

**DRAFT EIA & EMP FOR
PROPOSED ROUGH STONE QUARRY
CATEGORY – B1 (CLUSTER)**

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

ToR Lr.No.SEIAA-TN/F.No.8879/SEAC/ToR-1150/2021, DATED: 23.05.2022

PROPOSED QUARRY LEASE DETAILS	
SURVEY NO	135 (Part-6)
VILLAGE	IYUNKUNAM
TALUK	KILPENNATHUR
DISTRICT	THIRUVANNAMALAI
EXTENT	2.50.0 Ha
CLUSTER EXTENT	9.50.0 Ha
PROPOSED PRODUCTION QUANTITY FOR FIVE YEARS	ROUGH STONE : 1,85,825 m³
LAND	GOVERNMENT PORAMBOKE LAND

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

Category of the Project: B1 Cluster Mining, Total Cluster Area – 9.50.0 Ha

Baseline Monitoring Period – March 2024 to May 2024

APPLICANT

**THIRU.A.KRISHNAMOORTHY,
S/O.ARUMUGAM, RESIDING AT NO.116/1,
MANIKKARATHERU, THANDRAMPATTU TALUK,
TIRUVANNAMALAI DISTRICT**

ORGANIZATION

**M/s. GLOBAL MINING SOLUTIONS
(NABET ACCREDITED & ISO 9001 CERTIFIED CONSULTANT)
PLOT NO.6, SF NO. 13/2, A2, VS CITY, RC CHETTYPATTY,
KOTTAMETTUPATTY, OMALUR, SALEM, TAMIL NADU – 636 455
NABET ACCREDITATION NO – NABET/EIA/2326/IA 0110
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february-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						
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ACKNOWLEDGEMENT

M/s. Global Mining Solutions, Salem is very much thankful, Thiru.A.Krishnamoorthy Lessee for the confidence and trust placed on the organization for carrying out Environmental Impact Assessment (EIA) study for the proposed Rough Stone quarry over a lease extent of 2.50.0 Ha in Iyunkunam Village, Kilpennathur Taluk, Tiruvannamalai 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 Iyunkunam 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



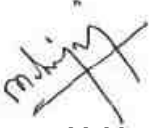
(M. Prabu)

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 quarry over a lease extent of 2.50.0 Ha & Cluster extent of 9.50.0 Ha located at Iyunkunam Village, Kilpennathur Taluk, Tiruvannamalai District, Tamil Nadu State.

For: M/s. Global Mining Solutions



Name: M.Manikandan

EIA Coordinator – Mining

UNDERTAKING

In Line with OM no. J-11013/41/2006-IA.II (1) dated 4th Aug 2009 and its Amendments, we hereby confirm that all Terms of Reference issued by Ministry of Environment, Forest and Climate Change vide ToR Lr.No.SEIAA-TN/F.No.8879/SEAC/ToR-1150/2021, DATED: 23.05.2022, have been incorporated in the draft EIA/EMP report of the proposed Stone Quarry over a lease extent of 2.50.0 Ha, & Cluster extent of 9.50.0 Ha, located at Iyunkunam Village, Kilpennathur Taluk, Tiruvannamalai District, Tamil Nadu State for the production of 1,85,825 m³ of Rough Stone 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

**QUALITY COUNCIL
OF INDIA**
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**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 Stone Quarry over a lease extent of 2.50.0 Ha. & Cluster extent of 9.50.0 Ha, located at Iyunkunam Village, Kilpennathur Taluk, Tiruvannamalai 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

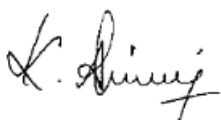





Plot No.6, SF No. 13/2, A2, VS City, RC Chettypatty,

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. <u>Period: March 2024 to May 2024.</u>	

DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE QUARRY OF THIRU.A.KRISHNAMOORTHY OVER AN EXTENT OF 2.50.0 HA LOCATED AT S.F.NO.135 (PART-6) OF IYUNKUNAM VILLAGE, KILPENNATHUR TALUK, TIRUVANNAMALAI 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>	

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 Sing
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

EIA CONTENT

CHAPTER NO	TITLE	PAGE NO
1	INTRODUCTION	40
1.1	PURPOSE OF THE REPORT	40
1.2	IDENTIFICATION OF PROJECT AND PROJECT PROPONENT	42
1.3	BRIEF DESCRIPTION OF NATURE, SIZE, LOCATION OF THE PROJECT AND ITS IMPORTANCE TO THE COUNTRY, REGION	44
1.4	SCOPE OF THE STUDY -DETAILS OF REGULATORY SCOPING CARRIED OUT (AS PER TERMS OF REFERENCE):	45
2	PROJECT DESCRIPTION	48
2.1	TYPE OF PROJECT	48
2.2	NEED FOR THE PROJECT	49
2.3	LOCATION (MAPS SHOWING GENERAL LOCATION, SPECIFIC LOCATION, PROJECT BOUNDARY & PROJECT SITE LAYOUT):	50
2.4	SIZE OR MAGNITUDE OF OPERATION(INCL.ASSOCIATED ACTIVITIES REQUIRED BY OR FOR THE PROJECT)	56
2.5	PROPOSED SCHEDULE FOR APPROVAL & IMPLEMENTATION	57
2.6	TECHNOLOGY & PROCESS DESCRIPTION	58
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	63
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)	69
2.9	ASSESSMENT OF NEW & TESTED TECHNOLOGY FOR THE RISK OF TECHNOLOGICAL FAILURE	72
3	DESCRIPTION OF THE ENVIRONMENT	73
3.1	STUDY AREA, PERIOD COMPONENTS AND METHODOLOGY	73
3.2	ESTABLISHMENT OF BASELINE FOR VALUED ENVIRONMENTAL COMPONENTS:	76
3.3	BASE MAP OF ALL ENVIRONMENTAL COMPONENTS	78
4	ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES	121
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.	122
4.2	MEASURES FOR MINIMIZING AND /OR OFFSETTING ADVERSE IMPACTS IDENTIFIED	123

4.3	IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF ENVIRONMENTAL COMPONENTS	129
4.4	ASSESSMENT OF SIGNIFICANCE OF IMPACTS (CRITERIA FOR DETERMINING SIGNIFICANCE, ASSIGNING SIGNIFICANCE).	142
4.5	MITIGATION MEASURES	144
5	ANALYSIS OF ALTERNATIVES (TECHNOLOGY & SITES)	148
5.1	DESCRIPTION OF EACH ALTERNATIVE	148
5.2	SUMMARY OF ADVERSE IMPACTS OF EACH ALTERNATIVE	148
5.3	MITIGATION MEASURES PROPOSED FOR EACH ALTERNATIVE	148
5.4	SELECTION OF ALTERNATIVE	148
6	ENVIRONMENTAL MONITORING PROGRAMME	149
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)	149
7	ADDITIONAL STUDIES	154
7.1	PUBLIC CONSULTATION	154
7.2	RISK ASSESSMENT & MANAGEMENT	154
7.3	SOCIAL IMPACT ASSESSMENT (R & R) ACTION PLAN	156
8	PROJECT BENEFITS	167
8.1	IMPROVEMENTS IN THE PHYSICAL INFRASTRUCTURE	167
8.2	IMPROVEMENTS IN THE SOCIAL INFRASTRUCTURE	168
8.3	EMPLOYMENT POTENTIAL: SKILLED, SEMI-SKILLED & UN-SKILLED	168
8.4	OTHER TANGIBLE BENIFITS	168
9	ENVIRONMENTAL COST BENEFIT ANALYSIS	169
10	ENVIRONMENTAL MANAGEMENT PLAN	170
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	170
11	SUMMARY AND CONCLUSIONS	177
11.1	OVER ALL JUSTIFICATION FOR IMPLEMENTATION OF THE PROJECT	177
11.2	EXPLANATION OF HOW ADVERSE EFFECTS HAVE BEEN MITIGATED	181
12	DISCLOSURE OF CONSULTANTS ENGAGED	195

FIGURE LIST

FIGURE NO	TITLE	PAGE NO
1.1	SATELLITE IMAGE SHOWING PROPOSED ML AREA	42
2.1	LOCATION MAP	50
2.2	GOOGLE IMAGE SHOWING PROJECT SITE	51
2.3	SURFACE PLAN OF THE PROJECT AREA	52
2.4	GEOLOGY MAP OF PROJECT AREA	53
2.5	TOPO MAP OF THE PROJECT 10 KM RADIUS	55
2.6	SITE PHOTOGRAPHS	56
2.7	WATER BALANCE DIAGRAM	59
2.8	REGIONAL GEOLOGY MAP OF THE 10 KM RADIUS FROM PROJECT	62
2.9	BLASTING PATTERN	64
2.10	FLOW CHART OF THE QUARRY OPERATION	65
2.11	CONCEPTUAL PLAN	68
3.1	ENVIRONMENTAL SETTING OF THE STUDY AREA	75
3.2	GOOGLE MAP SHOWING 50M INTERVAL MAP	78
3.2a	SATELLITE MAP	79
3.3	SEISMIC MAP OF INDIA	81
3.4	WIND ROSE PLOT DURING MARCH TO MAY 2024	82
3.5	BASE MAP OF AMBIENT AIR MONITORING LOCATIONS	84
3.6	AMBIENT AIR DATA FROM A1 - MINE LEASE AREA	86
3.7	AMBIENT AIR DATA FROM A2 – SOMASPADI VILLAGE	86
3.8	AMBIENT AIR DATA FROM A3 - KARAMPOONDI VILLAGE	87
3.9	AMBIENT AIR DATA FROM A4 – IYANGUNNAM VILLAGE	87
3.10	AMBIENT AIR DATA FROM A5 – KAZHIKULAM VILLAGE	88
3.11	AMBIENT AIR DATA FROM A6 - NAMIYANDAL SO VILLAGE	88
3.12	BASE MAP OF GROUND WATER SAMPLING LOCATIONS	91
3.12a	BASE MAP OF SURFACE WATER SAMPLING LOCATIONS	91
3.13	VALUES OF FEW COMMON PARAMETERS OF THE WATER ANALYSIS	94
3.14	BASE MAP OF NOISE MONITORING LOCATIONS	95
3.15	DAY EQUIVALENT VALUES IN 6 LOCATIONS	96
3.16	BASE MAP OF SOIL SAMPLING LOCATIONS	96
3.17	REMOTE SENSING SATELLITE IMAGE	100
3.18	LAND USE/LAND COVER MAP OF THE STUDY AREA	104
3.19	VILLAGE MAP OF THE STUDY AREA	108
3.20	GENDER-WISE POPULATION DISTRIBUTION	111
3.21	GENDER WISE LITERACY DISTRIBUTION	111

3.22	OCCUPATIONAL STRUCTURE WITHIN BUFFER ZONE	112
3.23	10 KM RADIUS OF THE DRAINAGE MAP	114
3.24	10 KM RADIUS OF THE GEOLOGY MAP	116
3.25	10 KM RADIUS OF THE STUDY AREA GEOMORPHOLOGY MAP	117
3.26	10 KM RADIUS OF THE STUDY AREA SOIL TYPE MAP	118
3.27	NON-MONSOON WATER LEVEL MAP OF THE 10 KM RADIUS OF THE ML	119
3.28	MONSOON WATER LEVEL MAP OF THE 10 KM RADIUS OF THE ML	119
4.1	WATER BALANCE DIAGRAM	127
4.2	ISOPLETH OF GLC PREDICTION FOR PM2.5	136
4.3	ISOPLETH OF GLC PREDICTION FOR PM10	137
4.4	ISOPLETH OF GLC PREDICTION –CUMULATIVE FOR PM2.5	138
4.5	ISOPLETH OF GLC PREDICTION –CUMULATIVE FOR PM10	139
7.1	ISOPLETH OF GLC PREDICTION FOR PM2.5	159
7.2	ISOPLETH OF GLC PREDICTION FOR PM10	160
7.3	ISOPLETH OF GLC PREDICTION –CUMULATIVE FOR PM2.5	161
7.4	ISOPLETH OF GLC PREDICTION –CUMULATIVE FOR PM10	162
10.1	ORGANIZATION CHART	174

TABLE LIST

TABLE NO	TITLE	PAGE NO
1.1	CLUSTER MINES DETAILS	40
1.2	PROPOSED PROJECT DETAILS	44
2.1	500M RADIUS CLUSTER MINES DETAILS	48
2.1a	SALIENT FEATURES OF THE PROJECT	49
2.2	CO-ORDINATES OF THE PROJECT SITE	51
2.3	CURRENT LAND USE PATTERN	54
2.4	LAND USE AT MINE CLOSURE STAGE	54
2.5	STATUS OF STATUTORY CLEARANCES	57
2.6	PROPOSED SCHEDULE FOR APPROVAL	57
2.7	WATER REQUIREMENT	59
2.8	MACHINERIES INVOLVED IN THE PROJECT	60
2.9	MINING DETAILS	65
2.10	SUMMARY OF PRODUCTION FOR 5 YEARS	67
2.11	ULTIMATE PIT DIMENSION	68
2.12	LAND USE AT MINE CLOSURE STAGE	68
3.1	ENVIRONMENTAL SETTING OF THE STUDY AREA	73
3.2	RAINFALL DATA	80
3.3	AMBIENT AIR MONITORING RESULTS FOR VARIOUS POLLUTANTS	84
3.4	RESULTS OF AIR SAMPLING ANALYSIS IN 6 LOCATIONS	85
3.5	WATER SAMPLING LOCATIONS	90
3.6	SURFACE WATER ANALYSIS RESULTS	92
3.7	GROUND WATER ANALYSIS RESULTS	93
3.8	NOISE MONITORING RESULTS	95
3.9	RESULTS OF SOIL SAMPLE ANALYSIS	97
3.10	FLORA IN CORE ZONE	98
3.11	FLORA IN CORE ZONE	98
3.12	FAUNA IN BUFFER ZONE	99
3.13	MAJOR LAND USE UNITS	102
3.14	MAJOR LAND USE UNITS OF THE STUDY AREA IN PERCENTAGE	106

3.15	VILLAGE DETAILS IN STUDY AREA	108
3.16	POPULATION PROFILE OF THE STUDY AREA	110
3.17	EDUCATIONAL INFRASTRUCTURE	112
3.18	MEDICAL INFRASTRUCTURE	113
3.19	OTHER INFRASTRUCTURE	113
4.1	GROUND WATER LEVEL STATUS	128
4.2	IMPACTS AND MITIGATION MEASURES FOR FAUNA	129
4.3	CONCENTRATIONS OF PM2.5 & PM10 AFTER PROJECT IMPLEMENTATION	140
4.4	NOISE LEVELS IN MONITORING LOCATIONS	143
4.5	IMPACTS ON HUMANS DUE TO VARIOUS MINING ACTIVITIES	146
6.1	ENVIRONMENTAL MONITORING SCHEDULE	150
6.2	IMPORTANT RECORDS TO BE MAINTAINED BY PP	152
6.3	ENVIRONMENTAL MANAGEMENT PLAN BUDGET	153
7.1	HAZARDS AND PRECAUTIONARY MEASURES	155
7.2	DETAILS OF QUARRIES WITHIN 500M RADIUS (AS PER 500M CERTIFICATE)	156
7.3	CONCENTRATIONS OF PM 2.5 AFTER PROJECT IMPLEMENTATION	163
7.3a	CONCENTRATIONS OF PM 10 AFTER PROJECT IMPLEMENTATION	163
7.3b	CLUSTER CONCENTRATIONS OF PM2.5 AFTER PROJECT IMPLEMENTATION	163
7.3c	CLUSTER CONCENTRATIONS OF PM10 AFTER PROJECT IMPLEMENTATION	164
7.4	IMPACT ON TRAFFIC	165
10.1	ENVIRONMENTAL MANAGEMENT PLAN	171
10.2	ENVIRONMENTAL MANAGEMENT PLAN BUDGET	176

LIST OF ANNEXURES

S. NO	CONTENTS	ANNEXURE NO
1	TERMS OF REFERENCE (TOR)	1
2	PRECISE AREA COMMUNICATION LETTER	2
3	APPROVED MINING PLAN WITH PLATES	3
4	500-METER RADIUS LETTER	4
5	VAO CERTIFICATE	5
6	LAND DOCUMENT	6
7	DISTRICT SURVEY REPORT	7
8	MONITORING REPORT	8
9	LAB NABL CERTIFICATE	9
10	STRUCTURES LOCATED WITHIN 500M RADIUS OF THE PROJECT	10
11	10KM MAP SHOWING FOREST AND SANCTUARIES	11
12	AFFIDAVIT	12

COMPLIANCE TO

TERMS OF REFERENCE

S.No	ToR Points	Reply	Pg. No
1	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.	127 & 164
2	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, a) What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines? b) Quantity of minerals mined out. c) Highest production achieved in any one year. d) Detail of approved depth of mining. e) Actual depth of the mining achieved earlier. f) Name of the Person(s) already mined in that lease area. g) If EC and CTO already obtained, the copy of the same shall be submitted. h) Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.	This is a Proposed quarry. Not applicable	-
3	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	Project coordinates superimposed in satellite imagery and given as Figure No – 2.1 in Chapter – 2. The geology and geomorphology map are provided in Figure No.3.24, 3.25 Chapter 3.	50 & 118

	other ecological features of the study area (core and buffer zone).	The Soil map is provided under Figure No. 3.26, Chapter-3. The 10km Radius Index plan showing buffer zone is given in Figure No.3.1 & Figure 3.2 in Chapter - 3.	
4	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	Fencing and plantations are under process. Greenbelt / Plantation, fencing & garland drainage works are under progress. Photo evidences will be submitted during final appraisal. In the post mining stage, an area of 0.20.0 Ha will be under greenbelt and plantation.	-
5	The Project Proponent shall provide the details of mineral reserves and mineable reserves, planned production capacity, and 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 3, 12,33,020 m ³ . The mineable reserves of rough stone 3,71,340 m ³	179
6	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	174
7	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	The details will be included in the Hydrogeology report. The hydrogeology report is under preparation. In the final EIA / EMP the same will be incorporated.	114

DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE QUARRY OF THIRU.A.KRISHNAMOORTHY OVER AN EXTENT OF 2.50.0 HA LOCATED AT S.F.NO.135 (PART-6) OF IYUNKUNAM VILLAGE, KILPENNATHUR TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE.

	mining 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.		
8	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).	82
9	A detailed study shall be carried out in order to ascertain the status of existing trees (Nos. name of species, age, diameter, etc) both within the mining lease applied area & 300m buffer zone and its management during mining activity.	Not applicable. There are no trees within 300m buffer zone of the project area.	-
10	A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific, along with the exclusive photographs/images/plans showing the proposed closure activities conceptually.	Detailed mine closure plan is given in Chapter 7.	166
11	The Public hearing advertisement shall be published in one major National daily and one most circulated vernacular daily. All documents given to the public at the time of public should be in Tamil.	Noted	-
12	The recommendation for the issue of "Terms of Reference" is subject to the outcome of the Hon'ble NGT, Principal Bench, New Delhi in OA No.186 of 2016(M.A.No.350/2016) and O.A.No.200/2016 and O.A.No.580 /2016 (M.A.No.1182/2016) and O.A.No.102 /2017 and O.A.No.404 /2016 (M.A.No.758/ 2016, M.A.No.920 /2016, M.A.No.1122 /2016, M.A.No.12 /2017) & M.A.No.843/2017) and O.A.No.405/2016 and O.A.No.520 of 2016 (M.A.No.981)/ 2016, M.A.No.982 /2016 & M.A.No.384 /2017).	Noted	-

13	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 0.20.0 ha. Green belt development plan provided.	123
14	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 work is under progress. The photographs showing green belt will be provided once it is completed.	-
15	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.	166
16	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.	154
17	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	107

DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE QUARRY OF THIRU.A.KRISHNAMOORTHY OVER AN EXTENT OF 2.50.0 HA LOCATED AT S.F.NO.135 (PART-6) OF IYUNKUNAM VILLAGE, KILPENNATHUR TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE.

18	The PP shall use drone video to cover the cluster area showing clearly the extent of operation and the surrounding environment and submit the video as part of EIA report.	Under progress. It will be furnished during final appraisal.	-
19	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.	-
20	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	-
SEAC Recommendation and Normal condition			
1	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.	Agreed	-
2	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.	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.	-
3	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.	-

4	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 6.	151
5	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.	97
6	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.	171
7	The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir.	Not applicable.	-
8	The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components.	Agreed.	
9	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.	98
10	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.	-
11	The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites.	Complied. The details are described in Chapter 3.	115
12	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.	171

13	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.	121
14	The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site.	There is Tippakodu R.F. located at a distance of 8.50km (SW), and no other reserved forest located in the buffer zone. There is no, National Parks, Corridors and Wildlife pathways.	74,180
15	The project proponent shall study and furnish the impact of project on plantations in adjoining Government poramboke lands, Horticulture, Agriculture and livestock.	Complied. The details are given in Chapter 4.	181
16	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.	125
17	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.	171,173
18	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	-

19	The project proponent shall detailed study on impact of mining on Reserve Forests free ranging wildlife.	There is Tippakodu R.F. located at a distance of 8.50km (SW), and no other reserved forest located in the buffer zone. There is no, National Parks, Corridors and Wildlife pathways.	180
20	Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area covering the entire mine lease period as per precise area communication order issued from reputed research institutions on the following,		
a	Soil health & soil biological, physical land chemical features	Complied. The details are given in Chapter 3 of the Draft EIA report.	79
b	Climate change leading to Droughts, Floods etc.	The proposed quarry is a very small scale Opencast Mechanized mining method and the anticipated impacts to the climate change, droughts, floods, etc. will be very marginal.	-
c	Pollution leading to release of Greenhouse gases (GHG), rise in Temperature, & Livelihood of the local people	Considering that the quantum of production is less, only 1 excavator, 3 tippers will be engaged. These equipment's will be properly and regularly maintained. Besides, regular vehicular emission tests will be done for the transport vehicles to ensure minimal impact due to carbon emissions. To further mediate the carbon emissions, a good greenbelt and plantation plan has been planned wherein 1250 number of plants will be planted in and around the lease area.	64
d	Possibilities of water contamination and impact on aquatic ecosystem health	The total water requirement is 2.5 KLD. It will be outsourced from the nearby villages. So, no impact in the project area due to water usage. The wastewater generation in the form of 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	-

		separation during dry season. However, there is no wastewater discharge from this quarry is being anticipated. So, possibilities of water contamination and impact on aquatic ecosystem health is not envisaged.	
e	Agriculture, Forestry & Traditional practices	There are no forest area and traditional practices within the project area. However, there are some agricultural lands around the project site. It may be affected due to the quarry operation as such dust particles sedimentation in the agricultural land. It will be controlled at the source level by proper dust separation as such wet drilling, controlled blasting and water sprinkling on the project roads and project surrounding roads. As per Air Quality Modelling the impact of the air quality limited to 0.5 km radius. So, there is no impact for the Agriculture, Forestry & Traditional practices located within 10km radius.	-
f	Hydrothermal/Geothermal effect due to destruction in the Environment	The proposed quarry operation is Opencast mechanized operation with drilling, blasting, excavation, loading and transportation. So, the effect of Hydrothermal/Geothermal is not envisaged.	-
g	Bio-geochemical processes and its foot prints including environmental stress	This is a simple mining operation, so bio-geochemical processes are not envisaged.	-
h	Sediment geochemistry in the surface streams	There is Thurunjal River is located at a distance of 7.6 km (SW) direction of lease area. Due to mining operation, there may be minimum impact to the said water bodies due to dust sedimentation. It will be controlled by wet drilling, water sprinkling and plantation.	-

21	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 water bodies 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 details will be included in the Hydrogeology report. The hydrogeology report is under preparation. In the final EIA / EMP the same will be incorporated.	114
22	To furnish disaster management plan and disaster mitigation measures in regard to all aspects to avoid/reduce vulnerability to hazards & to cope with disaster/untoward accidents in & around the proposed mine lease area due to the proposed method of mining activity & its related activities covering the entire mine lease period as per precise area communication order issued.	Complied. The details are described in Chapter 7.	166
23	To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining.	Complied. The details are described in Chapter 7.	154
24	Detailed Mine Closure Plan covering the entire mine lease period as per precise area communication order issued.	Complied. Mine Closure Plan has been incorporated in the approved Mining Plan and the same is incorporated in the Chapter 7.	166
25	Detailed Environment Management Plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued.	Complied. The details are described in Chapter 10.	171

A.STANDARD TERMS OF REFERENCE

1	Year-wise production details since 1994 should be given, clearly stating that 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.	Noted	-
2	A copy of the document in support of the fact that the Proponent is the rightful lease of the mine should be given.	Precise Area Communication letter received from the Assistant Director, Tiruvannamalai. (Annexure-2)	-
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.	Complied. All the documents 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, 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).	Complied. Project coordinates superimposed in satellite imagery and given as Figure in Chapter 2. The geology and geomorphology map is provided as Figure in Chapter-3. The Soil map are provided as Figure in Chapter-3. The 10km Radius Index plan showing buffer zone is given as in Chapter-3.	50 & 117,118
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.	Complied. The details are given in Chapter 2.	55

6	Details about the land proposed for mining activities should be given with formation 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.	Not Applicable. The proposed land is government poramboke land	-
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 stockholders at large, may also be detailed in the EIA Report.	The proposed quarry is small scale magnitude operation and controlled by lessee individually by engaging optimum statutory personals. Based on magnitude of the operation the PP has framed Environmental Policy and the same is incorporated in Chapter 10.	171
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 provide.	Risks are identified and the management is given in Chapter 7.	154
9	The study area will comprise of 10km 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 of 10km comprising core zone and buffer zone is used for the study. All details given in Chapter – 7.	180

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.	Satellite imagery has been used to study land use and the details of land use in the core and buffer zone is given in Chapter 3.	104
11	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.	The entire material quarried out will be sold. No waste generation from this quarrying operation.	-
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 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 Committee.	Not Applicable. There is no forest land in the lease area.	-
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. There is no forest land in the 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. There is no forest land in the lease area.	-
15	The vegetation in the RF/PF areas in the study area, with necessary details, should be given.	There is no forest land in the lease area. However, study area's forest details are given in Chapter – 3.	74
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 mitigate measures required, should be worked out with cost implications and submitted.	No wildlife sanctuary or national parks or any areas of ecological importance is found in the 10km area.	-
17	Location of National Parks, Sanctuaries, Biosphere Reserve, Wildlife Corridors, Ramsar Site Tiger/Elephant Reserves/(existing as well as proposed), if any, within 10km 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. Nil within 10 km radius.	-
18	A detailed biological study of the study area (core zone and buffer zone (10km 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	Flora and fauna composition in the core and buffer zone of the project has been studied through primary field surveys. The details are furnished in Chapter 3.	97

	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 SPECB or State Mining Department should be secured and furnished to the effect that the proposed mining activities could be considered.	Not Applicable	-
20	Similarly, for Coastal Projects, a CRZ map duly authenticated by one of the authorized agencies demarcating LTL, HTL, CRZ area, location of the mine lease with respect to CRZ coastal features such as mangroves, if any, should be furnished. (Note: The mining projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).	Not Applicable	-
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 sectorial programme of line departments of the State Government. It may be clearly brought out whether the village(s)	Not applicable. No habitation within 300 meter of the radius.	-

	located in the mine lease area will be shifted or not. The issues relating to shilling of village(s) including their R&R and socio- economic aspects should be discussed in the Report.		
22	One season (non-monsoon) (i.e. March-May (Summer Season); October-December (post monsoon season) ; December-February (winter season) primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site- specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.	Baseline data for meteorology, ambient air quality, Water quality, noise level, soil and flora & fauna are collected during Summer season (March 2024 to May 2024) and detailed in Chapter-3.	73
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.	Modelling is done using AERMOD and the projected values are found to be within the norms. Hence, there is no major impact due to this mining project. Cumulative impact of mining is also studied and the same is found to be within norms. The detail are given in Chapter 3.	131

24	The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated.	The entire water requirement for the project is 2.5 KLD which will be sourced from nearby vendors (for drinking) & water tanker supply. Negligible sewage of 0.2 KLD will be generated, for which a septic tank with soak pit will be set up. The water balance diagram is shown in Chapter 2	58
25	Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.	Not Applicable. The required water will be out sourced from nearby vendors (for drinking) & water tanker supply.	-
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.	Details of water conservation plan is given chapter 10.	170
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.	The surface water condition and ground water condition in the study area is given in Chapter 3.	89
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.	Ground water table of the project surrounding area is reported as 58m and proposed ultimate pit level is 30m Above ground level. So, the proposed mine working will not intersect the ground water table.	125
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.	Not applicable. There is no stream, seasonal or otherwise, passing through the lease 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.	Details of site elevation and depth are given in Chapter 2.	59
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.	In the lease area, safety barrier 10m left as safety zone. Greenbelt/Plantation will be carried out in and around the lease area to enhance the vegetative growth and aesthetic in the area.	-
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.	This is a small quarry and the production is very less. three Nos. of 5T/10T tippers will be used for transport. The trips will be minimum. Hence no major impact on transport is expected.	-
33	Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.	Onsite shelter and facilities will be provided to mine workers	-

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.	The post mining land use/conceptual land use of the study area is given in Chapter 4.	123
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	Occupational health and safety study is given in Chapter-3.	110
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.	This project provides employment to 21 people directly. Local people will be hired for unskilled labour. Through CSR, nearby schools, hospitals will be benefitted. For CSR, INR Rs 5,00,000 is allocated. Based on the demand of the people during public hearing, further funds will be allocated, if necessary.	-
38	Detailed environmental management plan (EMP) to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project.	Environmental Management plan details are given in Chapter 10.	171
39	Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.	During public hearing process, the opinions and demands of the people will be noted. The replies and commitment made by the proponent along with time bound action plan wherever applicable will be provided in Final EIA/EMP report.	-

40	Details of litigation pending against the project, if any, with direction /order paced by any Court of Law against the Project should be given.	There is no litigation pending against the project.	-
41	The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.	The cost details including break-up of various costs are given in Chapter 10.	176
42	A Disaster management Plan shall be prepared and included in the EIA/EMP Report.	The disaster and its management plan is given in Chapter-7.	166
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.	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. This project provides employment to 21 people directly. Local people will be hired for unskilled labour. Through CSR, nearby schools, hospitals will be benefitted. For CSR, INR Rs 5,00,000 has been allocated.	-
44	Besides the above, the below mentioned general points are also to be followed.	-	
	a) Executive Summary of the EIA/EMP Report	Yes, Complied.	-
	b) All documents to be properly referenced with index and continuous page numbering.	Yes, Complied.	-

c) Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated.	Yes, Complied.	-
d) Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise, etc. using the MoEF & CC/NABL accredited laboratories. All the original analysis/testing reports should be available during appraisal of the Project.	Yes, Complied.	-
e) Where the documents provided are in a language other than English, an English translation should be provided.	Yes, Complied.	-
f) The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted.	Yes, Complied.	-
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 4 th August 2009 which are available on the website of this Ministry, should be followed.	Yes, Complied.	-
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	Yes, Complied.	-

	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 Environmental 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.	Yes, Complied.	-
	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.	Yes, Complied.	-

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.

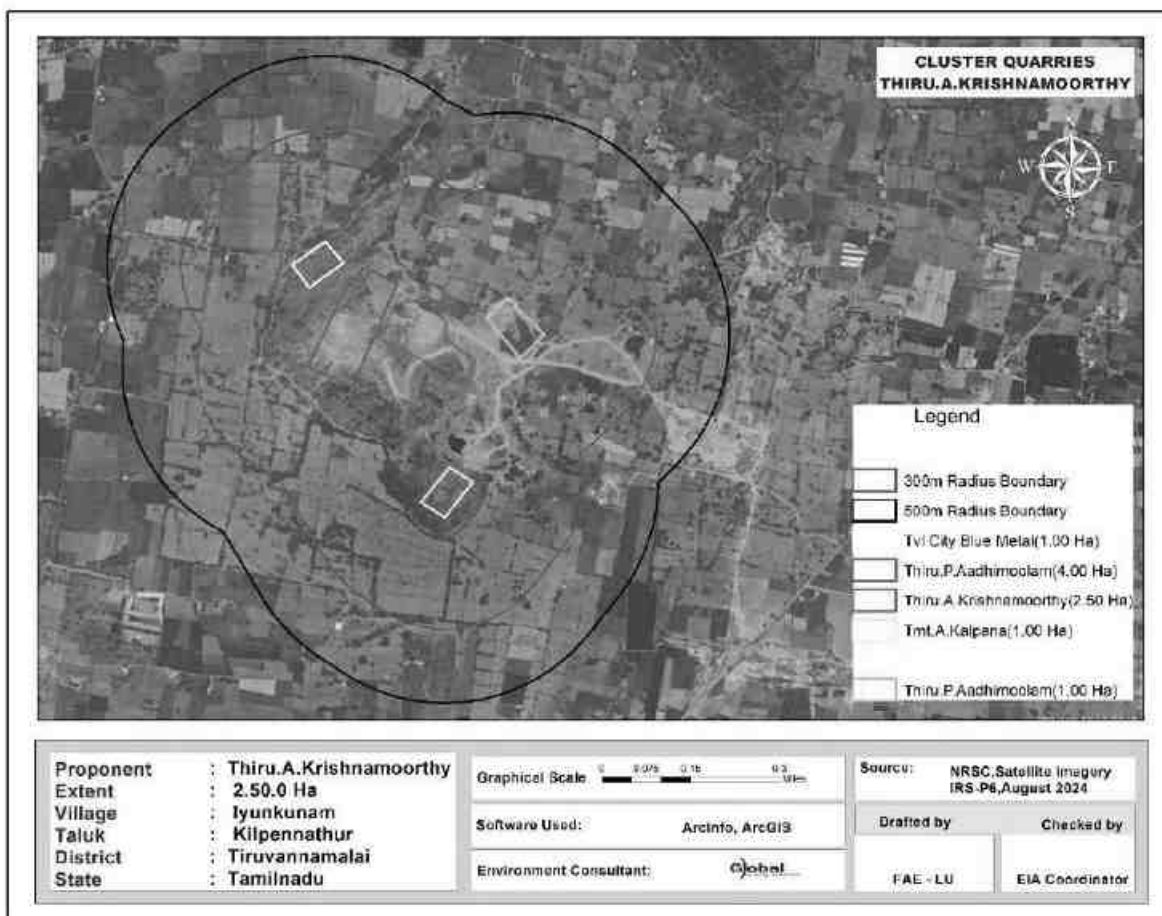
Thiru.A.Krishnamoorthy has obtained Precise Area communication letter from the Assistant Director, Geology and Mining, Tiruvannamalai letter vide Rc.No.186/Kanimam/2020 dated 31.12.2020 to quarry out 1,85,825 m³ of Rough Stone over an extent of 2.50.0 ha., S.F. No. 135 (Part-6) of Iyunkunam Village, Kilpennathur Taluk, Tiruvannamalai District, Tamil Nadu 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 Cluster Mines Details				
Sl.No	Name of the Lessee	Village & S. F. No.	Extent (Ha)	Lease Status
a. Abandoned Quarries				
1	R.Karthikeyan 23/29,Lakshmipuram, Gandhi Nagar, Tiruvannamalai	Iyunkunam 135(Part 3)	1.00.0	20.04.2011 to 19.04.2021
b. Present Proposed Quarries				
1	Thiru.A.Krishnamoorthi S/o.Arumugam No.116/1 Manikkara Street Thandaramapattu Taluk, Tiruvannamalai	Iyunkunam 135(Part 6)	2.50.0	-

a. Future Proposed Quarries				
1	Thiru.Alavudeen Bhasa, Director of City Blue Metals Iyunkunam Village Tiruvannamalai	Iyunkunam 135(Part 2)	1.00.0	
2	Tmt.A.Kalpana W/O.Adhimoolam No.4,Gandhi Nagar 6 th Street, Tiruvannamalai	Iynkunam 135(Part 4)	1.00.0	
3	P.Aadhimoolam, 57A, Tamizhnagar, Tiruvannamalai	Iyunkunam 135(Part 7)	4.00.0	-
4	P.Aadhimoolam, 57A, Tamizhnagar, Tiruvannamalai	Iyunkunam 135(Part 5)	1.00.0	-

As per EIA notification, 2006 and its subsequent amendments Thiru.A.Krishnamoorthy proposed Rough Stone 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 9.50.0 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 Lr.No.SEIAA-TN/F.No.8879/SEAC/ToR-1150/2021, dated: 23.05.2022. This report has been prepared in line with the approved TOR for production of maximum excavation of 1,85,825 m³ of Rough Stone, for a period of five years.

1.2 IDENTIFICATION OF PROJECT & PROJECT PROPONENT

The proposed project is for mining of Rough Stone (under cluster) quarry from the S.F.No. 135 (Part-6) over an extent of 2.50.0 Ha in Iyunkunam Village, Kilpennathur Taluk, Tiruvannamalai 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
4.	Type of Lease	Fresh quarry
5.	Extent of the lease	2.50.0 Ha
6.	Proposed depth of mining	30m above ground level
7.	Method of mining	Opencast method of mechanized.
8.	Proposed lease period	5 Years
9.	Proposed Environmental Clearance	5 Years
10.	Proposed production quantity for five years	Rough Stone: 1,85,825 m ³

(b) Profile of the project proponent

The proposed lessee Thiru.A.Krishnamoorthy is an individual with sound experience in the identification of quarry, operation and marketing in the field of Rough Stone quarry. The proposed land is Government Poramboke land, the applicants owned this land through government tender.

(c) Project proponent details

Name of the proponent : Thiru.A.Krishnamoorthy

Status of the Proponent : Individual

Address
 Thiru.A.Krishnamoorthy,
 S/o.Arumugam, residing at No.116/1,
 Manikkaratheru, Thandrapattu Taluk,
 Tiruvannamalai District.

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

The proposed quarrying operation Opencast Mechanized method with 5m bench height, 5m bench width and overall bench slope is less than 60°. The quarry operation involves shallow jackhammer drilling, slurry blasting, excavation, loading and transportation.

1.3.1 SIZE AND LOCATION OF THE PROJECT

(a) Size of the project

Table 1.2 Proposed project details		
Sl. No.	Feature	Description
1	Type of land	Government poramboke land
2	Extent of lease area	2.50.0 Ha
3	Type of lease	New Project
4	Geological Resource	Rough Stone – 12,33,020 m ³
5	Mineable Resource	Rough Stone – 3,71,340 m ³
6	Proposed production quantity for five years	Rough Stone – 1,85,825 m ³
7	Proposed depth of mining	30m above ground level

Location of the project

The proposed project site is located in Iyunkunam Village, Kilpennathur Taluk, Tiruvannamalai District, Tamil Nadu State and its Latitude: 12°15'42.59"N to 12°15'49.82"N and Longitude: 79°09'51.24"E to 79°09'59.11"E with Survey of India Topo Sheet No. 57- P/03.

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 -DETAILS OF REGULATORY SCOPING CARRIED OUT (AS PER TERMS OF REFERENCE):

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

For the purpose of preparing EIA/EMP the SEIAA, Tamil Nadu has issued a Terms of Reference ToR Lr.No.SEIAA-TN/F.No.8879/SEAC/ToR-1150/2021, Dated: 23.05.2022 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 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, Tiruvannamalai, Rc.No.186/Kanimam/ 2020 dated 31.12.2020. The letter copy enclosed as **Annexure – 2.**

b. Mining Plan Approval Letter:

The project proponent has prepared mining plan under rule 41 & 42 of Tamil Nadu Minor Mineral Concession Rules, 1959 and the same has been approved by the Assistant Director, Department of Geology and Mining, Tiruvannamalai, Rc.No.186/Kanimam/ 2020 dated 10.06.2021. The 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 Assistant Director, Department of Geology and Mining, Tiruvannamalai, Rc.No.186/Kanimam/ 2020 dated 10.06.2021. 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:

It is a Government Poramboke land and the applicant has obtained this land through tender, the copy of Adangal and A-Register are enclosed as Annexure-6.

CHAPTER 2

PROJECT DESCRIPTION

2.1 TYPE OF PROJECT

The type of the project is Opencast Mechanized Mining Method to excavate Rough Stone within the proposed Mine Lease area with drilling, blasting, loading and transportation. This project is located at S.F. No. S.F.No.135 (Part-6) over an extent of 2.50.0 Ha in Iyunkunam Village, Kilpennathur Taluk, Tiruvannamalai 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 9.50.5 Ha. The details of mines located in the cluster area is certified by Assistant, Department of Geology & Mining, Tiruvannamalai vide Rc.No. 186/Kanimam/2020, dated: 10.06.2021.

Table 2.1 500m Radius Cluster Mines Details				
Sl.No	Name of the Lessee	Village & S. F. No.	Extent (Ha)	Lease Status
c. Abandoned Quarries				
1	R.Karthikeyan 23/29,Lakshmipuram, Gandhi Nagar, Tiruvannamalai	Iyunkunam 135(Part 3)	1.00.0	20.04.2011 to 19.04.2021
d. Present Proposed Quarries				
1	Thiru.A.Krishnamoorthi S/o.Arumugam No.116/1 Manikkara Street Thandaramapattu Taluk, Tiruvannamalai	Iyunkunam 135(Part 6)	2.50.0	-
b. Future Proposed Quarries				
1	Thiru.Alavudeen Bhasa, Director of City Blue Metals Iyunkunam Village Tiruvannamalai	Iyunkunam 135(Part 2)	1.00.0	

2	Tmt.A.Kalpana W/O.Adhimoolam No.4,Gandhi Nagar 6 th Street, Tiruvannamalai	Iynkunam 135(Part 4)	1.00.0	
3	P.Aadhimoolam, 57A, Tamizhnagar, Tiruvannamalai	Iyunkunam 135(Part 7)	4.00.0	-
4	P.Aadhimoolam, 57A, Tamizhnagar, Tiruvannamalai	Iyunkunam 135(Part 5)	1.00.0	-

The proposed production is 1,85,825 m³ of Rough Stone by open cast mechanized mining method.

2.2 NEED FOR THE PROJECT

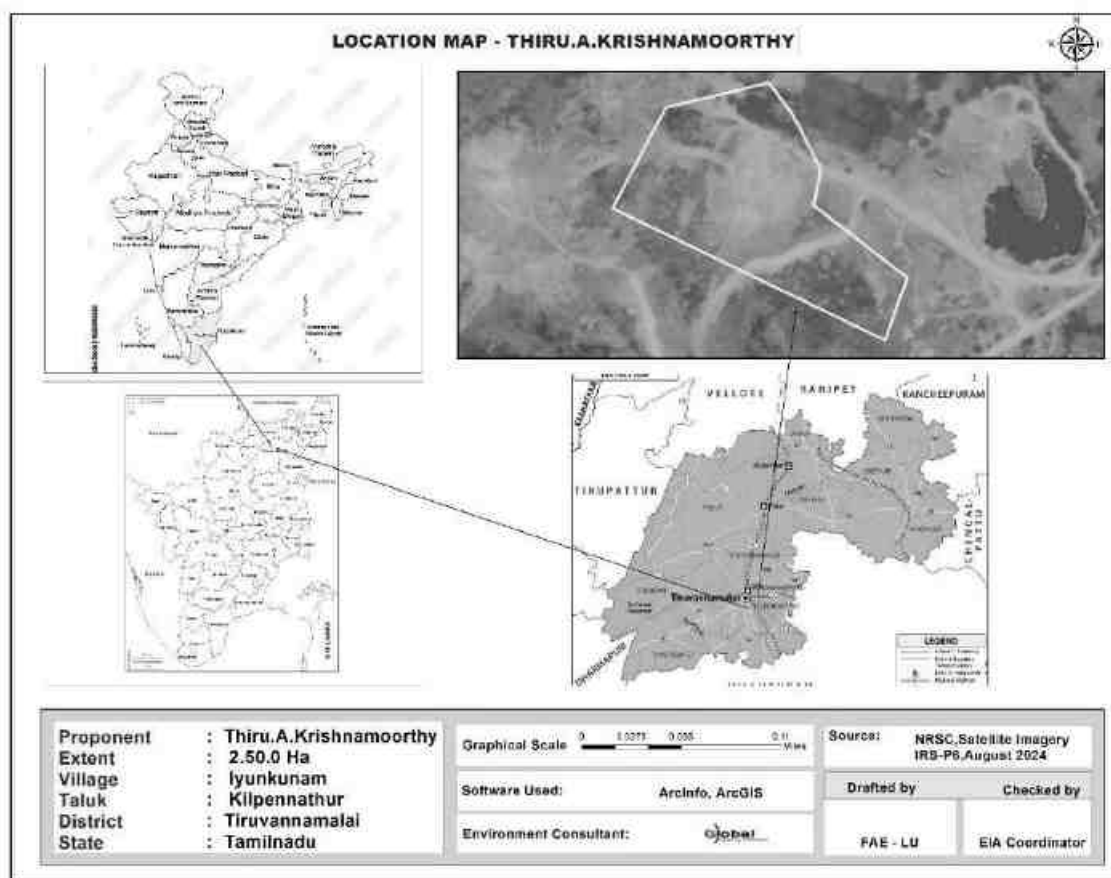
The need of the proposed Rough Stone quarry of Thiru.A.Krishnamoorthy

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	Fresh quarry
3	Category	B1
4	Nature of mineral	Rough Stone
5	Life of the mine	10 years
6	Production Quantity for five years	Rough Stone: 1,85,825 m ³
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 6 Nos.
9	Ultimate pit depth	30m above ground level
10	End use	The excavated Rough Stone 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 Iyunkunam Village, Kilpennathur Taluk, Tiruvannamalai District, Tamil Nadu State. There is an existing road from the area leads to Somasipadi – Ganapapuram village road on Eastern side of the area. The Nearest Railway line is Tiruvannamalai to Polur line which is about 8.5Km on Eastern side of the area. The National Highway NH 77 – Krishnagiri – Uthangarai - Tiruvannamalai – Gingee - Tindivanam – 2.79 km on Southern side of the area. The State Highway SH 4A – Sanipoondi – Kilpennathur - Avalurpet – 6.60 km on eastern side of the area. The general location is given in Figure 2.1. The specific location is given in Figure 2.2.

FIGURE 2.1 LOCATION MAP



DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE QUARRY OF THIRU.A.KRISHNAMOORTHY OVER AN EXTENT OF 2.50.0 HA LOCATED AT S.F.NO.135 (PART-6) OF IYUNKUNAM VILLAGE, KILPENNATHUR TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE.

