்தின் சுவாதீனத்தையும் அதற்குண்டான அனைத்து தாஸ்தாவேஜிக் நகலையும், அசலையும் இன்று தேதியில் தங்கள் வசம் ஒப்படைத்து விட்டோம்.

எழுதிக் கொடுப்பவர்கள்

எழுதிவாங்குபவர்

V. Sathya

Rajam

S.Sathya kuma

ce.vasanthi reniya



- 3 OCT 2024

भारतीय गैर न्यायिक INDIA NON JUDICIAL

एक हजार रुपये

रु.1000

ONE THOUSAND RUPEES

Rs.1000

INDIA

தமிழ்நாடு தமிழ்நாடு TAMILNADU
20042 P.S. அபயராஜன்
18.10.12 அரியலூர்

எஸ். அப்துல் அசேன் பாஷா
மு.தா.வி. சேடன் குட்டை
திண்டிவனம், தமிழ்நாடு.
L.No. 1215-2/ஆ1/2009

V 899535

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மேற்படி சொத்துவிபரத்தில் விவரிக்கப்பட்டுள்ள சொத்துக்களின் பட்டாவின் பதிவையும், மின் இணைப்பு எண்ணையும் இன்றே தங்கள் பெயருக்கு பெயர் மாற்றம் செய்து கொள்ள சம்மதிக்கிறோம். இக்கிரைய பத்திரத்தில் ஏதாவது சேர்த்தலோ, நீக்கலோ அல்லது திருத்தலோ நேரிடின் நாங்கள் தங்களிடமிருந்து எவ்வித பிரதிபலனும் எதிர்பார்க்காமல் தங்கள் செலவில் அதனை சரிசெய்து கொடுக்க சம்மதிக்கிறோம்.

இந்த கிரைய சொத்துக்களில் எங்களைத் தவிர வேறு யாருக்கும் எந்தவிதமான பாத்தியமோ, பின்தொடர்ச்சியோ இல்லை என்று நீங்கள் நம்பும்படி நாங்கள் உறுதிசெய்கிறோம்.

இந்தப்படி நாங்கள் அனைவரும் சேர்ந்து சம்மதித்து எழுதிக் கொடுத்த சுத்த விக்கிரையப் பத்திரம்.

எழுதிக் கொடுப்பவர்கள்

எழுதிவாங்குபவர்

V. Sathya Bama

S. Sathya Bama

S. Sathya Bama

Dr. Vasanthi Raviya



- 3 OCT 2024

भारतीय गैर न्यायिक INDIA NON JUDICIAL

एक हजार रुपये

रु.1000

ONE THOUSAND RUPEES

Rs.1000

INDIA

தமிழ்நாடு தமிழ்நாடு TAMILNADU

20043
18.10.12

PB.0mயராண்
சரியுமா

எஸ்.அப்துல் அசேன் பாஷா
மு.தா.வி. சேடன் குட்டை
திண்டிவனம், தமிழ்நாடு.
L.No. 1215-2/ஆ1/2009

V 899536

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சொத்து நிபரம்

திண்டிவனம் ரிடி. திண்டிவனம் 1 எண் இணை சார்பதிவகம், திண்டிவனம் வட்டம், மரக்காணம் ஒன்றியத்தைச் சேர்ந்த கீழ்க்கண்ட பஞ்சாயத்து எல்லைக்குட்பட்ட சொக்கந்தாங்கல் கிராமத்தில், எங்கிலில் 1-வது நபரின் பெயரில் 58-ம் நெம்பர் பட்டாவாய் தாக்கலாகி அனுபவித்து வரும்.

புஞ்சை புது சர்வே எண். 5/1 - ஹெக்டேர் 0.96.0 ஏர்ஸ் பூராவும். ஏக்கர் 2.37 செண்டு. இதற்கு பழைய சர்வே எண். 5/10 - ஏக்கர் 7.50 செண்டில் சம்மந்தம். மேற்படி சர்வேயில் உள்ள கிணறும், மேற்படி கிணற்றில் பொருத்தப்பட்டுள்ள 3 எச்.பி மின் மோட்டார் பம்பு செட், மின் இணைப்பு எண். 48-ம் அதன் பெயரிட தொகை உள்பட

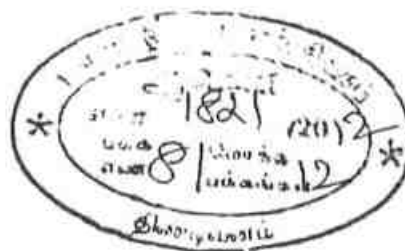
புஞ்சை புது சர்வே எண். 4/2 - 0.64.0 ஏர்சில் சம்மந்தப்பட்ட பழைய சர்வே எண். 5/7 ஏ2 - 1.19 செண்டு 5/8 - 0.11 செண்டு, 5/9 - 0.07 செண்டு, ஆக 1.37 செண்டு இதற்கு பட்டா எண். 46 - ஆகும். எழுதிக் கொடுப்பவர்கள்

எழுதவாங்குபவர்

V. Sathya bama

S. Sathya bama

av. v. sathya bama





தமிழ்நாடு தமிழ்நாடு TAMILNADU
20044 P.B. வசூலாண்
18.10.12 அலுவலர்

எஸ். அப்துல் அசேன் பாஷா
மு.தா.வி. சேடன் குட்டை
திண்டிவனம், தமிழ்நாடு.
L.No. 1215-2/ஆ1/2009

V 899531

- 7 -

ஆக மொத்தம் 3.74 செண்டு புஞ்சை நிலம், கிணர், மின் மோட்டார் சேர்த்து கிரையம்
கொடுக்கப்பட்டது. மேற்படி சொத்தின் தற்கால சந்தை மதிப்பு ரூபாய். 5.58,600/-
எழுதிவாங்குபவர்
எழுதிக் கொடுப்பவர்கள்

V. Sathya bama

S. Sathya bama

Dr. Varanthy Prava



சாட்சிகள்:

A. Sathya bama & M. Adhimoolam, Periyar Nagar, Arayal.

S. Sathya bama & P. Sathya bama Arayal

கணினியில் தட்டச்சு செய்தவர்:
ஆவணம் வரைவு செய்தவர்:

S. Sathya bama

D. சுரேஷ், திண்டிவனம்.
M. காசிநாதன், கீழ்சிவிரி

மாநில உரிமம் எண். A82/TDM/2000

9

SECTION COMMISSIONER OF POLICE
IDENTITY CARD
15/10/2024

சென்னை
தென்மேல்
தென்மேல்
தென்மேல்
தென்மேல்

Signature





தமிழ்நாடு தமில்நாடு TAMILNADU

CR 428533

100/- J.M. MINERALS
18.11.2022 ARIYALUR

S. ஜெயராஜன், MA.
முத்திரைத்தாது அறிபணையாளர்.
உரிமம் எண்: 1/97 - 31-1-97
95, மாரக்கொடுதேடு அரியலூர்.
தமிழ்நாடு. செல்: 9496604666

DEED OF PARTNERSHIP

This Deed of Partnership Made the 23rd day of November 2022 between:

1. SRI. P.S. JAYARAMAN, AGED ABOUT 51
S/O. SIVASAMY,
NO: 32, PERIYAR NAGAR FIRST CROSS,
ARIYALUR - 621 704.(of the First Part)

2. SMT. J. SUJATHA, AGED ABOUT 37
W/O. JAYARAMAN,
NO: 32, PERIYAR NAGAR FIRST CROSS,
ARIYALUR - 621 704.(of the Second Part)

(Each of them hereinafter called 'PARTNER')

18 J. Jayaraman

2) J. Sujatha



தமிழ்நாடு தமில்நாடு TAMILNADU

CR 428534

உ
நாள் 18/11/2022

J.M MINERALS
ARİYALUR.

S. ஜெயராஜன், MA.
முத்திரைத்தாள் கிற்பனையாளர்.
உரிமை எண் : 1/97 - 31-1-97
95, மனாக்கொடைத் தெரு, அரியலூர்.
தமிழ்நாடு. சென் : 9466204828



WHEREAS the said First and Second Part of this Deed have agreed to enter into a Partnership to Carry on the Business of the Sale of Blue Metal, Rough Stone Quarry and Readymix Concrete and other related products etc.in the name and style of "J.M MINERALS".

WHEREAS the Parties hereto desire that the terms and Conditions so agreed upon between them to be reduce into writing in order to avoid any dispute in future.

WHEREAS the Parties hereto desire that the terms and Conditions so agreed upon between them to be reduce into writing in order to avoid any dispute in future.

18/11/2022

2) J. Sujatha



தமிழ்நாடு தமிலநாடு TAMILNADU

CR 428535

100/-
18.11.2022

J.M MINERALS
ARIYALUR

S. ஜெயராமன், MA.
முத்திரைத்தாள் விதிகையையாள்
உரிமம் எண்: 1/97 - 31-1-97
93.மார்க்கெட்டெரு. அரியலூர்
தமிழ்நாடு. சென்: 9422004222

NOW THEREFORE THIS DEED WITNESSETH AS UNDER:

1. The Name and Style of the Partnership shall be " J.M MINERALS ". and/or any other name or names as the Partners may decide from time to time.
2. The Principal Place of the Partnership shall for the Present be situated at NO: PII/M29, TNHB, J.J.NAGAR, KURUMBANCHAVADI, ARIYALUR-621704 and also the Branch office situated at S.F.NO: 4/1, CHOKATHANGAL VILLAGE, BRAHMADESAM POST, MARAKANAM TALUK, VIZHUPUAM DISTRICT - 604301 and such other place or places which the Partners may decide from time to time.
3. The Partnership shall be deemed to commence on 23.11.2022 and the duration of the Partnership Business shall be determinable 'AT WILL'.
4. The object of the Partnership shall be that of to carry on the Business of Sale of Blue Metal, Rough Stone Quarry and Readymix Concrete or any other related Business as the Partners may decide from time to time.

1/8 J. Jayarajan

2) J. Jayarajan



5. The Capital required for the Business of the Partnership shall be contributed by the partners and credited to their Capital Account. Additional sums needed for the business of the partnership, if contributed by the partners, the same shall be credited to a separate current account of such person. Contributions towards both capital and current accounts shall be entitled to interest at 12% and/or at such lower rate or rates including NIL rate as may from time to time be mutually agreed to between the partners.
6. That the Management of the Business of the Partnership shall be vest with the both Partners and they shall have the following Powers to look after the Business of the Firm:
 - (a) To Conducts all Tenders and attend all the correspondence and dealings of the firms with those dealing with firm and with all the Government, semi-Government, Firms, Private Companies and individuals.
 - (b). To appoint, dismiss the workers and fix the pay and allowances of the workers on behalf of the Firm.
 - (c). To appear and represent the firm in a court of Law, before any Officers of the State, Central Government, Local Authorities and before any other Offices or Institutions.
 - (d). To Receive Notices, Letters, Moneyorders, Parcels, Telegrams addressed to the firm either Registered or otherwise.
 - (e). To Borrow money from any person, Firm, Company, Bank or any Financial Institution, with or without security and for that, to sign, seal and deliver such deeds, and documents as may be necessary.
7. Any kind of Bank Account or Accounts may be opened in the Name of the Firm with any Bank or Banks and shall be operated either by the Managing Partners SRI. P.S. JAYARAMAN or SMT. J. SUJATHA [EorS].
8. The firm shall maintain proper books of Accounts for all its Transaction and Both the Partners have the right to access the books during the usual working hours of Partnership Business.
9. Both Partners shall be entitled to draw a sum of Rs.20,000/- each as monthly Salary and two Months Salary as Bonus or it shall be computed in the manner laid down in Explanation 3 to Section 40(b) of the Income Tax Act, 1961 or any other applicable Provision as may be in force in the Income Tax Assessment of the Partnership for the relevant accounting year.

1/8 J. Jayaraman

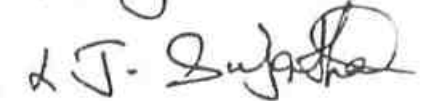
2) J. Sujatha



10. That the Net Profit or Loss arrived at after charging all expenses and out going incidental incurred for the purposes of the business of the firm, remuneration to partners and Interest to Partners shall be divided amongst the both Partners equally.
11. If any one of the partner dies, retires or dissolution of the Firm the goodwill of the firm shall be treated as Nil.
12. No new Partner or Partners shall be admitted to Firm without the Mutual Consent of the Partners.
13. If any Partner shall elect to retire from the Partnership he may give notice thereof in writing to the other Partner before three Months and after getting necessary documents for retirement, settle the accounts within three Months.
14. The Account of the Partnership Firm shall be prepared annually and for the purposes the Accounting Year shall close on the 31-st day of March every Year.
15. The above such clauses can be amended, altered, New clauses can be inserted, replacing the new clauses in the place of old one with the mutual consent of the partners and put the same in a Codicil and such Codicil shall be treated as part and parcel of the Original Partnership Instrument.
16. That for all other matters not specifically mentioned in the Partnership Deed the Provisions of the "Indian Partnership Act, 1932" shall apply.

In witness whereof the Parties above mentioned have set their hands to this agreement on the 23rd day of November, Two thousand Twenty Two at ARIYALUR.

SIGNATURE

1. 
2. 

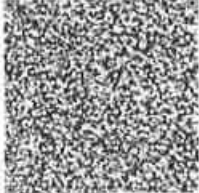
WITNESS:

1.  S. THIRUMURAN
S/o R. Singaravel, Sathamangalam.
ARIYALUR (DT)
2.  G. KANNADHASAN S/O R. GANESAN, KARUGUR (P.O), ARIYALUR DT

ANNEXURE

1x



 இந்திய அரசாங்கம் Government of India  # 956656342438 S. Jayaraman பிறப்பு நாள்/DOB: 19/07/1971 பால/MALE  9566 5634 2438 VID: 9173 5118 1097 5776 எனது அரசு எனது அமைப்புகள்	 இந்திய ஒப்பீட்டு அமைப்பு Unique Identification Authority of India முகவரி: S/O. Jayaraman, 32, PERIYAR NAGAR 1st CROSS, ARYALUR, Ariyalur (North), Ariyalur, Tamil Nadu - 621713 Address: S/O. Jayaraman, 32, PERIYAR NAGAR 1st CROSS, ARYALUR, Ariyalur (North), Ariyalur, Tamil Nadu - 621713  9566 5634 2438 VID: 9173 5118 1097 5776 எனது அரசு எனது அமைப்புகள்
---	--



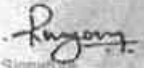
आयकर विभाग
INCOME TAX DEPARTMENT

भारत सरकार
GOVT. OF INDIA

S JAYARAMAN
SIVASAMY

19/07/1971

Pan Card Number
AGRPJ9114D


Signature



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

यह कार्ड यदि खोया या पाया गया, कृपया सूचित करें / लौटाएं :
आयकर पैन सेवा यूनिट, UTTSI
प्लॉट नं. 3, सेक्टर 11, सीडी बी बेलपुर,
नवी मुंबई - 400 614.

CHETTINAD CEMENT CORPORATION

ANNEXURE X

(Regd. Office: RANI SEETHAI HALL BUILDING IV & V FLOORS, 603, ANNA SALAI, MADRAS-600006.)
WORKS OFFICE: PULIYUR.

21144
PHONE 22744 KARUR
21745
TELE: GRAM "CEMENT" Puliur C.F.
Telex: 0456-215.
STD Code: 04324



T.RAJU., B.E.,
MINES MANAGER & DY. GENERAL MANAGER.

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.

<u>Name of the Pit.</u>	<u>Average Raising/day.</u>
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.,

(Signature)

(T.RAJU).

Mines Manager & Dy. General Manager.



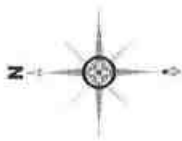
Faculty of Science

The Senate of the Annamalai University hereby makes known that B. 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.

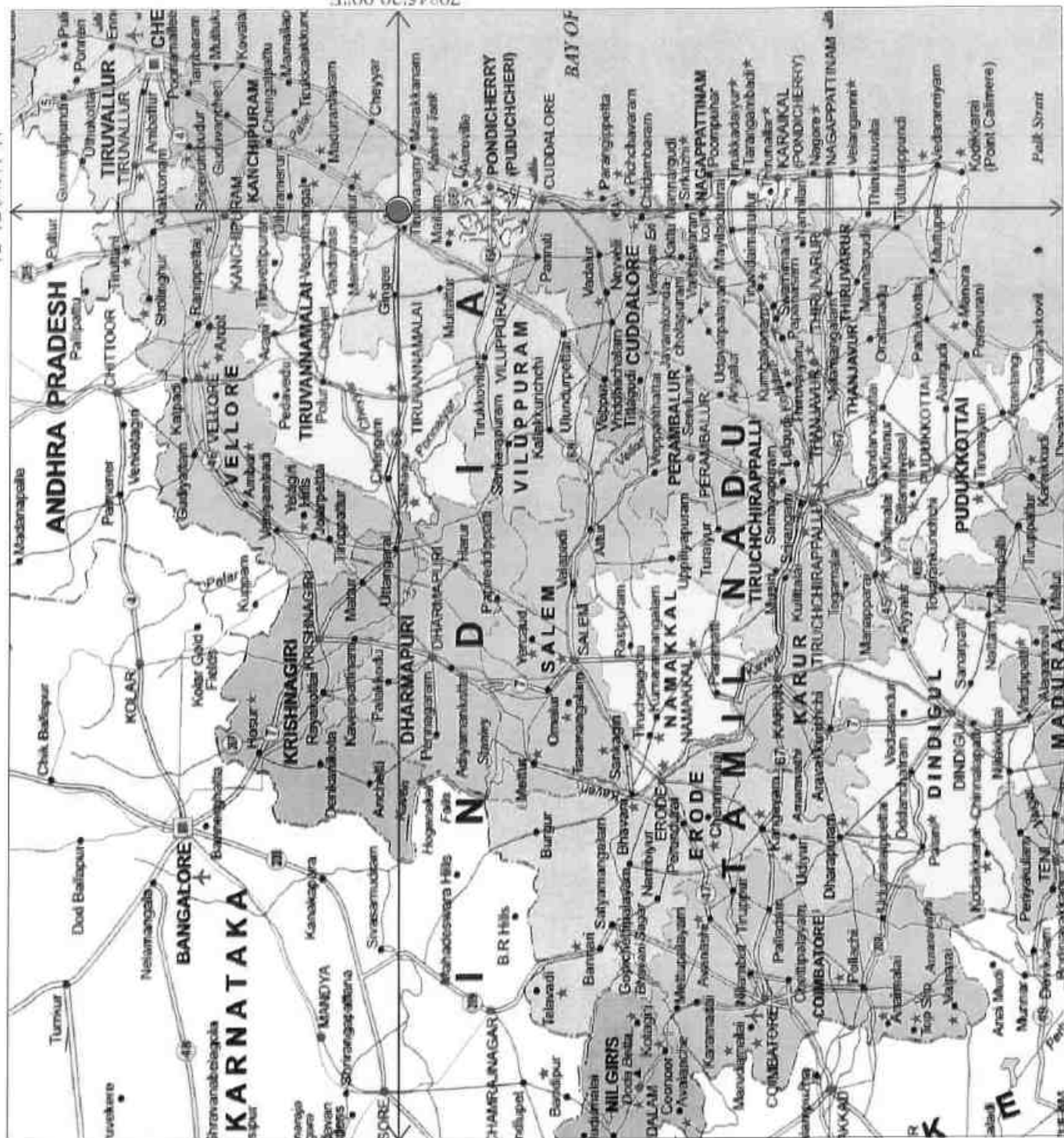
Given under the seal of the University.

Annamalainagar.

A. Chandrasekha



12°12'54.41"N



79°45'11.54"E

12°12'46.89"N

PLATE NO-I

DATE OF SURVEY:

APPLICANT:

TVLJ M MINERALS,

NO.P-II/M29, TNH8,

J.J.NAGAR,

KURUMBANCHAVADI,

ARIYALUR DISTRICT - 621 715.

QUARRY LEASE APPLIED AREA:

S.F.NO'S : 5/1, 5/2 & 4/2,

EXTENT : 3.00.0 HO,

VILLAGE : CHOKKANTHANGAL,

TALUK : MARAKKANAM,

DISTRICT : VILUPPURAM.

INDEX

Q. L. APPLIED AREA : ●

TOPO SHEET NO : 57 P/16

LATITUDE : 12°12'46.89"N TO 12°12'54.41"N

LONGITUDE : 79°45'11.54"E TO 79°45'20.00"E

LOCATION PLAN

TO SOLE

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 THE
GOVERNMENT

GOVERNMENT

12°12'46.89"N

C.NARAYANAN Phil.

QUALIFIED PERSON

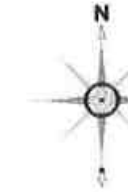


PLATE NO-IA
DATE OF SURVEY :

APPLICANT:
TVL J M MINERALS,
NO.P-II/M29, TNHB,
J.J.NAGAR,
KURUMBANCHAVADI,
ARIYALUR DISTRICT - 621 713



QUARRY LEASE APPLIED AREA.
S.F.NO'S : 5/1, 5/2 & 4/2,
EXTENT : 3.00.0 Ha,
VILLAGE : CHOKKANTHANGAL,
TALUK : MARAKKANAM,
DISTRICT : VILUPPURAM.

INDEX

TOPO SHEET NO : 57 P/ 16

LATITUDE : 12°12'46.89"N TO 12°12'54.41"N

LONGITUDE : 79°45'11.54"E TO 79°45'20.00"E

Q.L.APPLIED AREA	
7.5m & 10m SAFETY DISTANCE	
300M RADIUS	
500M RADIUS	
1KM RADIUS	
APPROACH ROAD	
PANCHAYAT ROAD	
BARREN LAND	
TREES	
SEASONAL AGRICULTURE	
HABITATIONS	
QUARRY PIT	
TANK	
CRUSHER PLANT	

LAND USE PATTERN

DESCRIPTION	AREA IN (%)
ROAD	03
TREES	12
BARREN LAND	20
AGRICUTURE LAND	30
HABITATIONS	10
WATER BODIES	15
CRUSHER PLANT	10

ENVIRONMENTAL PLAN

SCALE 1: 10,000

PREPARED BY :

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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

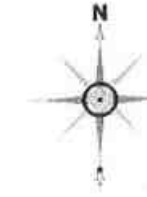


PLATE NO-IB

DATE OF SURVEY :

APPLICANT:

TVL J M MINERALS,
NO.P-II/M29, TNHB,
J.J.NAGAR,
KURUMBANCHAVADI,
ARIYALUR DISTRICT - 621 713.

QUARRY LEASE APPLIED AREA:

S.F.NO'S : 5/1, 5/2 & 4/2,
EXTENT : 3.00.0 Ha,
VILLAGE : CHOKKANTHANGAL,
TALUK : MARAKKANAM,
DISTRICT : VILUPPURAM.

INDEX

TOPO SHEET NO : 57 P/ 16

LATITUDE : 12°12'46.89"N TO 12°12'54.41"N

LONGITUDE : 79°45'11.54"E TO 79°45'20.00"E

Q.L.APPLIED AREA	☐
7.5m & 10m SAFETY DISTANCE	☐
300M RADIUS	☒
500M RADIUS	☒
1KM RADIUS	☒
APPROACH ROAD	☐
PANCHAYAT 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
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THE LEASE MAP AUTHENTICATED BY STATE
GOVERNMENT

C. NATARAJAN
C. NATARAJAN, M.Sc., M.Phil.,
QUALIFIED PERSON

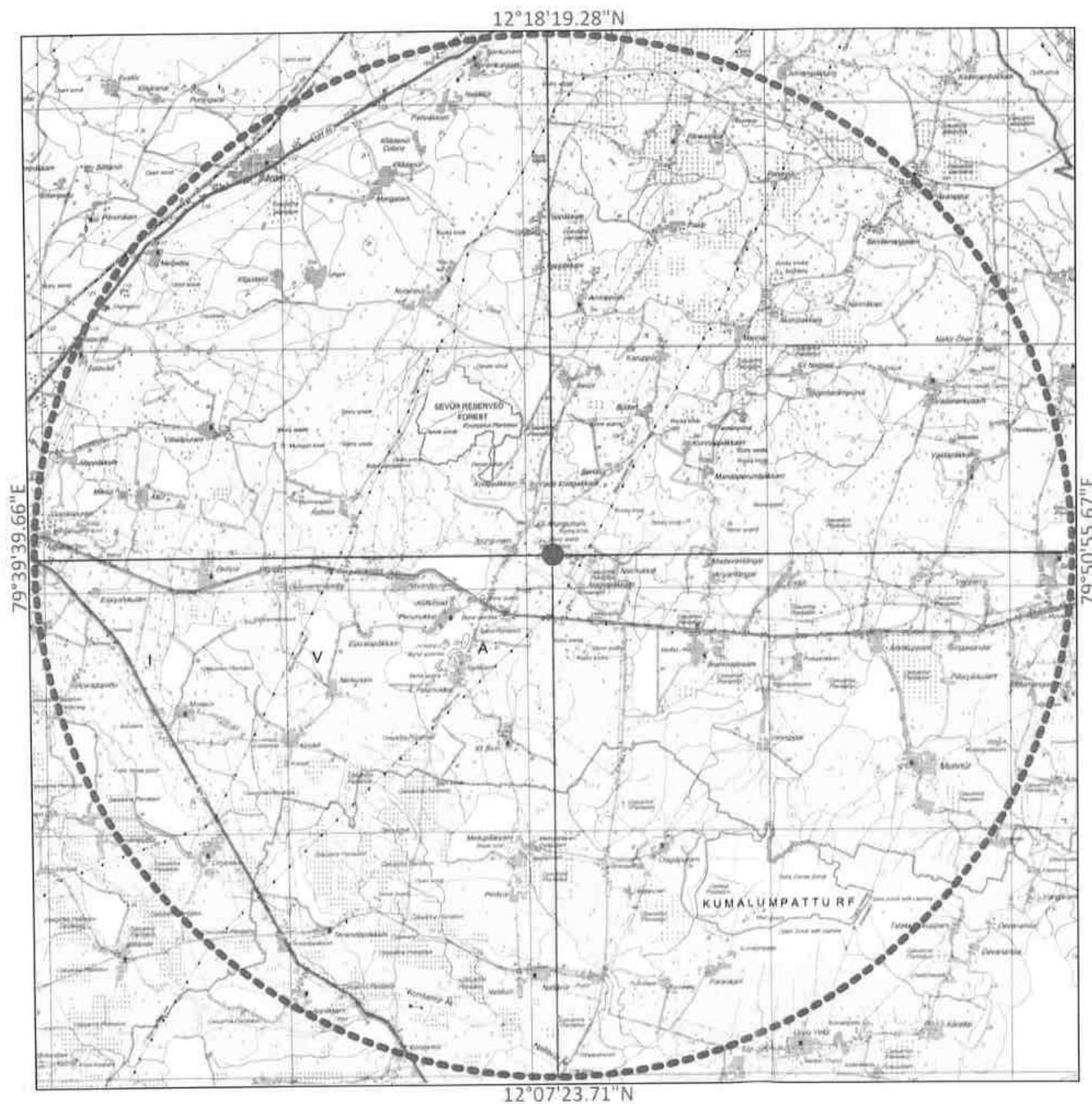


PLATE NO-IC
DATE OF SURVEY :

APPLICANT:
TVL/ M MINERALS,
NO.P-II/M29, TNHB,
J.J.NAGAR,
KURUMBANCHAVADI,
ARIYALUR DISTRICT - 621 713.

QUARRY LEASE APPLIED AREA:
S.F.NO'S : 5/1, 5/2 & 4/2,
EXTENT : 3.00.0 Ha,
VILLAGE : CHOKKANTHANGAL,
TALUK : MARAKKANAM,
DISTRICT : VILUPPURAM.

INDEX
TOPO SHEET NO : 57 P/ 16
LATITUDE : 12°12'46.89"N TO 12°12'54.41"N
LONGITUDE : 79°45'11.54"E TO 79°45'20.00"E

QUARRY LEASE APPLIED AREA
10KM RADIUS

CONVENTIONAL SYMBOLS	
Topographic features	Symbol
Water bodies	Symbol
Boundaries	Symbol
Settlements	Symbol
Infrastructure	Symbol
Vegetation	Symbol
Relief	Symbol
Other features	Symbol

TOPO SKETCH OF QUARRY LEASE

APPLIED AREA FOR
10Km RADIUS
SCALE- 1:100000

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

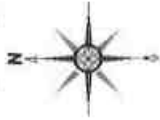


PLATE NO-ID

DATE OF SURVEY :

APPLICANT:

TVLJ M MINERALS,

NO.P-II/M29, TNHB,

J.J.NAGAR,

KURUMBANCHAVADI,

ARIYALUR DISTRICT - 621 713.

QUARRY LEASE APPLIED AREA:

S.F.NO'S : 5/1, 5/2 & 4/2,

EXTENT : 3.00.0 Ha.

VILLAGE : CHOKKANTHANGAL,

TALUK : MARAKKANAM,

DISTRICT : VILUPPURAM.

INDEX

Q.L. APPLIED AREA

APPROACH ROAD

PANCHAYAT ROAD

STATE HIGHWAY

HABITATIONS

KEY PLAN

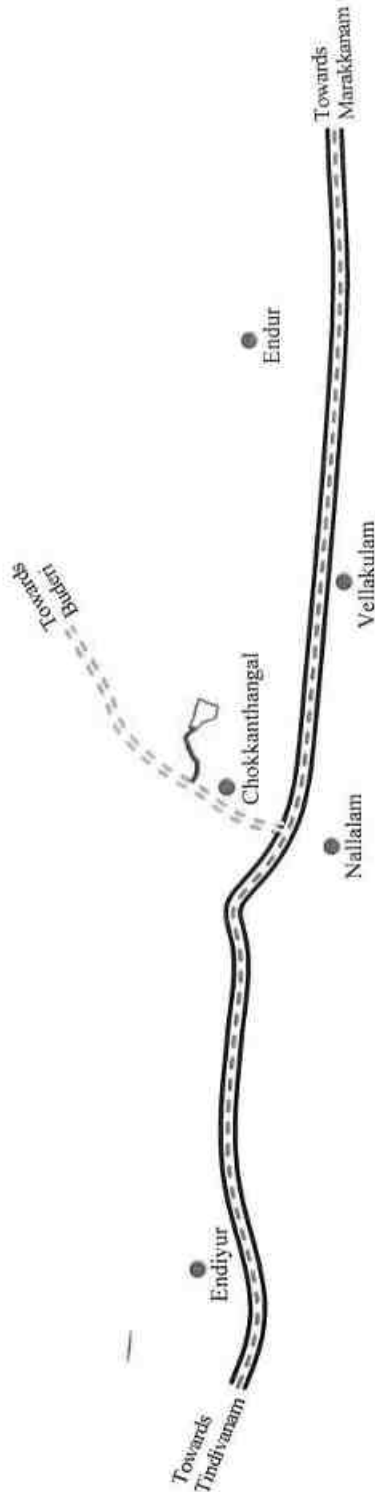
Not To Scale

PREPARED BY:

THIS IS TO CERTIFY THAT THE INFORMATION CONTAINED IN THIS PLATE IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE BASED UPON THE LEASE MAP AUTHENTICATED BY STATE GOVERNMENT

GOVERNMENT

C. NATARAJAN, M.Sc., M.Phil.,
QUALIFIED PERSON



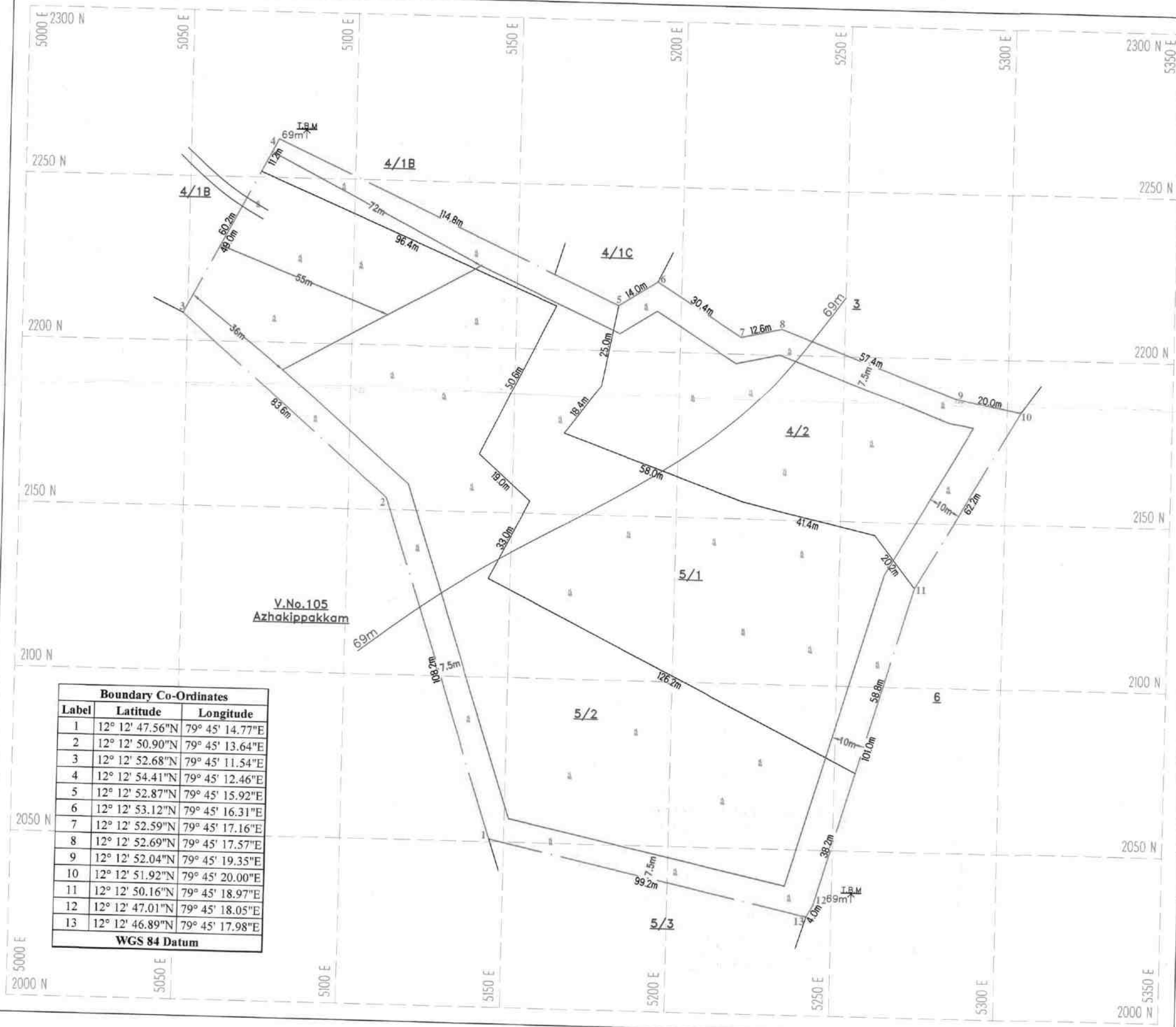


PLATE NO-II
DATE OF SURVEY :
APPLICANT:
 TVL J M MINERALS,
 NO.P-II/M29, TNH8,
 J.J.NAGAR,
 KURUMBANCHAVADI,
 ARIYALUR DISTRICT - 621 713.
QUARRY LEASE APPLIED AREA:
 S.F.NO'S : 5/1, 5/2 & 4/2,
 EXTENT : 3.00.0 Ha,
 VILLAGE : CHOKKANTHANGAL,
 TALUK : MARAKKANAM,
 DISTRICT : VILUPPURAM.

INDEX

Q.LEASE APPLIED BOUNDARY	
7.5m 10m&55m SAFETY DISTANCE	
TEMPORARY BENCH MARK	
APPROACH ROAD	
CONTOUR	
SCRUB	

QUARRY LEASE & SURFACE PLAN
 SCALE 1 : 1000

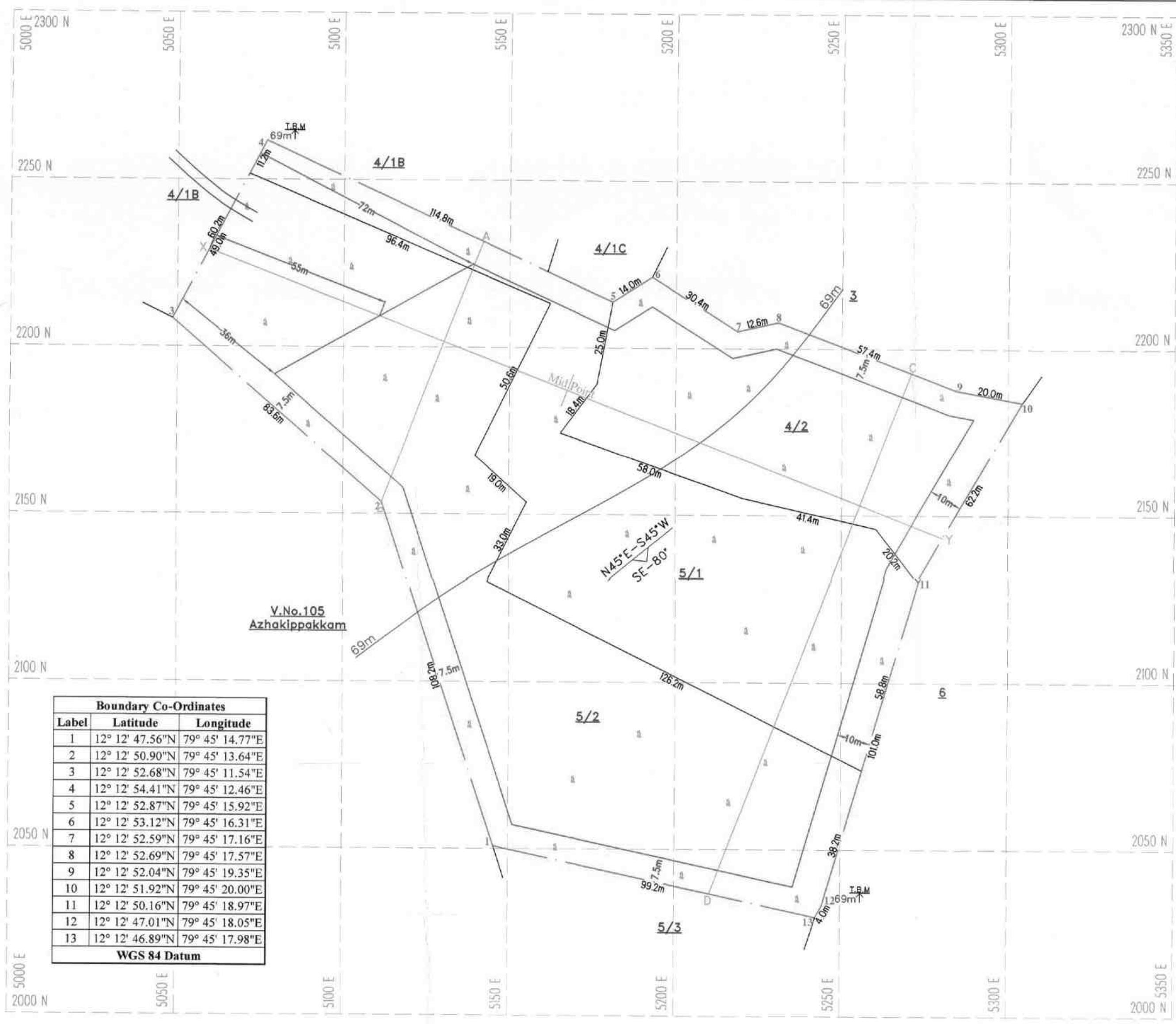
PREPARED BY:
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 THE LEASE MAP AUTHENTICATED BY STATE
 GOVERNMENT

C. Natarajan
 C.NATARAJAN, M.Sc., M.Phil.
 QUALIFIED PERSON

Boundary Co-Ordinates

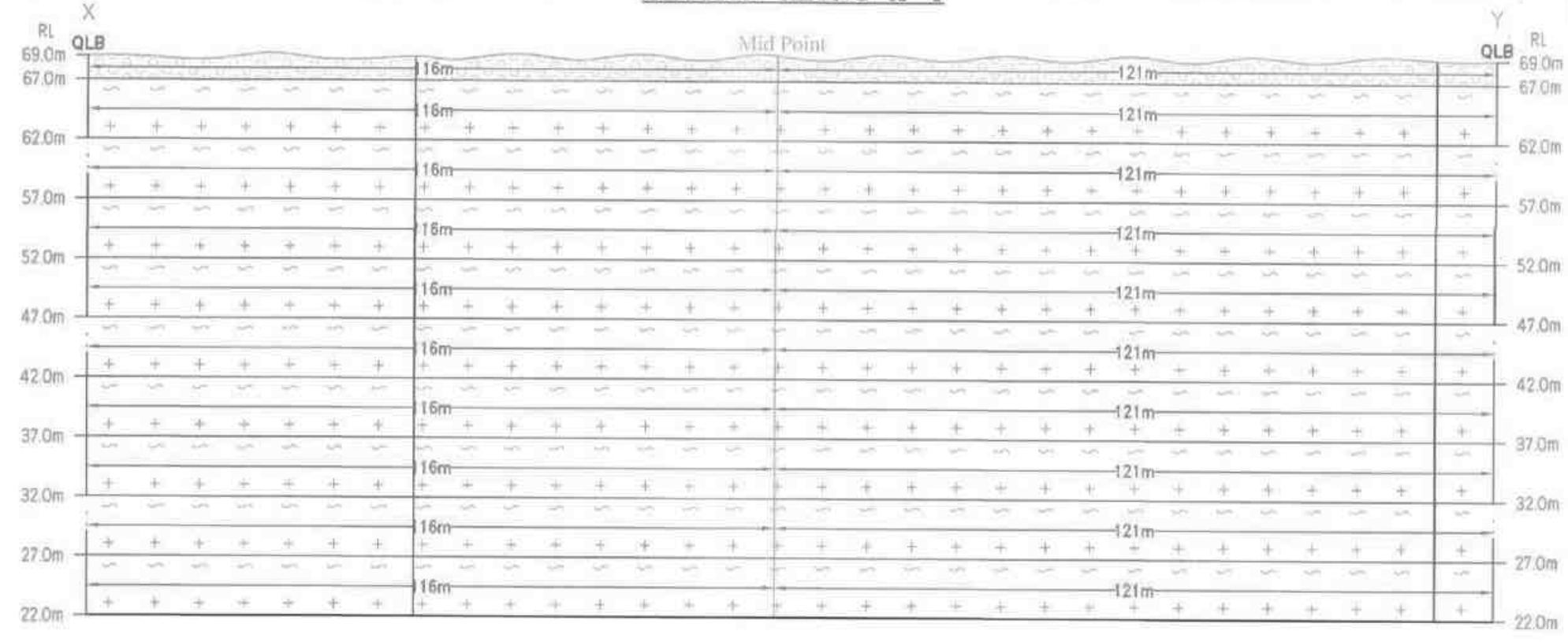
Label	Latitude	Longitude
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2	12° 12' 50.90"N	79° 45' 13.64"E
3	12° 12' 52.68"N	79° 45' 11.54"E
4	12° 12' 54.41"N	79° 45' 12.46"E
5	12° 12' 52.87"N	79° 45' 15.92"E
6	12° 12' 53.12"N	79° 45' 16.31"E
7	12° 12' 52.59"N	79° 45' 17.16"E
8	12° 12' 52.69"N	79° 45' 17.57"E
9	12° 12' 52.04"N	79° 45' 19.35"E
10	12° 12' 51.92"N	79° 45' 20.00"E
11	12° 12' 50.16"N	79° 45' 18.97"E
12	12° 12' 47.01"N	79° 45' 18.05"E
13	12° 12' 46.89"N	79° 45' 17.98"E

WGS 84 Datum

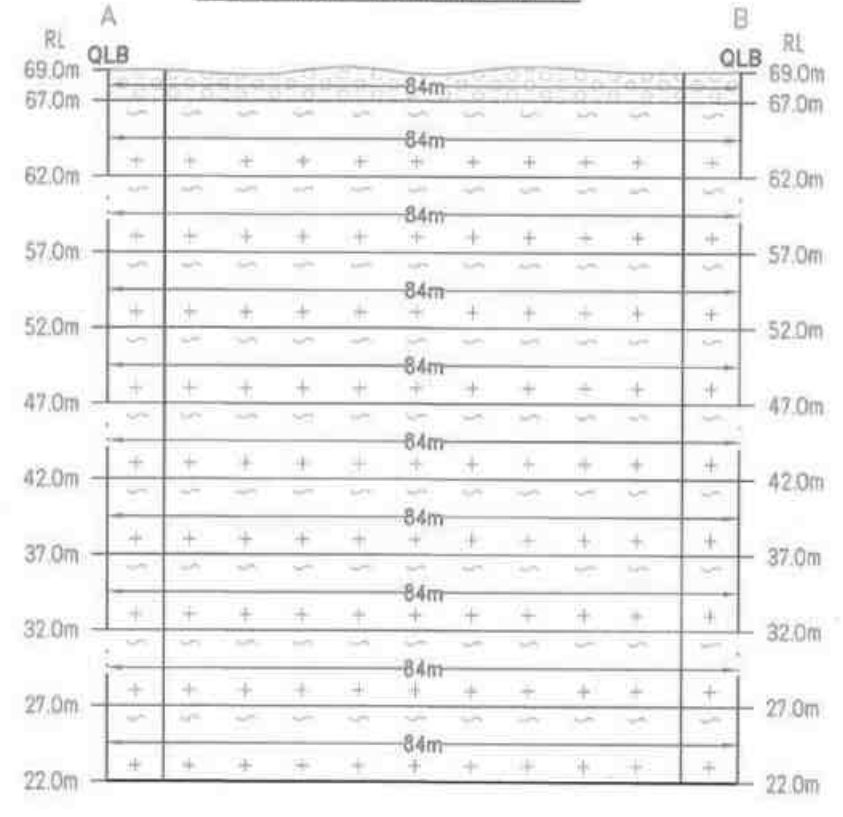


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2	12° 12' 50.90"N	79° 45' 13.64"E
3	12° 12' 52.68"N	79° 45' 11.54"E
4	12° 12' 54.41"N	79° 45' 12.46"E
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10	12° 12' 51.92"N	79° 45' 20.00"E
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12	12° 12' 47.01"N	79° 45' 18.05"E
13	12° 12' 46.89"N	79° 45' 17.98"E
WGS 84 Datum		

SECTION ALONG X-Y



SECTION ALONG A-B



SECTION ALONG C-D

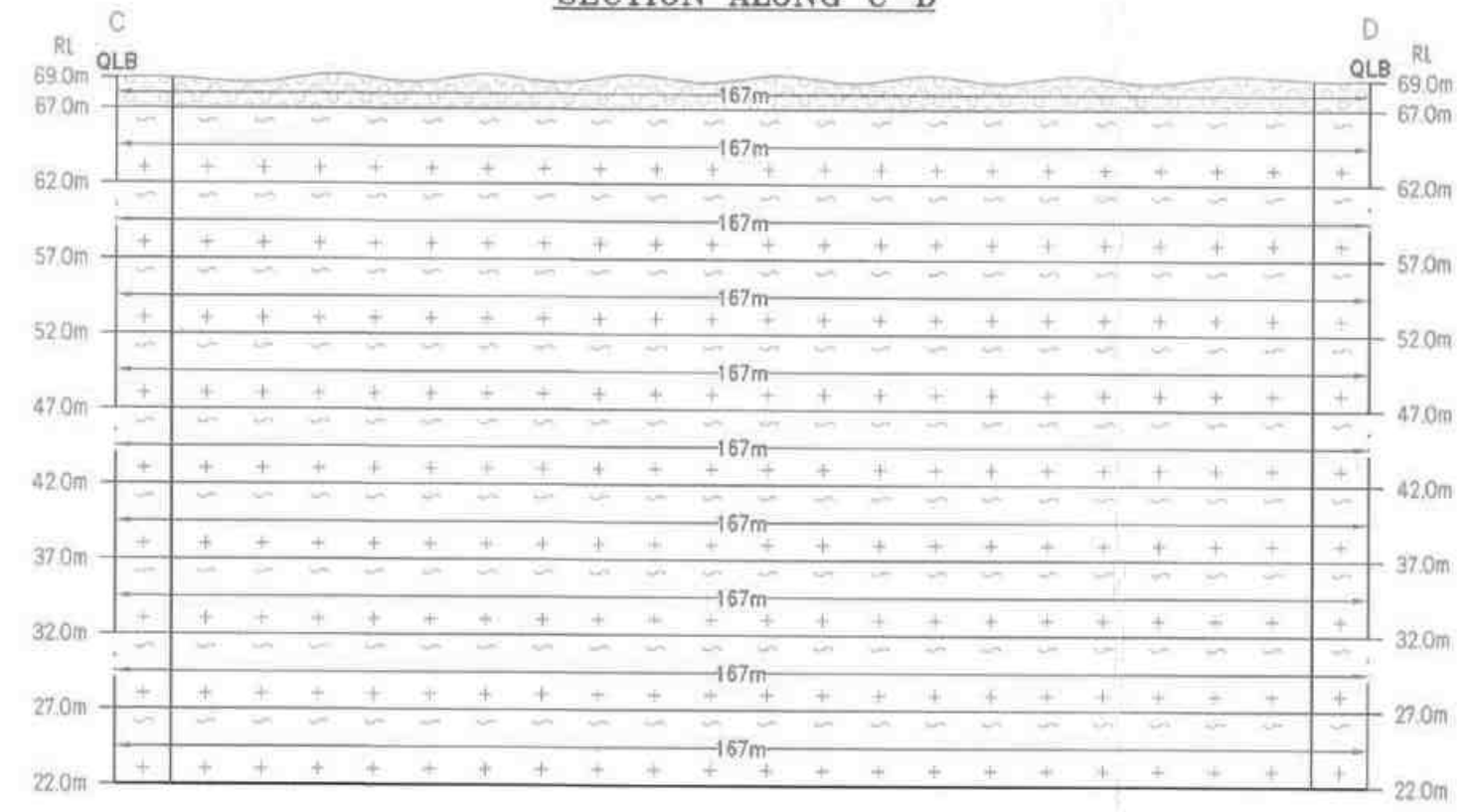


PLATE NO-III
DATE OF SURVEY :

APPLICANT:
TVL J M MINERALS,
NO.P-II/M29, TNHB,
J.J.NAGAR,
KURUMBANCHAVADI,
ARIYALUR DISTRICT - 621 713.

QUARRY LEASE APPLIED AREA:
S.F.NO'S : 5/1, 5/2 & 4/2,
EXTENT : 3.00.0 Ha,
VILLAGE : CHOKKANTHANGAL,
TALUK : MARAKKANAM,
DISTRICT : VILUPPURAM.