Table 2.2 Co-Ordinates of the Project Site			
Corners	Co- ordinates		Distance between the corners
	Latitude	Longitude	
1	12° 15' 45.39"N	79° 09' 51.24"E	1-2 = 130.4m
2	12° 15' 49.26"N	79° 09' 53.01"E	2-3 = 88.0m
3	12° 15' 49.82"N	79° 09' 55.87"E	3-4 = 18.6m
4	12° 15' 49.31"N	79° 09' 56.20"E	4-5 = 67.0m
5	12° 15' 47.14"N	79° 09' 56.33"E	5-6 = 12.2m
6	12° 15' 46.77"N	79° 09' 56.18"E	6-7 = 96.8m
7	12° 15' 45.49"N	79° 09' 59.11"E	7-8 = 95.4m
8	12° 15' 42.59"N	79° 09' 57.96"E	8-1 = 220.6m

FIGURE 2.2 GOOGLE IMAGE SHOWING PROJECT SITE

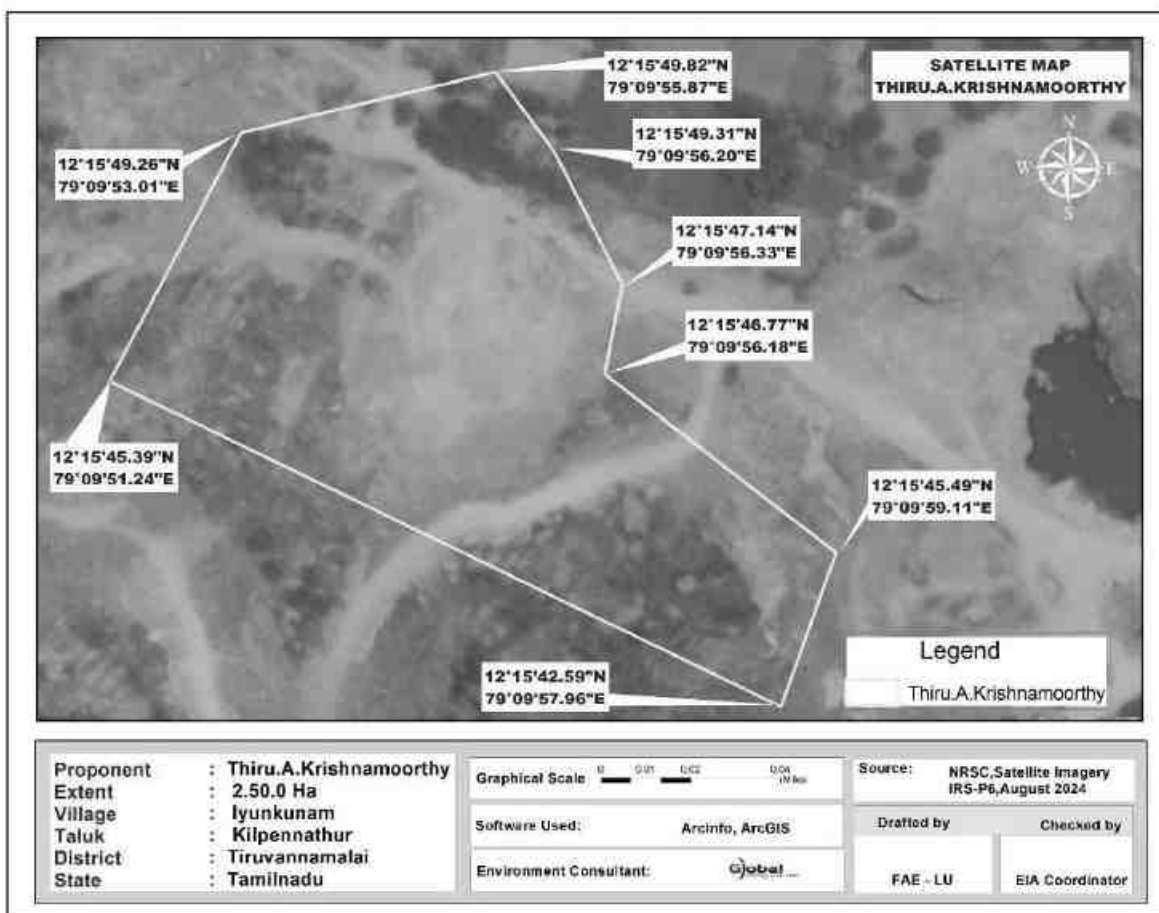


FIGURE 2.3 SURFACE PLAN OF THE PROJECT AREA

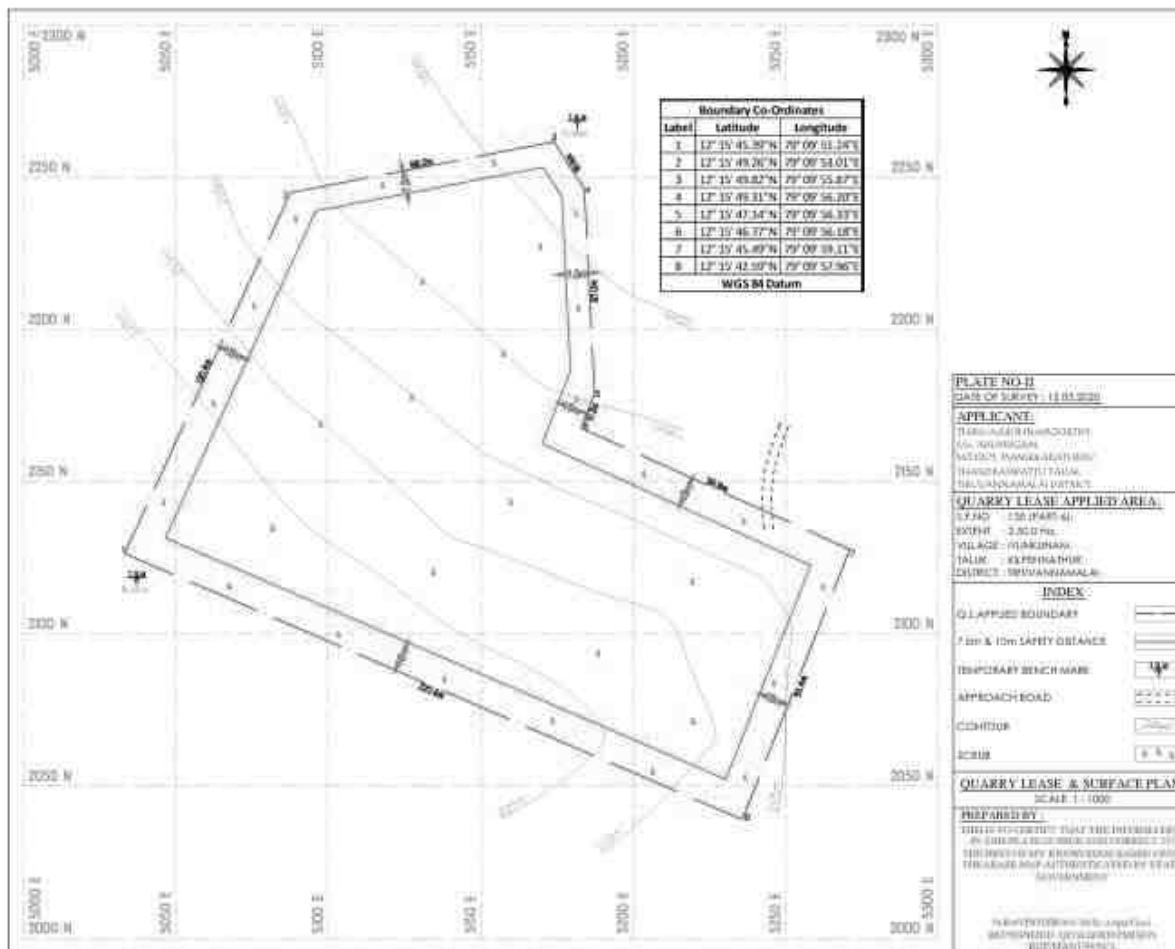
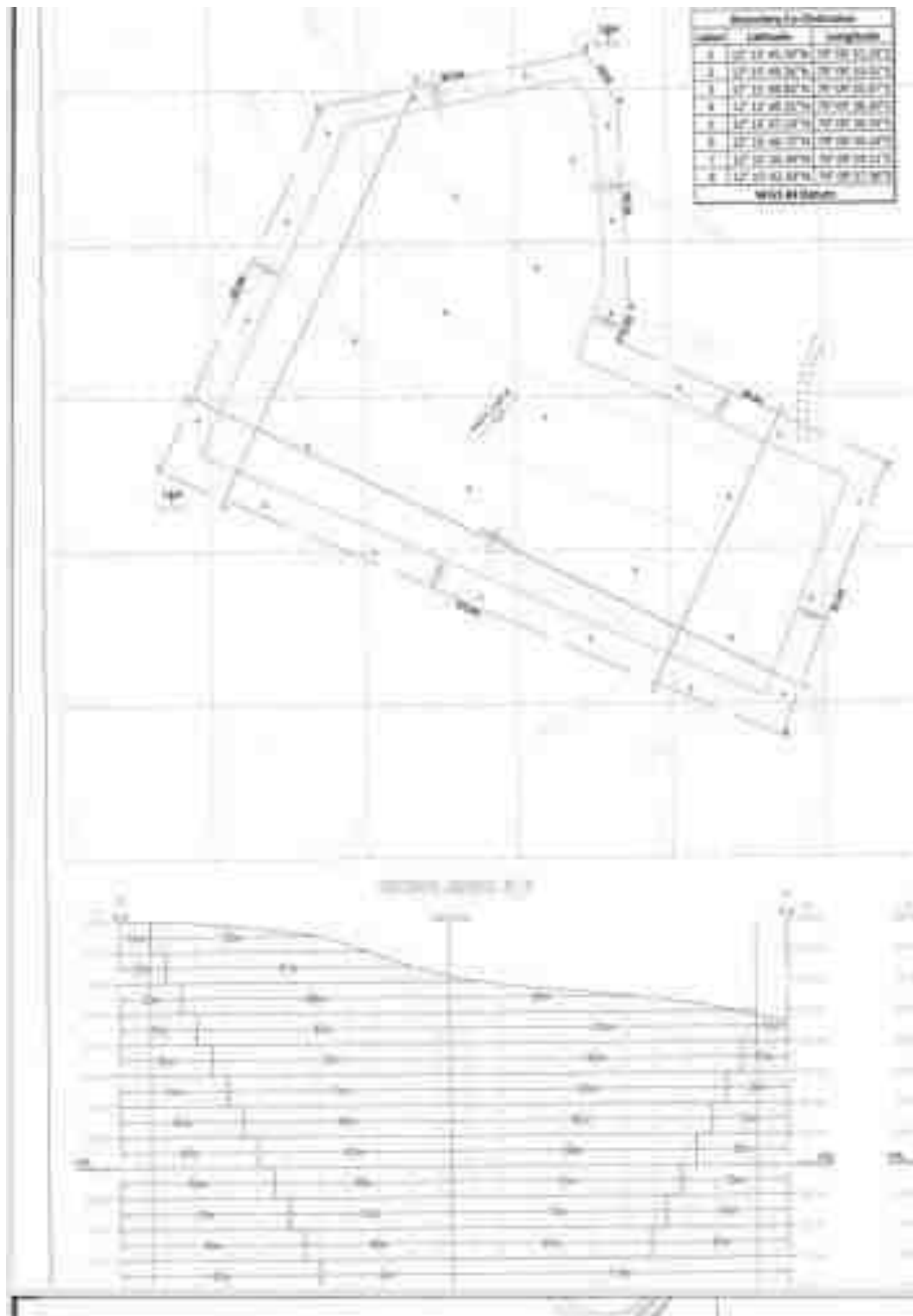


FIGURE - 2.4 GEOLOGY MAP OF PROJECT AREA



2.3.1 LAND USE OF THE PROJECT AREA

The proposed Mine Lease area is Government poramboke 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 (Hect)	Area in use during the quarrying period (Hect)
1	Quarrying Pit	Nil	1.82.0
2	Infrastructure	Nil	0.01.0
3	Roads	Nil	0.02.0
4	Green Belt	Nil	0.20.0
5	Unutilized	2.50.0	0.45.0
	Total	2.50.0	2.50.0

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 (Hect)
1	Area left for water body	1.82.0
2	Green Belt	0.20.0
3	Remaining area	0.48.0
	Total	2.50.0

2.3.3 SALIENT FEATURES OF THE LEASE AREA

Sr.No	Salient Features	Description
1	Nearest Roadway	<ul style="list-style-type: none"> There is an existing road from the area leads to Somasipadi – Ganapapuram village road on Eastern side of the area. The National Highway NH 77 – Krishnagiri – Uthangarai - Tiruvannamalai – Gingee - Tindivanam – 2.79 km on Southern side of the area. The State Highway SH 4A – Sanipoondi – Kilpennathur - Avalurpet – 6.60 km on eastern side. SH 133A – Tiruvannamalai – Avalurpet – 5.93 km north western side of the area.
2	Nearest Village	Iyunkunam Village – 1.0 m – North West
3	Nearest Railway station	Tiruvannamalai– 9.77 km, WSW
4	Nearest Airport	Pondicheri – 77.5 km SE

Figure 2.5 Topo Map showing proposed site features

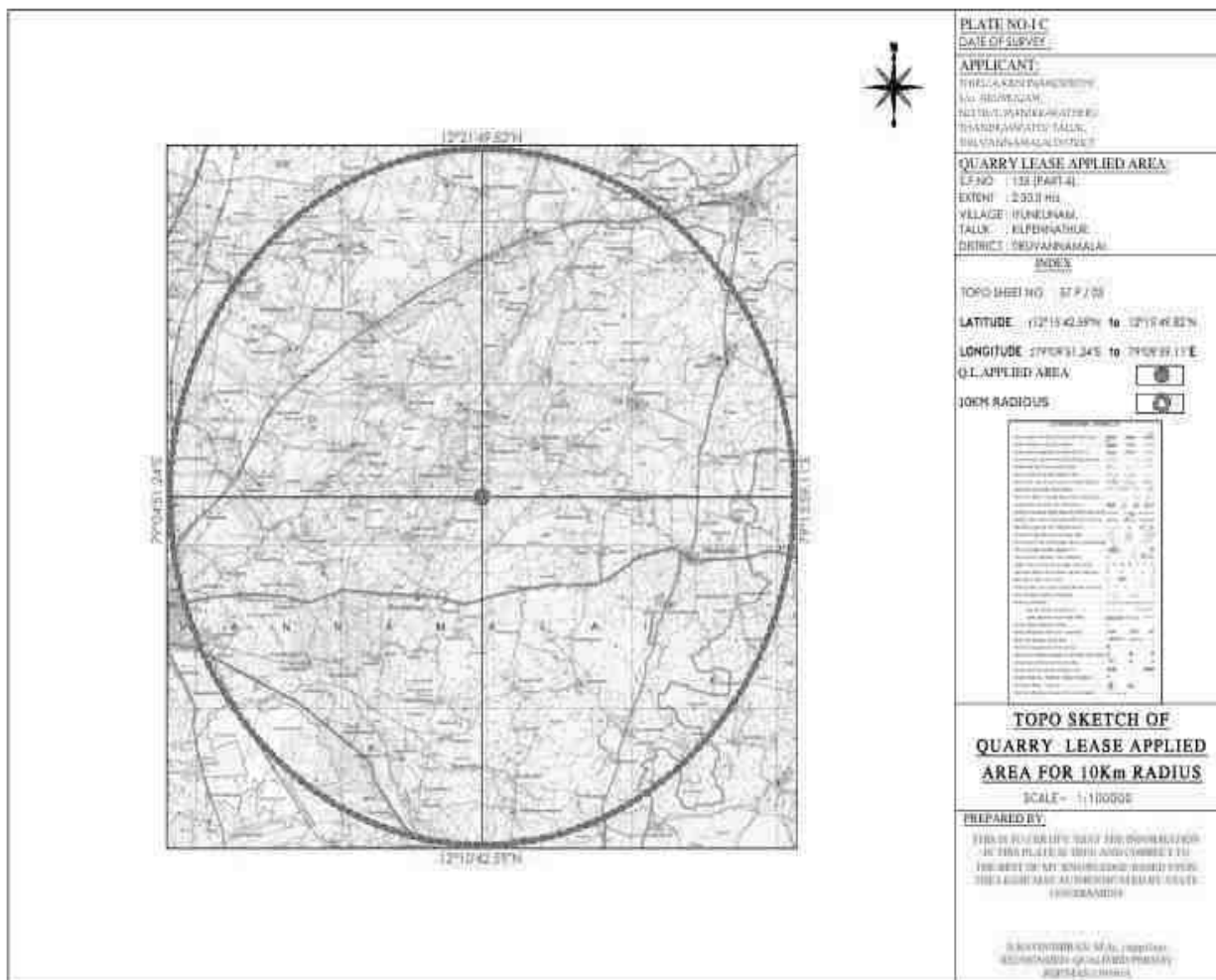


FIGURE 2.6 PROJECT SITE PHOTOGRAPHS



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

The proposed production is rough stone 1,85,825 m³ by Opencast Mechanized mining method. Available Geological Resources of Rough stone imposed in the precise area communication letter. Geological Resources is estimated at 12,33,020 m³. Cost of the project is Rs. 374.04 lakhs including land cost. EMP cost.

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, and 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 41 & 42 of Tamil Nadu Minor Mineral Concession Rules, 1959 and the same has been approved by the Assistant Director, Department of Geology & Mining, Tiruvannamalai vide Rc.No. 186/Kanimam/2020, dated: 10.06.2021.
2	Environment Clearance Status	ToR Lr.No.SEIAA-TN/F.No.8879/SEAC/ToR-1150/2021, Dated: 23.05.2022
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	Jan 2025	Feb 2025	Mar 2025	Apr 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 20.04.2022 (Online Proposal No. SIA/TN/MIN/69514/2021), ToR was granted on 23.05.2022. 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 (TNPCCB).

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, Department of Geology & Mining, Tiruvannamalai vide Rc.No. 186/Kanimam/2020, dated: 10.06.2021.

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 2.5 KLD which will be sourced from outside agencies. Negligible sewage of 0.2 KLD will be generated, for which a septic tank with soak pit will be set up. The water balance diagram is given below.

FIG 2.7 WATER BALANCE DIAGRAM

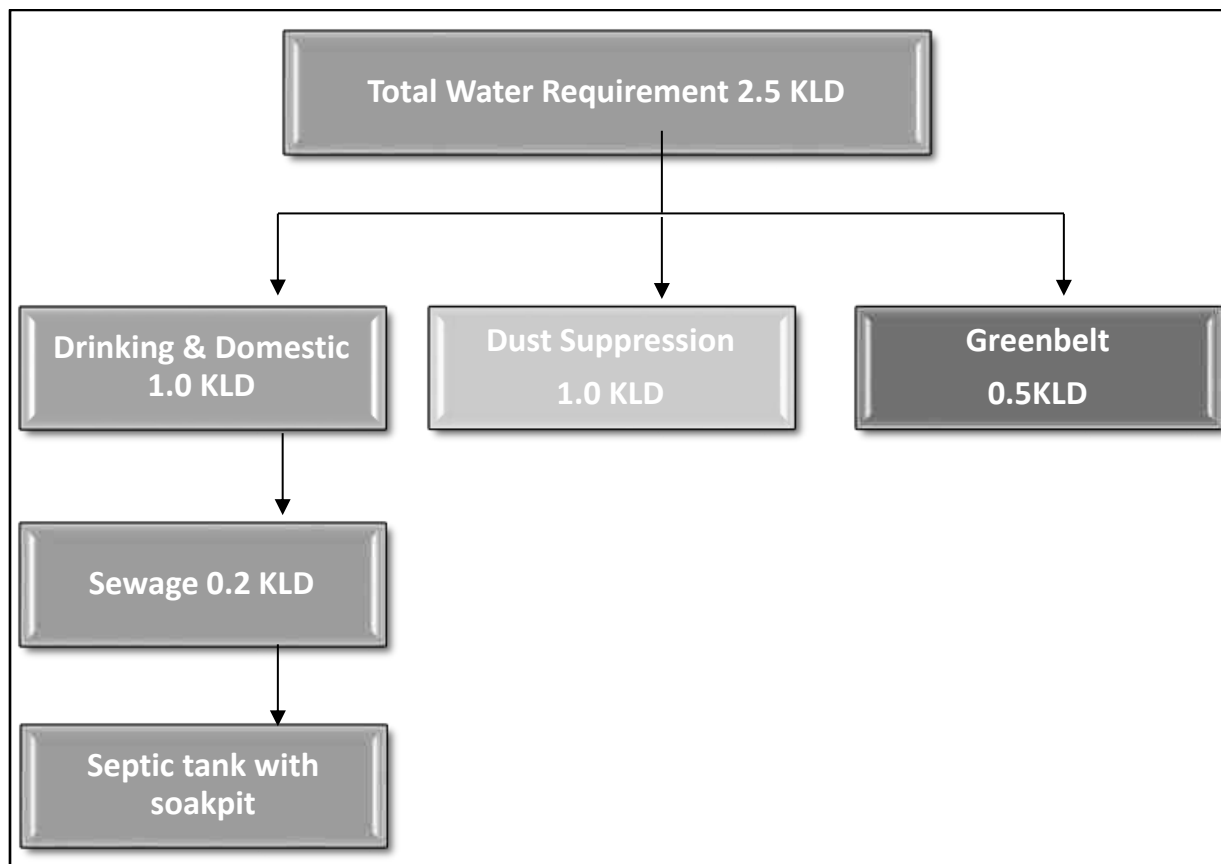


Table - 2.7 Water Requirement

S. No	Particular	Water Requirement (KLD)
1	Dust suppression	1.0
2	Drinking/Domestic	1.0
3	Greenbelt/Plantation	0.5
Total		2.5

2.6.3 POWER REQUIREMENT

Total fuel requirement is 59456 litres for entire life of the project. Power will be used only in the office building.

2.6.4 MAN POWER REQUIREMENT

Total Manpower requirement will be 21 persons which out of which 10 persons (Mines manager, Foreman, Mining Mate, etc.,) and other are drivers and workman's categories. Beside this, 11 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/ Foreman / Mate	1 No.
2	Operator	6 Nos.
3	Mechanic	1 No.
4	Driver	3 Nos.
5	Labours	10 Nos
Total		21 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	2
2.	Compressor	1 psi	Diesel drive	
3.	Excavator with Bucket and Rock Breaker	0.90 m ³	Diesel drive	1
4.	Tippers	5/10 Ts	Diesel drive	3

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 1.00.0 Ha is covered in the Survey of India Toposheet 57 P/03 and is bounded by Latitude: 12°15'42.59"N to 12°15'49.82"N and Longitude: 79°09'51.24"E to 79°09'59.11"E E. No major river is found nearby the lease applied area. Water table is found at a depth of 58m. The mean daily maximum temperature rises to 38° to 42° degree Celsius and during winter period it drops to 28° to 33° Celsius. The weather is quite hot in May and June and the maximum temperature sometimes reaches 42°Celsius. With the onset of the southwest monsoon by beginning of June, there is some drop in temperature. The average rain fall in the in the region of the project area is 825mm per annum during Southwest and Northeast 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 225 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

Geologically Tiruvannamalai District is mostly underlain by the Archaean crystalline and metamorphic complex. The geology of the district is complicated due to recurring tectonic and magmatic activities occurred during. Pre-Cambrian period. Hornblende Biotite Gneisses are the oldest rocks of the district. It is very fissile and present widely in plains. The gneisses are highly weathered upto 30 m at some places.

The Charnockites are coarse grained, massive and foliated at places and their colour is bluish dark to grey. They are the second largest rock type present in the district. They are massive and less weathered than the gneisses. They exhibit 2 to 3 distinct set of joints and most of them are vertical with steep dips. Iron ore deposits

GEOLOGY MAP
THIRU.A.KRISHNAMOORTHY

Legend

- Proposed Mine Boundary
- 5km Radius Boundary
- 10km Radius Boundary
- Road
- Granitoid
- Pink granite gneiss
- Acid and Intermediate Charnockite
- Biotite gneiss
- Pink Migmatite

Project Proponent Thiru.A.Krishnamoorthy
Extent : 2.50.0 Ha
Village : Iyunkunam
Taluk : Kilpennathur
District : Tiruvannamalai
State : Tamilnadu

Graphical Scale 0 1 2 4 Miles
Software Used: Arcinfo, ArcGIS
Environment Consultant: Global

Source: NRSC, Satellite Imagery
 IRS-P5, August 2024
Drafted by **Checked by**
FAE - LU **EIA Coordinator**

2.6.8 Local Geology: Geological Resources

The area is underlain by the wide range of charnorokite group, Migmatite complex, Alkali complex, upper Gondwana and Quaternary alluvium. Charnokite group of rocks occupy major part of the area and comprise charnokites, metaphyroxenites, pyroxene granulites and magnetite quartzite. The migmatic rocks derived from granulites comprise variants of gneisses viz. garnet gneiss, biotite gneiss, hornblende biotite gneiss and pink migmatites.

Granite and granulite are also seen in large areas around west cheyyar. Edidote hornblende gneiss forming part of alkali complex is seen NW of cheyyar bordering Tiruvannamali District. The strike of the Charnockite formation is N45°E – S45°W with vertical dipping. The general geological succession of the area is given as under.

↑	Age		Rock Type
	Recent	-	Reddish soil
	Unconformity		
	Archaean		Dolerite dyke
		-	Charnockite
			Peninsular Gneissic complex and Calc Gneiss

2.7 PROJECT DESCRIPTION INCLUDING DRAWING SHOWING PROJECT LAYOUT COMPONENTS OF PROJECT ETC., SCHEMATIC REPRESENTATION OF THE FEASIBILITY DRAWING WHICH GIVE INFORMATION IMPORTANT For EIA PURPOSE.

2.7.1 PROCESS DESCRIPTION

PROPOSED METHOD OF MINING

Opencast mechanized method with 5.0 m height 5.0m width and overall, 60° slope of the bench. It is proposed to excavate 1,85,825 m³ of Rough Stone. No wastage is envisaged as the entire material available is Rough Stone 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 60° with the horizontal.

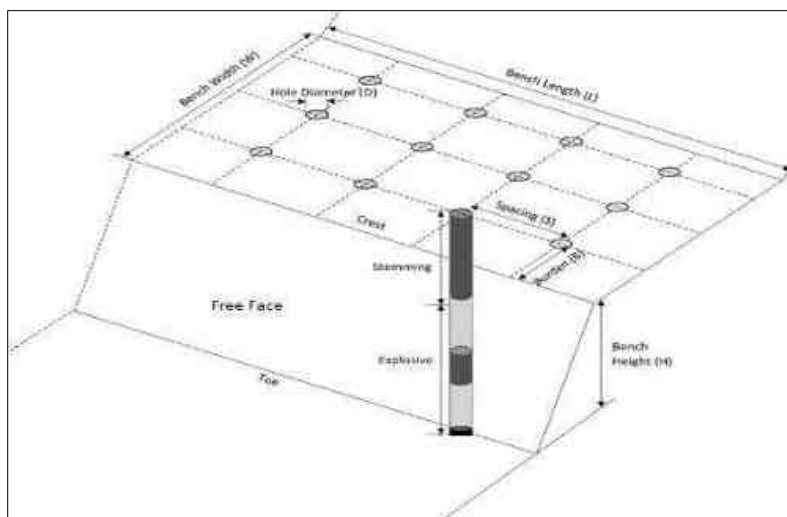
DEVELOPMENT OF MINING FACES

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 may 2025.

DRILLING & BLASTING

Drilling will be done up to maximum depth of 30m above ground level. 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 to 7 Tonnes per Kg of explosives. Small dia 25mm slurry explosive is proposed to be used for shattering and heaving effect for removal of Rough Stone. The proposed blasting pattern is given as Figure 2.9.

FIGURE 2.9 BLASTING PATTERN



LOADING& TRANSPORTATION OF ROUGH STONE

Hydraulic excavator will be used for lifting and loading of the rough stone. This excavator in combination with Tippers (10MT) capacity of 3 nos will be used.

FIGURE 2.10 FLOW CHART OF THE QUARRY OPERATION

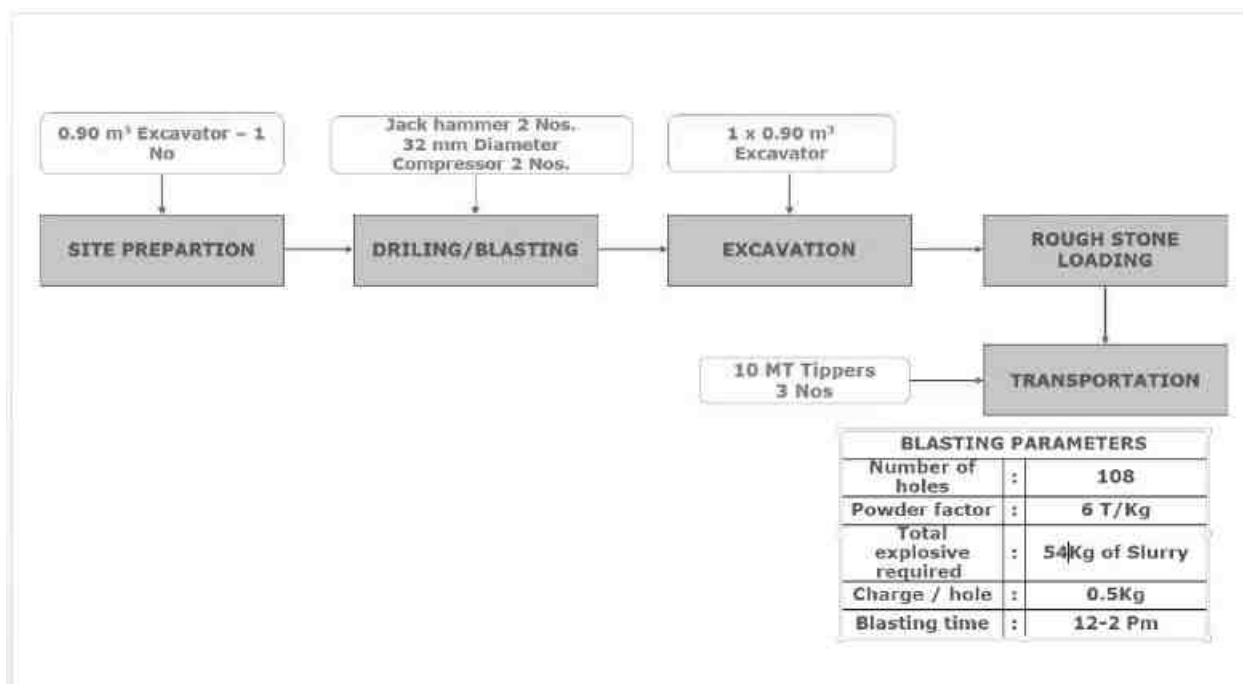


TABLE - 2.9 MINING DETAILS

S.No	Description	Details	Remarks
1.	Method of Mining	Opencast method of echanized mining with 5.0 m height 5.0 m width and overall 60° slope of the bench. Hydraulic excavator will be used for the excavation and 5/10T tippers will be used for the Hauling.	Excavator – 1 No Tippers -3 Nos.
2.	Mineral Use	The excavated Rough Stone, will be used for construction industries for Government & Public sector projects besides catering domestichousing and infrastructure projects in and around the district	-

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3.	Proposed Depth	30m above ground level	-
4.	Proposed Production quantity	1,85,825 m ³ of Rough Stone	Five years
5.	Safety Zone	0.20.0 Ha will be maintained as safety zone during mining operation as well as at the conceptual stage of the project.	Around 1250 nos. of saplings will be planted in this safety
6.	Water requirement	2.5 KLD	Procured from the outside water vendors
7.	Energy requirement	59456 litres of HSD (Entire Project Life)	All the equipment will be diesel operated. No electricity is needed for mining operation
8.	Manpower	21 Nos	
9.	Shift	General Shift	8.00 AM – 5.00 PM
10.	Project Cost	374.04 Lakhs	(Including Fixed Asset + Operational & EMP cost)
11.	EMP Cost	187.33 Lakhs	-
12.	CER Cost	5 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 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	Topography	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in m³	Mineable Reserve of Rough stone in m³
I	XY-AB	Above	I	55	28	5	7700	7700
			II	81	37	5	14985	14985
			III	61	47	5	14335	14335
	Total							37020
II	XY-AB	Above	III	27	47	5	6345	6345
			IV	11	56	5	3080	3080
	XY-CD	Above	I	60	26	5	7800	7800
			II	100	40	5	20000	20000
	Total							37225
III	XY-AB	Above	IV	72	56	5	20160	20160
			V	52	65	5	16900	16900
	Total							37060
IV	XY-AB	Above	V	26	65	5	8450	8450
	XY-CD	Above	III	95	52	5	24700	24700
			IV	14	59	5	4130	4130
	Total							37280
V	XY-CD	Above	IV	76	59	5	22420	22420
	XY-AB	Above	VI	39	76	5	14820	14820
	Total							37240
Grand Total								185825

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 2.9 and Land Use pattern is given as Table 2.10 The conceptual plan is given as Figure 2.11.

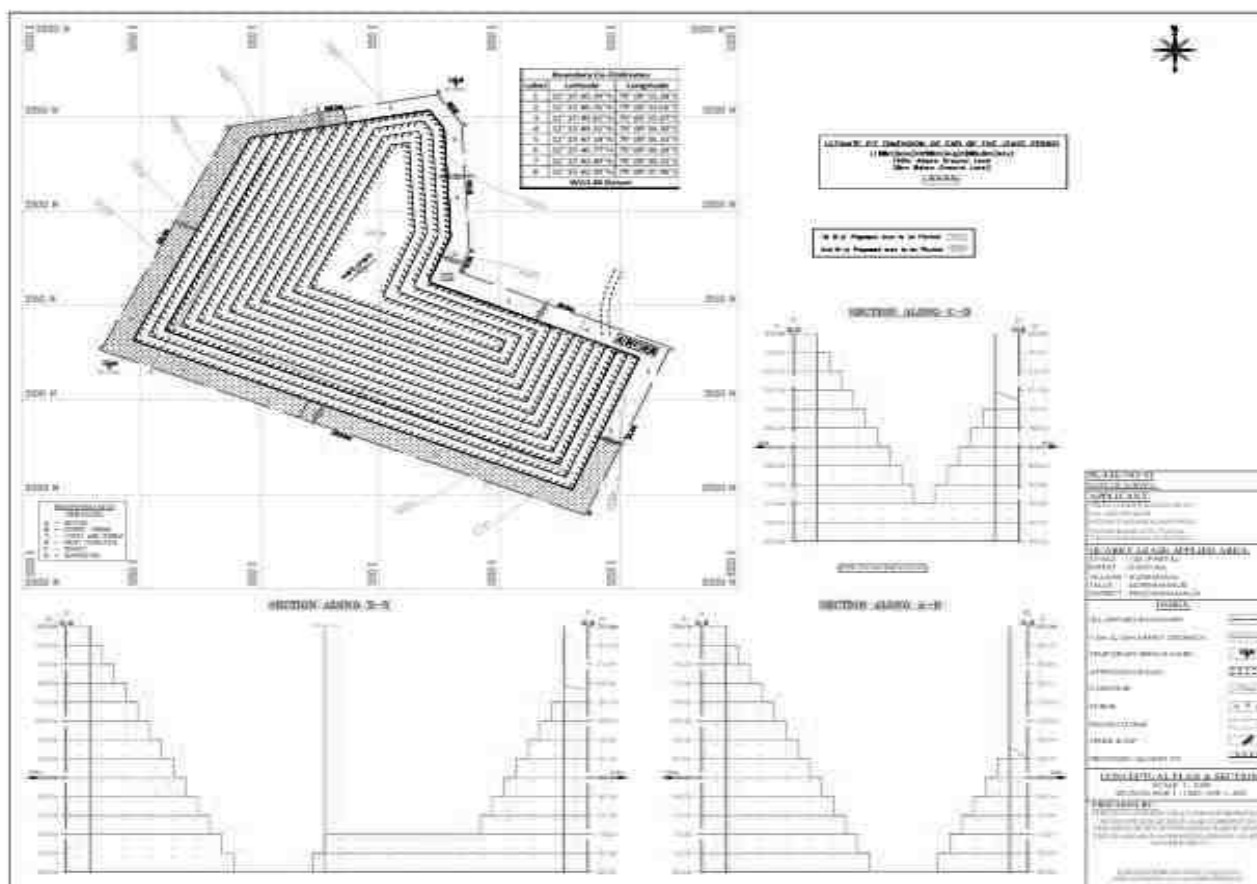
TABLE 2.11 Ultimate Pit Dimension

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	198	92	30m Above ground level

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	1.82.0
2	Green Belt	0.20.0
3	Remaining area	0.48.0
Total		2.50.0

FIGURE 2.11 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 0.20.0 Ha. Trees like Pungai, Vagai, Vembu, Manjal konrai, Naval, Puvarasu, etc., will be planted around the mine lease area. A total of 1250 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. STUDY AREA, PERIOD COMPONENTS AND METHODOLOGY

The project area is located in Iyunkunam Village, Kilpennathur Taluk, Tiruvannamalai District, Tamil Nadu State over an extent of 2.50.0 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 mine. Other environmental data on flora and fauna, land-use pattern, forest etc. were also generated through field surveys and secondary information collected from different State Govt. departments. Sampling methods and analysis. Socio-economic survey was conducted, through interaction with the people, sarpanch and medical officers by floating questionnaires and collection of information are supported by census data for demographic structures, amenities, and infrastructure availability within the study area. Baseline values for various environmental components are discussed in this Chapter.

ENVIRONMENTAL SETTING OF THE STUDY AREA

Table 3.1 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	

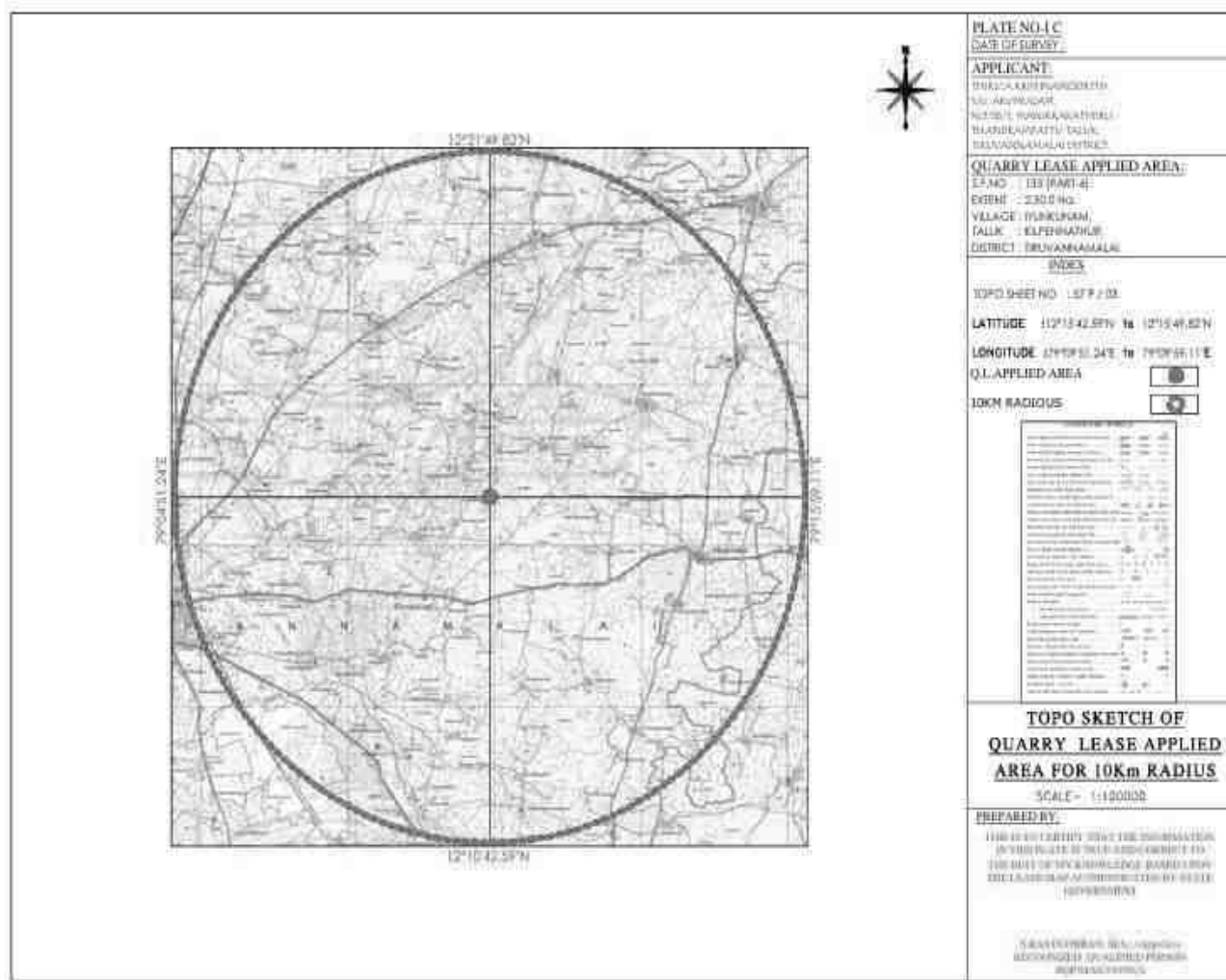
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A	Wetlands, water courses or other water bodies,	Water bodies	Distance	Direction
		Kamalaputhur Lake	12 km	N
		Avalurpet Lake	10.4 km	NE
		Karungalikuppam Lake	5.7 km	NW
		Idapalayam Lake	11.8 km	SW
		Kolakudi Lake	14.8 km	SW
		Usambadi Lake	12 km	SE
		Kariyandal Lake	14.7km	NE
		Thurunjal River	7.6km	SW
B	Coastal zone, biospheres,	Nil within 10km radius		
C	Mountains, forests	Tippakodu R.F. – 8.5 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	Tiruvannamalai – 9.86 Km - W		
9	Areas occupied by sensitive man-made land uses (hospitals, schools, places of worship, community facilities)	Tiruvannamalai – 9.86 Km - W		
10	Areas containing important, high quality or scarce resources (ground water resources, surface resources, forestry, agriculture, fisheries, tourism, minerals)	Nil		

DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE QUARRY OF THIRU.A.KRISHNAMOORTHY OVER AN EXTENT OF 2.50.0 HA LOCATED AT S.F.NO.135 (PART-6) OF IYUNKUNAM VILLAGE, KILPENNATHUR TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE.

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.

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 & Land cover
- ✚ Socio economic environment
- ✚ Hydrogeology

BASELINE DATA COLLECTION

Baseline environment data on various components of the environment in the study area were collected during Summer Season (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	Environmental 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 500M RADIUS FROM THE PROPOSED QUARRY SITE)

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

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

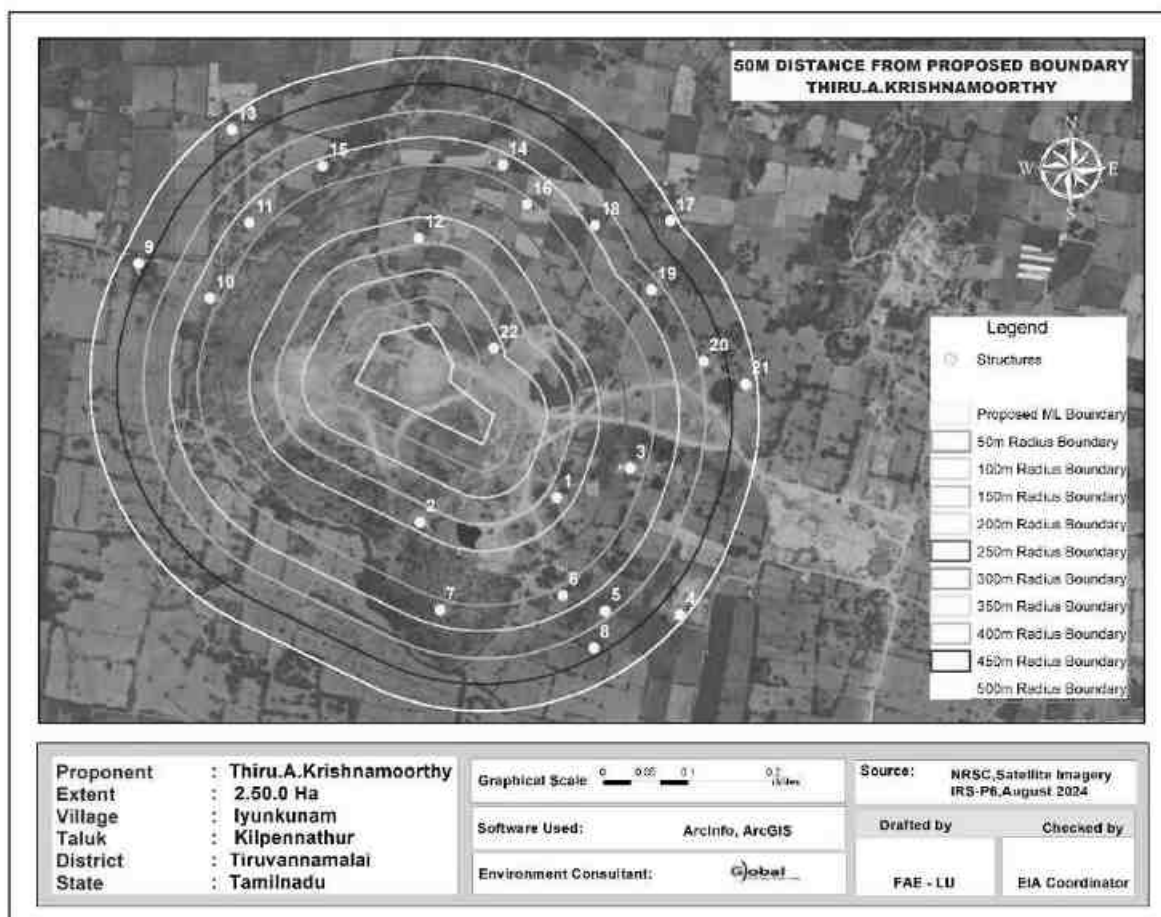
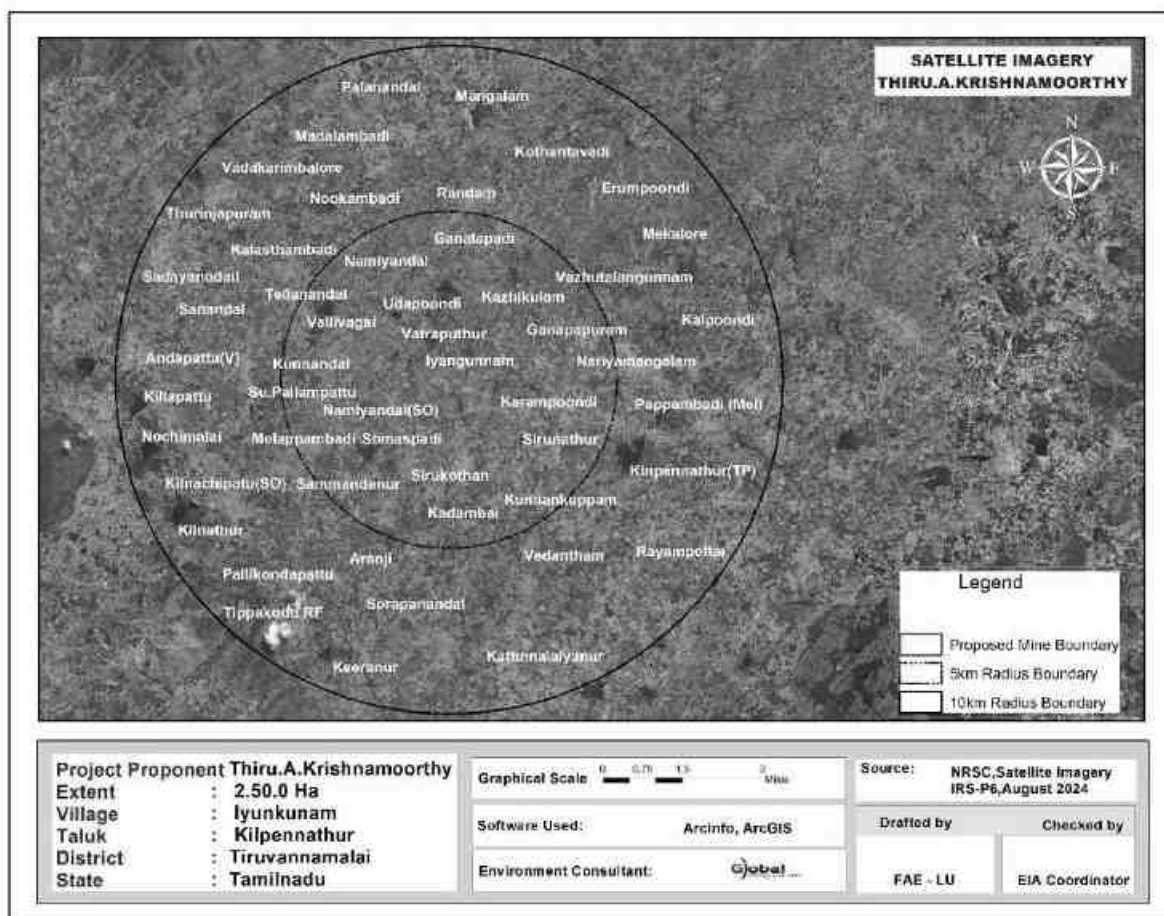


FIGURE - 3.2a SATELLITE MAP OF THE PROJECT AREA (10 KM RADIUS)



3.3.1 METEOROLOGICAL ENVIRONMENT

Meteorological conditions prevailing in the buffer zone is given below

Climate

From the middle of February, temperature increases steadily. In May which is usually the hottest month in the interior, the mean daily maximum temperature rises to 38° to 42° degree Celsius and during winter period it drops to 28° to 33° Celsius. The weather is quite hot in May and June and the maximum temperature sometimes reaches 42°Celsius. With the onset of the southwest monsoon by beginning of June, there is some drop in temperature.

Rainfall

Tiruvannamalai 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. The average rain fall in the in the region of the project area is 800-900mm per annum during Southwest and Northeast Monsoons.

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	
1201	792	1002	1035	1512	985

Relative Humidity

The relative humidity in general during the year is between 55 and 65 percent in the region of the project area, except during the northeast monsoon season, when it is over 65 per cent. 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 3.3.

FIG 3.3 SEISMIC MAP OF INDIA

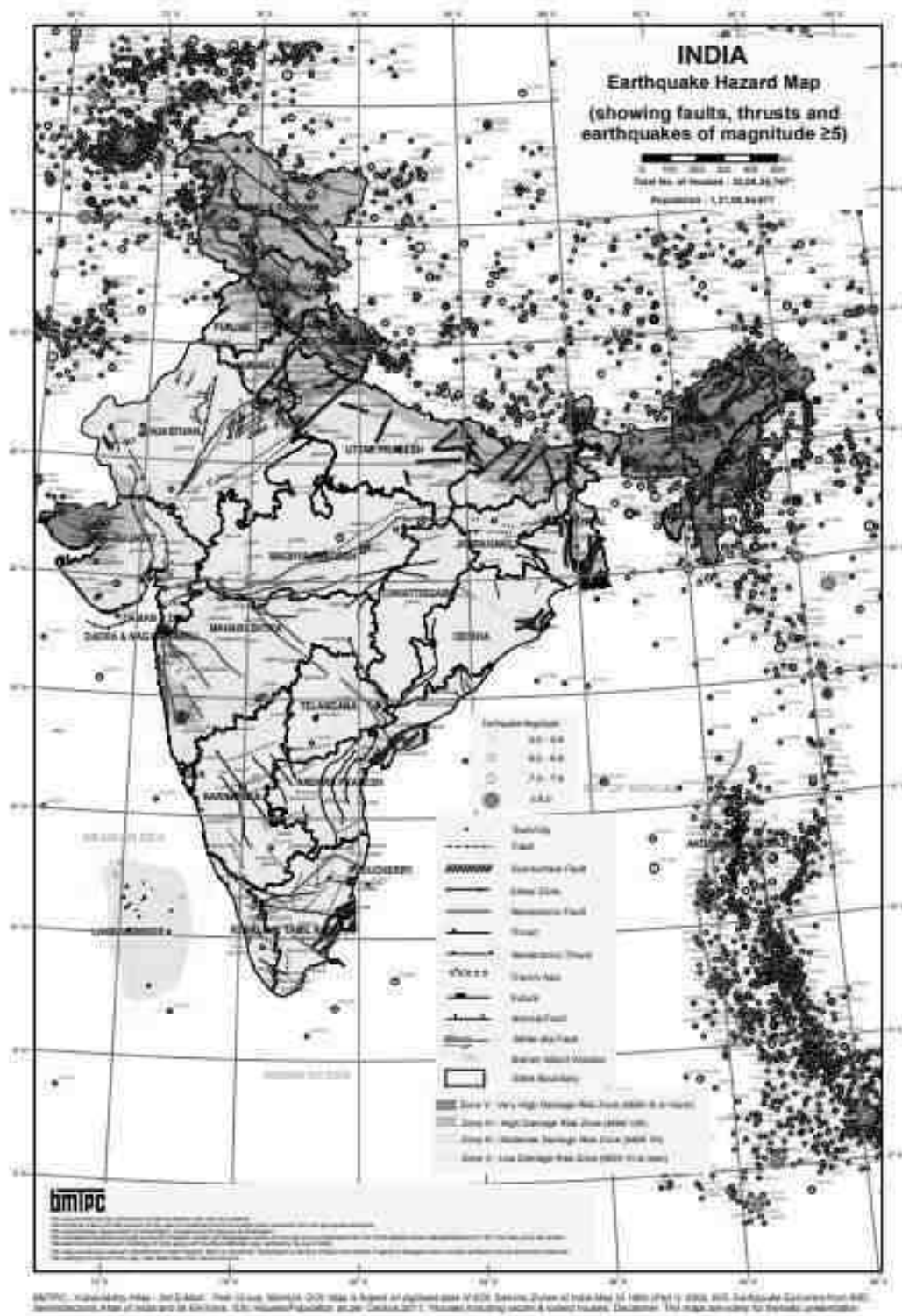
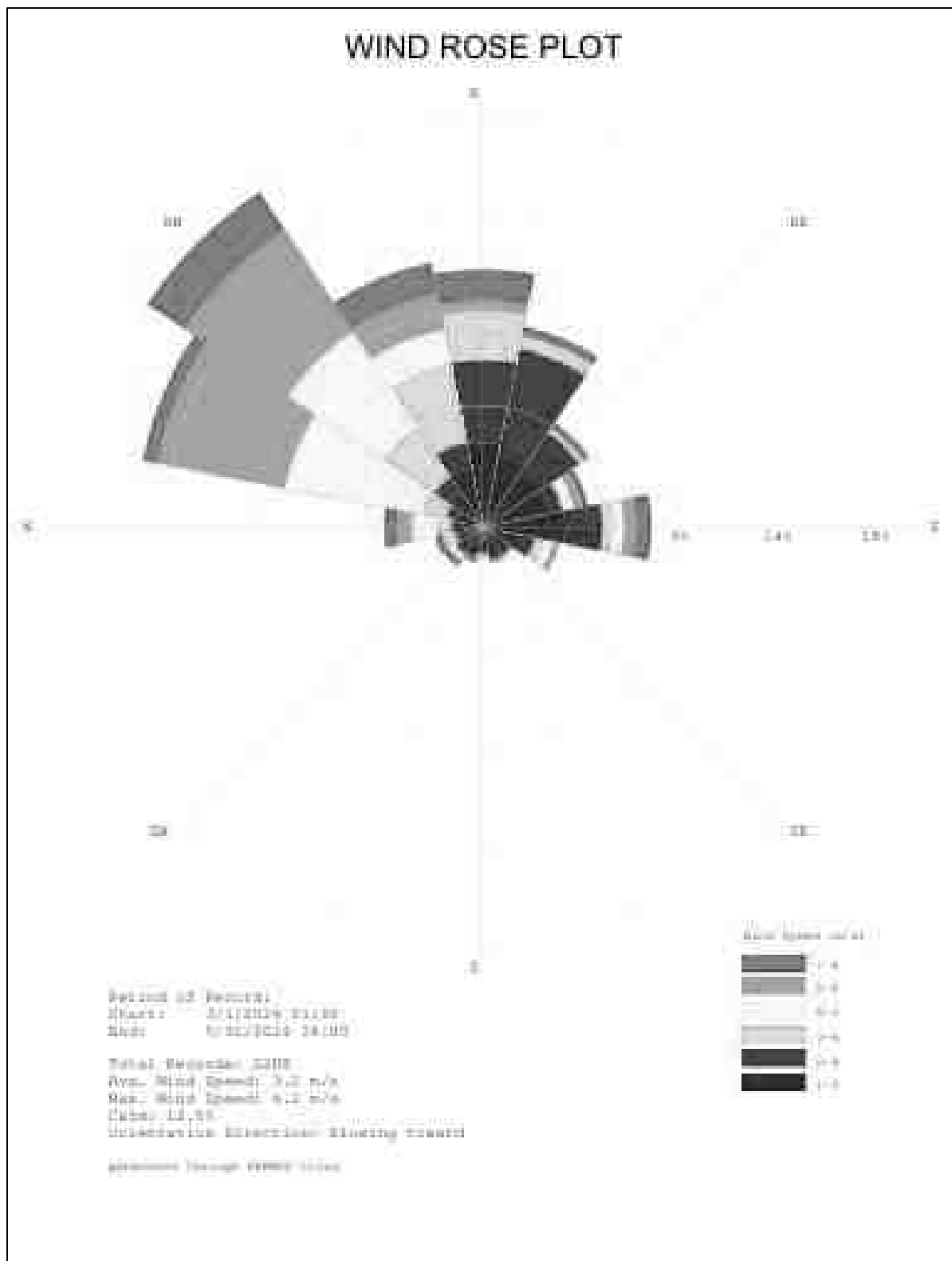


FIG 3.4 WIND ROSE PLOT DURING MARCH TO MAY 2024



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°C and 42°C during summer.

3.3.2 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.

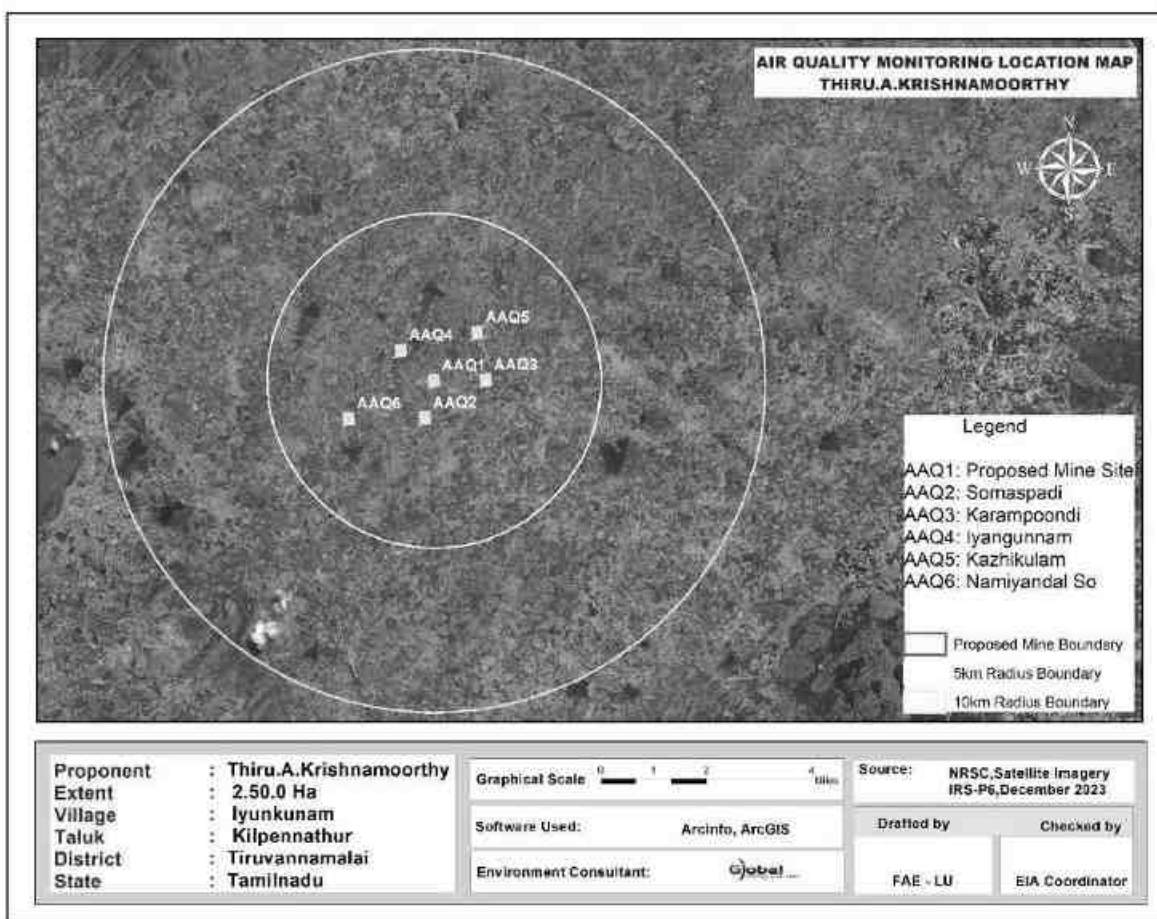
The regional climatologically data, was used as a guideline to know the predominant wind direction during study period. The locations were identified keeping in view predominant wind directions prevailing during study period, sensitive receptors, human settlements, and mining activities around.

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.

Table 3.3: Details Of Ambient Air Quality Monitoring Locations

S. No.	Station Code	Locations	Distance & Direction	Coordinates
1	AAQ 1	Near by the lease area	Core Zone	12°15'42.59"N 79°09'51.24"E
2	AAQ 2	Somaspadi	1.16 km, S	12°15'11.61"N 79°9'53.23"E
3	AAQ 3	Karampoondi	1.5 km, E	12°15'47.45"N 79°10'54.6"E
4	AAQ 4	Iyangunnam	1.36 km, NW	12°16'18.3"N 79°9'30.16"E
5	AAQ 5	Kazhikulam	1.96 Km, S	12°16'34.66"N 79°10'46.61"E
6	AAQ6	Namiyandal So	2.83 Km, W	12°15'11.74"N 79°8'36.69"E

FIG 3.5 BASE MAP OF 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 PM₁₀ ($\mu\text{g}/\text{m}^3$)			
AAQ-1	56.9	76.2	66.55
AAQ-2	51.3	66.4	58.85
AAQ-3	48.3	58.7	53.5
AAQ-4	46.0	55.2	50.6
AAQ-5	40.9	54.7	47.8
AAQ-6	42.9	52.1	47.5
CPCB NAAQS 2009 for PM₁₀ - 100 $\mu\text{g}/\text{m}^3$			
Particulate matter PM_{2.5} ($\mu\text{g}/\text{m}^3$)			
AAQ-1	26.8	35.8	31.3
AAQ-2	23.6	30.6	27.1
AAQ-3	22.74	27.3	25.02
AAQ-4	20.7	24.8	22.75
AAQ-5	18.5	24.9	21.7
AAQ-6	20.5	25.0	22.75
CPCB NAAQS 2009 for PM_{2.5} - 60 $\mu\text{g}/\text{m}^3$			
Sulphur Di-oxide as SO₂ ($\mu\text{g}/\text{m}^3$)			
AAQ-1	5.1	6.8	5.95
AAQ-2	5	6.1	5.55
AAQ-3	4.2	6.1	5.15
AAQ-4	4	5	4.5
AAQ-5	2.9	4.3	3.6
AAQ-6	2.9	5.2	4.05
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	7.4	13.8	10.6
AAQ-2	6.6	11.6	9.1
AAQ-3	5.8	11.0	8.4
AAQ-4	5.7	11	8.35
AAQ-5	6.4	8.5	7.45
AAQ-6	6.5	8.8	7.65
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 – NEAR BY MINE LEASE AREA

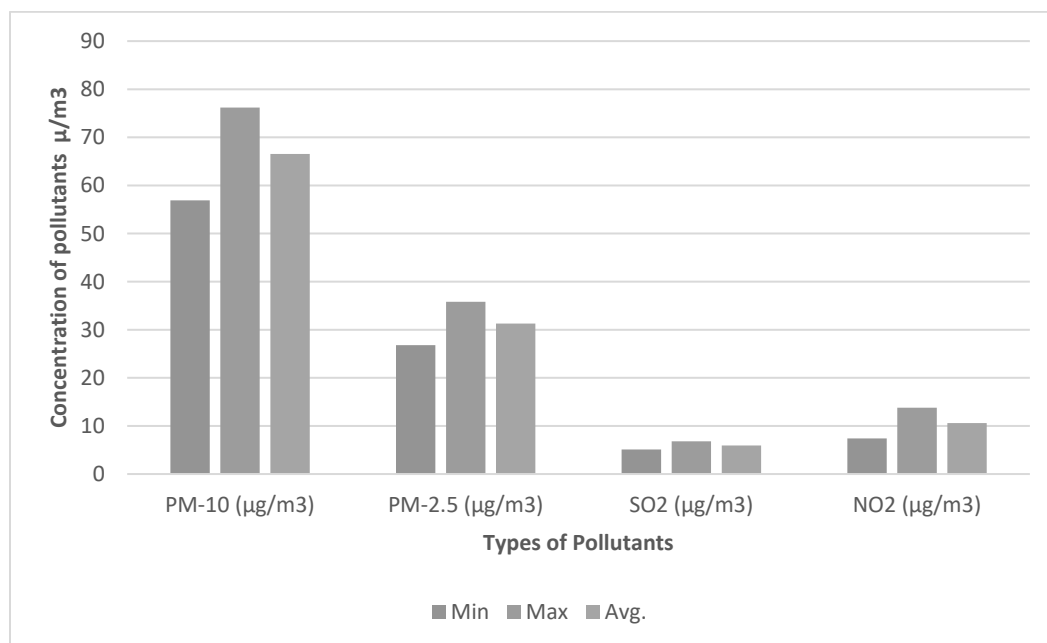


FIG 3.7 AMBIENT AIR QUALITY DATA A2 - SOMASPADI VILLAGE

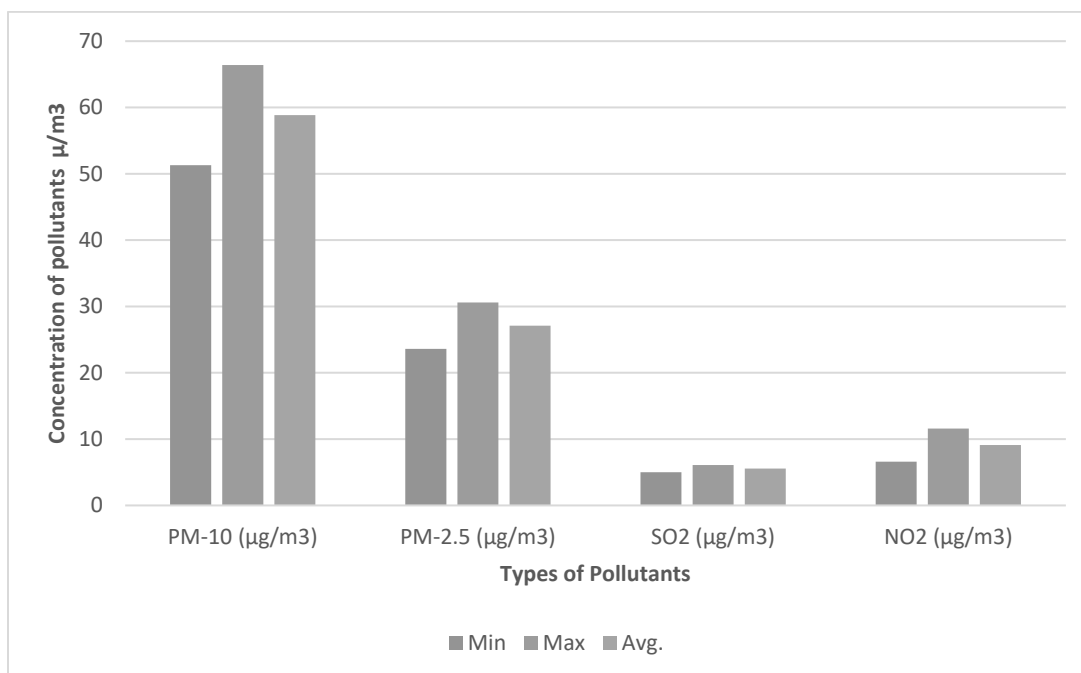


FIG 3.8 AMBIENT AIR QUALITY DATA A3 - KARAMPOONDI VILLAGE

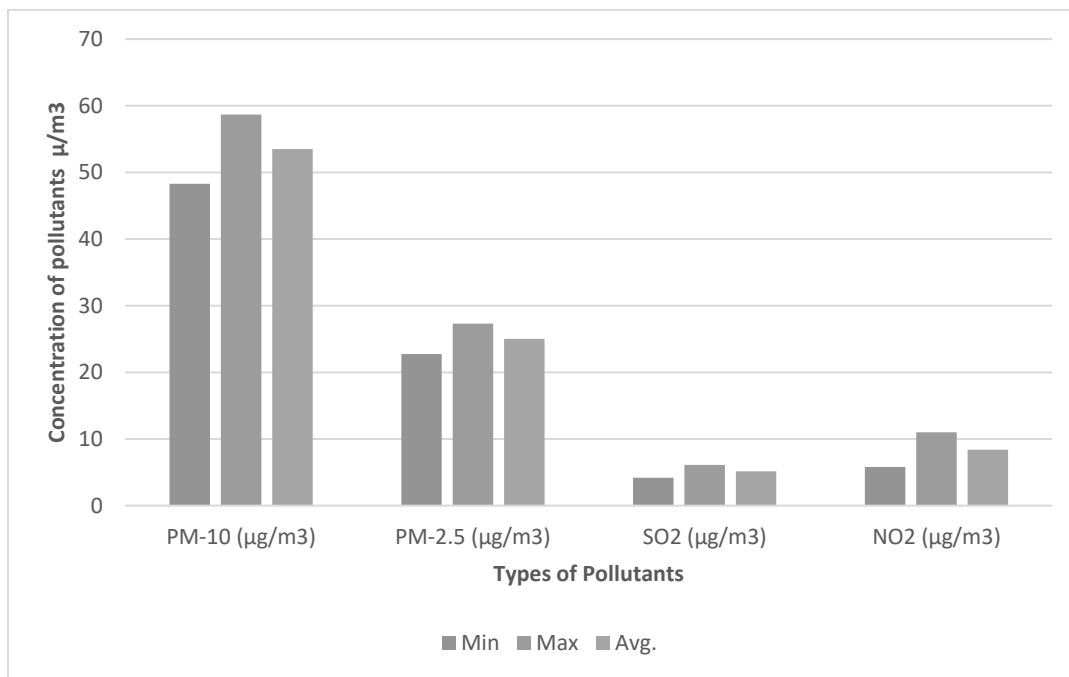


FIG 3.9 AAQ DATA A4 - IYANGUNNAM VILLAGE

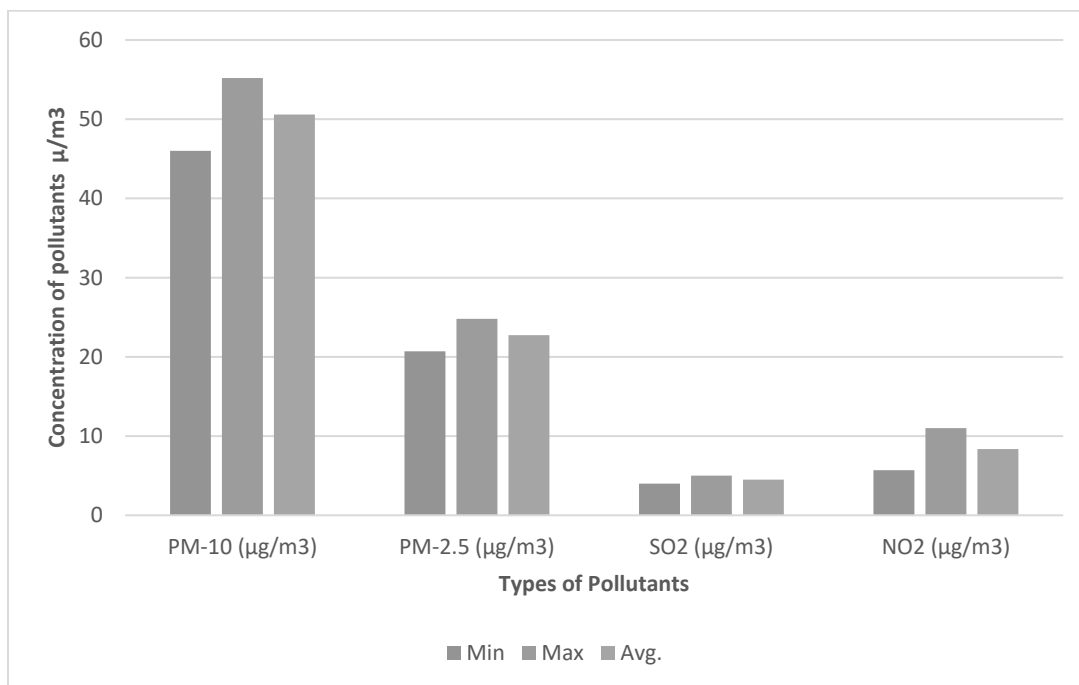


FIG 3.10 AMBIENT AIR QUALITY DATA A5 - KAZHIKULAM

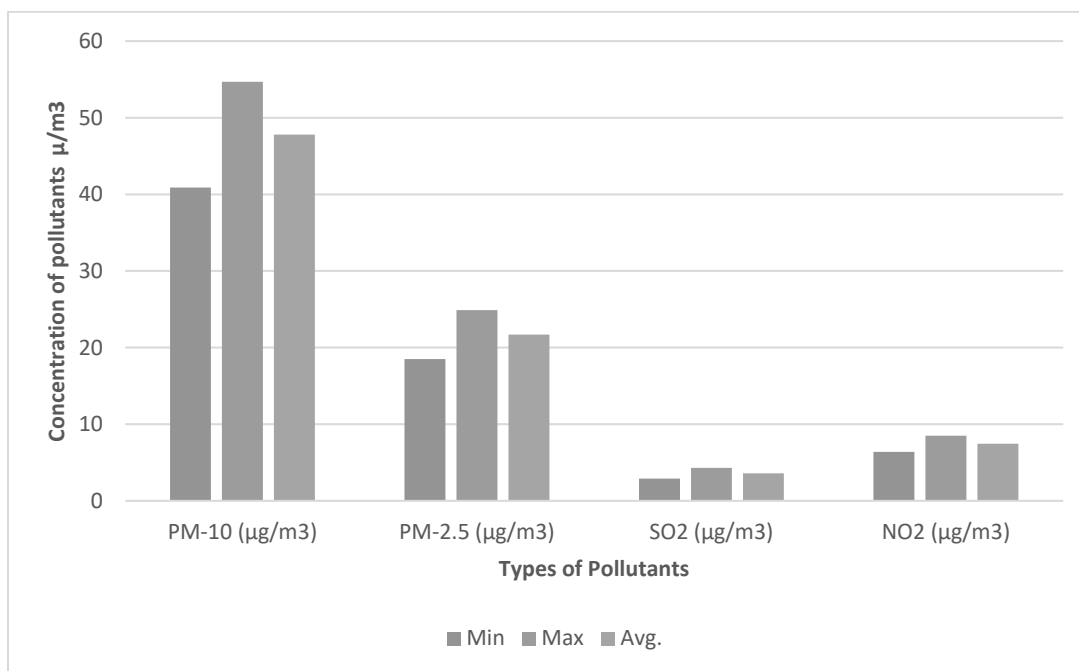
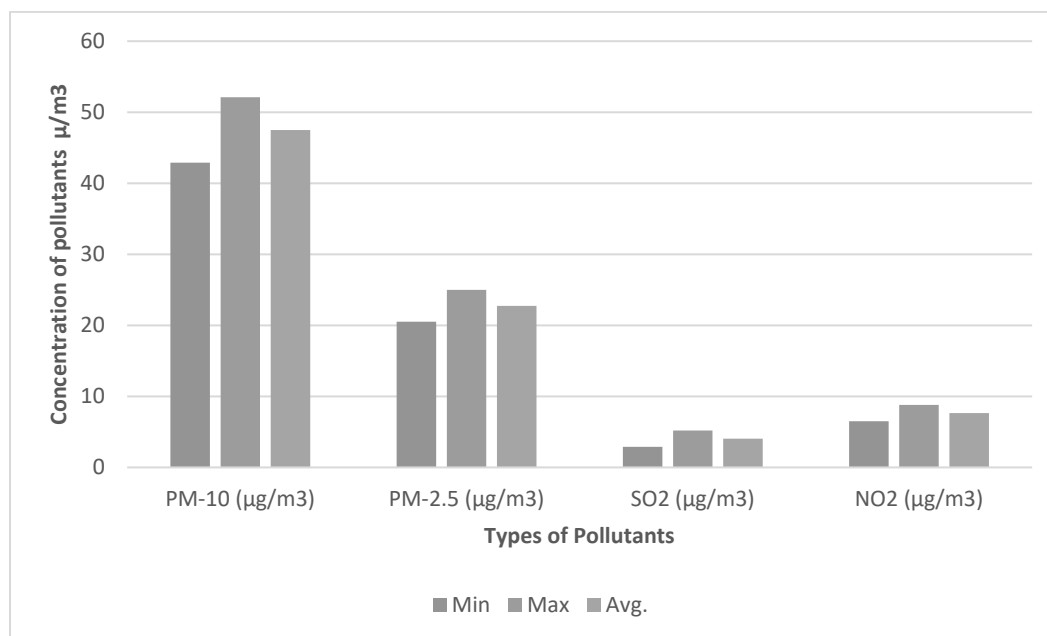


FIG 3.11 AMBIENT AIR QUALITY DATA A6 – NAMIYANDAL SO



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.

3.3.3 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 Thurunjal River is located at a distance of 7.6 km (SW) 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 3.12.

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	Thurunjal River (US)	12°16'18.42"N 79°5'20.82"E
2	SW2	Thurunjal River (DS)	12°12'22"N 79°7'51.15"E
Ground Water			
1	GW1	Near by the Proposed Mine Site	12°15'49.69"N 79°10'3.61"E
2	GW2	Somaspadi	12°15'11.61"N 79°9'53.23"E
3	GW3	Karampoondi	12°15'47.45"N 79°10'54.6"E
4	GW4	Iyangunnam	12°16'18.3"N 79°9'30.16"E
5	GW5	Kazhikulam	12°16'34.66"N 79°10'46.61"E
6	GW6	Namiyandal So	12°15'11.74"N 79°8'36.69"E

FIG 3.12 BASE MAP OF GROUND WATER SAMPLING LOCATIONS

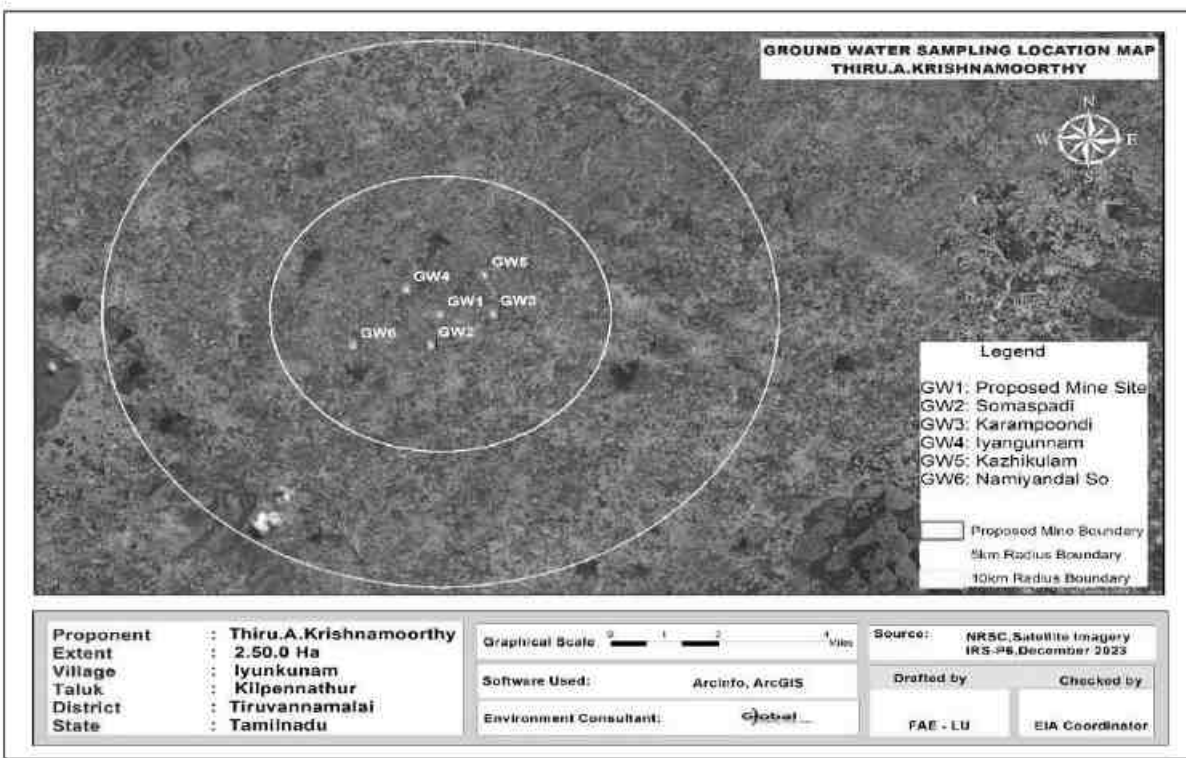


FIG 3.12a BASE MAP OF SURFACE WATER SAMPLING LOCATIONS

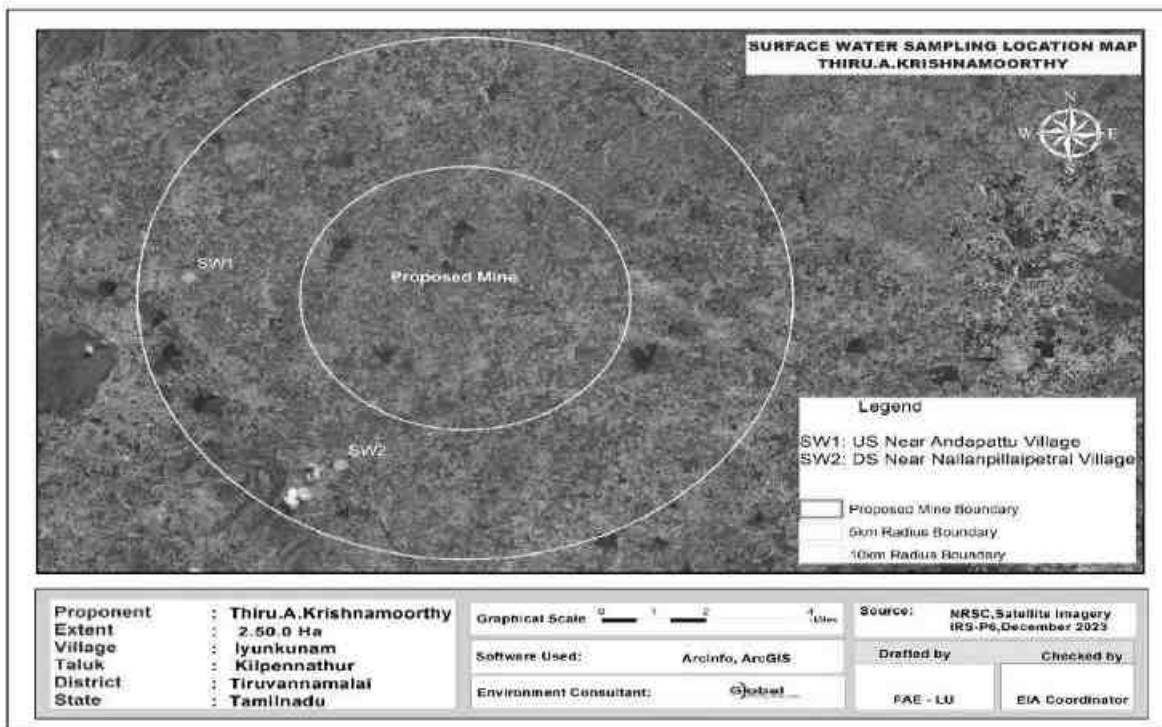


Table 3.6 Surface Water Analysis Results

Sr.No	Parameter	Unit	SW1	SW2	Surface water standards (IS 2296 Class-A)
1	pH	-	7.49	7.65	6.5-8.5
2	EC	µs/cm	828.6	862.3	
3	Turbidity	NTU	6.0	10	1
4	Temperature		31.5	32.0	
5	Odour	mg/l	AGREEABLE	AGREEABLE	
6	T.hardness	mg/l	153	162	
7	C.hardness	mg/l	85.6	89.4	
8	M.hardness	mg/l	67.4	72.6	
9	Calcium	mg/l	34.2	35.8	300
10	Magnesium	mg/l	16.2	17.4	
11	T.alkalinity	mg/l	190	196	
12	Chloride	mg/l	134	141	
13	Sulphate	mg/l	162	172	400
14	Manganese	mg/l	BDL(DL-0.05)	BDL(DL-0.05)	0.5
15	Iron	mg/l	BDL(DL-0.01)	BDL(DL-0.01)	1.0
16	Nitrate	mg/l	2.99	3.56	20
17	Fluoride	mg/l	BDL(DL-0.1)	BDL(DL-0.1)	1.5
18	TDS	mg/l	510	530	500
19	FRC	mg/l	BDL(DL-0.2)	BDL(DL-0.2)	250
20	TSS	mg/l	14.0	22.0	
21	COD	mg/l	BDL(DL-4.0)	BDL(DL-4.0)	
22	BOD	mg/l	BDL(DL-2.0)	BDL(DL-2.0)	
23	DO		5.9	6.2	

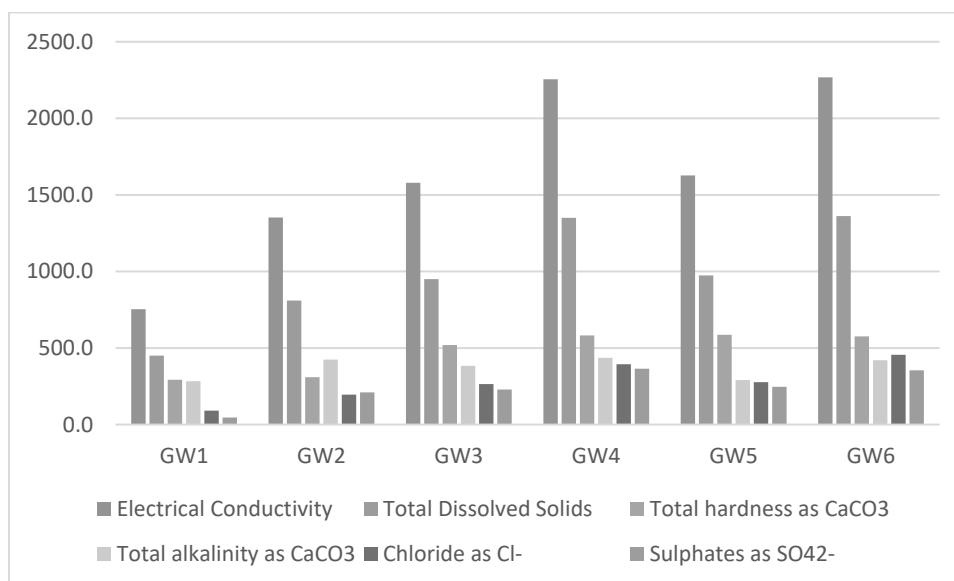
The samples were analyzed by Shrient Analytical & Research Labs Private Limited; Chennai and the results are summarized below.

DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE QUARRY OF THIRU.A.KRISHNAMOORTHY OVER AN EXTENT OF 2.50.0 HA LOCATED AT S.F.NO.135 (PART-6) OF IYUNKUNAM VILLAGE, KILPENNATHUR TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE.

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	Desirabl e	Permissib le
Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeabl e	Agreeabl e
Turbidity	<1	<1	<1	<1	<1	<1	Agreeabl e	Agreeabl e
pH at 25 °C	7.59	7.62	7.05	6.60	7.06	6.98	6.5 - 8.5	No Relaxatio n
Electrical Conductivity	753.9	1352	1579	2255	1627	2268	1	5
Total Dissolved Solids	450	810	950	1350	974	1362	500	2000
Total hardness as CaCO ₃	293	309	519	582	586	576	1	15
Calcium as Ca	79.2	66.5	124	130	165	141	200	600
Magnesium as Mg	22.8	34.2	50.4	61.8	41.8	53.8	200	600
Calcium as CaCO ₃	198	166	309	325	412	352	75	200
Magnesium as CaCO ₃	95.0	143	210	257	174	224		
Total alkalinity as CaCO ₃	283	424	384	436	291	420		
Chloride as Cl ⁻	90.5	195	264	394	277	456	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⁻	45.6	210	229	365	247	354	45	No Relaxatio n
Iron as Fe	0.05	0.11	0.06	0.04	0.08	0.05	200	400
Nitrate as NO ₃	2.34	4.35	1.98	6.89	5.64	4.62	1	No Relaxatio n
Fluoride as F	0.42	0.47	0.44	0.52	0.54	0.59	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 Specifie d	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



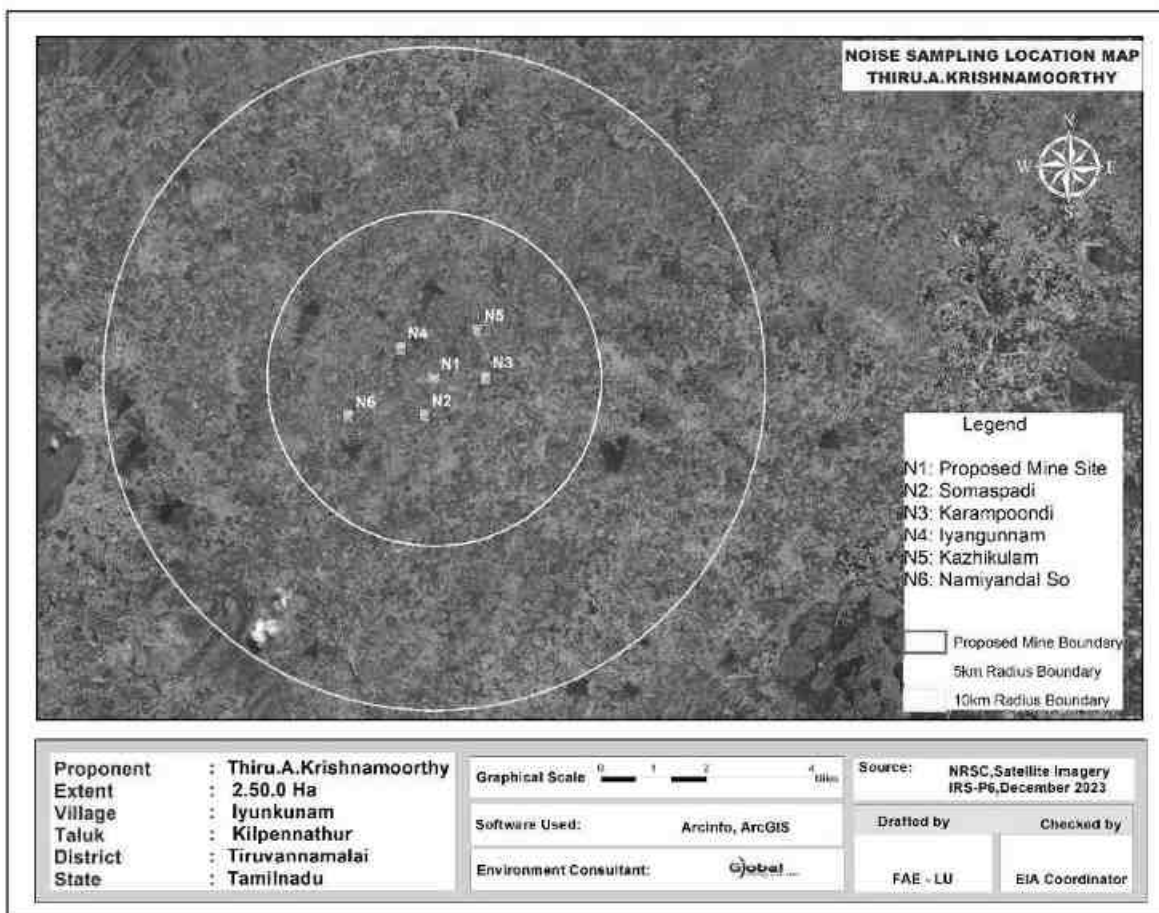
All the values were found to be within the permissible limits.

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 BASE MAP OF NOISE MONITORING LOCATIONS

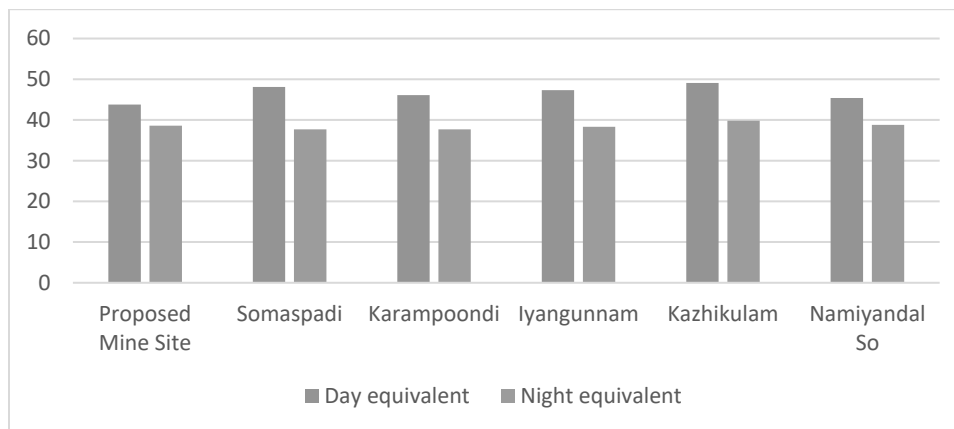


The results are given in Table below.

Table 3.8 Noise monitoring results					
S. No	Location	Day equivalent	Night equivalent	Day equivalent limits by CPCB	Night equivalent limits by CPCB
1	Near by Proposed Mine Site	43.8	38.6	75	70
2	Somaspadi	48.1	37.7		
3	Karampoondi	46.1	37.7		
4	Iyangunnam	47.3	38.3		
5	Kazhikulam	49.1	39.8		
6	Namiyandal So	45.4	38.8		

The results are plotted as below.

FIG 3.15 DAY AND NIGHT EQUIVALENT VALUES IN 6 LOCATIONS

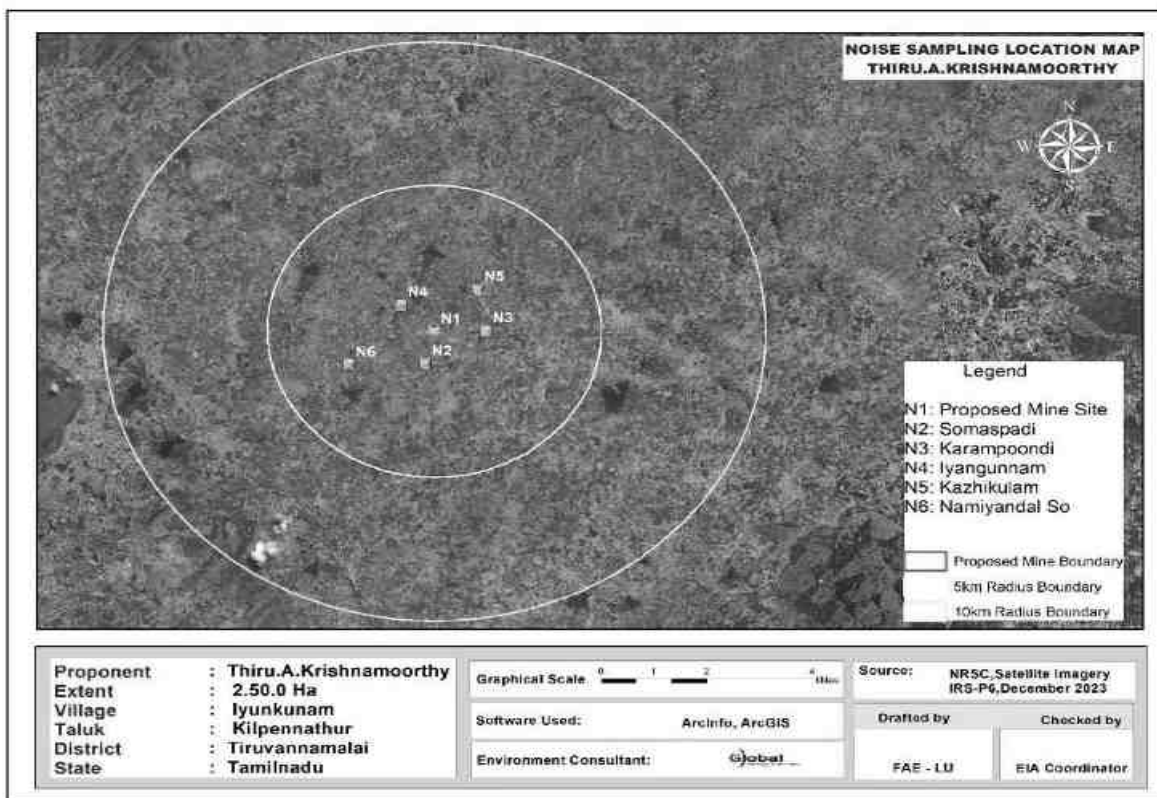


All the values are found to be within CPCB norms.

3.3.5 SOIL SAMPLING ANALYSIS

Soil samples have been collected from the mine lease area and 5 other locations from Somaspadi, Karampoondi, Iyangunnam, Kazhikulam and Namiyandal So Villages. The locations are shown in figure below.

FIG 3.16 BASE MAP OF 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	-	6.78	6.66	7.26	7.05	7.56	6.96
2	Electrical Conductivity	µmhos/cm	70.24	158.80	104.30	110.60	174.10	95.64
3	Dry matter content	%	95.68	94.67	96.14	97.84	90.70	97.78
4	Water Content	%	4.32	5.33	3.86	2.16	9.30	2.22
5	Organic Matter	%	1.25	1.95	2.09	1.68	2.09	1.65
6	Soil texture	-	sandy clay	clay	silt loam	loam	SILTY CLAY	SILTY CLAY
7	Grain Size Distribution	%	61.00	37.76	17.89	36.47	5.86	6.48
	i. Sand							
	ii. Silt							
9	iii. Clay	%	53.74	41.20	16.41	19.93	54.59	46.84
10	Phosphorous as P	mg/kg	0.69	0.78	1.32	0.96	1.75	1.11
11	Sodium as Na	mg/kg	745	998	1020	812	656	1042
12	Potassium as K	mg/kg	366	1056	976	765	794	896
13	Nitrogen and Nitrogenous Compounds	mg/kg	232	364	297	255	366	455
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	%	20.7	24.4	23.1	21.6	20.5	22.3
16	Water Holding Capacity	Inches/foot	38	36	40	42	40	36

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°15'45.35"N to 12°15'50.21"N and Longitude: 79°10'00.82"E to 79°10'05.43"E.

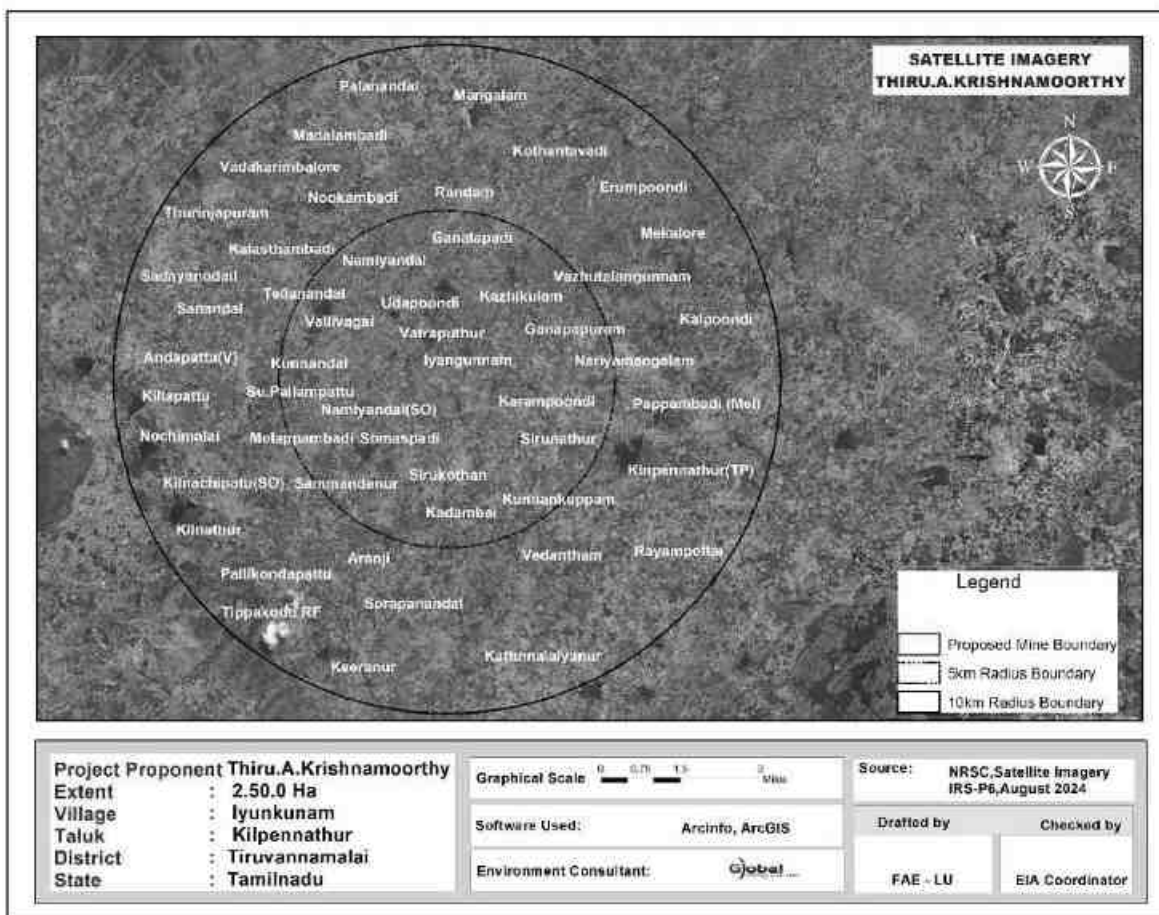


Figure No. 3.17: Remote Sensing Satellite Image

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, and Government of India. Some of the landuse units that are identified in the study area are listed in **Table No. 3.13** 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.	1st level classification	2nd 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

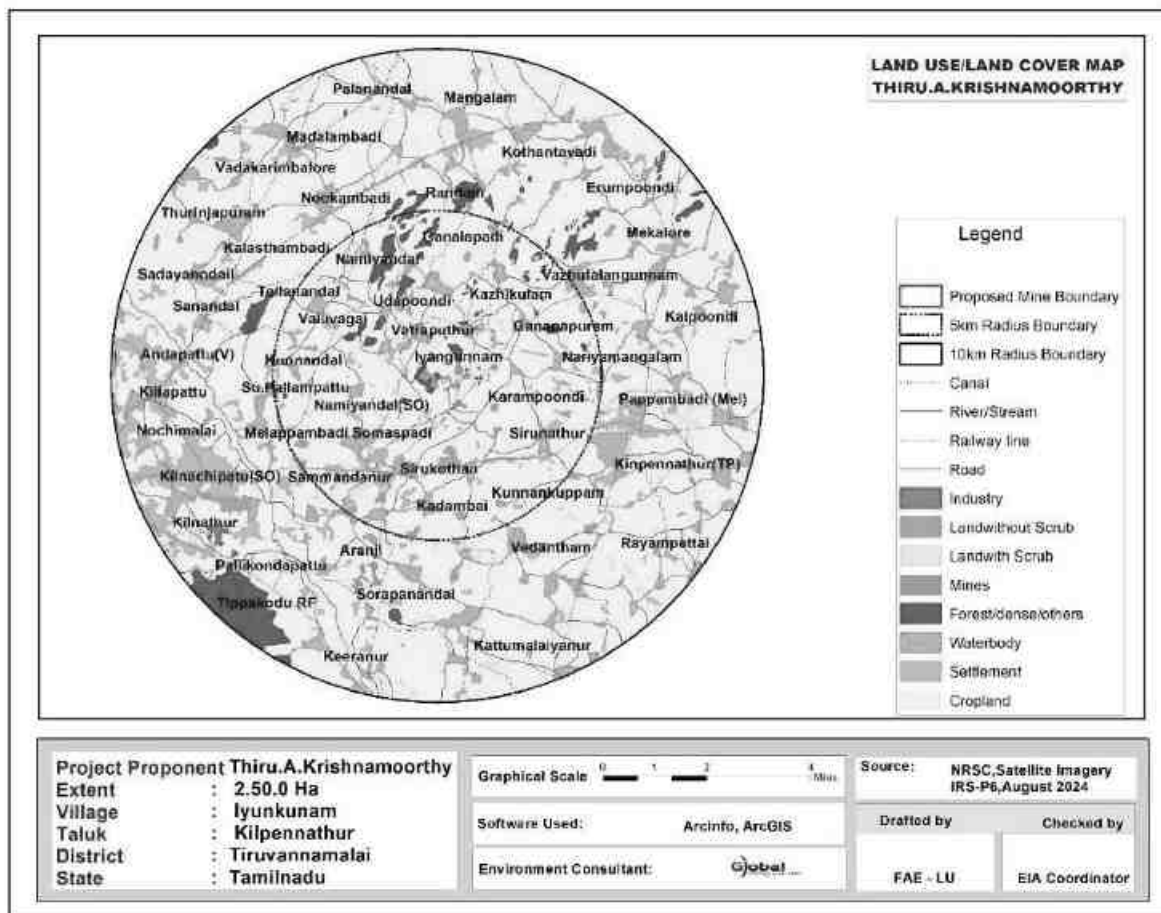
Land Use Pattern of 10 km Radial Buffer Area of Project Site

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 Iyunkunam 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 landwith 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 landuse 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 318 sq. km and spatial distribution of various LULC categories within buffer area are discussed below. The 5km and 10km radius landuse 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. Tiruvannamalai 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 24.90 sq. km representing 7.83 % of the study area and Industrial + Commercial area covers 0.31 sq. km with 0.10 %.

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 254.93 Sq.km representing 80.17% 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 2.31 sq.km representing 0.73 % 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 2.23 sq.km representing 0.70 % 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.

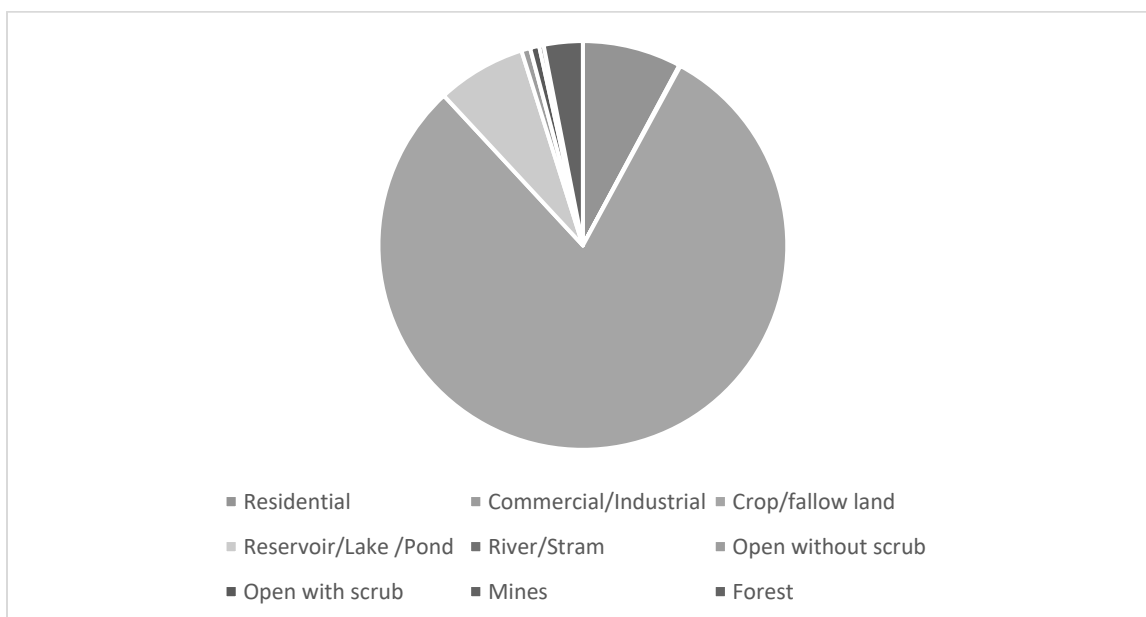
Most of the water bodies retain water for a shorter period after precipitation due to the soil constraint and hence go dry soon. Spatial extent of rivers, stream and water bodies is estimated at 22.40 sq.km and 7.04 %.

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 1.12 sq.km with 0.35 %. Spatial extent of forest/government poramboke land, etc is estimated at 9.80 sq.km with 3.08 %.