INDEX

Q.LEASE APPLIED BOUNDARY

7.5m 10m&55m SAFETY DISTANCE

TEMPORARY BENCH MARK

APPROACH ROAD

CONTOUR

SCRUB

GRAVEL

ROUGH STONE

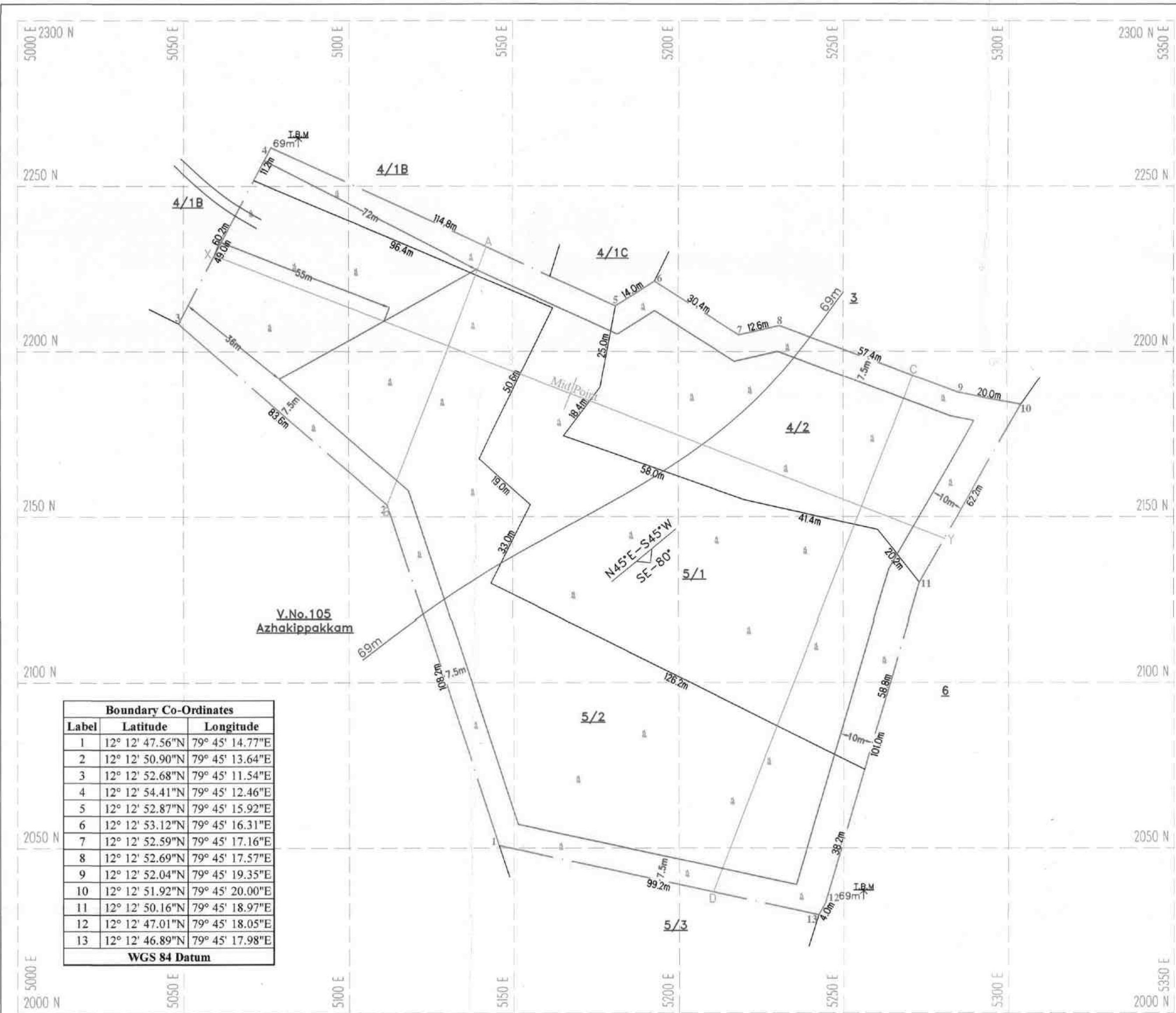
STRIKE & DIP

**TOPOGRAPHY, GEOLOGICAL
PLAN & SECTIONS**

SCALE 1 : 1000
SECTIONS HOR 1:1000, VER 1:500

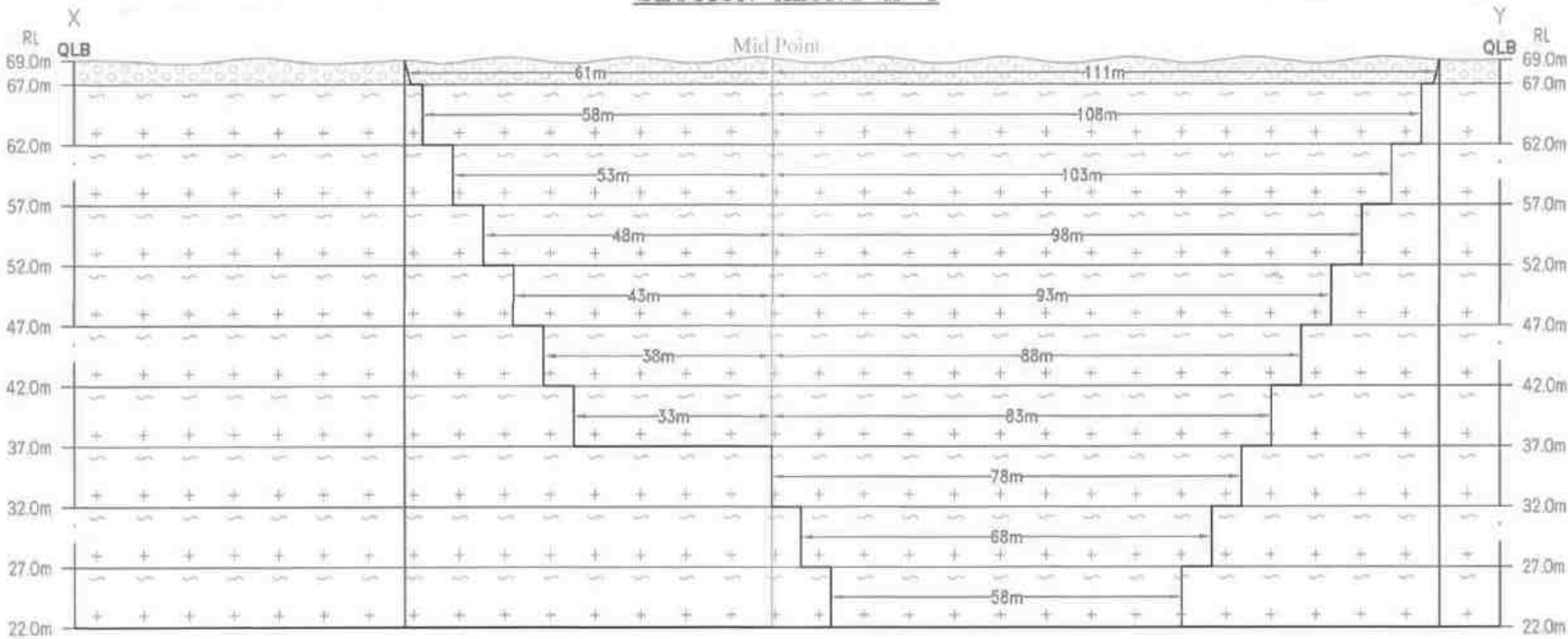
PREPARED BY:
THIS IS TO CERTIFY THAT THE INFORMATION
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THE LEASE MAP AUTHENTICATED BY STATE
GOVERNMENT

C.NATARAJAN M.Sc.M.Phil.,
QUALIFIED PERSON

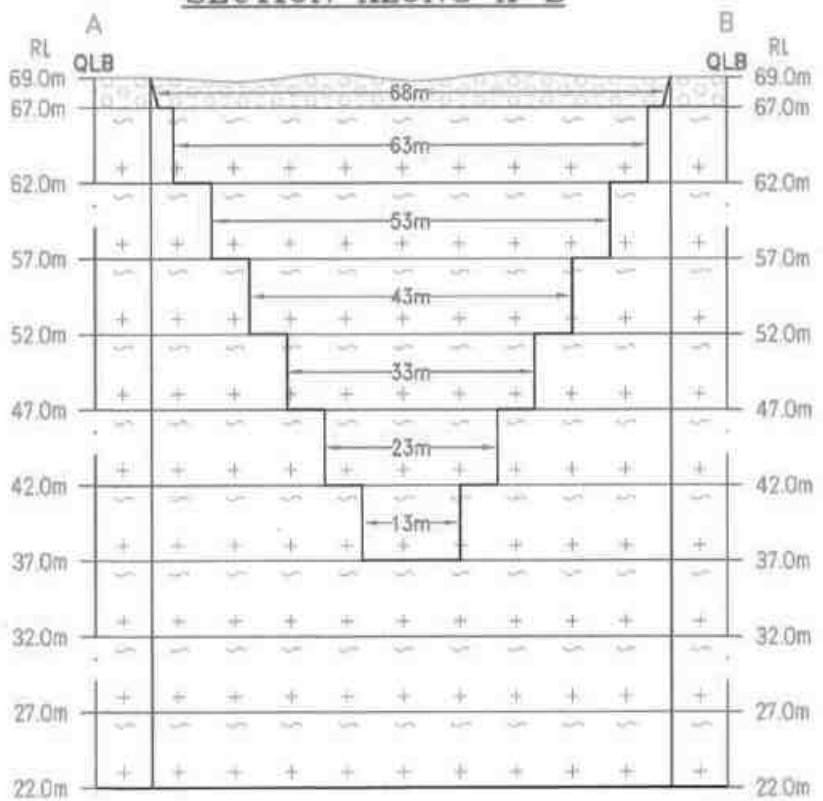


Boundary Co-Ordinates		
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2	12° 12' 50.90"N	79° 45' 13.64"E
3	12° 12' 52.68"N	79° 45' 11.54"E
4	12° 12' 54.41"N	79° 45' 12.46"E
5	12° 12' 52.87"N	79° 45' 15.92"E
6	12° 12' 53.12"N	79° 45' 16.31"E
7	12° 12' 52.59"N	79° 45' 17.16"E
8	12° 12' 52.69"N	79° 45' 17.57"E
9	12° 12' 52.04"N	79° 45' 19.35"E
10	12° 12' 51.92"N	79° 45' 20.00"E
11	12° 12' 50.16"N	79° 45' 18.97"E
12	12° 12' 47.01"N	79° 45' 18.05"E
13	12° 12' 46.89"N	79° 45' 17.98"E
WGS 84 Datum		

SECTION ALONG X-Y



SECTION ALONG A-B



SECTION ALONG C-D

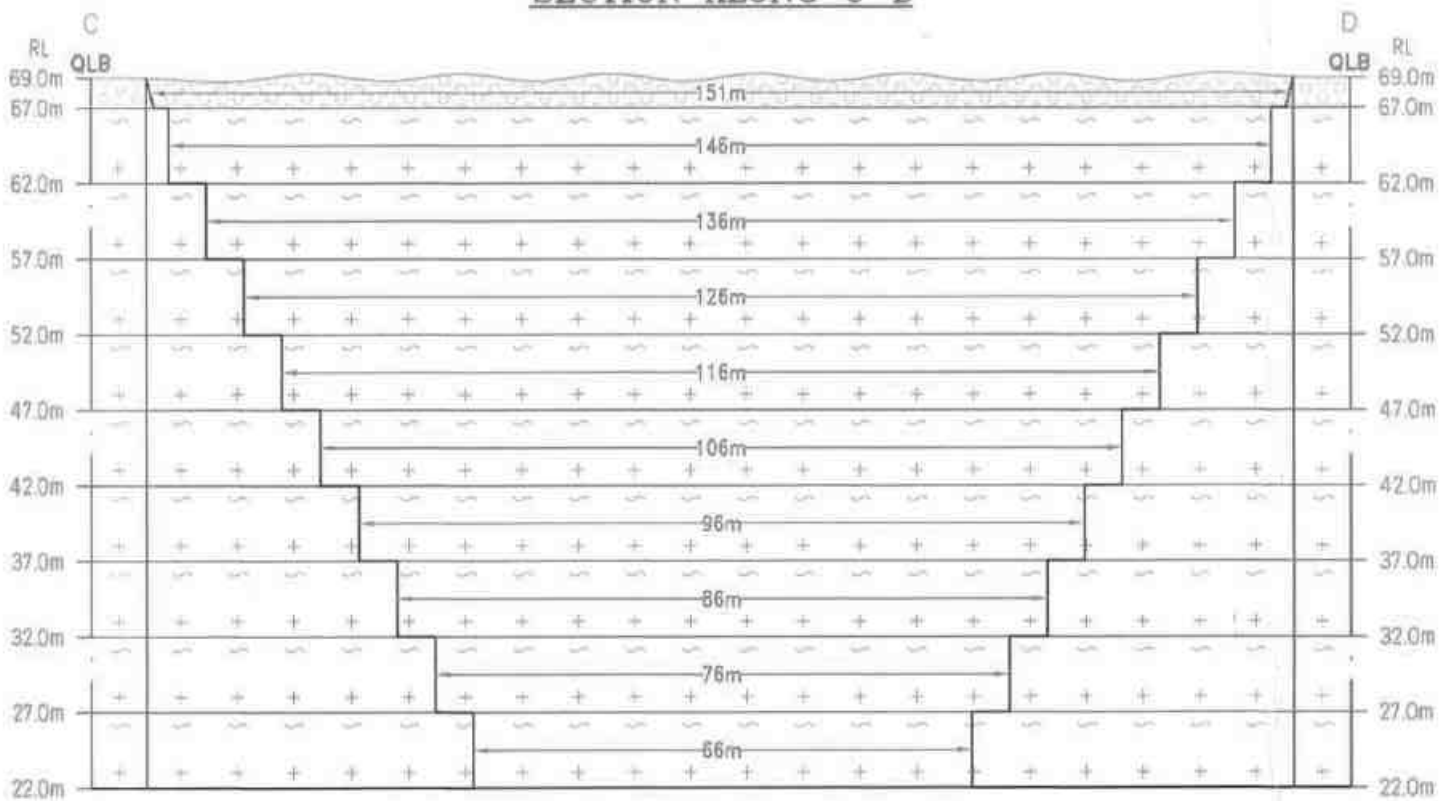


PLATE NO-IV
DATE OF SURVEY:

APPLICANT:
TVLJ M MINERALS,
NO.P-II/M29, TNH3,
J.J.NAGAR,
KURUMBANCHAVADI,
ARIYALUR DISTRICT - 621 713.

QUARRY LEASE APPLIED AREA:
S.F.NO'S : 5/1, 5/2 & 4/2,
EXTENT : 3.00.0 Ha,
VILLAGE : CHOKKANTHANGAL,
TALUK : MARAKKANAM,
DISTRICT : VILUPPURAM.

INDEX

Q.LEASE APPLIED BOUNDARY

7.5m 10m&55m SAFETY DISTANCE

TEMPORARY BENCH MARK

APPROACH ROAD

CONTOUR

SCRUB

GRAVEL

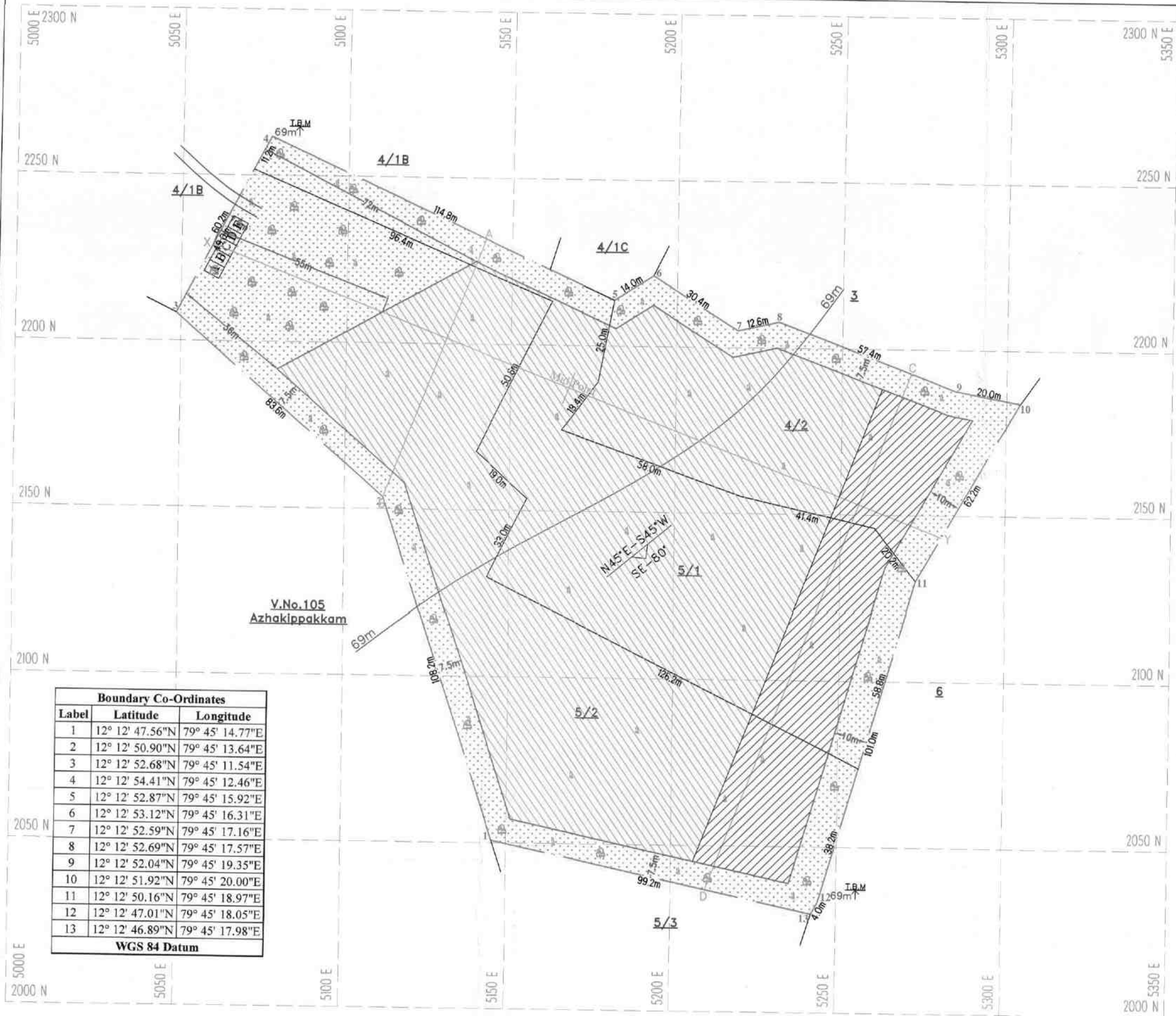
ROUGH STONE

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.P.M.L.,
QUALIFIED PERSON

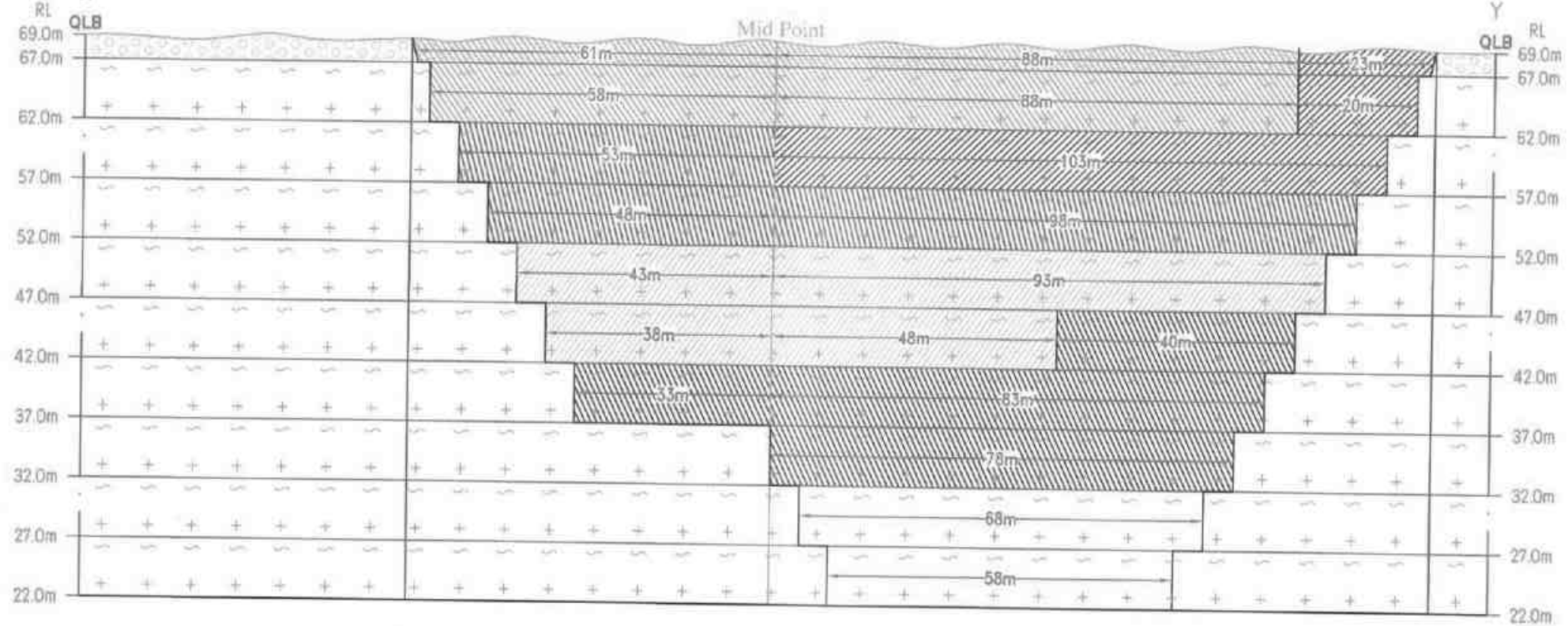


Boundary Co-Ordinates		
Label	Latitude	Longitude
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2	12° 12' 50.90"N	79° 45' 13.64"E
3	12° 12' 52.68"N	79° 45' 11.54"E
4	12° 12' 54.41"N	79° 45' 12.46"E
5	12° 12' 52.87"N	79° 45' 15.92"E
6	12° 12' 53.12"N	79° 45' 16.31"E
7	12° 12' 52.59"N	79° 45' 17.16"E
8	12° 12' 52.69"N	79° 45' 17.57"E
9	12° 12' 52.04"N	79° 45' 19.35"E
10	12° 12' 51.92"N	79° 45' 20.00"E
11	12° 12' 50.16"N	79° 45' 18.97"E
12	12° 12' 47.01"N	79° 45' 18.05"E
13	12° 12' 46.89"N	79° 45' 17.98"E
WGS 84 Datum		

- 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

SECTION ALONG X-Y



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

PLATE NO-V
DATE OF SURVEY :
APPLICANT:
TVLJ M MINERALS,
NO.P-II/M29, TNHB,
J.J. NAGAR,
KURUMBANCHAVADI,
ARIYALUR DISTRICT - 621 713.
QUARRY LEASE APPLIED AREA:
S.F.NO'S : 5/1, 5/2 & 4/2,
EXTENT : 3.00.0 Ha,
VILLAGE : CHOKKANTHANGAL,
TALUK : MARAKKANAM,
DISTRICT : VILUPPURAM.

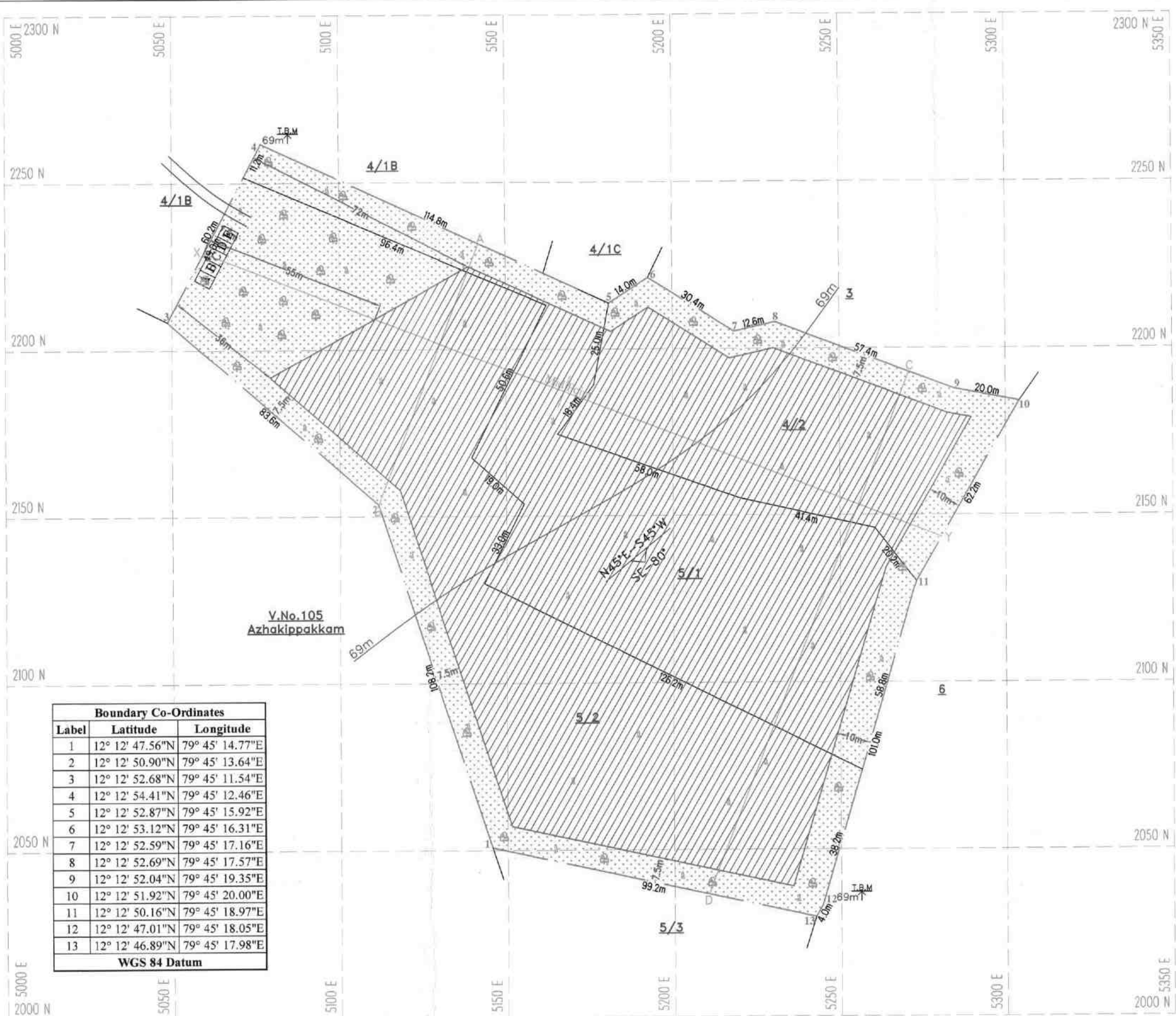
INDEX

- Q.LEASE APPLIED BOUNDARY
- 7.5m 10m&55m SAFETY DISTANCE
- TEMPORARY BENCH MARK
- APPROACH ROAD
- CONTOUR
- SCRUB
- GRAVEL
- ROUGH STONE
- STRIKE & DIP

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

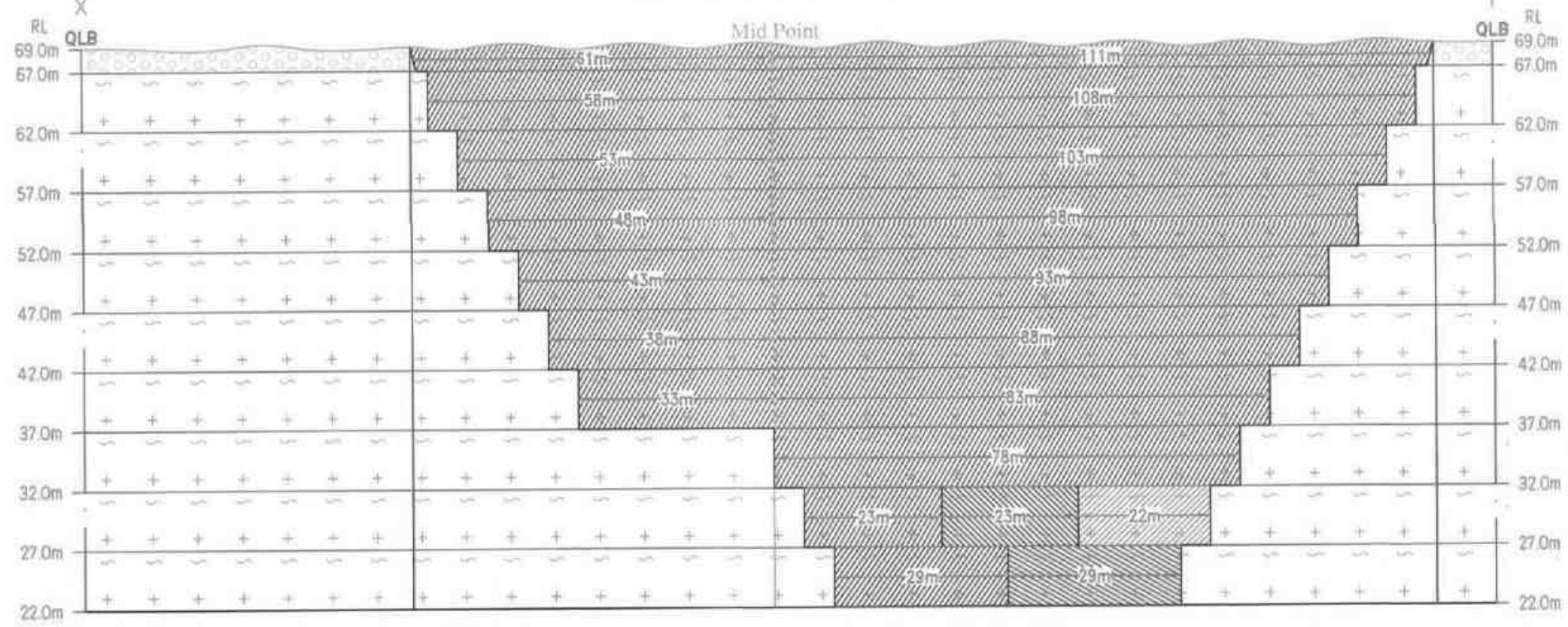
C.NATARAJAN, M.Sc., M.Phil.
QUALIFIED PERSON



- 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

Boundary Co-Ordinates		
Label	Latitude	Longitude
1	12° 12' 47.56"N	79° 45' 14.77"E
2	12° 12' 50.90"N	79° 45' 13.64"E
3	12° 12' 52.68"N	79° 45' 11.54"E
4	12° 12' 54.41"N	79° 45' 12.46"E
5	12° 12' 52.87"N	79° 45' 15.92"E
6	12° 12' 53.12"N	79° 45' 16.31"E
7	12° 12' 52.59"N	79° 45' 17.16"E
8	12° 12' 52.69"N	79° 45' 17.57"E
9	12° 12' 52.04"N	79° 45' 19.35"E
10	12° 12' 51.92"N	79° 45' 20.00"E
11	12° 12' 50.16"N	79° 45' 18.97"E
12	12° 12' 47.01"N	79° 45' 18.05"E
13	12° 12' 46.89"N	79° 45' 17.98"E
WGS 84 Datum		

SECTION ALONG X-Y



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

PLATE NO-V-A

DATE OF SURVEY :

APPLICANT:

TVLJM MINERALS,
NO.P-11/M29, TNH8,
J.J.NAGAR,
KURUMBANCHAVADI,
ARIYALUR DISTRICT - 621 713.

QUARRY LEASE APPLIED AREA:

S.F.NO'S : 5/1, 5/2 & 4/2,
EXTENT : 3.00.0 Ha,
VILLAGE : CHOKKANTHANGAL,
TALUK : MARAKKANAM,
DISTRICT : VILUPPURAM.

INDEX

- Q.LEASE APPLIED BOUNDARY
- 7.5m 10m&55m SAFETY DISTANCE
- TEMPORARY BENCH MARK
- APPROACH ROAD
- CONTOUR
- SCRUB
- GRAVEL
- ROUGH STONE
- STRIKE & DIP

SECOND FIVE YEARWISE
DEVELOPMENT & PRODUCTION
PLAN & SECTIONS

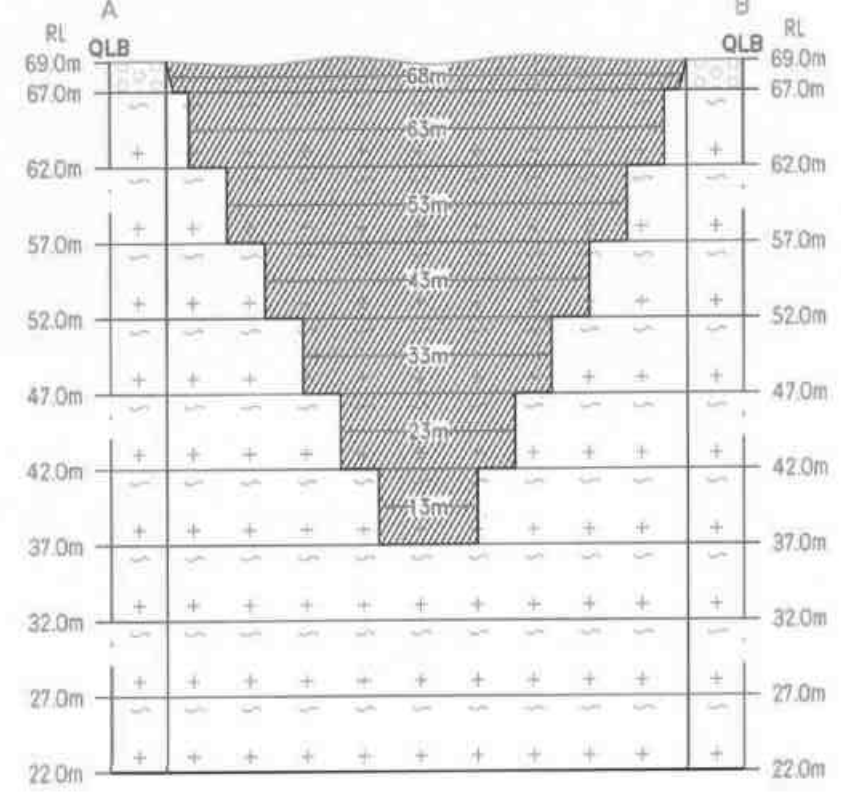
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SECTIONS HOR 1:1000, VER 1:500

PREPARED BY:

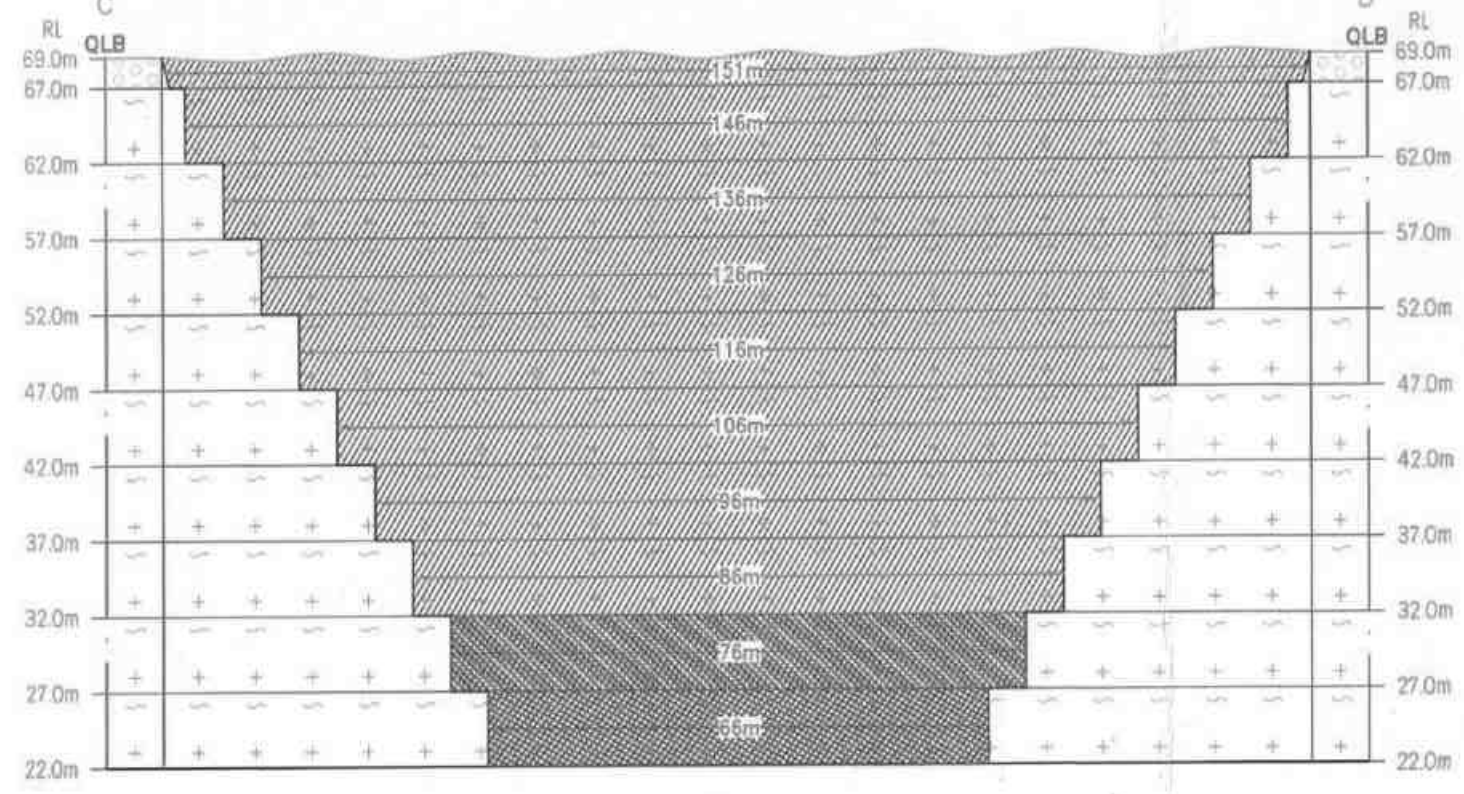
THIS IS TO CERTIFY THAT THE INFORMATION
IN THIS PLATE IS TRUE AND CORRECT TO
THE BEST OF MY KNOWLEDGE BASED UPON
THE LEASE MAP AUTHENTICATED BY STATE
GOVERNMENT

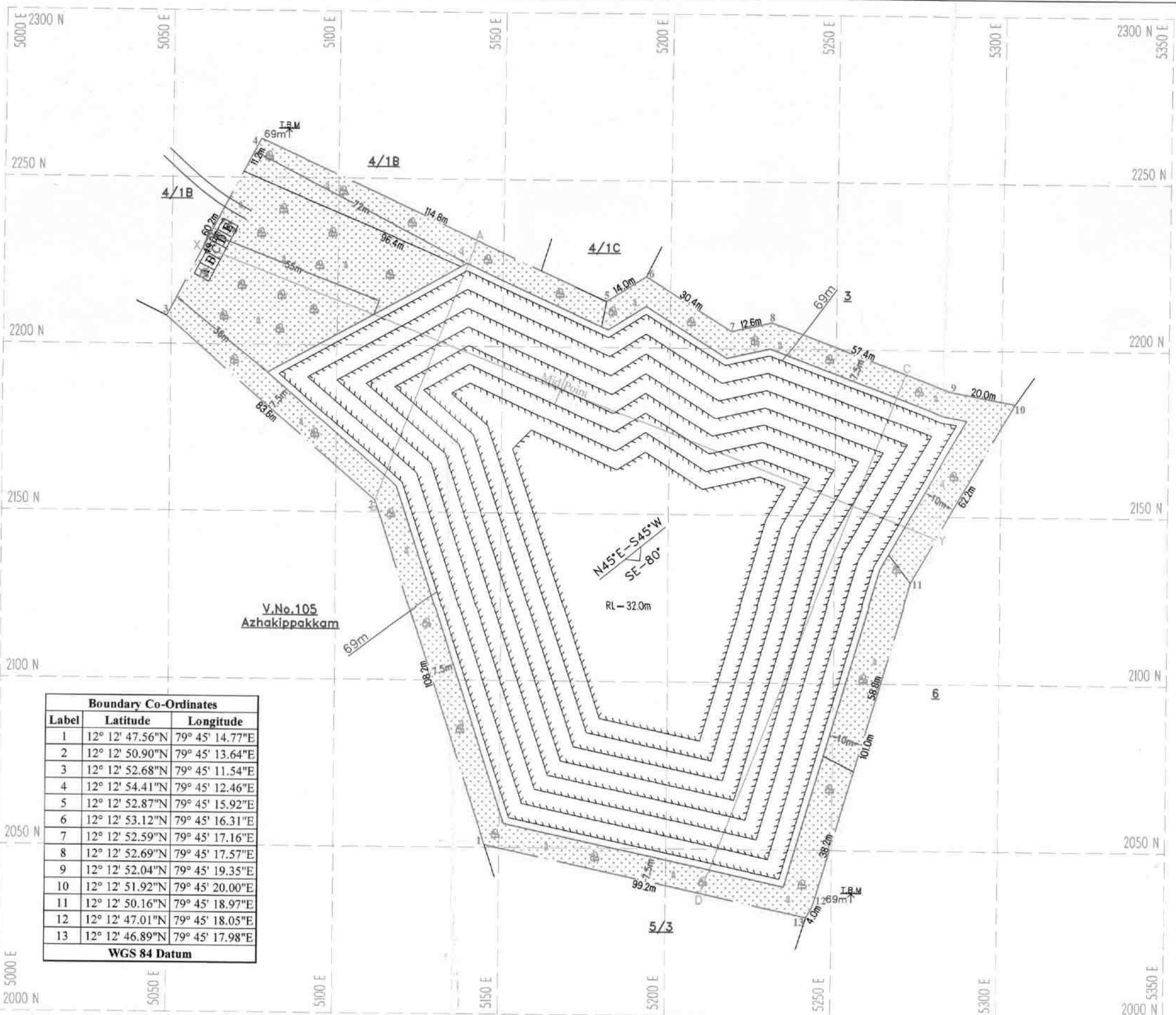
C.NATARAJAN,M.Sc,M.Phil.,
QUALIFIED PERSON

SECTION ALONG A-B



SECTION ALONG C-D



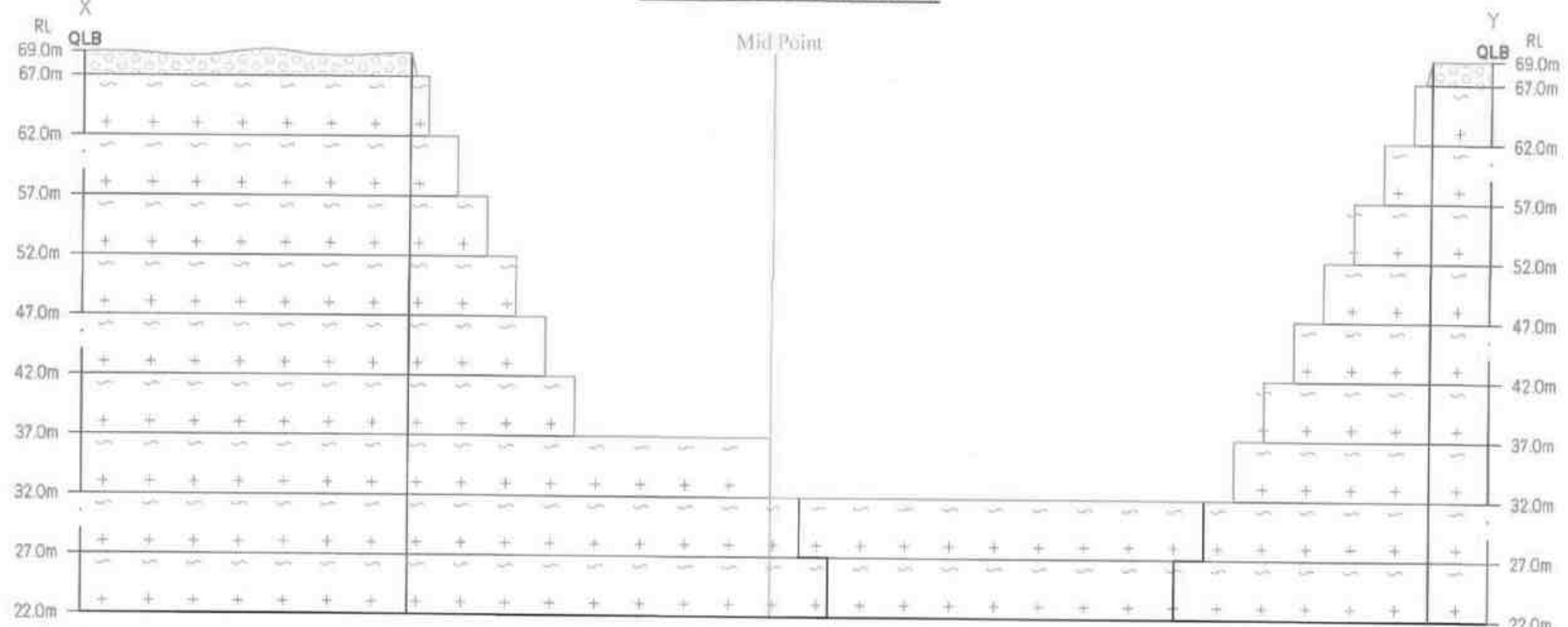


Boundary Co-Ordinates		
Label	Latitude	Longitude
1	12° 12' 47.56"N	79° 45' 14.77"E
2	12° 12' 50.90"N	79° 45' 13.64"E
3	12° 12' 52.68"N	79° 45' 11.54"E
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10	12° 12' 51.92"N	79° 45' 20.00"E
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12	12° 12' 47.01"N	79° 45' 18.05"E
13	12° 12' 46.89"N	79° 45' 17.98"E
WGS 84 Datum		

Ultimate Pit Dimension of End of the Mining Plan Period
L172m(Max)X127(Avg)mXD37m(Max)

Proposed area to be Planted

SECTION ALONG X-Y



- PROPOSED SITE SERVICES**
- A - OFFICE
 - B - STORE ROOM
 - C - FIRST AID ROOM
 - D - REST SHELTER
 - E - TOILET

PRESENT & POST LAND USE PATTERN

DESCRIPTION	PRESENT AREA (Ha)	AREA AT THE END OF THIS QUARRYING PERIOD (Ha)
AREA UNDER QUARRYING	NII	2.18.5
INFRASTRUCTURE	NII	0.01.0
ROADS	NII	0.01.0
GREEN BELT	NII	0.79.5
UN-UTILIZED AREA	3.00.0	NII
GRAND TOTAL	3.00.0	3.00.0

PLATE NO-VI
DATE OF SURVEY :

APPLICANT:
TVLJ M MINERALS,
NO P-II/M29, TNHB,
J.J.NAGAR,
KURUMBANCHAVADI,
ARIYALUR DISTRICT - 621 713.

QUARRY LEASE APPLIED AREA:
S.F.NO'S : 5/1, 5/2 & 4/2,
EXTENT : 3.00.0 Ha,
VILLAGE : CHOKKANTHANGAL,
TALUK : MARAKKANAM,
DISTRICT : VILUPPURAM.

INDEX

Q.LEASE APPLIED BOUNDARY

7.5m 10m&55m SAFETY DISTANCE

TEMPORARY BENCH MARK

APPROACH ROAD

CONTOUR

SCRUB

GRAVEL

ROUGH STONE

STRIKE & DIP

PROPOSED QUARRY PIT

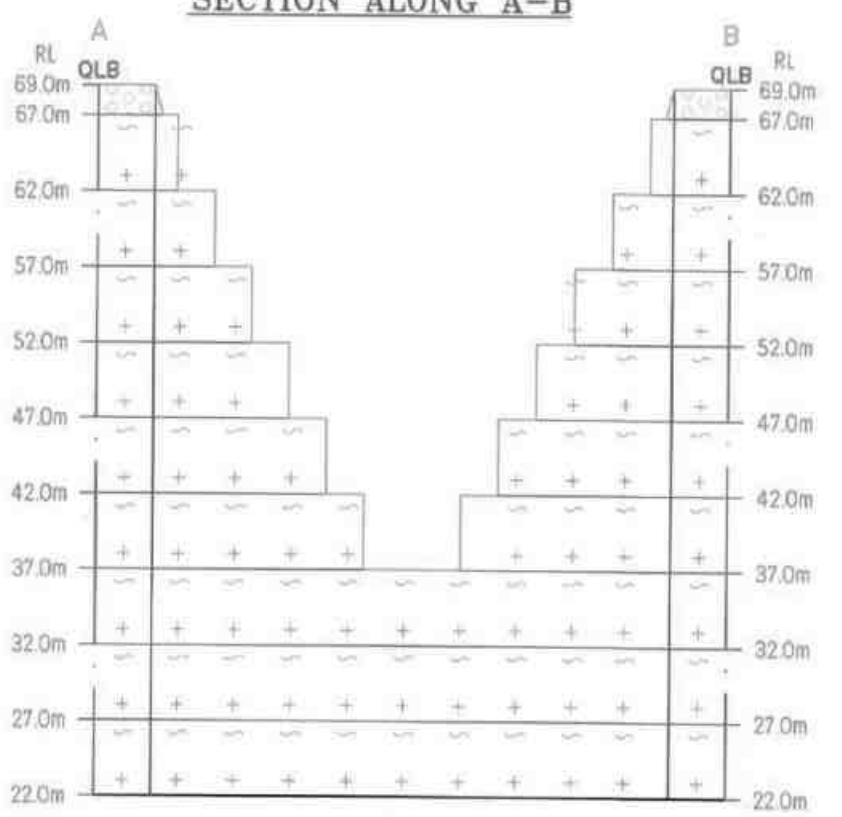
PROGRESSIVE QUARRY CLOSER PLAN & SECTIONS

SCALE 1 : 1000
SECTIONS HOR 1:1000, VER 1:500

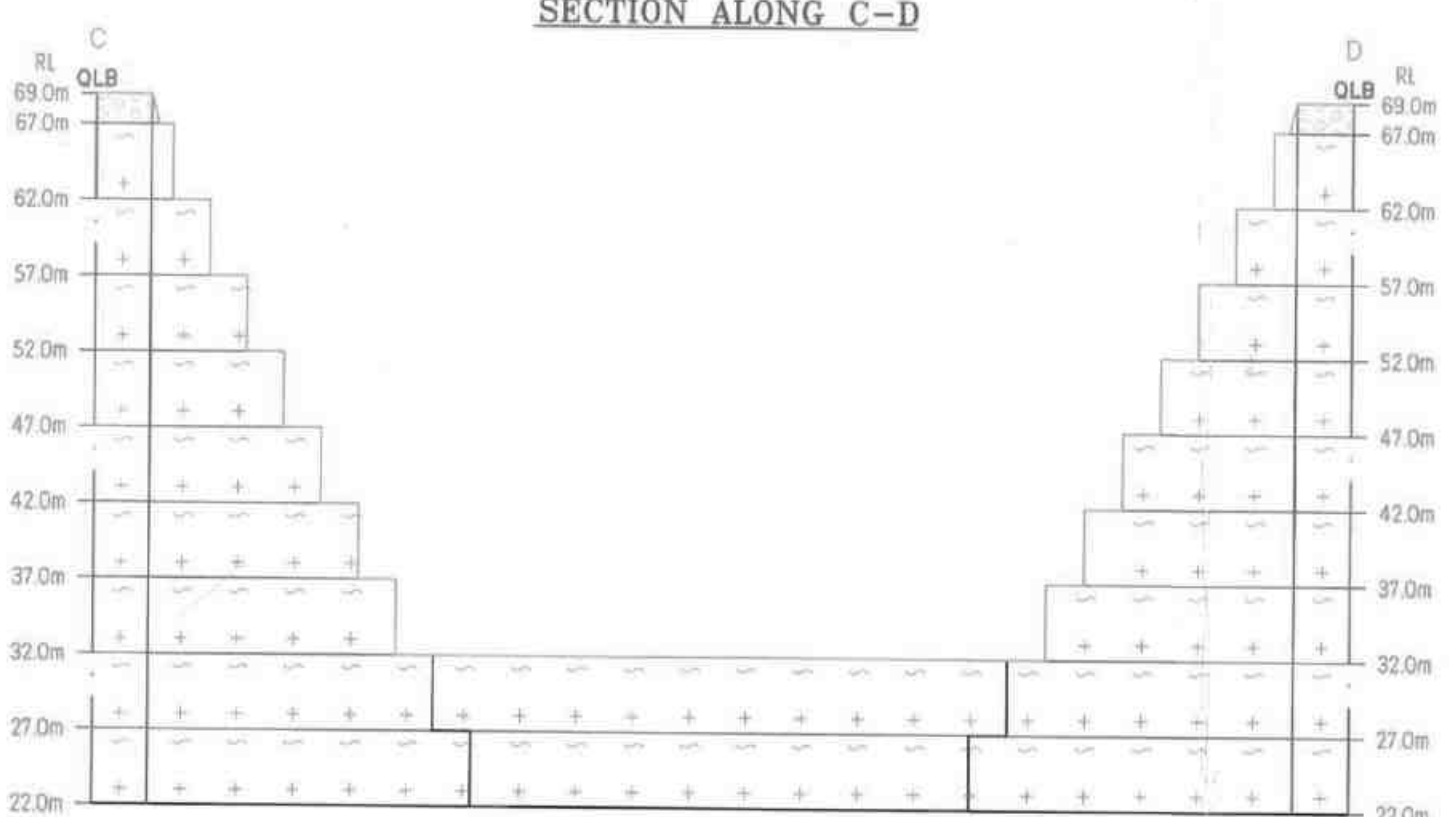
PREPARED BY:
THIS IS TO CERTIFY THAT THE INFORMATION IN THIS PLATE IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE BASED UPON THE LEASE MAP AUTHENTICATED BY STATE GOVERNMENT