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	25.21	7.93	Residential	24.90	7.83
				Commercial/Industrial	0.31	0.10
2	Agriculture	254.93	80.17	Crop/fallow land	254.93	80.17
3	Water bodies	22.40	7.04	Reservoir/Lake /Pond	22.40	7.04
				River/Stram		
4	Waste Land	4.54	1.43	Open without scrub	2.23	0.70
				Open with scrub	2.31	0.73
5	Mines	1.12	0.35	Mines	1.12	0.35
6	Forest	9.80	3.08	Forest	9.80	3.08
Total		318	100	Total	318	100



3.3.8 SOCIOECONOMIC ENVIRONMENT

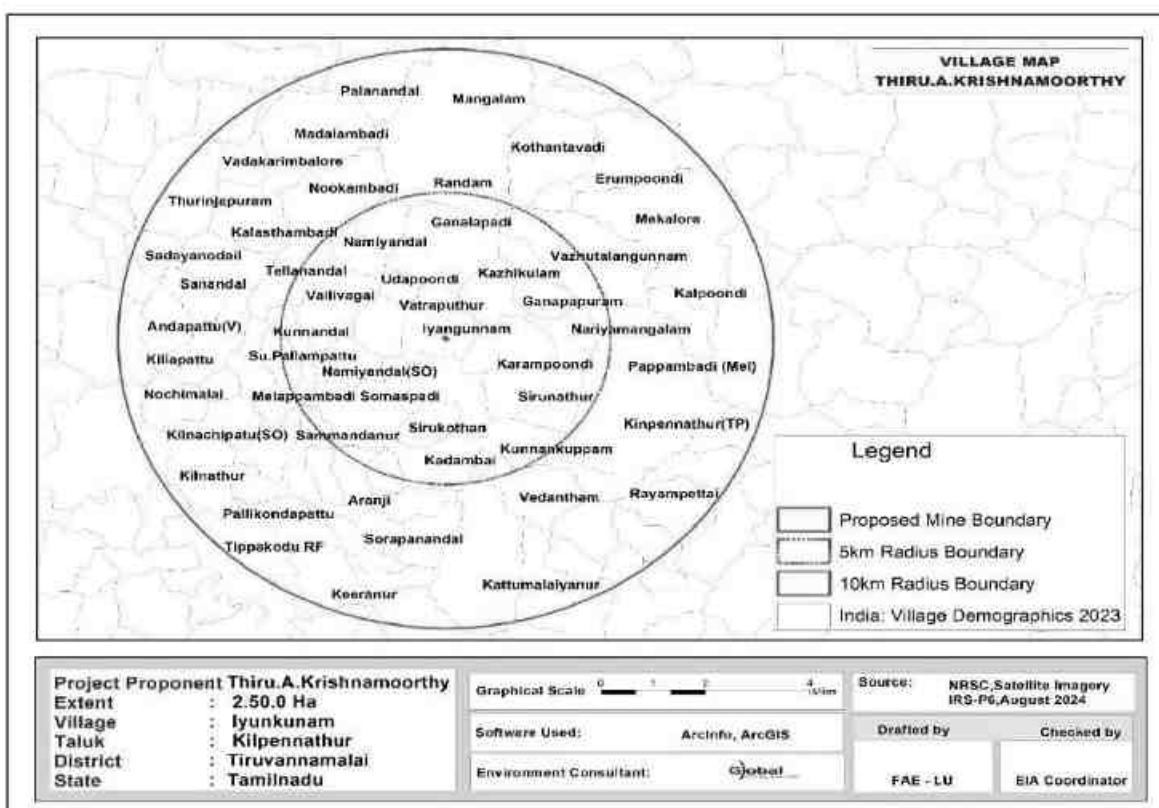
The socio-economic environment of the study area is studied by conducting primary sites through site visits and conducting sample surveys. The secondary data obtained from Census 2011 is also used. The following data area collected from secondary data:

- 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 3.19 below.

FIG 3.19 VILLAGE MAP OF THE STUDY AREA



DETAILS OF VILLAGES

The project is located in Iyunkunam Village, Kilpennathur Taluk, Tiruvannamalai District, Tamil Nadu State. The total population is 299612 which comprise of 149969 males and 149643 females. There are 62 rural & urban 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	Vazhuthalangunnam	1-5km	Kilpennathur	Tiruvannamalai
2	Nariyamangalam			
3	Ganalapadi			
4	Udappoondi			
5	Vatraputhur			
6	Iyangunnam			
7	Kazhikulam			
8	Karampoondi			
9	Namiyandal (SO)			
10	Somaspadi			
11	Sirukothan			

DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE QUARRY OF THIRU.A.KRISHNAMOORTHY OVER AN EXTENT OF 2.50.0 HA LOCATED AT S.F.NO.135 (PART-6) OF IYUNKUNAM VILLAGE, KILPENNATHUR TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE.

12	Kadambai			
13	Random			
14	Nookambadi			
15	Madalambadi			
16	Vadakarimbalore			
17	Sorakolathur			
18	Thurinjapuram			
19	Drugiammiandal			
20	Sananandal			
21	Tellanandal			
22	Kunnandal			
23	Su.Palliampattu			
24	Malappambadi			
25	Kiliapattu			
26	Andapattu (V)			
27	Kunnumuringi			
28	Nochimalai			
29	Vaniyanthangal			
30	Kilnathur			
31	Tiruvannamalai (M)			
32	Pallikondapattu			
33	Chinnakangiyanur			
34	Nallanpillaipetral			
35	Vedandavadi			
36	Erumpoondi			
37	Mekalore			
38	Kothantavadi			
39	Ganapapuram			
40	Kalpoondi			
41	Rayampettai			
42	Sirunathur			
43	Kunnankuppam			
44	Manavaram			
45	Karikilambadi			
46	Kaniyampoondi			
47	Kolathur			
48	Palanandal			
49	Mangalam			
50	Vedantham			
51	Kalitheri			
52	Kattuvalanandal			
53	Aranji			
54	Kumarakudi			
55	Su. Polakunam			
56	Kattumalaiyanur			

6-10

Tiruvannamalai

Tiruvannamalai

Kilpennathur

57	Vettavalam (TP)			
58	Sorappanandal			
59	Kalingaleri			
60	Arumbakkam			
61	Konalur			
62	Keeranur			

Table 3.16 Population profile of the study area		
Particulars	No of Population	Percentage (%)
A. Population break-up by Gender		
Male Population	149969	50
Female Population	149643	50
Total	299612	100
B. Population break-up by Caste		
Scheduled Caste	55802	18.62
Scheduled Tribes	3952	1.32
Others	239858	80.06
Total	299612	100
C. Literacy Level		
Male Literate Population	117656	39.27
Female Literate Population	98975	33.03
Male Illiterate	32313	10.78
Female Illiterate	50668	16.91
Total	299612	100
D. Occupational structure		
Main workers	107876	-
Marginal workers	21633	-
Total Workers	129509	43
Total non-workers	170103	57
Total	299612	100

The above table shows that the male and female population ratios are almost equal. Among the total population 1.32 % belong to Scheduled Tribes, 18.62 % are Scheduled Caste and the balance 80.06 % people belong to other castes. Among the total population 72.3 % of the people are literate. Among the total population 39.27

% are literate males and 33.03 % 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

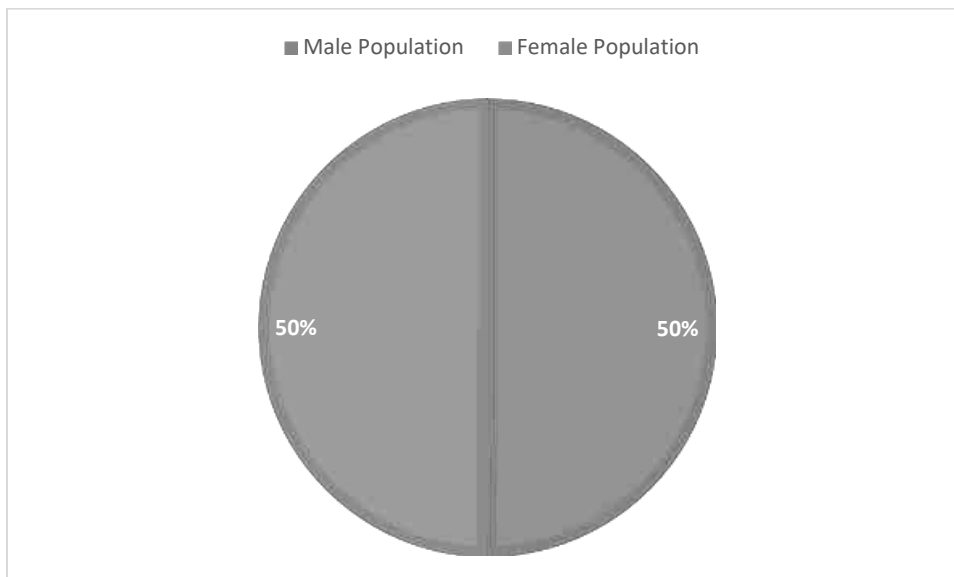


FIG 3.21 GENDER WISE LITERACY DISTRIBUTION

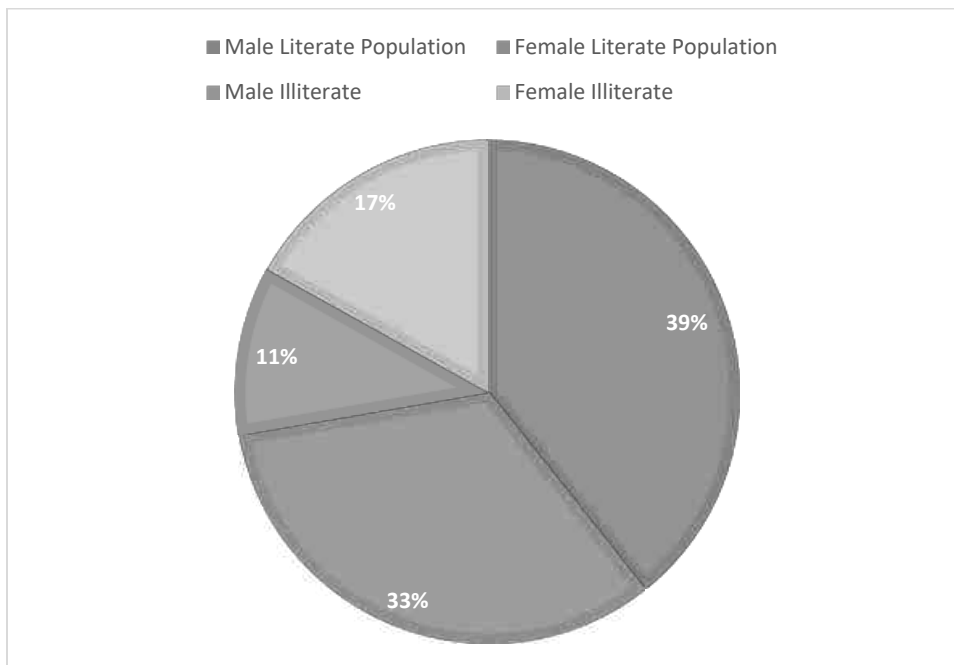
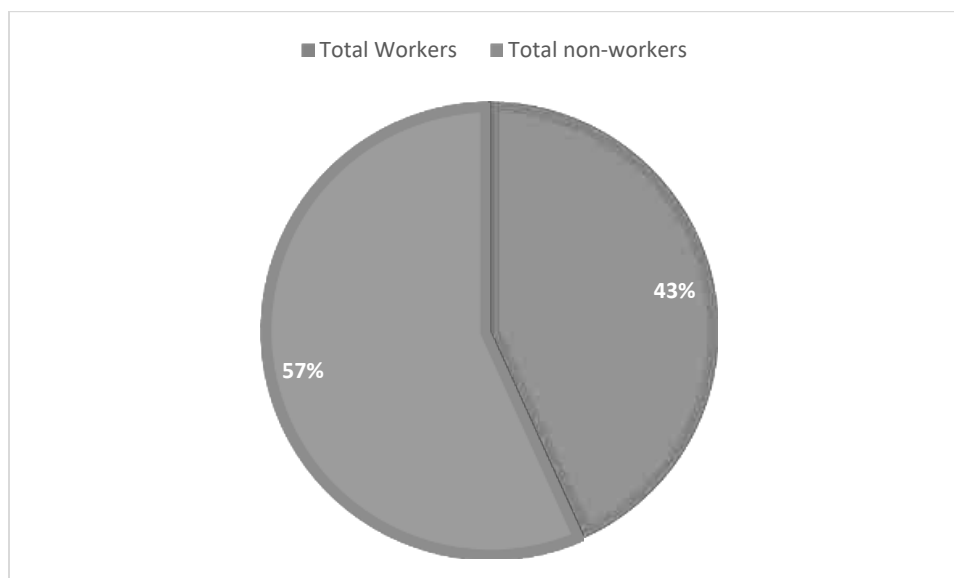


FIG 3.22 OCCUPATIONAL STRUCTURE WITHIN BUFFER ZONE



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	Kilpennathur - 23
2	Govt. Middle School	20
3	Govt. Secondary School	15
4	Govt. Senior Secondary School	15
5	Govt. Arts and Science Degree College	23
6	Govt. Engineering College	1
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 23 Primary Schools functioning in these 13 urban areas. Among them 35 villages have 15 primary school, 20 villages have 16 primary schools & 32 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	5
3	Primary Health Sub Centre	26
4	Maternity And Child Welfare Centre	17
5	TB Clinic	11
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	55
2	Covered Well	16
3	Hand Pump	18
4	Tube Wells/Borehole	15
5	Post office	12
6	Public bus services	10
7	Commercial Bank	19
8	Cooperative bank	15

Sample Survey

The expert visited 5 villages in the study area namely Somaspadi, Karampoondi, Iyangunnam, Kazhikulam and Namiyandal so 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 Tiruvannamalai. 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 Tiruvannamalai which is about 10.0 km from the lease area. Major schools with higher secondary and senior secondary schools are located in Tiruvannamalai. The major Iyunkunam Union located in the area is Tiruvannamalai. Facilities like petrol pump stations, ATM facility are available in Tiruvannamalai.

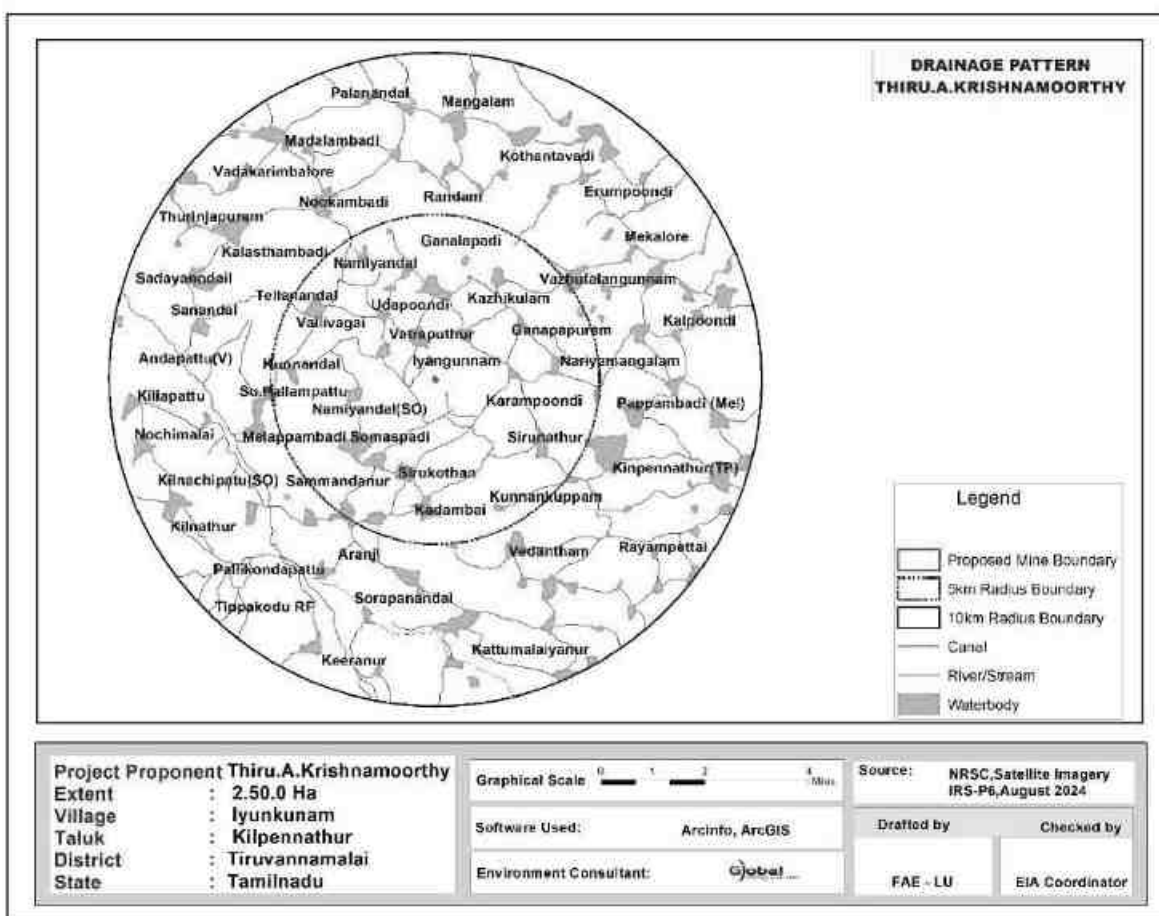
3.3.9 HYDROGEOLOGY OF THE STUDY AREA

There is Thurunjal River is located at a distance of 7.6 km (SW) 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 Iyunkunam Village, Kilpennathur Taluk, Tiruvannamalai District 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 hilly terrain covered by rough stone. The massive Charnockite formation is clearly visible right from the surface and gentle towards Southwestern side of the area, the altitude of the area is above 225 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 Thurunjal River is located at a distance of 7.6 km (SW) direction of lease area.

GEOLOGY, GEOMORPHOLOGY AND SOIL

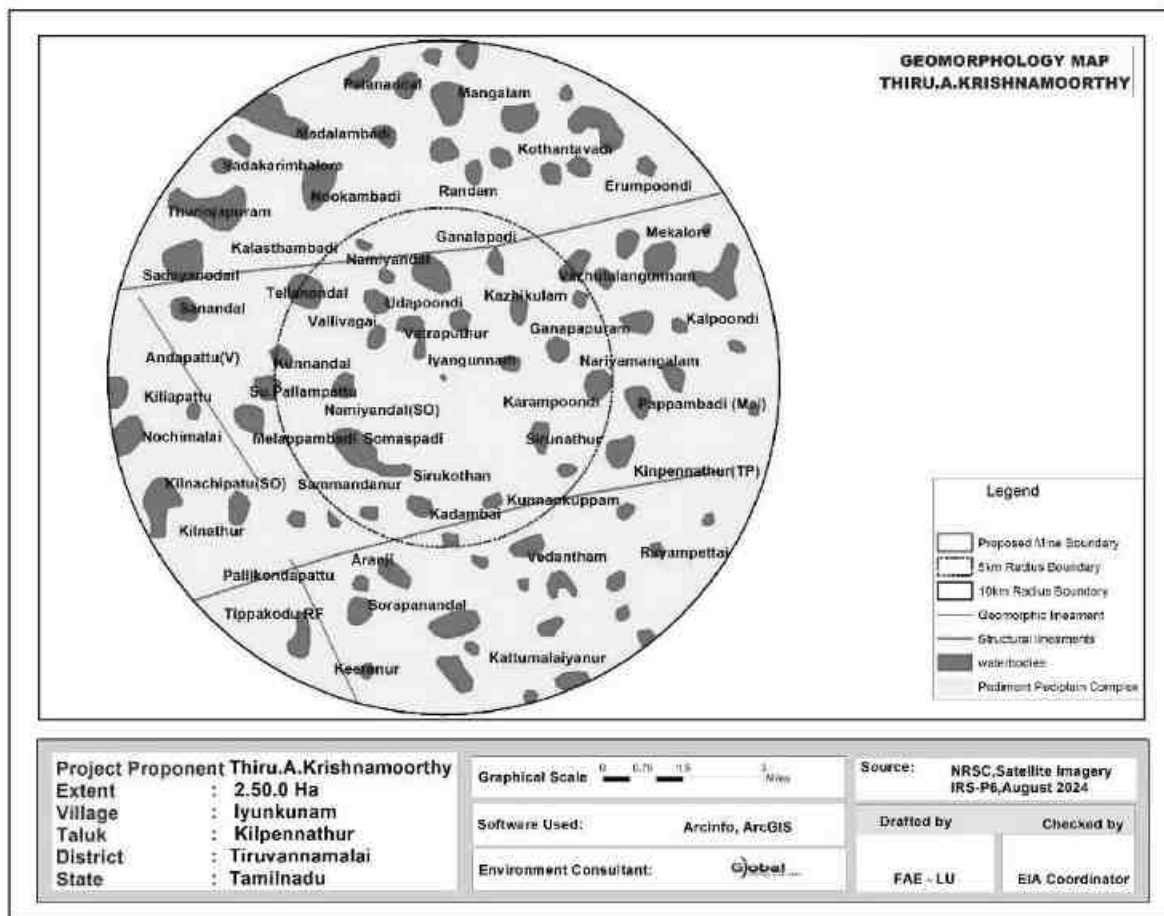
Geology:

Geologically Tiruvannamalai District is mostly underlain by the Archaean crystalline and metamorphic complex. The geology of the district is complicated due to recurring tectonic and magmatic activities occurred during. Pre-Cambrian period. Hornblende Biotite Gneisses are the oldest rocks of the district. It is very fissile and present widely in plains. The gneisses are highly weathered upto 30 m at some places.

The Charnockites are coarse grained, massive and foliated at places and their colour is bluish dark to grey. They are the second largest rock type present in the district. They are massive and less weathered than the gneisses. They exhibit 2 to 3 distinct set of joints and most of them are vertical with steep dips. Iron ore deposits associated with quartz feldspathic gneiss and garnetiferous quartz gneisses are present in some areas. These rocks are highly folded and jointed and less weathered. Quartzite and crystalline lime stones are exposed in patches in north and central parts of the district. The thickness of these bands varies from a few meters to ten meters and the length extends to few kilometers. Numerous lenses of dunite with magnesite veins of various dimension are exposed within gneiss .There are number of basic dykes present in the study area. Granites are found in some parts of the district. They are massive and jointed poorly. Several faults and shears are occurring mostly with north east-southwest trend. They are expected to influence the course of groundwater movement, its storage and developmental potentials in the district.

614 m), Varakūr Malai. 445 m (prom: 264 m), Periya Malai. 399 m (prom: 223 m), Vedyappan Malai. 414 m (prom: 187 m), Kachirāppat Malai. 349 m (prom: 173 m), Valasa Malai. 285 m (prom: 121 m), Pulanji Malai. 278 m (prom: 110 m), Sulpakadi Durgam. 271 m (prom: 106 m) hill range.

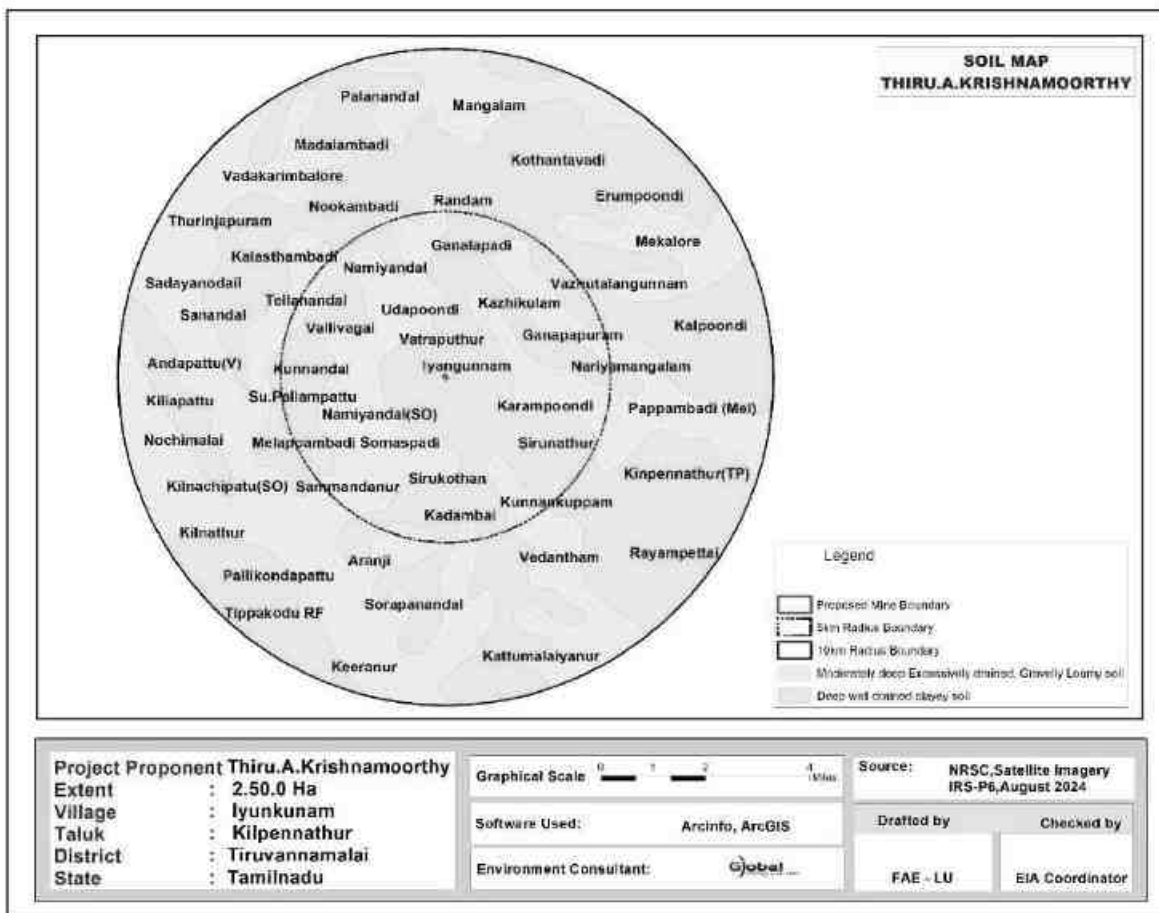
FIGURE 3. 25 10 KM RADIUS OF THE STUDY AREA GEOMORPHOLOGY MAP



Soil: The soil types in the study area are mostly Calcareous black soil, Red loamy soil, clayey soil and Calcareous clayey soil (Figure 3.23.). Calcareous black soil (177.25 sq.km) was distributed over the study area. Red loamy soil is found in north, east, west and central part of the study area (108.43 sq.km). Clayey soil is found in north-western part of the study area (34.93 sq.km).

FIGURE 3.26 10 KM RADIUS OF THE STUDY AREA SOIL TYPE MAP

DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE QUARRY OF THIRU.A.KRISHNAMOORTHY OVER AN EXTENT OF 2.50.0 HA LOCATED AT S.F.NO.135 (PART-6) OF IYUNKUNAM VILLAGE, KILPENNATHUR TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE.



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

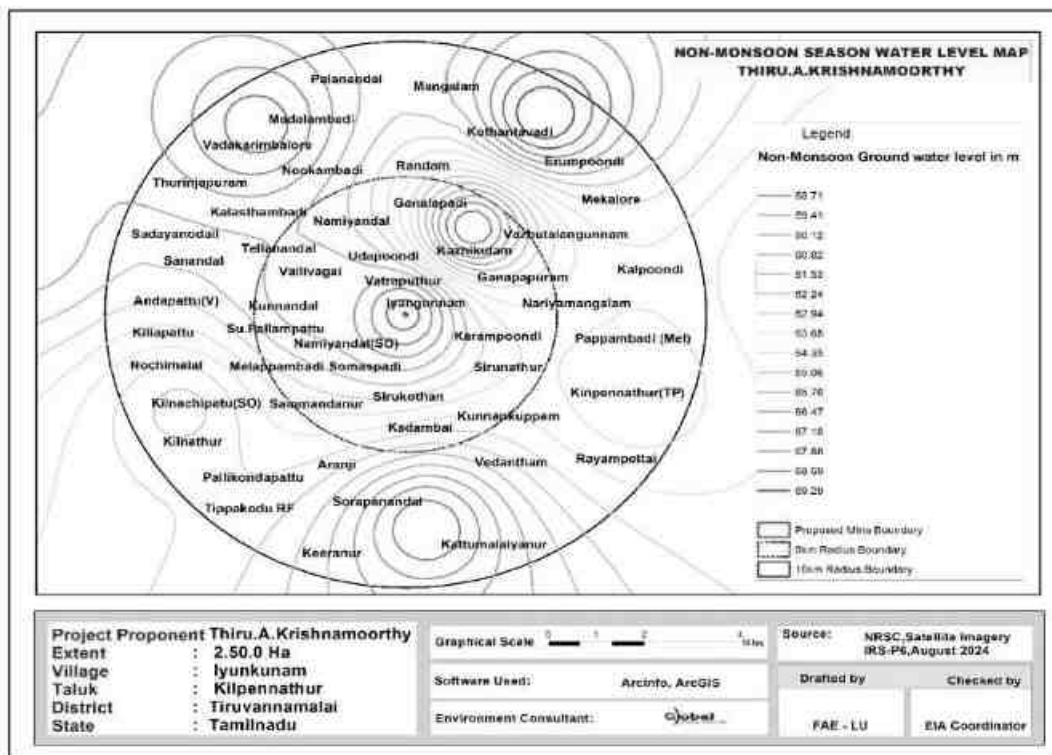
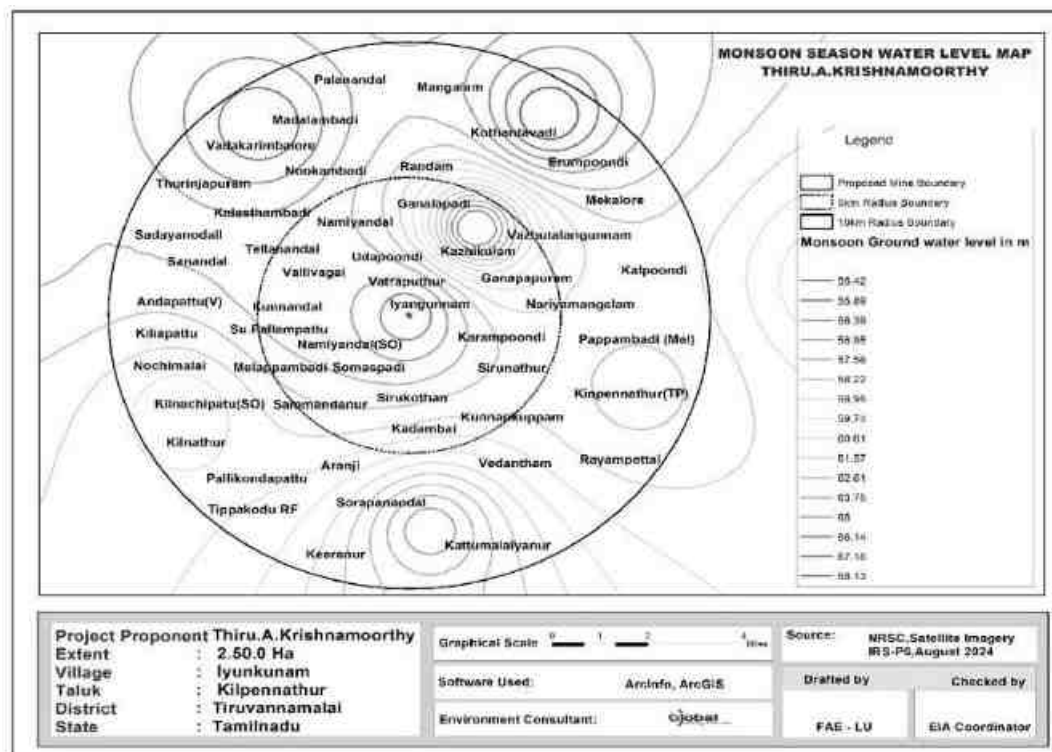


FIGURE 3.28 MONSOON WATER LEVEL MAP OF THE STUDY AREA



FIELD INVESTIGATION

The temporary seasonal streams water flow from center to outer most area. There is There is Thurunjal River is located at a distance of 7.6 km (SW) direction of lease area. 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 of S.F.No. 135 (Part-6) over an extent of 2.50.0 Ha in Iyunkunam Village, Kilpennathur Taluk, Tiruvannamalai 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 1,85,825 m³ of Rough Stone up to a depth of 30m above ground level for the period of five 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 Government poramboke land. The project area of 2.50.0 Ha boundary barrier except in eastern direction. It is proposed to be altered by effective quarrying operation such as excavation (1.82.0 Ha), Infrastructure (0.01.0), Road (0.01.0 Ha) and green belt will be developed in the safety zone of 0.20.0 Ha. The ultimate depth of quarrying is proposed with maximum depth of 30m above ground level and will not intersect the ground water table.

4.2 MEASURES FOR MINIMIZING AND /OR OFFSETTING ADVERSE IMPACTS IDENTIFIED

Aspect	Impact	Mitigation measures																					
Topography	<p>The area is exhibits hilly terrain covered by rough stone 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.</p>	<p>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 30m Above ground level. At the end of mining period, the quarried pit will act as a water reservoir to store the rain water.</p> <p>Land Use at the end of mine will be as follows.</p> <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>1.82.0</td></tr><tr><td>Green Belt</td><td>0.20.0</td></tr><tr><td>Remaining area</td><td>0.48.0</td></tr><tr><td>Total</td><td>2.50.0</td></tr></table>	Land Use	Area in use during the quarrying period (Hect)	Area left for water body	1.82.0	Green Belt	0.20.0	Remaining area	0.48.0	Total	2.50.0											
	Land Use	Area in use during the quarrying period (Hect)																					
Area left for water body	1.82.0																						
Green Belt	0.20.0																						
Remaining area	0.48.0																						
Total	2.50.0																						
	<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>1.82.0</td></tr><tr><td>Infrastructure</td><td>Nil</td><td>0.01.0</td></tr><tr><td>Roads</td><td>Nil</td><td>0.02.0</td></tr><tr><td>Green Belt</td><td>Nil</td><td>0.20.0</td></tr><tr><td>Unutilized</td><td>2.50.0</td><td>0.45.0</td></tr><tr><td>Total</td><td>2.50.0</td><td>2.50.0</td></tr></table>	Land Use	Present Area (Hect)	Area in use during the quarrying period (Hect)	Quarrying Pit	Nil	1.82.0	Infrastructure	Nil	0.01.0	Roads	Nil	0.02.0	Green Belt	Nil	0.20.0	Unutilized	2.50.0	0.45.0	Total	2.50.0	2.50.0	<p>At the mine closure stage 1.82.0 Ha of lease area will be left as rain water harvesting pond 0.20.0 Ha will be developed with green belt.</p> <p>Greenbelt shall be developed around the mine lease area and the details has been given below.</p>
Land Use	Present Area (Hect)	Area in use during the quarrying period (Hect)																					
Quarrying Pit	Nil	1.82.0																					
Infrastructure	Nil	0.01.0																					
Roads	Nil	0.02.0																					
Green Belt	Nil	0.20.0																					
Unutilized	2.50.0	0.45.0																					
Total	2.50.0	2.50.0																					

The ultimate pit dimension of the mine lease area is given below.

Ultimate Pit dimension at the end of Mining plan Period

Pit No.	Length (max) (m)	Width (Avg) (m)	Depth (max) (m)
I	198	92	30m above ground level

If mining is not done systematically it will leads to the dumping failure in the mining area.

Year	Species	No. of trees	Spacing	Survival
I	Neem/ Pungan	1250	3m x 3m	80%
II				
III				
IV				
V				
Total		1250		

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 are proposed to quarry 5m bench height and 5m width with 60° slope and with conventional opencast Mechanized method. As per the approved mining plan a safety distance of 7.5m,10m shall be provided. There is no overburden anticipated during the entire Rough Stone quarrying operation. The excavated rough stone will be directly loaded into tipper to the needy crusher/other buyers.

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 30m above ground level). The ground water table is reported as 58 m. In the proposed mining plan only 30m above ground level 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 30m above ground level. 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 30m above ground level. 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.

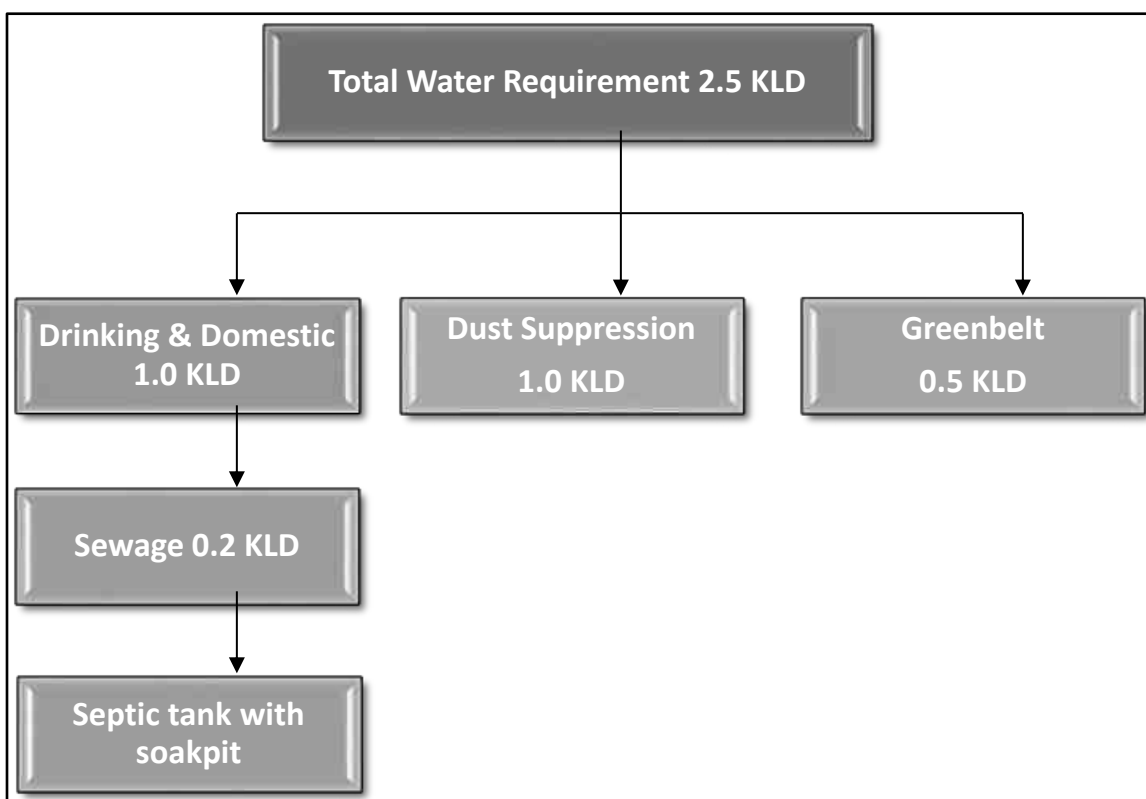
There is Thurunjal River is located at a distance of 7.6 km (SW) direction of lease area. Water table is found at a depth of 58m.

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 2.5 KLD which will be sourced from outside agencies. Negligible sewage of 0.2 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



Impact on Ground Water

The mining activity is not likely to intersect ground water as the ground water table occurs at a depth of 58m. The mining will go up to the maximum depth of 30m above ground level. 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 Tiruvannamalai Districts is given below.

TABLE 4.1 Ground Water Level Status in Tiruvannamalai 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	Tiruvannamalai	111,687.47	99,684.23	3,278.01	102,962.24	92	Over Exploited

Source: nwm.gov.in

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

4.2.3 VEGETATIONVEGETATION 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 0.20.0 Ha. Trees like Neem/Pungan will be planted around the mine lease area. A total of 1250 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 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF ENVIRONMENTAL COMPONENTS.

4.3.1 IMPACT DUE TO MINING OPERATION

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

4.3.2 IMPACT ON AIR ENVIRONMENT

The 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 1,85,825 m³ of Rough Stone by the open cast mechanized 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 opencast mechanized 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 1,85,825 m³ of Rough Stone by the open cast mechanized 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.

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 1.03 $\mu\text{g}/\text{m}^3$ of PM 2.5 & 2.42 $\mu\text{g}/\text{m}^3$ of PM10 within the mine area and surrounding cluster area 1.89 $\mu\text{g}/\text{m}^3$ of PM 2.5 & 3.38 $\mu\text{g}/\text{m}^3$ 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 Quarry of Thiru.A.Krishnamoorthy is quantified and presented below:

Area Emissions – Total Material handling (Proposed Rough Stone)

Quantity, TPA	Rough Stone: 1,85,825 m ³ (Five Years)
Operational Hours Per Year	2400
Activity Rate, t/hr.	340.162
Emission of dust, g/t.	0.16
Emission of dust, g /hr.	50.3214
Area of influence, m ²	625
Uncontrolled emission rate g/s/m ²	0.00002707
Controlled emission rate, PM10 g/s/m ²	0.000027070
Controlled emission rate, PM2.5 g/s/m ²	0.00001804

Area Emissions – Total Material handling (Cluster Rough Stone)

Quantity, m ³	Future Proposed Quarries: <ul style="list-style-type: none"> • Tmt.A.Kalpana (Extent – 1.00.0 Ha) - Rough Stone (81,350 m³- five years). • P.Aadhimoolam Quarry (Extent – 1.00.0 Ha) - Rough Stone. • P.Aadhimoolam Quarry (Extent – 4.00.0 Ha) - Rough Stone. • Thiru.Alavudeen Bhasa (Extent – 1.00.0 Ha.
Operational Hours Per Year	2400
Activity Rate, t/hr.	395.051
Emission of dust, g/t.	0.22
Emission of dust, g /hr.	59.1452
Area of influence, m ²	625
Uncontrolled emission rate g/s/m ²	0.0004685
Controlled emission rate, PM10 g/s/m ²	0.00046859
Controlled emission rate, PM2.5 g/s/m ²	0.000031542

Line Source – Transport of Proposed Rough Stone

Quantity, TPA	Rough Stone: 1,85,825 m ³ (Five Years)
Operational Hours Per Year	2400
Capacity of each Dumper (T)	10
Total No. of Tippers/ year	123
Lead length/trip, Km	0.16
Total VKT/Year	6315
Emission Kg/VKT	0.29
Total emission Kg/Year	15562
Uncontrolled emission rate g/s/m	62424
Controlled emission rate, PM10 g/s/m	0.62424
Controlled emission rate, PM2.5 g/s/m	0.04511

Line Source – Transport of Rough Stone (Cluster)

Quantity, m ³	Future Proposed Quarries: <ul style="list-style-type: none"> • Tmt.A.Kalpana (Extent – 1.00.0 Ha) - Rough Stone (81,350 m³- five years). • P.Aadhimoolam Quarry (Extent – 1.00.0 Ha) - Rough Stone. • P.Aadhimoolam Quarry (Extent – 4.00.0 Ha) - Rough Stone. • Thiru.Alavudeen Bhasa (Extent – 1.00.0 Ha).
Operational Hours Per Year	2400
Capacity of each Dumper (T)	10
Total No. of Tippers/ year	520
Lead length/trip, Km	0.8
Total VKT/Year	15324
Emission Kg/VKT	0.24
Total emission Kg/Year	23456
Uncontrolled emission rate g/s/m	75146
Controlled emission rate, PM10 g/s/m	0. 751463
Controlled emission rate, PM2.5 g/s/m	0.38146

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 4.2 Isopleth of GLC Prediction for PM_{2.5}

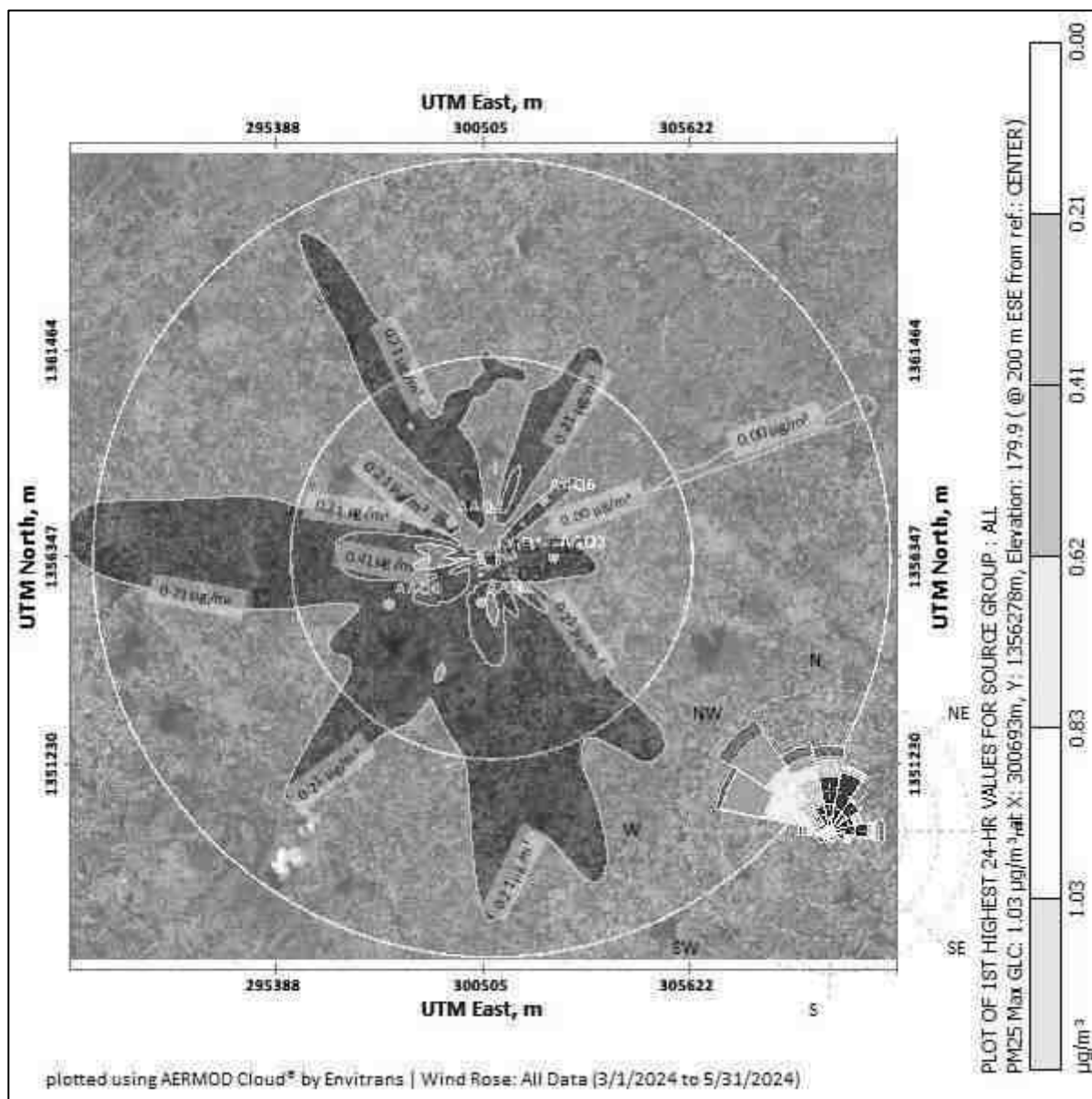


FIG 4.3 Isopleth of GLC Prediction for PM₁₀

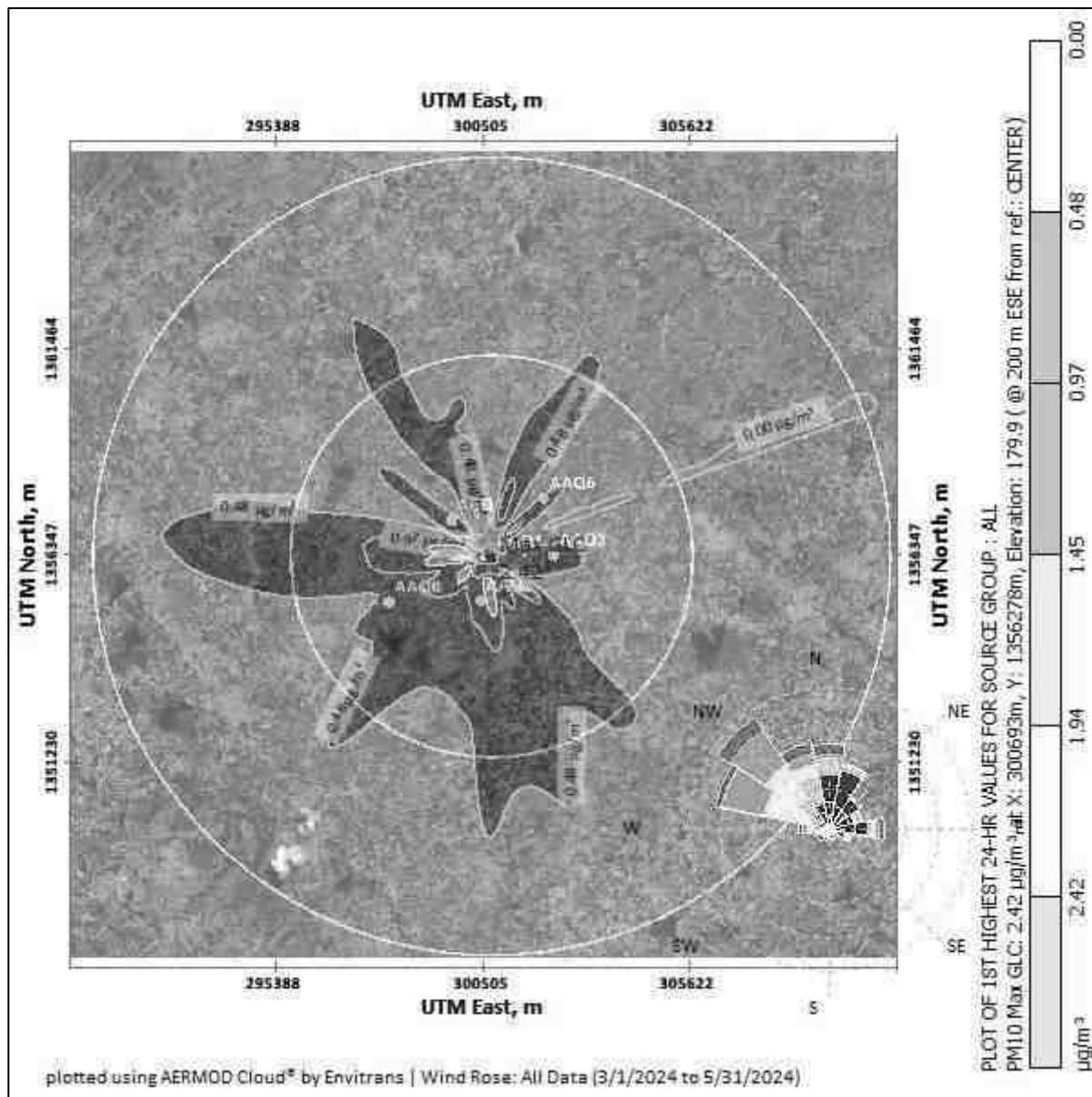


FIG 4.4 Isopleth of GLC Prediction –luster Cumulative for PM_{2.5}

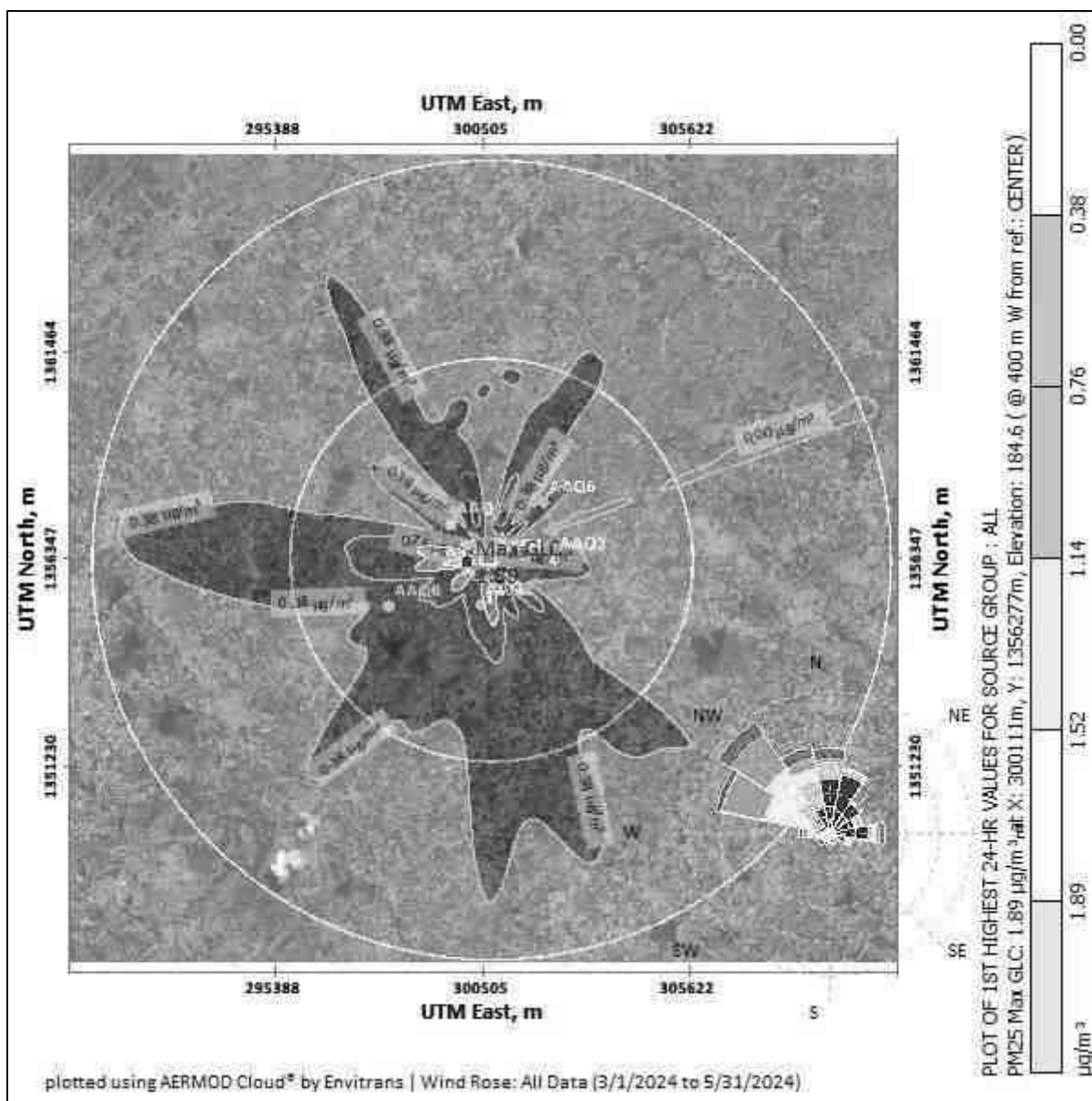
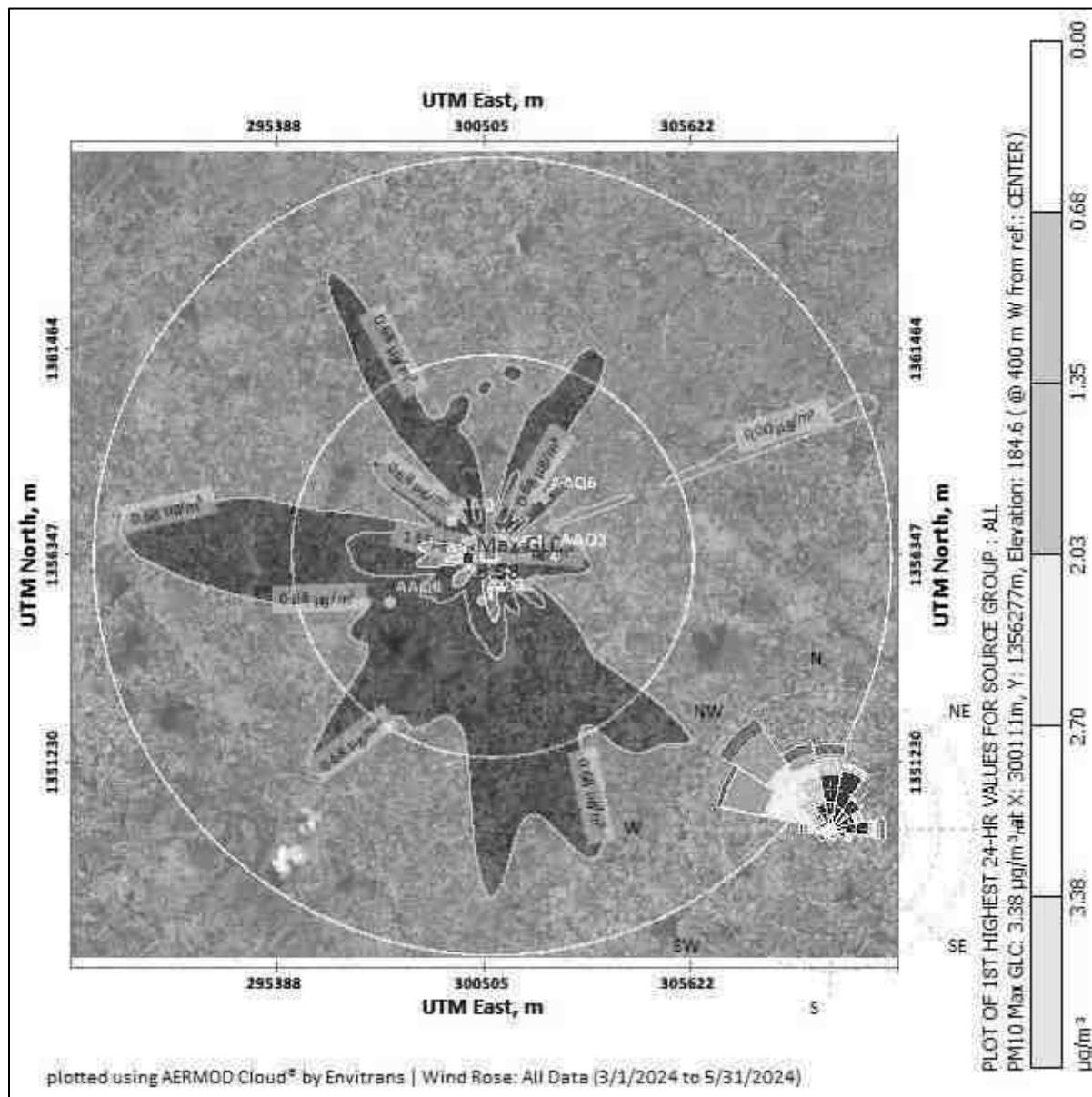


FIG 4.5 Isopleth of GLC Prediction – Cluster Cumulative for PM₁₀



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.