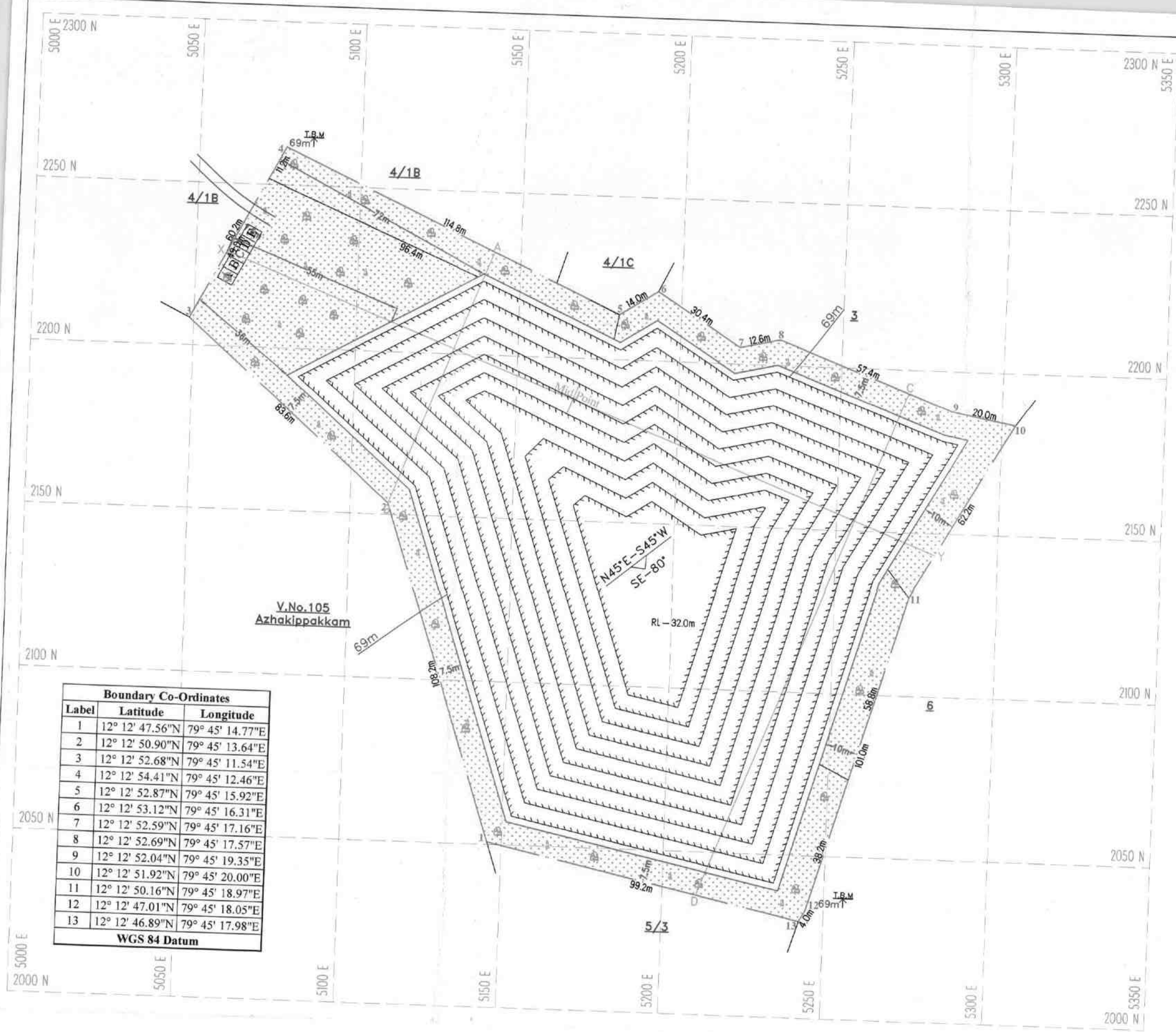
C.NATARAJAN,M.Sc,M.Phil.,
QUALIFIED PERSON 333

SECTION ALONG A-B



SECTION ALONG C-D



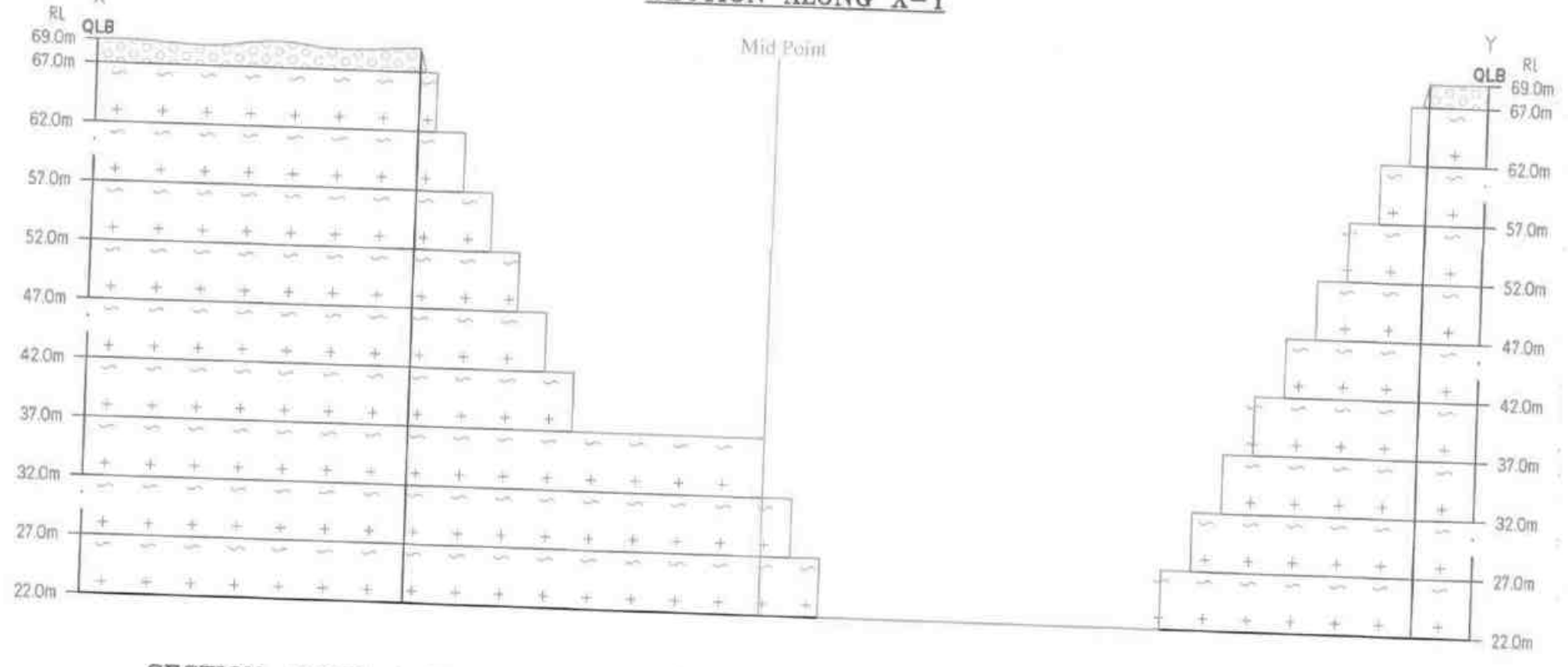


Boundary Co-Ordinates		
Label	Latitude	Longitude
1	12° 12' 47.56"N	79° 45' 14.77"E
2	12° 12' 50.90"N	79° 45' 13.64"E
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10	12° 12' 51.92"N	79° 45' 20.00"E
11	12° 12' 50.16"N	79° 45' 18.97"E
12	12° 12' 47.01"N	79° 45' 18.05"E
13	12° 12' 46.89"N	79° 45' 17.98"E
WGS 84 Datum		

Ultimate Pit Dimension of End of the Lease Period
L172m(Max)X127(Avg)mXD47m(Max)

Proposed area to be Planted

SECTION ALONG X-Y



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

SECTION ALONG C-D

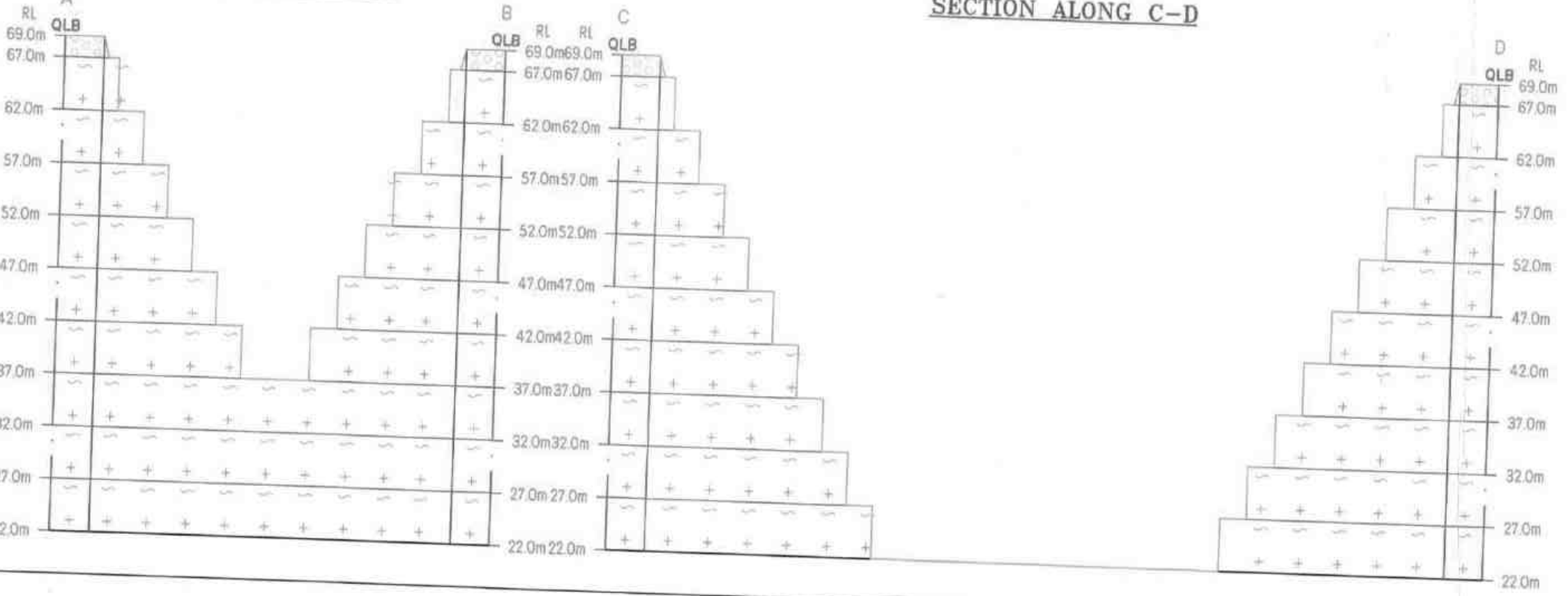


PLATE NO-VII
DATE OF SURVEY:

APPLICANT:
TVLJ M MINERALS,
NO.P-II/M29, TNHB,
J.J.NAGAR,
KURUMBANCHAVADI,
ARIYALUR DISTRICT - 621 713.

QUARRY LEASE APPLIED AREA:
S.F.NO'S : 5/1, 5/2 & 4/2,
EXTENT : 3.00.0 Ha,
VILLAGE : CHOKKANTHANGAL,
TALUK : MARAKKANAM,
DISTRICT : VILUPPURAM.

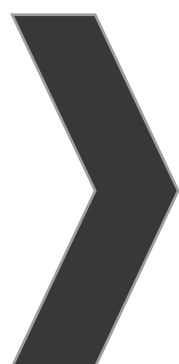
INDEX

- Q.LEASE APPLIED BOUNDARY
- 7.5m 10m&55m SAFETY DISTANCE
- TEMPORARY BENCH MARK
- 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



ANNEXURE-4

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

To
M/s. J M minerals,
No. P - II/M29,
TNHB, J.J. Nagar,
Kurumbanchavadi,
Ariyalur District - 621 713.

Rc.No.A/G&M/16/2023 Dated: 22.05.2024

Sir,

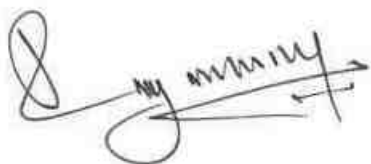
Sub: Mines & Minerals - Minor Mineral - Rough Stone and Gravel - Viluppuram District - Marakkanam Taluk - Chokkanthangal Village - S.F.Nos. 4/2 - 0.64.0, 5/1 - 0.96.0 & 5/2 - 1.40.0 an Total extend 3.00.0 Hectare of patta land - Application seeking quarry lease preferred by M/s. J M Minerals, Ariyalur - Precise area communicated - Details of quarries situated within 500 meter radial distance - furnished - reg.

- Ref: 1. Assistant Director, Geology and Mining, Viluppuram
Letter Rc.No.A/G&M/16/2023 Dated: 10.05.2024
2. Representation by M/s. J M minerals, No. P - II/M29,
TNHB, J.J. Nagar, Kurumbanchavadi, Ariyalur District
Dated: 17.05.2024

With reference to your letter in the reference 2nd cited, the details of existing, proposed and abandoned quarries located within 500 meter radius from the proposed Rough Stone and Gravel quarry lease for a period of 10 Years over an extent of 3.00.0 hectares of patta lands in S.F.Nos. 4/2 - 0.64.0, 5/1 - 0.96.0 & 5/2 - 1.40.0 of Chokkanthangal Village, Marakkanam Taluk, Viluppuram District are as follows.

Existing quarries:

Sl. No.	Name of the lessee / permit holder	Name of the Mineral	Taluk & Village	S.F. Nos.	Extent (in hecets)	Lease period	Remarks
1.	Thiru.T. Aravindan S/o. Dinakaran, No.1/132, Dinakaran Salai, PMD Nagar, Kovilampakkam Chennai - 600 129.	Rough Stone and Gravel	Marakkanam Taluk Chokkanthangal Village	2/1A (p) 8/1 (p) 9/1 (p) 9/3 (p) 9/4 9/6 (p)	0.79.0 0.02.0 0.04.0 1.15.5 0.32.5 0.10.0 2.43.0	18.08.2023 to 17.08.2033	



2.	Thiru.P. Yuvaraj S/o. Palanisamy No. 7/12 Doming Kuppam, Santhome, Chennai	Rough Stone and Gravel	Marakkanam Taluk Chokkan thangal Village	8/4 (p) 8/7 8/8 8/9	0.37.5 0.10.5 0.03.5 0.25.0 ----- 1.15.15	23.09.2022 to 22.09.2032	
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II. Proposed quarries :

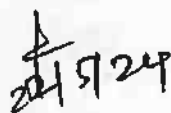
Sl. No.	Name of the lessee / permit holder	Name of the Mineral	Taluk & Village	S.F. Nos.	Extent (in hecets)	Remarks
1.	Thiru. Rasu S/o. Ramakrishna Gounder, Perumukkal Village, Marakkanam Taluk.	Rough Stone and Gravel	Marakkanam Taluk Azhagiyapakkam Village	2/2 (p) 14/1 (p) 15/2	0.32.5 0.18.0 0.76.5 ----- 1.27.0	
2.	Thiru.M. Kumaravel S/o. Mani gounder, Keelarungunam Village, Marakkanam Taluk.	Rough Stone and Gravel	Marakkanam Taluk Chokkanthangal Village	1/ 2 (p) 2/1B (p) 2/1C (p)	0.46.0 0.40.0 1.20.0 ----- 2.06.0	
3.	M/s. J M minerals, No. P - II/M29, TNHB, J.J. Nagar, Kurumbanchavadi, Ariyalur District	Rough Stone and Gravel	Marakkanam Taluk Chokkanthangal Village	4/2 5/1 5/2	0.64.0 0.96.0 1.40.0 ----- 3.00.0	

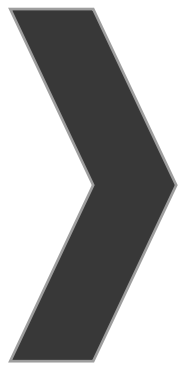
III. Abandoned quarries :

Sl. No.	Name of the lessee / permit holder	Name of the Mineral	Taluk & Village	S.F. Nos.	Extent (in hecets)	Lease period
1.	Thiru.S. Balaji S/o. Soundirarajan, Panangoor Village, Sundakudi Post, Ariyalur District.	Rough Stone and Gravel	Marakkanam Taluk Azhagiyapakkam Village	14/6 15/3 15/4 15/5 16/5	0.50.0 0.43.0 0.41.0 0.61.0 0.54.0 ----- 2.49.0	22.08.2014 to 21.08.2019
2.	Thiru.A.L.Varadhan, S/o.Loganathan, School Street, Keelarungunam, Marakkanam Taluk, Viluppuram District	Rough Stone and Gravel	Marakkanam Taluk Keelarungunam village	89/1 (P)	0.60.0	02.07.2012 to 01.07.2017


 Assistant Director
 Dept. of Geology and Mining,
 Viluppuram.







ANNEXURE-5

சினாமா:-

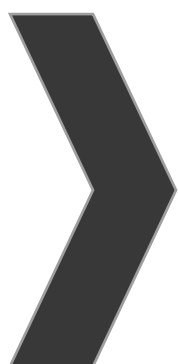
அங்குசம் மாவட்டம் அரிமபுரம் வட்டம் கே. எம். மினரன்
 டீன்: P.II / M. 29. TNHB கே. கே. நகர் குடும்பன்காறு
 கே. எம். மினரன் நியுயனத்திற்கு சொந்தமான ஜெப்பு
 மாவட்டம் மரக்காணம் வட்டம் உதாக்கந்தாங்கல் கிராம
 அபுன் புன் ஓய் புல டீன்: 4/2. 0.64.0. He 5/1. 0.96.0
 He. (ம) 5/2. 1.40.0. இவ் வளத்த உதாக்கல் 3.0.00. நி
 பட்ட டீன்: 302, (ம) 309. அபு. து. சிவசாமி. சிவசா
 து. P.S. கையாண்டு டீன்: அபுன் கிராம கணக்கில்
 தாக்கவாகியுள்ளதே அபுன் புல டீன்: கிராம கணக்கில்
 உயர்மில் அதே கம்பிகள் ஏதாவது. அபுன் புல டீன்
 300. மீட்டர் கீழ்க்கண்ட அபுன் புல டீன்: கிராம கணக்கில்
 உதாக்கல் திறப்பு மீட்டர் புராதான சின்னங்கள் மருந்து -
 கிராம கணக்கில் அபுன் புல கிடத்தல் கிராம கணக்கில் மருந்து
 தரன் அபுன் அபுன் கிராமத்தில் கிராம கணக்கில் அபுன்
 கிராம கணக்கில். அபுன் கிராமத்தில் அபுன் கிராம கணக்கில்.

തീയതി : 08/06/2024

தலை : 2-ம் அருங்கூலம் (கலை)


 கிழக்கு மின்னியல் 08/06/2024
 கிழக்கு மின்னியல் (கிழக்கு) கிழக்கு
 கிழக்கு மின்னியல் கிழக்கு
 கிழக்கு மின்னியல் கிழக்கு

[Handwritten signature]



ANNEXURE-6

District : Viluppuram

Taluk : Marakkanam

Village : Chokkanthangal [158]

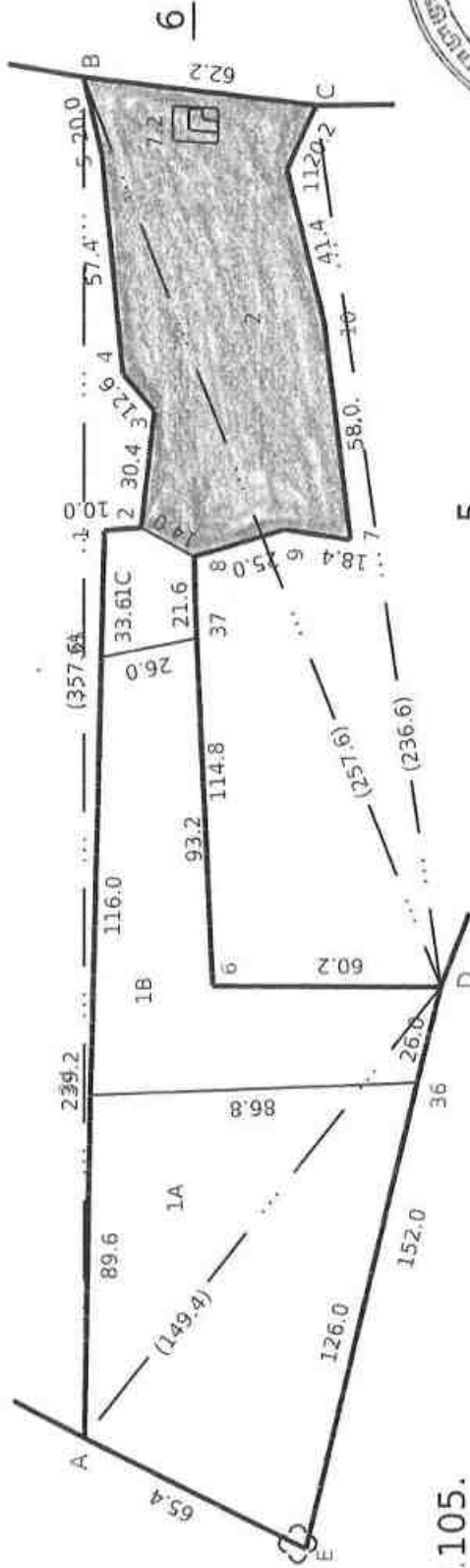


Survey No : 4

Area : Hect 02 Ares 3.00

Scale : 1 : 1978

3



V.NO.105.

AZHAKIYA PAKKAM

LEASE APPLIED AREA



341



Data Digitally Signed By
P BALAMURUGAN

Date of Issue: 02-10-2024 15:11:09

Survey and Settlement Department, Government of TamilNadu

270 fv.5

District : Viluppuram

Taluk : Marakkanam

Village : Chokkanthangal [158]



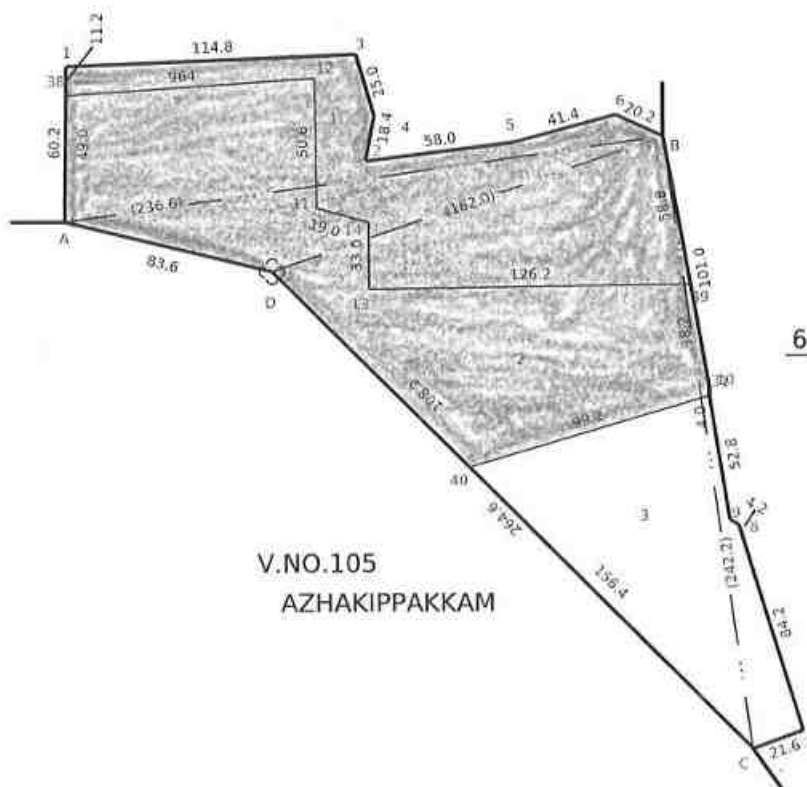
Survey No : 5

Area : Hect 03 Ares 20.00

Scale : 1 : 2000



4



V.NO.105
AZHAKIPPAKKAM

LEASE APPLIED AREA

Date of Issue: 02-10-2024 15:26:26

Survey and Settlement Department, Government of TamilNadu

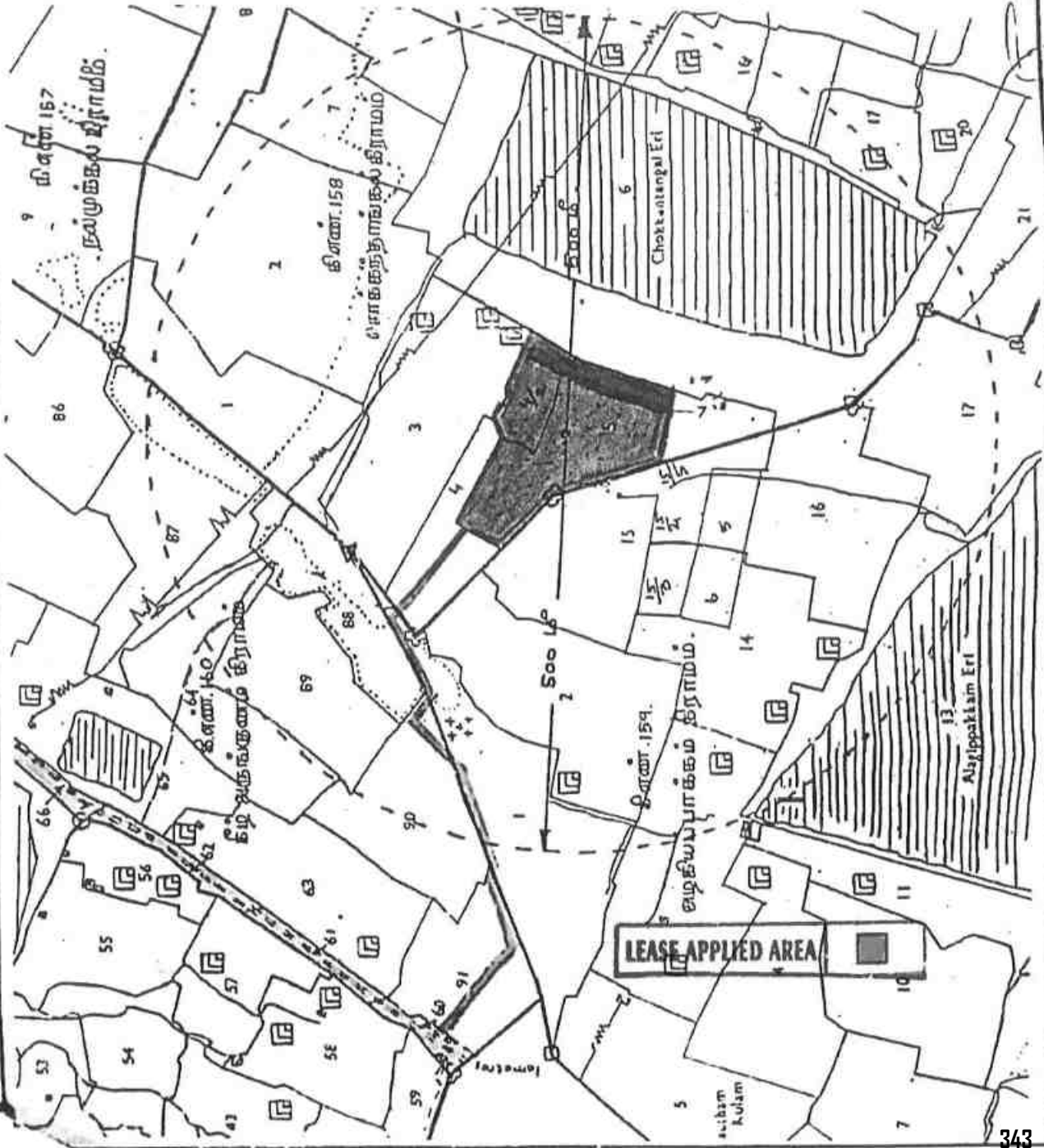
Signed By Tahsildar
Name of approver : tahm
Date of Approval : 31-08-2021



342 260 fv.2

கூட்டு உறுப்பியம் (தொகுதி நிருவாகம்)
அபிவிருத்தி
கட்டி அமைக்கப்படும்

மாவட்டம் : விழுப்புரம்
வட்டம் : மருக்காணி



மாவட்டம் T. சண்முகம் ஓரோடு

மாவட்டம் சண்முகம் பகுதி.

சான்றாண்மை கட்டுப்பாடு மற்றும் திட்டமிடல்
வழிமுறைகளைக் கவனம் கொண்டு கட்டுப்பாடு
அமைத்து கொடுக்கப்படும்.

பகுதி	பகுதி	பகுதி	பகுதி
1.	4/2	ர. அண்ணா	0.64.0
2.	5/1	ர. அண்ணா	0.96.0
3.	5/2	ர. அண்ணா	0.96.0
மொத்தம் 3.00.0			

மாவட்டம் வட்டம்

மாவட்டம் வட்டம்

மாவட்டம் வட்டம்

மாவட்டம் வட்டம்

மாவட்டம் வட்டம்

மாவட்டம் வட்டம்

மாவட்டம் வட்டம்

மாவட்டம் வட்டம்

மாவட்டம் வட்டம்

மாவட்டம் வட்டம்

ANNEXURE



சான்றாண்மை கட்டுப்பாடு மற்றும் திட்டமிடல்
வழிமுறைகளைக் கவனம் கொண்டு கட்டுப்பாடு
அமைத்து கொடுக்கப்படும்.

சான்றாண்மை கட்டுப்பாடு மற்றும் திட்டமிடல்
வழிமுறைகளைக் கவனம் கொண்டு கட்டுப்பாடு
அமைத்து கொடுக்கப்படும்.



தமிழக அரசு

வருவாய்த் துறை

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

மாவட்டம் : விழுப்புரம்

வட்டம் : மரக்காணம்

வருவாய் கிராமம் : சொக்கந்தாங்கல்

பட்டா எண் : 302

உரிமையாளர்கள் பெயர்

1. சிவகாமி தந்தை ஜெயராமன்

புல எண்	உட்பிரிவு	புன்செய்		தன்செய்		மற்றவை		குறிப்புகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	
4	1C	0 - 7.50	0.20	--	--	--	--	D-2290/13--- -- 08-04-2003
4	2	0 - 64.00	1.76	--	--	--	--	D-2290/13--- -- 08-04-2003
5	1	0 - 96.00	2.64	--	--	--	--	D-2290/13--- -- 08-04-2003
		1 - 67.50	4.60					

குறிப்பு 2 :



- மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 07/11/158/00302 / 100835 என்ற குறிப்பு எண்ணை உள்ளிடு செய்து உறுதி செய்துகொள்ளவும்.
- இத் தகவல்கள் 24-11-2022 ஆன்று 09:55:40 AM நேரத்தில் அச்சடிக்கப்பட்டது.
- கைப்பேசி கேமராவின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்



தமிழக அரசு

வருவாய்த் துறை

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

வட்டம் : மரக்காணம்

பட்டா எண் : 309

மாவட்டம் : விழுப்புரம்

வருவாய் கிராமம் : சொக்கத்தாங்கல்

உரிமையாளர்கள் பெயர்

P.S.ஜெயராமன்

1. சிவசாமி மூப்பனார்

தந்தை

புல எண்	உட்பிரிவு	புள்ளிசெய்		தள்ளுசெய்		மற்றவை		குறிப்புகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக்டர் - ஏர்	ரூ - பை	ஹெக்டர் - ஏர்	ரூ - பை	ஹெக்டர் - ஏர்	ரூ - பை	
5	2	1 - 40.00	3.85	--	--	--	--	2018/0103 /07/126889--- -- 25-09-2018
		1 - 40.00	3.85					

குறிப்பு2 :



1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விலாசங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை நாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 07/11/158/00309 / 100802 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 24-11-2022 அன்று 09:56:31 AM நேரத்தில் அச்சடிக்கப்பட்டது.
3. ஸ்கான்பேசி கேமராவின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்.



விழாப்படி

மரக்காணம்

தொகுதி எண்	பெயர்	பெயர்	பெயர்	பெயர்	பெயர்	பெயர்	பெயர்	பெயர்	பெயர்	பெயர்	பெயர்
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
4	2	0640	176	302	அ. ச. சாமிநாதன்	-	-	-	-	-	-
5	1	0960	264	-	do	-	-	-	-	-	-
5	2	1400	385	309	do	-	-	-	-	-	-
/ 2 கண்ணாடி 15 கல் /											
கிராம நிர்வாக அலுவலர் கிழக்கு மாவட்டம் மரக்காணம் வட்டம் விழாப்படி மாவட்டம்											

அ-பதிவேடு விவரங்கள்

மாவட்டம் : Viluppuram(07)

வட்டம் : Marakkanam(11)

இராமம் : Chokkanthangal(158)

1. புல எண்	4	9. மண் வயனமும் ரகமும்	8-4
2. உட்பிரிவு எண்	2	10. மண் தரம்	7
3. பழைய புல உட்பிரிவு எண்	5-7A1 7A2	11. தீர்வை (ரூ - ஹெ)	2.75
4. பகுதி	-	12. பரப்பு (ஹெக்டேர் - ஏர்)	0-64.00
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	1.76
6. நிலத்தின் வகை	பஞ்சை	14. பட்டா எண்	302
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	இல்லை	16. பெயர்	ஜெயராமன்

குறிப்பு 1:



மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://clip.tn.gov.in/clip> என்ற இணைய தளத்தில் உறுதி செய்துகொள்ளவும்.

1. ஆவண விவரங்களை மேலும் உறுதி செய்துகொள்ள வேண்டுமெனில் தாங்கள் வட்டாட்சியர் அலுவலகத்தை அணுகி உறுதிப் படுத்திக்கொள்ளவும்.

Further Certificate confirmation and details, you may approach Tahsildar concerned.

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ANNEXURE VI



அ-பதிவேடு விவரங்கள்

மாவட்டம் : Viluppuram(07)
வட்டம் : Marakkanam (11)
இராமம் : Chokkanthangal(158)

1. புல எண்	5	9. மண் வயனமும் ரகமும்	8-4
2. உட்பிரிவு எண்	1	10. மண் தரம்	7
3. பழைய புல உட்பிரிவு எண்	5-10	11. தீர்வை (ரூ - ஹெ)	2.75
4. பகுதி	-	12. பரப்பு (ஹெக்டேர் - ஏர்)	0-96.00
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	2.64
6. நிலத்தின் வகை	பஞ்சை	14. பட்டா எண்	302
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	இல்லை	16. பெயர்	ஜெயராமன்

குறிப்பு 1:



மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://clip.tn.gov.in/clip> என்ற இணைய தளத்தில் உறுதி செய்துகொள்ளவும்.

1. ஆவண விவரங்களை மேலும் உறுதி செய்துக்கொள்ள வேண்டுமெனில் தாங்கள் வட்டாட்சியர் அலுவலகத்தை அணுகி உறுதிப் படுத்திக்கொள்ளவும்.

Further Certificate confirmation and details, you may approach Tahsildar concerned.



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அ-பதிவேடு விவரங்கள்

மாவட்டம் : Viluppuram (07)

வட்டம் : Marakkanam (11)

இராமிம் : Chokkanthangal (158)

1. புல எண்	5	9. மண் வயனமும் ரகமும்	8-4
2. உட்பிரிவு எண்	2	10. மண் தரம்	7
3. பழைய புல உட்பிரிவு எண்	5-10	11. தீர்வை (ரூ - ஹெ)	2.75
4. பகுதி	-	12. பரப்பு (ஹெக்டேர் - ஏர்)	1-40.00
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	3.85
6. நிலத்தின் வகை	பஞ்சை	14. பட்டா எண்	309
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	இல்லை	16. பெயர்	P.S.ஜெயராமின்

குறிப்பு 1:



மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://clip.tn.gov.in/clip> என்ற இணைய தளத்தில் உறுதி செய்துகொள்ளவும்.

1. ஆவண விவரங்களை மேலும் உறுதி செய்துக்கொள்ள வேண்டுமெனில் தாங்கள் வட்டாட்சியர் அலுவலகத்தை அணுகி உறுதிப் படுத்திக்கொள்ளவும்.

Further Certificate confirmation and details, you may approach Tahsildar concerned.



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ANNEXURE VI

भारतीय गैर न्यायिक - 3 OCT 2024

बीस रुपये

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INDIA NON JUDICIAL

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தமிழ்நாடு தமிழ்நாடு TAMIL NADU

நாள் 2-12-2023

செய்யுள்ள
சுமார்.S. ஜெயராஜன், M.A.
மு.வி. உரிமை எண்: 1/17
92, மார்த்தண்டி தெரு, அம்பலூர்,
தமிழ்நாடு. செல்: 8803054777

குத்தகை ஒதுக்கீடு

2023 ஆம் ஆண்டு பிப்ரவரி மாதம் 02 ஆம் தேதி அரியலூர் மாவட்டம், அரியலூர் நகரம், பெரியார் நகர், நெ.32, முதல் தெருவில் வசித்துவரும் சிலசாமி குமாரர் பி.எஸ்.ஜெயராஜன் ஆகிய நாள் விழுப்புரம் மாவட்டம், மரக்காணம் வட்டம், சொக்கந்தாங்கல் கிராம எல்லையில் புல எண். 5/1 ல் 0.96.0 ஏர்ஸ், 5/2 ல் 1.40.0 ஏர்ஸ், 4/2 ல் 0.64.0 ஏர்ஸ் ஆக ஹெக்டர்-3.00.0 ஏர்ஸ் நிலத்தை அரியலூர் மாவட்டம், குறும்பன்சாவடி, ஜெ.ஜெ.நகர், நெ.எம்29ஏ, தமிழ்நாடு வீட்டு வசதி வாரியத்தில் இயங்கிவரும் J.M.Minerals நிறுவனத்திற்கு குவாரி பணி செய்வதற்கு ஆண்டுக்கு ரூ.50,000 வீதம் 12 ஆண்டுகளுக்கு குத்தகைக்கு கொடுத்துள்ளேன்.

S. Jayaraj.



தமிழ்நாடு தமிழ்நாடு TAMILNADU
20038 P.S. ஜெயராமன்
18.10.12 அரியலூர்

எஸ். அப்துல் அசைன் பாஷா
மு.தா.வி. சேடன் குட்டை
திண்டிவனம், தமிழ்நாடு.
L.No. 1215-2/ஆ1/2009

V 899530

கிரையம் ரூபாய் : 5,58,600/-
மதிப்பு ரூபாய் : 5,58,600/-

2012-ம் ஆண்டு அக்டோபர் மாதம் 18 - ம் தேதி, அரியலூர் மாவட்டம், அரியலூர் வட்டம், கஸ்பா அரியலூர், பெரியார் நகர் முதல் தெரு, 30 - ம் நெம்பர் வீட்டில் வசிக்கும், திரு. சிவசாமி மு.பனார் குமாரர் திரு. P.S. ஜெயராமன் (Voter ID No. SSL 0239848) அவர்களுக்கு.

விழுப்புரம் மாவட்டம், திண்டிவனம் வட்டம், கீழ்அருங்குணம் கிராமத்தில் வசிக்கும், லேட். வைத்திரெட்டியார் குமாரர் திரு. V. குருசாமி (கு.அ.எண். 07/G/0410256) -1, மேற்படி முகவரியில் வசிக்கும், மேற்படி V. குருசாமி குமாரத்தியும், சீனுவாசன் மனைவியுமான திருமதி. சத்யபாமா (கு.அ.எண். 07/G/0410256) -2, மேற்படி முகவரியில் வசிக்கும், மேற்படி V. குருசாமி குமாரத்தியும், சங்கர் மனைவியுமான திருமதி. வசந்தபிரியா (கு.அ.எண். 07/G/0410256) -3, ஆகிய நாங்கள் மூவரும் சேர்ந்து எழுதிக் கொடுத்த சுத்த விக்கிரையப் பத்திரம்.

எழுதிக் கொடுப்பவர்கள்

• V. [Signature]

• S Sathya bama

• a. vasanthipriya

எழுதிவாங்குபவர்

[Signature]





தமிழ்நாடு TAMILNADU
 20039
 18.10.12
 P. S. சாதுராண்
 அரியலூர்

எஸ். அப்துல் அசேன் பாஷா
 மு.தா.வி. சேடன் குட்டை
 திண்டிவனம், தமிழ்நாடு.
 L.No. 1215-2/ஆ/1/2009

V 899532

- 2 -

என்னவென்றால், இதனடியில் வரும் சொத்து எங்களில் 1-வது நபர் 11.10.1973 - ல் பொது குடும்பத்தில் ஏற்படுத்திக் கொண்ட பாக அட்டவணைப்பத்திரம் மூலம் கிடைத்து அந்தப்பத்திரம் திண்டிவனம் சார்பதிவுகத்தில் 1 புத்தகம் 1973 -ம் வருடத்திய 1968 -ம் எண்ணாக பதிவு செய்யப்பட்ட ஆவணத்தில் எங்களில் 1-வது நபருக்கு E ஷெப்யூல் சொத்தாக கிடைத்த சொத்துக்களில் திண்டிவனம் வட்டம், சொக்கந்தாங்கல் கிராமத்தில், எங்களில் 1-வது நபர் பெயரில் 58 -ம் நெம்பர் பட்டாவாய் தாக்கலாகி அனுபவித்து வரும் சொத்தும், எங்களில் 1-வது நபர் 22.8.1985 - ல் திண்டிவனம் வட்டம், நல்முக்கல் கிராமத்தில் வசிக்கும், பச்சையப்ப ஆச்சாரி மனைவி மீனாட்சி அம்மாளிடம் சுயமாய் கிரையம் பெற்று அந்தப்பத்திரம் எண்டியூர் சார்பதிவுகத்தில் 1 புத்தகம் 17 தொகுதி, 285 முதல் 287 வரை பக்கங்களில் 1985 -ம் வருடத்திய 605 -ம் எண்ணாக பதிவு செய்யப்பட்ட ஆவணத்தில் கண்ட சொத்தை எங்களில் 1-வது நபர் பெயரில் சொக்கந்தாங்கல் கிராமத்தில், 46 -ம் நெம்பர் கூட்டுப்பட்டாவாய் தாக்கலாகி அனுபவித்து வரும் சொத்தும் சேர்த்து அதுமுதல் இதுநாள் வரையில்

எழுதிக் கொடுப்பவர்கள்

எழுதிவாங்குபவர்

V. Sathya

S. Sathya

S. Sathya

avapathi reya





தமிழ்நாடு தமிழ்நாடு TAMILNADU
 20040 P.B. மதுராண்
 18.10.12 அரியலூர்

எஸ். அப்துல் அசேன் பாஷா
 மு.தா.வி. சேடன் குட்டை
 திண்டிவனம், தமிழ்நாடு.
 L.No. 1215-2/ஆ1/2009

V 899533

- 3 -

எங்களில் 1-வது நபரின் கவாதீனத்தில் வந்து எங்களில் 1-வது நபர் சர்க்கார் தீர்வையும் செலுத்தி சர்வ சுதந்திரமாய் ஆண்டனுபவித்து வரும் இதனடியில் கண்ட எங்களுக்கு சொந்தமான சொத்துக்களை நாங்கள் தங்கள் பெயருக்கு சுத்த விகிதையம் செய்து கொடுத்து விட்டு கீழ்க்கண்ட சாட்சிகளின் முன்னிலையில் எங்கள் குடும்ப செலவிற்காக நாளது தேதியில் நாங்கள் தங்களிடத்தில் பெற்றுக் கொண்ட ரொக்கம் ரூபாய். 5,58,600/- இந்த ரூபாய். ஐந்து இலட்சத்து ஐம்பத்தி எட்டாயிரத்து அறநூறும் நாங்கள் பெற்றுக் கொண்ட படியால் இன்று முதல் இதனடியில் வரும் சொத்துக்களை தாங்களே கைப்பற்றி தானாதி வினிமய விற்கிறையங்களுக்கு உரித்தாய். புத்திர. பெளத்திர பாரம்பரியமாய் சர்வசுதந்திர பாத்தியத்துடன் ஆண்டனுபவித்துக் கொள்ள வேண்டியது.

சொத்து விபரத்தில் விவரிக்கப்பட்டுள்ள சொத்துக்களின் மீது எந்தவித கலனும் இல்லை அப்படி கலன் என்று தெரிய வந்து அதனால் தாங்கள் கிரையம் வாங்கும் சொத்துக்களுக்கு நஷ்டம் உண்டானால் அதனை நாங்களே முன்னின்று இதர சொத்துக்களைக் கொண்டு வில்லங்கத்தை தீர்த்துக்கொடுக்க சம்மதிக்கிறோம்.

எழுதிக் கொடுப்பவர்கள்

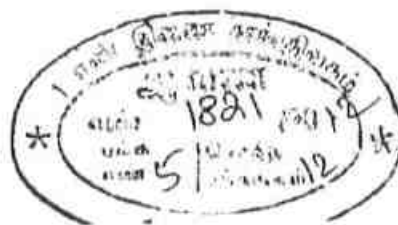
எழுதிவாங்குபவர்

V. Sathya

S. Sathya

S. Sathya

S. Sathya





தமிழ்நாடு தமிழ்நாடு TAMILNADU
2004/18.10.12
பி.பி.வெய்யாண்டி
அரியலூர்

எஸ். அப்துல் அசேன் பாஷா
மு.தா.வி. சேடன் குட்டை
திண்டிவனம், தமிழ்நாடு.
L.No. 1215-2/ஆ/1/2009



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சொத்து விபரத்தில் கண்டுள்ள சொத்துக்களை நாங்கள் தற்போது எந்தவிதமான ஒத்தி. உயில்தாவா. போக்கியம், குலாரிடல், அடமானம், முன்கிரைய ஒப்பந்தம், செட்டில்மெண்ட் கோர்ட் அட்டாசுமெண்ட் போன்ற எந்த வித கலன்களும் உட்படுத்த வில்லை என்று உறுதிசெய்கிறோம்.

சொத்துவிபரத்தில் விவரிக்கப்பட்டுள்ள சொத்துகளுக்கு செலுத்த வேண்டிய வரி வகையறாக்கள் அனைத்தும் இன்றைய தேதிவரையில் பாக்கிஇல்லாமல் செலுத்தி விட்டோம், இனிமேல் கிரையம் பெறும் சொத்துக்களுக்குரிய வரி வகையறாக்களை தாங்களே தங்கள் பெயரில் செலுத்திக் கொள்ள வேண்டியது.

சொத்து விபரத்தில் விவரிக்கப்பட்டுள்ள சொத்தின் சுவாதீனத்தையும் அதற்குண்டான அனைத்து தாஸ்தாவேஜிக் நகலையும், அசலையும் இன்று தேதியில் தங்கள் வசம் ஒப்படைத்து விட்டோம்.

எழுதிக் கொடுப்பவர்கள்

எழுதிவாங்குபவர்

V. Sathya

Rajam

S.Sathya kuma

ce.vasanthi renya





தமிழ்நாடு தமிழ்நாடு TAMILNADU
20042 P.S. அபயராஜன்
18.10.12 அரியமூரர்

எஸ். அப்துல் அசேன் பாஷா
மு.தா.வி. சேடன் குட்டை
திண்டிவனம், தமிழ்நாடு.
L.No. 1215-2/ஆ1/2009

V 899535



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மேற்படி சொத்துவிபரத்தில் விவரிக்கப்பட்டுள்ள சொத்துக்களின் பட்டாவின் பதிவையும், மின் இணைப்பு எண்ணையும் இன்றே தங்கள் பெயருக்கு பெயர் மாற்றம் செய்து கொள்ள சம்மதிக்கிறோம். இக்கிரையபத்திரத்தில் ஏதாவது சேர்த்தலோ, நீக்கலோ அல்லது திருத்தலோ நேரிடின் நாங்கள் தங்களிடமிருந்து எவ்வித பிரதிபலனும் எதிர்பார்க்காமல் தங்கள் செலவில் அதனை சரிசெய்து கொடுக்க சம்மதிக்கிறோம்.

இந்த கிரைய சொத்துக்களில் எங்களைத் தவிர வேறு யாருக்கும் எந்தவிதமான பாத்தியமோ, பின்தொடர்ச்சியோ இல்லை என்று நீங்கள் நம்பும்படி நாங்கள் உறுதிசெய்கிறோம்.

இந்தப்படி நாங்கள் அனைவரும் சேர்ந்து சம்மதித்து எழுதிக் கொடுத்த சுத்த விக்கிரையப் பத்திரம்.

எழுதிக் கொடுப்பவர்கள்

எழுதிவாங்குபவர்

V. Sathya Bama

S. Sathya Bama

S. Sathya Bama

Dr. Varganthe Raja



- 3 OCT 2024

भारतीय गैर न्यायिक INDIA NON JUDICIAL

एक हजार रुपये

रु.1000

ONE THOUSAND RUPEES

Rs.1000

INDIA

தமிழ்நாடு தமிழ்நாடு TAMILNADU

20043
18.10.12

பி.ச. அனந்தராஜன்
சுபிரதீபர்

எஸ். அப்துல் அசேன் பாஷா
மு.தா.வி. சேடன் குட்டை
திண்டிவனம், தமிழ்நாடு.
L.No. 1215-2/ஆ1/2009

V 899536

- 6 -

சொத்து நிபரம்

திண்டிவனம் ரிடி. திண்டிவனம் 1 எண் இணை சார்பதிவகம், திண்டிவனம் வட்டம், மரக்காணம் ஒன்றியத்தைச் சேர்ந்த கீழ்க்கண்ட பஞ்சாயத்து எல்லைக்குட்பட்ட சொக்கந்தாங்கல் கிராமத்தில், எங்கிலில் 1-வது நபரின் பெயரில் 58-ம் நெம்பர் பட்டாவாய் தாக்கலாகி அனுபவித்து வரும்.

புஞ்சை புது சர்வே எண். 5/1 - ஹெக்டேர் 0.96.0 ஏர்ஸ் பூராவும். ஏக்கர் 2.37 செண்டு. இதற்கு பழைய சர்வே எண். 5/10 - ஏக்கர் 7.50 செண்டில் சம்மந்தம். மேற்படி சர்வேயில் உள்ள கிணறும், மேற்படி கிணற்றில் பொருத்தப்பட்டுள்ள 3 எச்.பி மின் மோட்டார் பம்பு செட், மின் இணைப்பு எண். 48-ம் அதன் பெயரிட தொகை உட்பட

புஞ்சை புது சர்வே எண். 4/2 - 0.64.0 ஏர்சில் சம்மந்தப்பட்ட பழைய சர்வே எண். 5/7 ஏ2 - 1.19 செண்டு 5/8 - 0.11 செண்டு, 5/9 - 0.07 செண்டு, ஆக 1.37 செண்டு இதற்கு பட்டா எண். 46 - ஆகும். எழுதிக் கொடுப்பவர்கள்

எழுதவாங்குபவர்

V. Sathya bama

S. Sathya bama

an. v. sathya bama





தமிழ்நாடு தமிழ்நாடு TAMILNADU
20044 P.B. ரெயராண்
18.10.12 அரியலூர்

எஸ். அப்துல் அசேன் பாஷா
மு.தா.வி. சேடன் குட்டை
திண்டிவனம், தமிழ்நாடு.
L.No. 1215-2/ஆ1/2009

V 899531

- 7 -

ஆக மொத்தம் 3.74 செண்டு புஞ்சை நிலம், கிணர், மின் மோட்டார் சேர்த்து கிரையம்
கொடுக்கப்பட்டது. மேற்படி சொத்தின் தற்கால சந்தை மதிப்பு ரூபாய். 5.58,600/-
எழுதிவாங்குபவர்
எழுதிக் கொடுப்பவர்கள்

V. Sathya bama

S. Sathya bama

Ar. Varanthy Prava



சாட்சிகள்:

A. Sathya bama & M. Adhimoolam, Periyar Nagar, Aryalur.

S. Sathya bama & P. Sathya bama Ar. Varanthy Prava

கணினியில் தட்டச்சு செய்தவர்:
ஆவணம் வரைவு செய்தவர்:

S. Sathya bama

D. சுரேஷ், திண்டிவனம்.

M. காசிநாதன், கீழ்சிவிரி

மாநில உரிமம் எண். A82/TDM/2000

SECTION COMMISSIONER OF POLICE
IDENTITY CARD
15/10/2024

Section Commissioner of Police
Identity Card
15/10/2024

Signature

9





தமிழ்நாடு தமில்நாடு TAMILNADU

CR 428533

100/- J.M. MINERALS
18.11.2022 ARIYALUR

S. ஜெயராஜன், MA.
முத்திரைத்தாது அறிபணையாளர்.
உரிமம் எண்: 1/97 - 31-1-97
95, மாரக்கொடு தெரு, அரியலூர்.
தமிழ்நாடு. தொ: 9496604666

DEED OF PARTNERSHIP

This Deed of Partnership Made the 23rd day of November 2022 between:

1. SRI. P.S. JAYARAMAN, AGED ABOUT 51
S/O. SIVASAMY,
NO: 32, PERIYAR NAGAR FIRST CROSS,
ARIYALUR - 621 704.(of the First Part)

2. SMT. J. SUJATHA, AGED ABOUT 37
W/O. JAYARAMAN,
NO: 32, PERIYAR NAGAR FIRST CROSS,
ARIYALUR - 621 704.(of the Second Part)

(Each of them hereinafter called 'PARTNER')

18 J. Jayaraman

2) J. Sujatha



தமிழ்நாடு தமிழ்நாடு TAMILNADU

CR 428534

உ
நாள் 18/11/2022

J.M MINERALS
ARİYALUR.

S. ஜெயராஜன், MA.
முத்திகைத்தாள் கிற்பனையாளர்.
உரிமை எண் : 1/97 - 31-1-97
95, மனாக்கொடைத் தெரு, அரியலூர்.
தமிழ்நாடு. சென் : 9466204828



WHEREAS the said First and Second Part of this Deed have agreed to enter into a Partnership to Carry on the Business of the Sale of Blue Metal, Rough Stone Quarry and Readymix Concrete and other related products etc.in the name and style of "J.M MINERALS".

WHEREAS the Parties hereto desire that the terms and Conditions so agreed upon between them to be reduce into writing in order to avoid any dispute in future.

WHEREAS the Parties hereto desire that the terms and Conditions so agreed upon between them to be reduce into writing in order to avoid any dispute in future.