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	Near by Proposed Mine Site	31.3	1.03	32.33	60
2	Somaspadi	27.1	0.83	27.93	
3	Karampoondi	25.02	0.62	25.64	
4	Iyangunnam	22.75	0.41	23.16	
5	Kazhikulam	21.7	0.21	21.91	
6	Namiyandal So	22.75	0.15	22.9	

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	Near by Proposed Mine Site	31.3	1.89	33.19	60
2	Somaspadi	27.1	1.52	28.62	
3	Karampoondi	25.02	1.14	26.16	
4	Iyangunnam	22.75	0.76	23.51	
5	Kazhikulam	21.7	0.38	22.08	
6	Namiyandal So	22.75	0.12	22.87	

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	Near by Proposed Mine Site	66.55	2.42	68.97	100
2	Somaspadi	58.85	1.94	60.79	
3	Karampoondi	53.5	1.45	54.95	
4	Iyangunnam	50.6	0.97	51.57	
5	Kazhikulam	47.8	0.48	48.28	
6	Namiyandal So	47.5	0.26	47.76	

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	Near by Proposed Mine Site	66.55	3.38	69.93	100
2	Somaspadi	58.85	2.70	61.55	
3	Karampoondi	53.5	2.03	55.53	
4	Iyangunnam	50.6	1.35	51.95	
5	Kazhikulam	47.8	0.68	48.48	
6	Namiyandal So	47.5	0.33	47.83	

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 $47.76 \mu\text{g}/\text{m}^3$ to $68.97 \mu\text{g}/\text{m}^3$ and for $\text{PM}_{2.5}$ are in the range of $22.9 \mu\text{g}/\text{m}^3$ to $32.33 \mu\text{g}/\text{m}^3$ and PM_{10} are surrounding (cluster) area range of $47.83 \mu\text{g}/\text{m}^3$ to $9.93 \mu\text{g}/\text{m}^3$ and for $\text{PM}_{2.5}$ are in the range of $22.08 \mu\text{g}/\text{m}^3$ to $33.19 \mu\text{g}/\text{m}^3$ 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 Somaspadi, Karampoondi, Iyangunnam, Kazhikulam and Namiyandal So villages, 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	Near by Proposed Mine Site	Core Zone	43.8	38.6
2	Somaspadi	1.16 km, S	48.1	37.7
3	Karampoondi	1.5 km, E	46.1	37.7
4	Iyangunnam	1.36 km, NW	47.3	38.3
5	Kazhikulam	1.96 Km, S	49.1	39.8
6	Namiyandal So	2.83 Km, W	45.4	38.8

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 Government poramboke land. The proponent has planned to spend INR 5,00,000 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 21 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, Rheumatic 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 0.2 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 41 & 42 of Tamil Nadu Minor Mineral Concession Rules, 1959 and the same has been approved by the assistant Director, Department of Geology & Mining, Tiruvannamalai vide Rc.No.186/Mines/2020 dated 10.06.2021.

- 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.

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.

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

6.1.9 DETAILED BUDGET AND PROCUREMENT SCHEDULES

The budget planned for environmental monitoring is given below.

Table 6.3 - Environmental Management Plan Budget

Sl. No	Budget planned for	Capital Cost Amount (INR)	Recurring Cost/Annum Amount (INR)
1	Air Environment	340000	778000
2	Noise Environment	50000	470000
3	Water Environment	225000	145000
4	Implementation of EC, Mining Plan & DGMS Condition	1304000	934000
5	Green Belt	330000	45000
6	Additional Key EMP Expenses	2722425	10000
Total		5571425	2382000

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 Cluster Mines Details				
Sl.No	Name of the Lessee	Village & S. F. No.	Extent (Ha)	Lease Status
e. Abandoned Quarries				
1	R.Karthikeyan 23/29,Lakshmipuram, Gandhi Nagar, Tiruvannamalai	Iyunkunam 135(Part 3)	1.00.0	20.04.2011 to 19.04.2021
f. Present Proposed Quarries				
1	Thiru.A.Krishnamoorthi S/o.Arumugam No.116/1 Manikkara Street Thandaramapattu Taluk, Tiruvannamalai	Iyunkunam 135(Part 6)	2.50.0	-
c. Future Proposed Quarries				
1	Thiru.Alavudeen Bhasa, Director of City Blue Metals Iyunkunam Village Tiruvannamalai	Iyunkunam 135(Part 2)	1.00.0	
2	Tmt.A.Kalpana W/O.Adhimoolam No.4,Gandhi Nagar 6 th Street, Tiruvannamalai	Iynkunam 135(Part 4)	1.00.0	
3	P.Aadhimoolam, 57A, Tamizhnagar, Tiruvannamalai	Iyunkunam 135(Part 7)	4.00.0	-
4	P.Aadhimoolam, 57A, Tamizhnagar, Tiruvannamalai	Iyunkunam 135(Part 5)	1.00.0	-

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 Quarry of A.Krishnamoorthy is quantified and presented below:

Area Emissions – Total Material handling (Proposed Rough Stone)

Quantity, TPA	Rough Stone: 1,85,825 m ³ (Five Years)
Operational Hours Per Year	2400
Activity Rate, t/hr.	340.162
Emission of dust, g/t.	0.16
Emission of dust, g /hr.	50.3214
Area of influence, m ²	625
Uncontrolled emission rate g/s/m ²	0.00002707
Controlled emission rate, PM10 g/s/m ²	0.000027070
Controlled emission rate, PM2.5 g/s/m ²	0.00001804

Area Emissions – Total Material handling (Cluster Rough Stone)

Quantity, m ³	Future Proposed Quarries: <ul style="list-style-type: none"> • Tmt.A.Kalpana (Extent – 1.00.0 Ha) - Rough Stone (81,350 m³- five years). • P.Aadhimoolam Quarry (Extent – 1.00.0 Ha) - Rough Stone. • P.Aadhimoolam Quarry (Extent – 4.00.0 Ha) - Rough Stone. • Thiru.Alavudeen Bhasa (Extent – 1.00.0 Ha).
Operational Hours Per Year	2400
Activity Rate, t/hr.	395.051
Emission of dust, g/t.	0.22
Emission of dust, g /hr.	59.1452
Area of influence, m ²	625
Uncontrolled emission rate g/s/m ²	0.0004685
Controlled emission rate, PM10 g/s/m ²	0.00046859
Controlled emission rate, PM2.5 g/s/m ²	0.000031542

Line Source – Transport of Proposed Rough Stone

Quantity, TPA	Rough Stone: 1,85,825 m ³ (Five Years)
Operational Hours Per Year	2400
Capacity of each Dumper (T)	10
Total No. of Tippers/ year	123
Lead length/trip, Km	0.16
Total VKT/Year	6315
Emission Kg/VKT	0.29
Total emission Kg/Year	15562
Uncontrolled emission rate g/s/m	62424
Controlled emission rate, PM10 g/s/m	0.62424
Controlled emission rate, PM2.5 g/s/m	0.04511

Line Source – Transport of Rough Stone (Cluster)

Quantity, m ³	Future Proposed Quarries: <ul style="list-style-type: none"> • Tmt.A.Kalpana (Extent – 1.00.0 Ha) - Rough Stone (81,350 m³- five years). • P.Aadhimoolam Quarry (Extent – 1.00.0 Ha) - Rough Stone. • P.Aadhimoolam Quarry (Extent – 4.00.0 Ha) - Rough Stone. • Thiru.Alavudeen Bhasa (Extent – 1.00.0 Ha).
Operational Hours Per Year	2400
Capacity of each Dumper (T)	10
Total No. of Tippers/ year	520
Lead length/trip, Km	0.8
Total VKT/Year	15324
Emission Kg/VKT	0.24
Total emission Kg/Year	23456
Uncontrolled emission rate g/s/m	75146
Controlled emission rate, PM10 g/s/m	0.751463
Controlled emission rate, PM2.5 g/s/m	0.38146

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}

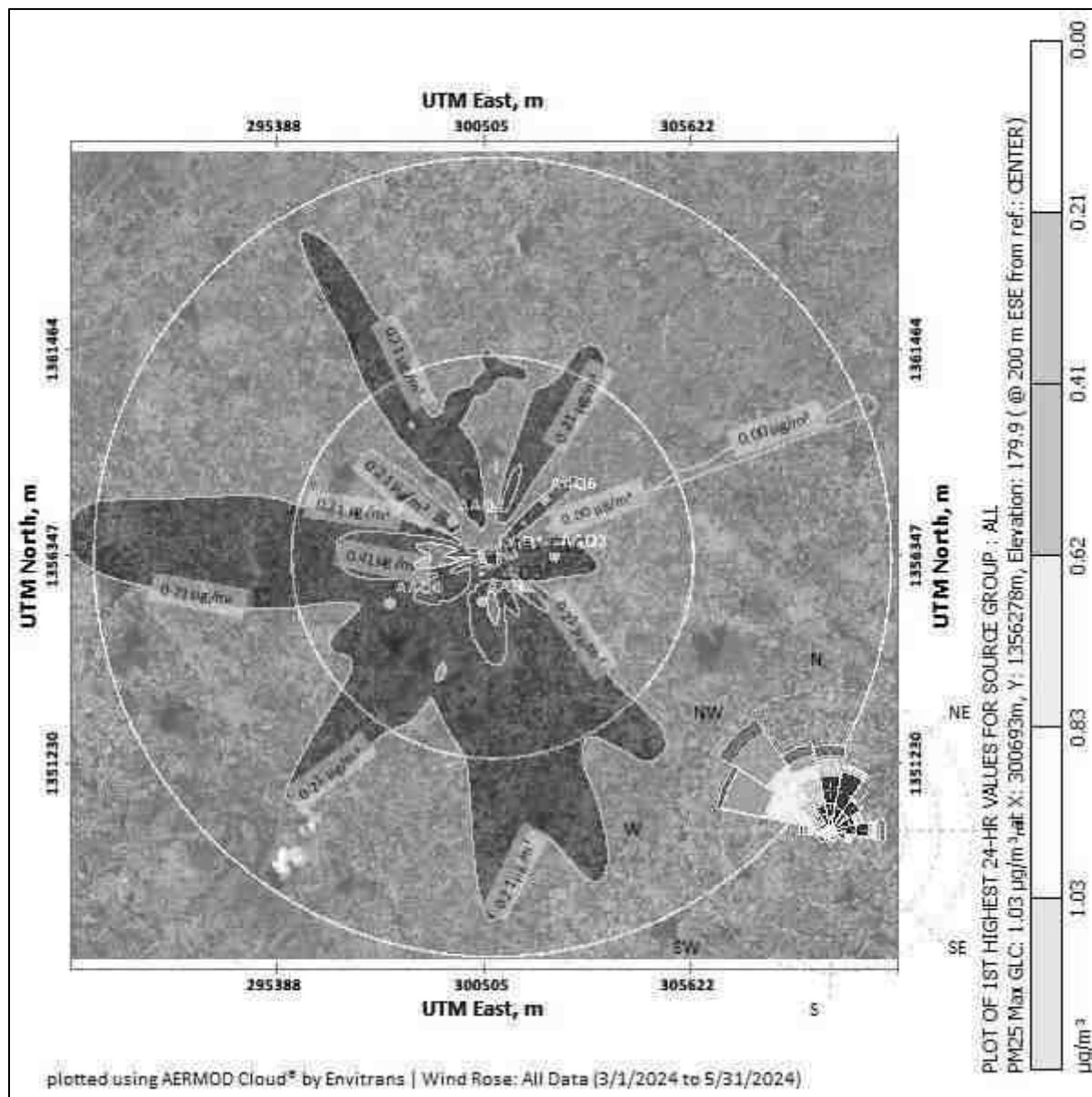


FIG 7.2 Isopleth of GLC Prediction for PM₁₀

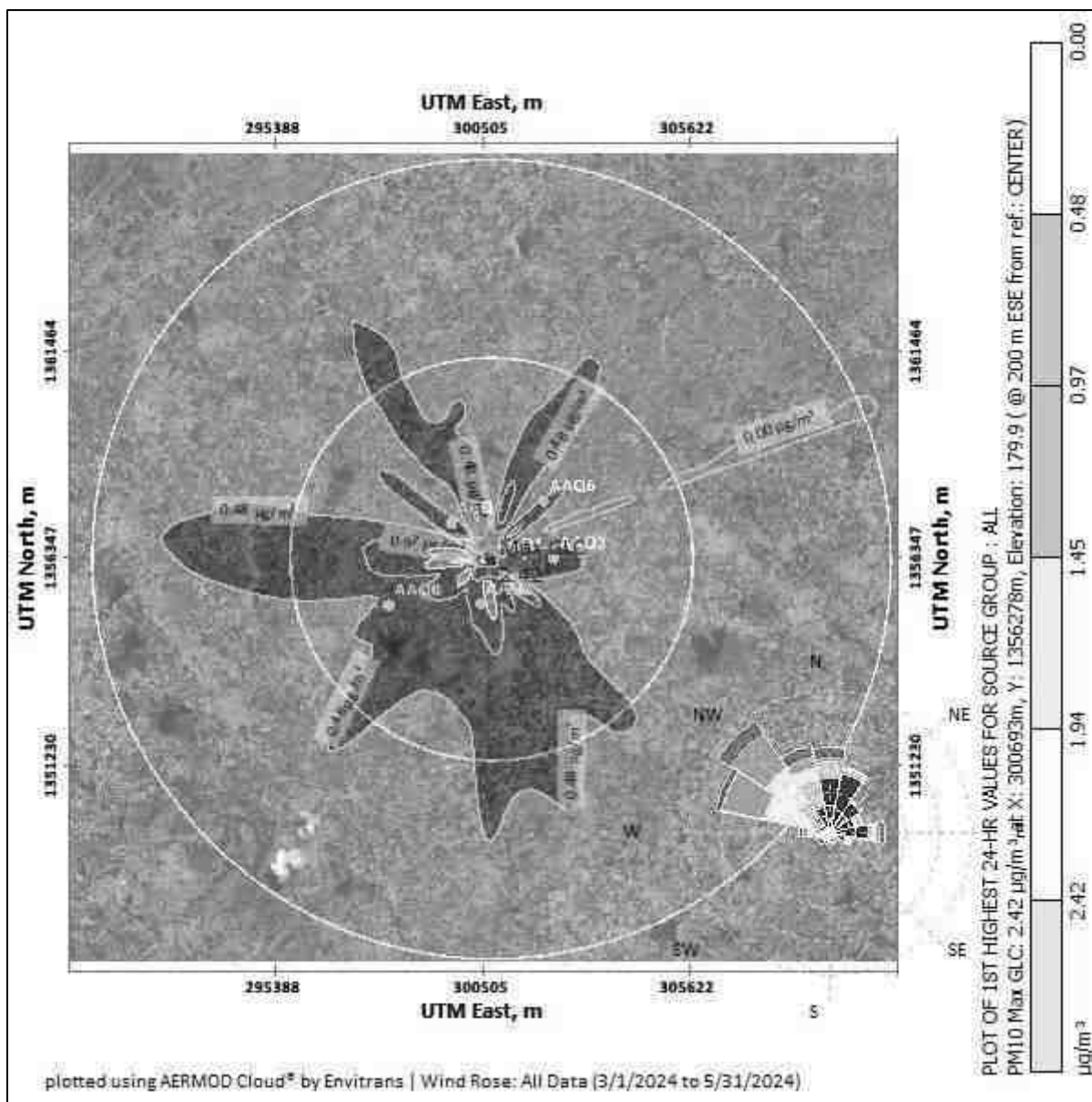


FIG 7.3 Isopleth of GLC Prediction –Cluster Cumulative for PM_{2.5}

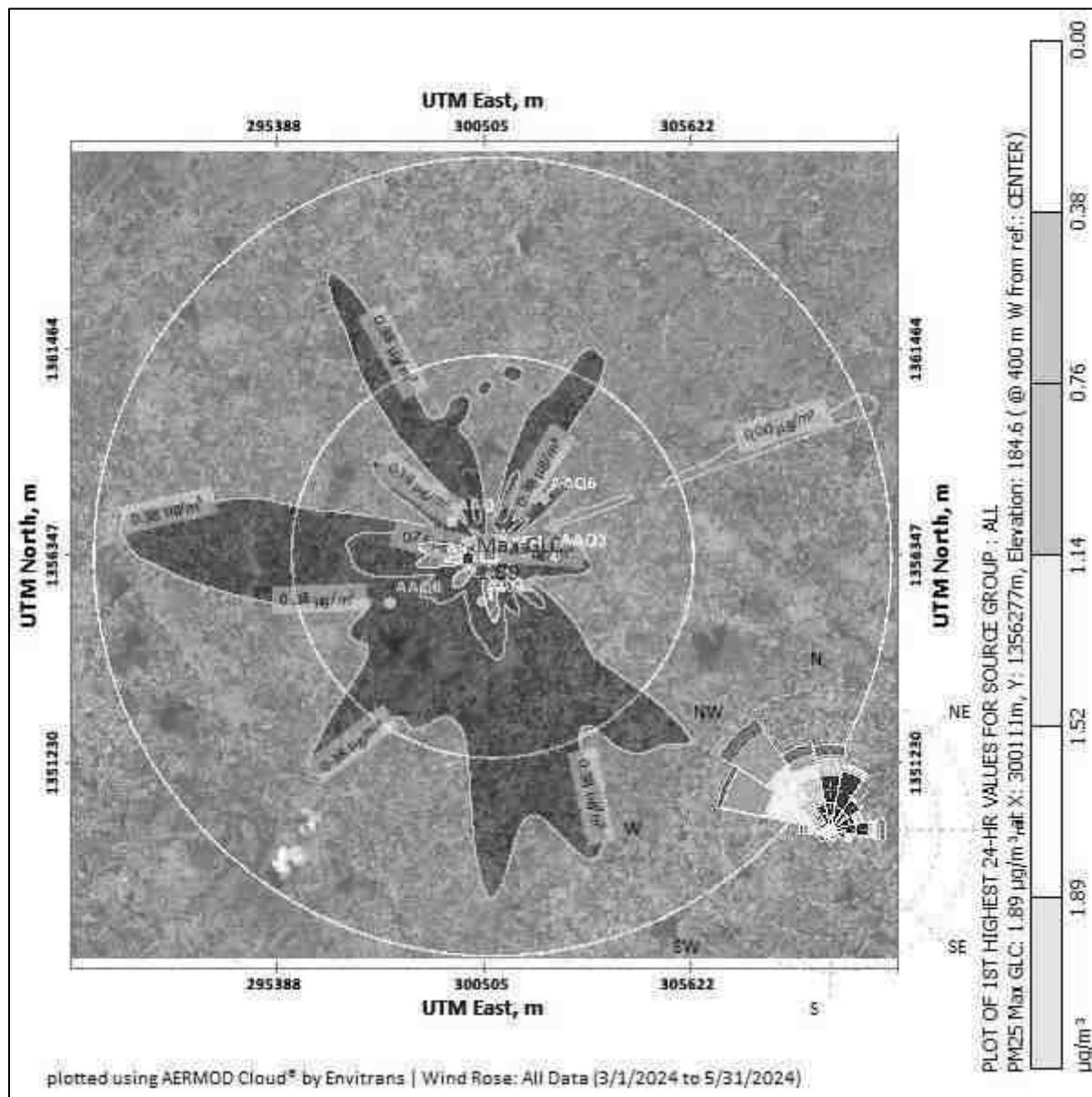
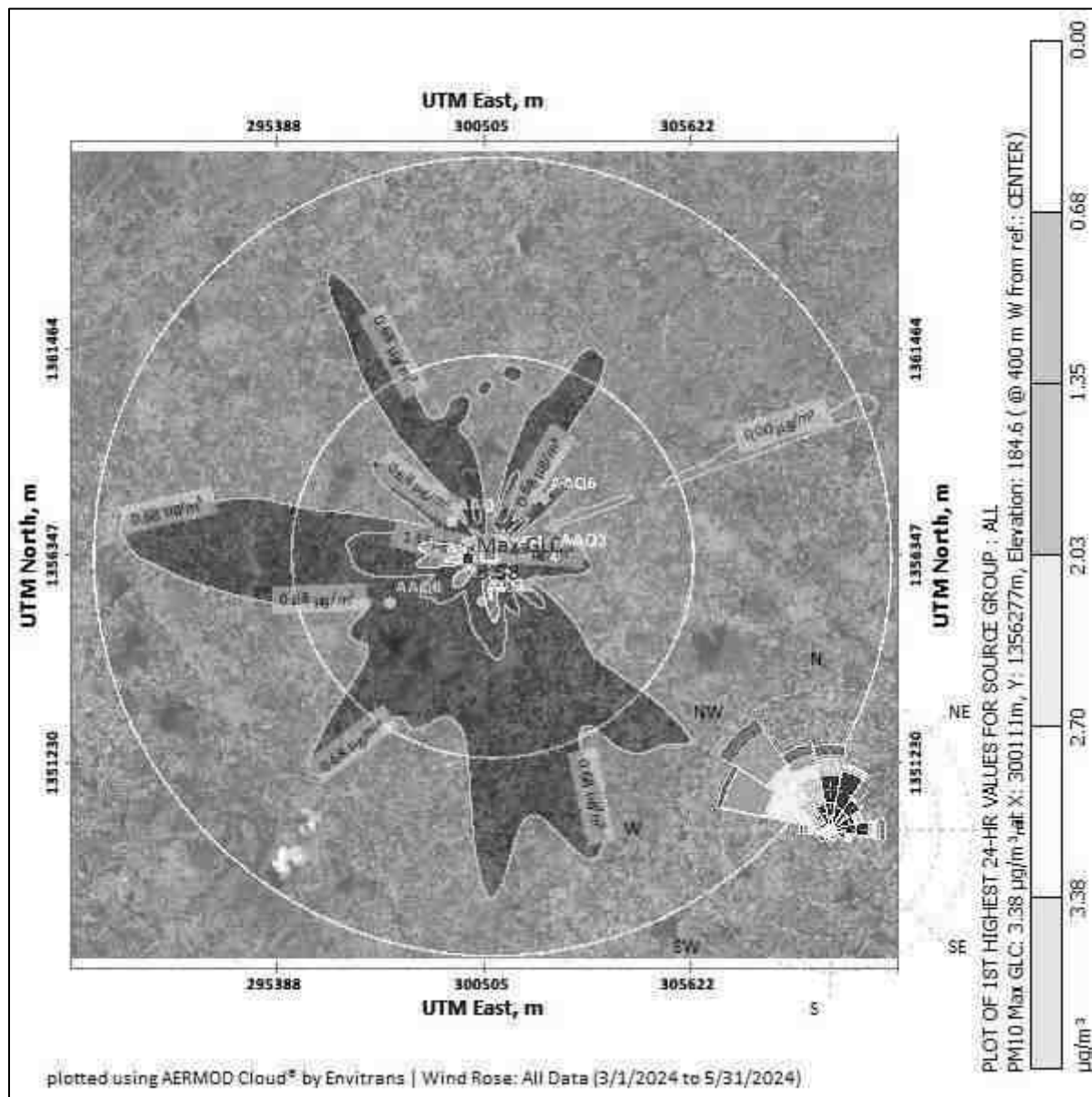


FIG 7.4 Isopleth of GLC Prediction – Cluster Cumulative for PM₁₀



PREDICTED AMBIENT AIR QUALITY:

The post project Concentrations of PM10, PM2.5, (GLC) (base line + incremental) after adopting necessary control measures is given in Table No - 4.7 to 4.8.

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	Near by Proposed Mine Site	31.3	1.03	32.33	60
2	Somaspadi	27.1	0.83	27.93	
3	Karampoondi	25.02	0.62	25.64	
4	Iyangunnam	22.75	0.41	23.16	
5	Kazhikulam	21.7	0.21	21.91	
6	Namiyandal So	22.75	0.15	22.9	

Table 7.3a 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	Near by Proposed Mine Site	31.3	1.89	33.19	60
2	Somaspadi	27.1	1.52	28.62	
3	Karampoondi	25.02	1.14	26.16	
4	Iyangunnam	22.75	0.76	23.51	
5	Kazhikulam	21.7	0.38	22.08	
6	Namiyandal So	22.75	0.12	22.87	

Table 7.3b 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	Near by Proposed Mine Site	66.55	2.42	68.97	100
2	Somaspadi	58.85	1.94	60.79	
3	Karampoondi	53.5	1.45	54.95	
4	Iyangunnam	50.6	0.97	51.57	
5	Kazhikulam	47.8	0.48	48.28	
6	Namiyandal So	47.5	0.26	47.76	

Table 7.3c 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	Near by Proposed Mine Site	66.55	3.38	69.93	100
2	Somaspadi	58.85	2.70	61.55	
3	Karampoondi	53.5	2.03	55.53	
4	Iyangunnam	50.6	1.35	51.95	
5	Kazhikulam	47.8	0.68	48.48	
6	Namiyandal So	47.5	0.33	47.83	

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 $47.76 \mu\text{g}/\text{m}^3$ to $68.97 \mu\text{g}/\text{m}^3$ and for $\text{PM}_{2.5}$ are in the range of $22.9 \mu\text{g}/\text{m}^3$ to $32.33 \mu\text{g}/\text{m}^3$ and PM_{10} are surrounding (cluster) area range of $47.83 \mu\text{g}/\text{m}^3$ to $9.93 \mu\text{g}/\text{m}^3$ and for $\text{PM}_{2.5}$ are in the range of $22.08 \mu\text{g}/\text{m}^3$ to $33.19 \mu\text{g}/\text{m}^3$ 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. 4 – Impact on Traffic

Description	Rough Stone Production Per day in tons	No. of Lorry Load per day
P1 (Proposed quarry)	123	12
P2 (Cluster quarry)	520	520
	Total	532

The proposed projects will bring 532 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 Thurunjal River is located at a distance of 7.6 km (SW) direction of lease area. Due to the presence of these water bodies nearby, a detailed hydrogeological study is under process, however it will be incorporated in the final EIA Report As suggested in the Precise Area Communication letter, safety distances of 7.5m,10m to adjacent Government poramboke 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 60° Slope is proposed. The depth of mining is proposed as 30m above ground level 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 30m above ground level only, which will be achieved in 5 years. The ultimate pit dimension will be length 198 m x Width 92m x Depth 30m above ground level. 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

Thiru.A.Krishnamoorthy has proposed Rough stone quarry over an extent of 2.50.0 Ha located at S.F.No. 135 (Part-6) in Iyunkunam Village, Kilpennathur Taluk, Tiruvannamalai District, Tamil Nadu State.

PROJECT BENEFITS

Project benefits are attributed in various ways as under:

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

8.1 IMPROVEMENTS IN THE PHYSICAL INFRASTRUCTURE

The project area is located on Government poramboke 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 Thiru.A.Krishnamoorthy will create direct employment opportunity for 21 local people. As per MOEF & CC Notification CER cost is arrived for an amount of Rs. 5,00,000, it will be utilized as per the CER letter received from the competent authority.

8.4 OTHER TANGIBLE BENIFITS

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

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

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 Lr.No.SEIAA-TN/F.No.8879/SEAC/ToR-1150/2021, DATED: 23.05.2022 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.
	1 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 Thurunjal River is located at a distance of 7.6 km (SW) direction of lease area. 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 30m above ground level Water table is found at a depth of 58 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 0.2 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.

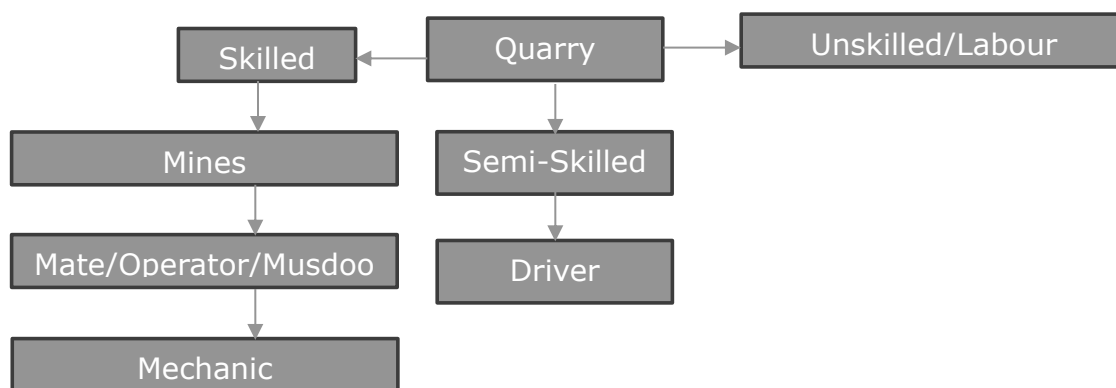
10.1.3 ADMINISTRATION AND TECHNICAL SETUP

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



S.No	Description	Employment potential
1	Mines Manager/ Foreman / Mate	1 No.
2	Operator	6 Nos.
3	Mechanic	1 No.
4	Driver	3 Nos.
5	Labours	10 Nos
Total		21 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 Environment policy of "Rough Stone Quarry of Thiru.A.Krishnamoorthy is that the rules and commitment are driven towards conservation of the environment.
- 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

Sl. No	Budget planned for	Capital Cost Amount (INR)	Recurring Cost/Annum Amount (INR)
1	Air Environment	340000	778000
2	Noise Environment	50000	470000
3	Water Environment	225000	145000
4	Implementation of EC, Mining Plan & DGMS Condition	1304000	934000
5	Green Belt	330000	45000
6	Additional Key EMP Expenses	2722425	10000
Total		5571425	2382000

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 187.33lakhs 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

Thiru.A.Krishnamoorthy has obtained Precise Area communication letter from the assistant Director, Geology and Mining, Tiruvannamalai letter vide Rc.No./Kanimam/2020 dated 10.06.2021 to quarry out 1,85,825 m³ of Rough Stone over an extent of 2.50.0 ha., S.F. No. 135 (Part-6) of Iyunkunam Village, Kilpennathur Taluk, Tiruvannamalai District, Tamil Nadu State.

As per EIA notification, 2006 and its subsequent amendments the proposed "Rough Stone Quarry of Thiru.A.Krishnamoorthy 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 report of the project was approved vide ToR Lr.No.SEIAA-TN/F.No.8879/SEAC/ToR-1150/2021, DATED: 23.05.2022. This report has been prepared in line with the approved TOR for production of maximum excavation of 1,85,825 m³ of Rough Stone

Sl. No.	Description	Status/Remarks
1.	Sector	Non-coal mining
2.	Category of the project	B1
3.	Proposed mineral	Rough Stone
4.	Type of Lease	New quarry
5.	Extent of the lease	2.50.0 Ha
6.	Proposed depth of mining	30m above ground level
7.	Method of mining	Opencast method of mechanized.
8.	Proposed lease period	5 Years
9.	Proposed Environmental Clearance	5 Years
10.	Proposed production quantity for five years	Rough Stone: 1,85,825 m ³

The proposed lessee Thiru.A.Krishnamoorthy is an individual with sound experience in the identification of quarry, operation and marketing in the field of Rough Stone quarry. The proposed land is Government poramboke land, please refer **Annexure no -6.**

1.1.1 LOCATION

Iyunkunam Village, Kilpennathur Taluk, Tiruvannamalai District, Tamil Nadu State and its Latitude: 12°15'42.59"N to 12°15'49.82"N and Longitude: 79°09'51.24"E to 79°09'59.11"E with Survey of India Topo Sheet No. 57- P/03. 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 vertical dipping.

11.1.3 PROJECT DESCRIPTION

This is a proposed Rough Stone quarry by opencast Mechanized mining method. The quarrying is restricted up to a depth 30m above ground level for the period of first five year. The geological reserves are estimated to be 12,33,020 m³ of Rough Stone. The mineable reserve calculated by deducting 10m safety distance and bench loss. The mineable reserves are 3,71,340 m³ of Rough Stone and the proposed production for the first five is 1,85,825m³ of rough stone, which will be recovered at the rate of 100% recovery upto a depth of 30m above ground level for the period of five years.

- It is proposed to quarry out rough stone with 5m bench height, 5m width with 60° 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 quarrying operation.

S.No.	Type of Detail	Description
1	Sector	1(a) Non coal mining
2	Fresh/Existing project	New quarry
3	Category	B1
4	Nature of mineral	Minor mineral
5	Life of the mine	10 years
6	Production Quantity for five years	Rough Stone: 1,85,825 m3
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 6 Nos.
9	Ultimate pit depth	30m above ground level
10	End use	The excavated Rough Stone 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 2.5 KLD which will be procured from the outside agencies. Out of 1.0 KLD drinking water requirement, Green belt development 0.5 KLD and dust suppression is 1.0 KLD.
2	Power requirement	No electricity is needed for mining operations, for office demands, it will be met from the state grid. Total Fuel requirement is 59456 litres for entire life of the project.
3	Manpower requirement	Permanent employees - 10, temporary employees - 11.
4	Financial requirement	The total project cost as per PFR will be INR 374.04 Lakhs including Operational cost, Fixed Asset cost and EMP cost

5	Funds for Socio economic development	INR 5,00,000 is allocated. In addition, any demand raised by people during public hearing will also be met.
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11.1.5 DESCRIPTION OF LEASE AREA

The features in the study area is given below.

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			
A	Wetlands, water courses or other water bodies,			
		Water bodies	Distance	Direction
		Kamalaputhur Lake	12 km	N
		Avalurpet Lake	10.4 km	NE
		Karungalikuppam Lake	5.7 km	NW
		Idapalayam Lake	11.8 km	SW
		Kolakudi Lake	14.8 km	SW
		Usambadi Lake	12 km	SE
		Kariyandal Lake	14.7km	NE
Thurunjal River	7.6km	SW		
B	Coastal zone, biospheres,	Nil within 10km radius		
C	Mountains, forests	Tippakodu R.F. – 8.5 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	Tiruvannamalai – 9.86 Km - W
9	Areas occupied by sensitive man-made land uses (hospitals, schools, places of worship, community facilities)	Tiruvannamalai – 9.86 Km - W
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.

S. No.	Station Code	Locations	Distance & Direction	Coordinates
1	AAQ 1	Near by the Proposed Mine Site	Core Zone	12°15'42.59"N 79°09'51.24"E
2	AAQ 2	Somaspadi	1.16 km, S	12°15'11.61"N 79°09'53.23"E
3	AAQ 3	Karampoondi	1.5 km, E	12°15'47.45"N 79°10'54.6"E
4	AAQ 4	Iyangunnam	1.36 km, NW	12°16'18.3"N 79°09'30.16"E
5	AAQ 5	Kazhikulam	1.96 Km, S	12°16'34.66"N 79°10'46.61"E
6	AAQ6	Namiyandal So	2.83 Km, W	12°15'11.74"N 79°8'36.69"E

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

Station ID	Min	Max	Avg.
Particulate matter PM₁₀ (µg/m³)			
AAQ-1	56.9	76.2	66.55
AAQ-2	51.3	66.4	58.85
AAQ-3	48.3	58.7	53.5
AAQ-4	46.0	55.2	50.6
AAQ-5	40.9	54.7	47.8
AAQ-6	42.9	52.1	47.5
CPCB NAAQS 2009 for PM₁₀ - 100 µg/m³			
Particulate matter PM_{2.5} (µg/m³)			
AAQ-1	26.8	35.8	31.3
AAQ-2	23.6	30.6	27.1
AAQ-3	22.74	27.3	25.02
AAQ-4	20.7	24.8	22.75
AAQ-5	18.5	24.9	21.7
AAQ-6	20.5	25.0	22.75
CPCB NAAQS 2009 for PM_{2.5} - 60 µg/m³			
Sulphur Di-oxide as SO₂ (µg/m³)			
AAQ-1	5.1	6.8	5.95
AAQ-2	5	6.1	5.55
AAQ-3	4.2	6.1	5.15
AAQ-4	4	5	4.5
AAQ-5	2.9	4.3	3.6
AAQ-6	2.9	5.2	4.05
CPCB NAAQS 2009 for SO₂ - 80 µg/m³			
Oxide of Nitrogen as NO₂ (µg/m³)			
AAQ-1	7.4	13.8	10.6
AAQ-2	6.6	11.6	9.1
AAQ-3	5.8	11.0	8.4
AAQ-4	5.7	11	8.35
AAQ-5	6.4	8.5	7.45
AAQ-6	6.5	8.8	7.65
CPCB NAAQS 2009 for NO₂ - 80 µg/m³			

11.2.2 WATER ENVIRONMENT

Results of Ground Water sampling Analysis in 6 locations	Specification/ Limit As
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DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE QUARRY OF THIRU.A.KRISHNAMOORTHY OVER AN EXTENT OF 2.50.0 HA LOCATED AT S.F.NO.135 (PART-6) OF IYUNKUNAM VILLAGE, KILPENNATHUR TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE.

							per IS:10500: 2012	
	W1	W2	W3	W4	W5	W6	Desir able	Permi ssible
Odour	Agreeabl e	Agreeabl e	Agreeabl e	Agreeabl e	Agreeabl e	Agreeabl e	Agree able	Agree able
Turbidity	<1	<1	<1	<1	<1	<1	Agree able	Agree able
pH at 25 °C	7.59	7.62	7.05	6.60	7.06	6.98	6.5 - 8.5	No Relaxa tion
Electrical Conductivity	753.9	1352	1579	2255	1627	2268	1	5
Total Dissolved Solids	450	810	950	1350	974	1362	500	2000
Total hardness as CaCO ₃	293	309	519	582	586	576	1	15
Calcium as Ca	79.2	66.5	124	130	165	141	200	600
Magnesium as Mg	22.8	34.2	50.4	61.8	41.8	53.8	200	600
Calcium as CaCO ₃	198	166	309	325	412	352	75	200
Magnesium as CaCO ₃	95.0	143	210	257	174	224		
Total alkalinity as CaCO ₃	283	424	384	436	291	420		
Chloride as Cl-	90.5	195	264	394	277	456	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⁻	45.6	210	229	365	247	354	45	No Relaxa tion
Iron as Fe	0.05	0.11	0.06	0.04	0.08	0.05	200	400
Nitrate as NO ₃	2.34	4.35	1.98	6.89	5.64	4.62	1	No Relaxa tion
Fluoride as F	0.42	0.47	0.44	0.52	0.54	0.59	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.

S. No	Location	Day equivalent	Night equivalent	Day equivalent limits by CPCB	Night equivalent limits by CPCB
1	Near by the Proposed Mine Site	43.8	38.6	75	70
2	Somaspadi	48.1	37.7		
3	Karampoondi	46.1	37.7		
4	Iyangunnam	47.3	38.3		
5	Kazhikulam	49.1	39.8		
6	Namiyandal So	45.4	38.8		

11.2.4 SOIL ENVIRONMENT

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

Results of Soil Sample Analysis								
S. No	Parameter	Unit	S1	S2	S3	S4	S5	S6
1	pH at 25 °C	-	6.78	6.66	7.26	7.05	7.56	6.96
2	Electrical Conductivity	µmhos/cm	70.24	158.80	104.30	110.60	174.10	95.64
3	Dry matter content	%	95.68	94.67	96.14	97.84	90.70	97.78
4	Water Content	%	4.32	5.33	3.86	2.16	9.30	2.22
5	Organic Matter	%	1.25	1.95	2.09	1.68	2.09	1.65
6	Soil texture	-	sandy clay	clay	silt loam	loam	SILTY CLAY	SILTY CLAY
7	Grain Size Distribution	%	61.00	37.76	17.89	36.47	5.86	6.48
	i. Sand							
	ii. Silt							
9	iii. Clay	%	53.74	41.20	16.41	19.93	54.59	46.84
10	Phosphorous as P	mg/kg	0.69	0.78	1.32	0.96	1.75	1.11
11	Sodium as Na	mg/kg	745	998	1020	812	656	1042
12	Potassium as K	mg/kg	366	1056	976	765	794	896
13	Nitrogen and Nitrogenous Compounds	mg/kg	232	364	297	255	366	455
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	%	20.7	24.4	23.1	21.6	20.5	22.3
16	Water Holding Capacity	Inches/foot	38	36	40	42	40	36

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

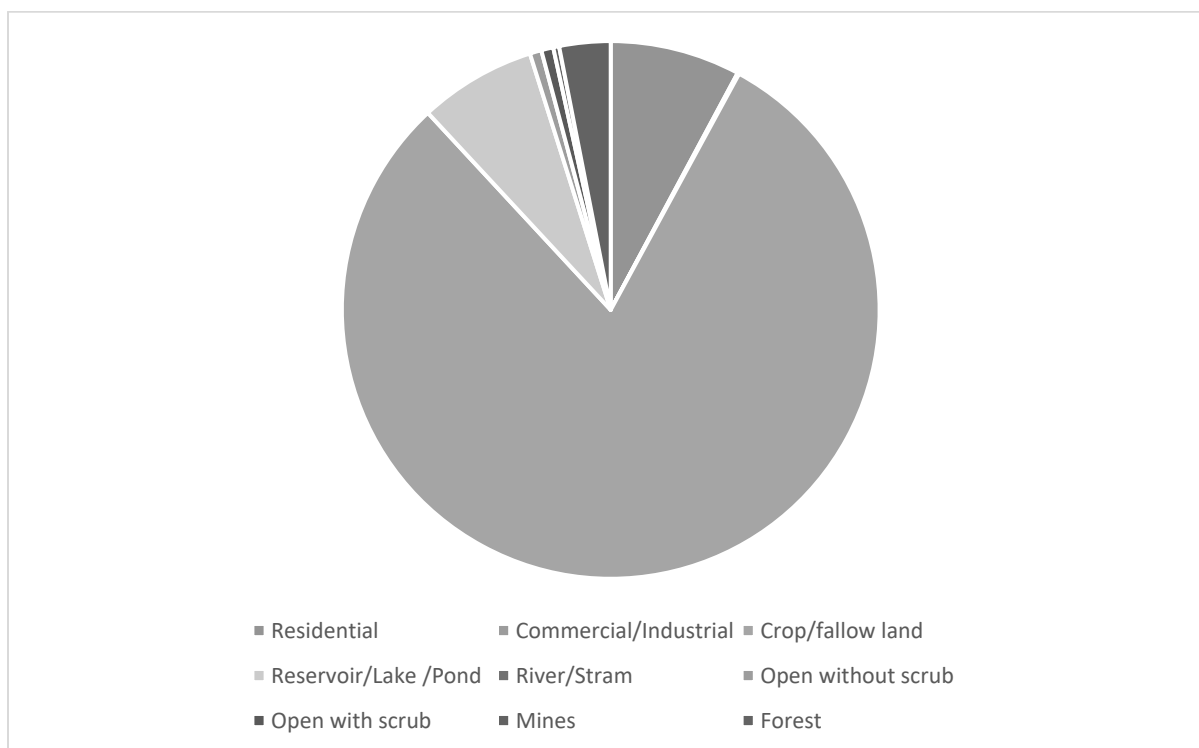
In the study area, commonly found animals like dogs, cats, bush rat, cows, birds like crow, Myna, Sparrow, etc were found.

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:

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	25.21	7.93	Residential	24.90	7.83
				Commercial/Industrial	0.31	0.10
2	Agriculture	254.93	80.17	Crop/fallow land	254.93	80.17
3	Water bodies	22.40	7.04	Reservoir/Lake /Pond	22.40	7.04
				River/Stram		
4	Waste Land	4.54	1.43	Open without scrub	2.23	0.70
				Open with scrub	2.31	0.73
5	Mines	1.12	0.35	Mines	1.12	0.35
6	Forest	9.80	3.08	Forest	9.80	3.08
Total		318	100	Total	318	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 expert visited 5 villages in the study area namely Somaspadi, Karampoondi, Iyangunnam, Kazhikulam and Namiyandal so 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 Tiruvannamalai. 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 Tiruvannamalai which is about 10.0 km from the lease area. Major schools with higher secondary and senior secondary schools are located in Tiruvannamalai. The major Iyunkunam Union located in the area is Tiruvannamalai. Facilities like petrol pump stations, ATM facility are available in Tiruvannamalai.

11.2.8 HYDROGEOLOGY OF THE LEASE AREA

There is Thurunjal River is located at a distance of 7.6 km (SW) direction of lease area. The hydrological and hydrogeological pattern of the study area is studied in detail using satellite imagery.

There are many tanks located in the study area, which are mostly dry throughout the year. These tanks get water only during monsoons. The factors may be monsoon failure, insufficient rainfall, poor rain water management and water consuming patterns.

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 30m above ground level. 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 30m above ground level. Other than quarrying of minerals, no other change will be done since there is no dumping. To prevent soil erosion during monsoon season, garland drain will be constructed with silt traps. At the mine closure stage 1.82.0 Ha of lease area will be left as rain water harvesting pond. 0.20.0 Ha will be developed with green belt. For this, plants like Neem/Pungan are selected. A total of 1250 trees are planned to be planted. Spacing will be 3m x 3m.

11.2.11 WATER ENVIRONMENT: IMPACT AND MITIGATION MEASURES

There is no water body present inside the lease area. The entire water requirement for the project is 2.5 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 30m above ground level 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 7.5 HP 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
Kamalaputhur Lake	12 km	N
Avalurpet Lake	10.4 km	NE
Karungalikuppam Lake	5.7 km	NW
Idapalayam Lake	11.8 km	SW
Kolakudi Lake	14.8 km	SW
Usambadi Lake	12 km	SE
Kariyandal Lake	14.7km	NE
Thurunjal River	7.6km	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

11.2.12 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.

11.2.13 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.

11.2.14 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.

11.2.15 VIBRATION: IMPACT AND MITIGATION MEASURES

Impacts

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

Mitigation measures

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

11.2.16 SOCIO ECONOMIC ENVIRONMENT

Impact and Mitigation measures

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

11.2.17 OCCUPATIONAL HEALTH

Impacts

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

Mitigation measures

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

11.2.18 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 187.33 Lakhs is allocated.

11.2.19 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 21 people directly. Local people will be hired for unskilled labour.
- Through CSR, nearby schools, hospitals will be benefitted.
- For CSR, INR 5,00,000 is allocated.
- 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 187.33 lakhs for the five 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 Quarry over an extent 2.50.0Ha, while total cluster area of 9.50.0 Ha at Iyunkunam Village, Kilpennathur Taluk, Tiruvannamalai 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. <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
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. 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 Sing
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

TM-FAE:

S.No	Name of TM (FAE)	Functional Area	Approved FAE (to work under)	Period of involvement	Type of work	Signature
1	M.Prabu	LU	T.Srilatha	<u>March 2024 to May 2024</u>	Associated with FAE in preparing Land use map based on satellite imagery, Land use classification and analysis, Impact prediction on surrounding land environment	
		HG	Ashok Kumar		Associated with FAE in studying hydrogeological pattern of study area, Studying ground water and the impact of the project on ground water	
2	M. Manikandan	EB	S.Saravanan	<u>March 2024 to May 2024</u>	Associated with the expert in baseline data collection related to ecology of the study area	
		SC	Shishupal Singh		Associated with the expert in Soil monitoring, secondary data collection on soil type, soil management practices, utilization of top soil	

**DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE QUARRY OF THIRU.A.KRISHNAMOORTHY
OVER AN EXTENT OF 2.50.0 HA LOCATED AT S.F.NO.135 (PART-6) OF IYUNKUNAM VILLAGE,
KILPENNATHUR TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE.**

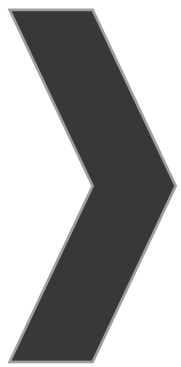
TM-FAA:

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	<u>March 2024</u> <u>to May 2024</u>	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	
		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	
2	S. Kamaraj	SC	Shishupal Singh	<u>March 2024</u> <u>to May 2024</u>	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 Identification of the Risk related to the mining activities. Preparation of emergency disaster management plan. Plan for supply of safety equipment for the workers	

3.	S. Asan Ali	WP	Abirami Kaliaperumal	<u>March 2024</u> <u>to May</u> <u>2024</u>	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	S. Asan ali
		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 prediction, monitoring of fly rocks & air blast (noise), preparation of SOP's for the safety blasting practice in the mines.	