18/11/2022

2) J. Sujatha



தமிழ்நாடு தமில்நாடு TAMILNADU

CR 428535

100/-
18.11.2022

J.M MINERALS
ARIYALUR

S. ஜெயராஜன், MA.
முத்திரைத்தாள் விதிகையாளர்
உரிமம் எண்: 1/97 - 31-1-97
93.மார்க்கெட்டெரு. அரியலூர்
தமிழ்நாடு. சென்: 9488804888

NOW THEREFORE THIS DEED WITNESSETH AS UNDER:

1. The Name and Style of the Partnership shall be " J.M MINERALS ". and/or any other name or names as the Partners may decide from time to time.
2. The Principal Place of the Partnership shall for the Present be situated at NO: PII/M29, TNHB, J.J.NAGAR, KURUMBANCHAVADI, ARIYALUR-621704 and also the Branch office situated at S.F.NO: 4/1, CHOKATHANGAL VILLAGE, BRAHMADESAM POST, MARAKANAM TALUK, VIZHUPUAM DISTRICT - 604301 and such other place or places which the Partners may decide from time to time.
3. The Partnership shall be deemed to commence on 23.11.2022 and the duration of the Partnership Business shall be determinable 'AT WILL'.
4. The object of the Partnership shall be that of to carry on the Business of Sale of Blue Metal, Rough Stone Quarry and Readymix Concrete or any other related Business as the Partners may decide from time to time.

1/8 J. Jayaraj

2) J. Jayaraj



5. The Capital required for the Business of the Partnership shall be contributed by the partners and credited to their Capital Account. Additional sums needed for the business of the partnership, if contributed by the partners, the same shall be credited to a separate current account of such person. Contributions towards both capital and current accounts shall be entitled to interest at 12% and/or at such lower rate or rates including NIL rate as may from time to time be mutually agreed to between the partners.
6. That the Management of the Business of the Partnership shall be vest with the both Partners and they shall have the following Powers to look after the Business of the Firm:
 - (a) To Conducts all Tenders and attend all the correspondence and dealings of the firms with those dealing with firm and with all the Government, semi-Government, Firms, Private Companies and individuals.
 - (b). To appoint, dismiss the workers and fix the pay and allowances of the workers on behalf of the Firm.
 - (c). To appear and represent the firm in a court of Law, before any Officers of the State, Central Government, Local Authorities and before any other Offices or Institutions.
 - (d). To Receive Notices, Letters, Moneyorders, Parcels, Telegrams addressed to the firm either Registered or otherwise.
 - (e). To Borrow money from any person, Firm, Company, Bank or any Financial Institution, with or without security and for that, to sign, seal and deliver such deeds, and documents as may be necessary.
7. Any kind of Bank Account or Accounts may be opened in the Name of the Firm with any Bank or Banks and shall be operated either by the Managing Partners SRI. P.S. JAYARAMAN or SMT. J. SUJATHA [EorS].
8. The firm shall maintain proper books of Accounts for all its Transaction and Both the Partners have the right to access the books during the usual working hours of Partnership Business.
9. Both Partners shall be entitled to draw a sum of Rs.20,000/- each as monthly Salary and two Months Salary as Bonus or it shall be computed in the manner laid down in Explanation 3 to Section 40(b) of the Income Tax Act, 1961 or any other applicable Provision as may be in force in the Income Tax Assessment of the Partnership for the relevant accounting year.

1/8 J. Jayaraman

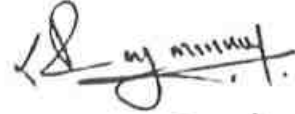
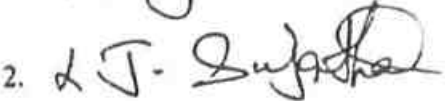
2) J. Sujatha



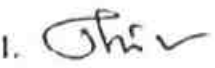
10. That the Net Profit or Loss arrived at after charging all expenses and out going incidental incurred for the purposes of the business of the firm, remuneration to partners and Interest to Partners shall be divided amongst the both Partners equally.
11. If any one of the partner dies, retires or dissolution of the Firm the goodwill of the firm shall be treated as Nil.
12. No new Partner or Partners shall be admitted to Firm without the Mutual Consent of the Partners.
13. If any Partner shall elect to retire from the Partnership he may give notice thereof in writing to the other Partner before three Months and after getting necessary documents for retirement, settle the accounts within three Months.
14. The Account of the Partnership Firm shall be prepared annually and for the purposes the Accounting Year shall close on the 31-st day of March every Year.
15. The above such clauses can be amended, altered, New clauses can be inserted, replacing the new clauses in the place of old one with the mutual consent of the partners and put the same in a Codicil and such Codicil shall be treated as part and parcel of the Original Partnership Instrument.
16. That for all other matters not specifically mentioned in the Partnership Deed the Provisions of the "Indian Partnership Act, 1932" shall apply.

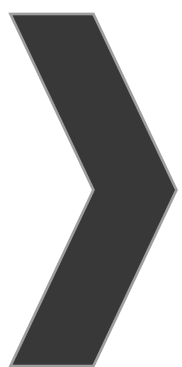
In witness whereof the Parties above mentioned have set their hands to this agreement on the 23rd day of November, Two thousand Twenty Two at ARIYALUR.

SIGNATURE

1. 
2. 

WITNESS:

1.  S. THIRUMURAN
S/o R. Singaravel, Sathamangalam.
ARIYALUR (DT)
2.  G. KANNADHASAN S/O R. GANESAN, KARUGUR (P.O), ARIYALUR DT



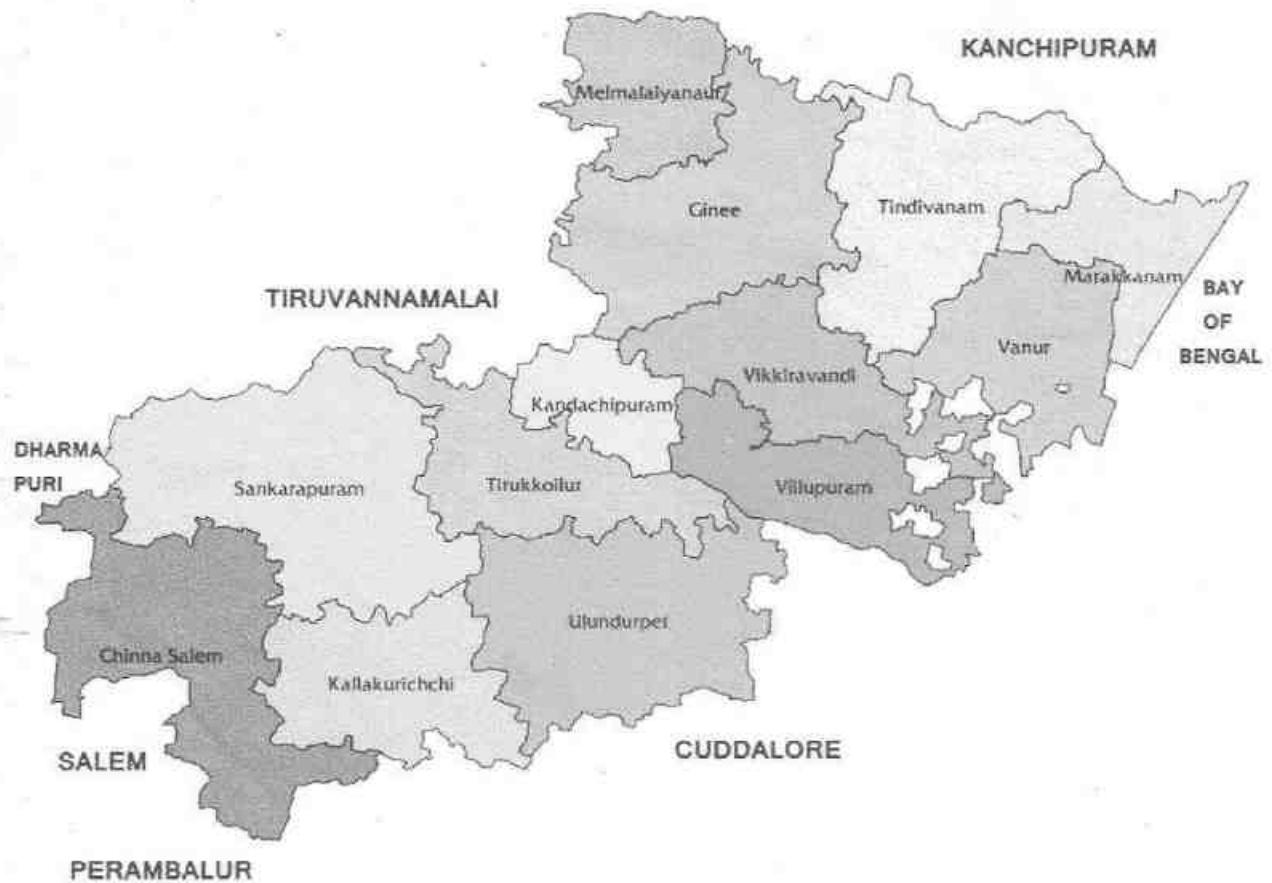
ANNEXURE-7

VILUPPURAM DISTRICT

DISTRICT SURVEY REPORT OF ROUGH STONE

(Prepared as per Gazette Notification S.O.3611 (E) dated 25.07.2018 of
Ministry of Environment, Forest and Climate Change)

Taluks
Viluppuram District



MAY -2019

VILUPPURAM DISTRICT
DISTRICT SURVEY REPORT OF ROUGH STONE

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1) Introduction:

Viluppuram district evolved from the erstwhile composite South Arcot District and commenced functioning from 30th September 1993 as 23rd district of Tamil Nadu State with its Head Quarters as Villupuram and the Viluppuram district is bounded by Bay of Bengal and the Union Territory of Puducherry in the East and Kancheepuram and Thiruvannamalai District in the North, Cuddalore District in the South and Dharmapuri and Salem Districts in West and it covers with a total area of 7194 sq.km. This district lies between 11°38'25" and 12°20'44" of north latitude and 78°15'00" and 79°42'55" of east longitude.

The main minor minerals available in the district include Dolerite Dyke (Black Granite), Migmatites (Multi colour Granite), Rough stone, Brick Earth, Red Earth, Silica Sand, Pebbles and River sand.

As a result of developmental activities and market demand for minor minerals, mining of minor mineral is vital. The mining if not carried out systematically, will result in ill-effects and environmental degradation in project effected area. Therefore a sustainable development of the area involving extraction of mineral wealth vis-à-vis protection of environment is the ultimate solution for betterment of mankind. With the objective of generating Viluppuram District Survey Report for minor minerals, a ten days collaborative field work was carried out by Viluppuram District Geology and Mines Department and Geological Survey of India to locate minor minerals, along with mining activities in the District.

2) Overview of mining activity in the district:

Rocks and Minerals of Economic importance found in Villupuram District are mainly Black Granite (Dolerite), Multi Colour Granite, Rough stone, Silica Sand, Red Earth, Pebbles, and Gravel occur at various places in the district.

Private companies play a major role in quarrying activity for minor minerals and the State Government undertaking viz., TAMIN takes a significant role in quarrying for granite and silica sand in the district. As of now 85 Rough Stone quarry leases, 18 Red earth, Gravel and Pebbles quarry leases are in existence. 68 quarry leases for black granites (dolerite) and 7 quarry leases for Multi colour granites (migmatite) were granted for dimension stone and 3 quarry leases for silica sand and 2 quarry leases for River Sand were also granted in the district.

3) General profile of the District.

3.1 Origin

Viluppuram District was segregated from the South Arcot District on G.O.Ms.No.1486 Revenue Y(3), Dated 18.12.1992 and became a separate district on 30th September 1993.

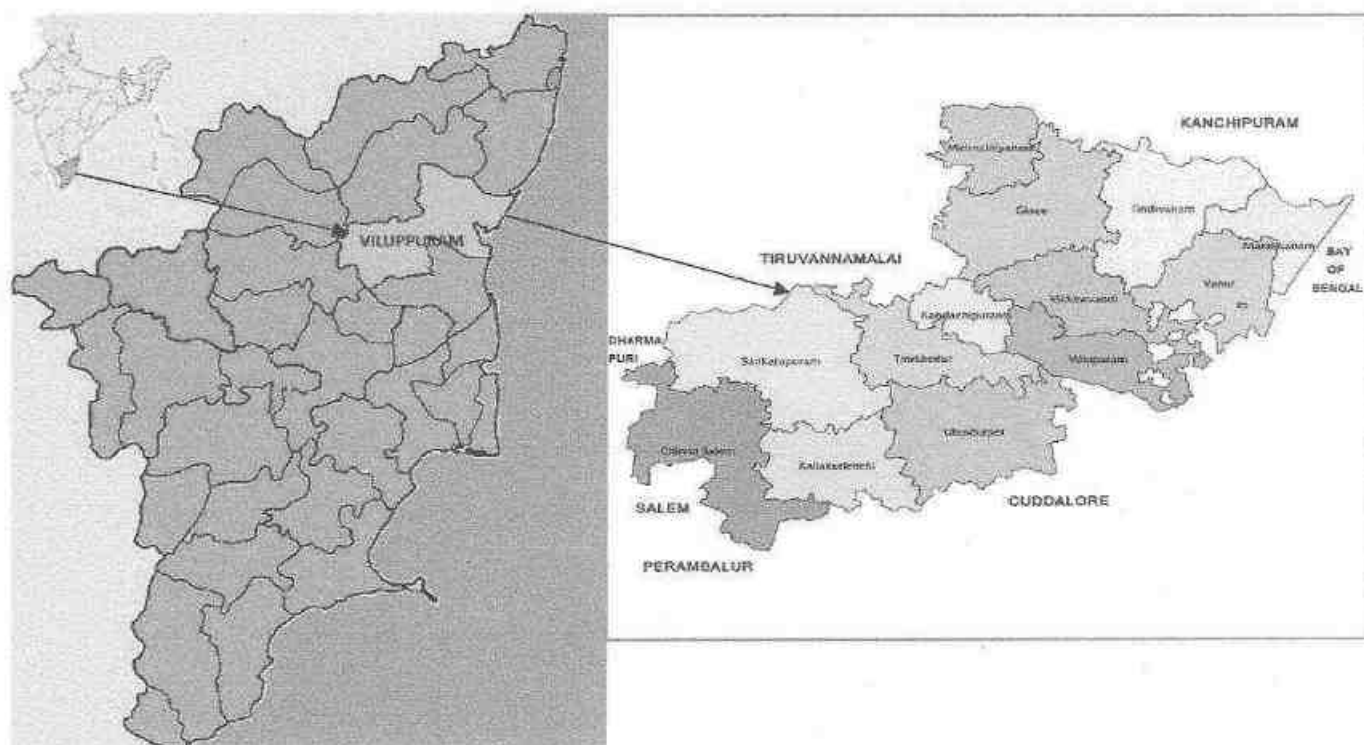
3.2 Location

Viluppuram District is located in northern Tamil Nadu and is about 160 k.m. south of Chennai. The District has an area of 7194 Sq.Km. and it is bounded by Bay of Bengal and the Union Territory of Puducherry in the East and Kancheepuram and Thiruvannamalai District in the North, Cuddalore District in the South and Dharmapuri and Salem Districts in West. In 1076 Km coastline of Tamil Nadu, this district has a coastline of 30 Km. This district lies between 11°38'25" and 12° 20'44" of north latitude and 78°15'00" and 79°42'55" of east longitude.

Viluppuram District is well connected by rail and road. Viluppuram Junction connects all major cities of India. NH 45 and NH 66 passing through the Viluppuram District connects major cities and towns of Tamilnadu. The nearest port located at Pondicherry which is about 40 km

eastern side of Viluppuram. Location map of the Viluppuram district is shown in plate no.1.

Plate No: 1. Location Map of Viluppuram District



3.3 Area and Population

According to the Department of Statistics, Chennai, the Viluppuram District covers an area of 7194 square kilometers. Villupuram district occupies the First rank among the Districts of the state of Tamil Nadu with regard to its size. The population of the District is 34,58,873 and out of this population, 17,40,819 (50.30 %) are males and the remaining 17,18,054 (48.7%) are females.

3.4 Administrative set - up

Viluppuram District consists of Four Revenue Divisions viz., Viluppuram, Tindivanam, Tirukoilur and Kallakurichi and the District has 13 Revenue Taluks, 3 Municipalities (Viluppuram, Tindivanam & Kallakurichi), 15 Town Panchayats, 22 Panchayat Blocks, 1099 Village panchayats and 1490 Revenue villages. It falls part of three parliamentary constituencies and eleven assembly constituencies in Viluppuram District.

Sl. No.	Name of the Division	Name of the Taluk
1	Viluppuram	Viluppuram
2		Vanur
3		Vikkiravandi
4	Tindivanam	Tindivanam
5		Gingee
6		Marakkanam
7		Melmalayanur
8	Tirukoilur	Tirukoilur
9		Ulundurpet
10		Kandachipuram
11	Kallakurichi	Kallakurichi
12		Sankarapuram
13		Chinnasalem

3.5 Agricultural Resources and Irrigation

The district receives the maximum rainfall during the north east monsoon season and it belongs to the North eastern agro-climatic zone and 76 per cent of the land holders own less than one hectare of land in this district. The major crops grown in the district are paddy, groundnut, sugarcane, kambu, gingelly, cotton and tapioca. Almost 50% of the total area is under agriculture. Paddy occupies the maximum area of 1.66 lakh ha, followed by groundnut (0.84 lakh ha), pulses (0.52 lakh ha), sugarcane (0.46 lakh ha) and kambu, (0.20 lakh ha). Maize, gingelly and cotton are grown in an area of about 10,000 ha each. The area of kambu, ragi, maize and pulses has increased comprehensively. The area of paddy and sugarcane is more or less constant over the years. The oilseed crops like groundnut, sunflower and castor have increased markedly over the years. It is the home of four sugar

mills and modern rice mills. Handloom industry also flourishes in the district because of cotton cultivation.

The main reservoirs located in viluppuram distriect are Vidur, Gomugi and Manimukthanathi. According to the Viluppuram District statistical hand book, the major type of irrigation is dug wells which fed about 126870 hectares of lands. Tube wells and tanks irrigate an area of 44337 and 24155 hectares respectively.

3.6 Trade and Commerce

Viluppuram district located about 160 km south of Chennai which makes the district one of the suitable district to setup industries. Viluppuram district is producing large quantities of agricultural and poultry products. There are many market committees in Gingee, Tindivanam and Viluppuram functioning in the district for the purchase and sale of rice, cotton, groundnut, gingelly and other oil seeds. The co-operative societies for milk are functioning in all part of the district. There are number of crusher units situated in the district which supplies size reduced stone (jelly) and M-Sand to various part of Tamilnadu. There are number dolerite dyke (black granite) quarries situated in the Viluppuram district which produce highest quality of granites. These granite blocks are mainly exported to countries like Japan, South Koriea, The Netherlands and the United kingdom.

There are three Co-operative sugar mills (Periyasevalai, Moongilthuraipattu, Kachirayapalayam) and three private sector sugar mills also existing in viluppuram district.

4. Geology of the District:

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
Archaean	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

A greater part of the district is covered by rocks belonging to Archaean age comprising the Charnockite Group, the Migmatite Complex, Sathyamangalam Group and the Bhavani Group and alkali complex of Proterozoic age. West of Kallakurichi (southwestern part of the district), the area comprises the Charnockite Group of rocks viz. charnockite, pyroxene-granulite and garnetiferous gabbro. West of Tirukoilur (central part of the district) and east of the charnockite terrain (i.e., kallakurichi area) the Migmatite complex is made up of Hornblende-biotite gneiss. Pink augen gneiss and pink migmatite with younger intrusions of Tindivanam and Gingee Granites (2250 Ma) and basic dykes (Proterozoic). The Migmatite Complex forms the major country rock of the area covering more than sixty percent and extending towards east upto Vikravandi, South of Gingee. Epidote-hornblende gneiss (Proterozoic age) occurs as small isolated outcrops. Dolerite dykes form the youngest basic intrusives traversing both Charnockite as well as the migmatite country equally. Overlying the Archaeans are the marine fossiliferous Upper, Cretaceous and Palaeogene Formations occurring in two separate sub-basins separated by thick cover of alluvial sediments deposited by Gadilam and Pennaiyar rivers. The two sub-basins are recognized as Vridhachalam sub-basin and Pondicherry sub-basin. In

Vridhachalam sub-basin, the marine Upper Cretaceous sediments are divisible into four formations viz., Parur Formation, Patti Formation, Mattur Formation and Aladi Formation. The Parur Formation is not exposed in the district. The Patti Formation comprises fossiliferous sandy limestone and Calcareous shale. Mattur Formation and Aladi Formation are chiefly composed of argillaceous sandstone and shales with pockets of fossiliferous limestone. The Pondicherry sub-basin is partly exposed in the eastern part of viluppuram district and the Upper Cretaceous sediments are divisible into Vanur Formation, comprising argillaceous sandstone with hard bands of calcareous sandstone and Nesal Formation comprising fossiliferous shale, siltstone and bands of shell limestone. The Palaeocene rocks, overlying the Upper Cretaceous Formations, are divided into Karasur Formation comprising fossiliferous limestone with calcareous shale and Manaveli Formation comprising siltstone and fine grained argillaceous sandstone and recognized as Putturai Group. The Tertiary rocks comprises the Cuddalore Formation, consisting of cobbly and pebbly sandstone, mottled sandstone, ferruginous sandstone with bands and lenses of clay besides lignite seams. This formation contains large quantities of fossil wood around Thiruvakkarai which have been declared and maintained as National Fossil wood Park by G.S.I. These are overlain by the Quaternary fluvial, marine and Aeolian formations along the coast as well as river courses.

The terrain displays much structural complexity due to the multiple deformation it has suffered. A number of prominent shear zones have been recognised viz., N-S shear zone, east of Gingee town and NNE-SSW to ENE-WSW among which the one trending NNE-SSW near the eastern foot of the Kalrayan hills SW of Kallakurichi is the most striking. (GSI- Viluppuram District Resource Map)

Mineral Wealth

The occurrences of limestone, limeshells, clay and rock salt are reported from the district. The polymetal sulphide deposit occurrence, eleven

kilometers southwest of Mamandur, in the granulite terrain has been extensively studied by way of mapping, sampling, geophysical surveys and drilling by GSI, BGML and by Tamil Nadu Government (UNDP Programme). The polymetal deposit includes ores of copper, lead and silver. The district forms the hub for exploitation of dimensional stone viz., granite deposit in the country. The world famous black granite. Dykes of Kunnam area, Vanur taluk are rated at par with the Swedish "EBONY" black. WNW-ESE and NE-SW dykes swarm between Mailam- Perumbakkam-Kunnam- Thiruvakkarai-V.Parangini village is considered to be the potential zone for exploitation of industrial granites. In addition, the district is also noted for multi-coloured granite occurrences of Gingee area. Gypsum occurs in the eastern flank of Kaliveli tank near Marakkanam, Limeshells are locally recovered from the coastal lagoons of Marakkana. Reh salt (sodium sulphate and carbonate) occur near the eastern flanks of Kaliveli near Marakkanam.



Field photograph: Rough Stone Quarry at Keezh Arungunam Village, Marakkanam Taluk.



Field photograph: Rough Stone Quarry at Keezhmalai Village, Gingee Taluk.

5. Drainage of Irrigation Pattern

Irrigation Practices

The nine-fold land use pattern (2005-06) in the district is given in the

Table below.

S. No.	Classification	Area (Ha)
1	Forests	71697
2	Barren & Uncultivable Lands	56651
3	Land put to non agricultural uses	135874
4	Cultivable Waste	10405
5	Permanent Pastures & other grazing lands	4195
6	Groves not included in the net area sown	6142
7	Current Fallows	86725
8	Other Fallow Lands	19802
9	Net Area sown	330712
	Total	722203

The chief irrigation sources in the district are wells, tube wells, tanks and canal. The block-wise number of irrigation sources in the district is given in the Table below.

S. No.	Block	Canals	Tanks	Tube wells	Ordinary wells
1	Melmalayanur	1	85	468	10911
2	Gingee	0	132	0	11821
3	Vallam	0	119	533	10509
4	Olakkur	1	116	252	6028
5	Mailam	1	94	750	2259
6	Marakanam	0	150	1418	9986
7	Koliyanur	41	55	3385	1388
8	Kanai	18	86	298	10162
9	Kandamangalam	0	62	4597	4843
10	Vikkiravandi	0	170	1332	9799
11	Mugaiyur	24	100	645	5492
12	Tirukoilur	7	60	585	2191
13	Rishivandiyam	0	129	13	6683
14	Sankarapuram	0	101	0	5319
15	Thiruvennainallur	31	135	3765	16421
16	Thiyagadurgam	4	54	63	11387

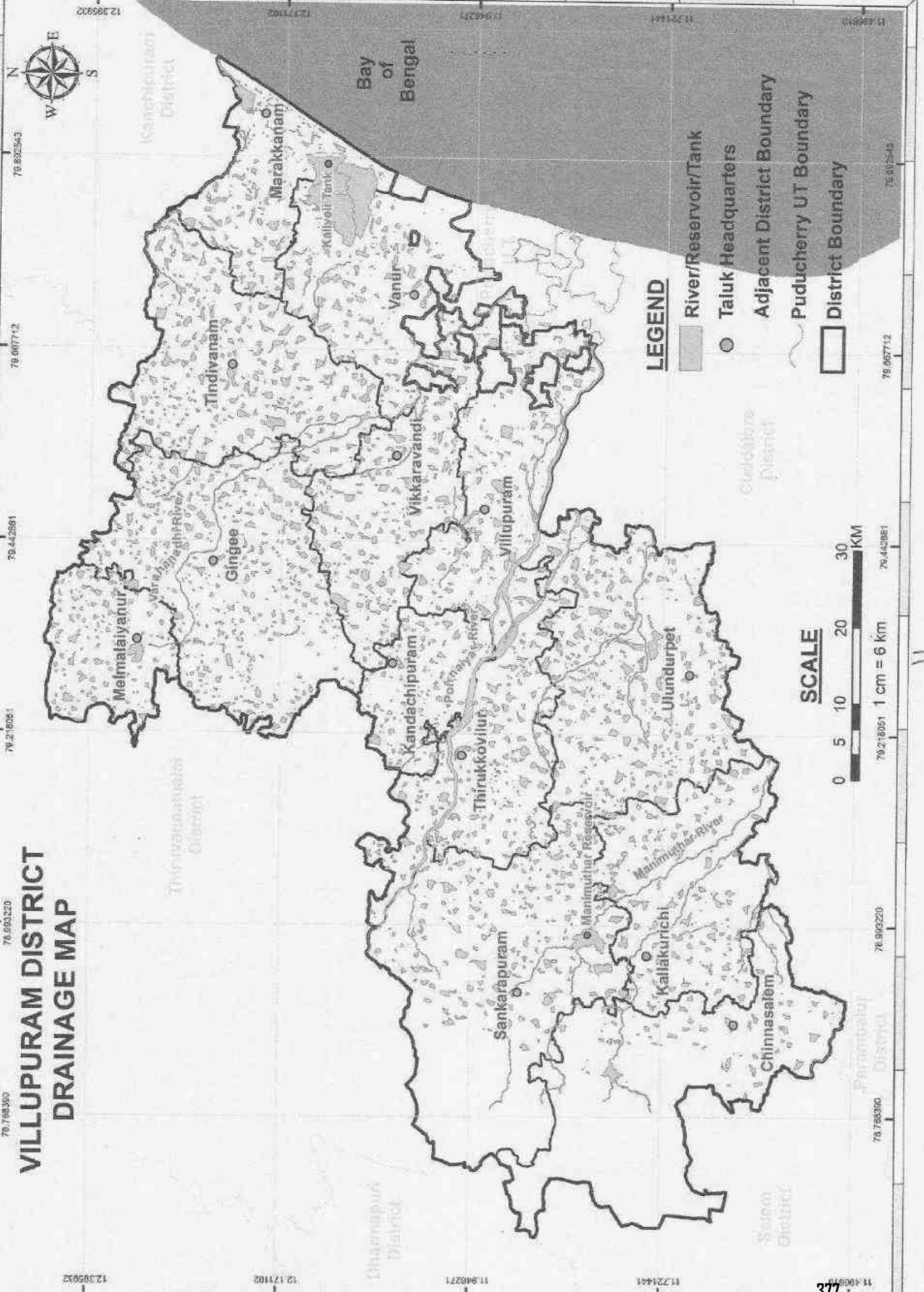
17	Kallakurichi	0	0	25	608
18	Chinnasalem	32	93	38	9306
19	Kalrayan Hills	4	123	0	8540
20	Ulundurpet	14	81	45	11302
21	Tirunavalur	4	58	1775	3285
22	Vanur	14	82	3467	6631
	Total	196	2085	23454	164871

The block-wise and source-wise net area irrigated (2005-06) in the district is given below.

S. No.	Block	Net area Irrigated (Ha)					Total
		Canals	Tanks	Tube wells	Ordinary wells	Other sources	
1	Melmalayanur	0	2597	1200	9138	0	12935
2	Gingee	0	4211	0	8401	0	12612
3	Vallam	0	3790	1384	5623	0	10797
4	Olakkur	0	3239	1264	4741	0	9244
5	Mailam	102	2321	2554	5682	0	10659
6	Marakanam	0	3172	4167	6708	0	14047
7	Koliyanur	0	3196	6069	0	0	9265
8	Kanai	0	3866	1083	5324	0	10283
9	Kandamangalam	0	939	11276	522	0	12737
10	Vikkiravandi	0	3342	3500	4890	0	11732
11	Mugaiyur	980	2415	3376	5100	0	11871
12	Tirukoilur	314	3214	682	5355	0	9565
13	Rishivandiyam	290	2266	68	8871	0	11495
14	Sankarapuram	587	3779	0	8503	0	12869
15	Thiruvennainallur	72	4847	5385	653	0	10957
16	Thiyagadurgam	1525	0	464	5581	0	7570
17	Kallakurichi	2200	2479	12	10128	0	14819
18	Chinnasalem	411	2295	287	14943	0	17936
19	Kalrayan Hills	68	0	0	2012	102	2182
20	Ulundurpet	0	3258	641	5189	0	9088
21	Tirunavalur	0	4386	2741	2588	0	9715
22	Vanur	99	1593	8372	699	0	10763
	Total	6648	61205	54525	120661	102	243141

The well irrigation is highest in Chinnasalem followed by Kallakurichi, Melmalayanur, Rishivandiyam, Sankarapuram, and Gingee so on. (Viluppuram district groundwater brochure, Central Ground Water Board).

VILLUPURAM DISTRICT DRAINAGE MAP



LEGEND

- River/Reservoir/Tank
- Taluk Headquarters
- District Boundary
- Adjacent District Boundary
- Puducherry UT Boundary

SCALE



6. Land Utilization Pattern in the District: Forest, Agricultural, Horticultural, Mining etc;

Out of the total land area of 7.22 lakh hectares, an extent of 3.31 lakh hectares (45.8 percent) is utilised for cultivation. The waste land (Categories 3&5) available in the district is 67056 ha. Vast stretches of waste land are formed in Gingee, Kallakurichi, Marakkanam and Vanur Blocks. Forest land accounts for 9.93 per cent in the geographical area in the district .

Sl. No.	Classification	Area (Ha)
1	Forests	71697
2	Barren & Uncultivable Lands	56651
3	Land put to non-agricultural uses	135874
4	Cultivable Waste	10405
5	Permanent Pastures & other grazing lands	4195
6	Groves not included in the net area sown	6142
7	Current Fallows	86725
8	Other Fallow Lands	19802
9	Net Area sown	330712
Total		722203

6.1 Forest:

Forest area in the district constitutes about 9.9% of the total area of the District and lies in the areas bordering Salem, Dharmapuri and Thiruvannamalai Districts.

The forests of this district are divided into three regions from the points of view of topography, soil conditions and flora. They are: -

The coastal regions -- containing the casuarinas plantations, sand dunes, the mangroves and scrub jungle. The whole of Pitchavaram, Pitchavaram extension and Killai Reserved Forests and the Porto Novo and Ariyakosti.

The lateritic region -- containing the extensive cashew plantation and the dry evergreen forest - Kangirupum Bit I and II,

Velangulam, Ammeri, Narimanam, Semakottai and Extension, Kallamedu and Kuttady Reserved Forests.

The inland plains region – containing the eucalyptus and miscellaneous fuel plantations and the thorny scrub jungles – Alwarmalai, Varanjaram, Porasakurichi, Magarur, Kattumailur, Nangur, Krishnapuram, Thottapadi, Kottalamalai, Melpalangur, Mallapuram and Poosapadi Reserved Forests and Pandur, Sirupakkam, Kattayanallur, Kuttakudi.

Gingee and Kalrayan Hills are the two hills in the district. Teak wood, rose wood and sandal wood trees are grown in the hills. In the Kalrayan Hills and Gingee areas some medicinal plants are also grown. In the social forest areas, trees raised are mainly for firewood and paper making. Babul, Eucalyptus and Casuarina are grown in the district. In some pockets of the district, cashew is also grown.

6.2 Agriculture:

The district receives the maximum rainfall during the north east monsoon season and it belongs to the North eastern agro-climatic zone and 76 per cent of the land holders own less than one hectare of land in this district. The major crops grown in the district are paddy, groundnut, sugarcane, kambu, gingelly, cotton and tapioca. Almost 50% of the total area is under agriculture. Paddy occupies the maximum area of 1.66 lakh ha, followed by groundnut (0.84 lakh ha), pulses (0.52 lakh ha), sugarcane (0.46 lakh ha) and kambu, (0.20 lakh ha). Maize, gingelly and cotton are grown in an area of about 10,000 ha each. The area of kambu, ragi, maize and pulses has increased comprehensively. The area of paddy and sugarcane is more or less constant over the years. The oilseed crops like groundnut, sunflower and castor have increased markedly over the years. It is the home of four sugar mills and modern rice mills. Handloom industry also flourishes in the district because of cotton cultivation.

6.3 Horticulture :

Tapioca and cashew are the most important horticultural crops accounting for the major area under horticulture in the district. The major development activities in respect of horticultural development happening around the district are Net house structure, nursery and vegetable production, pandal for vegetable production, plant protection package for vegetables, plastics crates for vegetable handling and transport, farm waste shredder/vegetable waste shredder, cashew high density planting, borewell with casing pipe, banana bunch cover, humic acid/effective e-Microbes, production of disease free planting materials, grapes bird net, tractor mounted steam boiler, support system for crops, banana, gloriosa, banana corm injector, mango harvester, Enterprising Farmers Associations, Community fencing, Support for betelvine and Support for senna cultivation.

6.4 Mining:

Hilly, undulating terrain like Kommedu, Mattapara of Gingee Taluk, Mookkanur of Sankarapuram, Karadi of Tirukoilur, Ammanampakkam of Tindivanam are being mined for Multi-Colour Granite. The elevated hilly and undulating terrain around Tiruvakkarai, Kunnam, Semangalam, Sirunavoor, Karasanur, Perumbakkam and Eraiyur of Vanur Taluk, Udaiyanatham, Malligaipattu, Kangeyanur, Siruvalai, Muttathur, Vengamur, Hanumanthapuram, Kaanai and Kunnathur of Villupuram Taluk, Eraiyanur, Varagupattu, Adasal, Nagar and Sirvadi of Tindivanam taluk, Pothuvai-Pazhavalam, Nagalampattu, Sathaputhur, Padipallam, Thatchampattu, Valathi, Irumpuli, Sathaputhur, Sorathuperiyan kuppam of Gingee taluk, Eeriyur of Chinnasalem taluk, Thirukkanangur, Kaduvanur, Gudaram of

Sankarapuram taluk, Ulagiyanallur and Sithallur of Kallakurichi taluk, Kuzhundiram pattu of Tirukoilur taluk are being mined for Black Granite.

Blue metal is being mined from undulating, barren or agricultural field areas of Thiruvakkarai, Eraiyur, Thenkodipakkam, Nemili, Murukkam, Thollamur, Ulagapuram, Peravur of Vanur taluk, Nalmukkal, Algaiyapakkam, T. Nallalam, Keelarungunam, Vilangampadi, Kunnappakkam, Yenthur, Chokkanthangal, Keelsiviri, Brammadesam, Keelsevur, Madavanthangal, Perumkkal of Marakkanam and Tindivanam taluk, Sivanarthangal, T. Keeranur, Keelvalai and Veerapandi of Tirukoilur taluk, Pangaram and Rayarpalayam of Kallakurichi, Katchirayapalayam of Chinnasalem taluk, Gingeeputhur and Nangathur of Villupuram taluk, Poondi and Ulagalampoondi of Vikkiravanadi taluk, Tirupair and Kalsirunagalur of Ulundurpet taluk, Mallapuram, La. Kudalur, Aliabath, Manalur and Moongithuraipattu of Sanakrapuram taluk and Pappanthangal, Valathi, Kammanthangal, Mazhavanthangal, So. Kuppam, Kaplampadi, Avalurpet, Keelmalai, Perumbugai and Kaividanthangal of Gingee Taluk.

The Cuddalore sandstone derivative of Red Earth sediments lying in the eastern part of the district near Thiruvakkarai, Thollamur & Kadagampattu of Vanur taluk and Sengadu, Vaduganathakuppam of Villupuram taluk are being mined. The sand dunes (stabilised and Palaeo) near the coastal stretch of Urani, Vadaagaram, Marakkanam, Keelputhupattu of Marakkanam taluk are being mined for Silica Sand. All along the track of rivers Pennaiyar River, Gadilam River, Malattar River, Pennar River, Sankaraparani River, Gomukhi River, Manimukta River, Pambaiyar and Varaganadhi sand is being mined mainly for construction purposes.

7. Surface Water and Ground Water Scenario:

Surface Water Scenario:

The major rivers flowing through the district are (i) Pennaiyar River flows from northwest to east in the district forms part of Pennaiyar river basin (ii) Gadilam River flowing through Thirukoilur Taluk, (iii) Malattar River joins Gadilam before flowing into the Bay of Bengal (iv) Varaga Nathi originate in Gingee Taluk and flows through Villupuram Taluk (v) Gomukhi the of main tributary of Manimuktha River joins into Vellar River in Cuddalore District (vi) Manimukta River originates in

Kalrayan hills and drains the southern part of the district (vii) Pambaiyar and the Varaganadhi originate in the uplands of the district and join Bay of Bengal. All these rivers are ephemeral (only seasonal) in nature and carry only floodwater during monsoon period and none of them are perennial. These rivers cannot be used for irrigation purpose to the expected level because of low precipitation. The monsoon rainfall is erratic and only during stormy days heavy precipitation occurs. The drainage pattern is mostly parallel to sub parallel and drainage density is very low. There are small reservoirs across rivers namely Gomukhi, Vedur and Manimuktha.

Ground water scenario

Hydrogeology

Villupuram district is underlain by crystalline metamorphic complex in the western part of the district and sedimentary tract in eastern side. 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 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 by 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 of lineaments, particularly, in the 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 sedimentary 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.

Ground water resources

The ground water resources have been computed jointly by Central Ground Water Board and State Ground Water Resources Data Centre (PWD, WRO, Govt. of Tamil Nadu) as on 31st March 2004. The computation has been done using GEC1997 methodology. The salient features of the computations are furnished below.

Ground Water Quality

Ground water in phreatic aquifers in Villupuram district is, in general, colorless, odorless and slightly alkaline in nature. The specific electrical conductance of ground water in phreatic zone ($\mu\text{S}/\text{cm}$ at 25°C) during May 2006 was in the range of 770 to 3650 in the district. Conductance below 750 has been observed only in select pockets of the district.

It is observed that the ground water is suitable for drinking and domestic uses in respect of all the constituents except total hardness and nitrate. In about 40% of samples, nitrate concentration is above permissible limits of 100 mg/l. The incidence of high total hardness is attributed to the composition of litho units constituting the aquifers in the district, whereas nitrate pollution is most likely due to use of fertilizers and other improper waste disposal.

Sodium Adoption Ratio values range from 1.7 to 4.4 with an average value of 3.25 in the district. This implies that no alkali hazard is anticipated to crops.

Status of Ground Water Development

Ground water development is very high in the district. There are number of dug wells and dug cum bore wells in the hard rock areas while tube wells are common in the sedimentary areas. The average draft of dug wells in hard rock areas is of the order of 1.2 ha.m./year. The extraction of ground water by shallow tube wells in the eastern part of the district is of the order of 2.5 ha.m./year. The average command area for dug well and bore well in the district is 2 ha and 3 ha respectively.

The hard rock areas in select pockets with valley fills and lineaments are having appreciable ground water potential. At many pockets, the command areas are the main potential ground water zones, The yield prospects are good in select pockets of Villupuram, Sankarapuram and Kallakurichi areas where as it is very poor in Tirukoilur, Ulundurpet, Gingee and Tindivanam taluks. The massive granites in Gingee and Tindivanam taluks do not favour even bore wells. The augmentation of well yield by

horizontal and extension bores is successful in part of Kallakurichi and Tirukoilur areas.

The crystalline sedimentary contact zones have thick limestone capping followed by productive granular zones, which are tapped, by number of cavity wells of 40 to 60 m bgl depth giving 7 to 10 lps discharge. The tube wells can yield about 70 to 200 m³/hr and can sustain pumping for 10 hrs a day.

(Viluppuram district groundwater brochure, Central Ground Water Board)

8. Rainfall of the Viluppuram District and climatic condition:

This district falls under tropical climate. The average temperature varies from 26°C to 41°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. 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 district receives the maximum rainfall during the north east monsoon season. The normal annual rainfall is higher towards coast. District does not get heavy rainfall with the exception of Marakkanam and Vanur blocks, In Kandamangalam and Koliyaur blocks, the rainfall is moderate it is scarce in Kallakurichi and Sankarapuram.

The rainfall data for the last ten years pertaining to Villupuram District is tabulated as follows:

Rainfall pattern data of Villupuram District for past six years (Data Source: District Meterological Dept.)

Month	Normal	2018	2017	2016	2015	2014
January	9.72	0.33	42.94	0.00	3.72	0.00
February	8.63	11.94	0	0.00	0.00	14.44
Winter	18.35	12.28	42.94	0.00	3.72	14.44
March	8.68	15.22	8.28	0.00	0.00	0.00
April	11.25	0.00	0.00	0.00	90.16	0.00
May	27.25	10.78	46.2	90.86	68.61	116.56
Summer	47.18	26.00	54.48	90.86	158.77	116.56
June	54.7	39.03	76.78	44.94	15.83	80.69
July	72.3	26.00	74.72	118.48	75.54	50.11
August	108.36	87.4	194.52	69.44	115.83	179.36
September	121.3	116.14	107.74	67.00	84.17	124.72
S.W. Monsoon	356.66	268.58	453.76	299.86	291.37	434.88
October	252.11	167.33	223.4	86.50	78.67	211.42
November	317.8	156.18	178.96	12.17	558.66	129.90
December	68.2	17.88	130.29	74.29	299.06	73.22
N.E. Monsoon	638.11	341.39	532.65	172.96	936.39	414.54
Total	1060.30	648.25	1083.83	563.68	1390.25	980.42

9. Details of Mining Lease Name of the Mineral: Rough stone

Sl. No.	Name of the Mineral	Name of the Lessee	Address & Contact No. of Lessee	Mining lease grant order No. & Date	Area of Mining lease (ha)	Period of Mining lease (Initial)	Period of Mining lease (1 st / 2 nd / renewal)	Date of commencement of Mining Operation	Status (Working / Non Working / Temp. working for dispatch etc.)	Captive / Non-Captive	Obtained Environmental Clearance (Yes/No) If Yes Letter to with date of grant of EC	Location of the Mining Lease (Latitude & Longitude)	Method of Mining (Open cast / Under ground)
1	2	3	4	5	6	From	To	11	12	13	14	15	16
1.	Rough stone	T. Muthamizhan	S/o. Thennavan, Manalur Village, Sankarapuram Taluk, Viluppuram District	B/G&M/2020/2010 dt. 31.08.2016	1.50.0	31.08.2016	30.08.2021	06.02.2017	Working	Non Captive	Yes, letter No. SEIAA-TN/F No. 2682/EC/1(a)/1724/20 dated 13.03.2015	12°00'30"N to 12°00'26"N to 78°55'28"E to 78°55'23"E (12°00'27.7"N 78°55'21.8"E)	Open cast
2.	Rough stone	R. Subramanian	S/o. Ramasamy, 15/3, Katukottai Village, Yensapur Post, Kollukurichi Taluk, Viluppuram	B/G&M/371/11 dt. 26.11.2011	1.20.0	23.01.2012	22.01.2022	Nil	Non working	Non Captive	No.	11°50'21.78"N to 79°07'10.61"E	Open cast
3.	Rough stone	K. Natchappan	S/o. Karuppann Gounder, Vellakulam, Keelavari Post, Tindivanam Taluk	B/G&M/1213/13 dt. 31.12.2015	2.23.0	31.12.2015	30.12.2020	25.02.2016	Non working	Non Captive	Yes, letter No. SEIAA-TN/F No. 3439/EC/1(a)/2547/2015 dated 21.12.2015	12°11'56"N to 12°11'46"N to 79°45'33"E to 79°45'26"E (12°11'47"N 79°45'29"E)	Open cast
4.	Rough stone	K. Shanmugam	S/o. Kannaiya Gounder, Nallur Village & Post, Vamar Taluk, Viluppuram District	A/G&M/522/2014 dated 09.09.2016	1.95.5	09.09.2016	08.09.2021	Nil	Non working	Non Captive	Yes, letter No. SEIAA-TN/F No. 4167/EC/1(a)/3177/2015 dated 21.03.2016	12°08'58.60"N to 12°09'04.64"N to 79°44'38.34"E to 79°44'55"E (12°09'04.63"N 79°44'38.34"E)	Open cast
5.	Rough stone & Earth	K. Anandavelu	S/o. Kesavan, No. 96, Eratiyur Village, Vamar Taluk, Viluppuram District	A/G&M/977/2012 dt. 28.07.2017	1.08.0	28.07.2017	18.03.2020	18.09.2017	Working	Non Captive	Yes, letter No. SEIAA-TN/F No. 2699/EC/1(a)/1702/2014 dated 19.03.2015	12°04'28"N to 12°04'24"N to 79°38'39"E to 79°38'43"E (12°04'24"N 79°38'39"E)	Open cast
6.	Rough stone & Earth	A. Ganesan,	S/o. Appadurai, 190, Kadarivelu,	A/G&M/822/2016 dated 22.08.2016	2.62.5	28.07.2017	18.03.2020	16.05.2018	Working	Non Captive	Yes, letter No. SEIAA-	12°04'12"N to 12°04'19"N	Open cast

7.	Rough stone	P. Ramesh	Enayur & post, Vanur taluk, Viluppuram District	B/G&M/2007/10 dt. 26.07.2014.	2.52.0	26.07.2014	25.07.2019	-	-	30.09.2015	Working	Non Captive	Yes, letter No. SELAA- TN/F No. 1316/E C/I(a)/588/2013 dated 18.07.2013.	79°38'39"E to 79°38'51"E (12°04'16"N to 79°38'39"E)	Open east
8.	Rough stone	V. Ganesekaran	S/o. Velluyn Gounder, No. 47/1A, East Street, Tirukottur	B/G&M/196/09 dt. 25.05.2009	1.50.0	19.06.2009	18.06.2019	-	-	22.06.2009	Non Working	Non Captive	Yes, letter No. SELAA- TN/F No. 4898/E C/I(a)/332/2016 dated 25.07.2016	11°55'22.78"N to 11°55'26.97"N 79°09'25.55"E to 79°09'31.92"E (11°55'25.41"N to 79°09'26.09"E)	Open east
9.	Rough stone & Earth	R. Alingurajan	S/o. Ramaswamy, No. 41, Erileran Street, Nerukunnam, Chennai-107.	A/G&M/263/13 dated 25.03.2015	1.46.5	25.03.2015	24.03.2020	-	-	04.05.2015	Non Working	Non Captive	Yes, letter No. SELAA- TN/F No. 1769/E C/I(a)/1631/2014 dated 19.02.2015	12°03'23.0"N to 12°03'27"N 79°40'31"E to 79°40'38"E (12°03'27.55"N to 79°40'32.65"E)	Open east
10.	Rough stone	Tmt. S. Nandhini	W/o. Sankar, No. 14, 3 rd Street, Jayapuram, Tindivanam Taluk	A/G&M/601/15 dated 31.12.2015	3.32.5	31.12.2015	30.12.2020	-	-	08.03.2016	Working	Non Captive	Yes, letter No. SELAA- TN/F No. 4000/E C/I(a)/2546/2015 dated 21.12.2015	12°03'25.80"N to 12°03'33.90"N 79°40'05.88"E to 79°40'13.76"E (12°03'20.53"N to 79°40'10.84"E)	Open east
11.	Rough stone	G. Selvakumar	S/o. Govindaraj Enayur Village, Kallakurichi Taluk	B/G&M/369/2017 dt. 08.10.2018	1.50.0	08.10.2018	07.10.2023	-	-	04.12.2018	Working	Non Captive	Yes, letter No. SELAA- TN/F No. 9072/E C No. 16/2017, dated 04.02.2018	11°49'47"N to 11°49'51"N 78°58'13"E to 78°58'19"E (11°49'47"N to 78°58'13"E)	Open east

12.	Rough stone	R. Subramanian	S/o. Ramasamy, 15/3, Katukottai, Eimppair Post, Kallakurichi Taluk, Viluppuram District.	B/G&M/2018/10 dt. 16.12.2010.	1.96.0	10.01.2011	09.01.2021	-	23.01.2011	Non Working	Non Captive	-	11°53'01.58"N 79°03'39.54"E	Open east
13.	Rough stone & Earth	C. Balanarayan	S/o. Chandra, Sannathi Street, Mailam Village, Tindivanam Taluk	B/G&M/398/2016 dt. 24.09.2017	0.79.0	24.09.2017	23.09.2022	-	19.03.2018	Working	Non Captive	Yes, letter No. DEIAA-File No. DLA/TN/MI N/5779/2017/DE IAA/2017, dated 01.08.2017	12°07'55.50"N to 12°07'59.47"N 79°36'24.94"E to 79°36'28.56"E (12°07'56.09"N 79°36'24.94"E)	Open east
14.	Rough stone	E. Sridhar	S/o. Elumalai, No. 1019, Pillayar Koil Street, Devikapuram Village, Arani Taluk, Tiruvannamalai District	B/G&M/23/10 dt. 10.05.2010	5.00.0	16.08.2010	15.08.2020	-	01.07.2011	Non Working	Non Captive	-	12°26'10.85"N to 12°26'03.38"N 79°21'48.29"E to 79°21'36.79"E (12°26'3.38"N 79°21'42.94"E)	Open east
15.	Rough stone & Earth	C. Selvan,	S/o. Chellapa Mudaliyar, Sungeethanangala m Road, Anandapuram, Gingee Taluk.	B/G&M/1470/2013 dt. 18.07.2014	0.60.0	18.07.2014	17.07.2019	-	07.01.2019	Working	Non Captive	Yes, letter No. SEIAA- TN/F. No. 2602/E C/110/1454/201 4 dated 25.06.2014	12°07'21"N to 12°07'27"N 79°22'40"E to 79°22'45"E (12°07'21"N 79°22'40"E)	Open east
16.	Rough stone & Earth	A.S. Srinivasan	S/o. Sengodan, Athar & Post, Rasipuram Taluk, Namakkal District.	B/G&M/459/13 dt. 06.02.2015	3.35.0	06.02.2015	05.02.2020	-	Nil	Non Working	Non Captive	Yes, letter No. SEIAA- TN/F. No. 1882/E C/113/1459/201 4 dated 02.07.2014	11°37'09"N to 11°37'01"N (78°55'02"E to 78°54'53"E)	Open east
17.	Rough stone	A. Mathusamy	S/o. Arthanari Gounder, Katukottai, Parangiradham, Mulligaipady Post, Sankarapuram Taluk, Viluppuram	B/G&M/2012/10 dt. 31.12.2010.	1.00.0	14.02.2011	13.02.2021	-	21.07.2016	Non Working	Non Captive	-	-	Open east

18.	Rough stone & Earth	V.Sankar	District	S/o Vivekanandan, 14, Jayapattam Colony, Tindivanam Town & Taluk, Viluppuram District	A/G&M/300/2016 dated 20.09.2016	3.66.5	20.09.2016	19.09.2021	-	-	28.09.2016	Working	Non Captive	Yes, letter No.SELAA- TN/F No.5616/1/ a/EC.No.3694/2 016 dated 06.09.2016	12°03'32"N to 12°03'40"N 79°40'16"E to 79°40'23"E (12°03'34"N 79°40'16"E)	Open east
19.	Rough stone	A.Ramesh	S/o. Alangaramoopen, Malankertalam, Kallakurichi Taluk	B/G&M/2019/2010 dt. 03.07.2016.	2.00.0	03.07.2016	02.07.2026	-	-	31.01.2017	Non Working	Non Captive	Yes, letter No.SELAA- TN/F.No.2683/E C/1(a)/1739/201 4 dated 13.03.2015	12°03'43"N to 12°03'50"N 78°57'08"E to 78°57'13"E (12°03'729"N 78°57'148"E)	Open east	
20.	Rough stone & Earth	V. Chandrasekaran	S/o. Vellayan, 2/4, School Street, Kattupaiyur Village, Tirukoilar Taluk	B/G&M/334/2014 dt. 09.09.2016	1.02.5	09.09.2016	08.09.2021	-	-	22.12.2016	Working	Non Captive	Yes, letter No.SELAA- TN/F.No.4736/E C/ 1(a)/3196/2016 dated 11.07.2016	11°57'9.50"N to 11°57'14.14"N 79°10'16.12"E to 79°10'18.84"E (11°57'9.50"N 79°10'16.12"E)	Open east	
21.	Rough stone & Earth	P.Deivasiganani	S/o Pattaiyan, T.Nalladum Village, Perumukkal Post, Tindivanam Taluk	B/G&M/1898/12 dt. 11.04.2015	1.03.0	11.04.2015	10.04.2020	-	-	26.05.2015	Working	Non Captive	Yes, letter No.SELAA- TN/F.No.2831/E C/ 1(a)/1752/2014 dated 19.03.2015	12°11'51"N to 12°11'55"N 79°45'08"E to 79°45'15"E (12°11'34"N 79°45'8"E)	Open east	
22.	Rough stone	A.Balaraman	S/o. Annakutti Gounder, Keelaviri Village & Post, Tindivanam Taluk, Viluppuram	B/G&M/ 365/11 dt. 25.11.2011.	1.10.0	26.12.2011	25.12.2021	-	-	27.01.2012	Non Working	Non Captive	No	12°11'35.31"N 79°45'29.14"E	Open east	