DRAFT EIA/EMP FOR THE PROPOSED ROUGH STONE QUARRY OF THIRU.A.KRISHNAMOORTHY OVER AN EXTENT OF 2.50.0 HA LOCATED AT S.F.NO.135 (PART-6) OF IYUNKUNAM VILLAGE, KILPENNATHUR TALUK, TIRUVANNAMALAI DISTRICT, TAMIL NADU STATE.

4.	Mownica. B	AP	Dhanalakshmi Ramanathan	<u>March 2024</u> <u>to May</u> <u>2024</u>	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 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	<u>March 2024</u> <u>to May</u> <u>2024</u>	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	G.Balasubramani
			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 prediction, monitoring of fly rocks & air blast (noise), preparation of SOP's for the safety blasting practice in the mines.	



ANNEXURE-1



TMT. P. RAJESWARI, I.F.S.,
MEMBER SECRETARY

STATE LEVEL ENVIRONMENT IMPACT
ASSESSMENT AUTHORITY – TAMIL NADU
3rd Floor, Panagal Maaligai,
No.1 Jeenis Road, Saidapet,
Chennai-15.
Phone No.044-24359973
Fax No. 044-24359975

TERMS OF REFERENCE (ToR)

Lr No.SEIAA-TN/F.No.8879/SEAC/ToR-1150/2021 Dated :23.05.2022

To

Thiru.A.Krishnamoorthy
S/o.Arumugam
No.116/1, Manikkaratheru
Thandrapattu Taluk
Tiruvannamalai District-606707

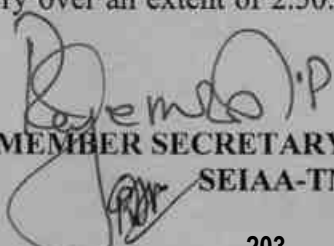
Sir / Madam,

Sub: SEIAA, Tamil Nadu – Terms of Reference with Public Hearing (ToR) for the Proposed Rough stone quarry over an extent of 2.50.0 Ha in S.F.No. 135 (Part 6) Govt Poramboke land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai District, Tamil Nadu by Thiru.A.Krishnamoorthy - 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/69514/2021, dated: 07.12.2021
2. Your application seeking Terms of Reference submitted on: 20.01.2022
3. Minutes of the 265th Meeting of SEAC held on 21.04.2022
4. Minutes of the 510th Meeting of SEIAA held on 23.05.2022.

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

The project proponent, Thiru.A.Krishnamoorthy has submitted application seeking ToR under B1 category project in Form-I, for the Proposed Rough stone quarry over an extent of 2.50.0


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SEIAA-TN

Ha in S.F.No. 135 (Part 6) Govt Poramboke land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai District, Tamil Nadu and has furnished Pre-feasibility report.

Discussion by SEAC and the Remarks:-

Proposed Rough stone quarry over an extent of 2.50.0 Ha in S.F.No. 135 (Part 6) at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai District, Tamil Nadu by Thiru.A.Krishnamoorthi- For Terms of Reference.

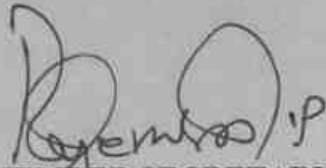
(SIA/TN/MIN/ 69514/2021 dated: 07.12.2021)

The SEAC noted the following:

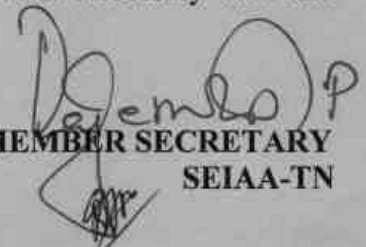
1. The project proponent, Thiru.A.Krishnamoorthi has applied for Terms of Reference for the proposed Rough stone quarry over an extent of 2.50.0 Ha at S.F.No. 135 (Part 6), Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai District, Tamil Nadu.
2. The project/activity is covered under Category "B1" of Item 1(a) "Mining of Mineral Projects" of the Schedule to the EIA Notification, 2006.
3. The production for the five years states that the total quantity of recoverable should not exceed 1,85,825 cu.m of Rough stone with an ultimate depth of mining is 30m depth (AGL).

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

1. The Proponent shall carry out the cumulative & comprehensive environmental impact assessment study due to mining operations carried out in the quarry cluster specifically with reference to the environment in terms of air pollution, water pollution, & health impacts, and accordingly the Environment Management plan should be prepared keeping the concerned quarry and the surrounding habitations in the mind.
2. 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,


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SEIAA-TN

- a) What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?
 - b) Quantity of minerals mined out.
 - c) Highest production achieved in any one year
 - d) Detail of approved depth of mining.
 - e) Actual depth of the mining achieved earlier.
 - f) Name of the person(s) already mined in that leases area.
 - g) If EC and CTO already obtained, the copy of the same shall be submitted.
 - h) Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.
3. 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).
 4. 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.
 5. The Project Proponent shall provide the details of geological 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 proposed mitigation measures for the same.
 6. 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.
 7. The Project Proponent shall conduct the hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD / TWAD so as to assess the impacts on the wells due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and


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SEIAA-TN

documentation in this regard may be provided.

8. 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.
9. A detailed study shall be carried out in order to ascertain the status of existing trees (nos., name of the species, age, diameter etc.,) both within the mining lease applied area & 300m buffer zone and its management during mining activity.
10. A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific, along with the exclusive photographs/images/plans showing the proposed closure activities conceptually.
11. The Public hearing advertisement shall be published in one major National daily and one most circulated vernacular daily. All materials distributed in the public hearing should be in Tamil.
12. The recommendation for the issue of "Terms of Reference" is subjected to the outcome of the Hon'ble NGT, Principal Bench, New Delhi in O.A No.186 of 2016 (M.A.No.350/2016) and O.A. No.200/2016 and O.A.No.580/2016 (M.A.No.1182/2016) and O.A.No.102/2017 and O.A.No.404/2016 (M.A.No. 758/2016, M.A.No.920/2016, M.A.No.1122/2016, M.A.No.12/2017 & M.A. No. 843/2017) and O.A.No.405/2016 and O.A.No.520 of 2016 (M.A.No. 981/2016, M.A.No.982/2016 & M.A.No.384/2017).
13. The purpose of Green belt around the project is to capture the fugitive dust emissions, carbon sequestration and to attenuate the noise generated, in addition to reduce the visual impacts. A wide range of indigenous plant species should be planted as given in the **appendix** in consultation with the DFO, State Agriculture University and local school/college authorities. The plant species with dense/moderate canopy of native origin should be chosen. Species of small/medium/tall trees alternating with shrubs should be planted in a mixed manner.
14. Taller/one year old saplings raised in appropriate size of bags, preferably eco-friendly bags should be planted in proper spacing 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.
15. A Disaster management Plan shall be prepared and included in the EIA/EMP Report.
16. A Risk Assessment and management Plan shall be prepared and included in the EIA/EMP



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SEIAA-TN

Report.

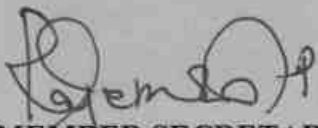
17. The socio-economic studies should be carried out within a 5 km buffer zone from the mining activity. Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.
18. **The PP shall use drone video to cover the cluster area showing clearly the extent of operation and the surrounding environment and submit the video as part of EIA report.**
19. 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.
20. Concealing any factual information or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this Terms of Reference besides attracting the penal provisions as given in the Environment (Protection) Act, 1986.

Appendix -I
List of Native Trees Suggested for Planting

1. *Aeglemarmelos*–Vilvam
2. *Adenaantherapavonina*-Manjadi
3. *Albizialebbeck*–Vaagai
4. *Albiziaamara*-Usil
5. *Bauhinia purpurea* - Mantharai
6. *Bauhinia racemosa* - Aathi
7. *Bauhinia tomentosa*–Iruvathi
8. *Buchananiaaillaris*-Kattuma
9. *Borassusflabellifer*- Panai
10. *Buteamonosperma* - Murukkamaram
11. *Bobaxceiba*– Ilavu, Sevvilavu
12. *Calophyllum* - Punnai
13. *Cassia fistula*- Sarakondrai
14. *Cassia roxburghii*- Sengondrai
15. *Chloroxylonsweitenia* - Purasamaram
16. *Cochlospermumreligiosum*– Kongu, ManjalIlavu
17. *Cordiadichotoma*– Mookuchalimaram
18. *Cretevaadansonii*–Mavalingum
19. *Dilleniaindica*– Uva, Uzha


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20. *Dilleniapentagyna*– SiruUva, Sitruzha
21. *Diospyrosebenum*- Karungali
22. *Diospyroschloroxylon*– Vaganai
23. *Ficusamplissima*– KallItchi
24. *Hibiscus tiliaceous*–Aatrupoovarasu
25. *Hardwickiabinata*– Aacha
26. *Holopteliaintegrifolia*-Aayili
27. *Lanneacoromandelica* - Odhiam
28. *Lagerstroemia speciosa* - Poo Marudhu
29. *Lepisanthustetraphylla*- Neikottaimaram
30. *Limoniaacidissima* - Vila maram
31. *Litseaglutinosa*–Pisinpattai
32. *Madhucalongifolia* - Illuppai
33. *Manilkarahexandra*–UlakkaiPaalai
34. *Mimusopselengi* - Magizhamaram
35. *Mitragynaparvifolia* - Kadambu
36. *Morindapubescens*–Nuna
37. *Morindacitrifolia*– VellaiNuna
38. *Phoenix sylvestre*-Eachai
39. *Pongamiapinnata*–Pungam
40. *Premnamollissima*– Munnai
41. *Premnaserratifolia*– Narumunnai
42. *Premnatomentosa*-PurangaiNaari, PudangaNaari
43. *Prosopiscinerea* - Vannimaram
44. *Pterocarpusmarsupium* - Vengai
45. *Pterospermumcanescens*–Vennangu, Tada
46. *Pterospermumxylocarpum* - Polavu
47. *Puthranjivaroxburghii*–Puthranjivi
48. *Salvadorapersica*– UgaaMaram
49. *Sapindusemarginatus*- Manipungan, Soapukai
50. *Saracaasoca* - Asoca
51. *Streblusasper*- Pirayamaram
52. *Strychnosnuxvomica*–Yetti
53. *Strychnopotatorum* - TherthangKottai
54. *Syzygiumcumini* - Naval
55. *Terminaliabellerica*- Thandri
56. *Terminalia arjuna*- Venmarudhu
57. *Toona ciliate* – Sandhanavembu
58. *Thespesiapopulnea*- Puvarasu
59. *Walsuratrifoliata*–valsura
60. *Wrightiatinctoria*- Vep


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The proposal was placed in the 510th Authority meeting held on 23.05.2022. After detailed discussions, the Authority accepts the recommendation of SEAC and decided to grant Terms of Reference (ToR) along with Public Hearing under cluster for undertaking the combined Environment Impact Assessment Study and preparation of separate Environment Management Plan subject to the conditions as recommended by SEAC & normal condition in addition to the following conditions:

1. 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.
2. The project proponent shall furnish VAO certificate with reference to 300m radius regard to approved habitations, schools, Archaeological structures etc.
3. 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.
4. 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.
5. 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.
6. Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.
7. The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir.
8. The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components.
9. The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.
10. The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection.


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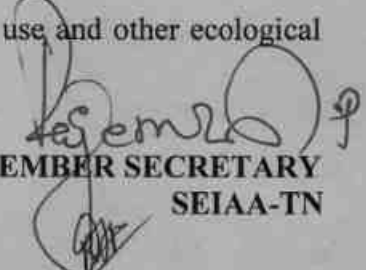
11. The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites.
12. The Environmental Impact Assessment should hold detailed study on EMP with budget for Green belt development and mine closure plan including disaster management plan.
13. The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock.
14. The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site.
15. The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands, Horticulture, Agriculture and livestock.
16. The project proponent shall study and furnish the details on potential fragmentation impact of natural environment, by the activities.
17. 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.
18. 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.
19. The project proponent shall detailed study on impact of mining on Reserve forests free ranging wildlife.
20. Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area covering the entire mine lease period as per precise area communication order issued from reputed research institutions on the following
 - a) Soil health & bio-diversity.
 - b) Climate change leading to Droughts, Floods etc.
 - c) Pollution leading to release of Greenhouse gases (GHG), rise in Temperature, & Livelihood of the local people.
 - d) Possibilities of water contamination and impact on aquatic ecosystem health.
 - e) Agriculture, Forestry & Traditional practices.
 - f) Hydrothermal/Geothermal effect due to destruction in the Environment.


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SEIAA-TN

- g) Bio-geochemical processes and its foot prints including environmental stress.
 - h) Sediment geochemistry in the surface streams.
21. 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.
22. To furnish disaster management plan and disaster mitigation measures in regard to all aspects to avoid/reduce vulnerability to hazards & to cope with disaster/untoward accidents in & around the proposed mine lease area due to the proposed method of mining activity & its related activities covering the entire mine lease period as per precise area communication order issued.
23. To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining.
24. Detailed Mine Closure Plan covering the entire mine lease period as per precise area communication order issued.
25. Detailed Environment Management Plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued..

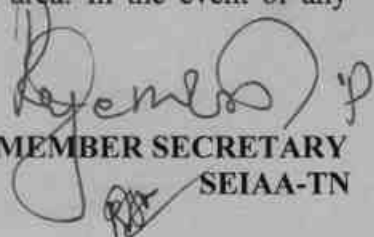
A. STANDARD TERMS OF REFERENCE

- 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


MEMBER SECRETARY
SEIAA-TN

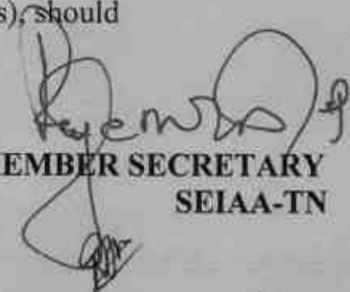
features of the study area (core and buffer zone).

- 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


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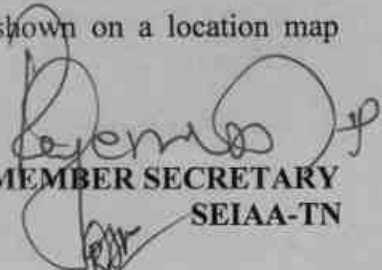
contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such 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


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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


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SEIAA-TN

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.


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- 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.


MEMBER SECRETARY
SEIAA-TN

- 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


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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.


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SEIAA-TN


17. Site selected for the project - Nature of land - Agricultural (single/double crop), barren, Govt./ private land, status of is acquisition, nearby (in 2-3 km.) water body, population, with in 10km other industries, forest , eco-sensitive zones, accessibility, (note - in case of industrial estate this information may not be necessary)
18. Baseline environmental data - air quality, surface and ground water quality, soil characteristic, flora and fauna, socio-economic condition of the nearby population
19. Identification of hazards in handling, processing and storage of hazardous material and safety system provided to mitigate the risk.
20. Likely impact of the project on air, water, land, flora-fauna and nearby population
21. Emergency preparedness plan in case of natural or in plant emergencies
22. Issues raised during public hearing (if applicable) and response given
23. CER plan with proposed expenditure.
24. Occupational Health Measures
25. Post project monitoring plan
26. The project proponent shall carry out detailed hydro geological study through intuitions/NABET Accredited agencies.
27. A detailed report on the green belt development already undertaken is to be furnished and also submit the proposal for green belt activities.
28. The proponent shall propose the suitable control measure to control the fugitive emissions during the operations of the mines.
29. A specific study should include impact on flora & fauna, disturbance to migratory pattern of animals.
30. Reserve funds should be earmarked for proper closure plan.
31. A detailed plan on plastic waste management shall be furnished. Further, the proponent should strictly comply with, Tamil Nadu Government Order (Ms) No.84 Environment and forests (EC.2) Department dated 25.06.2018 regarding ban on one time use and throw away plastics irrespective of thickness with effect from 01.01.2019 under Environment (Protection) Act, 1986. In this connection, the project proponent has to furnish the action plan.

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

- a. A note confirming compliance of the TOR, with cross referencing of the relevant sections / pages of the EIA report should be provided.

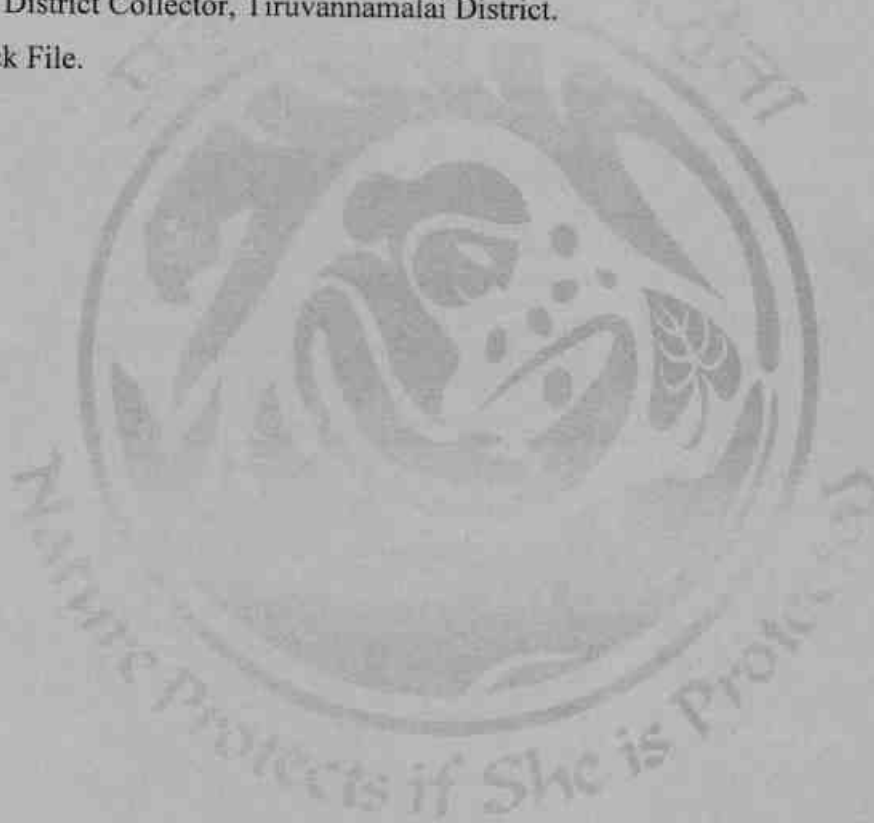

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SEIAA-TN

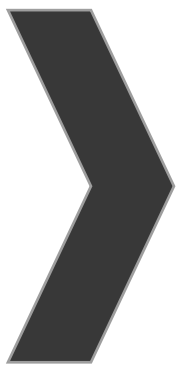
- b. All documents may be properly referenced with index, page numbers and continuous page numbering.
- c. Where data are presented in the report especially in tables, the period in which the data were collected and the sources should be indicated.
- d. While preparing the EIA report, the instructions 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.


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Copy to:

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





ANNEXURE-2



2. அருகில் உள்ள பட்டா மற்றும் புறம்போக்கு நிலங்களுக்கு முறையே 75மீ மற்றும் 10மீ பாதுகாப்பு இடைவெளி விடவேண்டும்.
3. நிலையான அமைப்புகளுக்கு (நீர் நிலைகள், தெருஞ்சாலைகள், மின் சாதனங்கள், இரயில் பாதைகள்) 50மீ பாதுகாப்பு இடைவெளி விட வேண்டும்.
4. அருகில் உள்ள நிலங்களுக்கும் மற்றும் பொதுக்களங்களுக்கும் எவ்வித பாதிப்பமின்றி குவாமிப்பணி மேற்கொள்ள வேண்டும்.
5. குவாமிப்பணி ஆரம்பிப்பதற்கு முன்பாக குத்தகை உரிமம் வழங்கப்பட்ட புலத்தினைக் கற்றி முள்கம்பி வேலி அமைத்து குத்தகை காலம் முழுவதும் பராமரித்து வரவேண்டும்.
6. பாறைகளைத் தகர்க்க கைத்துளைப்பான்களை கொண்டு பாறைகளை துளையிட்டு குறைவான வெடிபொருட்கள் பயன்படுத்த வேண்டும்.
7. குவாமிப்பணியினை விஞ்ஞானப்பூர்வமாகவும், முறையாகவும் மேற்கொள்ள வேண்டும்.
8. எல்தாரர் ஏலதாரர் இவ்வறிவிப்பு கிடைக்கப்பெற்ற 90 நாட்களுக்குள் மேற்கொள்ள நிபந்தனைகளை குறிக்கும் வகையில் வரைவு சுரங்கத்திட்ட அறிக்கை தயார் செய்து உதவி இயக்குநர் (கனிமம்), திருவண்ணாமலை அலுவலகமிடம் ஒப்புதல் பெற சமர்ப்பிக்குமாறு அறிவுறுத்தப்படுகிறது.
9. மேலும், ஒப்புதல் பெறப்பட்ட சுரங்கத்திட்ட அறிக்கை மற்றும் சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணைய தடையின்மைச் சான்றினை பெற்று சமர்ப்பிக்கும் பட்சத்தில் கீழ்பென்னாத்தூர் வட்டம் ஐங்குணம் கிராமம் அங்க புறம்போக்கு புல எண் 135 (பகுதி-6) 250.0 ஹெக்டேர் பரப்பில் கற்குமாரி செய்ய 1959-ஆம் வருடத்திய தமிழ்நாடு சிறுகனிம சலுகை விதிகளின், விதி 8(6)(b)-ன்படி 10 ஆண்டுகளுக்கு குத்தகை உரிமம் வழங்க உரிய நடவடிக்கை மேற்கொள்ளப்படும் என்ற விவரம் தெரிவிக்கப்படுகிறது.

பெறுநர்:

திரு A. கிருஷ்ணமூர்த்தி,
த/பெ ஆறுமுகம்,
தெ 116/1, மணிக்காரத்தெரு,
தண்டராம்பட்டு வட்டம்.

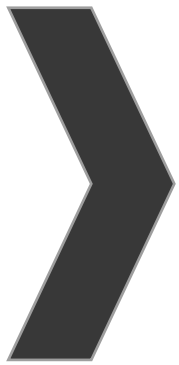
நகல்:-

வட்டாட்சியர் -
கீழ்பென்னாத்தூர்.

எல்தாரர் சுரங்கத்திட்ட அறிக்கை தயார் செய்ய ஏதவாகவும் குத்தகை ஒப்பந்தம் திறைவேற்றவும் குத்தகை உரிமம் வழங்க பரிந்துரை செய்யப்பட்ட பகுதியினை புல எரைப்பாத்தில் குறிமிட்டு ஒப்பம் செய்து முப்பிரதிகளில் அனுப்பி வைக்க வேண்டி.

[Signature]
உதவி இயக்குநர்
புவிரியல் மற்றும் சுரங்கத்துறை
திருவண்ணாமலை

[Signature]
21/12/20



ANNEXURE-3

From

To

Dr.G.Panneer Selvam,
M.Sc., M.Phil., Ph.D.,
Assistant Director,
Geology and Mining,
Tiruvannamalai - 4.

Thiru.A.Krishnamoorthi,
S/o.Arumugam,
No.116/1, Manikkara street,
Thandaramapattu Taluk
Tiruvannamalai District.

Rc.No. 186/Kanimam/2020, dated:10.06.2021

Sir,

Sub: Quarries and Minerals - Minor Mineral - Rough stone - Tiruvannamalai District - Kilpenathur Taluk - Iyangunam Village - Govt. Poramboke Land in SF.No.135 (Part-6) over an extent of 2.50.0 Hectare - preferred by Thiru.A.Krishnamoorthi - Highest Bidder - Precise area communicated - Submission of Mining Plan for approval - Approved- Regarding.

- Ref: 1. Application from Thiru.A.Krishnamoorthi S/o. Arumugam, Tiruvannamalai dated.28.10.2020.
2. Precise Area Communication Notice Rc.No.186/Kanimam/2020, dated.31.12.2020.
3. Mining Plan submitted by Thiru.A.Krishnamoorthi S/o. Arumugam, Tiruvannamalai dated.30.03.2021.

In the reference (2)nd cited, it has been communicated the SF.No.135 (Part-6), over an extent of 2.50.0 hect., of Iyangunam Village, Kilpenathur Taluk, Tiruvannamalai District as precise area for grant of quarry lease for quarrying Rough Stone for a period of 10 years to Thiru.A.Krishnamoorthi with a direction to produce an approved mining plan and Environment Clearances in respect of the precise area as per Rule 41 and 42 of Tamil Nadu Minor Mineral Concession Rules, 1959.

2. As of the applicant has prepared the draft Mining Plan through the Recognized Qualified Person and submitted for approval vide reference 3rd cited.
3. The draft mining plan submitted in respect of the precise area has been examined with reference to the provisions of Rule 41 of Tamil Nadu Minor Mineral Concession Rules, 1959 and the followings are observed.
 - i) The boundary Co-ordinates (GPS readings) for the entire boundary pillars (4 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 Letter Rc.No.186/Kanimam/2020 dated:31.12.2020 have been incorporated in the mining plan.
 - iii) The Geological and minable reserves estimated for the precise area for quarrying Rough Stone to a depth of 65m (40m above Ground level and 25m below ground level) as follows.

Geological Reserves:

Depth in mts	Geological Reserves in Cu.m
65m (40m above Ground level and 25m below ground level)	Rough Stone : 12,33,020

Mineable Reserves:

Depth in mts	Mineable Reserves in Cu.m
65m (40m above Ground level and 25m below ground level)	Rough Stone : 3,71,340

- iv) Though The mineable reserve in the precise area computed as 3,71,340m³ of Rough stone but the applicant has proposed to carry out 1,85,825m³ of Rough Stone at the rate of 100% recovery up to a depth of 30m above ground level for the period of first five years.

Depth in Mts.	Mineable Reserves in Cu.m
30m (above ground level)	Rough Stone : 1,85,825

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

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

ii) The approval of the mining plan does not in any way imply the approval of the Government it terms of any other provisions of the Mines and Minerals (Development and Regulation) Act 1957, or any other connected laws including Forest (Conservation) Act, 1980, Forest Conservation Rules 1981, Environment Protection Act, 1980, Forest Conservation Rules, 1981, Environment Protection Act, 1980, Indian Explosives Act, 1884 (Central Act IV of 1884) and the rules made there under and the Tamil Nadu Minor Mineral Concession Rule s, 1959.

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

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

Encl: 2 Copies of Approved Mining Plan.

[Signature]
Assistant Director,
Geology and Mining,
Tiruvannamalai.

Copy submitted to:

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



ANNEXURE-4

From

To

Dr.G.Panneer Selvam
M.Sc., M.Phil., Ph.D.,
Assistant Director,
Geology and Mining,
Tiruvannamalai - 4.

Thiru.A.Krishnamoorthi,
S/o.Arumugam,
No.116/1, Manikkara street,
Thandaramapattu Taluk
Tiruvannamalai District.

Rc.No.186/Kanimam/2020, dated:10.06.2021

Sir,

Sub: Mines and Minerals - Tiruvannamalai District -
Thiru.A.Krishnamoorthi - Bidder of Proposal Stone
quarry in an extent of 2.50.0 Hectare at Govt.
Poramboke SF.No.135(Part-6) in Iyangunam Village,
Kilpennathur Taluk - Particulars called for - furnished
- regarding.

Ref: 1. Tender/Auction application preferred by
Thiru.A.Krishnamoorthi S/o. Arumugam,
Tiruvannamalai dated.28.10.2020
2. Thiru.A.Krishnamoorthi S/o. Arumugam,
Tiruvannamalai Letter, dated:10.06.2021.

In the reference cited, the bidder of proposed stone quarry in
SF.No.135(Part-6) over an extent 2.50.0 hectare of Iyangunam Village,
Kilpennathur Taluk, Thiru.A.Krishnamoorthi, has requested to furnish the
details of Proposed / Existing / lease expired quarries located within 500 mts
radius from his proposed quarry, so as to submit the same to the Environment
Impact Assessment Authority for obtaining Environment Clearance.

As requested, the following details are furnished.

i). Existing quarries

Sl. No.	Name of the Owner (Tvl.)	Village & S.F. Nos.	Extent in Hect.	Lease Period	Remarks
--Nil--					

ii). Abandoned quarries

Sl. No	Name of the Owner (Tvl)	Village & S.F. Nos.	Extent in Hect.	Lease Period	Remarks
1	R.Karthikeyan 23/29, Lakshmipuram, Gandhi Nagar, Tiruvannamalai-2.	Iynkunam 135 (part 3)	1.00.0 Hect.	20.04.2011 to 19.04.2021	Existing Quarry

iii). Present Proposed quarries

Sl. No	Name of the Owner (Tvl)	Village & S.F. Nos.	Extent in Hect.	Lease Period	Remarks
1.	Thiru.A.Krishnamoorthi, S/o.Arumuga, No.116/1, Manikkara street, Thandaramapattu Taluk Tiruvannamalai.	Iyangunam 135 (Part-6)	2.50.0	---	Proposed quarry

iv). Future Proposed quarries

Sl. No	Name of the Owner (Tvl)	Village & S.F. Nos.	Extent in Hect.
1	Tmt.A.Kalpana, W/o.Adhimoolam, No.4, Gandhi nagar, 6 th street, Tiruvannamalai.	Iyangunam 135(Part4)	1.00.0
2	P.Adimoolam, 57A, Tamizhnagar, Tiruavannamalai	Iyangunam 135(Part5)	1.00.0
3	Thiru.Alavudeen Bhasa, Director of City Blue metals, Iyangunam village, Tiruvannamalai.	Iyangunam 135(Part2)	1.00.0
4	P.Adimoolam, 57A, Tamizhnagar, Tiruavannamalai	Iyangunam 135(Part7)	4.00.0

[Signature]
Assistant Director,
Geology and Mining,
Tiruvannamalai.

[Signature]
10/6/21



ANNEXURE-5

TOPOGRAPHICAL VIEW OF IYUNKUNAM VILLAGE,
ROUGH STONE QUARRY



Name of the applicant	: A.Krishnamoorthy
S.F.No	:135 (Part-6)
Extent	:2.50.0Ha
Name of the Village	:Iyunkunam
Taluk	:Kilpennathur,
District	:Tiruvannamalai

Place:

Date:

VAO SIGN & SEAL

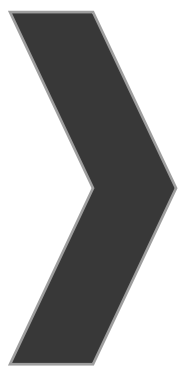
6.6.11
29.11.11
சீராம நிர்வாக அலுவலர் (ம)
பிறப்பு இறப்பு பதிவாளர்
கானலாபாடி குருப்.
கீழ்பென்னத்தூர் வட்டம்.

A. Krishnamoorthy

திருவண்ணாமலை மாவட்டம், கீழ்பென்னாத்தூர் வட்டம், ஐங்குணம் கிராமம், அரசு புறம்போக்கு புல எண்.135 (பகுதி-6) 2.500 ஹெக்டர், 10 ஆண்டுகளுக்கு திருவண்ணாமலை மாவட்டம், தண்டராமப்பட்டு வட்டம், இராதாபுரம் கிராமத்தில் வசிக்கும் ஆ.கிருஷ்ணமூர்த்தி த/பெ. ஆறுமுகம் என்பவருக்கு கல்குவாரி உரிமம் வழங்கும் பொருட்டு இந்த இடத்தில் அமைந்துள்ள கல்குவாரி 2.500 ஹெக்டர் பரப்பில் உள்ளது. இந்த புல எண்ணை சுமார் 300 மீட்டர் சுற்றளவில் குடியிருப்புகளோ, புரதான சின்னங்களோ, நினைவு சின்னங்களோ, வழிபாட்டுத்தளங்களோ, நீர்நிலைகளோ, 50 மீட்டர் சுற்றளவில் உயர் அழுத்த மின் கம்பங்களோ அல்லது விலை உயர்ந்த மரங்கள் ஏதும் இல்லை என தெரிவித்துக்கொள்கிறேன்.

6.6.2024
 கிராம நிர்வாக அலுவலர் (ம)
 பிறப்பு இறப்பு பதிவாளர்
 கானலாபாடி குருப்,
 கீழ்பென்னாத்தூர் வட்டம்.

A. கிருஷ்ணமூர்த்தி



ANNEXURE-6

DOI: 10.1002/for

தமிழ் இலக்கியச் சிந்தனையரை,
மலையாள அறிஞர் சிந்தனையரை அறியுமா,
தமிழ்நாட்டை அறியுமா, மலையாள நாட்டை
அறியுமா என்பதற்கானது.

Date: 11.12.2020.

அறிவிக்கலாக

[illegible]

1. திரு.கண்ணகம்பாளையம் ரமணி - அபிவிருத்தித் துறை (பெண்) 38. நான் 17.10.2020
2. திரு. A. திரு.கண்ணகம்பாளையம் துறை (பெண்) 38. நான் 17.10.2020
3. திரு. A. திரு.கண்ணகம்பாளையம் துறை (பெண்) 38. நான் 17.10.2020
4. திரு. A. திரு.கண்ணகம்பாளையம் துறை (பெண்) 38. நான் 17.10.2020
5. திரு. A. திரு.கண்ணகம்பாளையம் துறை (பெண்) 38. நான் 17.10.2020
6. திரு. A. திரு.கண்ணகம்பாளையம் துறை (பெண்) 38. நான் 17.10.2020

திருவண்ணாமலை மாவட்ட அரசிதழ் சிறப்பு வெளியீடு எண் 38, நாள் 17.10.2020 முதல் திருவண்ணாமலை மாவட்டத்திற்குட்பட்ட, அரசு புறம்போக்கு நிலங்களில் உள்ள 15 கற்குவாரிகளுக்கு பொது வளமுண்டாக்கித் தலை உரிமம் வழங்க ஏன் 1 டெண்டர் விண்ணப்பங்கள் பெறப்பட்டது அதன்படி வரிவை எண் 5 ல் கண்ட திருவண்ணாமலை மாவட்டம், கீழ்வண்ணாத்தூர் வட்டம், ஸ்கூலம் கிராமம், அரசு புறம்போக்கு, புல எண் 135 (மேது 6) 250.0 ஹெக்டேர் பரப்பிலுள்ள புதிய கற்குவாரிக் 28.10.2020 நாளை 5 மணி வரை 3 டெண்டர் விண்ணப்பங்கள் வரவேற்றது. அதனை தொடர்ந்து 29.10.2020 அன்று நடைபெற்ற பொது வளத்தில் டெண்டர் விண்ணப்பதாரர்கள் உட்பட 6 நபர்கள் கூடிது கொண்டனர்.

3. பொது ஏஜன்ஸி திரு. A. திருமங்கலம்
என்பவரால் அதன்மீது அரசு மேலாதிக்க குறைபாடு (ரூபாய்
அறுபத்து ஐம்பது லட்சம் மட்டும்) ஏன் கோரப்பட்டது அதனை
தெரிபடுத்து சென்னை லீக்ஸ் அப்பரேட்டர் திரு. கம்பாதி
ம. சீ. வி. சம்பாதி மேலாதிக்க திரு. A. திருமங்கலம்
என்பவரால் அதிக ரூ. 2 கோடி செலவை ரூ. 127.51000
(ரூபாய் ஒரு கோடியே இருபத்து ஏழு லட்சத்து ஐம்பத்து ஒரு ஆயிரம்
மட்டும்) குறைக்கப்பட்டிருந்தது என்பதில் திரு. A. திருமங்கலம்
என்பவரால் குறிப்பிடப்பட்டிருந்த தொகையானது பொது ஏஜன்ஸி
திரு. A. திருமங்கலம் என்பவரால் கோரப்பட்ட தொகையை மட்டும்
அதிகமாக அரசு இருத்ததனாலும் மேலாதிக்க அரசால் தீர்மானம்
செய்யப்பட்ட குறைந்ததொகையைக் கட்டினால் கடுதலாக இருந்ததென்பதும்
திரு. A. திருமங்கலம் என்பவரை கண்டுபிடிக்க ஏதாவதாக அறிவிப்பு
செய்யப்பட்டது என்பது உறுதி செய்யப்பட்டது.

[illegible]

4. மேலும், ஏலதாரர் பெறுகக்கூடிய வந்தவிகிதத்தைக் குறித்து டிஜி டிபுளோமான்ஸி (TCS) கணக்கிடும் ரூ.191265/-ஐ திருவண்ணாமலை உயரதர்மம் வாரியம் கிடைசு மூலம் 31.12.2020 தேதியன்று செலுத்தி அதன் குடியிருப்புகளை இவ்வாலுவைக்குக் கொண்டு வர நிதி துள்ளும்.

தமிழக அரசின் கீழ்க் கட்டுப்பாட்டில் உள்ள அனைத்து அரசுப் பள்ளிகளிலும், அரசுப் பள்ளிகளில் படிப்பவர்களுக்கு, கீழ்க்கண்ட விவரம் போதுமான அளவுக்கு உடனடியாக வழங்கப்படும். அரசுப் பள்ளிகளில் படிப்பவர்களுக்கு, கீழ்க்கண்ட விவரம் போதுமான அளவுக்கு உடனடியாக வழங்கப்படும். அரசுப் பள்ளிகளில் படிப்பவர்களுக்கு, கீழ்க்கண்ட விவரம் போதுமான அளவுக்கு உடனடியாக வழங்கப்படும்.

திருந் தணைகள்

1. குதகளை உரிமம் வழங்க ஏதுவாக தமிழ்நாடு சிறுகலை அலுவலக விதிகள் 1959 விதிகள் 41 மற்றும் 42-ன்படி ஒப்புதல் பெறப்பட்ட காலக்காலத்தில் அறிக்கை மற்றும் கட்டுத்துறல் தரகை மதிப்பீட்டு அலுவலரின் தலைமையிலான சான்று சென்று சமர்ப்பிக்க வேண்டும்.



2. அருகில் உள்ள பட்டா மற்றும் புறம்போக்கு நிலங்களுக்கு முறையே 75மீ மற்றும் 10மீ பாதுகாப்பு இடைவெளி விடவேண்டும்.
3. நிலையான அமைப்புகளுக்கு (நீர் நிலைகள், தெருஞ்சாலைகள், மின் சாதனங்கள், இரயில் பாதைகள்) 50மீ பாதுகாப்பு இடைவெளி விட வேண்டும்.
4. அருகில் உள்ள நிலங்களுக்கும் மற்றும் பொதுக்களங்களுக்கும் எவ்வித பாதிப்பமின்றி குவாமிப்பணி மேற்கொள்ள வேண்டும்.
5. குவாமிப்பணி ஆரம்பிப்பதற்கு முன்பாக குத்தகை உரிமம் வழங்கப்பட்ட புலத்தினைக் கற்றி முள்கம்பி வேலி அமைத்து குத்தகை காலம் முழுவதும் பராமரித்து வரவேண்டும்.
6. பாறைகளைத் தகர்க்க கைத்துளைப்பான்களை கொண்டு பாறைகளை துளையிட்டு குறைவான வெடிபொருட்கள் பயன்படுத்த வேண்டும்.
7. குவாமிப்பணியினை விஞ்ஞானப்பூர்வமாகவும், முறையாகவும் மேற்கொள்ள வேண்டும்.
8. எல்தாரர் ஏலதாரர் இவ்வறிவிப்பு கிடைக்கப்பெற்ற 90 நாட்களுக்குள் மேற்கொள்ள நிபந்தனைகளை குறிக்கும் வகையில் வரைவு சுரங்கத்திட்ட அறிக்கை தயார் செய்து உதவி இயக்குநர் (கனிமம்), திருவண்ணாமலை அலுவலகமிடம் ஒப்புதல் பெற சமர்ப்பிக்குமாறு அறிவுறுத்தப்படுகிறது.
9. மேலும், ஒப்புதல் பெறப்பட்ட சுரங்கத்திட்ட அறிக்கை மற்றும் சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணைய தடையின்மைச் சான்றினை பெற்று சமர்ப்பிக்கும் பட்சத்தில் கீழ்பென்னாத்தூர் வட்டம் ஐங்குணம் கிராமம் அங்க புறம்போக்கு புல எண் 135 (பகுதி-6) 250.0 ஹெக்டேர் பரப்பில் கற்குமாரி செய்ய 1959-ஆம் வருடத்திய தமிழ்நாடு சிறுகனிம சலுகை விதிகளின், விதி 8(6)(b)-ன்படி 10 ஆண்டுகளுக்கு குத்தகை உரிமம் வழங்க உரிய நடவடிக்கை மேற்கொள்ளப்படும் என்ற விவரம் தெரிவிக்கப்படுகிறது.

பெறுநர்:

திரு A. கிருஷ்ணமூர்த்தி,
த/பெ ஆறுமுகம்,
தெ 116/1, மணிக்காரத்தெரு,
தண்டராம்பட்டு வட்டம்.

நகல்:-

வட்டாட்சியர் -

கீழ்பென்னாத்தூர்.

எல்தாரர் சுரங்கத்திட்ட அறிக்கை தயார் செய்ய ஏதவாகவும் குத்தகை ஒப்பந்தம் திறைவேற்றவும் குத்தகை உரிமம் வழங்க பரிந்துரை செய்யப்பட்ட பகுதியினை புல எரைப்பாத்தில் குறியிட்டு ஒப்பம் செய்து முப்பிரதிகளில் அனுப்பி வைக்க வேண்டி.

[Signature]
உதவி இயக்குநர்
புவிரியல் மற்றும் சுரங்கத்துறை
திருவண்ணாமலை

[Signature]
21/12/20

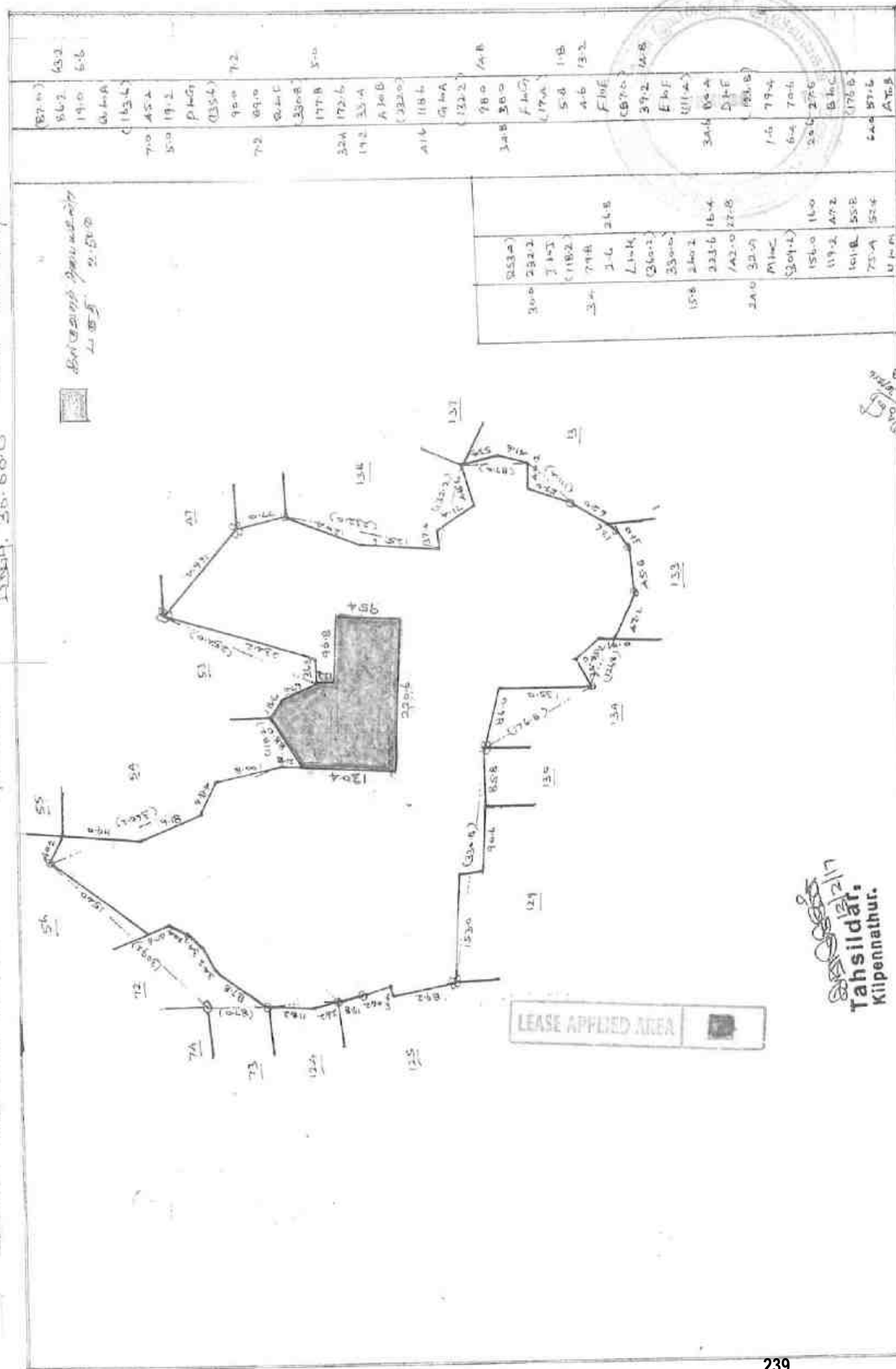
Date: 11/

Page No: 111

Tahsil: 135

Taluk: 36.600

Village: 135





10346



Tahsildar,
Kilpennathur.

NO. 114
ANNEXURE
TIRUMANGALUR TALUK
HOLY ANGEL DEBENT
1914

Area	Value
100	100
200	200
300	300
400	400
500	500
600	600
700	700
800	800
900	900
1000	1000

Area	Value
100	100
200	200
300	300
400	400
500	500
600	600
700	700
800	800
900	900
1000	1000



LEASE APPLIED FOR



அட்டை 2
தேவநகரத்திலிருந்து வந்தவர்களுக்கு எந்தெந்த அட்டைகள்

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Tahsildar,
Kilpennathur.

11. $\frac{1}{2} \log_2 16$

$\frac{d}{dt} \left(\frac{\partial L}{\partial \dot{x}} \right) = \frac{\partial L}{\partial x}$

[illegible]

2. தொகுப்பு வினா
செய்ய வேண்டிய
 அனைத்து வினாக்களும் தகுந்த விடையை
 கொடுத்தும், மொத்த
 மதிப்பெண் 100.

கி. எஸ். III. அய்யங்குணம்.

1	2	3	4	5	6	7	8	9	10	11	12	
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133	4B	133 4B	ச	ய	...	8-5	9	1 38	0 51-0	0 70	164 மு முனுசாமி.	பு.கிணறு
	5	-5	ச	ய	...	8-5	9	1 38	0 57-5	0 80	91 பொ. குரை.	
									3 71-5	5 18		
134	...	134	ச	ய	...	8-5	9	1 38	3 44-0	4 81	171 ச. ராமசுந்தரம் ரெட்டி.	ப.கிணறு
135	...	135	ச	யுற	36 60-0	மலை.
136	1	136-1	ச	ய	...	8-5	9	1 38	0 24-5	0 31	212 டே.லிஷ் மிஷிக் பா.திரியார்.	
	2A	-2பா	ச	ய	...	8-5	9	1 38	1 60-5	2 22	22 நா. ஆனந்த நாயி.	பு.கிணறு
	2B	-2பா	ச	ய	...	8-5	9	1 38	1 60-5	2 22	73 நா. சிப்பாய்.	
	2C	-2பா	ச	ய	...	8-5	9	1 38	6 69-0	9 26	280 ச. செல்வம் (1), ச. ராம சூர்த்தி (2), இளஞ் செழியன் (3)	பு.கிணறு
	3	-3	ச	ய	...	8-5	9	1 38	2 42-0	3 37	212 டே.லிஷ் மிஷிக் பா.திரியார்.	பு.கிணறு
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137	...	137	ச	கி.ஏ.த.	0 46-0	கல்லாங்குத்து.
138	...	138	ச	ய	...	8-5	9	1 38	6 29-5	8 75	212 டே.லிஷ் மிஷிக் பா.திரியார்.	கிணறு-2.
139	1	139-1	ச	கி.ஏ.த.	0 70-5	பாறை.
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	2B	-2பா	ச	ய	...	8-5	9	1 38	0 06-0	0 08	248 க. ராமப்பன் (1), க. சாமி நாதன் (2).	
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	2D	-2பா	ச	ய	...	8-5	9	1 38	0 18-5	0 26	66 க. சாமிநாதன்.	
									0 02-5	0 06	347 பொ. சாமிமுத்து மற்றும் ஓன்பது கோள்களும்.	கிணறு.

2008/08/08
 கிராம நிர்வாக அலுவலர்,
 பிறப்பு-இறப்பு பதிவுகள்,
 காவலாபடி குறும்,
 கீழ்பென்னாத்தூர் வட்டம்.

Tahsildar,
 2008/08/08



ANNEXURE-7

DISTRICT SURVEY REPORT FOR MINOR MINERALS OTHER THAN SAND MINING / RIVER BED MINING

MINOR MINERAL : ROUGH STONE

(Prepared As Per Notification Of Ministry Of Environment, Forest And Climate Change - MOEF & CC
S.O.141 (E) Dated 15th January 2016 & S.O.3611 (E) Dated 25th July 2018)



MAY -2019

DISTRICT SURVEY REPORT TIRUVANNAMALAI DISTRICT

Chapter	Contents	Page No.
1.	Introduction	1
2.	Overview of Mining Activity in the District	3
3.	General Profile of the District	4
4.	Geology of Thiruvannamalai District	7
5.	Drainage of Irrigation pattern	12
6.	Land Utilisation Pattern in the District: Forest, Agricultural, Horticultural, Mining etc.,	13
7.	Surface Water and Ground Water scenario of the District	13
8.	Climate and Rainfall of the District	15
9.	Details of Mining Leases in the District	16
10.	Details of Royalty or Revenue received in last three years	32
11.	Details of Production of Minor Mineral in last three years	32
12.	Mineral Map of the District	33
13.	List of Letter of Intent (LOI) Holder in the District along with its validity	34
14.	Total Mineral Reserve available in the district	38
15.	Quality/Grade of Mineral available in the district	56
16.	Use of Mineral	56
17.	Demand and supply of the Mineral in the last three years	56
18.	Mining Leases marked on the map of the district	57
19.	Details of the area of where there is a cluster of the mining leases	58
20.	Details of Eco-sensitive area	59
21.	Impact on the environment due to Mining activity	59
22.	Remedial measures to mitigate the impact of mining on the environment	60
23.	Reclamation of the mined out area	62
24.	Risk assessment & Disaster Management Plan	64
25.	Details of Occupational health issue in the District	66
26.	Plantation and Green belt development in respect of leases already granted in the district	66
27.	Any other information	67

1. INTRODUCTION

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

The need of the minor minerals particularly for infrastructural development of Individuals as well as for the Government is increasing day by day rapidly, accordingly the mining of minor minerals, is also developing vigorously. However, each entity looking for a good environment for their habitat.

As per the Gazette Notification **S.O.3611 (E) Dated: 25.07.2018** Ministry of Environment, Forest and Climate Change (MoEF & CC),laid procedure for preparation of District Survey Report of minor minerals other than sand mining or river bed mining. The main purpose of preparation of District Survey Report is to identify the mineral resources and developing the mining activities along with other relevant data of the District.

This District Survey report, guides systematic and scientific utilization of natural resources, so that present and future generations benefit equally. The objective of District Survey Report (DSR) is to meet human needs while preserving the Environment so that these needs can be met not only in the present, also for future generation.

The minerals are basic and strategic material for industrial and Economic development. In mining, the possibilities of adverse effects on the Environment are quite high if the adverse effects are not contain are reduced to minimum. The Negative impact of Mining could be controlled through the application of the concept and principles of sustainable development to mining operation.

The District Survey report (DSR) contain mainly data published and endorsed by various Departments and websites about Geology of the area, Mineral Wealth details, Details of Lease and Mining activity in the District along with Revenue of Minerals, This report also contains details of Forest, Rivers, Soil, Agriculture, Road, Transportation and Climate etc.

The main purpose of preparation of District Survey Report is to identify the mineral resources and developing the mining activities along with other relevant data of the District.