23.	Rough stone & Earth	T. Rajendran	District	S/o Thandapani Naidu, 8/66, Sivam Kovil Street, Elavanesurkotai Village & Post, Uthandurpet Taluk.	B/G&M/975/2015 dt. 22.08.2016.	1.97.5	22.08.2016	21.08.2021	-	-	28.09.2016	Working	Non Captive	Yes, letter No.SELAA-TN/F.No.5148/E C/ 1(a)/3197/2016 dated 06.07.2016	11°39'59.60"N to 11°40'06.64"N 79°12'16.58"E to 79°12'22.80"E (11°39'59.60"N 79°12'18.64"E)	Open east
24.	Rough stone & Earth	S.Arulnathan	S/o Subraman, 252, Kulakurai, Ulagalanpoondi, Vikkramavadi Taluk.	B/G&M/1059/2015 dt. 23.01.2017	1.14.5	23.01.2017	22.01.2022	-	-	25.01.2018	Working	Non Captive	Yes, letter No.SELAA-TN/F.No.5825/1(a)/EC.No. 3879/2016 dated 14.11.2016	12°02'42.84"N to 12°02'48.45"N 79°28'49.08"E to 79°28'52.37"E (12°02'43.45"N 79°28'49.08"E)	Open east	
25.	Rough stone & Earth	Tmt.R.Sujatha	W/o (late) L. Rameshbabu, No.5, Shankar Nagar, Theppathi, Sircali Taluk, Nagapattinam District	B/G&M/1053/2015 dt. 14.10.2016 & B/G&M/436/2018 Dated 19.11.2018	4.22.5	14.10.2016	13.10.2021	-	-	24.08.2017	Working	Non Captive	Yes, letter No.SELAA-TN/F.No.5061/1(a)/EC.No. 3611/2016 dated 24.08.2016	11°40'02"N to 11°40'12"N 79°12'23"E to 79°12'35"E (11°40'03"N 79°12'24"E)	Open east	
26.	Rough stone & Earth	K.Parameswari	S/o Kanesa Geunder, No.290/5, Mariyannan Koil Street, Chokkanthangal, Keelavari Post, Manakkannam Taluk	B/G&M/674/2015 dt.03.03.2016	1.06.5	03.03.2016	02.03.2021	-	-	04.05.2016	Working	Non Captive	Yes, letter No.SELAA-TN/F.No.4827/1(a)/EC.No. 2829/2016 dated 17.02.2016	12°13'06"N to 12°13'11"N 79°45'26"E to 79°45'30"E (12°13'07"N 79°45'26"E)	Open east	
27.	Rough stone & Earth	E.Pavadaureyan	S/o Ettiyappan, Mariyannan Kovil Street, Kovadi, Tindivanam Taluk.	B/G&M/1137/15 dt.14.05.2015	0.75.0	14.05.2015	13.05.2020	-	-	19.08.2015	Working	Non Captive	Yes, letter No.SELAA-TN/F.No.3109/EC/ 1(a)/ 2148/2014 dated 01.04.2015	12°11'39"N to 12°11'43"N 79°45'10"E to 79°45'14"E (12°11'40"N 79°45'10"E)	Open east	

28.	Rough stone & Earth	S. Srinivasan	S/o. Sanjeevi, No. 9, Wazub Nagar, Mannakkam Road, Tindivanam Taluk.	B/G&M/2005/104L 23.09.2014	0.72.0	23.09.2014	23.09.2019	-	02.12.2009	Non Working	Non Captive	Yes, letter No. SEIAA- TN/F. No. 1862 / EC/ I(a) / 1139A/2013 dated 27.02.2014	12°12'24"N to 12°12'19"N 79°44'55"E to 79°44'59"E (12°12'19"N to 79°44'55"E)	Open cast
29.	Rough stone & Earth	P. Srinivasan	S/o. Pattabi Reddyar, No. 142, Mosque Street, C. Pallavaram, Chennai	B/G&M/290/13 dt. 13.11.2015	1.61.5	13.11.2015	12.11.2020	-	29.06.2016	Working	Non Captive	Yes, letter No. SEIAA- TN/F. No. 2951 / EC/ I(a) / 1768/2014 dated 19.03.2015	12°13'58"N to 12°14'03"N 79°45'17"E to 79°45'23"E (12°13'58"N to 79°45'20"E)	Open cast
30.	Rough stone & Earth	M. Krishnamoorthi	S/o. Murugan, No. 1, Palayakara Street, Thiruvekkara.	A/G&M/422/2013 dated 15.10.2016	0.80.0	15.10.2016	14.10.2021	-	22.03.2017	Working	Non Captive	Yes, letter No. SEIAA- TN/F. No. 3424 / I(a) / EC. No. 3557/2016 dated 10.08.2016	12°2'23.99"N to 12°2'27.58"N 79°39'32.17"E to 79°39'35.05"E (12°2'24.38"N to 79°39'32.17"E)	Open cast
31.	Rough stone & Earth	A. Selvaraj	S/o. Arunugum, No. 135, 7 th Cross Road, Housing Board, Gopalapuram, Manoor Village, Tindivanam Taluk, Viluppuram District.	B/G&M/1187/13 dt. 24.04.2015	1.07.5	24.04.2015	23.04.2020	-	18.05.2015	Non Working	Non Captive	Yes, letter No. SEIAA- TN/F. No. 2779 / EC/ I(a) / 1747/2014 dated 13.03.2015	12°13'23"N to 12°13'28"N 79°44'03"E to 79°44'07"E (12°13'22"N to 79°44'04"E)	Open cast
32.	Rough stone & Earth	G. Arundikumar Jini	S/o. Gajraj Jini, No. 5, Radhakrishnan Street, Venkattu Nagar, Pondicherry.	A/G&M/528/08 dated 16.03.2015	1.05.5	16.03.2015	15.03.2020	-	13.04.2015	Working	Non Captive	Yes, letter No. SEIAA- TN/F. No. 1206 / EC/ I(a) / 1244/2013 dated 08.05.2014	12°02'00"N to 79°38'52"E	Open cast
33.	Rough stone & Earth	T. Aravindan	S/o. Thirukaran, Perumukkal Village, Tindivanam Taluk.	B/G&M/693/2012 dt. 08.02.2016	2.12.0	08.02.2016	07.02.2021	-	30.10.2016	Working	Non Captive	Yes, letter No. SEIAA- TN/F. No. 2763 / EC/ I(a) / 1758/2014 dated 13.03.2015	12°13'15"N to 12°13'09"N 79°45'22"E to 79°45'16"E (12°13'12"N to 79°45'16"E)	Open cast

34.	Rough stone	S. Raguraman	S/o. Subramaniam, 8, Mettu Street, Tiraiyur Village & Post, Vanur Taluk, Viluppuram District.	A/G&M/590/2013 dated 20.02.2016	1.13.0	20.02.2016	19.02.2021	-	10.03.2016	Working	Non Captive	Yes, letter No.SHIAA- TN/F.No.4512/ EC/ 1(a) /2778/2015 dated 19.01.2016	12°02'10.25"N to 12°02'14.44"N 79°38'52.17"E to 79°38'59.91"E (12°02'10.25"N 79°38'52.17"E)	Open east
35.	Rough stone & Earth	M Kaluvarasi	W/o. Marokann, 4/53, Mariyammun Kovil Street, Sivathangal, Chennai-69.	A/G&M/1461/2013 dated 14.06.2016	2.57.5	14.06.2016	13.06.2021	-	06.03.2017	Working	Non Captive	Yes, letter No.SHIAA- TN/F.No.3101/ EC/ 1(a) /1804/2014 dated 27.03.2015	12°04'31"N to 12°04'43"N 79°38'54"E to 79°38'59"E (12°04'32"N 79°38'57"E)	Open east
36.	Rough stone & Earth	C. Ganesan	S/o. Chinmaya Gounder, 168, Mettu Street, Karasur Village, V. Parungani Post, Vanur Taluk	A/G&M/1682/2015 dated 22.08.2016	4.27.5	22.08.2016	21.08.2021	-	15.12.2016	Working	Non Captive	Yes, letter No.SHIAA- TN/F.No.5069/ EC/ 1(a) /3326/2016 dated 15.07.2016	12°03'20"N to 12°03'27"N 79°30'58"E to 79°40'10"E (12°03'20"N 79°39'58"E)	Open east
37.	Rough stone & Earth	V. Gnaniguru,	S/o. Velayutham, Elavulapakkam Village, Perumokkal, Tindivanam Taluk	B/G&M/1207/2012 dt 21.06.2014	1.28.0	21.06.2014	20.06.2019	-	29.04.2015	Working	Non Captive	Yes, letter No.SHIAA- TN/F.No.2327/ EC/ 1(a) /1251/2014 dated 09.05.2014	12°13'37"N to 12°13'42"N 79°44'11"E to 79°45'15"E (12°13'33"N 79°44'11"E)	Open east
38.	Rough stone & Earth	T. Kuppusamy	S/o. Thoppalam No.667, Marakkann Road, Brammadesan Village, Tindivanam Taluk	B/G&M/531/14 dt. 31.12.2015	0.99.5	31.12.2015	30.12.2020	-	26.02.2016	Working	Non Captive	Yes, letter No.SHIAA- TN/F.No.3365/ EC/ 1(a) /2338/2015 dated 02.11.2015	12°11'43"N to 12°11'49"N 79°45'39"E to 79°45'42"E (12°11'47"N 79°45'39"E)	Open east
39.	Rough stone	D. Managandiyan	S/o. Dermanji, Chokkantharadai, Gingee Taluk.	B/G&M/2008/19 dt. 30.12.2016,	2.00.0	30.12.2016	29.12.2021	-	21.08.2017	Non Working	Non Captive	Yes, letter No.SHIAA- TN/F.No.5048/ EC/ 1(a) /3722/2016 dated 16.09.2016	12°15'17"N to 12°15'20"N 79°27'02"E to 79°27'11"E (12°15'17"N 79°27'02"E)	Open east

40.	Rough stone	Tmt R. Dharmakamani	W/o. Ravi, Thiruvachiarman Kovil Street, Vembu Village and Pest, Viluppuram Taluk and District	B/G&M/2005/2010 dt. 13.04.2010	3.00.0	07.06.2010	06.06.2020	-	11.06.2010	Working	Non Captive		12°07'55.87"N 79°26'40.90"E	Open east
41.	Rough stone	R. Dharmakamani	W/o. J. Kavi, Thiruvachiarman Kovil Street, Vembu Village, Viluppuram Taluk.	B/G&M/2001/2010 dt. 31.08.2016	2.21.5	31.08.2016	30.08.2021	-	06.03.2017	Non Working	Non Captive	Yes, letter No. SEIAA- TN/F.No.1424/EC/1(a) /637/2013 dated 01.08.2013	12°02'51.37"N to 12°02'57.60"N 79°27'50.49"E to 79°27'57.29"E (12°02'57"N 79°27'55"E)	Open east
42.	Rough stone	K. Murugavel	S/o. Kali Gounder, Nangathur Village, Anaiyur Via, Viluppuram Taluk.	B/G&M/2000/10 dt. 16.12.2010.	0.50.0	31.01.2011	30.01.2021	-	26.12.2011	Non Working	Non Captive	No	12°07'36.16"N 79°24'43.73"E	Open east
43.	Rough stone	P. Elanchezhian	S/o. Panaraselvam, Vadakkannalal post, Kallakurichi Taluk, Viluppuram District	B/G&M/198/09 dt. 25.05.09	2.00.0	23.06.2009	22.06.2019	-	10.05.2010	Working	Non Captive	Yes, letter No. SEIAA- TN/F.No.4872/1(a) / JC.No.3486/2016 dated 29.07.2016	11°45'23.82"N to 11°45'27.08"N 78°51'24.54"E to 78°51'31.13"E (11°45'23.82"N 78°51'24.54"E)	Open east
44.	Rough stone	V. Ravi	S/o. Veerasamy, Perumkal Village, Tindivanam Taluk.	B/G&M/2003/10 dt. 23.09.2014.	0.37.5	23.09.2014	23.09.2019	-	01.02.2019	Working	Non Captive	Yes, letter No. SEIAA- TN/F.No.1757/1(a) / EC.No.866/2013 dated 12.11.2013	12°01'19"N to 12°01'16"N 79°46'07"E to 79°46'04"E (12°13'16"N 79°46'06"E)	Open east
45.	Rough stone	P. Ravichandran	S/o. Periyasamy, I/13, Thiruvachiarman Kovil Street, Thiruvakkarai Village, Vanur Taluk, Viluppuram District.	A/G&M/513/13 dated 30.05.2014	1.42.5	30.05.2014	29.05.2019	-	27.06.2014	Working	Non Captive	Yes, letter No. SEIAA- TN/F.No.1962/EC/1(a) / 1192/2013 dated 15.04.2014	12°01'52"N to 12°01'49"N 79°38'54"E to 79°39'01"E (12°01'52"N 79°38'55"E)	Open east

46.	Rough stone & Earth	K. Gnanasekaran	S/o. Kannadi esunder, Mettu Street, Karasaur Village, Vanur Taluk, Villupuram District.	A/G&M/483/2013 dated 24.09.2017	1.24.5	24.09.2017	23.09.2022	-	-	13.12.2017	Working	Non Captive	Yes, letter No. SEIAA- TN/F No. 3425 / I(a) / EC No. 3920/2016 dated 19.06.2017	12°03'36"N to 12°03'40"N 79°40'07"E to 79°40'12"E (12°03'32.473"N 79°40'15.44"E)	Open east
47.	Rough stone	D. Narayanaswamy	S/o Duchinnamorthy, 25, Enikaran Street, Mariyannan Kovil Street, Cuddalore District.	A/G&M/702/2017 dt. 27.09.2018	2.53.0	27.09.2018	26.08.2023	-	-	18.09.2018	Working	Non Captive	Yes, letter No. DEIAA- TN/F No. 12681 / EC No. 11/2018 dated 03.07.2018	12°05'51"N to 12°06'00"N 79°42'32"E to 79°42'40"E (12°05'55"N 79°42'32"E)	Open east
48.	Rough stone & Earth	M. Jaffer saif	S/o. Mohamed Ravuthar, Panayapuram Village, Villupuram Taluk.	B/G&M/848/2016 dt. 27.09.2018.	1.55.0	27.09.2018	26.09.2023	-	-	22.10.2018	Working	Non Captive	Yes, letter No. DEIAA- TN/F No. 7427 / EC No. 14/2017 dated 04.02.2018	11°39'53.90"N to 11°40'00.33"N 79°12'18.51"E to 79°12'23.14"E (11°39'55.69"N 79°12'18.51"E)	Open east
49.	Rough stone	T. Anbazhagan	S/o. Thengavel, Nathamedu Street, Olakoor & Post, Tindivanam Taluk, Villupuram District	B/G&M/364/17 dt. 28.02.2019.	0.99.0	28.02.2019	27.02.2024	-	-	Nil	Non Working	Non Captive	Yes, letter No. DEIAA- TN/F No. 8096 / EC No. 31/2017 dated 04.12.2018	12°13'36.27"N to 79°44'16.52"E	Open east
50.	Rough stone	A. Sathishkumar	S/o Arunugam, Mettu Street, Thuvai, Ravaselpurakkam Post, Vanur Taluk.	B/G&M/1142/2017 dt. 08.03.2019.	1.00.0	08.03.2019	07.03.2024	-	-	Nil	Non Working	Non Captive	Yes, letter No. DEIAA- TN/F No. 15706 / EC No. 12/2018 dated 04.12.2018	12°01'48"N to 12°01'54"N 79°38'49"E to 79°38'55"E (12°01'49.67"N 79°38'54.89"E)	Open east
51.	Rough stone	C. Prabhu	S/o. Chakravarthi, Indira Nagar, Kiliyannur Village & Post, Vanur Taluk, Villupuram	B/G&M/1141/2017 dt. 08.03.2019.	1.00.0	08.03.2019	07.03.2024	-	-	09.05.2019	Working	Non Captive	Yes, letter No. DEIAA- TN/F No. 15708 / EC No. 13/2018 dated 04.12.2018	12°01'49"N to 12°01'55"N 79°38'51"E to 79°38'55"E (12°01'49.40"N 79°38'53.69"E)	Open east

52.	Rough stone & Earth	S. Ranganathan	S/o. Subramania Gounder, No.135, Pondy Road, Marakkanam, Viluppuram District	B/G&M/260/15 dt.15.02.2019	2.13.0	15.02.2019	14.02.2024	-	08.04.2019	Working	Non Captive	Yes, letter No. DEIAA- TN/F No. 18539 / EC No. 22/2018 dated 04.12.2018	12°11'27.47"N to 12°11'34.31"N 79°45'41.19"E to 79°45'46.59"E (12°11'29.96"N 79°45'41.19"E)	Open east
53.	Rough stone	H. Chinnaikannan	S/o. Hanikrishnan, Erudiyur Village, Vanur Taluk, Viluppuram District	A/G&M/362/2017 dated 28.02.2019	2.81.5	28.02.2019	27.02.2024	-	08.03.2019	Working	Non Captive	Yes, letter No. DEIAA- TN/F No. 7699 / EC No. 7/2017 dated 04.02.2018	12°04'07"N to 12°04'14"N 79°39'32"E to 79°39'41"E	Open east
54.	Rough stone & Earth	S. Raguraman	S/o. Subramanya Reddyar, Thenkodiakkam Village, Vanur Taluk, Viluppuram District	A/G&M/778/2017 dt.15.02.2019	2.54.5	15.02.2019	14.02.2024	-	28.03.2019	Working	Non Captive	Yes, letter No. DEIAA- TN/F No. 15201 / EC No. 14/2018 dated 05.07.2018	12°08'33"N to 12°08'40"N 79°43'28"E to 79°43'36"E (12°08'37.02"N 79°43'28.16"E)	Open east
55.	Rough stone & Earth	M. Babu	No.2, Mialan Road, Indira Nagar, Tindivanam	B/G&M/1159/2017 dt.09.08.2018	3.94.0	09.08.2018	08.08.2023	-	19.08.2018	Working	Non Captive	Yes, letter No. DEIAA- TN/F No. 15483 / EC No. 17/2018 dated 05.07.2018	12°13'13.96"N to 12°13'24.92"N 79°45'15.51"E to 79°46'22.51"E (12°13'16.44"N 79°46'16.04"E)	Open east
56.	Rough stone	Manikxam	S/o. Kali, Nangathur Village, Vikkavandi Taluk, Viluppuram District	B/G&M/363/17 dt.08.03.2018	1.00.0	08.03.2018	07.03.2023	-	15.03.2018	Working	Non Captive	Yes, letter No. DEIAA- TN/F No. 7527 / EC No. 13/2017 dated 04.02.2018	12°07'34"N to 12°07'37"N 79°24'44"E to 79°24'50"E (12°07'34"N 79°24'44"E)	Open east
57.	Rough stone & Earth	D. Ramesh	S/o. Devaraj Perumakkal Village & Post, Marakkanam Taluk, Viluppuram District	B/G&M/100/2018 dt.28.02.2019	1.76.0	28.02.2019	27.02.2024	-	16.05.2019	Working	Non Captive	Yes, letter No. DEIAA- TN/F No. 18540 / EC No. 23/2017 dated 04.12.2018	12°11'07.87"N to 12°11'11.80"N 79°45'42.90"E to 79°45'51.85"E	Open east

58.	Rough stone & Earth	R. Muralidharan	Manager, OM Sakthi Constructions, Thollanur Village, Vanur Taluk	A/G&M/1048/2017 dt. 16.08.2018	2.06.0	16.08.2018	15.08.2023	-	-	31.08.2018	Working	Non Captive	Yes, letter No. DEIAA- TN/F No. 14175 / EC No. 13/2018 dated 03.07.2018	(12°11'09.72"N to 79°45'42.90"E) 12°03'28"N to 12°03'36.50"N 79°40'35.29"E to 79°40'39.92"E (12°03'29.79"N to 79°40'35.29"E)	Open east
59.	Rough stone & Earth	G. Raja,	S/o. Gopal, Sivaraj Street, Thirunelmalai, Chennai.	A/G&M/90/2018 dt. 16.08.2018	2.42.5	16.08.2018	15.08.2023	-	-	Nil	Non Working	Non Captive	Yes, letter No. DEIAA- TN/F No. 15627 / EC No. 18/2018 dated 05.07.2018	(12°03'13.14"N to 12°03'21.15"N to 79°40'16.66"E to 79°40'24.21"E (12°03'17.09"N to 79°40'16.66"E)	Open east
60.	Rough stone	T. Vasudevan	S/o. Thangavel, Eraniyur Village, Vanur Taluk, Villupuram District	A/G&M/181/2018 dt. 15.02.2019	4.83.2	15.02.2019	14.02.2024	-	-	06.03.2019	Working	Non Captive	Yes, letter No. DEIAA- TN/F No. 18345 / EC No. 19/2018 dated 04.12.2018	(12°04'09"N to 12°04'19"N to 79°38'34"E to 79°38'45"E (12°04'16.98"N to 79°38'34.04"E)	Open east
61.	Rough stone	S. Sankar	S/o. Sampantham, S. Kollar Village, Kanchipuram Taluk, Villupuram District.	B/G&M/366/17 dt. 08.03.2018	3.00.0	28.03.2018	27.03.2023	-	-	04.06.2018	Working	Non Captive	Yes, letter No. DEIAA- TN/F No. 8297 / EC No. 10/2017 dated 04.02.2018	(11°58'25"N to 11°58'32"N to 79°14'24"E to 79°14'33"E (11°58'25"N to 79°14'26"E)	Open east
62.	Rough stone	S. Revathi	W/o. Selvaraj B1, Krishna Apartment, Kuvurai Village, Kallakurchi.	B/G&M/365/17 dt. 08.03.2018	2.16.0	13.03.2018	12.03.2023	-	-	28.03.2018	Working	Non Captive	Yes, letter No. DEIAA- TN/F No. 7596 / EC No. 12/2017 dated 04.02.2018	(12°11'48.13"N to 79°45'16.40"E)	Open east
63.	Rough stone & Earth	D. Manokar	S/o. Dhanochirani, Anna Nagar, Eraniyur Village, Vanur Taluk.	A/G&M/176/2018 dt. 15.02.2019	1.90.5	15.02.2019	14.02.2024	-	-	03.04.2019	Working	Non Captive	Yes, letter No. DEIAA- TN/F No. 18212 / EC No. 18/2018 dated 04.12.2018	(12°03'46"N to 12°03'53"N to 79°38'28"E to 79°38'33"E (12°03'47.31"N to 79°38'29.29"E)	Open east

64.	Rough stone	G. Tamisedvan	S/o (late) M. Ganesan, Gounder, Melmampathi Village, Melmalayanur Post, Gingee Taluk	B/G&M/193/09 Dt. 03.09.09, & B/G&M/950/2017 Dt. 09.08.2018	0.81.0	12.10.2009	11.10.2019	-	06.02.2019	Working	Non Captive	Yes, letter No. DEIAA- TN/F No. 18587 / EC No. 26/2018 dated 04.12.2018	12°20'20.51"E to 12°20'20.04"E 79°20'40.65"N to 79°20'48.88"N (12°20'20.13"E 79°20'40.65"N	Open east
65.	Rough stone & Earth	K. Balanurugan	S/o Kuppusamy, Karasur & Post, Vanur Taluk.	A/G&M/138/2017 dt. 27.08.2018	2.12.0	27.08.2018	26.08.2023	-	13.11.2018	Working	Non Captive	Yes, letter No. DEIAA- TN/F No. 15355 / EC No. 15/2018 dated 05.07.2018	12°03'18"N to 12°03'26"N 79°40'03"E to 79°40'10"E (12°03'18"N 79°40'06"E)	Open east
66.	Rough stone & Earth	E. Jayasankar	S/o Elumalai, No.198, Vinayakar Koil Street, Erasiyur Village, Vanur Taluk, Viluppuram District	A/G&M/180/2018 dt. 15.02.2019	3.37.5	15.02.2019	14.02.2024	-	06.03.2019	Working	Non Captive	Yes, letter No. DEIAA- TN/F No. 18349 / EC No. 20/2018 dated 04.12.2018	12°04'02"N to 12°04'13"N 79°38'35"E to 79°38'42"E (12°04'03.46"N 79°38'35.07"E)	Open east
67.	Rough stone & Earth	K. Muleepur Ragnan	S/o. Kalipalla Selam Main Road, Elavanasurkottai, Ulundurpet	B/G&M/174/2015 dt. 10.10.2017.	1.40.5	10.10.2017	09.10.2022	-	07.12.2017	Working	Non Captive	Yes, letter No. DEIAA- TN/F No. 5134 / (to y EC No. 3912/2016 dated 07.06.2017	11°39'48"N to 11°39'54"N 79°12'17"E to 79°12'22"E 11°39'496"N 79°12'18"E	Open east
68.	Rough stone & Earth	M. Moorthi	S/o. Marian, Munarsamy Kovil Street, Thiruvakkur Village, Vanur Taluk	A/G&M/203/2018 dt. 15.02.2019	3.93.5	15.02.2019	14.02.2024	-	14.03.2019	Working	Non Captive	Yes, letter No. DEIAA- TN/F No. 18543 / EC No. 24/2018 dated 04.12.2018	12°02'42.77"N to 12°02'53.80"N 79°39'50.80"E to 79°39'57.78"E (12°02'46.77"N 79°39'50.80"E)	Open east
69.	Rough stone & Earth	N. Venkatesh	S/o. Nataraj, No.158, Kurinji Nagar, Velliscimmandalam, Cuddalore.	B/G&M/1013/2017 dt. 30.02.2019	2.30.5	30.02.2019	29.02.2024	-	20.04.2019	Working	Non Captive	Yes, letter No. DEIAA- TN/F No. 17579 / EC No. 17/2018 dated 04.12.2018	12°13'32"N to 12°13'38"N 73°44'15"E to 73°44'51"E (12°13'32"N 73°44'15"E)	Open east
70.	Rough stone & Earth	V. Sadaivarppan	No.18, Amal Nagar, West Tambaram.	A/G&M/95/2018 dt. 16.08.2018	2.30.5	16.08.2018	15.08.2023	-	18.09.2018	Working	Non Captive	Yes, letter No. DEIAA- TN/F No. 15429 /	12°13'33.197"N to 12°13'41.75"N 79°40'06.13"E to	Open east

71.	Rough stone & Earth	S. Thirumurugan	Chennai-600 045	A/G&M/269/2018 dt. 15.02.2019	2.92.0	15.02.2019	14.02.2024	-	-	22.04.2019	Working	Non Captive	Yes, letter No. DEIAA-TN/F No. 18382 / EC No. 21/2018 dated 04.12.2018	79°40'16.50"E (12°03'32.44"N to 79°40'06.13"E)	Open east
72.	Rough stone & Earth	V. Nagaraj	S/o. Vayupuri, No. 3/32A, South Street, Okanyur Post, Kalluruchi Taluk, Viluppuram District.	B/G&M/118/2018 dt. 25.01.2019.	1.36.5	25.01.2019	24.01.2024	-	-	25.02.2019	Working	Non Captive	Yes, letter No. DEIAA-TN/F No. 17233 / EC No. 14/2018 dated 04.12.2018	79°38'34.83"E (12°02'31.21"N to 79°38'40.39"N)	Open east
73.	Rough stone & Earth	D. Selvakumar,	S/o. Dandapani, Mallam Village, Tiruvananthapuram Taluk.	B/G&M/70/2014 dt. 17.07.2014	1.08.0	17.07.2014	16.07.2019	-	-	16.02.2015	Working	Non Captive	Yes, letter No. SEIAA-TN/F No. 2639 / EC/1(a)/1391/2014 dated 25.06.2014	79°38'34.83"E (12°02'31.21"N to 79°38'40.39"N)	Open east
74.	Rough stone	N. Elangovan,	S/o. Nachiyappan, Devapandalam Village, Sankarapuram Taluk.	B/G&M/200/09 Dt. 27.05.2009	3.00.0	07.09.2009	06.09.2019	-	-	29.09.2009	Working	Non Captive	Yes, letter No. SEIAA-TN/F No. 4757 / 1(a)/EC No. 3281 /2015 dated 11.07.2016	79°36'24"E (12°07'51"N to 79°36'24"E)	Open east
75.	Rough stone	K. Arjunan,	S/o. Kuppusamy Gr., Malaiyansankuppam Village, Mazhavanthangal Post, Oingee taluk, Viluppuram District	B/G&M/24 /2010 dt. 18.02.2010	1.50.0	12.07.2010	11.07.2020	-	-	17.12.2012	Non Working	Non Captive	No	78°52'52.26"E (11°56'32.79"N to 78°52'55.99"N)	Open east
76.	Rough stone	D. Ramachandran	S/o. Duraisamy Thirumandal Village, Arur post, Sankarapuram Taluk.	B/G&M/198/09 dt. 27.05.09	3.00.0	31.08.2009	30.08.2019	-	-	16.09.2009	Working	Non Captive	Yes, letter No. SEIAA-TN/F No. 4725 / 1(a)/EC No. 3331 /2016 dated 15.07.2016	78°52'01.04"E (11°56'00.09"N to 78°51'57.68"E)	Open east

77.	Rough stone	A. Sivaraman	S/o. Anburtham, Metu Street, Vadamerkurum post, Thiruvannam Taluk.	B/G&M/185/09 Dt. 11.06.2009	1.64.0	24.08.2009	23.08.2019	-	-	-	12.10.2009	Working	Non Captive	Yes, letter No. SEIAA- TN/F No. 4826 / I(a)/EC No. 3347 /2016 dated 15.07.2016	(11°56'0.09"N 78°51'57.68"E) to (12°13'08"N to 12°13'14"N 79°45'57"E to 79°46'03"E)	Open east
78.	Rough stone	Tmt. Sathianabee	W/o. K.S. Masthan, 39, Desurajatti Salai, Krishnapuram, Gingee, Viluppuram District	B/G&M/2006/10 dt. 25.01.2011	3.00.0	28.02.2011	27.02.2021	-	-	-	30.06.2017	Working	Non Captive	Yes, letter No. SEIAA- TN/F No. 2484 / I(a)/EC No. 3590 /2015 dated 19.08.2016	(12°13'10"N 79°45'57"E) to (12°26'16"N to 12°26'21"N 79°23'05"E to 79°23'11"E)	Open east
79.	Rough stone	P. Ramalingam,	S/o. Perumal, Pallyandur village Viluppuram Taluk Viluppuram District	B/G&M/207/10 dt. 12.05.2010	3.72.0	16.08.2010	15.08.2020	-	-	-	17.09.2010	Working	Non Captive	Yes, letter No. DEIAA- TN/F No. 18617 / I(a)/EC No. 282 018 dated 04.12.2018	(12°11'36.91"N 79°45'21.21"E)	Open east
80.	Rough stone	Tmt. K. Parimala	W/o. Senthil Selvan, Murugan Koil Street, Kalahampattai Post, Gingee Taluk, Viluppuram District	B/G&M/23 /2010 dt. 30.03.2010	2.50.0	16.04.2010	15.04.2020	-	-	-	23.04.2010	Non Working	Non Captive	No	(12°13'25.45"N 79°18'46.08"E)	Open east
81.	Rough stone & Earth	V. Kumar	S/o. Velayutham, Elavelapakkam Village, Perumakkal, Thiruvannam Taluk.	B/G&M/361/2012 dt. 21.06.2014	2.33.0	21.06.2014	20.06.2019	-	-	-	21.07.2014	Working	Non Captive	Yes, letter No. SEIAA- TN/F No. 2328 / EC/ I(a)/ 1337/2014 dated 30.05.2014	(12°14'54"N to 12°14'46"N 79°44'48"E to 79°44'41"E)	Open east
82.	Rough stone & Earth	Tmt. L. Savithri	W/o. Loganathan, Enayur Village & post, Vannur taluk.	A/G&M/360/13 dated 30.05.2014	0.99.0	30.05.2014	29.05.2019	-	-	-	12.06.2014	Non Working	Non Captive	Yes, letter No. SEIAA- TN/F No. 1650 / EC/ I(a)/ 1169/2013 dt. 20.03.2014	(12°04'05"N to 12°04'08"N 79°39'33"E to 79°39'40"E)	Open east
83.	Rough stone	S. Kamsaladevi	W/o. Surasigh, Eyyal Village & post, Gingee Taluk, Viluppuram District	B/G&M/192/09 dt. 11.06.2009	3.00.0	23.06.09	22.06.2019	-	-	-	18.03.2010	Non Working	Non Captive	No	(12°24'38.17"N 79°22'26.58"E)	Open east

84.	Rough stone	B. Sakthivel	S/o. Balasubramanian, Vadakurumbur, Uthundurpet Taluk, Villupuram District	B/G&M/367/17 dt.08.03.2018.	2.94.0	08.03.2018	07.03.2023	-	-	12.03.2018	Working	Non Captive	Yes, letter No.DIA/TN/MIN/ 6526/2017/DIAA 2017, Pt.No.1, Dated:01.08.2017	11°39'37"N to 11°39'44"N 79°12'09"E to 79°12'15"E (11°39'37"N 79°12'10"E)	Open cast
85.	Rough stone	K. Ashokkumar	S/o Karthasamy, Nallalam Kootread, Perumukkal Village, Tindivanam Taluk.	B/G&M/1224/12 dt.16.04.2015	0.95.0	16.04.2015	15.04.2020	-	-	23.10.2015	Working	Non Captive	Yes, letter No.SELAA-TN/F No.2577 / 13C/ 1(a)Y 1546/2014 dated 14.08.2014	12°13'13"N to 12°13'08"N 79°46'36"E to 79°46'44"E	Open cast

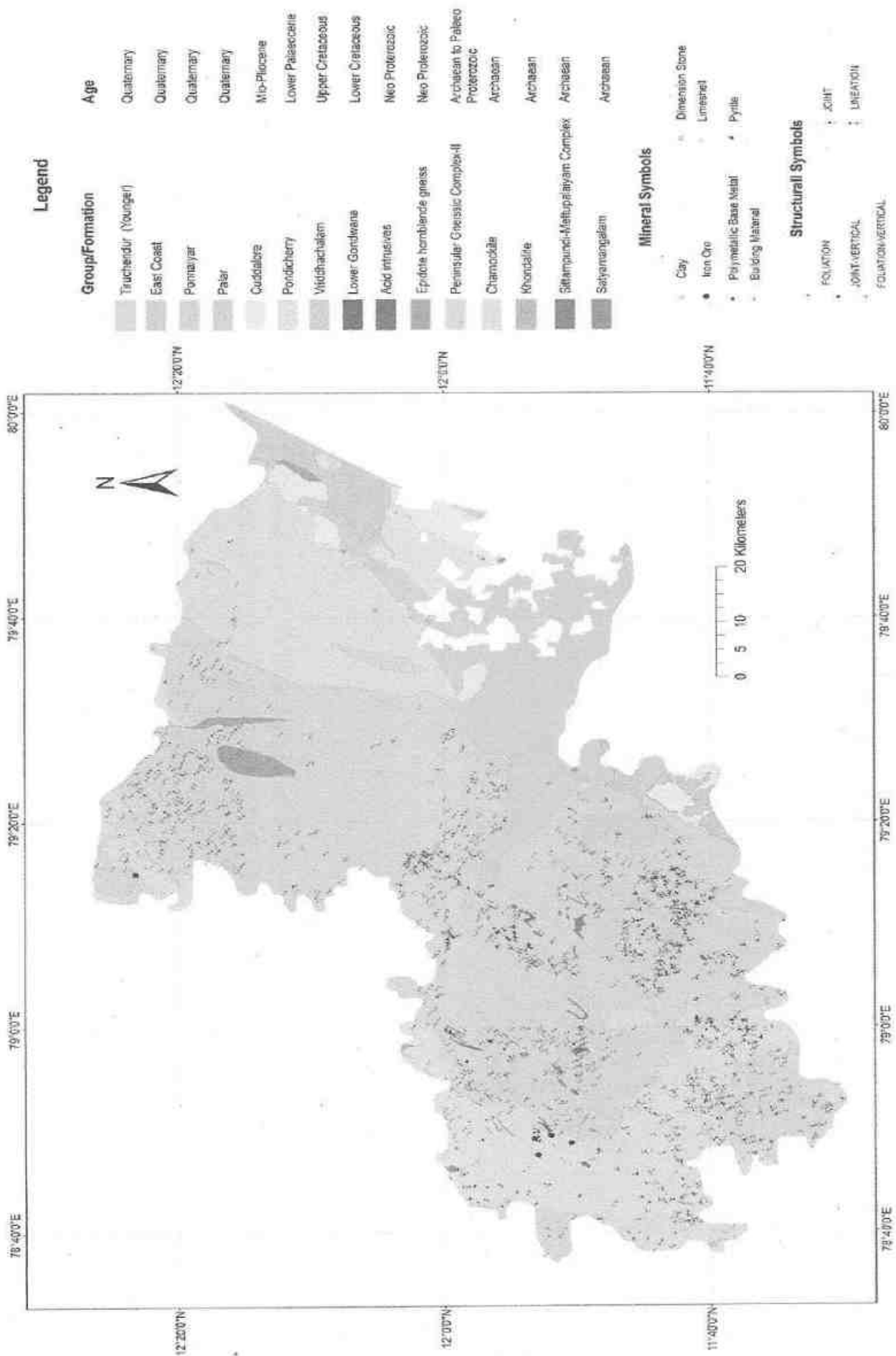
10) Details of Revenue received in last three years;

Year	Rough Stone S.F. (Rs.)
2016-17	46173110
2017-18	44466900
2018-19	54766668

11) Details of Production of Minor Mineral in last three years.

Year	Rough Stone Production (in Cu.Mt)
2016-17	1018368
2017-18	939555
2018-19	932678

MINERAL MAP OF VILLUPURAM DISTRICT



13. List of Letter of Intent (LOI) Holders in the District along with its validity:-

Sl. No.	Name of the Mineral	Name of the Lessee	Address & Contact No. of letter of Intent Holder	Letter of Intent Grant Order No. & Date	Area of Mining lease to be allotted	Validity of Lot	Use (Captive/ Non-Captive)	Location of the Mining Lease (Latitude & Longitude)
1	2	3	4	5	6	7	8	9
1.	Rough stone & Gravel	V Ramesh	S/o Venkataspathy, No.5, Thangaraj Street, HLL Colony, Pammal, Chennai - 75.	B/G&M/463/2018 dt.18.01.2019	3.53.0	-	Non Captive	12°03'10.49"N to 12°03'20.70"N 79°40'08.70"E to 79°40'16.98"E (12°03'11.13"N 79°40'09.94"E)
2.	Rough stone & Earth	Santhosh Blue Metals, Prop. S.V. Venkatesh	No.173, Sarkar Thoppu, Tindivanam.	B/G&M/357/2018 dt.04.01.2019	2.06.0	-	Non Captive	12°03'30"N to 12°03'36"N 79°40'23"E to 79°40'30"E (12°03'33"N 79°40'23"E)
3.	Rough stone & Earth	D. Dhandapani	S/o. Duraisamy, Eraiyur Village, Vanur Taluk, Viluppuram District.	B/G&M/423/2018 dt.18.01.2019	1.49.5	-	Non Captive	12°04'07.16"N to 12°04'13.93"N 79°38'59.73"E to 79°39'03.75"E (12°04'07.45"N 79°39'00.95"E)
4.	Rough stone & Earth	Sri Balaji Blue Metals & M.Sand	No.33/8, Mailam Road, Indira Nagar, Tindivanam	B/G&M/462/2018 dt.15.02.2019	2.85.5	-	Non Captive	12°13'05.47"N to 12°13'13.31"N 79°47'04.29"E to 79°47'10.26"E (12°13'06.53"N 79°47'04.83"E)
5.	Rough stone	K. Balasubramanian	S/o. Karuppaiya, 28/4B, Raja Nagar, Kallakurichi - 606 202.	B/G&M/1143/2017 dt.17.01.2018	2.00.0	-	Non Captive	12°03'41.93"N to 12°03'48.98"N 78°57'09.17"E to 78°57'15.01"E (12°03'43.97"N 78°57'09.17"E)

6.	Rough stone & Gravel	A. Aridass	School Street, Kadagampattu, Vanur Taluk, Viluppuram District.	A/G&M/337/2018 dt.30.01.2019	1.77.0	-	Non Captive	12°03'55.01"N to 12°04'01.91"N 79°38'24.85"E to 79°38'32.27"E (12°03'56.29"N 79°38'24.85"E)
7.	Rough stone & Earth	K. Gnanasekaran	S/o.Kannadi Gounder, Karasanur Village, Vanur Taluk, Viluppuram District.	A/G&M/277/2018 dt.04.01.2019	2.68.0	-	Non Captive	12°03'20.03"N to 12°03'27.36"N 79°40'15.44"E to 79°40'23.75"E (12°03'24.73"N 79°40'15.44"E)

14. Mineral Reserve :
Name of the Mineral: Rough stone

Sr. No	Name of the Mineral	Name of the Lessee	Address & Contact No. of Lessee	Mining lease grant order No. & Date	Area of Mining lease (ha)	Period of Mining lease (Initial)	Period of Mining lease (1 st / 2 nd / 3 rd renewal)	Date of commencement of Mining Operation	Status (Working / Non Working / Temp working for dispatch etc.)	Captive / Non-Captive	Obtained Environmental Clearance (Yes/No) If Yes Letter no with date of grant of EC	Location of the Mining Lease (Latitude & Longitude)	Total Quantity in CBM	
1	2	3	4	5	6	From	To	From	To	12	13	14	15	16
1.	Rough stone	T Muthamizhan	S/o. Theinavan, Maralur Village, Sankarapuram Taluk, Viluppuram District	B/G&M/2020/2010 dt. 31.08.2016.	150.0	31.08.2016	30.08.2021	-	06.02.2017	Working	Non Captive	Yes, letter No SEIAA-TN/F No.2682/EC/1(a)/1724/20 dated 14.03.2015	12°00'30"N to 12°00'26"N 78°55'28"E to 78°55'23"E (12°00'27.7"N 78°55'21.8"E)	RS 45305
2.	Rough stone	RSabramanian	S/o. Ramasamy, 15/3, Karukottai Village, Yernapur Post, Kallakurichi Taluk, Viluppuram District	B/G&M/17/11 dt. 26.11.2011	120.0	23.01.2012	22.01.2022	-	Nil	Non working	Non Captive	No	11°50'21.78"N 79°07'10.51"E	RS 67289
3.	Rough stone	K Natchiappan	S/o. Karuppanna Gounder, Vellakulam, Keelstiviri Post, Tindivanam Taluk.	B/G&M/12/13/13 dt.31.12.2015	2.23.0	31.12.2015	30.12.2020	-	25.02.2016	Non working	Non Captive	Yes, letter No SEIAA-TN/F No.3439/EC/1(a)/2547/2015 dated 21.12.2015	12°11'56"N to 12°11'46"N 79°45'33"E to 79°45'26"E (12°11'47"N 79°45'29"E)	RS 85355
4.	Rough stone	K. Shanmugam	S/o. Kannaiya Gounder, Nallavur Village & Post, Vanur Taluk, Viluppuram District	A/G&M/522/2014 dated 09.09.2016	1.95.5	09.09.2016	08.09.2021	-	Nil	Non working	Non Captive	Yes, letter No SEIAA-TN/F No.4167/EC/1(a)/3177/2015 dated 21.03.2016	12°08'58.60"N to 12°09'04.04"N 79°44'38.34"E to 79°44'54"E (12°09'04.63"N 79°44'38.34"E)	RS 27417
5.	Rough stone & Earth	K. Anandavelu	S/o. Kesavan, No.96, Eravur Village, Vanur Taluk, Viluppuram District	A/G&M/977/2012 dt.28.07.2017.	1.08.0	28.07.2017	18.03.2020	-	18.09.2017	Working	Non Captive	Yes, letter No SEIAA-TN/F No.2699/EC/1(a)/1702/2015 dated 19.03.2015	12°04'28"N to 12°04'24"N 79°38'39"E to 79°38'43"E (12°04'24"N 79°38'39"E)	RS 94425 E:8282

6.	Rough stone & Earth	A.Ganesan,	S/o Appadurai, 190, Kadaveethal, Erishur & post, Vinnur taluk, Viluppuram District	A/G&M/822/2016 dated 22.08.2016	2.62.5	28.07.2017	18.03.2020	-	-	16.05.2018	Working	Non Captive	Yes, letter No SEIAA- TN/F No.5064/E C/I(a)/3324/201 6 dated 15.07.2016.	12°04'12"N to 12°04'19"N 79°38'39"E to 79°38'51"E (12°04'16"N 79°38'39"E)	RS-45600 E:20538
7.	Rough stone	P.Ramesh	S/o Panchacharam, 2/89, Main Road, Kaglamudi Village, Gingee Taluk, Viluppuram District.	B/G&M/2007/10 dt. 26.07.2014.	2.52.0	26.07.2014	23.07.2019	-	-	30.09.2015	Working	Non Captive	Yes, letter No SEIAA- TN/F No.1316/E C/I(a)/588/2013 dated 18.07.2013.	12°22'843"N to 12°22'582"N 79°16'896"E to 79°16'770"E	RS-215665
8.	Rough stone	V.Gunasekaran	S/o. Vellaiya Gounder, No. 47/1A, East Street, Tirukottur	B/G&M/196/09 dt. 25.05.2009	1.50.0	19.06.2009	18.06.2019	-	-	22.06.2009	Non Working	Non Captive	Yes, letter No SEIAA- TN/F No.4898/E C/I(a)/3392/201 6 dated 25.07.2016	11°55'22.78"N to 11°55'26.97"N 79°09'25.55"E to 79°09'31.92"E (11°55'25.41"N 79°09'26.09"E)	RS-27560
9.	Rough stone & Earth	R.Aiswarijan	S/o Ramaswamy, No.41, Urkaran Street, Nerkundram, Chennai-107.	A/G&M/263/13 dated 25.03.2015	1.46.5	25.03.2015	24.03.2020	-	-	04.05.2015	Non Working	Non Captive	Yes, letter No SEIAA- TN/F No.1769/E C/I(a)/1631/201 4 dated 19.02.2015	12°03'230"N to 12°03'27"N 79°40'31"E to 79°40'38"E (12°03'27.55"N 79°40'32.65"E)	RS-72906 E:15340
10.	Rough stone	Tmt.S.Nanthini	W/o Sankar, No.14, 3 rd Street, Jayapuram, Tindivanam Taluk	A/G&M/601/15 dated 31.12.2015	3.32.5	31.12.2015	30.12.2020	-	-	08.03.2016	Working	Non Captive	Yes, letter No SEIAA- TN/F No.4000/E C/I(a)/2546/201 5 dated 21.12.2015	12°03'25.80"N to 12°03'33.90"N 79°40'05.88"E to 79°40'13.76"E (12°03'20.53"N 79°40'10.84"E)	RS-370455
11.	Rough stone	G.Selvakumar	S/o Govindaraj, Erampur Village, Kallakurichi Taluk	B/G&M/369/2017 dt. 08.10.2018	1.50.0	08.10.2018	07.10.2023	-	-	04.12.2018	Working	Non Captive	Yes, letter No DEIAA- TN/F No.9072/E	11°49'47"N to 11°49'51"N 78°58'13"E	RS-230090

12.	Rough stone	R. Subramanian	S/o. Ramasamy, 15/3, Katankottai, Enikuppai Post, Kalakurichi Taluk, Viluppuram District	B/G&M/2018/10 dt. 16.12.2010	1.96.0	10.01.2011	09.01.2021	-	-	25.01.2011	Non Working	Non Captive	-	C.No.16/2017, dated 04.02.2018	to 78°58'19"E (11°49'47"N 78°58'13"E)	RS:154465
13.	Rough stone & Earth	C. Balanurugan	S/o.Chandran, Sunathi Street, Madam Village, Tiruchivannam Taluk	B/G&M/398/2016 dt.24.09.2017	0.79.0	24.09.2017	23.09.2022	-	-	19.03.2018	Working	Non Captive	Yes, letter No DIAA-File No DIA/TN/MI N/5779/2017/DIAA/2017, dated 01.08.2017	12°07'55.50" N to 12°07'59.47" N 79°36'24.94"E to 79°36'28.56"E (12°07'56.09"N 79°36'24.94"E)	RS:50100 E:15687	
14.	Rough stone	E. Sridhar	S/o Elimalai, No.1019, Pillaiyar Koil Street, Devikapuram Village, Arani Taluk, Tiruvannamalai District	B/G&M/23/10 dt. 10.05.2010	5.00.0	16.08.2010	15.08.2020	-	-	01.07.2011	Non Working	Non Captive	-	12°26'10.85" N to 12°26'03.38" N 79°21'48.29"E to 79°21'36.79"E (12°26'3.38"N 79°21'42.94"E)	RS:502898	
15.	Rough stone & Earth	C.Selvan,	S/o Chellappu Muthaiyar, Sangeethamangala m Road, Arandapuram, Gingee Taluk.	B/G&M/1470/2013 dt. 18.07.2014	0.60.0	18.07.2014	17.07.2019	-	-	07.01.2019	Working	Non Captive	Yes, letter No SEIAA-TN/F No.2602/E C/1(a)/1454/2014 dated 25.06.2014	12°07'21"N to 12°07'27"N 79°22'40"E to 79°22'45"E (12°07'21"N 79°22'40"E)	RS:21493 E:1773	
16.	Rough stone & Earth	A.S.Srinivasan	S/o Sengodan, Athur & Post, Rasipuram Taluk, Namakkal District	B/G&M/459/13 dt. 06.02.2015	3.35.0	06.02.2015	05.02.2020	-	-	Nil	Non Working	Non Captive	Yes, letter No SEIAA-TN/F No.1882/E C/1(a)/1459/2014 dated 02.07.2014	11°37'09"N to 11°37'01"N (78°55'02"E to 78°54'53"E)	RS:330000 E:23373	

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17.	Rough stone	A. Muthusamy	S/o. Arthanani Gounder, Kattukottai, Paranginathan, Mulliganpady Post, Sankarapuram Taluk, Viluppuram District	B/G&M/2012/19 dt. 31.12.2010.	1.00.0	14.02.2011	13.02.2021	-	21.07.2016	Non Working	Non Captive	-	-	
18.	Rough stone & Earth	V. Sankar	S/o Vivekanandan, 14, Jayapuram Colony, Tindivanam Town & Taluk, Viluppuram District	A/G&M/306/2016 dated 20.09.2016	3.66.5	20.09.2016	19.09.2021	-	28.09.2016	Working	Non Captive	Yes, letter No. SEIAA-TNF No. 5616/1C a/EC No. 3694/2 016 dated 06.09.2016	12°03'32"N to 12°03'40"N 79°40'16"E to 79°40'23"E (12°03'34"N 79°40'16"E)	RS-161930 E-9416
19.	Rough stone	A. Ramesh	S/o. Alangaramasopar, Malakkottalam, Kallakurichi Taluk	B/G&M/2019/2010 dt. 03.07.2016.	2.00.0	03.07.2016	02.07.2026	-	31.01.2017	Non Working	Non Captive	Yes, letter No. SEIAA-TNF No. 2683/E C/1(a)/1739/2014 dated 13.03.2015	12°03'43"N to 12°03'50"N 78°57'08"E to 78°57'13"E (12°03'52"N 78°57'14"E)	RS-45600
20.	Rough stone & Earth	V. Chaudrasekaran	S/o. Vellayuni, 2/4, School Street, Kattupayur Village, Tirukottur Taluk	B/G&M/334/2014 dt. 09.08.2016.	1.02.5	09.09.2016	08.09.2021	-	22.12.2016	Working	Non Captive	Yes, letter No. SEIAA-TNF No. 4736/E C/1(a)/3196/2016 dated 11.07.2016	11°57'9.50"N to 11°57'14.14"N 79°10'16.12"E to 79°10'18.84"E (11°57'9.50"N 79°10'16.12"E)	RS-70235 E-13634
21.	Rough stone & Earth	P. Devasigamani	S/o. Pattavani, T. Nallalam Village, Perumkhal Post, Tindivanam Taluk	B/G&M/1898/12 dt. 11.04.2015	1.03.0	11.04.2015	10.04.2020	-	26.05.2015	Working	Non Captive	Yes, letter No. SEIAA-TNF No. 2831/E C/1(a)/1752/2014 dated 19.03.2015	12°11'51"N to 12°11'55"N 79°45'08"E to 79°45'15"E	RS-61305 E-20060

22.	Rough stone	A. Balaraman	S/o. Annaikutti Gounder, Keelaviri Village & Post, Tindivanam Taluk, Viluppuram District	B/G&M/365/11 dt. 25.11.2011.	1.10.0	26.12.2011	25.12.2021	-	27.01.2012	Non Working	Non Captive	No	12°11'54"N 79°45'8"E	RS:15856
23.	Rough stone & Earth	T. Rajendiran	S/o. Thandapani Naidu, 8/66, Sivun Kovil Street, Elavinasurkottai Village & Post, Uthandurpet Taluk,	B/G&M/975/2015 dt. 22.08.2016.	1.97.5	22.08.2016	21.08.2021	-	28.09.2016	Working	Non Captive	Yes, letter No. SELAA-TN/F No. 5148/E C/ I(a)/3197/2016 dated 06.07.2016	11°39'59.60" N to 11°40'06.64" N 79°12'16.58" E to 79°12'22.80"E (11°39'59.60" N 79°12'18.64"E)	RS:116185 E:5884
24.	Rough stone & Earth	S. Arulbanan	S/o. Subramani, 252, Kulakkarni, Ulagalampoonchi, Vikkravandi Taluk.	B/G&M/1059/2015 dt. 23.01.2017	1.14.5	23.01.2017	22.01.2022	-	25.01.2018	Working	Non Captive	Yes, letter No. SELAA-TN/F No. 5825 / I(a) /EC.No. 3879/2016 dated 14.11.2016	12°02'42.84" N to 12°02'48.45" N 79°28'49.08" E to 79°28'52.37"E (12°02'43.45" N 79°28'49.08"E)	RS:94010 E:15480
25.	Rough stone & Earth	Tmt. R. Sujatha	W/o. (late) L. Rameshbabu, No. 5, Shankar Nagar, Therpathi, Sirkuli Taluk, Nagapattinam District	B/G&M/1053/2015 dt. 14.10.2016 & B/G&M/436/ 2018 Dated 19.11.2018	4.22.5	14.10.2016	13.10.2021	-	24.08.2017	Working	Non Captive	Yes, letter No. SELAA-TN/F No. 5061 / I(a) /EC.No. 3611/2016 dated 24.08.2016	11°40'02"N to 11°40'12"N 79°12'23"E to 79°12'35"E (11°40'03"N 79°12'24"E)	RS:254672 E:61926

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26.	Rough stone & Earth	K. Paramisivan	S/o Kanesa Gounder, No 29/3, Mariamman Koil Street, Chokkanthangal, Keelsiviri Post, Marakkuram Taluk	B/G&M/674/2015 dt 03.03.2016	1.05.5	03.03.2016	02.01.2021	-	-	04.05.2016	Working	Non Captive	Yes, letter No.SELAA-TNF No.4827 / 1(a) / EC.No. 2829/2016 dated 17.02.2016	12°13'06"N to 12°13'11"N 79°45'26"E to 79°45'30"E (12°13'07"N 79°45'26"E)	RS:80640 E:6564
27.	Rough stone & Earth	E. Pavadarayan	S/o Elitayappan, Mariyamman Kovil Street, Kovadi, Thidivanam Taluk	B/G&M/1137/13 dt 14.05.2015	0.75.0	14.05.2015	13.05.2020	-	-	19.08.2015	Working	Non Captive	Yes, letter No.SELAA-TNF No.3109 / EC/ 1(a) / 2148/2014 dated 01.04.2015	12°11'39"N to 12°11'43"N 79°45'10"E to 79°45'14"E (12°11'40"N 79°45'10"E)	RS:37700 E:16248
28.	Rough stone	S. Srinivasan	S/o Sanjeevi, No.9, Wahab Nagar, Marakkuram Road, Thidivanam Taluk	B/G&M/2005/10dt. 23.09.2014	0.72.0	23.09.2014	22.09.2019	-	-	02.12.2009	Non Working	Non Captive	Yes, letter No.SELAA-TNF No.1862 / EC/ 1(a) / 1139A/2013 dated 27.02.2014	12°12'24"N to 12°12'19"N 79°44'55"E to 79°44'59"E (12°12'19"N 79°44'55"E)	RS:31745
29.	Rough stone & Earth	P. Srinivasan	S/o. Polathi Reddyar, No.142, Mosque Street, C Pullavarai, Chennai	B/G&M/290/13 dt 13.11.2015	1.61.5	13.11.2015	12.11.2020	-	-	29.06.2016	Working	Non Captive	Yes, letter No.SELAA-TNF No.2951 / EC/ 1(a) / 1769/2014 dated 19.03.2015	12°13'58"N to 12°14'03"N 79°45'17"E to 79°45'23"E (12°13'58"N 79°45'20"E)	RS:128380 E:20247
30.	Rough stone & Earth	M. Krishnamoorti	S/o.Murugayan, No.1, Palayakara Street, Thiruvakkural	A/G&M/422/2013 dated 15.10.2016	0.80.0	15.10.2016	14.10.2021	-	-	22.03.2017	Working	Non Captive	Yes, letter No.SELAA-TNF No.5424 / 1(a) / EC.No. 3557/2016 dated 10.08.2016	12°22'23.90"N to 12°22'27.58"N 79°39'32.17"E to 79°39'35.05"E (12°22'24.38"N 79°39'32.17"E)	RS:56054 E:10386
31.	Rough stone & Earth	A. Selvaraj	S/o Arumugam, No.135, 7 th Cross Road, Housing Board, Gopalapuram,	B/G&M/1187/13 dt 24.04.2015	1.07.5	24.04.2015	23.04.2020	-	-	18.05.2015	Non Working	Non Captive	Yes, letter No.SELAA-TNF No.2779 / EC/ 1(a)	12°13'22"N to 12°13'28"N 79°44'03"E to 79°44'07"E	

32.	Rough stone & Earth	O Anand Kumar Jain	Manoor Village, Tindivanam Taluk, Viluppuram District.	A/G&M/528/08 dated 16.03.2015	1.05.5	16.03.2015	15.03.2020	-	13.04.2015	Working	Non Captive	Yes, letter No. SEIAA-TN/F No.1206/EC/ 1(a) /12.44/2013 dated 08.05.2014	12°02'00"N to 79°38'52"E	(12°13'22"N to 79°44'04"E)	RS/29350 E:4028
33.	Rough stone & Earth	T.Axavindan	S/o. Thindaran, Perumnikkal Village, Tindivanam Taluk.	B/G&M/693/2012 dt 08.02.2016	2.12.0	08.02.2016	07.02.2021	-	30.10.2016	Working	Non Captive	Yes, letter No. SEIAA-TN/F No.2763/EC/ 1(a) /1738/2014 dated 13.03.2015	12°13'15"N to 12°13'09"N to 79°45'22"E to 79°45'16"E	(12°13'12"N to 79°45'16"E)	RS/145135 E:50624
34.	Rough stone	S.Raguraman	S/o. Subramaniam, 8, Mettu Street, Eraniyar Village & Post, Vanar Taluk, Viluppuram District.	A/G&M/590/2013 dated 20.02.2016	1.13.0	20.02.2016	19.02.2021	-	10.03.2016	Working	Non Captive	Yes, letter No. SEIAA-TN/F No.4512/EC/ 1(a) /2778/2015 dated 19.01.2016	12°02'10.25"N to 12°02'14.44"N to 79°38'52.17"E to 79°38'59.91"E	(12°02'10.25"N to 79°38'52.17"E)	RS/28714
35.	Rough stone & Earth	M.Kaliyarasi	W/o. Manokaran, 4/53, Mariyaman Kovil Street, Sivanthangal, Chennai-69.	A/G&M/1461/2013 dated 14.06.2016	2.57.5	14.06.2016	13.06.2021	-	06.03.2017	Working	Non Captive	Yes, letter No. SEIAA-TN/F No.3101/EC/ 1(a) /1804/2014 dated 27.03.2015	12°04'31"N to 12°04'43"N to 79°38'54"E to 79°38'59"E	(12°04'31"N to 79°38'59"E)	RS/110810 E:49335
36.	Rough stone & Earth	C.Ganesan	S/o Chinnatya Gounder, 168, Mettu Street, Kaimasar Village, V.Paranagani Post, Vanar Taluk	A/G&M/168/2015 dated 22.08.2016	4.27.5	22.08.2016	21.08.2021	-	15.12.2016	Working	Non Captive	Yes, letter No. SEIAA-TN/F No.5069/EC/ 1(a) /3326/2016 dated 15.07.2016	12°03'20"N to 12°03'27"N to 79°39'58"E to 79°40'10"E	(12°03'20"N to 79°39'58"E)	RS/95740 E:6848

37.	Rough stone & Earth	V. Gnanaguru,	S/o. Velayutham, Elavalayakkam Village, Perumukkal, Tindivanam Taluk	B/G&M/207/2012 dt. 21.06.2014	1.28.0	21.06.2014	20.06.2019	-	29.04.2015	Working	Non Captive	Yes, letter No. SEIAA- TN/F No.2327 / EC/ 1(a) /1251/2014 dated 09.05.2014	12°13'37"N to 12°13'32"N 79°44'11"E to 79°44'15"E (12°13'33"N to 79°44'11"E)	RS.120530 F.24954
38.	Rough stone & Earth	T. Kuppusamy	S/o. Theppalan No.667, Marakkannam Road, Brammadesam Village, Tindivanam Taluk	B/G&M/531/14 dt. 31.12.2015	0.29.5	31.12.2015	30.12.2020	-	26.02.2016	Working	Non Captive	Yes, letter No. SEIAA- TN/F No.3365 / EC/ 1(a) /2338/2015 dated 02.11.2015	12°11'43"N to 12°11'49"N 79°45'39"E to 79°45'42"E (12°11'47"N to 79°45'39"E)	RS.43050 E.5820
39.	Rough stone	D. Murugapandiyan	S/o. Dammaji, Chakkannanthandul, Gingee Taluk.	B/G&M/2008/10 dt. 30.12.2016	2.00.0	30.12.2016	29.12.2021	-	21.08.2017	Non Working	Non Captive	Yes, letter No. SEIAA- TN/F No.5048 / EC/ 1(a) /3722/2016 dated 16.09.2016	12°15'17"N to 12°15'20"N 79°27'02"E to 79°27'11"E (12°15'17"N to 79°27'02"E)	RS.144805
40.	Rough stone	Tmt R. Dharmalakshmi	W/o. Ravi, Thirupathiamman Koil Street, Venbi Village and Post, Viluppuram Taluk and District	B/G&M/205/2010 dt. 13.04.2010	3.00.0	07.06.2010	06.06.2020	-	11.06.2010	Working	Non Captive		12°07'55.87" N 79°26'40.90" E	RS.313852
41.	Rough stone	R. Dharmalakshmi,	W/o. J Ravi, Thirupathiamman Kovil Street, Venbi Village, Viluppuram Taluk	B/G&M/2001/2010 dt. 31.08.2016	2.21.5	31.08.2016	30.08.2021	-	06.03.2017	Non Working	Non Captive	Yes, letter No. SEIAA- TN/F No.1424 / EC/ 1(a) /637/2013 dated 01.08.2013	12°02'51.37" N to 12°02'57.60" N 79°27'50.49" E to 79°27'57.29"E (12°02'57"N to 79°27'55"E)	RS.179030
42.	Rough stone	K. Marugavel	S/o. Kali Gounder, Ningathur Village, Annaiyur Via, Viluppuram Taluk.	B/G&M/2000/10 dt. 15.12.2010	0.50.0	31.01.2011	30.01.2021	-	26.12.2011	Non Working	Non Captive	No	12°07'36.16" N 79°24'43.73" E	RS.16872
43.	Rough stone	P. Elanchezhian	S/o. Parmeeswari, Vudakkannandul post, Kallakurichi	B/G&M/198/09 dt. 25.05.09	2.00.0	23.06.2009	22.06.2019	-	10.05.2010	Working	Non Captive	Yes, letter No. SEIAA- TN/F No.4872 /	11°45'23.82" N to 11°45'27.08" N	RS.44275

44.	Rough stone	V.Ravi	Taluk, Viluppuram District	B/G&M/2603/10 dt. 23.09.2014.	0.37.5	23.09.2014	22.09.2019	-	01.02.2019	Working	Non Captive	Yes, letter No.SELAA-TN/F No.1757 / I(a) / EC No.866/2013 dated 12.11.2013	78°51'24.54"E to 78°51'31.13"E (11°45'23.82" N to 78°51'24.54"E)	1(a) / EC No.3486/2016 dated 29.07.2016	RS.23700
45.	Rough stone	P.Ravechandran	S/o. Veerasamy, Perumukkal Village, Tindivanam Taluk.	A/G&M/513/13 dated 30.05.2014	1.42.2	30.05.2014	29.05.2019	-	27.06.2014	Working	Non Captive	Yes, letter No.SELAA-TN/F No.1982 / EC/I(a) 1192/2013 dated 15.04.2014	12°13'19"N to 12°13'16"N 79°46'07"E to 79°46'04"E (12°13'16"N to 79°46'06"E)	Yes, letter No.SELAA-TN/F No.1982 / EC/I(a) 1192/2013 dated 15.04.2014	RS.67895 E.10360
46.	Rough stone & Earth	K. Gnanasekaran	S/o. Kamandi coamder, Mettu Street, Karasatur Village, Vanur Taluk, Viluppuram District.	A/G&M/483/2013 dated 24.09.2017	1.24.5	24.09.2017	23.09.2022	-	13.12.2017	Working	Non Captive	Yes, letter No.SELAA-TN/F No.3425 / I(a) / EC No.3920/2016 dated 19.06.2017	12°03'36"N to 12°03'40"N 79°40'07"E to 79°40'12"E (12°03'324.75" N to 79°40'15.44"E)	Yes, letter No.SELAA-TN/F No.3425 / I(a) / EC No.3920/2016 dated 19.06.2017	RS.47160
47.	Rough stone	D.Narayanaswamy	S/o. Dackiamoorthi, 25, Emikam Street, Mariyannur Kovil Street, Cuddalore District.	A/G&M/702/2017 dt. 27.08.2018	2.53.0	27.08.2018	26.08.2023	-	18.09.2018	Working	Non Captive	Yes, letter No.DELAA-TN/F No.12681 / EC No.11/2018 dated 05.07.2018	12°05'51"N to 12°06'00"N 79°42'32"E to 79°42'40"E (12°05'55"N to 79°42'32"E)	Yes, letter No.DELAA-TN/F No.12681 / EC No.11/2018 dated 05.07.2018	RS.14425
48.	Rough stone & Earth	M.Jaffer saif	S/o. Mohamed Ravuthar, Panayapuram Village.	B/G&M/948/2016 dt. 27.09.2018.	1.55.0	27.09.2018	26.09.2023	-	22.10.2018	Working	Non Captive	Yes, letter No.DELAA-TN/F No.7427 / EC No.14/2017	11°39'53.90" N to 11°40'00.33" N	Yes, letter No.DELAA-TN/F No.7427 / EC No.14/2017	RS.96417 E.11874

49.	Rough stone	T. Anbazhagan	S/o. Thangavel, Nathamedu Street, Olakoor & Post, Tindivanam Taluk, Viluppuram District	B/G&M/364/17 dt. 28.02.2019.	0.99.0	28.02.2019	27.02.2024	-	-	-	Nil	Non Working	Non Captive	Yes, letter No. DEIAA- TN/F No.8096 / EC No.31/2017 dated 04.12.2018	12°13'36.27" N 79°44'16.52" E	RS:32211
50.	Rough stone	A. Sathishkumar	S/o. Arumugam, Metin Street, Thuruvai, Rayapadupakkam Post, Vanur Taluk	B/G&M/1142/2017 dt. 08.03.2019.	1.00.0	08.03.2019	07.03.2024	-	-	-	Nil	Non Working	Non Captive	Yes, letter No. DEIAA- TN/F No.15706 / EC No.12/2018 dated 04.12.2018	12°01'48"N to 12°01'54"N 79°38'49"E to 79°38'55"E (12°01'49.67" N 79°38'54.89"E)	RS:51890
51.	Rough stone	C. Prabu	S/o. Chakravarthi, Indira Nagar, Kiliyamar Village & Post, Vanur Taluk, Viluppuram	B/G&M/1141/2017 dt. 08.03.2019.	1.00.0	08.03.2019	07.03.2024	-	-	-	09.05.2019	Working	Non Captive	Yes, letter No. DEIAA- TN/F No.15708 / EC No.13/2018 dated 04.12.2018	12°01'49"N to 12°01'55"N 79°38'51"E to 79°38'55"E (12°01'49.40" N 79°38'53.69"E)	RS:104810
52.	Rough stone & Earth	S. Ranganathan	S/o. Subramania Gounder, No.135, Pandy Road, Marakkanam, Viluppuram District	B/G&M/260/15 dt. 15.02.2019	2.13.0	15.02.2019	14.02.2024	-	-	-	08.04.2019	Working	Non Captive	Yes, letter No. DEIAA- TN/F No.18539 / EC No.22/2018 dated 04.12.2018	12°11'27.47" N to 12°11'34.31" N 79°45'41.19" E to 79°45'46.59" E (12°11'29.96" N 79°45'41.19"E)	RS:106902 E:9207

53.	Rough stone	H. Chinmukaman	S/o. Hanikrishnan, Enayur Village, Vannur Taluk, Viluppuram District	A/G&M/362/2017 dated 28.02.2019	2.81.5	28.02.2019	27.02.2024	-	08.03.2019	Working	Non Captive	Yes, letter No. DEIAA- TN/F No. 7599 / EC No. 7/2017 dated 04.02.2018	12°04'07"N to 12°04'14"N 79°39'32"E to 79°39'41"E	RS:412160
54.	Rough stone & Earth	S. Raguraman	S/o. Subramuniya Reddyar, Thenkodupekkam Village, Vannur Taluk, Viluppuram District	A/G&M/778/2017 dt. 15.02.2019	2.54.5	15.02.2019	14.02.2024	-	28.03.2019	Working	Non Captive	Yes, letter No. DEIAA- TN/F No. 15201 / EC No. 14/2018 dated 05.07.2018	12°08'33"N to 12°08'40"N 79°43'28"E to 79°43'36"E (12°08'37.02" N to 79°43'28.16" E)	RS:109143 E:10186
55.	Rough stone & Earth	M. Babu	No.2, Maniam Road, Indira Nagar, Tiruvananthapuram	B/G&M/1159/2017 dt. 09.08.2018	3.94.0	09.08.2018	08.08.2023	-	19.08.2018	Working	Non Captive	Yes, letter No. DEIAA- TN/F No. 15483 / EC No. 17/2018 dated 05.07.2018	12°13'13.96" N to 12°13'24.92" N 79°46'15.51" E to 79°46'22.51"E (12°13'16.44" N to 79°46'16.04" E)	RS:211615 E:32120
56.	Rough stone	Munikkam	S/o. Kali, Nungathur Village, Vikkravandi Taluk, Viluppuram District	B/G&M/363/17 dt. 08.03.2018	1.00.0	08.03.2018	07.03.2023	-	15.03.2018	Working	Non Captive	Yes, letter No. DEIAA- TN/F No. 7527 / EC No. 13/2017 dated 04.02.2018	12°07'34"N to 12°07'37"N 79°24'44"E to 79°24'50"E (12°07'34"N to 79°24'44"E)	RS:137825
57.	Rough stone & Earth	D. Ramesh	S/o. Devaraj Perumukkal Village & Post, Marakkulam Taluk, Viluppuram District	B/G&M/100/2018 dt. 28.02.2019	1.76.0	28.02.2019	27.02.2024	-	16.05.2019	Working	Non Captive	Yes, letter No. DEIAA- TN/F No. 18540 / EC No. 23/2017 dated 04.12.2018	12°11'07.87" N to 12°11'11.80" N 79°45'42.90" E to 79°45'51.85"E (12°11'09.72" N to 79°45'42.90"E)	RS:114505 E:29241

58.	Rough stone & Earth	R. Muralidharan	Manager, OM Sakthi Constructions, Thollanur Village, Vamar Taluk.	A/G&M/1648/2017 dt. 16.08.2018	2.06.0	16.08.2018	15.08.2023	-	-	31.08.2018	Working	Non Captive	Yes, letter No. DEIAA-TN/F No. 14175 / EC No. 13/2018 dated 05.07.2018	12°03'28"N to 12°03'36.50"N 79°40'35.29"E to 79°40'39.92"E (12°03'29.79"N to 79°40'35.29"E)	RS-235220 E-20040
59.	Rough stone & Earth	G. Raja,	S/o. Gopal, Sivarej Street, Thiruneeomalai, Chennai.	A/G&M/640/2018 dt. 16.08.2018	2.42.5	16.08.2018	15.08.2023	-	-	Nil	Non Working	Non Captive	Yes, letter No. DEIAA-TN/F No. 15627 / EC No. 18/2018 dated 05.07.2018	12°03'13.14"N to 12°03'21.15"N 79°40'16.66"E to 79°40'24.21"E (12°03'17.09"N to 79°40'16.66"E)	RS-206255 E-20042
60.	Rough stone	T. Vasudevan	S/o. Thangavel, Enaiyur Village, Vamar Taluk, Villupuram District.	A/G&M/181/2018 dt. 15.02.2019	4.83.5	15.02.2019	14.02.2024	-	-	06.03.2019	Working	Non Captive	Yes, letter No. DEIAA-TN/F No. 18345 / EC No. 19/2018 dated 04.12.2018	12°04'09"N to 12°04'19"N 79°38'34"E to 79°38'45"E (12°04'16.98"N to 79°38'34.04"E)	RS-404793
61.	Rough stone	S. Sankar	S/o. Sampanthan, S. Kallar Village, Kandachapuram Taluk, Villupuram District.	B/G&M/366/17 dt. 08.03.2018	3.00.0	28.03.2018	27.03.2023	-	-	04.06.2018	Working	Non Captive	Yes, letter No. DEIAA-TN/F No. 8297 / EC No. 10/2017 dated 04.02.2018	11°58'25"N to 11°58'32"N 79°14'24"E to 79°14'33"E (11°58'25"N to 79°14'26"E)	RS-191318
62.	Rough stone	S. Revathi	W/o. Selvaraj B1, Krishna Apartment, Kavarni Village, Kallakurichi.	B/G&M/365/17 dt. 08.03.2018	2.16.0	13.03.2018	12.03.2023	-	-	28.03.2018	Working	Non Captive	Yes, letter No. DEIAA-TN/F No. 7396 / EC No. 12/2017 dated 04.02.2018	12°11'48.13"N to 79°45'16.40"E	RS-151034

63.	Rough stone & Earth	D. Manokar	S/o. Dharmothirun, Anna Nagar, Erayur Village, Vamar Taluk	A/G&M/176/2018 dt. 15.02.2019	1.90.5	15.02.2019	14.02.2024	-	-	03.04.2019	Working	Non Captive	Yes, letter No. DEIAA- TN/F No. 18212 / EC No. 18/2018 dated 04.12.2018	12°03'46"N to 12°03'53"N 79°38'28"E to 79°38'33"E (12°03'47.31"N 79°38'29.29"E)	RS:222030 E:26970
64.	Rough stone	G. Tamilselvan	S/o. (late) M. Ganesan, Gounder, Kidmangattu Village, Melmalayanur Post, Gingee Taluk.	B/G&M/193/09 Dt. 03.09.09. & B/G&M/950/2017 Dt. 09.08.2018	0.81.0	12.10.2009	11.10.2019	-	-	06.02.2019	Working	Non Captive	Yes, letter No. DEIAA- TN/F No. 18587 / EC No. 26/2018 dated 04.12.2018	12°20'20.51"E to 12°20'20.04"E 79°20'40.65"N to 79°20'48.88"N (12°20'20.13"E 79°20'40.65"N)	RS: 35567
65.	Rough stone & Earth	K. Balamurugan	S/o. Kurpusami, Karasur & Post, Vamar Taluk.	A/G&M/138/2017 dt. 27.08.2018	2.12.0	27.08.2018	26.08.2023	-	-	13.11.2018	Working	Non Captive	Yes, letter No. DEIAA- TN/F No. 15355 / EC No. 15/2018 dated 05.07.2018	12°03'18"N to 12°03'26"N 79°40'05"E to 79°40'10"E (12°03'18"N 79°40'06"E)	RS:198055 E:10544
66.	Rough stone & Earth	E. Jayasankar	S/o. Elumalai, No.198, Vinayakar Koil Street, Erayur Village, Vamar Taluk, Viluppuram District	A/G&M/180/2018 dt. 15.02.2019	3.37.5	15.02.2019	14.02.2024	-	-	06.03.2019	Working	Non Captive	Yes, letter No. DEIAA- TN/F No. 18349 / EC No. 20/2018 dated 04.12.2018	12°04'02"N to 12°04'13"N 79°38'35"E to 79°38'42"E (12°04'03.46"N 79°38'35.07"E)	RS:378010
67.	Rough stone & Earth	K. Mageswar Ragnan	S/o. Kalipulla Selam Main Road, Elavanasarkottai, Ulundurpet.	B/G&M/174/2015 dt. 10.10.2017.	1.40.5	10.10.2017	09.10.2022	-	-	07.12.2017	Working	Non Captive	Yes, letter No. SELAA- TN/F No. 5134 / (a)/ EC No. 3912/2016 dated 07.06.2017	11°39'48"N to 11°39'54"N 79°12'17"E to 79°12'22"E 11°39'496"N 79°12'18"E	RS:24600 E:2790
68.	Rough stone & Earth	M. Moorthi	S/o. Minun, Mamarsamy Kovil Street, Thiruvakkarni	A/G&M/203/2018 dt. 15.02.2019	3.93.5	15.02.2019	14.02.2024	-	-	14.03.2019	Working	Non Captive	Yes, letter No. DEIAA- TN/F No. 18543 / EC No. 24/2018	12°2'42.77"N to 12°2'53.80"N 79°39'50.80"E to	RS:355330 E:26818

69.	Rough stone & Earth	N. Venkatesh	Village, Vanar Taluk	B/G&M/1013/2017 dt. 30.02.2019	2.30.5	30.02.2019	29.02.2024	-	-	20.04.2019	Working	Non Captive	Yes, letter No DEIAA-TN/F No.17579 / EC No.17/2018 dated 04.12.2018	79°39'57.78"E (12°2'46.77"N to 79°39'50.80"E)	RS.195530 E.33669
70.	Rough stone & Earth	V. Sadasivappan	No.18, Annal Nagar, West Tambaram, Chennai-600 045.	A/G&M/95/2018 dt. 16.08.2018	2.30.5	16.08.2018	15.08.2023	-	-	18.09.2018	Working	Non Captive	Yes, letter No DEIAA-TN/F No.15429 / EC No.16/2018 dated 05.07.2018	12°13'32"N to 12°13'33.19"N (12°03'41.75"N to 79°40'06.13"E)	RS.277000 E.12934
71.	Rough stone & Earth	S. Thirumunigan	S/o. Sivaprasadam, Vinayagar Kovil Street, Kathirkaman, Pudukcherry.	A/G&M/269/2018 dt. 15.02.2019	2.92.0	15.02.2019	14.02.2024	-	-	22.04.2019	Working	Non Captive	Yes, letter No DEIAA-TN/F No.18382 / EC No.21/2018 dated 04.12.2018	12°02'30"N to 12°02'38"N (79°38'33"E to 79°38'40"E)	RS.240645 E.30336
72.	Rough stone & Earth	V. Nagaraj	S/o. Vairavpuri, No.3/32A, South Street, Okavur Post, Kalkinichi Taluk, Viluppuram District.	B/G&M/118/2018 dt. 25.01.2019.	1.36.5	25.01.2019	24.01.2024	-	-	25.02.2019	Working	Non Captive	Yes, letter No DEIAA-TN/F No.17233 / EC No.14/2018 dated 04.12.2018	11°39'40.39"N to 11°039'46.71"N (79°11'58.95"E to 79°12'05.54"E)	RS.72405 E.6796
73.	Rough stone & Earth	D. Selvakumar,	S/o. Dandapani, Manlam Village, Tindivanam Taluk.	B/G&M/70/2014 dt. 17.07.2014	1.08.0	17.07.2014	16.07.2019	-	-	16.02.2015	Working	Non Captive	Yes, letter No SEIAA-TN/F No.2639 / EC/1(a)/139/2014 dated 25.06.2014	12°07'50"N to 12°07'55"N (79°36'24"E to 79°36'28"E)	RS.64000 E.21960

74.	Rough stone	N. Elangovan.	S/o. Nachiyappan, Devapandalam Village, Sankarapuram Taluk.	B/G&M/2009/09 Dt. 27.05.2009	3.00.0	07.09.2009	06.09.2019	-	29.09.2009	Working	Non Captive	Yes, letter No. SEIAA- TN/F No.4757 / 1(a)/EC No.3281 /2015 dated 11.07.2016	11°56'52.79" N to 11°56'59.55" N 78°52'47.46"E to 78°52'59.26"E (11°56'52.79" N to 78°52'52.26"E)	RS:72461
75.	Rough stone	K. Arjunan.	S/o. Kuppusamy Gr., Malayasankuppam Village, Mazhavantharigal Post, Gingee taluk, Viluppuram District	B/G&M/24 /2010 dt. 18.02.2010	1.50.0	12.07.2010	11.07.2020	-	17.12.2012	Non Working	Non Captive	No	12°05'55.99" N to 79°17'11.65"E	RS:63044
76.	Rough stone	D. Ramachandran	S/o. Duraisamy, Thirumanndal Village, Arur post, Sankarapuram Taluk.	B/G&M/1997/09 dt. 27.05.09	3.00.0	31.08.2009	30.08.2019	-	16.09.2009	Working	Non Captive	Yes, letter No. SEIAA- TN/F No.4725 / 1(a)/EC No.3331 /2016 dated 15.07.2016	11°56'0.09"N to 11°56'59.94" N 78°51'57.68"E to 78°52'01.04"E (11°56'0.09"N to 78°51'57.68"E)	RS:79353
77.	Rough stone	A. Sivananthan.	S/o. Anbazhagan, Metro Street, Vadankulam post, Tiruvivanam Taluk.	B/G&M/185/09 Dt. 11.06.2009	1.64.0	24.08.2009	23.08.2019	-	12.10.2009	Working	Non Captive	Yes, letter No. SEIAA- TN/F No.4826 / 1(a)/EC No.3347 /2016 dated 15.07.2016	12°13'08"N to 12°13'14"N 79°45'57"E to 79°46'03"E (12°13'10"N to 79°45'57"E)	RS:80015
78.	Rough stone	Tmt. Satharebee	W/o. K. S. Moshan, 59, Desappottai Sola, Krishnapuram, Gingee, Viluppuram District	B/G&M/2006/10 dt. 25.01.2011.	3.00.0	28.02.2011	27.02.2021	-	30.06.2017	Working	Non Captive	Yes, letter No. SEIAA- TN/F No.2484 / 1(a)/EC No.3590 /2015 dated 19.08.2016	12°26'16"N to 12°26'21"N 79°23'05"E to 79°23'11"E	RS:155980
79.	Rough stone	P. Ramalingam.	S/o. Perumal, Palliyandur village Viluppuram Taluk Viluppuram District.	B/G&M/2007/10 dt. 12.05.2010.	3.72.0	16.08.2010	15.08.2020	-	17.09.2010	Working	Non Captive	Yes, letter No. DEIAA- TN/F No.18617 / 1(a)/EC No.28/2 018 dated 04.12.2018	12°11'36.91" N to 79°45'21.21"E	RS:55102

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80.	Rough stone	Tmt. K. Parmala	W/o. Senthil Selvan, Murugan Koil Street, Kalathampattu Post, Gingee Taluk, Villupuram District	B/G&M/25/2010 dt. 30.03.2010	2.50.0	16.04.2010	15.04.2020	-	-	23.04.2010	Non Working	Non Captive	No	12°13'23.45" N 79°18'46.08"E	RS-30566
81.	Rough stone & Earth	V. Kumar	S/o. Velayutham, Elavalapakkam Village, Perumakkal, Tindivanam Taluk	B/G&M/96/2012 dt. 21.06.2014	2.33.0	21.06.2014	20.06.2019	-	-	21.07.2014	Working	Non Captive	Yes, letter No. SEIAA-TNF No.2328 / EC/ 1(a) 1337/2014 dated 30.05.2014	12°14'54"N to 12°14'46"N 79°44'48"E to 79°44'41"E (12°14'46"N 79°44'45"E)	RS-25260 E-54491
82.	Rough stone & Earth	Tmt. L. Savithri	W/o. Loganathan, Enaiyur Village & post, Vunur taluk.	A/G&M/360/13 dated 30.05.2014	0.99.0	30.05.2014	29.05.2019	-	-	12.06.2014	Non Working	Non Captive	Yes, letter No. SEIAA-TNF No.1650 / EC/ 1(a) 1169/2013 dated 20.03.2014	12°04'03"N to 12°04'08"N 79°39'33"E to 79°39'40"E (12°04'6"N 79°39'33"E)	RS-34640 E-5983
83.	Rough stone	S. Kamshadevi	W/o. Suresh, Eyyil Village & post, Gingee Taluk, Villupuram District	B/G&M/192/09 dt. 11.06.2009	3.00.0	23.06.09	22.06.2019	-	-	18.03.2010	Non Working	Non Captive	No	12°24'38.17" N 79°22'26.58"E	RS-231055
84.	Rough stone	B. Sakthivel	S/o. Balasubramanian Valakurumbur, Thudikerpet Taluk, Villupuram District	B/G&M/367/17 dt. 08.03.2018	2.94.0	08.03.2018	07.03.2023	-	-	12.03.2018	Working	Non Captive	Yes, letter No. DIA/TN/MIN/ 6526/2017/SEIAA 2017, Ec.No.1. Dated 01.08.2017	11°39'37"N to 11°39'44"N 79°12'09"E to 79°12'15"E (11°39'37"N 79°12'10"E)	RS-180180
85.	Rough stone	K. Ashokkumar	S/o. Kandasamy, Nalladam Kootrood, Perumakkal Village, Tindivanam Taluk	B/G&M/1224/12 dt. 16.04.2015	0.95.0	16.04.2015	15.04.2020	-	-	23.10.2015	Working	Non Captive	Yes, letter No. SEIAA-TNF No.2677 / EC/ 1(a) 1546/2014 dated 14.08.2014	12°13'13"N to 12°13'08"N 79°46'36"E to 79°46'44"E	RS-79075 E-24804

List of Letter of Intent (LOI) Holders in the District along with Mineral Resources:

Sl. No.	Name of the Mineral	Name of the Lessee	Address & Contact No. of letter of Intent Holder	Letter of Intent Grant Order No. & Date	Area of Mining lease to be allotted	Validity of LoI	Use (Captive/ Non-Captive)	Location of the Mining Lease (Latitude & Longitude)	Total resources in cbm
1	2	3	4	5	6	7	8	9	10
1.	Rough stone & Gravel	V. Ramesh	S/o. Venkatapathy, No.5, Thangaraj Street, HLL Colony, Pammal, Chennai - 75.	B/G&M/463/2018 dt.18.01.2019	3.53.0	-	Non Captive	12°03'10.49"N to 12°03'20.70"N 79°40'08.70"E to 79°40'16.98"E (12°03'11.13"N 79°40'09.94"E)	1295840 M ³ of RS & 64792 M ³ of Gravel
2.	Rough stone & Earth	Santhosh Blue Metals, Prop. S. V. Venkatesh	No.173, Sarkar Thoppu, Tindivanam.	B/G&M/357/2018 dt.04.01.2019	2.06.0	-	Non Captive	12°03'30"N to 12°03'36"N 79°40'23"E to 79°40'30"E (12°03'33"N 79°40'23"E)	914130 M ³ of RS & 40628 M ³ of E
3.	Rough stone & Earth	D. Dhandapani	S/o. Duraisamy, Eraiyur Village, Vanur Taluk, Viluppuram District.	B/G&M/423/2018 dt.18.01.2019	1.49.5	-	Non Captive	12°04'07.16"N to 12°04'13.93"N 79°38'59.73"E to 79°39'03.75"E (12°04'07.45"N 79°39'00.95"E)	569040 M ³ of RS & 28452 M ³ of E
4.	Rough stone & Earth	Sri Balaji Blue Metals & M.Sand	No.33/8, Mailam Road, Indira Nagar, Tindivanam	B/G&M/462/2018 dt.15.02.2019	2.85.5	-	Non Captive	12°13'05.47"N to 12°13'13.31"N 79°47'04.29"E to 79°47'10.26"E (12°13'06.53"N 79°47'04.83"E)	1284120 M ³ of RS & 85608 M ³ of E
5.	Rough stone	K. Balasubramanian	S/o. Karuppaia, 28/4B, Raja Nagar, Kallakurichi - 606 202.	B/G&M/1143/2017 dt.17.01.2018	2.00.0	-	Non Captive	12°03'41.93"N to 12°03'48.98"N 78°57'09.17"E to 78°57'15.01"E (12°03'43.97"N 78°57'09.17"E)	803600 M ³ of RS

6.	Rough stone & Gravel	A. Aridass	School Street, Kadagampattu, Vanur Taluk, Viluppuram District.	A/G&M/337/2018 dt.30.01.2019	1.77.0	-	Non Captive	12°03'55.01"N to 12°04'01.91"N 79°38'24.85"E to 79°38'32.27"E (12°03'56.29"N 79°38'24.85"E)	1180270 M ³ of RS & 33722 M ³ of Gravel
7.	Rough stone & Earth	K. Gnanasekaran	S/o.Kamadi Gounder, Karasanur Village, Vanur Taluk, Viluppuram District.	A/G&M/277/2018 dt.04.01.2019	2.68.0	-	Non Captive	12°03'20.03"N to 12°03'27.36"N 79°40'15.44"E to 79°40'23.75"E (12°03'24.73"N 79°40'15.44"E)	1206000 M ³ of RS & 53600 M ³ of E

15) Quality/ Grade of Mineral available in the district

Rough Stone

Good exposures of charnockite series of rock are available in the district and it is mainly quarried as Roughstone. Charnockite is bluish grey fine to medium grained massive rock which consists of potash feldspar, plagioclase, quartz and hypersthene. Charnockite series of rock available in the district meets out the engineering, physical and chemical parameters specified by NHAI for the purpose of construction of roads and bridges.

16. Use of Mineral

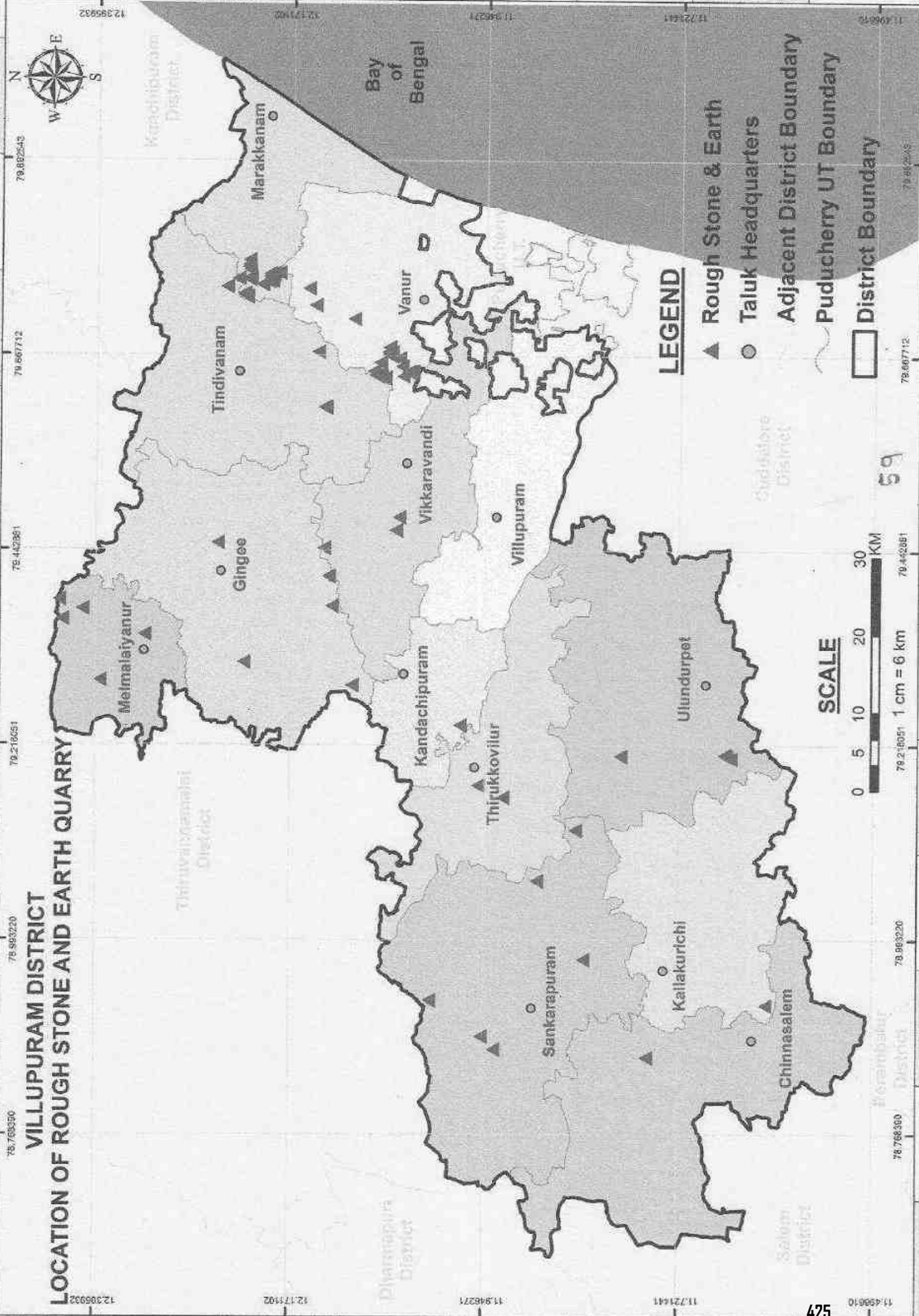
Rough stone:

The massive charnockite series of rocks are having strong physical properties and therefore it can be crushed and sorted into various sizes for use in concrete, coated with bitumen for road construction and other civil works.

17. Demand and Supply of the Minerals in the last three years

Rough stone			
Year	2016-17	2017-18	2018-19
Demand (Cub.m)	782595.08	753676.27	928248.61
Supply (Cub.m)	782595.08	753676.27	928248.61

LOCATION OF ROUGH STONE AND EARTH QUARRY



19. Details of the area where there is a cluster of mining leases :

Sl. No.	Cluster area	Number of mining leases	Location (Latitude and Longitude)
1	Thiruvakkarai	7	1 12°01'52"N to 12°01'49"N 79°38'54"E to 79°39'01"E (12°01'52"N - 79°38'55"E)
			2 12°02'00"N - 79°38'52"E
			3 12°02'10.25"N to 12°02'14.44"N 79°38'52.17"E to 79°38'59.91"E (12°02'10.25"N - 79°38'52.17"E)
			4 12°2'23.90"N to 12°2'27.58"N 79°39'32.17"E to 79°39'35.05"E (12°2'24.38"N - 79°39'32.17"E)
			5 12°02'30"N to 12°02'38"N 79°38'33"E to 79°38'40"E (12°02'31.21"N - 79°38'34.83"E)
			6 12°01'49"N to 12°01'55"N 79°38'51"E to 79°38'55"E (12°01'49.40"N 79°38'53.69"E)
			7 12°01'48"N to 12°01'54"N 79°38'49"E to 79°38'55"E (12°01'49.67"N - 79°38'54.89"E)
2	Thollamur	10	1 12°03'230"N to 12°03'27"N 79°40'31"E to 79°40'38"E (12°03'27.55"N - 79°40'32.65"E)
			2 12°03'25.80"N to 2°03'33.90"N 79°40'05.88"E to 79°40'13.76"E (12°03'20.53"N 79°40'10.84"E)
			3 12°03'20"N to 12°03'27"N 79°39'58"E to 79°40'10"E (12°03'20"N 79°39'58"E)
			4 12°03'32"N to 12°03'40"N 79°40'16"E to 79°40'23"E (12°03'34"N - 79°40'16"E)
			5 12°03'36"N to 12°03'40"N 79°40'07"E to 79°40'12"E (12°03'324.73"N 79°40'15.44"E)
			6 12°13'331.97"N to 12°03'41.75"N 79°40'06.13"E to 79°40'16.50"E (12°03'32.44"N - 79°40'06.13"E)
			7 12°03'13.14"N to 12°03'21.15"N 79°40'16.66"E to 79°40'24.21"E (12°03'17.09"N - 79°40'16.66"E)
			8 12°03'28"N to 12°03'36.50"N 79°40'35.29"E to 79°40'39.92"E (12°03'29.79"N - 79°40'35.29"E)
			9 12°03'18"N to 12°03'26"N 79°40'05"E to 79°40'10"E (12°03'18"N - 79°40'06"E)

			10	12°2'42.77"N to 12°2'53.80"N 79°39'50.80"E to 79°39'57.78"E (12°2'46.77"N - 79°39'50.80"E)
3	Eraiyr	8	1	12°04'07"N to 12°04'14"N 79°39'32"E to 79°39'41"E
			2	12°04'05"N to 12°04'08"N 79°39'33"E to 79°39'40"E (12°04'6"N 79°39'33"E)
			3	12°04'31"N to 12°04'43"N 79°38'54"E to 79°38'59"E (12°04'32"N 79°38'57"E)
			4	12°04'12"N to 12°04'19"N 79°38'39"E to 79°38'51"E (12°04'16"N 79°38'39"E)
			5	12°04'28"N to 12°04'24"N 79°38'39"E to 79°38'43"E (12°04'24"N - 79°38'39"E)
			6	12°04'09"N to 12°04'19"N 79°38'34"E to 79°38'45"E (12°04'16.98"N 79°38'34.04"E)
			7	12°04'02"N to 12°04'13"N 79°38'35"E to 79°38'42"E (12°04'03.46"N 79°38'35.07"E)
			8	12°03'46"N to 12°03'53"N 79°38'28"E to 79°38'33"E (12°03'47.31"N 79°38'29.29"E)
4	T.Nallalam	6	1	12°11'36.91"N - 79°45'21.21"E
			2	12°11'35.31"N - 79°45'29.14"E
			3	12°11'48.13"N - 79°45'16.40"E
			4	12°11'51"N to 12°11'55"N 79°45'08"E to 79°45'15"E (12°11'54"N - 79°45'8"E)
			5	12°11'39"N to 12°11'43"N 79°45'10"E to 79°45'14"E (12°11'40"N - 79°45'10"E)
			6	12°11'56"N to 12°11'46"N 79°45'33"E to 79°45'26"E (12°11'47"N 79°45'29"E)
5	Keelarungunam	4	1	12°13'36.27"N - 79°44'16.52"E
			2	12°13'37"N to 12°13'32"N 79°44'11"E to 79°44'15"E (12°13'33"N 79°44'11"E)
			3	12°13'15"N to 12°13'09"N 79°45'22"E to 79°45'16"E (12°13'12"N - 79°45'16"E)
			4	12°13'32"N to 12°13'38"N 79°44'15"E to 79°44'21"E (12°13'32"N - 79°44'15"E)

20. Details of Eco Sensitive Area:

Oussudu Lake Birds Sanctuary over an extent of 331.78.5 hectares falls in S.F.No.106 of Poothurai Village and S.F.No.1/1 of Perambai Village of Vanur Taluk, Viluppuram District.

21. Impact on the Environment (Air, Water, Noise, Soil Flora & Fauna, Land use, Agriculture, Forest etc.,) due to Mining Activity

Generally, the Environmental impacts can be categorized as either primary or secondary. Primary impacts are those, which are attributed directly by the project, secondary impacts are those, which are indirectly induced and typically include the associated investment and changed pattern of social and economic activities by the proposed action.

The impact has been ascertained for the project assuming that the pollution due to mining activity has been completely spelled out under the baseline environmental status for the entire ROM which is proposed to exploit from the mines.

Air:

Mining Operations are carried out by opencast semi mechanized/ Mechanized method, dust particles are generated due to various activities like, Excavation, Loading, handling of mineral and transportation. The air quality in the mining area depends upon the nature and concentration of emissions and meteorological conditions.

The major air pollutants due to mining activity includes:-

- Particulate Matter (Dust) of various sizes.
- Gases, such as, Sulphur Dioxide, Oxides of Nitrogen, Carbon Monoxide etc., from vehicular exhaust.
- Dust is the single Air pollutant observed in the open cast mines. Diesel operating drilling machines, small amount of blasting and movement of machinery/ vehicles produce NO_x, SO₂ and CO emissions, usually at low

levels. Dust can be of significant nuisance surrounding land users and potential health risk in some circumstances.

Water Impact

The mining operation leads to intersect the water table cause ground water depletion. Due to the interruption surface water sources like River, Nallah, Odai etc., surface water system, Drainage pattern of the area is altered.

Noise

Noise pollution is mainly due to operation of Machineries and occasional plying of machineries. These activities will create Noise pollution in the surrounding area.

Land Environment

The topography of the area will change, due to the Topographical changes the entire Eco system will be altered.

Flora and Fauna

The impact on biodiversity is difficult to quantify because of its diverse and dynamic characteristics.

Mining activities generally result in the deforestation, land degradation, water, air and noise pollution which directly or indirectly affect the faunal and floral status of the project area.

However, occurrence and magnitude of these impacts are entirely dependent upon the project location, mode of operation and technology involved.

22. Remedial Measure to mitigate the impact of Mining on the Environment

Air

Mitigated measures suggested for air pollution controls are based on the baseline ambient air quality of the area

The following measures are proposed to adopted in the mines such as,

- Dust generation shall be reduced by using sharp teeth of shovels.
- Wet drilling shall be carried out to contain the dust.
- Controlled blasting techniques shall be adopted.
- Water spraying on haul roads, service roads and overburden dumps will help in reducing considerable dust pollution.
- Proper and regular maintenance of mining equipment's have to be considered.
- Transport of material in trucks covered with tarpaulin.
- The mine pit water can be utilized for dust suppression in and around mine areas.
- Information on wind direction and meteorology will be considered while planning, so that pollutants, which cannot be fully suppressed by engineering technique, will be prevented from reaching the nearby agriculture area.
- Comprehensive green belt around overburden dumps has to be carried out to reduce to fugitive dust emissions in order to create clean and healthy environment.

Water

- Construction of garland drains to divert surface run-off into the mining area.
- Construction of check dams / gully plugs at strategic places to arrest silt wash off from broken up area.
- Retaining walls with weep hole will be constructed around the mine boundaries to arrest silt wash off.
- The mined out pits shall be converted into the water reservoir at the end of mine life. This will help in recharging ground water table by acting as a water harvesting structure.
- Periodic analysis of mine pit water and ground water quality in nearby villages.

- Domestic sewage from site office & urinals/latrines provided in ML is discharged in septic tank followed by soak pits.

Noise

Mitigation measures

- Periodic maintenance of machinery, equipment's shall be ensured to keep the noise generated at minimum.
- Development of thick green belt around mining area and haul roads to reduce the noise.
- Provision of earplugs to workers exposed to high noise generating activities. Workers and operators at work site will be provided with earmuffs.
- Conducting periodical medical checkup of all workers for any noise related health problems.
- Proper training to personnel to create awareness about adverse noise level effects.
- Periodic noise monitoring at suitable locations in the mining area and nearby habitations to assess efficacy of adopted control measures.
- During the blasting, optimum Spacing, Burden and charging of holes will be made under the supervision of competent qualified mines foreman, Mate as approved by Director of Mines safety.

Biological Environment

MITIGATION MEASURES:

- Development of gap filling saplings in the safety barrier left around the quarry area.
- Carrying out thick greenbelt with local flora species predominantly with long canopy leaves on the inactive mined out upper benches.
- Development of dense poly-culture plantation using local flora species in the mining area at conceptual stage.
- Adoption of suitable air pollution control measures as suggested above.
- Transport of materials in trucks covered with tarpaulin.

- Construction of garland drains and settling tank to arrest silt wash off from lease area.
- Construction of retention walls around lower boundary of mining area to arrest silt washoff and roll down boulders.
- Retaining walls with weep hole will be constructed around the mine Boundaries to arrest silt wash off.

23. Reclamation of Mined out area (Best Practice already implemented in the district, requirement as per Rules and Regulation, Proposed reclamation plan)

In rough stone quarry lease permitted area the shallow holes of 32mm diameter and 1.5 feet depth will be drilled and conventional low power explosives such as Slurry Explosives, ordinary safety fuse only will be used for rough stone. Hence, ground vibration and noise pollution will be minimal and restricted within the quarry workings.

24. Risk Assessment and Disaster Management Plan

Risk Assessment

While designing Disaster Management plans for a particular region, different vulnerabilities for that region has to be assessed first to streamline different developmental plans.

VULNERABILITY ANALYSIS

The major rivers flowing through this District are as follows,

- Gedilam River - Flows through Tirukoilur and Ulundurpet Taluks.
- Malattar River - Joins Gedilam before flowing into the Bay of Bengal
- Pennaiyar River - Flows through Sankarapuram, Tirukoilur and Viluppuram Taluks.

- Sankarabarani River - Originates in Gingee Taluk, flows through Viluppuram.

The rivers are seasonal and could not be used for irrigation purpose to the expected level because of low precipitation in most of the days of a year. The North East Monsoon which sets in during October and November brings forth heavy rainfall in major parts of this district causing heavy floods and cyclone in the coastal areas from Marakkanam, Tirukoilur, Viluppuram, Ulundurpet, Tindivanam and Vanur Taluks. The vulnerable villages to natural calamities in each taluk and the flood prone areas in each taluk are detailed below with their maps.