List of occurrences of Minerals in Tiruvannamalai District:

1. Rough Stone and associated products
2. Granite (Black Granite and Multi Colour Granite)
3. Fire Clay
4. Gravel / Ordinary Earth (Savudu) / Brick Clay

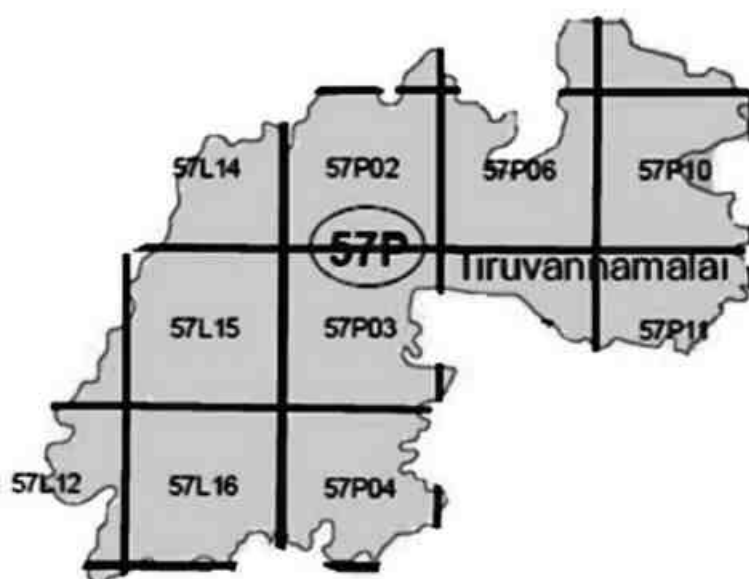
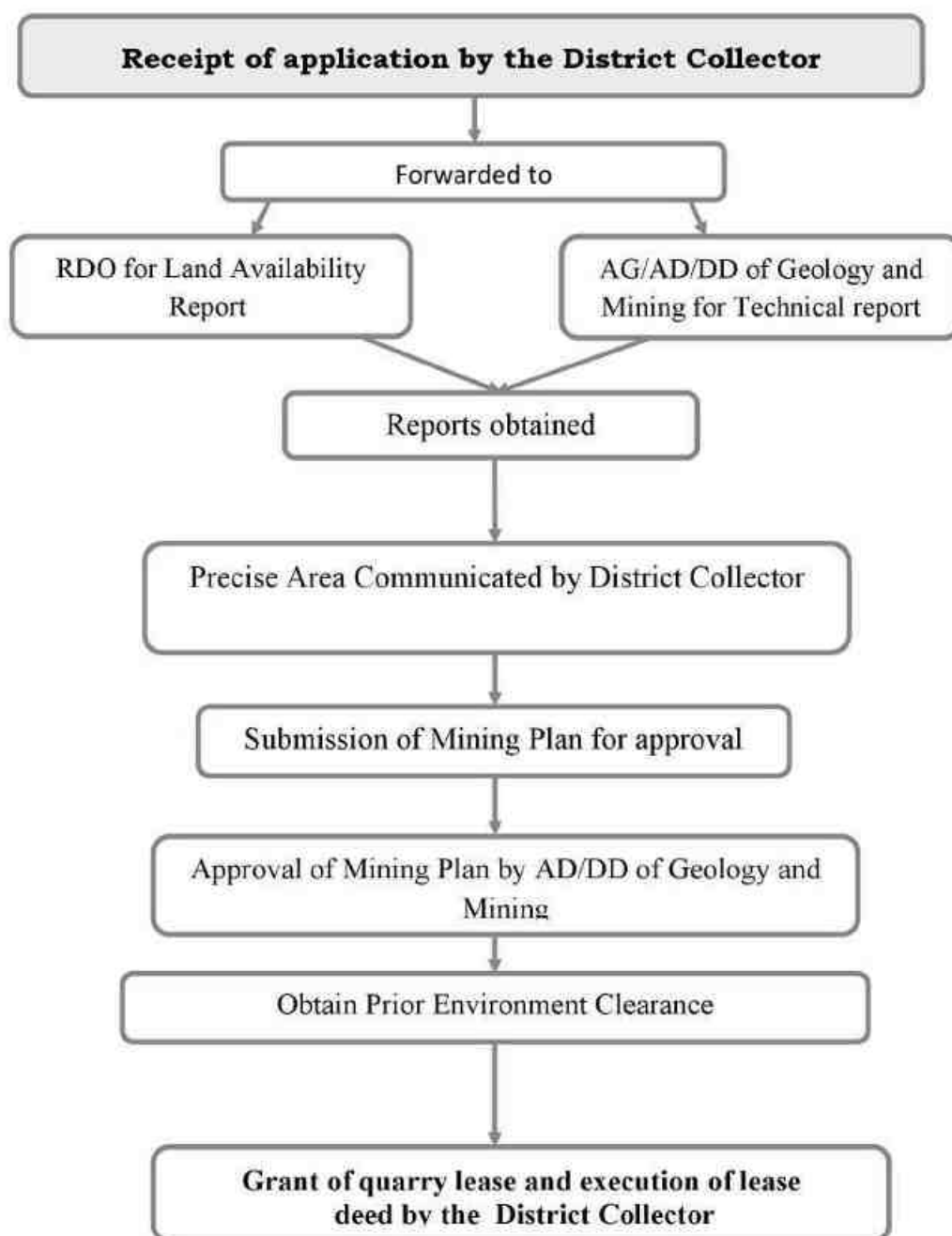


Fig. 1.1 Toposheet in Tiruvannamalai District

2. OVERVIEW OF MINING ACTIVITY IN THE DISTRICT

The Mining activities are carried out in the district by Opencast Mechanized method and Opencast Manual method. In opencast method, Mining activities being carried out by drilling and blasting and also deploying heavy machineries like pocklain, Breaker, Tipper and compressors etc., Benches are formed along the strike on the hanging wall and footwall sides to work the deposit at depth.

Procedure for Grant of quarrying lease for Minor Minerals - Rough Stone



The office of the Assistant Director, Department of Geology and Mining is functioning under the control of District Collector, Thiruvannamalai. The Assistant Director, Geology and Mining are assisting the District Collector in the Mineral Administration works.

3. GENERAL PROFILE OF THE DISTRICT

Tiruvannamalai district lies in the northern part of Tamil Nadu, and 200 Km from the state capital Chennai. It is bounded on the north by Vellore District, on the east by Kanchipuram District, and Villupuram on the south by Villupuram District, and on the west by Dharmapuri, Krishnagiri and Vellore districts. Tiruvannamalai District is divided into 3 Revenue Divisions namely Tiruvannamalai, Arni and Cheyyar and 12 Taluks namely Tiruvannamalai, Kilpennathur, Chengam, Thandarampattu, Kalasapakkam, Polur, Arni, Chetput, Cheyyar, Vembakkam, Vandavasi and Jamanamarathur. Tiruvannamalai consist of 18 Blocks (Union), 4 Municipalities, 10 Town Panchayats and 860 Village Panchayats.

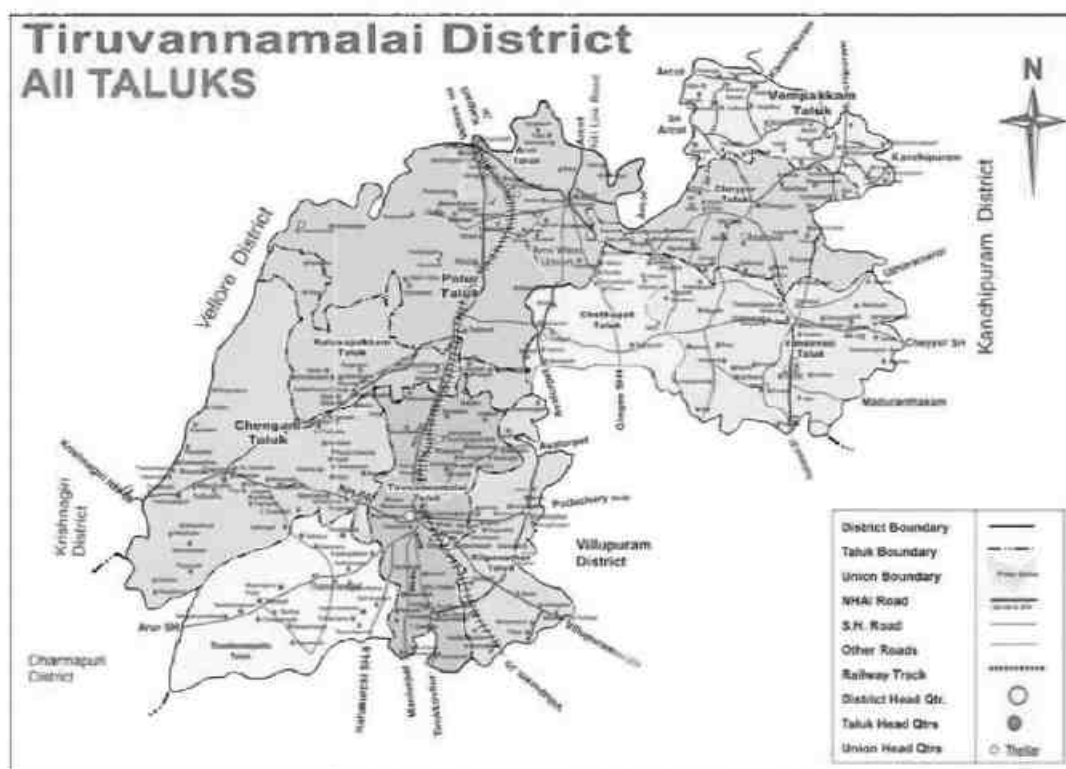


Fig.3.1 Tiruvannamalai District (Taluk wise)

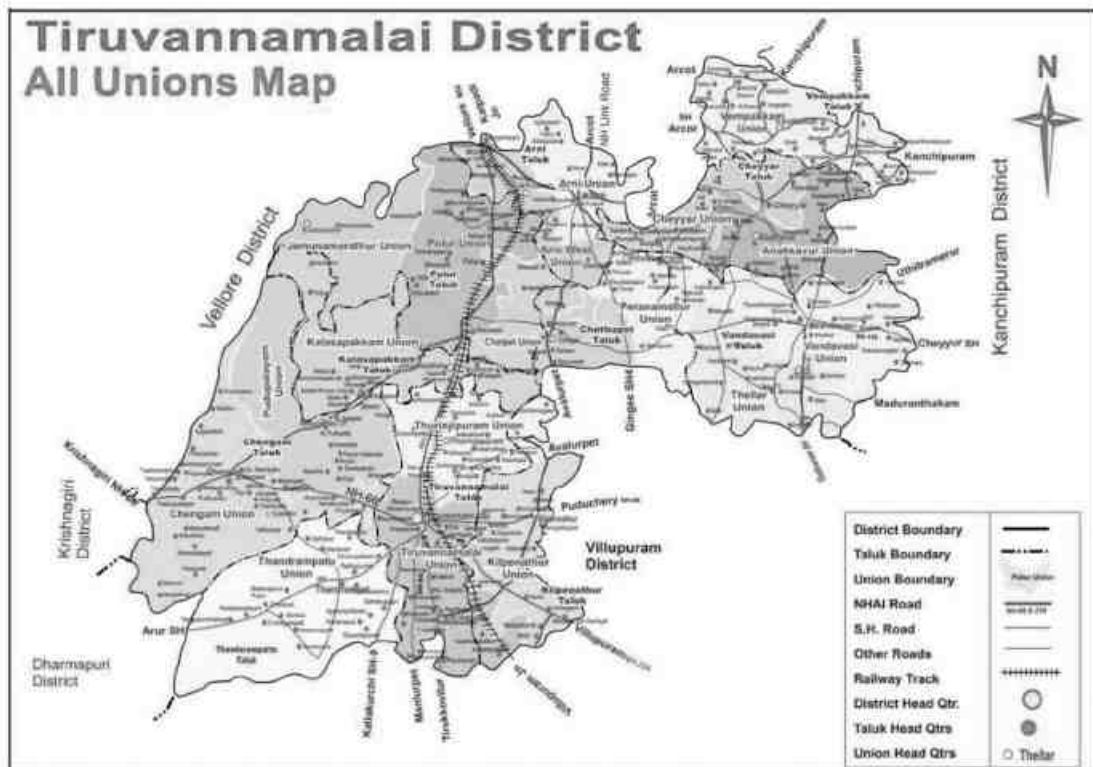


Fig.3.2 All Union Map, Tiruvannamalai District

TIRUVANNAMALAI DISTRICT PROFILE – 2017 - 18

Table	Geographical Position		
1	North Latitude between	Between 11.55 and 13.15'	
	East Longitude between	Between 78.20 and 79.50'	
2	Area and Population		
	1. Area in Square Km	6188	
	2. Total Population as per 2011	2464875	
	3. Density / Sq. Km	398	
	4. Literate		
		Male %	83.11
		Female %	65.32
	Language spoken in the		Tamil
	Temperature (IN CELCIUS)		Max : 36.00 Min : 21.10
	Rainfall in mm		
	Normal		North East Monsoon : 446.5 South West Monsoon : 468.1
	Actual		North East Monsoon : 524.9 South West Monsoon : 621.9
	Agriculture (in Ha)		
	Total Cultivated area		314827
	Net area sown		208644
	Area sown more than once		106182
	Forests (in Ha)		
	Reserved forest		151799.64
	Forest		101017
	Un classed Forest		381.48

Places of worship and tourist

Tiruvannamalai is one of the most venerated places in Tamil Nadu. The main Deepam festival, Maha shivarathri and Pournami Girivalam attracts Tiruvannamalai and Parvathamalai devotees from far and wide throughout India and abroad. Further main features of the District attract historic places besides Tiruvannamalai, Arni, Vandavasi and Devigapuram connected to East India and French companies. It is also noticed that well-maintained tourist places such as Sathanur dam, Jawathumalai and Amirthy Game Park. In the late Chola period the Cholan of Sambuvarayar having Padavedu near Arni as HQ ruled this district.

4. GEOLOGY OF TIRUVANNAMALAI DISTRICT

The Entire district is underlain by the rocks belonging to hard crystalline rock masses of Archaean age. The Archaean rocks in this area are represented by rocks of eastern Ghat complex comprising charnockites, Migmatite complex of composite gneiss. The district is covered by metamorphic crystalline rocks of charnockite, composite gneiss of Archaean age. These rocks are highly metamorphosed and have been subjected to sever folding, crushing and faulting. Charnockites group is occupied by North and Southern part of the basin. The other rock type is encountered by composite granitic gneiss of Epidote hornblende biotite gneiss and hornblende biotite gneiss are occupy in the middle portion of the basin. Charnockite group occupies the high ground as well as plain and it is poorly weathered and jointed. They are generally black grey to dark grey in colour medium to coarse grained texture, and generally massive and un-foliated. A gneissic rock occurs as linear bands in the middle portion of the area and is highly migmatised. Mostly, micaceous with bands of granites, pegmatites, quartz veins the rock is well foliated. The Hornblende biotite gneiss forms the country rock of the area and epidote hornblende gneiss (Proterozoic age) occurs as small isolated outcrops. The crystalline formations are charnockite, granitic gneiss of Archean age have been intrude by dolerite dykes and pegmatite veins. These rocks are highly metamorphosed and have been subjected to very severe folding, crushing and faulting. The crystalline rocks are subjected to tectonic activities under various orogenic cycles resulting in the development of secondary structures such as joints, fissures and cleavages. The intensity of weathering varies from place to place. Highly weathered zones and granitic rock occurs in masses are around some of the

villages like Ariyanallur, Mukkunam, Kaarunkuli Tondur, vedal, Melolakkur, Pennagar, Chinnaagram (57p/7). The general geological sequence of formation is given in the Table.

Age	Stage	Lithology
Archaean	Migmatite Complex	Biotite Gneiss, Epidote, Hornblende gneiss.
	Charnockite Group	Magnetite

ROUGH STONE, JELLIES AND M-SAND

Ordinary stones suitable for making Rough stones, Jelly and M-sand Ballast etc., used for road formation, construction and other purpose are available in all Taluks.



Photo.1-2: Charnockite (Rough Stone) Quarry

Foliation : N55°W / 70°SW **Coordinates** : 12° 38' 40.04" N,
Joint : S50°W / 80°SW 79° 36' 12.21" E
Location : Athi - Village, Cheyyar Taluk



Photo .3: Rough stone crushed into Jellies, Ezhacherri, Cheyyar – Taluk

M-SAND

Manufactured Sand is defined as a purpose-made crushed fine aggregate produced from a suitable source material. Production generally involves crushing, screening and possibility washing. It is a substitute of river sand is produced from hard granite stone. The crushed sand is of cubical shape with grounded edges, washed and graded to as a construction material. The size of manufactured sand (M-Sand) is less than 4.75mm.

The precious river bed acts as not only mechanical filter but also as a biological filter with its microorganisms, formed through natural evolution over centuries which cannot be artificially replicated. Due to the depletion of good quality river sand for the use of construction, the use of manufactured sand has been increased.



Photo .4: Mining for M - Sand, Palli- Village, Cheyyar - Taluk



Photo .5: Wastage (Dust Particle) Of M- Sand



Photo .6: Powdered Rough stone for preparation of M - Sand



Photo: 7. Crushing Unit for preparation of M – Sand Manufactured Sand (M – Sand)



“Our Children’s Future is in Our Hand or Decision”

Our contribution to environment is by producing M-Sand as an alternative to river sand, for reducing the extraction of sand from river bed

5. DRAINAGE AND IRRIGATION PATTERN

Drainage :

Cheyar river which originates from Jawadhu Hills, flows in a southern direction at first, and turns south-east near Chengam after flowing through Polur, Vandavasi and Cheyyar taluks. Palar rising near Nandidurg in Mysore enters Vellore district passing through Gudiyatham, Walajah and Arakonam taluks before entering into Cheyyar taluk of Tiruvannamalai district and there after enters into Kancheepuram district. Pennaiyar and South Pennaiyar originate from Nandidurg of Karnataka. They pass through Dharmapuri district and enter southern part of Chengam taluk before entering in to Viluppuram district. Finally, the river enters into the Bay of Bengal at Cuddalore.

The river is dry for the most part of the year. Water flows during the monsoon season when it is fed by the southwest monsoon in catchment area and the northeast monsoon 45 in Tamil Nadu. A dam has been constructed across this river at Sathanur which is a picnic spot in this district. Sathanur Reservoir provides drinking water to Tiruvannamalai town and the water is used for irrigation when the reservoir is filled with surplus water.

Irrigation

Tanks and dug wells were the major sources of irrigation in the district. The district had 604 major tanks (with ayacut of 40 ha. or more) and 1,361 small tanks (with ayacut of less than 40 ha.) There were 1,050 private borewells, 200 dug-cum-bore wells and 1, 54,415 open wells in the district. Sathanur reservoir is built across the Thenpennai river with an ayacut of 18,882 ha. benefiting both Tiruvannamalai and Villupuram districts

Source : Records of Office of Assistant Director of Statistics, Tiruvannamalai

6. LAND UTILISATION PATTERN IN THE DISTRICT: FOREST, AGRICULTURAL, HORTICULTURAL, MINING, Etc.,

The total geographical area of the district is 6,191 Sq. km.

Details of Land Utilization pattern of Tiruvannamalai District

S. No	Classification	Area in Ha	Percentage
1	Forest	1,53,318	24.76
2	Barren and uncultivable land	21,058	3.40
3	Land put to non agricultural uses	92,598	15.00
4	Cultivable waste	14,963	2.41
5	Permanent pastures and other grazing land	2,908	0.46
6	Land under miscellaneous, tree crop and groves included in the net area sown	2,690	0.43
7	Current fallows	68,662	11.09
8	Other fallow lands	32,621	5.27
9	Net area sown	2,30,282	37.19
10	Total Geographical area	6,19,100	100.00

Source: Records of Office of Department of Revenue, Tiruvannamalai

7. SURFACE WATER AND GROUND WATER SCENARIO OF THE DISTRICT

Surface water

The major rivers traversing the area are Ponnaiyar and Cheyyar. The major part of the district falls under the Palar sub catchment and extreme southern part of the district fall under Ponnaiyar sub catchment.

Cheyar river which originates from Jawadhu Hills, flows in a southern direction at first, and turns south-east near Chengam after flowing through Polur, Vandavasi and Cheyyar taluks. Palar rising near Nandidurg in Mysore enters Vellore district passing through Gudiyatham, Walajah and Arakonam taluks before entering into Cheyyar taluk of Tiruvannamalai district and thereafter enters into Kancheepuram district. Pennaiyar and South Pennaiyar originate from Nandidurg of Karnataka

Ground water:

Ground Water is found beneath the earth's surface and is an important source of water in most of the Districts in the State. Ground Water is withdrawn for Agriculture, Municipal and industrial use. The depth at which the ground water is found is called Ground water Table. The district is classified into different blocks based on the ground water abstraction rate.

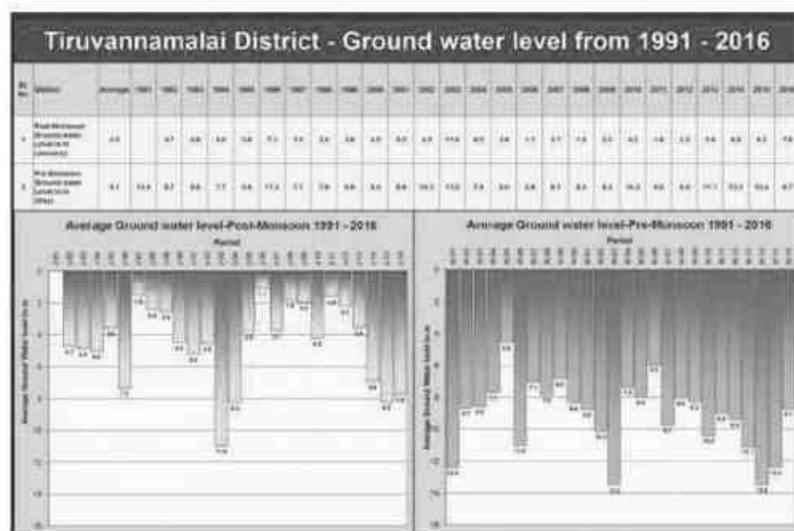


Figure 7.0 Geology And Mineral Resources Map Of Tiruvannamalai District

Over exploited (Greater than 100%)	Critical (Between 90 and 100%)	Semi - Critical (70 - 90%)	Safe (Less than 70%)
Chengam, Cheyyar, Kilpennathur, Osur Pachal, Melpallipattu, Somaspadi, Malaiyur, Pudupalayam, Vandavasi, Thandarampat, Thurinjapuram, Veraiyur.	Kettavarampalayam, Nayadumangalam, Vanapuram, Eraiyur, Thanipadi, Thatchampattu, Chennavaram, Vadathandalam, Desur, Kelur, Kilkodungalur, Kolappalur, Nedungunam, Peranamallur, Santhavasal, Thachambadi	Anakavoor, Dusi, Kadaladi, Kalasapakkam, Mandakolathur, Modayur, Polur, T.V. Malai (South), Vakkadai, Vinnamangalam, Mullipattu , Nateri, Thethurai, Mangalam, Agrapalayam, Kannamangalam Vakkadai, Vettavlam.	Perungattur, Sathyavijayanagaram Vembakkam, Arni

Source : Tamil Nadu Water Supply and Drainage Board

8. RAINFALL OF THE DISTRICT AND CLIMATE CONDITIONS.

Rainfall

The area receives rainfall and the 5 year rainfall collected from the IMD, Chennai is as follows.

Actual rainfall in mm					Normal rainfall in mm
2013	2014	2015	2016	2017	
812.80	799.10	1247.4	684.7	1251.3	1039.66

Climatic Conditions.

This district has moderate climate. In Tiruvannamalai and Chengam taluks, the climate is cool in winter and hot during summer. The district gets rainfall during both north-east monsoon and southwest monsoon. The physiographic nature prevailing in the district forces variation in the climatic conditions. The rainfall of the region depends on the south-west and the north-east monsoons. Except southern taluks of Cheyyar and Vandavas, the district experience moderate rainfall during north-east monsoon. In summer, from March to June, the wind is hot and uncomfortable. In the monsoon seasons, from July to November, the wind is mild and from December to February, the wind is cold. The hottest month in this district was April (36.3° C) and coldest month in this district was January (21.2° C).

9. DETAILS OF THE ROUGH STONE MINING LEASES IN THE DISTRICT AS PER THE FOLLOWING FORMAT:-

SL No	Name of the Mineral	Name of the Lessee	Address & Contact No. 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 No with date of grant of EC	Location of the mining lease (Latitude & Longitude)	Method of Mining (Opencast/underground)
						From	To	From	To						
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	Rough Stone	D.Jaiganesh,	Vettavalam village, Tiruvannamalai Taluk	614/K2/2009 10.11.2017	1.00.0	10.11.2017	09.11.2019	-	-	10.11.2017	Non-Operative	Non-Captive	Yes SEIAA-TN/F.No.55 36/EC/1(a)/ EC.No.3708 /2016 L.06.09.2016	Vettavalam Tiruvannamalai 12°06' 38" N 12° 06' 43" N 79° 16' 27" E 79° 16' 31" E	Opencast
2	Rough Stone	R.Prasath,	Polur Main Road, Tiruvannamalai.	39/K2/2010 08.03.2010	2.00.0	08.03.2010	07.03.2020	-	-	08.03.2010	Operative	Non-Captive	Yes SEIAA-TN/F.No.44 13/EC/1(a)/ EC.No.3065 /2015 dt.02.03.2016	Veraiyur Tiruvannamalai 2°05' 33" N 12° 05' 37" N 79° 07' 11" E 79° 07' 19" E	Opencast
3	Rough Stone	E.Murugesan ,	Nachanandhal Tiruvannamalai.	22/K2/2010 05.04.2010	1.00.0	05.04.2010	04.04.2020	-	-	05.04.2010	Non-Operative	Non-Captive	-No-	Pavupattu Tiruvannamalai 12°07' 58" N 12° 07' 53" N 79° 02' 55" E 79° 02' 50" E	Opencast
4	Rough Stone	R.Singaram,	Thenimalai, Tiruvannamalai	73/K2/2010 05.04.2010	1.00.0	05.04.2010	04.04.2020	-	-	05.04.2010	Operative	Non-Captive	Yes SEIAA-TN/F.No.44 67/EC/1(a)/ EC.No.3435 /2016 dated. 29.07.2016	Athipadi Tiruvannamalai 12°05' 06" N 12° 05' 02" N 79° 02' 18" E 79° 02' 13" E	Opencast

5	Rough Stone	A.Nakkeeran,	3, Kardukarar Street, Vettavalam	636/K2/2009 10.05.2010	0.77.0	10.05.2010	09.05.2020	-	-	10.05.2010	Non-Operative	Non-Captive	-No-	Vettavalam Tiruvannamalai 12°06' 27"N 12° 06' 32"N 79° 14' 07"E 79° 14' 11"E	Opencast
6	Rough Stone	R.Arul,	Melanandahal Village, Tirukovilur Taluk.	40/K2/2010 13.05.2010	1.00.0	13.05.2010	12.05.2020	-	-	13.05.2010	Operative	Non-Captive	Yes SEIAA- TN/F.No.47 19/EC/1(a) EC.No.3303 /2016 dt.11.07.2016	Athipadi Tiruvannamalai 12°05' 04" N 12° 05' 09"N 79° 02' 11"E 79° 02' 15"E	Opencast
7	Rough Stone	N.Suresh,	25/73, Ayyankula Street, Tiruvannamalai	43/K2/2010 16.12.2010	2.00.0	16.12.2010	15.12.2020	-	-	16.12.2010	Non-Operative	Non-Captive	-No-	Meyyur Tiruvannamalai 12°08' 59"N 12° 09' 05"N 79° 01' 49"E 79° 01' 54"E	Opencast
8	Rough Stone	M.Selvaraj,	Chengam Road, Tiruvannamalai.	74/K2/2010 16.12.2010	1.00.0	16.12.2010	15.12.2020	-	-	16.12.2010	Operative	Non-Captive	Yes SEIAA- TN/F.No.46 89/EC/1(a)/ EC.No.3482 /2016 dt.29.07.2016	Adaiyur Tiruvannamalai 12° 16' 24" N 12° 16' 28"N 79° 02' 55" E 79° 02' 59"E	Opencast
9	Rough Stone	S.Prasanth,	Chengam Road, Tiruvannamalai	75/K2/2010 23.12.2010	0.96.5	23.12.2010	22.12.2020	-	-	23.12.2010	Operative	Non-Captive	Yes SEIAA- TN/F.No.54 54/EC/1(a) EC.No.3671 /2016 t.08.08.2016	Adaiyur Tiruvannamalai 12°16' 20" N 12° 16' 25" N 79° 02' 54" E 79° 02' 58"E	Opencast
10	Rough Stone	S.Senthilkumar	10, Kardukarar Street, Vettavalam.	168/K2/2010 24.12.2010	1.23.5	24.12.2010	23.12.2020	-	-	24.12.2010	Non-Operative	Non-Captive	-No-	Vettavalam Tiruvannamalai 12° 07' 34"N 12° 07' 38"N 79° 15' 48"E 79° 15' 53"E	Opencast

11	Rough Stone	K.Thirumal,	Perayampattu post and Village, Tundarampet	72/K2/2010 01.03.2011	1.30.0	01.03.2011	28.02.2021	-	-	01.03.2011	Non-Operative	Non Captive	-No-	Athipadi Tiruvannmalai 12°05' 01"N 12° 05' 05"N 79° 02' 03"E 79° 02' 09"E	Opencast
12	Rough Stone	N. Harijay ashree	No.18/7, Vadamathathi St., Tiruvannamalai	57/K/2012 28.04.2012	4.00.0	28.04.2012	27.04.2022	-	-	28.04.2012	Non-Operative	Non Captive	-No-	Vallivagai Tiruvannmalai 12° 16' 41"N 12° 16' 32"N 79° 08' 52"E 79° 08' 39"E	Opencast
13	Rough Stone	R.Sekar,	Mel Chinna Goundanpatti, Tharamangalam Village, Omalur Taluk, Salem Dt.	47/K2/2015 12.09.2017	1.00.0	12.09.2017	11.09.2022	-	-	12.09.2017	Non-Operative	Non Captive	Yes SEIAA- TN/F.No.52 54/EC/1 (a)/ EC.No.3656 /2016 dt.24.08.2016	Koothalavadi Tiruvannmalai 12° 20' 02.45"N 12° 20' 07.2"N 79° 06' 49.93"E 79°06' 53.59"E	Opencast
14	Rough Stone	P.Adimoolam,	57A, Tamizhnagar, Tiruvannamalai taluk	130/K2/2009 01.07.2009	1.00.0	01.07.2009	30.06.2019	-	-	01.07.2009	Operative	Non Captive	Yes SEIAA- TN/F.No.43 72/EC/1 (a)/ EC.No.3568 /2016 dt.10.08.2016	Iynkunam Kilpennathur 12°15' 36" N 12° 15' 47" N 79° 09' 56" E 79° 10' 02" E	Opencast
15	Rough Stone	R.Karthikeyan	23/29, Lakshmipuram, Gandhi Nagar, Tiruvannamalai-2.	483/K2/2009 20.04.2011	1.00.0	20.04.2011	19.04.2021	-	-	20.04.2011	Non-Operative	Non Captive	-No-	Iynkunam Kilpennathur 12° 15' 43"N 12° 15' 47"N 79° 09' 41"E 79° 09' 47"E	Opencast
16	Rough Stone	V.J.Dhamodharan,	No.1261-A Thendral Nagar, Vengikkal Village, Tiruvannamalai Taluk & District.	391/K/2017 16.11.2018	1.00.0	16.11.2018	15.11.2023	-	-	16.11.2018	Operative	Non Captive	Yes DEIAA- 5 /TVM/TN/F. No.391/K/20 17/E.C.No.3 15/2017- 21 dated: 17.09.2018	Polakunam Kilpennathur N 12°12'32.00" 12°12'34.95" E 79°08'40.72" 79°08'46.20"	Opencast

17	Rough Stone	S.Vasanth-kumari	Uchimalaikuppam Chengam	621/K2/2009 12.04.2010	1.35.5	12.04.2010	11.04.2020	-	-	12.04.2010	Operative	Non Captive	Yes DEIAA- 5 /TVM/TN/F. No.97- 58/K/2015 E.C.No.315/ 2017-28 dt:17.9.2018	Uchimalaiku ppam Chengam N 12°15'54" 12°15'58" E 78°54'21" 78°54'27"	Opencast
18	Rough Stone	K.Durai	1/2, Ramalinganar Street, Tiruvannamalai	27/K2/2010 05.05.2010	1.00.0	05.05.2010	04.05.2020	-	-	05.05.2010	Operative	Non Captive	Yes SEIAA- TN/F.No.46 69/EC/1(a)/ Ec.No.3481/ 2016 dt.29.7.2016	Paliapattu Chengam 12° 16' 10" N 12° 16' 01" N 79° 00' 15" E 79° 00' 08" E	Opencast
19	Rough Stone	R.Jeevanantham,	50, Avarangaatu Street, Tiruvannamalai	24/K2/2010 13.05.2010	2.00.0	13.05.2010	12.05.2020	-	-	13.05.2010	Non-Operative	Non Captive	-No-	Chinnakola- padi Chengam 12° 15' 16" N 12° 15' 22" N 78° 59' 10" E 78° 59' 17" E	Opencast
20	Rough Stone	R.M.Jayavelu	Chengam Road, Tiruvannamalai	28/K2/2010 03.11.2010	1.50.0	03.11.2010	02.11.2020	-	-	03.11.2010	Non-Operative	Non Captive	-No-	Paliapattu Chengam 12° 16' 11" N 12° 16' 04" N 79° 00' 20" E 79° 00' 14" E	Opencast
21	Rough Stone	M.Palani	6, Peygopuram St., Tiruvannamalai	15/K2/2011 12.01.2016	0.50.0	12.01.2016	11.01.2026	-	-	12.01.2016	Operative	Non Captive	Yes SEIAA- TN/F.No.34 24/EC/1(a)/ EC.No.2534 /2015 dt.18.12.2015	Periyakola- padi Chengam 12° 15' 02.12" N 12° 15' 05.67" N 79° 58' 50.59" E 79° 58' 52.31" E	Opencast
22	Rough Stone	Sadhaknawas,	No. 25, 3rd Street, Valace Garden, Chennai-6,	14/K2/2011 12.01.2016	0.50.0	12.01.2016	11.01.2021	-	-	12.01.2016	Operative	Non Captive	Yes SEIAA- TN/F.No.39 40/EC/1(a)/ EC.No.2535 /2015 dt.18.12.2015	Periyakola- padi Chengam 12° 15' 01.92" N 12° 15' 05.72" N 79° 58' 49.37" E 79° 58' 51.19" E	Opencast

23	Rough Stone	Tmt.S.Kanimozhi	No.152, Old Street, Avoor Village Tiruvannamalai	48/K2/2015 28.07.2016	1.00.0	28.07.2016	27.07.2021	-	-	28.07.2016	Operative	Non Captive	Yes SEIAA- TN/F.No.46 68/EC/1(a)/ 3083/2015 dated. 02.03.2016	Periyakola- padi Chengam 12° 15' 03" N 12° 15' 06" N 78° 58' 53" E 78° 58' 58" E	Opencast
24	Rough Stone	M.Julia	180, Vambalur Road, Tirumalai village, Polur taluk	231/K2/2009 22.06.2009	2.00.0	22.06.2009	21.06.2019	-	-	22.06.2009	Non-Operative	Non Captive	-No-	Tirumalai Polur 12° 33' 44" N 12° 33' 47" N 79° 11' 26" E 79° 11' 33" E	Opencast
25	Rough Stone	M.Parthiban,	27/A, Vengadathan street, Polur taluk & village.	136/K2/2010 24.12.2010	1.00.0	24.12.2010	23.12.2020	-	-	24.12.2010	Non-Operative	Non Captive	-No-	Pudhu- palayam Polur 12° 29' 18" N 79° 6' 40.64" E	Opencast
26	Rough Stone	S.Rajakumar	2/57, Pillaiyar koil street, Kalasapakkam.	50/K/2015 21.07.2016	2.00.0	21.07.2016	20.07.2021	-	-	21.07.2016	Operative	Non Captive	Yes SEIAA- TN/F.No.47 08/EC/1(a)/ EC.No.3344 /2016 dt.15.07.2016	Vasur Polur 12° 29' 16" N 12° 29' 21" N 79° 07' 11" E 79° 07' 17" E	Opencast
27	Rough Stone	E.Sivakumar,	No.20,26,J.30, VRS Nagar, Govindasamy street, Polur.	51/K/2015 21.07.2016	2.00.0	21.07.2016	20.07.2021	-	-	21.07.2016	Operative	Non Captive	Yes SEIAA- TN/F.No.46 94/EC/1(a) EC.No.3317 /2016 dated. 15.07.2016	Pudu- palayam Polur 12° 29' 17" N 12° 29' 22" N 79° 06' 26" E 79° 06' 31" E	Opencast
28	Rough Stone	P.Radhakrishnan	Mettu Street, Tiruvannamalai	20/K2/2010 12.04.2010	1.03.5	12.04.2010	11.04.2020	-	-	12.04.2010	Non-Operative	Non Captive	-No-	Sathanur Thandaram pattu 12° 11' 08" N 12° 11' 13" N 78° 53' 01" E 78° 53' 05" E	Opencast

29	Rough Stone	M.Govindamjan,	No.3/337, Allabasha street,Mungilthurai pattu Village, Shankarapuram Tk.	79/K2/2010 28.06.2010	2.00.0	28.06.2010	27.06.2020	-	-	28.06.2010	Non-Operative	Non Captive	-No-	Thondamanur Thandaram-pattu 12° 03' 48" N 12° 04' 03" N 78° 56' 57" E 78° 57' 05" E	Opencast
30	Rough Stone	A.Thenarmozhi	Manalurnel Siruvalur Village, Sankarapuram	134/K2/2010 23.08.2010	2.00.0	23.08.2010	22.08.2020	-	-	23.08.2010	Operative	Non Captive	Yes SEIAA- TN/F.No.30 48/EC/1(a)/ EC.No.1750 /2014 dt.18.03.2015	Perukulathur Thandaram-pattu 12° 01' 28" N 12° 01' 33" N 78° 55' 03" E 78° 55' 07" E	Opencast
31	Rough Stone	Tmt.K.Sarasu	53, Nehru Street, Chengam	626/K2/2009 17.03.2011	1.00.0	17.03.2011	16.03.2021	-	-	17.03.2011	Operative	Non Captive	Yes DEIAA- 5 /TVM/TN/F. No.97- 69/K2015/ E.C.No.315/ 2017- 27 dt: 17.09.2018	Sathanur Thandaram pattu 12°11'21"N 12°11'26"N 78°52'52"E 78°52'56"E	Opencast
32	Rough Stone	R.Dhanakotti	Varagur Village, Tandrapet	18/K2.2011 30.03.2011	1.00.0	30.03.2011	29.03.2021	-	-	30.03.2011	Operative	Non Captive	Yes SEIAA- TN/F.No.47 06/EC/1(a)/ EC.No.3316 /2016 dated. 15.07.2016	Varagur Thandaram pattu 12° 08' 58" N 12° 08' 54" N 79° 01' 48" E 79° 01' 42" E	Opencast
33	Rough Stone	P.Palani	Kolamanjanur Village, Tandarampet	20/K2.2011 18.04.2011	2.00.0	18.04.2011	17.04.2021	-	-	18.04.2011	Operative	Non Captive	Yes SEIAA- TN/F.No.43 76/EC/1(a)/ EC.No.3327 /2016 dated. 15.07.2016	Kolamanjanur Thandaram pattu 12° 08' 14" N 12° 08' 25" N 78° 53' 05" E 78° 53' 12" E	Opencast

34	Rough Stone	M.Veeramani	Royandapuram Village Thandarampattu Taluk.	19/K2/2011 24.05.2012	2.00.0	24.05.2012	23.05.2022	-	-	24.05.2012	Non-Operative	Non Captive	-No-	Royanda-puram Thandaram-pattu 12°04'49"N 12°04'55"N 78°56'23"E 78°56'29"E	Opencast
35	Rough Stone	M.Vinothkannan,	Varagur Village, Tandrapet	49/K/2015 20.01.2016	0.40.0	20.01.2016	19.01.2021	-	-	20.01.2016	Operative	Non Captive	Yes SEIAA-TN/F.No.43 55/EC/1(a)/ EC.No.2552 /2015 dt.23.12.2015	Varagur Thandaram pattu 12° 08' 32" N 12° 08' 29" N 79° 01' 39" E 79° 01' 37"E	Opencast
36	Rough Stone	Tmt.R.Amutha	No.712, Bajanai Koil Street, Dhesurpalayam Village, Keelvanakkambadi Thandrapattu Taluk	396/K/2017 11.06.2018	2.00.0	11.06.2018	10.06.2028	-	-	11.06.2018	Operative	Non Captive	Yes DEIAA-3/TVM/TN/ F.No.396/K/ 2017E.C.No .315/2017-8 dated: 04.04.2018	Allappanur Thandaram-pattu N 12°06'06.86" 12°06'12.52" E 78°56'39.04" 78°56'45.64"	Opencast
37	Rough Stone	S.Nagaraj	Manampathy Village, Uthiramerur Taluk.	29/K2/2011 17.12.2011	1.53.0	17.12.2011	16.12.2021	-	-	17.12.2011	Non-Operative	Non Captive	-No-	Athi Cheyyar 12° 38' 18"N 12° 38' 29"N 79° 36' 30"E 79° 36' 39"E	Opencast
38	Rough Stone	K.Gopinath,	Kandigai melkottaiyur post, Chengelpet taluk.	26/K2/2011 03.06.2011	2.00.0	03.06.2011	02.06.2021	-	-	03.06.2011	Non-Operative	Non Captive	-No-	Avaniapuram Chetpattu 12° 08' 54"N 12° 08' 58"N 79° 01' 34"E 79° 01'41"E	Opencast
39	Rough Stone	V.Rajagopal,	Oorapakkam.Chen galpattu.	169/K2/2010 17.12.2011	1.00.0	17.12.2011	16.12.2021	-	-	17.12.2011	Non-Operative	Non Captive	-No-	Jeganatha-puram Chetpattu 12° 28' 51"N 12° 28' 57"N 79° 24' 06"E 79° 24' 10"E	Opencast

40	Rough Stone	D.Saravanan,	Venkatapuram, Saidapet, Chennai – 15.	140/K2/2010 18.10.2010	2.00.0	18.10.2010	17.10.2020	-	-	18.10.2010	Non-Operative	Non Captive	-No-	Seeyalam Vandavasi 12° 26' 24"N 12° 26' 27 N 79° 43' 05"E 79° 43' 12"E	Opencast
41	Rough Stone	R.Tamilvanan.	Saidapet, Chennai –15.	143/K2/2010 18.10.2010	2.00.0	18.10.2010	17.10.2020	-	-	18.10.2010	Non-Operative	Non Captive	-No-	Seeyalam Vandavasi 12° 26' 14"N 12° 26' 18 N 79°43' 02"E 79° 43' 11"E	Opencast
42	Rough Stone	Siddique Basha,	Kunnathur village, Arni taluk	602/K2/2009 19.11.2009	2.00.0	19.11.2009	18.11.2019	-	-	19.11.2009	Operative	Non Captive	Yes SEIAA- TN/F.No.44 20/EC/1 (a)/ EC.No.3505 /2016 dt.10.08.2016	Melnagar ramasani kuppam Arni 12°42'13"N 12°42'07" N 79°11'01"E 79° 10' 55"E	Opencast
43	Rough Stone	S.Suresh,	3, Saradha Nagar, Agraharam Koratur, Chennai – 76.	135/K2/2009 23.11.2009	1.00.0	23.11.2009	22.11.2019	-	-	23.11.2009	Operative	Non Captive	Yes SEIAA- TN/F.No.55 57/EC/1 (a) Ec.No.3658/ 2016 dt.24.08.2016	Mullan- diram Arni 12°49'02.10"N 12°49'06.57" N 79°15'31.79"N 79°15'36.38"N	Opencast
44	Rough Stone	M.Shajakhan	855, Bazar Street Santhavasal, Polur Tk.	68/K/2012 24.05.2012	1.00.0	24.05.2012	23.05.2022	-	-	24.05.2012	Operative	Non Captive	Yes SEIAA- TN/F.No.44 70/EC/1(a) EC.No.3336 /2016 dated. 15.07.2016	Melnagar Arni 12° 42' 27"N 12° 42' 32"N 79° 10' 17"E 79° 10' 21"E	Opencast
45	Rough Stone	A.Nazeer Basha,	520/I, C.C.Road, Vannangulam, Arni taluk	51/K2/2010 14.09.2010	2.00.0	14.09.2010	13.09.2020	-	-	14.09.2010	Non-Operative	Non Captive	Yes SEIAA- TN/F.No.55 84/TOR.540 /2018 t.30.07.2018	Ayyam- palayam Arni 12° 42' 10"N 12° 42' 18"N 79° 10' 15"E 79° 10' 21"E	Opencast

46	Rough Stone	A.G.Mohan,	43, V.A.K.Nagar, Arni Taluk	52/K/2015 13.11.2017	0.40.0	13.11.2017	12.11.2022	-	-	13.11.2017	Operative	Non Captive	Yes SEIAA- TN/F.No.48 19/EC/1(a)/ EC.No.3759 /2016 L26.09.2016	Ariyapadi Arni 12° 41' 52"N 12° 41' 54"N 79° 13' 22"E 79° 13' 25"E	Opencast
47	Rough Stone	P.Vinayagamoorthi	Ramana Nagar, Thiruvannamalai.	104/K2/2015 02.03.2016	0.75.5	02.03.2016	01.03.2021	-	-	02.03.2016	Non-Operative	Non Captive	Yes SEIAA- TN/F.No.48 81/EC/1(a)/ 2914/2015 dated. 17.02.2016	Pavithram Tiruvannam alai 12°07'21" N 12°07'24" E 79°06'26" E 79°06'32" E	Opencast
48	Rough Stone	C.Shanthi	No. 3/22 Nehru Street, Vettavalam Taluk	132/K2/2015 15.05.2018	0.65.0	15.05.2018	14.05.2023	-	-	15.05.2018	Operative	Non Captive	Yes DEIAA- 1/TVM/TN/ F No.132/K/ 2015E, C No. 315/2017-3 dt.8.11.2017	Vettavalam Kilpennathur 12°06'15.10" 12°06'18.00" 79°13'59.75" 79°14'04.16"	Opencast
49	Rough Stone	K.S.BABURAJ,	No.12/14,3rd Cross Street, Karpagam Garden, Adayar, chennai -20	101/K/2018 14.11.2018	1.66.0	14.11.2018	13.11.2023	-	-	14.11.2018	Operative	Non Captive	Yes DEIAA- 1/TVM/TN/ F No.101/K/ 2016/E.C.N o.315/2017- 5 Dt. 16.02-2018	Kasthambadi Polur N 12°35'55" 12°36'01" E 79°11'51" 79°11'57"	Opencast
50	Rough Stone	T.Selvaraj,	Harur Main Road, Mothakkal village, Thandaram pattu Tk.	31/K/2013 16.06.2014	0.40.5	16.06.2014	15.06.2019	-	-	16.06.2014	Operative	Non Captive	Yes SEIAA- TN/F.No.14 30/EC/1(a) EC.No.1229 /2013 dt:30.04.2014	Mothakkal Tmpt 12°05'25.30"N 12°05'22.51"N 78°43'34.90"E 78°43'36.52"E	Opencast

51	Rough Stone	R.Gopi,	4/75B, Veerapathran Kovil St., Vijayappanur, Thandarampattu Tk.	101/K/2015 02.06.2016	1.71.0	02.06.2016	01.06.2021	-	-	02.06.2016	Operative	Non Captive	Yes SEIAA- TN/F.No.47 68/EC/1(a) EC.No.3076 /2016 dt:02.03.2016	Varagur Thandaram pattu 12°08'54"N 12°08'58"N 79°01'34"E 79°01'41"E	Opencast
52	Rough Stone	R. Venkatachalam,	No.30, New State Bank Colony, West Tambaram, Chennai.	95/K/2015 21.07.2016	2.90.0	21.07.2016	20.07.2021	-	-	21.07.2016	Operative	Non Captive	Yes SEIAA- TN/F.No.50 41/EC/1(a) EC.No.3236 /2016 dt:06.07.2016	Palli Cheyyar 12° 42' 53"N 12° 43' 01"N 79° 36' 08"E 79° 36' 15"E	Opencast
53	Rough Stone	Tvl.Src Projects (P) Ltd.,	4-B, Lakshmipuram, Gandhi Road, Salem-636 007.	99/K/2015 21.07.2016	4.75.5	21.07.2016	20.07.2021	-	-	21.07.2016	Operative	Non Captive	Yes SEIAA- TN/F.No.50 40/EC/1(a) EC.No.3224 /2016 dt:06.07.2016	Palli Cheyyar 12° 43' 20"N 12° 43' 30"N 79° 36' 14" E 79° 36' 24"E	Opencast
54	Rough Stone	I.Prakash	Senthamangalam Village S.V.Chathiram (Via), Sriperumpthur Taluk, Kanchipuram District.	122/K/2015 28.07.2016	0.78.0	28.07.2016	27.07.2021	-	-	28.07.2016	Operative	Non Captive	Yes SEIAA- TN/F.No.54 29/EC/1(a) EC.No.3404 /2016 dt:25.07.2016	Painkinar Cheyyar 12°41'20.08" 12°41'24.79" 79°31'11.49" 79°31'15.16"	Opencast
55	Rough Stone	S.Suresh Babu	No.5, Kulakkarai Street Anakkaputhur Village, Thambaram Taluk, Chennai District.	147/K/2015 28.07.2016	3.88.5	28.07.2016	27.07.2021	-	-	28.07.2016	Operative	Non Captive	Yes SEIAA- TN/F.No.54 30/EC/1(a) EC.No.3402 /2016 dt:25.07.2016	Kurumbur Cheyyar 12°35'56.33" N 12°36'07.32"N 79°36'54.98" E 79°37'02.93"E	Opencast

56	Rough Stone	R.Velmurugan,	304, Theradi Street, Asanamapettai Village, Vembakkam Taluk.	360/K/2017 17.09.2018	1.20.0	17.09.2018	16.09.2023	-	-	17.09.2018	Operative	Non Captive	Yes DEIAA-4/TVM/TN/ F.No.360/K/ 2017/E.C.N o.315/2017- 16 dt: 06 -07-2018	Palli Cheyyar N 12°43'15'' to 12°43'19'' E 79°35'36'' to 79°35'43''	Opencast
57	Rough Stone	S.MURUGAN,	No.62/2 , Vedanatham Village, Tiruvannamalai Taluk & District.	125/K/2015 03.11.2018	2.06.5	03.11.2018	02.11.2023	-	-	03.11.2018	Operative	Non Captive	Yes DEIAA-4/TVM/TN/ F.No.125/K/ 2015/E.C.N o.315/2017 - 11 dated: 06 -07-2018	Agatheripattu Cheyyar N 12°36'39.77'' 12°36'46.70'' E 79°27'00.45'' 79°27'05.69''	Opencast
58	Rough Stone	M.Marimuthu,	Kilpudupakkam Village, Cheyyar Taluk, Tiruvannamalai District.	413/K/2017 16.11.2018	0.98.5	16.11.2018	15.11.2023	-	-	16.11.2018	Operative	Non Captive	Yes DEIAA- 5 /TVM/TN/ F.No.413/K/ 2017 E.C.No.315/2 017-26 dated: 17.09.2018	Palli Cheyyar N 12°43'14'' 12°43'20'' E 79°35'59'' 79°36'02''	Opencast
59	Rough Stone	R.Seenuvasan,	Road Street, Arasanipalai village, Vembakkam Taluk	176/K/2013 27.06.2014	3.42.0	27.06.2014	26.06.2019	-	-	27.06.2014	Operative	Non Captive	Yes SEIAA- TN/F.No.180 7/EC/1(a)/ EC.No.1163/ 2013 dt.03.03.2014	Ezhacheri Vembakkam 12° 42' 48" N 12° 43' 1" N 79° 43' 17" E 79° 43' 27" E	Opencast
60	Rough Stone	Ganesh Kaskar,	RMC Ready mix (India) Sidco Industrial Thirumudivakkam, Chennai.	105/K/2013 14.07.2014	4.23.5	14.07.2014	13.07.2019	-	-	14.07.2014	Non-Operative	Non Captive	-No-	Sithalapakam Vembakkam 12°43'23"N 12° 43'10"N 79°43'29" E 79°43'36" E	Opencast