LIST OF VILLAGES VULNERABLE TO NATURAL CALAMITIES

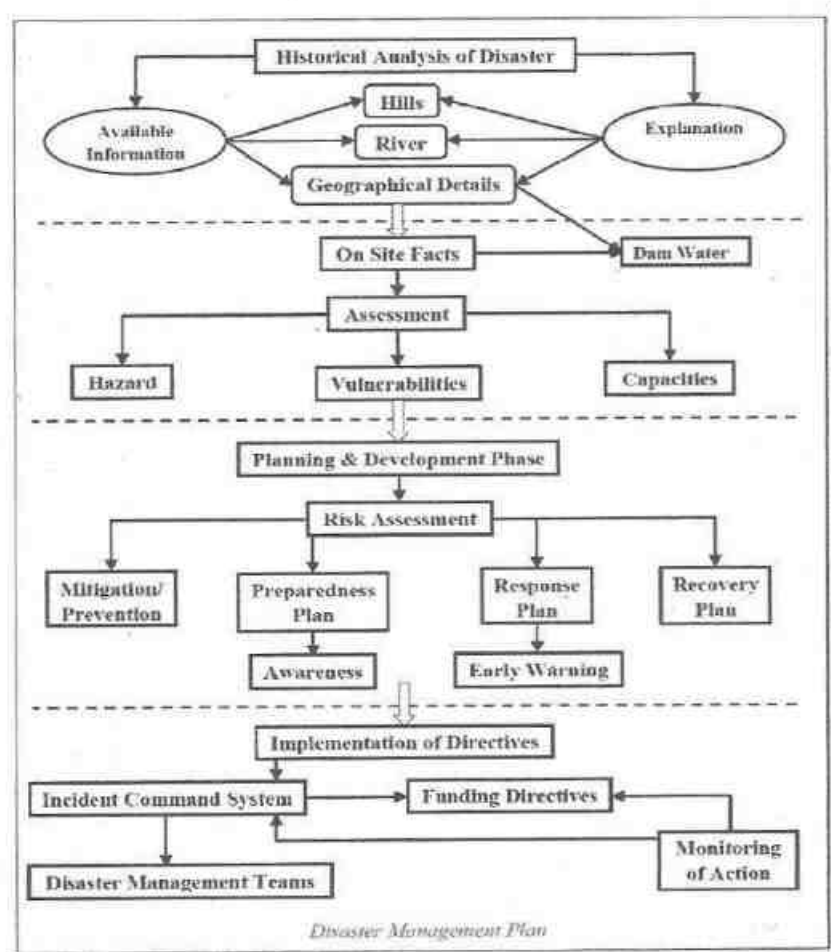
1. Since Marakkanam and Vanur blocks are facing Bay of Bengal, they face the risk of Tsunami directly.
2. Based on the history of rainfall and calamities way back a decade, the following 166 places are identified as vulnerable locations with regard to Flood and Cyclone.

ABSTRACT OF LIST OF VILLAGES VULNERABLE

Sl. No	Name of the Taluk	Highly Vulnerable	Vulnerable	Moderately Vulnerable	Low Vulnerability	Total No. of Vulnerable Location
1	VILUPPURAM	0	0	0	21	21
2	VIKRAVANDI	0	0	0	27	27
3	VANUR	0	0	0	7	7
4	TINDIVANAM	0	0	0	17	17
5	GINGEE	0	0	0	4	4
6	MELMALAIYANUR	0	0	0	0	0
7	MARAKKANAM	0	8	21	24	53
8	TIRUKOILUR	0	1	3	5	9
9	ULUNDURPET	3	0	1	5	9
10	KANDACHIPURAM	0	0	0	0	0

11	KALLAKURICHI	0	0	0	2	2
12	SANKARAPURAM	0	0	0	0	0
13	CHINNASALEM	0	0	0	0	0
14	WRO VPM	0	0	0	1	1
15	WRO KK	1	4	0	15	20
TOTAL		4	13	25	128	170

District Disaster Management Plan



District Disaster Management Plan (DDMP)

The objective of the District Disaster Management Plan (DDMP) is to devise a set of guidelines for District level disaster preparedness, prevention, mitigation and monitoring which will grow into becoming a well – defined protocol for disaster management that will be updated periodically. Every line department in the District will need to prepare their own Disaster Management Plans. The Emergency Support functions of various departments will be listed out in the plan. An inventory of resources in the district will be listed out. All of this will converge into the state plan and mesh into one another. While the District Disaster Management Plan will form the framework for the entire district, it will be fine-tuned further by requirements of individual district units and emergency situation.

District Disaster Management Plan.-

- 1) Comprehensive flood protection strategies with reference to Gedilam river, Gomuki, Manimukthar River and 19 coastal habitations in the district prone to flood.
- 2) Building self-reliant coastal communities and empower them to manage their livelihoods in a sustainable manner.
- 3) Long term comprehensive pre and post disaster management programs linked to developmental activities.
- 4) De-centralize the decision making authority to the field level line department officials.
- 5) Participatory Management.
- 6) Increasing the awareness of long-term impact of relief program on development potential.
- 7) Emphasis on quality management of Relief measures.
- 8) Enhance the resilience of farmers to face the Vagaries of monsoon in rainfed areas.
- 9) To maintain the database capturing all the past experiences like Tsunami, Flood, Cyclone, Drought in the district.

- 10) To convene the meeting of District Disaster Management Authority for every quarter to discuss the preparedness of the line departments to meet any disasters.
- 11) Provide information about the rainfall, heat wave and other natural calamity to the public through District Emergency operation centre thereby to reduce the loss of lives and property.
- 12) Proper Operation and Maintenance of VHF sets and Early Warning Systems installed in coastal habitations
- 13) Creating awareness through Mock Drills, communication drills regularly and periodically in association with line departments like Education, Health, Police, Fire and Rescue, SDRF, NDRF and SIRD trained CBDRM trainers.
- 14) Motivate the public about the importance of Water conservation works such as rain water harvesting, desilting of tanks and channels and kudimaramathu.
- 15) Effective implementation of G.O(Ms) No: 540 on Eviction of encroachments through Water Conservation and Water Management Committee and Encroachment Eviction Committee.
- 16) To avoid the construction of the buildings in low lying areas and to insist the Builders on the need to raise the construction site sufficiently thereby preventing the inundations during monsoons.
- 17) To reduce the direct disaster economic loss through Disaster Risk governance by identifying the vulnerable locations for various disaster and make the officials to realise their roles, their Hazard, Risk assessment and precautionary measures.
- 18) As a measure to reduce the damage to critical infrastructure and basic services, enabling the Highways, Police, Revenue, Fisheries and Fire & Rescue departments with latest equipments to handle disasters and vehicular traffic restoration immediately, and ensure that all infrastructure is built to withstand earthquake and floods and adequate engineering safety.

- 19) Effective utilization of Search, Rescue and Evacuation equipments of all the line departments.
- 20) Identify the list of swimmers, climbers and snake catchers for each of the vulnerable locations and update them in the district website.
- 21) To Develop local Disaster Risk Strategy through Sensitisation of all local body officials like Municipal Commissioners, Executive officers, Town panchayats and block development officers, Village level functionaries like VAO, VA and Panchayat clerk on their roles and responsibilities during disaster and understand the risk.
- 22) Sensitization of the officials of health department, Noon meal and anganwadi workers across the district on disaster management in particular Coastal areas.
- 23) Providing training to the Evacuation, Search and Rescue, Early warning, First aid and Shelter & Maintenance committee members in all 19 Coastal habitations.
- 24) Sensitise all the private institutions, hospitals, theatres, shopping malls and educational institutions on the need for a disaster contingency plan to tackle any major disaster.
- 25) To form the Inter Departmental Zonal Teams to oversee the preparatory works of pre and post disaster.
- 26) To Enhance international cooperation in relief operations by sharing the local technical and the traditional expertise.
- 27) To Successfully implement of Community based disaster risk management Project.
- 28) To identify all the Blackspots in the National Highways and make them accident free zones in the district.
- 29) To identify the places where fatal accidents occurred and provide them with Rubble strips, providing Barricades caution Boards etc, to alert the drivers of vehicles.
- 30) To provide double speed Brakers in all the sub – roads connecting the National Highways to reduce accidents.

- 31) To identify the major junctions in the National Highways and send proposals for Bridges construction like Road over Bridge / Road under Bridge as per their need.
- 32) To Create awareness among the explosive license owners by sensitizing them on the directions of sale and manufacturing procedures, the impact on lives and on economy in case of any explosive accident.
- 33) To issue proper instructions to Tamil Nadu Electricity Board to monitor the use of electric fencing if any used in the agricultural lands and sensitize the public to reduce their use.
- 34) A plan to increase the capacity of the Vidur Reservoir from existing 14.061 M.Cum to its original 17.136 M Cum by desiltation of 30,80,000 cu.m. that may cost around Rs.22.94 Cr. Proposal is under progress. This will be helpful to irrigate the entire 3200 acres ayacut and feed 8 Tanks.
- 35) A plan to increase the capacity of the Gomuki Nadhi Project Dam from existing 12.95 M.Cum to its original 15.86 M Cum by desiltation of 29,10,000 cu.m. that may cost around Rs.27.14 Cr. Proposal is under progress. This will be helpful to irrigate the entire 10860 acres ayacut and feed 37 Tanks.
- 36) A plan to increase the capacity of the Manimuktha Nadhi Project Dam from existing 18.27 M.Cum to its original 20.88 M Cum by desiltation 26,10,000 cu.m. that may cost around Rs.24.34 Cr. Proposal is under progress. This will be helpful to irrigate the whole 5493 acres ayacut and feed 5 Tanks.
- 37) A plan to increase the capacity of the Malattar River Project from existing 750 M to its original 347 Km Cum by desiltation 2225.81 Ha. that may cost around Rs.9.00 Cr. Proposal is under progress. This will be helpful to irrigate the actual 5000 acres ayacut and feed 13 Tanks.

- 38) A plan to increase the capacity of the Sornavur Anicut designed discharge of this anicut 5098.88 Cu.M that may cost around Rs.9.75 Cr. Proposal is under progress. This will be helpful to irrigate the actual 6053 acres ayacut and feed 8 Tanks.
- 39) Implementing Rain Water Harvesting techniques through Pit and Power Sump creation in the upcoming New Law College Buildings and New formation bifurcated Three Taluk Offices viz, Marakkanam, Melmalaiyanur, Kandachipuram (New Public Buildings)
- 40) To Maintain surface water quality and protect surface water bodies.
- 41) To Train local volunteers in Rain Water Harvesting at reduced costs. Encourage the use of any roofing material for the collection of rain water for household purpose.
- 42) Rainwater Harvesting process has an inherent tendency to arrest seawater ingress in coastal areas. They have also enhanced the yield of open wells, bore well and pumbs. It also improves the ground water quality by elimination of harmful chemicals and salts.

25. Details of the occupational Health issues:

RNTCP Tuberculosis Register Case

Sl. No.	Year	Total Case
1	2014	4931
2	2015	4527
3	2016	4669
4	2017	4534
5	2018	4647

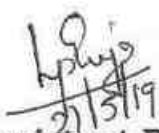
Silicosis : -- Nil--

26. Plantation and Green Belt development in respect of leases already granted in the district.

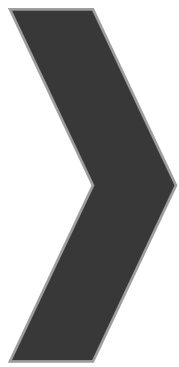
It is necessary to develop Green Belt in and around the polluted site with suitable species to reduce the air pollution effectively. Implementation of afforestation program is of paramount importance. In addition to augmenting existing vegetation, it also checks soil erosion, make the ecosystem more complex and functionally more stable and make the climate more conducive.

27. Any other information

-NIL-


**Assistant Director
Geology and Mining,
Viluppuram.**


**District Collector
Viluppuram.**



ANNEXURE-8



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TEST REPORT

Report No.	SARL/24/3519	Report Date.	16.03.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
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-3519	Sample Received on	11.03.2024
Sample Collected by	LABORATORY	Test Commenced on	11.03.2024
Sample Collected on	05.03.2024	Test Completed on	16.03.2024
Temperature	35°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	µg/m ³	64.9	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	31.2	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	7.3	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/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
J. GNANAPRAKASAM
Technical Manager

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Please Contact:

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TEST REPORT

Report No.	SARL/24/3520	Report Date.	16.03.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha, Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-Perumukkal
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3520	Sample Received on	11.03.2024
Sample Collected by	LABORATORY	Test Commenced on	11.03.2024
Sample Collected on	05.03.2024	Test Completed on	16.03.2024
Temperature	35°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	µg/m ³	53.7	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	25.8	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	6.8	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.8	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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J. K.
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TEST REPORT

Report No.	SARL/24/3521	Report Date.	16.03.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
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-3521	Sample Received on	11.03.2024
Sample Collected by	LABORATORY	Test Commenced on	11.03.2024
Sample Collected on	06.03.2024	Test Completed on	16.03.2024
Temperature	35°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	µg/m ³	52.3	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	25.1	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.8	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/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

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J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/3522	Report Date.	16.03.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-Perumukkal
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3522	Sample Received on	11.03.2024
Sample Collected by	LABORATORY	Test Commenced on	11.03.2024
Sample Collected on	06.03.2024	Test Completed on	16.03.2024
Temperature	35°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	µg/m ³	44.3	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	21.3	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.9	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.7	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

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TEST REPORT

Report No.	SARL/24/3523	Report Date.	16.03.2024
------------	--------------	--------------	------------

Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-Madavantangal
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3523	Sample Received on	11.03.2024
Sample Collected by	LABORATORY	Test Commenced on	11.03.2024
Sample Collected on	07.03.2024	Test Completed on	16.03.2024
Temperature	36°C	Relative Humidity	22%
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	52.5	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	25.8	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	7.0	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/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

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END OF THE REPORT

J. 4
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J. GNANAPRAKASAM
Technical Manager

Please Contact:

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TEST REPORT

Report No.	SARL/24/3524	Report Date.	16.03.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-Chokkantangal
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3524	Sample Received on	11.03.2024
Sample Collected by	LABORATORY	Test Commenced on	11.03.2024
Sample Collected on	07.03.2024	Test Completed on	16.03.2024
Temperature	36°C	Relative Humidity	22%
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	46.1	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	21.6	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.1	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.5	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

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J. 4
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/3525	Report Date.	16.03.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-Madavantangal
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3525	Sample Received on	11.03.2024
Sample Collected by	LABORATORY	Test Commenced on	11.03.2024
Sample Collected on	08.03.2024	Test Completed on	16.03.2024
Temperature	36°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	µg/m ³	48.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	23.8	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	6.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.8	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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J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/3526	Report Date.	16.03.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha, Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-Chokkantangal
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3526	Sample Received on	11.03.2024
Sample Collected by	LABORATORY	Test Commenced on	11.03.2024
Sample Collected on	08.03.2024	Test Completed on	16.03.2024
Temperature	36°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	µg/m ³	50.9	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	23.9	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.1	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/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

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J. K.
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J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/3527	Report Date.	16.03.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-Senalur
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3527	Sample Received on	11.03.2024
Sample Collected by	LABORATORY	Test Commenced on	11.03.2024
Sample Collected on	09.03.2024	Test Completed on	16.03.2024
Temperature	36°C	Relative Humidity	24%
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	50.5	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	25.3	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.8	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.2	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

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Technical Manager

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TEST REPORT

Report No.	SARL/24/3528	Report Date.	16.02.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-Kunnapakkam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3528	Sample Received on	11.03.2024
Sample Collected by	LABORATORY	Test Commenced on	11.03.2024
Sample Collected on	09.03.2024	Test Completed on	16.03.2024
Temperature	36°C	Relative Humidity	24%
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	49.1	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	23.2	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.9	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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TEST REPORT

Report No.	SARL/24/3529	Report Date.	16.03.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-Senalur
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3529	Sample Received on	11.03.2024
Sample Collected by	LABORATORY	Test Commenced on	11.03.2024
Sample Collected on	10.03.2024	Test Completed on	16.03.2024
Temperature	35°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	µg/m ³	47.1	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	23.1	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.6	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.6	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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TEST REPORT

Report No.	SARL/24/3530	Report Date.	16.03.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-Kunnapakkam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3530	Sample Received on	11.03.2024
Sample Collected by	LABORATORY	Test Commenced on	11.03.2024
Sample Collected on	10.03.2024	Test Completed on	16.03.2024
Temperature	35°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	µg/m ³	45.1	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	21.9	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.8	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.4	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

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END OF THE REPORT

J. 4
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Technical Manager

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TEST REPORT

Report No.	SARL/24/3555	Report Date.	23.03.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha, Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-Senalur
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3555	Sample Received on	18.03.2024
Sample Collected by	LABORATORY	Test Commenced on	18.03.2024
Sample Collected on	12.03.2024	Test Completed on	23.03.2024
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	µg/m ³	43.7	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	21.4	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.2	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.1	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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TEST REPORT

Report No.	SARL/24/3556	Report Date.	23.03.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-Kunnappakkam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3556	Sample Received on	18.03.2024
Sample Collected by	LABORATORY	Test Commenced on	18.03.2024
Sample Collected on	12.03.2024	Test Completed on	23.03.2024
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	µg/m ³	41.5	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	20.1	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	6.8	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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J. 48
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R

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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/24/3557	Report Date.	23.03.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha, Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-Senalur
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3557	Sample Received on	18.03.2024
Sample Collected by	LABORATORY	Test Commenced on	18.03.2024
Sample Collected on	13.03.2024	Test Completed on	23.03.2024
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	µg/m ³	40.3	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	19.1	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.8	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	6.4	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


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J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/3558	Report Date.	23.03.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha, Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-Kunnappakkam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3558	Sample Received on	18.03.2024
Sample Collected by	LABORATORY	Test Commenced on	18.03.2024
Sample Collected on	13.03.2024	Test Completed on	23.03.2024
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	µg/m ³	37.9	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	18.4	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.1	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	6.4	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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Technical Manager

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TEST REPORT

Report No.	SARL/24/3559	Report Date.	23.03.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-Madavantangal
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3559	Sample Received on	18.03.2024
Sample Collected by	LABORATORY	Test Commenced on	18.03.2024
Sample Collected on	14.03.2024	Test Completed on	23.03.2024
Temperature	37°C	Relative Humidity	20%
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	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.4	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.5	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.7	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

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J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/3560	Report Date.	23.03.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha, Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-Chokkantangal
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3560	Sample Received on	18.03.2024
Sample Collected by	LABORATORY	Test Commenced on	18.03.2024
Sample Collected on	14.03.2024	Test Completed on	23.03.2024
Temperature	37°C	Relative Humidity	20%
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	44.1	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	20.6	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	3.7	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.1	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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TEST REPORT

Report No.	SARL/24/3561	Report Date.	23.03.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-Madavantangal
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3561	Sample Received on	18.03.2024
Sample Collected by	LABORATORY	Test Commenced on	18.03.2024
Sample Collected on	15.03.2024	Test Completed on	23.03.2024
Temperature	37°C	Relative Humidity	19%
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	42.6	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	20.8	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.8	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.3	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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TEST REPORT

Report No.	SARL/24/3562	Report Date.	23.03.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-Chokkantangal
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3562	Sample Received on	18.03.2024
Sample Collected by	LABORATORY	Test Commenced on	18.03.2024
Sample Collected on	15.03.2024	Test Completed on	23.03.2024
Temperature	37°C	Relative Humidity	19%
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	47.3	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.1	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.3	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.7	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

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J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/3563	Report Date.	23.03.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha, Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
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-3563	Sample Received on	18.03.2024
Sample Collected by	LABORATORY	Test Commenced on	18.03.2024
Sample Collected on	16.03.2024	Test Completed on	23.03.2024
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	µg/m ³	46.1	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.1	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.9	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.5	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


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J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/3564	Report Date.	23.03.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-Perumukkal
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3564	Sample Received on	18.03.2024
Sample Collected by	LABORATORY	Test Commenced on	18.03.2024
Sample Collected on	16.03.2024	Test Completed on	23.03.2024
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	µg/m ³	42.1	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	20.2	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.3	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.2	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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TEST REPORT

Report No.	SARL/24/3565	Report Date.	23.03.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha, Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
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-3565	Sample Received on	18.03.2024
Sample Collected by	LABORATORY	Test Commenced on	18.03.2024
Sample Collected on	17.03.2024	Test Completed on	23.03.2024
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	µg/m ³	49.3	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	23.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.1	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


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Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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Please Contact:

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TEST REPORT

Report No.	SARL/24/3566	Report Date.	23.03.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-Perumukkal
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3566	Sample Received on	18.03.2024
Sample Collected by	LABORATORY	Test Commenced on	18.03.2024
Sample Collected on	17.03.2024	Test Completed on	23.03.2024
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	µg/m ³	46.9	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.5	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.0	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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J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/3591	Report Date.	30.03.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha, Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
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-3591	Sample Received on	25.03.2024
Sample Collected by	LABORATORY	Test Commenced on	25.03.2024
Sample Collected on	19.03.2024	Test Completed on	30.03.2024
Temperature	35°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	µg/m ³	67.1	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	32.2	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	7.7	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/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


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J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/3592	Report Date.	30.03.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-Perumukkal
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3592	Sample Received on	25.03.2024
Sample Collected by	LABORATORY	Test Commenced on	25.03.2024
Sample Collected on	19.03.2024	Test Completed on	30.03.2024
Temperature	35°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	µg/m ³	59.0	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	28.3	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	7.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/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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Technical Manager

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TEST REPORT

Report No.	SARL/24/3593	Report Date.	30.03.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha, Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
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-3593	Sample Received on	25.03.2024
Sample Collected by	LABORATORY	Test Commenced on	25.03.2024
Sample Collected on	20.03.2024	Test Completed on	30.03.2024
Temperature	35°C	Relative Humidity	22%
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	62.3	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	29.9	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	7.1	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/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

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Technical Manager

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TEST REPORT

Report No.	SARL/24/3594	Report Date.	30.03.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha, Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-Perumukkal
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3594	Sample Received on	25.03.2024
Sample Collected by	LABORATORY	Test Commenced on	25.03.2024
Sample Collected on	20.03.2024	Test Completed on	30.03.2024
Temperature	35°C	Relative Humidity	22%
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	56.7	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	27.2	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	7.2	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/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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TEST REPORT

Report No.	SARL/24/3595	Report Date.	30.03.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-Madavantangal
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3595	Sample Received on	25.03.2024
Sample Collected by	LABORATORY	Test Commenced on	25.03.2024
Sample Collected on	21.03.2024	Test Completed on	30.03.2024
Temperature	32°C	Relative Humidity	44%
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	44.3	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	21.6	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.1	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.5	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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TEST REPORT

Report No.	SARL/24/3596	Report Date.	30.03.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-Chokkantangal
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3596	Sample Received on	25.03.2024
Sample Collected by	LABORATORY	Test Commenced on	25.03.2024
Sample Collected on	21.03.2024	Test Completed on	30.03.2024
Temperature	32°C	Relative Humidity	44%
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	53.4	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	25.1	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.7	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/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

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TEST REPORT

Report No.	SARL/24/3597	Report Date.	30.03.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-Madavantangal
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3597	Sample Received on	25.03.2024
Sample Collected by	LABORATORY	Test Commenced on	25.03.2024
Sample Collected on	22.03.2024	Test Completed on	30.03.2024
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	µg/m ³	41.2	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	20.1	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.0	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

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J. 4
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/3598	Report Date.	30.03.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-Chokkantangal
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3598	Sample Received on	25.03.2024
Sample Collected by	LABORATORY	Test Commenced on	25.03.2024
Sample Collected on	22.03.2024	Test Completed on	30.03.2024
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	µg/m ³	49.7	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	23.3	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.9	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.4	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

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J. 4
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

Please Contact:

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TEST REPORT

Report No.	SARL/24/3599	Report Date.	30.03.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-Senalur
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3599	Sample Received on	25.03.2024
Sample Collected by	LABORATORY	Test Commenced on	25.03.2024
Sample Collected on	23.03.2024	Test Completed on	30.03.2024
Temperature	36°C	Relative Humidity	29%
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	42.1	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	20.6	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.1	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	6.7	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

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Technical Manager

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TEST REPORT

Report No.	SARL/24/3600	Report Date.	30.03.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-Kunnapakkam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3600	Sample Received on	25.03.2024
Sample Collected by	LABORATORY	Test Commenced on	25.03.2024
Sample Collected on	23.03.2024	Test Completed on	30.03.2024
Temperature	36°C	Relative Humidity	29%
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	39.7	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	19.3	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.2	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	6.6	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

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TEST REPORT

Report No.	SARL/24/3601	Report Date.	30.03.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-Senalur
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3601	Sample Received on	25.03.2024
Sample Collected by	LABORATORY	Test Commenced on	25.03.2024
Sample Collected on	24.03.2024	Test Completed on	30.03.2024
Temperature	37°C	Relative Humidity	24%
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	38.6	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	18.3	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.6	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	6.1	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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TEST REPORT

Report No.	SARL/24/3602	Report Date.	30.03.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-Kunnapakkam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3602	Sample Received on	25.03.2024
Sample Collected by	LABORATORY	Test Commenced on	25.03.2024
Sample Collected on	24.03.2024	Test Completed on	30.03.2024
Temperature	37°C	Relative Humidity	24%
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	36.1	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	17.5	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	3.8	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	6.2	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

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TEST REPORT

Report No.	SARL/24/3627	Report Date.	06.04.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5- Senalur
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3627	Sample Received on	01.04.2024
Sample Collected by	LABORATORY	Test Commenced on	01.04.2024
Sample Collected on	26.03.2024	Test Completed on	06.04.2024
Temperature	37°C	Relative Humidity	22%
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	45.4	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.2	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.3	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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J. 4
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Technical Manager

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TEST REPORT

Report No.	SARL/24/3628	Report Date.	06.04.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-Kunnapakkam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3628	Sample Received on	01.04.2024
Sample Collected by	LABORATORY	Test Commenced on	01.04.2024
Sample Collected on	26.03.2024	Test Completed on	06.04.2024
Temperature	37°C	Relative Humidity	22%
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	43.3	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	21.0	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.6	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.2	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

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Technical Manager

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TEST REPORT

Report No.	SARL/24/3629	Report Date.	06.04.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5- Senalur
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3629	Sample Received on	01.04.2024
Sample Collected by	LABORATORY	Test Commenced on	01.04.2024
Sample Collected on	27.03.2024	Test Completed on	06.04.2024
Temperature	37°C	Relative Humidity	22%
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	48.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	24.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.7	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.9	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

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TEST REPORT

Report No.	SARL/24/3630	Report Date.	06.04.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-KKunnapakkam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3630	Sample Received on	01.04.2024
Sample Collected by	LABORATORY	Test Commenced on	01.04.2024
Sample Collected on	27.03.2024	Test Completed on	06.04.2024
Temperature	37°C	Relative Humidity	22%
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	46.9	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.2	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.6	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

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R

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TEST REPORT

Report No.	SARL/24/3631	Report Date.	06.04.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-Madavantangal
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3631	Sample Received on	01.04.2024
Sample Collected by	LABORATORY	Test Commenced on	01.04.2024
Sample Collected on	28.03.2024	Test Completed on	06.04.2024
Temperature	38°C	Relative Humidity	22%
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	47.4	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	23.1	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.9	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.0	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

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J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/3632	Report Date.	06.04.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-Chokkantangal
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3632	Sample Received on	01.04.2024
Sample Collected by	LABORATORY	Test Commenced on	01.04.2024
Sample Collected on	28.03.2024	Test Completed on	06.04.2024
Temperature	38°C	Relative Humidity	22%
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	47.7	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.3	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.5	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.2	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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TEST REPORT

Report No.	SARL/24/3633	Report Date.	06.04.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-Madavantangal
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3633	Sample Received on	01.04.2024
Sample Collected by	LABORATORY	Test Commenced on	01.04.2024
Sample Collected on	29.03.2024	Test Completed on	06.04.2024
Temperature	37°C	Relative Humidity	24%
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	52.6	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	25.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	6.8	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/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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TEST REPORT

Report No.	SARL/24/3634	Report Date.	06.04.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-Chokkantangal
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3634	Sample Received on	01.04.2024
Sample Collected by	LABORATORY	Test Commenced on	01.04.2024
Sample Collected on	29.03.2024	Test Completed on	06.04.2024
Temperature	37°C	Relative Humidity	24%
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	45.7	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	21.4	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.1	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.6	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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TEST REPORT

Report No.	SARL/24/3635	Report Date.	06.04.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
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-3635	Sample Received on	01.04.2024
Sample Collected by	LABORATORY	Test Commenced on	01.04.2024
Sample Collected on	30.03.2024	Test Completed on	06.04.2024
Temperature	37°C	Relative Humidity	24%
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	55.7	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	26.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	6.1	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.7	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

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TEST REPORT

Report No.	SARL/24/3636	Report Date.	06.04.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-Perumukkal
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3636	Sample Received on	01.04.2024
Sample Collected by	LABORATORY	Test Commenced on	01.04.2024
Sample Collected on	30.03.2024	Test Completed on	06.04.2024
Temperature	37°C	Relative Humidity	24%
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	51.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	25.1	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	6.3	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/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

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TEST REPORT

Report No.	SARL/24/3637	Report Date.	06.04.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
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-3637	Sample Received on	01.04.2024
Sample Collected by	LABORATORY	Test Commenced on	01.04.2024
Sample Collected on	31.03.2024	Test Completed on	06.04.2024
Temperature	37°C	Relative Humidity	17%
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	59.3	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	28.5	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	6.6	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/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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TEST REPORT

Report No.	SARL/24/3638	Report Date.	06.04.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-Perumukkal
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3638	Sample Received on	01.04.2024
Sample Collected by	LABORATORY	Test Commenced on	01.04.2024
Sample Collected on	31.03.2024	Test Completed on	06.04.2024
Temperature	37°C	Relative Humidity	17%
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	49.7	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	23.9	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.9	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.3	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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TEST REPORT

Report No.	SARL/24/3663	Report Date.	13.04.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
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-3663	Sample Received on	08.04.2024
Sample Collected by	LABORATORY	Test Commenced on	08.04.2024
Sample Collected on	02.04.2024	Test Completed on	13.04.2024
Temperature	39°C	Relative Humidity	19%
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	48.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	23.39	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/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

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TEST REPORT

Report No.	SARL/24/3664	Report Date.	13.04.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-Perumukkal
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3664	Sample Received on	08.04.2024
Sample Collected by	LABORATORY	Test Commenced on	08.04.2024
Sample Collected on	02.04.2024	Test Completed on	13.04.2024
Temperature	39°C	Relative Humidity	19%
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	52.5	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	25.2	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	6.1	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/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

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Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/3665	Report Date.	13.04.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
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-3665	Sample Received on	08.04.2024
Sample Collected by	LABORATORY	Test Commenced on	08.04.2024
Sample Collected on	03.04.2024	Test Completed on	13.04.2024
Temperature	39°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	µg/m ³	43.5	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	20.6	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.1	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.8	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

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TEST REPORT

Report No.	SARL/24/3666	Report Date.	13.04.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-Perumukkal
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3666	Sample Received on	08.04.2024
Sample Collected by	LABORATORY	Test Commenced on	08.04.2024
Sample Collected on	03.04.2024	Test Completed on	13.04.2024
Temperature	39°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	µg/m ³	38.4	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	18.3	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.0	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	6.7	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

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TEST REPORT

Report No.	SARL/24/3667	Report Date.	13.04.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-Madavantangal
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3667	Sample Received on	08.04.2024
Sample Collected by	LABORATORY	Test Commenced on	08.04.2024
Sample Collected on	04.04.2024	Test Completed on	13.04.2024
Temperature	39°C	Relative Humidity	24%
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	37.4	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	18.2	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	3.9	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	6.2	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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TEST REPORT

Report No.	SARL/24/3668	Report Date.	13.04.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-Chokkantangal
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3668	Sample Received on	08.04.2024
Sample Collected by	LABORATORY	Test Commenced on	08.04.2024
Sample Collected on	04.04.2024	Test Completed on	13.04.2024
Temperature	39°C	Relative Humidity	24%
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	53.7	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	25.2	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.8	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/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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TEST REPORT

Report No.	SARL/24/3669	Report Date.	13.04.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-Madavantangal
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3669	Sample Received on	08.04.2024
Sample Collected by	LABORATORY	Test Commenced on	08.04.2024
Sample Collected on	05.04.2024	Test Completed on	13.04.2024
Temperature	40°C	Relative Humidity	17%
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	47.0	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.9	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	6.0	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.2	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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TEST REPORT

Report No.	SARL/24/3670	Report Date.	13.04.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-Chokkantangal
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3670	Sample Received on	08.04.2024
Sample Collected by	LABORATORY	Test Commenced on	08.04.2024
Sample Collected on	05.04.2024	Test Completed on	13.04.2024
Temperature	40°C	Relative Humidity	17%
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	50.1	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	23.5	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.2	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/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

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TEST REPORT

Report No.	SARL/24/3671	Report Date.	13.04.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-Senalur
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3671	Sample Received on	08.04.2024
Sample Collected by	LABORATORY	Test Commenced on	08.04.2024
Sample Collected on	06.04.2024	Test Completed on	13.04.2024
Temperature	40°C	Relative Humidity	17%
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	36.2	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	17.4	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.1	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	5.5	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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TEST REPORT

Report No.	SARL/24/3672	Report Date.	13.04.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6- Kunnappakkam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3672	Sample Received on	08.04.2024
Sample Collected by	LABORATORY	Test Commenced on	08.04.2024
Sample Collected on	06.04.2024	Test Completed on	13.04.2024
Temperature	40°C	Relative Humidity	17%
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	35.4	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	16.6	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	3.2	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	5.7	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

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TEST REPORT

Report No.	SARL/24/3673	Report Date.	13.04.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-Senalur
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3673	Sample Received on	08.04.2024
Sample Collected by	LABORATORY	Test Commenced on	08.04.2024
Sample Collected on	07.04.2024	Test Completed on	13.04.2024
Temperature	39°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	µg/m ³	44.7	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	21.5	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.7	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.1	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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TEST REPORT

Report No.	SARL/24/3674	Report Date.	13.04.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6- Kunnappakkam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3674	Sample Received on	11.03.2024
Sample Collected by	LABORATORY	Test Commenced on	11.03.2024
Sample Collected on	07.04.2024	Test Completed on	16.03.2024
Temperature	39°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	µg/m ³	42.9	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	20.2	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.3	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	6.7	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

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J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/3699	Report Date.	20.04.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-Senalur
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3699	Sample Received on	15.04.2024
Sample Collected by	LABORATORY	Test Commenced on	15.04.2024
Sample Collected on	09.04.2024	Test Completed on	20.04.2024
Temperature	37°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	µg/m ³	37.9	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	18.2	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.2	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	5.8	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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TEST REPORT

Report No.	SARL/24/3700	Report Date.	20.04.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-Kunnapakkam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3700	Sample Received on	15.04.2024
Sample Collected by	LABORATORY	Test Commenced on	15.04.2024
Sample Collected on	09.04.2024	Test Completed on	20.04.2024
Temperature	37°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	µg/m ³	36.9	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	17.3	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	3.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	5.9	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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TEST REPORT

Report No.	SARL/24/3701	Report Date.	20.04.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-Senalur
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3701	Sample Received on	15.04.2024
Sample Collected by	LABORATORY	Test Commenced on	15.04.2024
Sample Collected on	10.04.2024	Test Completed on	20.04.2024
Temperature	37°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	µg/m ³	41.3	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	19.8	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	6.4	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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TEST REPORT

Report No.	SARL/24/3702	Report Date.	20.04.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-Kunnapakkam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3702	Sample Received on	15.04.2024
Sample Collected by	LABORATORY	Test Commenced on	15.04.2024
Sample Collected on	10.04.2024	Test Completed on	20.04.2024
Temperature	37°C	Relative Humidity	36%
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	38.4	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	18.1	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	3.6	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	6.1	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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TEST REPORT

Report No.	SARL/24/3703	Report Date.	20.04.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-Madavantangal
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3703	Sample Received on	15.04.2024
Sample Collected by	LABORATORY	Test Commenced on	15.04.2024
Sample Collected on	11.04.2024	Test Completed on	20.04.2024
Temperature	37°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	µg/m ³	39.5	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	19.3	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.3	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	6.5	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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TEST REPORT

Report No.	SARL/24/3704	Report Date.	20.04.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-Chokkantangal
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3704	Sample Received on	15.04.2024
Sample Collected by	LABORATORY	Test Commenced on	15.04.2024
Sample Collected on	11.04.2024	Test Completed on	20.04.2024
Temperature	37°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	µg/m ³	46.9	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	21.9	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.2	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.6	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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TEST REPORT

Report No.	SARL/24/3705	Report Date.	20.04.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-Madavantangal
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3705	Sample Received on	15.04.2024
Sample Collected by	LABORATORY	Test Commenced on	15.04.2024
Sample Collected on	12.04.2024	Test Completed on	20.04.2024
Temperature	38°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	42.3	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	20.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.2	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.3	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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TEST REPORT

Report No.	SARL/24/3706	Report Date.	20.04.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-Chokkantangal
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3706	Sample Received on	15.04.2024
Sample Collected by	LABORATORY	Test Commenced on	15.04.2024
Sample Collected on	12.04.2024	Test Completed on	20.04.2024
Temperature	38°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	43.7	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	20.4	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	3.6	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.1	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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TEST REPORT

Report No.	SARL/24/3707	Report Date.	20.04.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
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-3707	Sample Received on	15.04.2024
Sample Collected by	LABORATORY	Test Commenced on	15.04.2024
Sample Collected on	13.04.2024	Test Completed on	20.04.2024
Temperature	37°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	µg/m ³	41.6	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	19.38	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.6	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	6.9	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

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J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/3708	Report Date.	20.04.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-Perumukkal
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3708	Sample Received on	15.04.2024
Sample Collected by	LABORATORY	Test Commenced on	15.04.2024
Sample Collected on	13.04.2024	Test Completed on	20.04.2024
Temperature	37°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	µg/m ³	41.2	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	19.8	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.3	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.1	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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TEST REPORT

Report No.	SARL/24/3709	Report Date.	20.04.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
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-3709	Sample Received on	15.04.2024
Sample Collected by	LABORATORY	Test Commenced on	15.04.2024
Sample Collected on	14.04.2024	Test Completed on	20.04.2024
Temperature	37°C	Relative Humidity	29%
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	43.9	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	21.33	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.5	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/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

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TEST REPORT

Report No.	SARL/24/3710	Report Date.	20.04.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-Perumukkal
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3710	Sample Received on	15.04.2024
Sample Collected by	LABORATORY	Test Commenced on	15.04.2024
Sample Collected on	14.04.2024	Test Completed on	20.04.2024
Temperature	37°C	Relative Humidity	29%
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	43.9	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	21.1	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.8	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.9	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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TEST REPORT

Report No.	SARL/24/3735	Report Date.	27.04.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
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-3735	Sample Received on	22.04.2024
Sample Collected by	LABORATORY	Test Commenced on	22.04.2024
Sample Collected on	16.04.2024	Test Completed on	27.04.2024
Temperature	38°C	Relative Humidity	22%
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	55.7	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	26.9	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.9	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/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

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TEST REPORT

Report No.	SARL/24/3736	Report Date.	27.04.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-Perumukkal
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3736	Sample Received on	22.04.2024
Sample Collected by	LABORATORY	Test Commenced on	22.04.2024
Sample Collected on	16.04.2024	Test Completed on	27.04.2024
Temperature	38°C	Relative Humidity	22%
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	50.0	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	24.0	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.9	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.3	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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TEST REPORT

Report No.	SARL/24/3737	Report Date.	27.04.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
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-3737	Sample Received on	22.04.2024
Sample Collected by	LABORATORY	Test Commenced on	22.04.2024
Sample Collected on	17.04.2024	Test Completed on	27.04.2024
Temperature	39°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	µg/m ³	59.9	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	30.2	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	7.2	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/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

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TEST REPORT

Report No.	SARL/24/3738	Report Date.	27.04.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-Perumukkal
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3738	Sample Received on	22.04.2024
Sample Collected by	LABORATORY	Test Commenced on	22.04.2024
Sample Collected on	17.04.2024	Test Completed on	27.04.2024
Temperature	39°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	µg/m ³	52.7	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	28.2	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	6.9	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/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

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TEST REPORT

Report No.	SARL/24/3739	Report Date.	27.04.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-Madavantangal
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3739	Sample Received on	22.04.2024
Sample Collected by	LABORATORY	Test Commenced on	22.04.2024
Sample Collected on	18.04.2024	Test Completed on	27.04.2024
Temperature	40°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	µg/m ³	49.7	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	26.0	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	6.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.8	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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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/3740	Report Date.	27.04.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-Chokkantangal
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3740	Sample Received on	22.04.2024
Sample Collected by	LABORATORY	Test Commenced on	22.04.2024
Sample Collected on	18.04.2024	Test Completed on	27.04.2024
Temperature	40°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	µg/m ³	54.2	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	25.5	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.9	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/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

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J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/3741	Report Date.	27.04.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-Madavantangal
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3741	Sample Received on	22.04.2024
Sample Collected by	LABORATORY	Test Commenced on	22.04.2024
Sample Collected on	19.04.2024	Test Completed on	27.04.2024
Temperature	40°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	µg/m ³	44.3	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	21.6	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.6	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.9	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

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TEST REPORT

Report No.	SARL/24/3742	Report Date.	27.04.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-Chokkantangal
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3742	Sample Received on	22.04.2024
Sample Collected by	LABORATORY	Test Commenced on	22.04.2024
Sample Collected on	19.04.2024	Test Completed on	27.04.2024
Temperature	40°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	µg/m ³	51.3	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	24.1	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.2	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.7	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

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TEST REPORT

Report No.	SARL/24/3743	Report Date.	27.04.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-Senalur
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3743	Sample Received on	22.04.2024
Sample Collected by	LABORATORY	Test Commenced on	22.04.2024
Sample Collected on	20.04.2024	Test Completed on	27.04.2024
Temperature	40°C	Relative Humidity	24%
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	48.1	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	23.1	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.2	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.6	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

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J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/3744	Report Date.	27.04.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-Kunnapakkam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3744	Sample Received on	22.04.2024
Sample Collected by	LABORATORY	Test Commenced on	22.04.2024
Sample Collected on	20.04.2024	Test Completed on	27.04.2024
Temperature	40°C	Relative Humidity	24%
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	46.1	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.2	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.7	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.3	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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TEST REPORT

Report No.	SARL/24/3745	Report Date.	27.04.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-Senalur
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3745	Sample Received on	22.04.2024
Sample Collected by	LABORATORY	Test Commenced on	22.04.2024
Sample Collected on	21.04.2024	Test Completed on	27.04.2024
Temperature	40°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	µg/m ³	43.2	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	20.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.5	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	6.7	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

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TEST REPORT

Report No.	SARL/24/3746	Report Date.	27.04.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-Kunnapakkam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3746	Sample Received on	22.04.2024
Sample Collected by	LABORATORY	Test Commenced on	22.04.2024
Sample Collected on	21.04.2024	Test Completed on	27.04.2024
Temperature	40°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	µg/m ³	41.4	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	19.5	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.1	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	6.5	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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TEST REPORT

Report No.	SARL/24/3771	Report Date.	04.05.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-Senalur
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3771	Sample Received on	29.04.2024
Sample Collected by	LABORATORY	Test Commenced on	29.04.2024
Sample Collected on	23.04.2024	Test Completed on	04.05.2024
Temperature	39°C	Relative Humidity	19%
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	46.4	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.3	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.8	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.3	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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TEST REPORT

Report No.	SARL/24/3772	Report Date.	04.05.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-Kunnapakkam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3772	Sample Received on	29.04.2024
Sample Collected by	LABORATORY	Test Commenced on	29.04.2024
Sample Collected on	23.04.2024	Test Completed on	04.05.2024
Temperature	39°C	Relative Humidity	19%
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	44.4	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	21.5	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.5	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.1	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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TEST REPORT

Report No.	SARL/24/3773	Report Date.	04.05.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-Senalur
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3773	Sample Received on	29.04.2024
Sample Collected by	LABORATORY	Test Commenced on	29.04.2024
Sample Collected on	24.04.2024	Test Completed on	04.05.2024
Temperature	39°C	Relative Humidity	20%
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	39.6	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	19.1	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.3	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	6.1	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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J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/3774	Report Date.	04.05.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-Kunnapakkam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3774	Sample Received on	29.04.2024
Sample Collected by	LABORATORY	Test Commenced on	29.04.2024
Sample Collected on	24.04.2024	Test Completed on	04.05.2024
Temperature	39°C	Relative Humidity	20%
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	39.9	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	18.8	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	3.8	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	6.3	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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TEST REPORT

Report No.	SARL/24/3775	Report Date.	04.05.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-Madavantangal
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3775	Sample Received on	29.04.2024
Sample Collected by	LABORATORY	Test Commenced on	29.04.2024
Sample Collected on	25.04.2024	Test Completed on	04.05.2024
Temperature	39°C	Relative Humidity	29%
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	48.4	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	23.6	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	6.1	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.3	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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TEST REPORT

Report No.	SARL/24/3776	Report Date.	04.05.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-Chokkantangal
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3776	Sample Received on	29.04.2024
Sample Collected by	LABORATORY	Test Commenced on	29.04.2024
Sample Collected on	25.04.2024	Test Completed on	04.05.2024
Temperature	39°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	µg/m ³	48.1	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.5	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.6	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.1	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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TEST REPORT

Report No.	SARL/24/3777	Report Date.	04.05.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-Madavantangal
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3777	Sample Received on	29.04.2024
Sample Collected by	LABORATORY	Test Commenced on	29.04.2024
Sample Collected on	26.04.2024	Test Completed on	04.05.2024
Temperature	39°C	Relative Humidity	20%
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	40.9	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	20.0	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.8	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.0	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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TEST REPORT

Report No.	SARL/24/3778	Report Date.	04.05.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-Chokkantangal
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3778	Sample Received on	29.04.2024
Sample Collected by	LABORATORY	Test Commenced on	29.04.2024
Sample Collected on	26.04.2024	Test Completed on	04.05.2024
Temperature	39°C	Relative Humidity	20%
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	45.3	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	21.2	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	3.9	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.3	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

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J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/3779	Report Date.	04.05.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
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-3779	Sample Received on	29.04.2024
Sample Collected by	LABORATORY	Test Commenced on	29.04.2024
Sample Collected on	27.04.2024	Test Completed on	04.05.2024
Temperature	40°C	Relative Humidity	19%
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	46.1	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	21.9	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.3	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.9	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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TEST REPORT

Report No.	SARL/24/3780	Report Date.	04.05.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-Perumukkal
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3780	Sample Received on	29.04.2024
Sample Collected by	LABORATORY	Test Commenced on	29.04.2024
Sample Collected on	27.04.2024	Test Completed on	04.05.2024
Temperature	40°C	Relative Humidity	19%
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	43.0	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	21.1	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.8	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.3	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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TEST REPORT

Report No.	SARL/24/3781	Report Date.	04.05.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
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-3781	Sample Received on	29.04.2024
Sample Collected by	LABORATORY	Test Commenced on	29.04.2024
Sample Collected on	28.04.2024	Test Completed on	04.05.2024
Temperature	40°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	µg/m ³	54.4	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	26.1	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	6.6	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/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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Technical Manager

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TEST REPORT

Report No.	SARL/24/3782	Report Date.	04.05.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-Perumukkal
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3782	Sample Received on	29.04.2024
Sample Collected by	LABORATORY	Test Commenced on	29.04.2024
Sample Collected on	28.04.2024	Test Completed on	04.05.2024
Temperature	40°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	µg/m ³	50.5	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	24.8	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	6.3	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.3	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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TEST REPORT

Report No.	SARL/24/3807	Report Date.	11.05.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
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-3807	Sample Received on	06.05.2024
Sample Collected by	LABORATORY	Test Commenced on	06.05.2024
Sample Collected on	30.04.2024	Test Completed on	11.05.2024
Temperature	40°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	µg/m ³	41.9	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	19.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.7	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.3	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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TEST REPORT

Report No.	SARL/24/3808	Report Date.	11.05.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-Perumukkal
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3808	Sample Received on	06.05.2024
Sample Collected by	LABORATORY	Test Commenced on	06.05.2024
Sample Collected on	30.04.2024	Test Completed on	11.05.2024
Temperature	40°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	µg/m ³	39.2	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	19.2	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.0	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	6.9	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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TEST REPORT

Report No.	SARL/24/3809	Report Date.	11.05.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha, Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
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-3809	Sample Received on	06.05.2024
Sample Collected by	LABORATORY	Test Commenced on	06.05.2024
Sample Collected on	01.05.2024	Test Completed on	11.05.2024
Temperature	42°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	µg/m ³	62.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	30.2	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	7.5	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/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

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TEST REPORT

Report No.	SARL/24/3810	Report Date.	11.05.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha, Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-Perumukkal
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3810	Sample Received on	06.05.2024
Sample Collected by	LABORATORY	Test Commenced on	06.05.2024
Sample Collected on	01.05.2024	Test Completed on	11.05.2024
Temperature	42°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	µg/m ³	48.6	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	24.0	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	6.0	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.1	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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TEST REPORT

Report No.	SARL/24/3811	Report Date.	11.05.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-Madavantangal
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3811	Sample Received on	06.05.2024
Sample Collected by	LABORATORY	Test Commenced on	06.05.2024
Sample Collected on	02.05.2024	Test Completed on	11.05.2024
Temperature	42°C	Relative Humidity	22%
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	49.0	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	24.4	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	6.6	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/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

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TEST REPORT

Report No.	SARL/24/3812	Report Date.	11.05.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha, Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-Chokkantangal
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3812	Sample Received on	06.05.2024
Sample Collected by	LABORATORY	Test Commenced on	06.05.2024
Sample Collected on	02.05.2024	Test Completed on	11.05.2024
Temperature	42°C	Relative Humidity	22%
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	55	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	25.8	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	6.2	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/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

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TEST REPORT

Report No.	SARL/24/3813	Report Date.	11.05.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-Madavantangal
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3813	Sample Received on	06.05.2024
Sample Collected by	LABORATORY	Test Commenced on	06.05.2024
Sample Collected on	03.05.2024	Test Completed on	11.05.2024
Temperature	42°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	µg/m ³	39.6	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	19.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.0	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.5	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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TEST REPORT

Report No.	SARL/24/3814	Report Date.	11.05.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha, Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-Chokkantangal
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3814	Sample Received on	06.05.2024
Sample Collected by	LABORATORY	Test Commenced on	06.05.2024
Sample Collected on	03.05.2024	Test Completed on	11.05.2024
Temperature	42°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	µg/m ³	51.7	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	24.3	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.3	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/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

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TEST REPORT

Report No.	SARL/24/3815	Report Date.	11.05.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-Senalur
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3815	Sample Received on	06.05.2024
Sample Collected by	LABORATORY	Test Commenced on	06.05.2024
Sample Collected on	04.05.2024	Test Completed on	11.05.2024
Temperature	40°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	µg/m ³	49.7	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	24.2	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.6	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

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Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/3816	Report Date.	11.05.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-Kunnapakkam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3816	Sample Received on	06.05.2024
Sample Collected by	LABORATORY	Test Commenced on	06.05.2024
Sample Collected on	04.05.2024	Test Completed on	11.05.2024
Temperature	40°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	µg/m ³	42.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	21.5	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	6.7	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

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TEST REPORT

Report No.	SARL/24/3817	Report Date.	11.05.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha, Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-Senalur
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3817	Sample Received on	06.05.2024
Sample Collected by	LABORATORY	Test Commenced on	06.05.2024
Sample Collected on	05.05.2024	Test Completed on	11.05.2024
Temperature	42°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	µg/m ³	41.6	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	20.3	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.6	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	6.4	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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TEST REPORT

Report No.	SARL/24/3818	Report Date.	11.05.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-Kunnappakkam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3818	Sample Received on	06.05.2024
Sample Collected by	LABORATORY	Test Commenced on	06.05.2024
Sample Collected on	05.05.2024	Test Completed on	11.05.2024
Temperature	42°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	µg/m ³	39.2	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	19.4	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	3.8	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	6.3	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

8.8.2024
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Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/3843	Report Date.	18.05.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-Senalur
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3843	Sample Received on	13.05.2024
Sample Collected by	LABORATORY	Test Commenced on	13.05.2024
Sample Collected on	07.05.2024	Test Completed on	18.05.2024
Temperature	40°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	µg/m ³	37.4	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	18.1	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.2	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	5.8	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

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J. 4
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/3844	Report Date.	18.05.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-Kunnapakkam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3844	Sample Received on	13.05.2024
Sample Collected by	LABORATORY	Test Commenced on	13.05.2024
Sample Collected on	07.05.2024	Test Completed on	18.05.2024
Temperature	40°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	µg/m ³	35.2	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	17.4	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	3.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	5.9	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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TEST REPORT

Report No.	SARL/24/3845	Report Date.	18.05.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-Senalur
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3845	Sample Received on	13.05.2024
Sample Collected by	LABORATORY	Test Commenced on	13.05.2024
Sample Collected on	08.05.2024	Test Completed on	18.05.2024
Temperature	24°C	Relative Humidity	87%
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	39.5	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	19.2	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	6.1	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

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J. 4
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Technical Manager

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TEST REPORT

Report No.	SARL/24/3846	Report Date.	18.05.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-Kunnapakkam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3846	Sample Received on	13.05.2024
Sample Collected by	LABORATORY	Test Commenced on	13.05.2024
Sample Collected on	08.05.2024	Test Completed on	18.05.2024
Temperature	24°C	Relative Humidity	87%
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	37.1	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	18.3	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	3.6	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	6.1	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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TEST REPORT

Report No.	SARL/24/3847	Report Date.	18.05.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-Madavantangal
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3847	Sample Received on	13.05.2024
Sample Collected by	LABORATORY	Test Commenced on	13.05.2024
Sample Collected on	09.05.2024	Test Completed on	18.05.2024
Temperature	39°C	Relative Humidity	33%
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	36.4	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	18.1	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.1	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	6.5	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

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R

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TEST REPORT

Report No.	SARL/24/3848	Report Date.	18.05.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-Chokkantangal
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3848	Sample Received on	13.05.2024
Sample Collected by	LABORATORY	Test Commenced on	13.05.2024
Sample Collected on	09.05.2024	Test Completed on	18.05.2024
Temperature	39°C	Relative Humidity	33%
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	48.9	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.9	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.7	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.2	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

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J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/3849	Report Date.	18.05.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-Madavantangal
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3849	Sample Received on	13.05.2024
Sample Collected by	LABORATORY	Test Commenced on	13.05.2024
Sample Collected on	10.05.2024	Test Completed on	18.05.2024
Temperature	38°C	Relative Humidity	31%
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	38.3	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	19.1	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.6	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.1	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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TEST REPORT

Report No.	SARL/24/3850	Report Date.	18.05.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-Chokkantangal
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3850	Sample Received on	13.05.2024
Sample Collected by	LABORATORY	Test Commenced on	13.05.2024
Sample Collected on	10.05.2024	Test Completed on	18.05.2024
Temperature	38°C	Relative Humidity	31%
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	44.9	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	21.0	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	3.8	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.2	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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J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/3851	Report Date.	18.05.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
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-3851	Sample Received on	13.05.2024
Sample Collected by	LABORATORY	Test Commenced on	13.05.2024
Sample Collected on	11.05.2024	Test Completed on	18.05.2024
Temperature	37°C	Relative Humidity	35%
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	57.6	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	27.6	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	6.8	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/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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J. GNANAPRAKASAM
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TEST REPORT

Report No.	SARL/24/3852	Report Date.	18.05.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-Perumukkal
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3852	Sample Received on	13.05.2024
Sample Collected by	LABORATORY	Test Commenced on	13.05.2024
Sample Collected on	11.05.2024	Test Completed on	18.05.2024
Temperature	37°C	Relative Humidity	35%
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	56.6	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	30.4	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	7.1	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/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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TEST REPORT

Report No.	SARL/24/3853	Report Date.	18.05.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
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-3853	Sample Received on	13.05.2024
Sample Collected by	LABORATORY	Test Commenced on	13.05.2024
Sample Collected on	12.05.2024	Test Completed on	18.05.2024
Temperature	38°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	µg/m ³	48.6	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	23.3	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.7	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.4	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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TEST REPORT

Report No.	SARL/24/3854	Report Date.	18.05.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-Perumukkal
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3854	Sample Received on	13.05.2024
Sample Collected by	LABORATORY	Test Commenced on	13.05.2024
Sample Collected on	12.05.2024	Test Completed on	18.05.2024
Temperature	38°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	µg/m ³	45.3	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.2	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.7	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

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TEST REPORT

Report No.	SARL/24/3879	Report Date.	25.05.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
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-3879	Sample Received on	20.05.2024
Sample Collected by	LABORATORY	Test Commenced on	20.05.2024
Sample Collected on	14.05.2024	Test Completed on	25.05.2024
Temperature	37°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	µg/m ³	60.1	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	28.9	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	7.1	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/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

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TEST REPORT

Report No.	SARL/24/3880	Report Date.	25.05.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-Perumukkal
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3880	Sample Received on	20.05.2024
Sample Collected by	LABORATORY	Test Commenced on	20.05.2024
Sample Collected on	14.05.2024	Test Completed on	25.05.2024
Temperature	37°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	µg/m ³	52.5	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	25.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	6.5	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.3	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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TEST REPORT

Report No.	SARL/24/3881	Report Date.	25.05.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
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-3881	Sample Received on	20.05.2024
Sample Collected by	LABORATORY	Test Commenced on	20.05.2024
Sample Collected on	15.05.2024	Test Completed on	25.05.2024
Temperature	36°C	Relative Humidity	34%
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	52.5	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	25.1	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	6.3	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/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

For Shrient Analytical and Research Labs Pvt. Ltd

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J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/3882	Report Date.	25.05.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-Perumukkal
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3882	Sample Received on	20.05.2024
Sample Collected by	LABORATORY	Test Commenced on	20.05.2024
Sample Collected on	15.05.2024	Test Completed on	25.05.2024
Temperature	36°C	Relative Humidity	34%
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	46.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.9	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.7	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.9	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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TEST REPORT

Report No.	SARL/24/3883	Report Date.	25.05.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-Madavantangal
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3883	Sample Received on	20.05.2024
Sample Collected by	LABORATORY	Test Commenced on	20.05.2024
Sample Collected on	16.05.2024	Test Completed on	25.05.2024
Temperature	31°C	Relative Humidity	51%
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	45.1	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.5	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	6.1	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.3	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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TEST REPORT

Report No.	SARL/24/3884	Report Date.	25.05.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha, Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-Chokkantangal
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3884	Sample Received on	20.05.2024
Sample Collected by	LABORATORY	Test Commenced on	20.05.2024
Sample Collected on	16.05.2024	Test Completed on	25.05.2024
Temperature	31°C	Relative Humidity	51%
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	52.9	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	24.8	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.6	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/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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TEST REPORT

Report No.	SARL/24/3885	Report Date.	25.05.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-Madavantangal
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3885	Sample Received on	20.05.2024
Sample Collected by	LABORATORY	Test Commenced on	20.05.2024
Sample Collected on	17.05.2024	Test Completed on	25.05.2024
Temperature	33°C	Relative Humidity	48%
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	46.7	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	23.3	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	6.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.7	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

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R

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TEST REPORT

Report No.	SARL/24/3886	Report Date.	25.05.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-Chokkantangal
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3886	Sample Received on	20.05.2024
Sample Collected by	LABORATORY	Test Commenced on	20.05.2024
Sample Collected on	17.05.2024	Test Completed on	25.05.2024
Temperature	33°C	Relative Humidity	48%
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	49.3	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	23.1	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.8	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.3	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

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TEST REPORT

Report No.	SARL/24/3887	Report Date.	25.05.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-Senalur
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3887	Sample Received on	20.05.2024
Sample Collected by	LABORATORY	Test Commenced on	20.05.2024
Sample Collected on	18.05.2024	Test Completed on	25.05.2024
Temperature	35°C	Relative Humidity	41%
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	47.9	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	23.5	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.2	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.3	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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TEST REPORT

Report No.	SARL/24/3888	Report Date.	25.05.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-Kunnapakkam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3888	Sample Received on	20.05.2024
Sample Collected by	LABORATORY	Test Commenced on	20.05.2024
Sample Collected on	18.05.2024	Test Completed on	25.05.2024
Temperature	35°C	Relative Humidity	41%
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	44.7	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.3	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.6	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	6.9	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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TEST REPORT

Report No.	SARL/24/3889	Report Date.	25.05.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-Senalur
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3889	Sample Received on	20.05.2024
Sample Collected by	LABORATORY	Test Commenced on	20.05.2024
Sample Collected on	19.05.2024	Test Completed on	25.05.2024
Temperature	36°C	Relative Humidity	41%
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	51.2	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	24.9	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.6	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.9	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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TEST REPORT

Report No.	SARL/24/3890	Report Date.	25.05.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-Kunnapakkam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3890	Sample Received on	20.05.2024
Sample Collected by	LABORATORY	Test Commenced on	20.05.2024
Sample Collected on	19.05.2024	Test Completed on	25.05.2024
Temperature	36°C	Relative Humidity	41%
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	48.4	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	25.1	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.1	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.5	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

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J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/3930	Report Date.	01.06.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-Senalur
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3930	Sample Received on	27.05.2024
Sample Collected by	LABORATORY	Test Commenced on	27.05.2024
Sample Collected on	21.05.2024	Test Completed on	01.06.2024
Temperature	36°C	Relative Humidity	40%
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	45.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.3	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.0	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.1	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

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TEST REPORT

Report No.	SARL/24/3931	Report Date.	01.06.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-Kunnapakkam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3931	Sample Received on	27.05.2024
Sample Collected by	LABORATORY	Test Commenced on	27.05.2024
Sample Collected on	21.05.2024	Test Completed on	01.06.2024
Temperature	36°C	Relative Humidity	40%
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	46.6	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	23.2	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.8	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.3	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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TEST REPORT

Report No.	SARL/24/3932	Report Date.	01.06.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A5-Senalur
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3932	Sample Received on	27.05.2024
Sample Collected by	LABORATORY	Test Commenced on	27.05.2024
Sample Collected on	22.05.2024	Test Completed on	01.06.2024
Temperature	35°C	Relative Humidity	43%
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	43.7	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	21.2	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.8	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	6.7	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

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TEST REPORT

Report No.	SARL/24/3933	Report Date.	01.06.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A6-Kunnapakkam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3933	Sample Received on	27.05.2024
Sample Collected by	LABORATORY	Test Commenced on	27.05.2024
Sample Collected on	22.05.2024	Test Completed on	01.06.2024
Temperature	35°C	Relative Humidity	43%
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	40.9	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	20.2	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.2	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	6.5	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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TEST REPORT

Report No.	SARL/24/3934	Report Date.	01.06.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-Madavantangal
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3934	Sample Received on	27.05.2024
Sample Collected by	LABORATORY	Test Commenced on	27.05.2024
Sample Collected on	23.05.2024	Test Completed on	01.06.2024
Temperature	34°C	Relative Humidity	50%
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	42.6	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	21.3	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.7	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.1	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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TEST REPORT

Report No.	SARL/24/3935	Report Date.	01.06.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-Chokkantangal
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3935	Sample Received on	27.05.2024
Sample Collected by	LABORATORY	Test Commenced on	27.05.2024
Sample Collected on	23.05.2024	Test Completed on	01.06.2024
Temperature	34°C	Relative Humidity	50%
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	52.1	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	24.4	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.5	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/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

For Shrient Analytical and Research Labs Pvt. Ltd

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J. 4
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TEST REPORT

Report No.	SARL/24/3936	Report Date.	01.06.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A3-Madavantangal
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3936	Sample Received on	27.05.2024
Sample Collected by	LABORATORY	Test Commenced on	27.05.2024
Sample Collected on	24.05.2024	Test Completed on	01.06.2024
Temperature	31°C	Relative Humidity	61%
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	41.3	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	20.6	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.9	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

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Technical Manager

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TEST REPORT

Report No.	SARL/24/3937	Report Date.	01.06.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A4-Chokkantangal
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3937	Sample Received on	27.05.2024
Sample Collected by	LABORATORY	Test Commenced on	27.05.2024
Sample Collected on	24.05.2024	Test Completed on	01.06.2024
Temperature	31°C	Relative Humidity	61%
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	54.6	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	25.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.9	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/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

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J. GNANAPRAKASAM
Technical Manager

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LAB SERVICES FOR:- Food, Water, Milk, Environment, Academic & Industrial Segment.
CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R

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Shrient Analytical and Research Labs Pvt. Ltd

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TEST REPORT

Report No.	SARL/24/3938	Report Date.	01.06.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
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-3938	Sample Received on	27.05.2024
Sample Collected by	LABORATORY	Test Commenced on	27.05.2024
Sample Collected on	25.05.2024	Test Completed on	01.06.2024
Temperature	36°C	Relative Humidity	38%
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	49.6	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	23.8	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.9	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/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

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TEST REPORT

Report No.	SARL/24/3939	Report Date.	01.06.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-Perumukkal
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3939	Sample Received on	27.05.2024
Sample Collected by	LABORATORY	Test Commenced on	27.05.2024
Sample Collected on	25.05.2024	Test Completed on	01.06.2024
Temperature	36°C	Relative Humidity	38%
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	53.7	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	26.5	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	6.8	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.7	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

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TEST REPORT

Report No.	SARL/24/3940	Report Date.	01.06.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
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-3940	Sample Received on	27.05.2024
Sample Collected by	LABORATORY	Test Commenced on	27.05.2024
Sample Collected on	26.05.2024	Test Completed on	01.06.2024
Temperature	35°C	Relative Humidity	39%
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	43.8	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	20.6	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.1	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.8	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

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TEST REPORT

Report No.	SARL/24/3941	Report Date.	01.06.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	AMBIENT AIR QUALITY
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines

Sample Location	A2-Perumukkal
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-3941	Sample Received on	27.05.2024
Sample Collected by	LABORATORY	Test Commenced on	27.05.2024
Sample Collected on	26.05.2024	Test Completed on	01.06.2024
Temperature	35°C	Relative Humidity	39%
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	40.9	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	20.1	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.5	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.3	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

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TEST REPORT

Report No.	SARL/24/3954
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Report Date.	01.06.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	NOISE LEVEL DATA

Customer Reference	As per work order	Sampling Method	SARL/IOP/023
Sample Reference No	SARL/N/CHE-3954	Date of Monitoring	25.05.2024/ 26.05.2024
Sample Collected by	LABORATORY		

Time in hrs	N1	N2	N3	N4	N5	N6
06.00	38.3	43.4	43.6	42.7	39.8	41.7
07.00	38.5	46.2	45.9	44.7	40.6	39.4
08.00	39.3	54.4	46.1	44.5	45.8	42.7
09.00	38.7	51.4	50.5	42.4	50.7	43.5
10.00	42.0	49.2	48.3	40.6	50.4	51.1
11.00	40.2	52.3	47.7	40.3	49.0	58.1
12.00	42.2	50.0	46.6	44.1	47.2	47.0
13.00	38.8	52.3	44.8	44.8	47.0	47.8
14.00	38.1	51.3	46.6	47.2	48.3	53.4
15.00	36.2	51.6	48.7	53.3	47.4	54.5
16.00	39.5	52.6	46.4	45.5	50.3	52.1
17.00	43.4	52.8	48.5	46.5	50.8	51.8
18.00	40.6	52.6	44.4	45.0	51.9	49.7
19.00	38.0	50.4	50.8	43.7	46.9	46.3
20.00	37.1	50.2	43.7	45.6	46.2	45.5
21.00	40.6	48.4	42.6	45.1	44.0	43.8
22.00	39.0	46.7	41.5	44.6	40.0	45.3
23.00	39.4	43.8	39.9	45.0	39.1	43.3
24.00	39.7	41.4	41.0	44.9	40.1	41.1
01.00	40.0	39.5	40.0	42.1	38.8	42.7
02.00	38.8	39.8	38.9	40.7	39.0	41.6
03.00	37.6	42.6	41.2	40.0	39.7	40.7
04.00	35.0	41.3	42.0	38.3	40.4	39.9
05.00	37.1	39.6	43.3	38.0	40.7	39.4

LAB SERVICES FOR:- Food, Water, Milk, Environment, Academic & Industrial Segment.

CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/3954
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Report Date.	01.06.2024
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	N1	N2	N3	N4	N5	N6
DAY EQUIVALENT	39.9	51.2	47.2	46.0	48.3	50.9
NIGHT EQUIVALENT	38.6	42.5	41.2	42.5	39.8	42.2
DAY & NIGHT EQUIVALENT	39.5	49.7	46.0	45.1	46.9	49.4

Remarks:

LOCATIONS:

N1-WITHIN MINE LEASE AREA

N2-Perumukkal

N3-Madavantangal

N4-Chokkantangal

N5-Senalur

N6-Kunnappakkam

For Shrient Analytical and Research Labs Pvt. Ltd

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END OF THE REPORT

Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/3948	Report Date.	01.06.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu		
Sample Description	SOIL		
Sample Mark	S1-WITHIN MINE LEASE AREA		

Customer Reference	By Mail	Sampling Procedure	-
Sample Reference No	SARL/SO/CHE-3948	Sample Received on	27.05.2024
Sample Collected by	LABORATORY	Test Commenced on	27.05.2024
Sample Collected on	26.05.2024	Test Completed on	01.06.2024
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results
1	pH at 25 °C	IS 2720: Part 26: 1987	-	6.08
2	Electrical Conductivity	IS 14767: 2000	µmhos/cm	78.65
3	Dry matter content	IS 15106: 2002	%	92.54
4	Water Content	IS 15106: 2002	%	7.46
5	Organic Matter	IS 2720: Part 22: 1972	%	1.69
6	Nitrogen and Nitrogenous compounds	IS 14684: 1999	mg/kg	216
7	Soil Texture	Methods Manual - Soil testing in India - P. No-67: 2011	%	LOAM
8	<u>Grain Size Distribution</u>	Methods Manual - Soil testing in India - P. No-67: 2011	%	36.99
	i. Sand	Methods Manual - Soil testing in India - P. No-67: 2011	%	53.77
	ii. Silt	Methods Manual - Soil testing in India - P. No-67: 2011	%	9.24
	iii. Clay	Methods Manual - Soil testing in India - P. No-67: 2011	%	BDL (D.L.0.02)
9	Phosphorus as P	IS 10158: 1982	mg/kg	1.21
10	Sodium as Na	USEPA 3050 B: 1996	mg/kg	854
11	Potassium as K	USEPA 3050 B: 1996	mg/kg	410
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	%	12.80
14	Water holding capacity	Methods Manual - Soil testing in India - P. No-76: 2011	Inches/foot	41

BDL – Below Detectable limit (DL - Detectable limit).

For Shrient Analytical and Research Labs Pvt. Ltd


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J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/3949	Report Date.	01.06.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	SOIL
Sample Mark	S2-Perumukkal

Customer Reference	By Mail	Sampling Procedure	-
Sample Reference No	SARL/SO/CHE-3949	Sample Received on	27.05.2024
Sample Collected by	LABORATORY	Test Commenced on	27.05.2024
Sample Collected on	26.05.2024	Test Completed on	01.06.2024
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results
1	pH at 25 °C	IS 2720: Part 26: 1987	-	7.74
2	Electrical Conductivity	IS 14767: 2000	µmhos/cm	295.4
3	Dry matter content	IS 15106: 2002	%	89.72
4	Water Content	IS 15106: 2002	%	10.28
5	Organic Matter	IS 2720: Part 22: 1972	%	2.34
6	Nitrogen and Nitrogenous compounds	IS 14684: 1999	mg/kg	275
7	Soil Texture	Methods Manual - Soil testing in India - P. No-67: 2011	%	LOAM
8	<u>Grain Size Distribution</u>	Methods Manual - Soil testing in India - P. No-67: 2011	%	5.05
	i. Sand	Methods Manual - Soil testing in India - P. No-67: 2011	%	66.32
	ii. Silt	Methods Manual - Soil testing in India - P. No-67: 2011	%	28.63
	iii. Clay	Methods Manual - Soil testing in India - P. No-67: 2011	%	BDL (D.L.0.02)
9	Phosphorus as P	IS 10158: 1982	mg/kg	0.59
10	Sodium as Na	USEPA 3050 B: 1996	mg/kg	932
11	Potassium as K	USEPA 3050 B: 1996	mg/kg	645
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	%	13.1
14	Water holding capacity	Methods Manual - Soil testing in India - P. No-76: 2011	Inches/foot	43

BDL – Below Detectable limit (DL - Detectable limit).

For Shrient Analytical and Research Labs Pvt. Ltd


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J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/3950	Report Date.	01.06.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	SOIL
Sample Mark	S3-Madavantangal

Customer Reference	By Mail	Sampling Procedure	-
Sample Reference No	SARL/SO/CHE-3950	Sample Received on	27.05.2024
Sample Collected by	LABORATORY	Test Commenced on	27.05.2024
Sample Collected on	26.05.2024	Test Completed on	01.06.2024
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results
1	pH at 25 °C	IS 2720: Part 26: 1987	-	7.65
2	Electrical Conductivity	IS 14767: 2000	µmhos/cm	122.4
3	Dry matter content	IS 15106: 2002	%	90.38
4	Water Content	IS 15106: 2002	%	9.62
5	Organic Matter	IS 2720: Part 22: 1972	%	1.87
6	Nitrogen and Nitrogenous compounds	IS 14684: 1999	mg/kg	176
7	Soil Texture	Methods Manual - Soil testing in India - P. No-67: 2011	%	CLAY LOAM
8	<u>Grain Size Distribution</u>	Methods Manual - Soil testing in India - P. No-67: 2011	%	
	i. Sand	Methods Manual - Soil testing in India - P. No-67: 2011	%	4.38
	ii. Silt	Methods Manual - Soil testing in India - P. No-67: 2011	%	62.17
	iii. Clay	Methods Manual - Soil testing in India - P. No-67: 2011	%	33.45
9	Phosphorus as P	IS 10158: 1982	mg/kg	0.74
10	Sodium as Na	USEPA 3050 B: 1996	mg/kg	646
11	Potassium as K	USEPA 3050 B: 1996	mg/kg	802
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	%	13.8
14	Water holding capacity	Methods Manual - Soil testing in India - P. No-76: 2011	Inches/foot	46

BDL – Below Detectable limit (DL - Detectable limit).

For Shrient Analytical and Research Labs Pvt. Ltd


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Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

Please Contact:

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TEST REPORT

Report No.	SARL/24/3951	Report Date.	01.06.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	SOIL
Sample Mark	S4-Chokkantangal

Customer Reference	By Mail	Sampling Procedure	-
Sample Reference No	SARL/SO/CHE-3951	Sample Received on	27.05.2024
Sample Collected by	LABORATORY	Test Commenced on	27.05.2024
Sample Collected on	26.05.2024	Test Completed on	01.06.2024
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results
1	pH at 25 °C	IS 2720: Part 26: 1987	-	7.36
2	Electrical Conductivity	IS 14767: 2000	µmhos/cm	209.7
3	Dry matter content	IS 15106: 2002	%	92.06
4	Water Content	IS 15106: 2002	%	7.94
5	Organic Matter	IS 2720: Part 22: 1972	%	1.26
6	Nitrogen and Nitrogenous compounds	IS 14684: 1999	mg/kg	349
7	Soil Texture	Methods Manual - Soil testing in India - P. No-67: 2011	%	SILT LOAM
8	<u>Grain Size Distribution</u>	Methods Manual - Soil testing in India - P. No-67: 2011	%	
	i. Sand	Methods Manual - Soil testing in India - P. No-67: 2011	%	5.84
	ii. Silt	Methods Manual - Soil testing in India - P. No-67: 2011	%	55.47
	iii. Clay	Methods Manual - Soil testing in India - P. No-67: 2011	%	38.69
9	Phosphorus as P	IS 10158: 1982	mg/kg	0.82
10	Sodium as Na	USEPA 3050 B: 1996	mg/kg	1015
11	Potassium as K	USEPA 3050 B: 1996	mg/kg	674
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	%	13.5
14	Water holding capacity	Methods Manual - Soil testing in India - P. No-76: 2011	Inches/foot	45

BDL – Below Detectable limit (DL - Detectable limit).

For Shrient Analytical and Research Labs Pvt. Ltd


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J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/3952	Report Date.	01.06.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	SOIL
Sample Mark	S5-Senalur

Customer Reference	By Mail	Sampling Procedure	-
Sample Reference No	SARL/SO/CHE-3952	Sample Received on	27.05.2024
Sample Collected by	LABORATORY	Test Commenced on	27.05.2024
Sample Collected on	26.05.2024	Test Completed on	01.06.2024
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results
1	pH at 25 °C	IS 2720: Part 26: 1987	-	7.03
2	Electrical Conductivity	IS 14767: 2000	µmhos/cm	100.8
3	Dry matter content	IS 15106: 2002	%	90.40
4	Water Content	IS 15106: 2002	%	9.60
5	Organic Matter	IS 2720: Part 22: 1972	%	1.71
6	Nitrogen and Nitrogenous compounds	IS 14684: 1999	mg/kg	312
7	Soil Texture	Methods Manual - Soil testing in India - P. No-67: 2011	%	SANDY CLAY LOAM
8	<u>Grain Size Distribution</u>	Methods Manual - Soil testing in India - P. No-67: 2011	%	41.47
	i. Sand	Methods Manual - Soil testing in India - P. No-67: 2011	%	50.41
	ii. Silt	Methods Manual - Soil testing in India - P. No-67: 2011	%	8.12
	iii. Clay	Methods Manual - Soil testing in India - P. No-67: 2011	%	BDL (D.L.0.02)
9	Phosphorus as P	IS 10158: 1982	mg/kg	1.03
10	Sodium as Na	USEPA 3050 B: 1996	mg/kg	976
11	Potassium as K	USEPA 3050 B: 1996	mg/kg	724
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	%	11.9
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


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Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/3953	Report Date.	01.06.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu		
Sample Description	SOIL		
Sample Mark	S6-Kunnapakkam		

Customer Reference	By Mail	Sampling Procedure	-
Sample Reference No	SARL/SO/CHE-3953	Sample Received on	27.05.2024
Sample Collected by	LABORATORY	Test Commenced on	27.05.2024
Sample Collected on	26.05.2024	Test Completed on	01.06.2024
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results
1	pH at 25 °C	IS 2720: Part 26: 1987	-	6.99
2	Electrical Conductivity	IS 14767: 2000	µmhos/cm	150.7
3	Dry matter content	IS 15106: 2002	%	85.94
4	Water Content	IS 15106: 2002	%	14.06
5	Organic Matter	IS 2720: Part 22: 1972	%	1.59
6	Nitrogen and Nitrogenous compounds	IS 14684: 1999	mg/kg	405
7	Soil Texture	Methods Manual - Soil testing in India - P. No-67: 2011	%	CLAY LOAM
8	<u>Grain Size Distribution</u>	Methods Manual - Soil testing in India - P. No-67: 2011	%	6.56
	i. Sand	Methods Manual - Soil testing in India - P. No-67: 2011	%	43.60
	ii. Silt	Methods Manual - Soil testing in India - P. No-67: 2011	%	49.84
	iii. Clay	Methods Manual - Soil testing in India - P. No-67: 2011	%	BDL (D.L.0.02)
9	Phosphorus as P	IS 10158: 1982	mg/kg	1.22
10	Sodium as Na	USEPA 3050 B: 1996	mg/kg	732
11	Potassium as K	USEPA 3050 B: 1996	mg/kg	456
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	%	12.6
14	Water holding capacity	Methods Manual - Soil testing in India - P. No-76: 2011	Inches/foot	49

BDL – Below Detectable limit (DL - Detectable limit).

For Shrient Analytical and Research Labs Pvt. Ltd


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Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/2024/3942	Report Date.	01.06.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
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-3942	Sample Received on	27.05.2024
Sample Collected by	LABORATORY	Test Commenced on	27.05.2024
Sample Collected on	26.05.2024	Test Completed on	01.06.2024
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 24 th Edition 2130 B: 2023	NTU	<1.0	5.0
3	pH at 25 °C	APHA 24 th Edition 4500 – H+ B: 2023	-	7.19	6.50-8.50
4	Electrical Conductivity	APHA 24 th Edition 2510 B: 2023	(µS/cm)	964.5	-
B.	Chemical parameters				
5	Total Dissolved Solids	APHA 24th Edition 2540-C: 2023	mg/L	580	2000
6	Total hardness (as CaCO3)	APHA 24th Edition 2340 C: 2023	mg/L	376	600
7	Calcium (as Ca)	IS 3025 (Part 40): 1991	mg/L	106	200
8	Magnesium (as Mg)	IS 3025 (Part 46): 1994	mg/L	27.2	100
9	Calcium Hardness (as CaCO3)	APHA 24th Edition 3500 Ca B: 2023	mg/L	264	-
10	Magnesium Hardness (as CaCO3)	APHA 24th Edition 3500 Mg B: 2023	mg/L	112	-
11	Total alkalinity (as CaCO3)	APHA 24th Edition 2320 B: 2023	mg/L	301	600
12	Chloride (as Cl)	APHA 24th Edition 4500 Cl- B: 2023	mg/L	138	1000



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TEST REPORT

Report No.	SARL/2024/3942
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Report Date.	01.06.2024
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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 (SO ₄ ²⁻)	APHA 24th Edition 4500 SO ₄ ²⁻ E: 2023	mg/L	98.9	400
15	Iron (as Fe)	APHA 24th Edition 3500 Fe B: 2023	mg/L	0.06	0.3
16	Nitrate (as NO ₃)	IS 3025 (Part 34): 1988	mg/L	3.45	45
17	Fluoride (as F)	APHA 24th Edition 4500 F- D: 2023	mg/L	0.28	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


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END OF THE REPORT


Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/2024/3943	Report Date.	01.06.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	WATER
Sample Mark	W2-Perumukkal

Customer Reference	By Mail	Sampling Procedure	IS 17614: Part 14: 2021
Sample Reference No	SARL/W/CHE-3943	Sample Received on	27.05.2024
Sample Collected by	LABORATORY	Test Commenced on	27.05.2024
Sample Collected on	26.05.2024	Test Completed on	01.06.2024
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 24 th Edition 2130 B: 2023	NTU	<1.0	5.0
3	pH at 25 °C	APHA 24 th Edition 4500 – H+ B: 2023	-	7.35	6.50-8.50
4	Electrical Conductivity	APHA 24 th Edition 2510 B: 2023	(µS/cm)	1126	-
B.	Chemical parameters				
5	Total Dissolved Solids	APHA 24th Edition 2540-C: 2023	mg/L	676	2000
6	Total hardness (as CaCO3)	APHA 24th Edition 2340 C: 2023	mg/L	264	600
7	Calcium (as Ca)	IS 3025 (Part 40): 1991	mg/L	83.2	200
8	Magnesium (as Mg)	IS 3025 (Part 46): 1994	mg/L	13.6	100
9	Calcium Hardness (as CaCO3)	APHA 24th Edition 3500 Ca B: 2023	mg/L	208	-
10	Magnesium Hardness (as CaCO3)	APHA 24th Edition 3500 Mg B: 2023	mg/L	56.0	-
11	Total alkalinity (as CaCO3)	APHA 24th Edition 2320 B: 2023	mg/L	314	600
12	Chloride (as Cl)	APHA 24th Edition 4500 Cl- B: 2023	mg/L	192	1000



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TEST REPORT

Report No.	SARL/2024/3943
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Report Date.	01.06.2024
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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 (SO ₄ ²⁻)	APHA 24th Edition 4500 SO ₄ ²⁻ E: 2023	mg/L	187	400
15	Iron (as Fe)	APHA 24th Edition 3500 Fe B: 2023	mg/L	0.05	0.3
16	Nitrate (as NO ₃)	IS 3025 (Part 34): 1988	mg/L	3.97	45
17	Fluoride (as F)	APHA 24th Edition 4500 F- D: 2023	mg/L	0.34	1.5
18	Manganese (as Mn)	APHA 24th Edition 3500 Mn B: 2023	mg/L	BDL (D.L - 0.05)	0.3

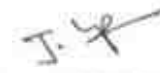
Remarks: *Drinking Water Specifications as per IS – 10500:2012. BDL – Below Detectable limit (DL - Detectable limit).

For Shrient Analytical and Research Labs Pvt. Ltd


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Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/2024/3944	Report Date.	01.06.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha, Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	WATER
Sample Mark	W3-Madavantangal

Customer Reference	By Mail	Sampling Procedure	IS 17614: Part 14: 2021
Sample Reference No	SARL/W/CHE-3944	Sample Received on	27.05.2024
Sample Collected by	LABORATORY	Test Commenced on	27.05.2024
Sample Collected on	26.05.2024	Test Completed on	01.06.2024
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 24 th Edition 2130 B: 2023	NTU	<1.0	5.0
3	pH at 25 °C	APHA 24 th Edition 4500 – H+ B: 2023	-	7.08	6.50-8.50
4	Electrical Conductivity	APHA 24 th Edition 2510 B: 2023	(µS/cm)	1539	-
B.	Chemical parameters				
5	Total Dissolved Solids	APHA 24th Edition 2540-C: 2023	mg/L	930	2000
6	Total hardness (as CaCO3)	APHA 24th Edition 2340 C: 2023	mg/L	512	600
7	Calcium (as Ca)	IS 3025 (Part 40): 1991	mg/L	108	200
8	Magnesium (as Mg)	IS 3025 (Part 46): 1994	mg/L	58.6	100
9	Calcium Hardness (as CaCO3)	APHA 24th Edition 3500 Ca B: 2023	mg/L	271	-
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	418	600
12	Chloride (as Cl)	APHA 24th Edition 4500 Cl- B: 2023	mg/L	252	1000



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TEST REPORT

Report No.	SARL/2024/3944
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Report Date.	01.06.2024
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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 (SO ₄ ²⁻)	APHA 24th Edition 4500 SO ₄ ²⁻ E: 2023	mg/L	226	400
15	Iron (as Fe)	APHA 24th Edition 3500 Fe B: 2023	mg/L	0.08	0.3
16	Nitrate (as NO ₃)	IS 3025 (Part 34): 1988	mg/L	5.54	45
17	Fluoride (as F)	APHA 24th Edition 4500 F- D: 2023	mg/L	0.39	1.5
18	Manganese (as Mn)	APHA 24th Edition 3500 Mn B: 2023	mg/L	BDL (D.L - 0.05)	0.3

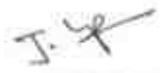
Remarks: *Drinking Water Specifications as per IS – 10500:2012. BDL – Below Detectable limit (DL - Detectable limit).

For Shrient Analytical and Research Labs Pvt. Ltd


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J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/2024/3945	Report Date.	01.06.2024
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Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	WATER
Sample Mark	W4-Chokkantangal

Customer Reference	By Mail	Sampling Procedure	IS 17614: Part 14: 2021
Sample Reference No	SARL/W/CHE-3945	Sample Received on	27.05.2024
Sample Collected by	LABORATORY	Test Commenced on	27.05.2024
Sample Collected on	26.05.2024	Test Completed on	01.06.2024
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 24 th Edition 2130 B: 2023	NTU	<1.0	5.0
3	pH at 25 °C	APHA 24 th Edition 4500 – H+ B: 2023	-	6.79	6.50-8.50
4	Electrical Conductivity	APHA 24 th Edition 2510 B: 2023	(µS/cm)	735.8	-
B.	Chemical parameters				
5	Total Dissolved Solids	APHA 24th Edition 2540-C: 2023	mg/L	444	2000
6	Total hardness (as CaCO3)	APHA 24th Edition 2340 C: 2023	mg/L	238	600
7	Calcium (as Ca)	IS 3025 (Part 40): 1991	mg/L	65.6	200
8	Magnesium (as Mg)	IS 3025 (Part 46): 1994	mg/L	18.0	100
9	Calcium Hardness (as CaCO3)	APHA 24th Edition 3500 Ca B: 2023	mg/L	164	-
10	Magnesium Hardness (as CaCO3)	APHA 24th Edition 3500 Mg B: 2023	mg/L	74.0	-
11	Total alkalinity (as CaCO3)	APHA 24th Edition 2320 B: 2023	mg/L	266	600
12	Chloride (as Cl)	APHA 24th Edition 4500 Cl- B: 2023	mg/L	98.5	1000



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Phone Number +91 82208 36377 Email: - info@shrientanalytical.com

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TEST REPORT

Report No.	SARL/2024/3945
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Report Date.	01.06.2024
--------------	------------

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	84.5	400
15	Iron (as Fe)	APHA 24th Edition 3500 Fe B: 2023	mg/L	0.03	0.3
16	Nitrate (as NO3)	IS 3025 (Part 34): 1988	mg/L	3.62	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



END OF THE REPORT


Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

Please Contact:

For any Technical Issues & Complaints: vimalnath@shrientanalytical.com

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TEST REPORT

Report No.	SARL/2024/3946	Report Date.	01.06.2024
------------	----------------	--------------	------------

Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	WATER
Sample Mark	W5-Senalur

Customer Reference	By Mail	Sampling Procedure	IS 17614: Part 14: 2021
Sample Reference No	SARL/W/CHE-3946	Sample Received on	27.05.2024
Sample Collected by	LABORATORY	Test Commenced on	27.05.2024
Sample Collected on	26.05.2024	Test Completed on	01.06.2024
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 24 th Edition 2130 B: 2023	NTU	<1.0	5.0
3	pH at 25 °C	APHA 24 th Edition 4500 – H+ B: 2023	-	7.12	6.50-8.50
4	Electrical Conductivity	APHA 24 th Edition 2510 B: 2023	(µS/cm)	1058	-
B.	Chemical parameters				
5	Total Dissolved Solids	APHA 24th Edition 2540-C: 2023	mg/L	640	2000
6	Total hardness (as CaCO3)	APHA 24th Edition 2340 C: 2023	mg/L	376	600
7	Calcium (as Ca)	IS 3025 (Part 40): 1991	mg/L	63.4	200
8	Magnesium (as Mg)	IS 3025 (Part 46): 1994	mg/L	52.3	100
9	Calcium Hardness (as CaCO3)	APHA 24th Edition 3500 Ca B: 2023	mg/L	158	-
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	412	600
12	Chloride (as Cl)	APHA 24th Edition 4500 Cl- B: 2023	mg/L	180.0	1000



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TEST REPORT

Report No.	SARL/2024/3946
------------	----------------

Report Date.	01.06.2024
--------------	------------

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 (SO ₄ ²⁻)	APHA 24th Edition 4500 SO ₄ ²⁻ E: 2023	mg/L	89.2	400
15	Iron (as Fe)	APHA 24th Edition 3500 Fe B: 2023	mg/L	0.02	0.3
16	Nitrate (as NO ₃)	IS 3025 (Part 34): 1988	mg/L	1.69	45
17	Fluoride (as F)	APHA 24th Edition 4500 F- D: 2023	mg/L	0.44	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

8 Paul
Verified



END OF THE REPORT

J. 4
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

Please Contact:

For any Technical Issues & Complaints: vimalnath@shrientanalytical.com

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LAB SERVICES FOR:- Food, Water, Milk, Environment, Academic & Industrial Segment.

CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R

Page 2 of 603



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TEST REPORT

Report No.	SARL/2024/3947	Report Date.	01.06.2024
------------	----------------	--------------	------------

Customer Name & Address	Rough Stone and Gravel quarry of TVL.J.M. Minerals, extent of 3.00.0 Ha,Chokkanthangal Village, Marakkanam Taluk, Villupuram District, Tamil Nadu
Sample Description	WATER
Sample Mark	W6-Kunnappakkam

Customer Reference	By Mail	Sampling Procedure	IS 17614: Part 14: 2021
Sample Reference No	SARL/W/CHE-3947	Sample Received on	27.05.2024
Sample Collected by	LABORATORY	Test Commenced on	27.05.2024
Sample Collected on	26.05.2024	Test Completed on	01.06.2024
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 24 th Edition 2130 B: 2023	NTU	<1.0	5.0
3	pH at 25 °C	APHA 24 th Edition 4500 – H+ B: 2023	-	7.48	6.50-8.50
4	Electrical Conductivity	APHA 24 th Edition 2510 B: 2023	(µS/cm)	1103	-
B.	Chemical parameters				
5	Total Dissolved Solids	APHA 24th Edition 2540-C: 2023	mg/L	670	2000
6	Total hardness (as CaCO3)	APHA 24th Edition 2340 C: 2023	mg/L	253	600
7	Calcium (as Ca)	IS 3025 (Part 40): 1991	mg/L	76.0	200
8	Magnesium (as Mg)	IS 3025 (Part 46): 1994	mg/L	15.2	100
9	Calcium Hardness (as CaCO3)	APHA 24th Edition 3500 Ca B: 2023	mg/L	190	-
10	Magnesium Hardness (as CaCO3)	APHA 24th Edition 3500 Mg B: 2023	mg/L	63.4	-
11	Total alkalinity (as CaCO3)	APHA 24th Edition 2320 B: 2023	mg/L	307	600
12	Chloride (as Cl)	APHA 24th Edition 4500 Cl- B: 2023	mg/L	196	1000



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TEST REPORT

Report No.	SARL/2024/3947
------------	----------------

Report Date.	01.06.2024
--------------	------------

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 (SO ₄ ²⁻)	APHA 24th Edition 4500 SO ₄ ²⁻ E: 2023	mg/L	179.0	400
15	Iron (as Fe)	APHA 24th Edition 3500 Fe B: 2023	mg/L	0.05	0.3
16	Nitrate (as NO ₃)	IS 3025 (Part 34): 1988	mg/L	3.64	45
17	Fluoride (as F)	APHA 24th Edition 4500 F- D: 2023	mg/L	0.41	1.5
18	Manganese (as Mn)	APHA 24th Edition 3500 Mn B: 2023	mg/L	BDL (D.L - 0.05)	0.3

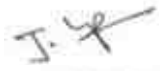
Remarks: *Drinking Water Specifications as per IS – 10500:2012. BDL – Below Detectable limit (DL - Detectable limit).

For Shrient Analytical and Research Labs Pvt. Ltd


Verified



END OF THE REPORT


Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

Please Contact:

For any Technical Issues & Complaints: vimalnath@shrientanalytical.com

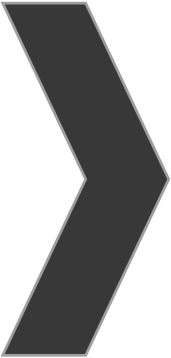
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LAB SERVICES FOR:- Food, Water, Milk, Environment, Academic & Industrial Segment.

CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R

Page 2 of 605



ANNEXURE-9



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.

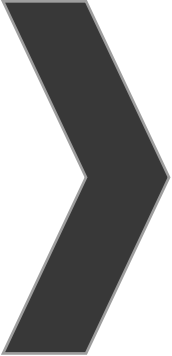
(To see the scope of accreditation of this laboratory, you may also visit NABL website www.nabl-india.org)

Name of Legal Entity: SHRIENT ANALYTICAL AND RESEARCH LABS PRIVATE LIMITED

Signed for and on behalf of NABL



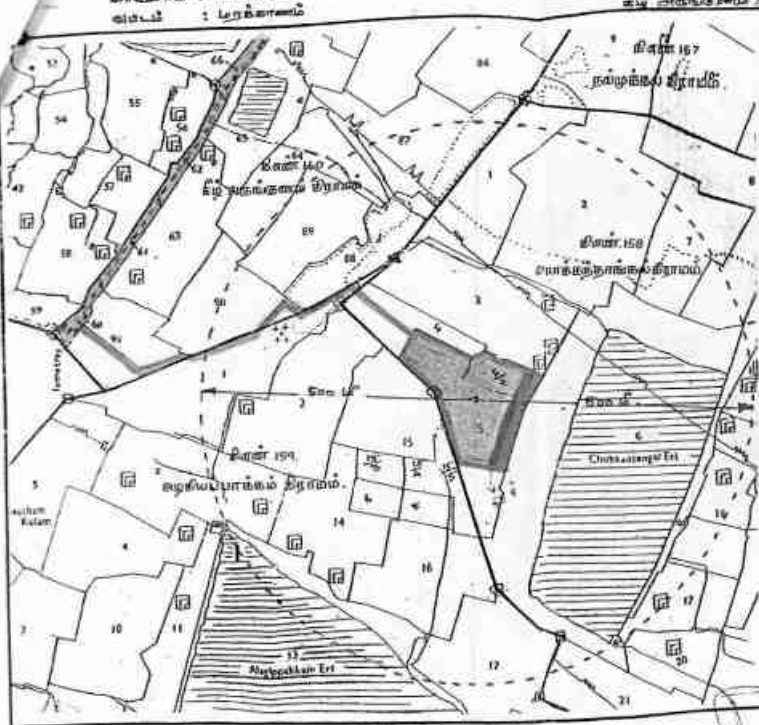
N. Venkateswaran
Chief Executive Officer



ANNEXURE-10

மாண்புமிகு : கலெக்டரின்
அலுவலகம் : புதுச்சேரி

கடல் மட்டம் (சமீபத்தில்)
அடிமீட்டர்கள்
கீழ் குறிப்பிடப்பட்டுள்ளது



புதுச்சேரி கிளம் - புதுச்சேரி கிளம்

புதுச்சேரி கிளம் - புதுச்சேரி கிளம்

புதுச்சேரி கிளம் - புதுச்சேரி கிளம்

புதுச்சேரி கிளம்	புதுச்சேரி கிளம்	புதுச்சேரி கிளம்
1. 4/2	புதுச்சேரி கிளம்	0.64.0
2. 5/1	புதுச்சேரி கிளம்	0.76.0
3. 5/2	புதுச்சேரி கிளம்	1.40.0
மொத்தம் = 3.00.0		

புதுச்சேரி கிளம் - புதுச்சேரி கிளம்

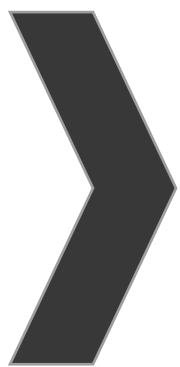
புதுச்சேரி கிளம்	புதுச்சேரி கிளம்	புதுச்சேரி கிளம்
1. 4/2	புதுச்சேரி கிளம்	0.64.0
2. 5/1	புதுச்சேரி கிளம்	0.76.0
3. 5/2	புதுச்சேரி கிளம்	1.40.0

புதுச்சேரி கிளம் - புதுச்சேரி கிளம்

புதுச்சேரி கிளம் - புதுச்சேரி கிளம்

புதுச்சேரி கிளம் - புதுச்சேரி கிளம்

609



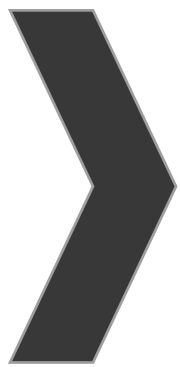
ANNEXURE-11

[illegible][illegible]

Page 10

A diagram showing a circle tangent to a horizontal line segment. The circle is positioned below the line, touching it at a single point.





ANNEXURE-12



தமிழ்நாடு தமிழ்நாடு TAMILNADU ரூ. 100). 26-6-2024

DR 335276

TVL.J M MINERALS
Ariyalur

AFFIDAVIT TO SEIAA - TAMIL NADU

தி. ஜே. எம். மினரல்ஸ், அரியலூர்
பெரியம் எண்: 6205-14/31
கச்சேரி வீதி, ஒமலூர்
செவ்வம் மாவட்டம்

I, Tvl.J M Minerals, No. P-II/M29, TNHB, J.J.Nagar, Kurumbanchavadi, Ariyalur District-621713, I have applying for Environmental Clearance to SEIAA - Tamil Nadu for my proposed Rough Stone Quarry lease over an extent of 3.00.0 Ha located at the S.F.Nos. 5/1, 5/2 and 4/2 of Chokkanthangal Village, Marakkanam Taluk, Viluppuram District, Tamil Nadu State, do hereby solemnly declare and sincerely affirm that;

1. There are no protected areas notified under the Wildlife (Protection) Act, 1972 (NBWL) is located within a 10 km radius from the proposed quarry site.
2. Sevrur R F - 1.7km (NW),Kumalumpattu R F - 6.0km (SW)side of the proposed quarry site.
3. There are no critically polluted areas as notified by the central pollution control board constituted under Water (Prevention and Control of Pollution) Act 1974.



[Handwritten Signature]

4. My proposal for Corporate Environment Responsibility (CER) activities is given as follows;

PROPOSED CER ACTIVITIES	PROJECT COST (INR)	CER COST 2.0% OF PROJECT COST (INR)
To implement various social development activities for the nearby Government school	1,09,20,000/-	2,18,400/-
Revised CER budget allotted	5,00,000/-	

I assure you that, I will complete the above proposed Corporate Environment Responsibility (CER) activities before the commencement of the quarrying operations.

5. Details of quarries located within a 500m radius from the applied mine lease area:

Existing quarries.

Sl. No	Name of the lessee/permit holder	Name of the Minerals	Taluk & Village	S.F.Nos	Extent (in hecets)	Lease period	Remarks
1.	Thiru.T.Aravindhan, S/o.Dinakaran salai, PMD Nagar,Kovilampakkam, Chennai-600129.	Rough stone and gravel	Chokkanthanal Village, Marakkanam Taluk	2/1A(P) 8/1(P) 9/1(P) 9/3(P) 9/4 9/6(6)	0.79.0 0.02.0 0.04.0 1.15.5 0.32.5 <u>0.10.0</u> 2.43.0	18.08.2023 To 17.08.2023	
2.	Thiru.P.Yuvaraj, S/o.Palanisamy, No.7/12 Doming Kuppam, Santhome, Chennai.	Rough stone and gravel	Chokkanthanal Village, Marakkanam Taluk	8/4(P) 8/7 8/8 8/9	0.37.5 0.10.5 0.03.5 <u>0.25.0</u> <u>1.15.1</u> <u>5</u>	23.09.2022 To 22.09.2032	



[Handwritten Signature]

II. Proposed quarries.

Sl. No	Name of the lessee/permit holder	Name of the Minerals	Taluk & Village	S.F.Nos	Extent (in hecets)	Remarks
1.	Thiru.Rasu, S/o.Ramakrishan a gounder, Perumukkal, village, Marakkanam Taluk	Rough stone and gravel	Azhagiya pakkam Village, Marakkanam Taluk	2/2(P) 14/1(P) 15/2	0.32.5 0.18.0 <u>0.76.5</u> 1.27.0	
2.	Thiru.M.Kumaravel, S/o.Mani Gounder, Keelarungunam Village, Marakkanam Taluk	Rough stone and gravel	Chokkanthangal Village, Marakkanam Taluk	1/2(P) 2/1B(P) 2/1C(P)	0.46.0 0.40.5 <u>1.20.0</u> 2.06.0	
3.	Tvl.J M Minerals, No. P-II/M29, TNHB, J.J.Nagar, Kurumbanchavadi, Ariyalur District	Rough stone and gravel	Chokkanthangal Village, Marakkanam Taluk	4/2 5/1 5/2	0.64.0 0.96.0 <u>1.40.0</u> 3.00.0	

III. Abandoned quarries.

Sl. No	Name of the lessee/permit holder	Name of the Minerals	Taluk & Village	S.F. Nos	Extent (in hecets)	Lease period
1.	Thiru.S.Balaji, S/o.Soundirarajan, Panangoor Village, Sundakudi Post, Ariyalur District.	Rough stone and gravel	Marakkanam Taluk Azhagiya pakkam Village,	14/6 15/3 15/4 15/5 16/5	0.50. 0 0.43. 0 0.41. 0 0.61. 0 <u>0.54.</u> 0 2.49.0	22.08.2014 to 21.08.2019



[Handwritten signature]

2.	Thiru.A.L.Varad han, S/o.Loganathan, School street, Keelarungunda m, Marakkanam Taluk, Viluppuram District.	Rough stone and gravel	Marakka nam Taluk Keelaru gunam Village	81/1 (P)	0.60. 0	02.07.201 2 to 01.07.201 7
----	--	---------------------------	--	-------------	--------------------------	-------------------------------------

The total lease within the 500m radius (Proposed + Existing) (3 nos + 2 nos) works out to 9.91.15 Ha including this lease area. As such, in the cluster situation, ToR is applicable under the EIA notification of 2006 and its time-to-time amendment.

6. There will be no hindrance/disturbance due to the proposed quarrying activities to the people living nearby my proposed quarry site.
7. There are no approved habitations within a 300m radius from the periphery of my proposed quarry lease.
8. I assure you that the greenbelt will be developed and maintained before commencing the quarrying operations as proposed in the EC application.
9. I assure you that the required life insurance policy for the employees engaged in the quarrying operations will be taken without fail.
10. The existing main road connecting the quarry road will be maintained in good condition and it will be utilized for the mineral transportation.
11. I assure you that I will not engage any child for labor in the quarrying operations and I am aware that engaging child labor is punishable under the law.
12. Personnel Protective Equipment (PPE) will be provided to all the employees engaged in the quarrying operations.
13. No permanent structures, such as temples, etc., are located within a 300 meter radius of the periphery of our quarry.
14. I will erect the wire fence with barbed wires all around the periphery of the quarry lease before the commencement of mining activities.
15. The mining operations will be carried out in a systematic and scientific manner



[Handwritten signature]

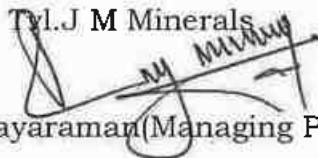
by employing a qualified statutory person as per the requirement of the Mines Act, Mines Rules, and other Guidelines issued by Govt.

16. I will inform DGMS before the commencement of mining activities.

17. To the best of our knowledge, I ensure to do the social and environmental commitments as mentioned in the mining plan.

Notary Sign & Seal

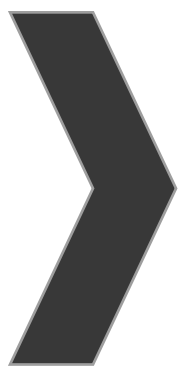
Lessee Sign & Sea

Ty. J M Minerals

P.S. Jayaraman (Managing Partner)




26.6.24
RAMANATHAN, B.Sc., MA., B.L.
ADVOCATE & NOTARY
Enroll No: 588/97
O. Office Opposite, Sukumaran C
Omalur, Salem (Dt)-636 455.
Cell: 9486762208





ANNEXURE-13



கிழ்ச்சி அருங்குணம்

சிறியது & மாதிரி - 621713.

S. S. S.
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