61	Rough Stone	D.Madhavan	19, Sarangapani street, Krishnapuram, Ambathur, Chennai-53	116/K/2013 03.03.2015	0.90.0	03.03.2015	02.03.2020	-	-	03.03.2015	Operative	Non Captive	Yes SEIAA- TN/F.No.442 0/EC/1(a)/ EC.No.3505/ 2016 dt.10.08.2016	Girijapuram Vembakkam 12° 44' 25" N 12° 44' 19" N 79° 42' 14" E 79° 42' 11" E	Opencast
62	Rough Stone	R.Mohanraj	No.33, Pillaiyar koil street, Puliymbedu village, Ambathur Taluk.	242/K/2012 13.05.2015	0.81.0	13.05.2015	12.05.2020	-	-	13.05.2015	Operative	Non Captive	Yes SEIAA- TN/F.No.194 3/EC/1(a)/ EC.No.1753/ 2014 dt.18.03.2015	Girijapuram Vembakkam 12° 44' 11" N 12° 44' 08" N 79° 42' 12" E 79° 42' 09" E	Opencast
63	Rough Stone	N.Subramani	No 210 , Mandapam Junction Arpakkam Village, Kanchipuram	75/K/2014 21.07.2016	3.02.5	21.07.2016	20.07.2021	-	-	21.07.2016	Operative	Non Captive	Yes SEIAA- TN/F.No.515 1/EC/1(a)/ EC.No.3338/ 2016 dt.15.07.2016	Menallur Vembakkam 12°44'08.63"N 12°44'18.71"N 79°42'16.36"E 79°42'21.37"E	Opencast
64	Rough Stone	B.Sri Devi,	No.56, Balasundaram Street, Chandramohan Nagar, Velingapattarai, Kanchipuram 631 501.	12/K/2015 28.07.2016	1.15.5	28.07.2016	27.07.2021	-	-	28.07.2016	Non-Operative	Non Captive	Yes SEIAA- TN/F.No.54 27/EC/1(a)/ EC.No.3401 /2016 dt.25.7.2016	Kundiyan- thandalm Vembakkam 12°43'55.90"N 12°43'59.56"N 79°43'6.08" E 79°43'12.04"E	Opencast
65	Rough Stone	K.Kumar,	No.2/32, Mandapam Junction, Arpakkam Village & Post, Kanchipuram.	14/K/2015 28.07.2016	2.29.5	28.07.2016	27.07.2021	-	-	28.07.2016	Operative	Non Captive	Yes SEIAA- TN/F.No.54 28/EC/1(a)/ EC.No.3379 /2016 dt.25.7.2016	Kundiyan- thandalm Vembakkam 12°43'50.86"N 12°43'58.24"N 79°42'56.50"E 79°43'03.46"E	Opencast
66	Rough Stone	K.Thirumalai,	No.52, Pillaiyar Koil Street, M.G.R. Nagar,Kundrathur, Chennai 600 069.	29/K/2015 28.07.2016	1.50.0	28.07.2016	27.07.2021	-	-	28.07.2016	Operative	Non Captive	Yes SEIAA- TN/F.No.54 31/EC/1(a) EC.No.3388 /2016 dt.25.7.2016	Suruttal Vembakkam 12°43' 56.14"N 12°44' 02.73"N 79°43' 48.82"E 79°43' 55.08"E	Opencast

67	Rough Stone	Tmt.Deepa	81, Santhi Nagar First Street, Chengalpattu, Kanchipuram District	11/K/2014 06.06.2016	0.90.5	06.06.2016	05.06.2021	-	-	06.06.2016	Non-Operative	Non Captive	Yes SEIAA-TN/F.No.29 21/EC/1(a) EC.No.2835 /2015 dt.08.2.2016	Thiruppana-moor Vembakkam 12°45'34.03"N 12°45'39.08"N 79°34'44.00"E 79°34'49.08"E	Opencast
68	Rough Stone	J. Venkatesan	153-A/1, Pillaiyar Koil Street, Melapattu Vge, Ramakrishna puram, Cheyyar Taluk	06/K/2017 14.09.2017	1.00.0	14.09.2017	13.09.2022	-	-	14.09.2017	Operative	Non Captive	Yes DEIAA-1/TVM/TN/ F.No.06/K/2 017E.C.No. 315/2017-4 dt:10.8.2017	Chithathur Vembakkam N 12°43'15" 12°43'20" E 79°36'25" 79°36'28"	Opencast
69	Rough Stone	E.Panneerselvam	89, Vanniya Mettu St., Arpakkam Village, Kanchipuram Tk & Dt.	131/K/2015 14.09.2017	1.43.0	14.09.2017	13.09.2022	-	-	14.09.2017	Operative	Non Captive	Yes DEIAA-1/ TVM/TN/ F No 131/K/2015 /E.C No. 315/2017-1 dt:10.8.2017	Kundiyan- thandalm Vembakkam N 12°43'45.58" 12°43'51.42" E 79°42'58.50" 79°43'02.06"	Opencast
70	Rough Stone	L.Sudhakar ,	89, Palla Street, Agaram Village Thenneri Post, Kanchipuram Taluk.	105/K/2016 14.09.2017	3.51.5	14.09.2017	13.09.2022	-	-	14.09.2017	Operative	Non Captive	Yes DEIAA-1/TVM/TN/ F.No.105/K/ 2016/E.C No. 315/2017-2 dt:10.8.2017	Girijapuram Vembakkam 12°44'03.76" 12°44'12.07N 79°42'00.56E" 79°42'08.36E	Opencast
71	Rough Stone	A.Aron Samuvel,	No.15, Sessa Nagar, Poovimthavalli, Chennai – 600 056.	80/K/2017 17.09.2018	1.83.5	17.09.2018	16.09.2023	-	-	17.09.2018	Operative	Non Captive	Yes DEIAA-4/TVM/TN/ F.No.80/K/2 017/E.C.No. 315/2017- 13 dt: 06.07.2018	Kundiyan- thandalm Vembakkam N 12°43'46.58" 12°43'52.64" E 79°43'15.17" 79°43'21.32"	Opencast

72	Rough Stone	M.Sudharsan,	Pl.No.37, Parvathi Nagar, 3rd Street, Madampakkam, Chennai- 600 126.	377/K/2017 17.09.2018	3.25.0	17.09.2018	16.09.2023	-	-	17.09.2018	Operative	Non Captive	Yes E.C.No.315/2017- 14 dated: 06.07.2018	Kundiyan- thandalm Vembakkam N 12°43'51.14" 12°43'57.08" E 79°43'07.34" 79°43'16.63"	Opencast
73	Rough Stone	S.Sridhar	Managing Director, SKT MINES, No.19C, Villakkadi Koil Thoppu Street, Kancheepuram-635 501.	26/K/2018 17.09.2018	3.96.5	17.09.2018	16.09.2023	-	-	17.09.2018	Operative	Non Captive	Yes DEIAA-4/TVM/TN/ F.No.26/K/2 018/E.C.No. 315/2017-15 dt:06.7.2018	Kaganam Vembakkam N 12°44'36.64" 12°44'45.79" E 79°34'38.22" 79°34'48.97"	Opencast
74	Rough Stone	B.Deenan	Vembakkam Taluk	78/K/2014 20.07.2018	0.95.5	20.07.2018	01.03.2021	-	-	20.07.2018	Operative	Non Captive	Yes SEIAA- TN/F.No.41 38/EC/1(a)/ EC.No.3070 /2015 dt.02.3.2016	Ezhacheri Vembakkam N 12°42'51" 12°42'48" E 79°43'25" 79°43'21"	Opencast
75	Rough Stone	K.Devaraj,	No.105, Gandhisilai Street, Lakshmipuram Village, Vembakkam Taluk, Tiruvannamalai	248/K/2017 17.10.2018	2.10.0	17.10.2018	16.10.2023	-	-	17.10.2018	Operative	Non Captive	Yes DEIAA-4/TVM/TN/F. No.248/K/201 7/ E.C.No.315/2 017 - 9 dated: 06.07.2018	Girijapuram Vembakkam N 12°44'14" 12°44'21" E 79°42'03" 79°42'09"	Opencast
76	Rough Stone	J.K.Srinivasan	No.782, Mariyamman Koil Street, Jambodai Village, Azhividaithangal, Vembakkam Taluk.	249/K/2017 15.10.2018	1.21.54	15.10.2018	14.10.2023	-	-	15.10.2018	Operative	Non Captive	Yes DEIAA-4/TVM/TN/ F.No.249/K/ 2016/E.C.N o.315/2017- 10 dt.06- 07-2018	Chithathur Vembakkam N 12°44'09" to 12°44'14" E 79°37'18" to 79°37'25"	Opencast

77	Rough Stone	M.R.Azhagiri,	No.120, Shanmuganandhar Kovil Street Mangadu, Sriperumbuthur Tk. Kancheepuram	85/K/2018 17.10.2018	3.87.5	17.10.2018	16.10.2023	-	-	17.10.2018	Operative	Non Captive	Yes DEIAA-4/TVM/TN/ F.No.85/K/2015/E.C.No. 315/2017-12 dated: 06-07-2018	Chithala-pakkam Vembakkam N 12°42'46.17" 12°42'52.84" E 79°43'25.08" 79°43'33.59"	Opencast
78	Rough Stone	Tvl.Golden Sands,	No.15, 4th Street, VGP Lay Out, East coast Road, Chennai-115	23/K/2018 07.11.2018	3.74.5	07.11.2018	06.11.2023	-	-	07.11.2018	Operative	Non Captive	Yes DEIAA- 5 /TVM/TN/F. No.23/K/2018/E.C.No.315/2017- 24 dt:17.9.2018	Ezhacheri Vembakkam N12°43'18.09" 12°43'24.02" E 79°43'19.41" 79°43'11.43"	Opencast
79	Rough Stone	Thiru.C.Sugumar,	No.18-A, V.V Kovil Street, Walajabad Taluk, Kancheepuram District.	375/K/2017 16.11.2018	1.82.5	16.11.2018	15.11.2023	-	-	16.11.2018	Operative	Non Captive	Yes DEIAA- 5/TVM/TN/ F.No.375/K/2017E.C.No .315/2017-19 dt:17.9.2018	Ezhacheri Vembakkam N 12°43'16.06" 12°43'19.39" E 79°43'10.40" 79°43'19.71"	Opencast
80	Rough Stone	Muthukrishnan,	No.221,Chenjiaman Koil Street, Chithalappakkam Village, Arasanipalayam Post, Vempakkam Taluk.	337/K/2017 22.11.2018	1.26.0	22.11.2018	23.11.2023	-	-	22.11.2018	Operative	Non Captive	Yes DEIAA - 5 /TVM/TN/F. No.337/K/2017/E.C.No.315/2017-18 dt:17.9.2018	Chithala-pakkam Vembakkam N 12°43'18.67" 12°43'24.09" E 79°43'30.36" 79°43'34.30"	Opencast
81	Rough Stone	R.Venkatasubramanian,	No.83/1 Pillaiyar Kovil Street, Sirumayilur Village, Kancheepuram.	05/K/2018 04.12.2018	2.43.0	04.12.2018	05.12.2023	-	-	04.12.2018	Operative	Non Captive	Yes DEIAA- 5 /TVM/TN/F. No.05/K/2018E.C.No.315/2017-25 dt:17.9.2018	Kundiyan-thandalam Vembakkam N12°44'12" 12°44'44'17" E 79°43'03" 79°43'12"	Opencast

82	Rough Stone	Tvl.Src Projects (P) Ltd.,	4-B, Lakshmipuram, Gandhi Road, Salem-636 007.	371/K/2017 14.12.2018	4.71.5	14.12.2018	13.12.2023	-	-	14.12.2018	Operative	Non Captive	Yes DEIAA- 5 /TVM/TNF. No.371/K/ E.C.No.315/ 2017- 23 dt:17.9.2018	Chithathur Vembakkam N 12°43'19.14" 12°43'27.05" E 79°36'22.83" 79°36'34.83"	Opencast
83	Rough Stone	Vijay Ramakrishnan	Door No.52, MGR Road, Kalachitra Colony, Besant Nagar, Chennai-90	193/K/2013 23.09.2014	1.50.5	23.09.2014	22.09.2019	-	-	23.09.2014	Non-Operative	Non Captive	Yes SEIAA- TN/F.No.26 69/EC/1 (a)/ EC.No.1522 /2014 dt.14.08.2014	Kizhnamandi Vandavasi 12° 23'15"N 12° 23'23"N 79°29'40" E 79°29'43" E	Opencast
84	Rough Stone	G.Vasudevan	Door No.842-D, Vengidamangalam Road, Melakkottaiyur, Chengalpattu Taluk, Kancheepuram.	115/K/2015 08.12.2016	1.04.0	08.12.2016	07.12.2021	-	-	08.12.2016	Operative	Non Captive	Yes SEIAA- TN/F.No.55 80/EC/1 (a)/ EC.No.3572 /2016 dt.19.08.2016	Septangulam Vandavasi 12°31' 53.54" 12°31' 56.24" 79°26'21.93" 79°26'28.09"	Opencast
85	Rough Stone	G.Rajendran,	No.18, First Street, Rajiv Gandhi Nagar, Urappakkam Village, Chengalpattu .	37/K/2014 22.12.2016	1.68.0	22.12.2016	21.12.2021	-	-	22.12.2016	Operative	Non Captive	Yes SEIAA- TN/F.No.28 45/EC/1 (a)/ EC.No.2312 /2014 dt.27.10.2015	Mavalavadi Vandavasi 12°22'32.00"N 79°39'29.10"E	Opencast
86	Rough Stone	A.C.Mani,	Vetrilaikara street, Arni.	36/K/2013 25.09.2014	0.67.0	25.09.2014	24.09.2019	-	-	25.09.2014	Operative	Non Captive	Yes SEIAA- TN/F.No.19 37/EC/1 (a)/ EC.No.1497 /2013 dt.13.08.2014	Ariyapadi Arni 12°41'56"N 12° 41' 52"N 79° 13' 20" E 79° 13' 23"E	Opencast

10. DETAILS OF ROYALTY OR REVENUE RECEIVED IN LAST THREE YEARS (2016-17 TO 2018-19)

The mineral wise revenue collection for the last three years is given below:

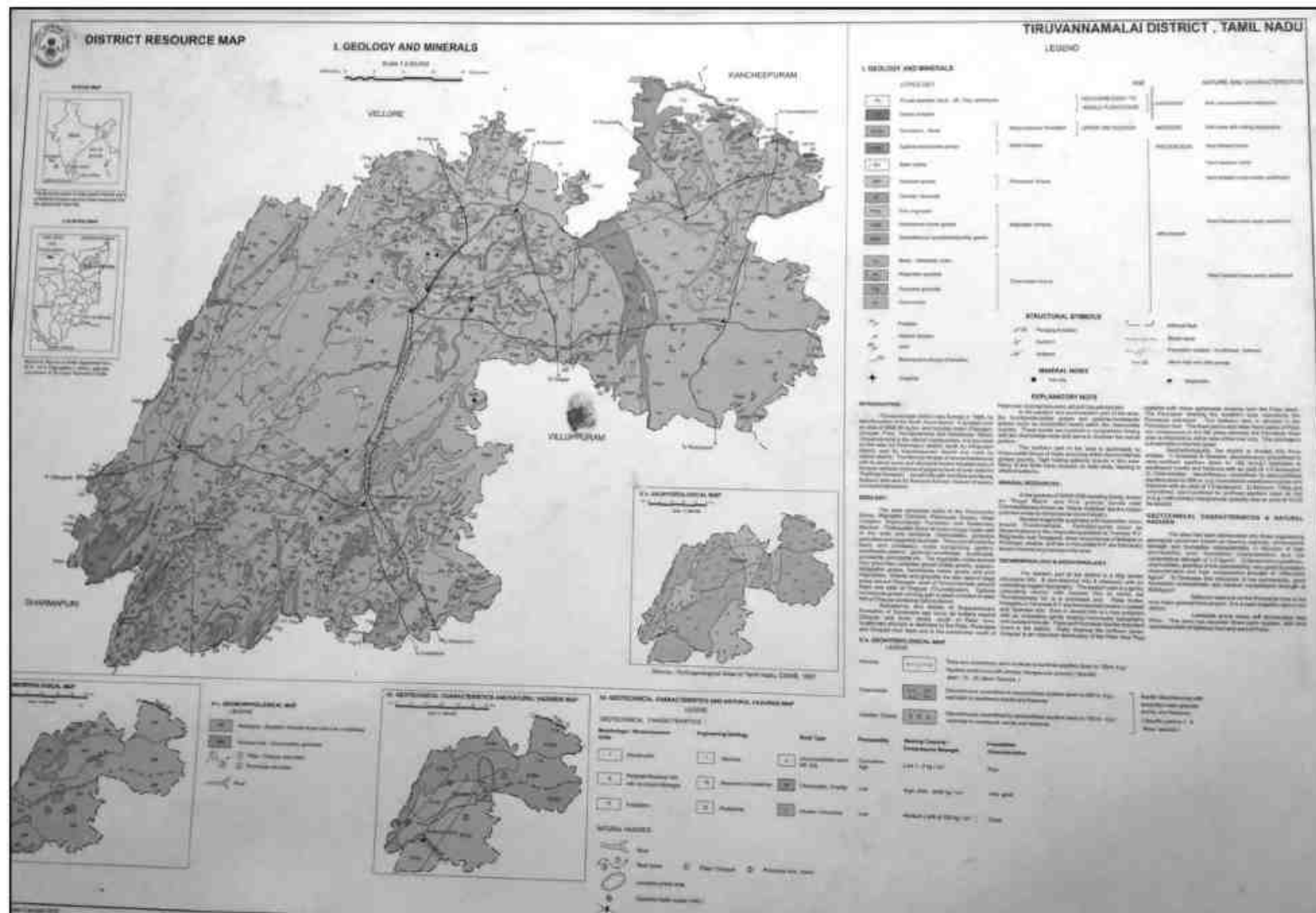
Sl.No	Year	Revenue realized
1.	2016-2017	33519675
2.	2017-2018	38311705
3.	2018-2019	59673732

11. DETAILS OF PRODUCTION OF MINERALS IN LAST THREE YEARS (2016-17 TO 2018-19)

The mineral wise production for the last three years is given below:

Sl.No	Year	Production of Rough Stone
1.	2016-2017	688198
2.	2017-2018	825787
3.	2018-2019	1023023

12. MINERAL MAP OF THE DISTRICT:-



**13. LIST OF LETTER OF INTENT (LOI) HOLDERS IN THE DISTRICT ALONG WITH ITS VALIDITY
AS PER THE FOLLOWING FORMAT:-**

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 (Ha)	Validity of LOI	Use (Captive/ Non-captive)	Location of the Mining lease (Latitude & Longitude)
1	Rough Stone	Thiru.R.Monishkumar	No.35/88, Rajaji Street, Chengalpattu.	Rc.No.379/ Kanimam / 2017 dt:17.07.2018	3.12.5	-	Non-captive	Ezhacheri Vembakkam 12°43'01.10"N to 12°43'08.27"N 79°43'06.48"E to 79°43'16.34"E
2	Rough Stone	Thiru.R.Gunasekaran	No.50/70 Kalyanasundharam St, Merku Thambaram, Chennai.	Rc.No.378/ Kanimam / 2017 dt:06.08.2018	1.49.0	-	Non-captive	Vazhavandal Vembakkam 12°44'10.61"N to 12°44'16.71"N 79°41'19.33"E to 79°41'23.75"E
3	Rough Stone	Tvl.Suganya Blue Stone	No.505/3, Main Road, Thirupanamoor, Vembakkam Taluk. Tiruvannamalai District.	Rc.No.25 / Kanimam / 2018 dt:05.09.2018	2.95.0	-	Non-captive	Thirupanamoor Vembakkam 12°45'38.82"N to 12°45'47.05"N 79°34'45.63"E to 79°34'56.70"E
4	Rough Stone	Thiru.A.WILLIAM	No.139, 4 th Main Road, Lakshmi Nagar Extension, Porur, Chennai – 600 116.	Rc.No.32 / Kanimam/ 2018 dt.24.09.2018	2.88.0	-	Non-captive	Kundiyanthandalam Vembakkam 12°44'06.24"N to 12°44'21.05"N 79°43'01.47"E to 79°43'05.11"E

5	Rough Stone	Tvl. NRM SONS BLUE METALS	97A, Ottakuthar street, Mamallan Nagar, Kanchipuram District.	Rc.No.56 / Kanimam/2018 dt.19.09.2018	2.75.0	-	Non-captive	Kiznayacken palayam & Girijapuram vembakkam 12°44'07.37"N to 12°44'13.71"N 79°41'53.84"E to 79°41'00.88"E
6	Rough Stone	Thiru.R.Nethaji	No.79, Jain Street, Arpakkam Village, Valajabhath Taluk Kanchipuram District.	Rc.No.33/ Kanimam / 2018 dt.14.10.2018	2.45.0	-	Non-captive	Kundiyanthandalam Vembakkam 12°43'52"N to 12°43'57"N 79°43'16"E to 79°43'23"E
7	Rough Stone	Thiru.R.K.Sudhakar Ramakrishnan	No.326, Vivekanandar st, Thadaperumbakkam, Thiruvengadapuram, Ponneri, Tiruvallur District.	Rc.No. 78/ Kanimam / 2018 dt.27.09.2018	1.66.0	-	Non-captive	Thethurai Cheyyar 12°36'39.72"N to 12°36'44.60"N 79°37'16.98"E to 79°37'22.96"E
8	Rough Stone	Thiru.S.Sivasuriya madhava Raja	No.9/13, Shanmuga Nagar, Mannivakkam, Chennai – 600048.	Rc.No. 09/ Kanimam / 2018 dt.14.12.2018	1.05.5	-	Non-captive	Palli Cheyyar 12°43'11"N to 12°43'15"N 79°36'36"E to 79°36'41"E
9	Rough Stone	Thiru.S.Gopiraj	No.180/2, Pillaiyar Kovil Street, Kangeyanoor Village & Post, Polur Taluk, Tiruvannamalai.	Rc.No.395/ Kanimam / 2017 dt.10.12.2017	1.00.0	-	Non-captive	Pudhupalayam Polur 12°29'25.02"N to 12°29'29.53"N 79°06'32.03"E to 79°06'37.17"E

10	Rough Stone	Thiru.K.Ashok Kumar	Maganurpatti Village and Post, Uthangarai Taluk, Krishnagiri District.	Rc.No.20/ Kanimam/2017 dt.04.12.2017	1.00.0	-	Non-captive	Naradapattu Chengan 12°13'09"N to 12°13'12"N 78°41'20"E to 78°41'25"E
11	Rough Stone	Thiru.S.Manokaran	No.33/60 K, TPT Main Road, Vakkanampatti Post, Jolarpettai, Vellore District.	Rc.No.397/ Kanimam/2017 dt.17.11.2017	1.00.0	-	Non-captive	Thiruvadathanur Thandarampattu N 12°06'36.89" to 12°06'42.33" E 78°53'27.56" to 78°53'33.85"
12	Rough Stone	Thiru.K.Chandreskaran	No.301, Madhayan Pettai Street, Mamandur Village, Vembakkam Taluk, Tiruvannamalai District	Rc.No.66/ Kanimam / 2018 dt.13.02.2019	1.97.5	-	Non-captive	Kundiyanthandalam Vembakkam 12°43'59.73"N to 12°43'06.66"N 78°43'01.36"E to 78°43'06.10"E
13	Rough Stone	M/s.Bhuvaneswari Blue Metals	No.37 B, Ground Floor, Vembuliamman Kovil Street, Pazhvanthangal, Chennai.	Rc.No.83/ Kanimam/2018 dt.02.02.2019	2.05.5	-	Non-captive	Kundiyanthandalam Vembakkam 12°43'50.85"N to 79°43'05.5"E to
14	Rough Stone	Thiru.R.Ganesan, Director of SRC Projects Pvt. Ltd.,	No.47, Brindhavan Road, Fairlands, Salem District.	Rc.No.18/ Kanimam / 2019 dt.16.05.2019	4.50.0	-	Non-captive	Athi Cheyyar 12°38'34.74"N to 12°38'43.98"N 79°35'58.85"E to 79°36'07.81"E

15	Rough Stone	M/s.Rajiraj Minerals Pvt. Ltd.,	O/F Penna Complex, Vellore Main Road, 3 rd Street, Anna Nagar, Arcot, Vellore	Rc.No.182/ Kanimam / 2018 dt.20.05.2019	10.90.35	-	Non-captive	Pavoor & Ezhacheri Vembakkam 12°42'55"N to 12°43'08"N 79°41'53"E to 79°42'08"E
16	Rough Stone	Thiru.Rajganesh	No.192/86, Habibullah Road, Thiagaraya Nagar, Chennai	Rc.No.135/ Kanimam/2018 dt.02.02.2019	2.58.5	-	Non-captive	Arugavoor Cheyyar 12°40'40.05"N to 12°40'49.43"N 79°30'36.11"E to 79°30'42.93"E
17	Rough Stone	N.Ragu	S/o.Nadarajan, No.14/2 Center street, Ganapathypuram, East Tambaram, Chennai	Rc.No.117/ Kanimam/2018 dt. 29.05.2019	2.95.0	-	Non-Captive	Menallur Vembakkam 12°43'52.49"N to 12°43'58.91"N 79°42'00.13"E to 79°42'07.16"E
18	Rough Stone	A.Dhasarathan,	No.39, Erikkarai Street, Thiruparuthikundram Village, Sevilimedu, Kanchipuram taluk & District.	Rc.No.79/Kanimam/2018 dt.02.02.2019	2.88.5	-	Non-Captive	Kundiyanthadalam Vembakkam 12°43'42.20"N to 12°43'51.08"N 79°42'54.37"E to 79°42'59.68"E

14. TOTAL MINERAL RESERVES AVAILABLE IN THE DISTRICT:-

Sl. No	Name of the Mineral	Name of the Lessee	Address & Contact No. lessee	Mining lease / Letter of Intent Grant Order No. & date	Area of Mining lease (ha)	Location of the mining lease (Latitude & Longitude)	Total Quantity (Geological Reverses)
1	2	3	4	5	6	7	8
1	Rough Stone	D.Jaiganesh,	Vettavalam village, Tiruvannamalai Taluk	614/K2/2009 10.11.2017	1.00.0	Vettavalam Tiruvannamalai 12°06' 38" 12° 06' 43" 79° 16' 27" 79° 16' 31"	109580 cbm Rough Stone
2	Rough Stone	R.Prasath,	Polur Main Road, Tiruvannamalai.	39/K2/2010 08.03.2010	2.00.0	Veraiyur Tiruvannamalai 2°05' 33" N 12° 05' 37" N 79° 07' 11" E 79° 07' 19" E	182300 cbm Rough Stone
3	Rough Stone	E.Murugesan ,	Nachanandhal Tiruvannamalai.	22/K2/2010 05.04.2010	1.00.0	Pavupattu Tiruvannamalai 12°07' 58"N 12° 07'53"N 79° 02' 55"E 79° 02' 50"E	213395 cbm Rough Stone
4	Rough Stone	R.Singaram,	Thenimalai, Tiruvannamalai	73/K2/2010 05.04.2010	1.00.0	Athipadi Tiruvannamalai 12°05' 06" N 12° 05' 02"N 79° 02' 18"E 79° 02' 13"E	100010 cbm Rough Stone
5	Rough Stone	A.Nakkeeran,	3, Kardukarar Street, Vettavalam	636/K2/2009 10.05.2010	0.77.0	Vettavalam Tiruvannamalai 12°06' 27"N 12° 06' 32"N 79° 14' 07"E 79° 14' 11"E	192500 cbm Rough Stone

6	Rough Stone	R.Arul,	Melanandahal Village, Tirukovilur Taluk.	40/K2/2010 13.05.2010	1.00.0	Athipadi Tiruvannmalai 12°05' 04" N 12° 05' 09"N 79° 02' 11"E 79° 02' 15"E	148500 cbm Rough Stone
7	Rough Stone	N.Suresh,	25/73, Ayyankula Street, Tiruvannamalai	43/K2/2010 16.12.2010	2.00.0	Meyyur Tiruvannmalai 12°08' 59"N 12° 09' 05"N 79° 01' 49"E 79° 01' 54"E	500000 cbm Rough Stone
8	Rough Stone	M.Selvaraj,	Chengam Road, Tiruvannamalai.	74/K2/2010 16.12.2010	1.00.0	Adaiyur Tiruvannmalai 12° 16' 24" N 12° 16' 28"N 79° 02' 55" E 79° 02' 59"E	100250 cbm Rough Stone
9	Rough Stone	S.Prasanth,	Chengam Road, Tiruvannamalai	75/K2/2010 23.12.2010	0.96.5	Adaiyur Tiruvannmalai 12°16' 20" N 12° 16' 25" N 79° 02' 54" E 79° 02' 58"E	92750 cbm Rough Stone
10	Rough Stone	S.Senthilkumar,	10, Kardukarar Street, Vettavalam.	168/K2/2010 24.12.2010	1.23.5	Vettavalam T iruvannamalai 12° 07' 34"N 12° 07' 38"N 79° 15' 48"E 79° 15' 53"E	61820 cbm Rough Stone
11	Rough Stone	K.Thirumal,	Perayampattu post and Village, Tandarampet	72/K2/2010 01.03.2011	1.30.0	Athipadi Tiruvannmalai 12°05' 01"N 12° 05' 05"N 79° 02' 03"E 79° 02' 09"E	165490 cbm Rough Stone

12	Rough Stone	N. Harijayashree,	No.18/7, Vadamathathi St.,Tiruvannamalai	57/K/2012 28.04.2012	4.00.0	Vallivagai Tiruvannmalai 12° 16' 41"N 12° 16' 32"N 79° 08' 52"E 79° 08' 39"E	600795 cbm Rough Stone
13	Rough Stone	R.Sekar,	Mel Chinna Goundanpatti, Tharamangalam Village, Omalur Taluk, Salem Dt.	47/K2/2015 12.09.2017	1.00.0	Koothalavadi Tiruvannmalai 12° 20 02.45"N 12° 20' 07.2"N 79° 06' 49.93'E 79°06' 53.59"E	38760 cbm Rough- Stone
14	Rough Stone	P.Adimoolam,	57A, Tamizhnagar, Tiruavannamalai taluk	130/K2/2009 01.07.2009	1.00.0	lynkunam Kilpennathur 12°15' 36" N 12° 15' 47" N 79° 09' 56" E 79° 10' 02" E	154000 cbm Rough Stone
15	Rough Stone	R.Karthikeyan	23/29, Lakshmipuram, Gandhi Nagar, Tiruvannamalai-2.	483/K2/2009 20.04.2011	1.00.0	lynkunam Kilpennathur 12° 15' 43"N 12° 15' 47"N 79° 09' 41"E 79° 09' 47"E	190500 cbm Rough Stone
16	Rough Stone	V.J.Dhamodharan,	No.1261-A Thendral Nagar, Vengikkal Village, Tiruvannamalai Taluk & District.	391/K/2017 16.11.2018	1.00.0	Polakunam Kilpennathur N 12°12'32.00" 12°12'34.95" E 79°08'40.72" 79°08'46.20"	300750 cbm Rough Stone
17	Rough Stone	S.Vasanthkumari	Uchimalaikuppam Chengam	621/K2/2009 12.04.2010	1.35.5	Uchimalaikuppam Chengam N 12°15'54" 12°15'58" E 78°54'21" 78°54'27"	124560 cbm Rough Stone

18	Rough Stone	K.Durai	1/2, Ramalinganar Street, Tiruvannamalai	27/K2/2010 05.05.2010	1.00.0	Paliapattu Chengam 12° 16' 10" N 12° 16' 01" N 79° 00' 15" E 79° 00' 08"E	274040 cbm Rough Stone
19	Rough Stone	R.Jeevanantham,	50, Avarangaatu Street, Tiruvannamalai	24/K2/2010 13.05.2010	2.00.0	Chinnakola-padi Chengam 12° 15' 16"N 12° 15' 22"N 78° 59' 10"E 78° 59' 17"E	300000 cbm Rough Stone
20	Rough Stone	R.M.Jayavelu	Chengam Road, Tiruvannamalai	28/K2/2010 03.11.2010	1.50.0	Paliapattu Chengam 12° 16' 11"N 12° 16' 04"N 79° 00' 20"E 79° 00' 14"E	155610 cbm Rough Stone
21	Rough Stone	M.Palani	6, Peygopuram St., Tiruvannamalai	15/K2/2011 12.01.2016	0.50.0	Periyakola-padi Chengam 12° 15'02.12"N 12° 15' 05.67"N 79° 58'50.59"E 79°58'52.31"E	47595 cbm Rough Stone
22	Rough Stone	Sadhaknawas,	No. 25, 3rd Street, Valace Garden, Chennai-6.	14/K2/2011 12.01.2016	0.50.0	Periyakola-padi Chengam 12° 15'01.92"N 12° 15' 05.72"N 79° 58'49.37"E 79°58'51.19"E	57465 cbm Rough Stone
23	Rough Stone	Tmt.S.Kanimozhi	No.152, Old Street, Avoor Village Tiruvannamalai	48/K2/2015 28.07.2016	1.00.0	Periyakola-padi Chengam 12° 15' 03" N 12° 15' 06" N 78° 58' 53" E 78° 58' 58" E	266480 cbm Rough Stone

24	Rough Stone	M.Julia	180, Vambalur Road, Tirumalai village, Polur taluk	231/K2/2009 22.06.2009	2.00.0	Tirumalai Polur 12° 33' 44"N 12° 33' 47"N 79° 11' 26"E 79° 11' 33"E	288000 cbm Rough Stone
25	Rough Stone	M.Parthiban,	27/A, Vengadathan street, Polur taluk & village.	136/K2/2010 24.12.2010	1.00.0	Pudhu-palayam Polur 12° 29' 18" N 79° 6' 40.64" E	70385 cbm Rough Stone
26	Rough Stone	S.Rajakumar	2/57, Pillaiyar koil street, Kalasapakkam.	50/K/2015 21.07.2016	2.00.0	Vasur Polur 12° 29' 16" N 12° 29' 21" N 79° 07' 11" E 79° 07' 17"E	392950 cbm Rough Stone
27	Rough Stone	E.Sivakumar,	No.20.26.J.30, VRS Nagar, Govindasamy street, Polur.	51/K/2015 21.07.2016	2.00.0	Pudu-palayam Polur 12° 29' 17"N 12° 29' 22" N 79° 06' 26" E 79° 06' 31"E	239070 cbm Rough Stone
28	Rough Stone	P.Radhakrishnan	Mettu Street, Tiruvannamalai	20/K2/2010 12.04.2010	1.03.5	Sathanur Thandarampattu 12° 11' 08"N 12° 11' 13"N 78° 53' 01"E 78° 53' 05"E	134345 cbm Rough Stone
29	Rough Stone	M.Govindarajan,	No.3/337, Allabasha street, Mungilthuraipattu Village, Shankarapuram Tk.	79/K2/2010 28.06.2010	2.00.0	Thonda-manur Thandaram-pattu 12° 03' 48"N 12° 04' 03"N 78° 56' 57"E 78° 57' 05"E	279000 cbm Rough Stone

30	Rough Stone	A.Thenarmozhi	Manalurmel Siruvallur Village, Sankarapuram	134/K2/2010 23.08.2010	2.00.0	Perukulathur Thandaram-pattu 12° 01' 28" N 12° 01' 33" N 78° 55' 03" E 78° 55' 07"E	199420 cbm Rough Stone
31	Rough Stone	Tmt.K.Sarasu	53, Nehru Street, Chengam	626/K2/2009 17.03.2011	1.00.0	Sathanur Thandarampattu 12°11'21"N 12°11'26"N 78°52'52"E 78°52'56"E	182750 cbm Rough Stone
32	Rough Stone	R.Dhanakotti	Varagur Village, Tandrapet	18/K2/2011 30.03.2011	1.00.0	Varagur Thandarampattu 12° 08' 58" N 12° 08' 54" N 79° 01' 48"E 79° 01' 42"E	186000 cbm Rough Stone
33	Rough Stone	P.Palani	Kolamanjanur Village, Tandarampet.	20/K2/2011 18.04.2011	2.00.0	Kolaman-janur Thandarampattu 12° 08' 14"N 12° 08' 25"N 78° 53' 05"E 78° 53' 12"E	365400 cbm Rough Stone
34	Rough Stone	M.Veeramani	Royandapuram Village Thandarampattu Taluk.	19/K2/2011 24.05.2012	2.00.0	Royanda-puram Thandaram-pattu 12°04'49"N 12°04'55"N 78°56'23"E 78°56'29"E	543200 cbm Rough Stone
35	Rough Stone	M.Vinothkannan,	Varagur Village, Tandrapet	49/K/ 2015 20.01.2016	0.40.0	Varagur Thandarampattu 12° 08' 32" N 12° 08' 29" N 79° 01' 39" E 79° 01' 37"E	101250 cbm Rough Stone

36	Rough Stone	Tmt.R.Amutha	No.712, Bajanai Koil Street, Dhesurpalayam Village, Keelvanakkambadi Thandrampattu Taluk	396/K/ 2017 11.06.2018	2.00.0	Allappanur Thandaram-pattu N 12°06'06.86" 12°06'12.52" E 78°56'39.04" 78°56'45.64"	1000000 cbm Rough Stone
37	Rough Stone	S.Nagaraj	Manampathy Village, Uthiramerur Taluk.	29/K2/2011 17.12.2011	1.53.0	Athi Cheyyar 12° 38' 18"N 12° 38' 29"N 79° 36' 30"E 79° 36' 39"E	230055 cbm Rough Stone
38	Rough Stone	K.Gopinath,	Kandigai melkottaiyur post, Chengelpet taluk.	26/K2/2011 03.06.2011	2.00.0	Avaniapuram Chetpattu 12° 08' 54"N 12° 08' 58"N 79° 01' 34"E 79° 01'41"E	200080 cbm Rough Stone
39	Rough Stone	V.Rajagopal,	Oorapakkam,Chengalpet.	169/K2/2010 17.12.2011	1.00.0	Jeganatha-puram Chetpattu 12° 28' 51"N 12° 28' 57"N 79° 24' 06"E 79° 24' 10"E	199820 Cbm of Rough stone
40	Rough Stone	D.Saravanan,	Venkatapuram, Saidapet,Chennai - 15.	140/K2/2010 18.10.2010	2.00.0	Seeyalam Vandavasi 12° 26' 24"N 12° 26' 27 N 79° 43' 05"E 79° 43' 12"E	295245 cbm Rough Stone
41	Rough Stone	R.Tamilvanan.	Saidapet,Chennai -15.	143/K2/2010 18.10.2010	2.00.0	Seeyalam Vandavasi 12° 26' 14"N 12° 26' 18 N 79°43' 02"E 79° 43' 11"E	222720 cbm Rough Stone

2	Rough Stone	Siddique Basha,	Kunnathur village, Arni taluk	602/K2/2009 19.11.2009	2.00.0	Melnagar ramasani kuppam Arni 12°42'13"N 12°42'07" N 79°11'01"E 79°10' 55"E	353600 cbm Rough Stone
43	Rough Stone	S.Suresh,	3, Saradha Nagar, Agraharam Koratur, Chennai – 76.	135/K2/2009 23.11.2009	1.00.0	Mullan-diram Arni 12°49'02.10"N 12°49'06.57" N 79°15'31.79"N 79°15'36.38"N	204000 cbm Rough Stone
44	Rough Stone	M.Shajakhan	855, Bazar Street Santhavasal, Polur Tk.	68/K/2012 24.05.2012	1.00.0	Melnagar Arni 12° 42' 27"N 12° 42' 32"N 79° 10' 17"E 79° 10' 21"E	136950 cbm Rough Stone
45	Rough Stone	A.Nazeer Basha,	520/1, C.C.Road, Vannangulam, Arni taluk	51/K2/2010 14.09.2010	2.00.0	Ayyam-palayam Arni 12° 42' 10"N 12° 42' 18"N 79° 10' 15"E 79° 10' 21"E	266450 cbm Rough Stone
46	Rough Stone	A.G.Mohan,	43, V.A.K.Nagar, Arni Taluk	52/K/2015 13.11.2017	0.40.0	Ariyapadi Arni 12° 41' 52"N 12° 41' 54"N 79° 13' 22"E 79° 13' 25"E	101250 cbm Rough Stone
47	Rough Stone	P.Vinayagamoorthi	Ramana Nagar, Thiruvannamalai.	104/K2/2015 02.03.2016	0.75.5	Pavithram Tiruvannamalai 12°07'21"N 12°07'24" E 79°06'26" 79°06'32"E	151840 cbm Rough Stone

48	Rough Stone	C.Shanthi	No.3/22 Nehru Street, Vettavalam Taluk	132/K2/2015 15.05.2018	0.65.0	Vettavalam Kilpennathur 12°06'15.10" 12°06'18.00" 79°13'59.75" 79°14'04.16"	130000 cbm Rough Stone
49	Rough Stone	K.S.BABURAJ,	No.12/14,3rd Cross Street, Karpagam Garden, Adayar, chennai -20	101/K/2018 14.11.2018	1.66.0	Kasthambadi Polur N 12°35'55" 12°36'01" E 79°11'51" 79°11'57"	207480 cbm Rough Stone
50	Rough Stone	T.Selvaraj,	Harur Main Road, Mothakkal village, Thandarampattu Tk.	31/K/2013 16.06.2014	0.40.5	Mothakkal Tmpt 12°05'25.30"N 12°05'22.51"N 78°43'34.90"E 78°43'36.52"E	22276 cbm Rough- Stone
51	Rough Stone	R.Gopi,	4/75B, Veerapathran Kovil St., Vijayappanur, Thandarampattu Tk.	101/K/2015 02.06.2016	1.71.0	Varagur Thandarampattu 12°08'54"N 12°08'58"N 79°01'34"E 79°01'41"E	171170 cbm Rough Stone
52	Rough Stone	R.Venkatachalam,.	No.30, New State Bank Colony, West Tambaram, Chennai.	95/K/2015 21.07.2016	2.90.0	Palli Cheyyar 12° 42' 53"N 12° 43'01"N 79° 36' 08"E 79° 36'15"E	290000 cbm Rough Stone
53	Rough Stone	Tvl.Src Projects (P) Ltd.,	4-B, Lakshmipuram, Gandhi Road, Salem-636 007.	99/K/2015 21.07.2016	4.75.5	Palli Cheyyar 12° 43' 20"N 12° 43' 30"N 79° 36' 14" E 79° 36' 24"E	1902000 cbm Rough Stone

54	Rough Stone	I.Prakash	Senthamangalam Village S.V.Chathiram (Via), Sriperumpthur Taluk, Kanchipuram District.	122/K/2015 28.07.2016	0.78.0	Painkinar Cheyyar 12°41'20.08" 12°41'24.79" 79°31'11.49" 79°31'15.16"	168080 cbm Rough Stone
55	Rough Stone	S.Suresh Babu	No.5, Kulakkarai Street Anakkaputhur Village, Thambaram Taluk, Chennai District.	147/K/2015 28.07.2016	3.88.5	Kurumbur Cheyyar 12°35'56.33" N 12°36'07.32" N 79°36'54.98" E 79°37'02.93" E	900840 cbm Rough Stone
56	Rough Stone	R.Velmurugan,	304, Theradi Street, Asanamapettai Village, Vembakkam Taluk.	360/K/2017 17.09.2018	1.20.0	Palli Cheyyar N 12°43'15" 12°43'19" E 79°35'36" 79°35'43"	416080 cbm Rough Stone
57	Rough Stone	S.MURUGAN,	No.62/2 , Vedanatham Village, Tiruvannamalai Taluk & District.	125/K/2015 03.11.2018	2.06.5	Agatheri-pattu Cheyyar N 12°36'39.77" 12°36'46.70" E 79°27'00.45" 79°27'05.69"	450740 cbm Rough Stone
58	Rough Stone	M.Marimuthu,	Kilpudupakkam Village, Cheyyar Taluk, Tiruvannamalai District.	413/K/2017 16.11.2018	0.98.5	Palli Cheyyar N 12°43'14" 12°43'20" E 79°35'59" 79°36'02"	244200 cbm Rough Stone
59	Rough Stone	R.Seenuvasan,	Road Street, Arasanipalai village, Vembakkam Taluk	176/K/2013 27.06.2014	3.42.0	Ezhacheri Vembakkam 12° 42' 48" N 12° 43' 1" N 79° 43' 17" E 79° 43' 27" E	150155 cbm Rough- Stone

60	Rough Stone	Ganesh Kaskar,	RMC Ready mix (India) Sidco Industrial Estate, Thirumudivakkam, Chennai.	105/K/2013 14.07.2014	4.23.5	Sithala-pakkam Vembakkam 12°43'23"N 12° 43'10"N 79°43'29" E 79°43'36" E	968970 cbm Rough Stone
61	Rough Stone	D.Madhavan	19, Sarangapani street, Krishnapuram, Ambathur, Chennai-53.	116/K/2013 03.03.2015	0.90.0	Girijapuram Vembakkam 12° 44'25" 12° 44'19"N 79° 42' 14" 79° 42'11"E	76000 cbm Rough- Stone
62	Rough Stone	R.Mohanraj	No.33, Pillaiyar koil street, Puliyambedu village, Ambatthur Taluk.	242/K/2012 13.05.2015	0.81.0	Girijapuram Vembakkam 12° 44' 11" N 12° 44' 08" N 79° 42' 12" E 79° 42' 09" E	257400 cbm Rough Stone
63	Rough Stone	N.Subramani	No 210 , Mandapam Junction Arpakkam Village, Kanchipuram	75/K/2014 21.07.2016	3.02.5	Menallur Vembakkam 12°44'08.63"N 12°44'18.71"N 79°42'16.36"E 79°42'21.37"E	89184 cbm Rough Stone
64	Rough Stone	B.Sri Devi,	No.56, Balasundaram Street, Chandramohan Nagar, Velingapattarai, Kanchipuram 631 501.	12/K/2015 28.07.2016	1.15.5	Kundiyan-thandalm Vembakkam 12°43'55.90"N 12°43'59.56"N 79°43'6.08" E 79°43'12.04"E	316710 cbm Rough Stone
65	Rough Stone	K.Kumar,	No.2/32, Mandapam Junction, Arpakkam Village & Post, Kanchipuram.	14/K/2015 28.07.2016	2.29.5	Kundiyan-thandalm Vembakkam 12°43'50.86"N 12°43'58.24"N 79°42'56.50"E 79°43'03.46"E	334530 cbm Rough Stone

66	Rough Stone	K.Thirumalai,	No.52, Pillaiyar Koil Street, M.G.R. Nagar,Kundrathur, Chennai 600 069.	29/K/2015 28.07.2016	1.50.0	Suruttal Vembakkam 12°43' 56.14"N 12°44' 02.73"N 79°43' 48.82"E 79°43' 55.08"E	257475 cbm Rough Stone
67	Rough Stone	Tmt.Deepa	81, Santhi Nagar First Street, Chengalpattu, Kanchipuram District	11/K/2014 06.06.2016	0.90.5	Thiruppana-moor Vembakkam 12°45'34.03"N 12°45'39.08"N 79°34'44.00"E 79°34'49.08"E	20610 cbm Rough Stone
68	Rough Stone	J. Venkatesan	153-A/1, Pillaiyar Koil Street, Melapattu Vge.,Ramakrishnapura m. Cheyyar Taluk.	06/K/2017 14.09.2017	1.00.0	Chithathur Vembakkam N 12°43'15" 12°43'20" E 79°36'25" 79°36'28"	249150 cbm Rough Stone
69	Rough Stone	E.Panneerselvam	89, Vanniya Mettu St., Arpakkam Village, Kanchipuram Tk & Dt.	131/K/2015 14.09.2017	1.43.0	Kundiyan-thandalm Vembakkam N 12°43'45.58" 12°43'51.42" E 79°42'58.50" 79°43'02.06"	500500 cbm Rough Stone
70	Rough Stone	L.Sudhakar ,	89, Palla Street, Agaram Village Thenneri Post, Kanchipuram Taluk.	105/K/2016 14.09.2017	3.51.5	Girijapuram Vembakkam 12°44'03.76" 12°44'12.07N 79°42'00.56E" 79°42'08.36E	1127350 cbm Rough Stone
71	Rough Stone	A.Aron Samuvel,	No.15, Sesha Nagar, Poovirnthavalli, Chennai – 600 056.	80/K/2017 17.09.2018	1.83.5	Kundiyan-thandalm Vembakkam N 12°43'46.58" 12°43'52.64" E 79°43'15.17" 79°43'21.32"	306990 cbm Rough Stone

72	Rough Stone	M.Sudharsan,	Pl.No.37, Parvathi Nagar, 3rd Street, Madampakkam, Chennai- 600 126.	377/K/2017 17.09.2018	3.25.0	Kundiyan-thandalm Vembakkam N 12°43'51.14" 12°43'57.08" E 79°43'07.34" 79°43'16.63"	634000 cbm Rough Stone
73	Rough Stone	S.Sridhar	Managing Director, SKT MINES, No.19C, Villakkadi Koil Thoppu Street, Kancheepuram- 635 501.	26/K/2018 17.09.2018	3.96.5	Kaganam Vembakkam N 12°44'36.64" 12°44'45.79" E 79°34'38.22" 79°34'48.97"	1721925 cbm Rough Stone
74	Rough Stone	B.Deenan ,	Vembakkam Taluk	78/K/2014 20.07.2018	0.95.5	Ezhacheri Vembakkam N 12°42'51" 12°42'48" E 79°43'25" 79°43'21"	238000 cbm Rough Stone
75	Rough Stone	K.Devaraj,	No.105, Gandhisilai Street, Lakshmipuram Village, Vembakkam Taluk, Tiruvannamalai	248/K/2017 17.10.2018	2.10.0	Girijapuram Vembakkam N 12°44'14" 12°44'21" E 79°42'03" 79°42'09"	822160 cbm Rough Stone
76	Rough Stone	J.K.Srinivasan	No.782, Mariyamman Koil Street, Jambodai Village, Azhividaithangal, Vembakkam Taluk.	249/K/2017 15.10.2018	1.21.54	Chithathur Vembakkam N 12°44'09" 12°44'14" E 79°37'18" 79°37'25"	484640 cbm Rough Stone
77	Rough Stone	M.R.Azhagiri,	No.120, Shanmuganandhar Kovil Street Mangadu, Sriperumbuthur Tk, Kancheepuram	85/K/2018 17.10.2018	3.87.5	Chithala-pakkam Vembakkam N 12°42'46.17" 12°42'52.84" E 79°43'25.08" 79°43'33.59"	968750 cbm Rough Stone

78	Rough Stone	Tvl.Golden Sands,	No.15, 4th Street, VGP Lay Out, East coast Road, Chennai-115.	23/K/2018 07.11.2018	3.74.5	Ezhacheri Vembakkam N12°43'18.09" 12°43'24.02" E 79°43'19.41" 79°43'11.43"	1310610 cbm Rough Stone
79	Rough Stone	Thiru.C.Sugumar,	No.18-A, V.V.Kovil Street, Walajabad Taluk, Kancheepuram District.	375/K/2017 16.11.2018	1.82.5	Ezhacheri Vembakkam N 12°43'16.06" 12°43'19.39" E 79°43'10.40" 79°43'19.71"	638750 cbm Rough Stone
80	Rough Stone	Muthukrishnan,	No.221,Chenjiamman Koil Street, Chithalappakkam Village, Arasanipalayam Post, Vempakkam Taluk.	337/K/2017 22.11.2018	1.26.0	Chithala-pakkam Vembakkam N 12°43'18.67" 12°43'24.09" E 79°43'30.36" 79°43'34.30"	441000 cbm Rough Stone
81	Rough Stone	R.Venkatasubramanian,	No.83/1 Pillaiyar Kovil Street, Sirumayilur Village, Kancheepuram.	05/K/2018 04.12.2018	2.43.0	Kundiyan-thandalam Vembakkam N12°44'12" 12°44'44'17" E 79°43'03" 79°43'12"	107395 cbm Rough Stone
82	Rough Stone	Tvl.Src Projects (P) Ltd.,	4-B, Lakshmipuram, Gandhi Road, Salem-636 007.	371/K/2017 14.12.2018	4.71.5	Chithathur Vembakkam N 12°43'19.14" 12°43'27.05" E 79°36'22.83" 79°36'34.83"	2121750 cbm Rough Stone
83	Rough Stone	Vijay Ramakrishnan	Door No.52, MGR Road, Kalachitra Colony, Besent Nagar, Chennai-90	193/K/2013 23.09.2014	1.50.5	Kizhnamandi Vandavasi 12° 23'15"N 12° 23'23"N 79°29'40"E 79°29'43" E	102767 cbm Rough- Stone

84	Rough Stone	G.Vasudevan	Door No.842-D, Vengidamangalam Road, Melakkottaiyur,Chengal pattu Taluk,Kancheepuram.	115/K/2015 08.12.2016	1.04.0	Septangulam Vandavasi 12°31' 53.54" 12°31' 56.24" 79°26'21.93" 79°26'28.09"	256700 cbm Rough Stone
85	Rough Stone	G.Rajendran,	No.18, First Street, Rajiv Gandhi Nagar, Urapakkam Village, Chengalpattu .	37/K/2014 22.12.2016	1.68.0	Mavalavadi Vandavasi 12°22'32.00"N 79°39'29.10"E	202464 cbm Rough Stone
86	Rough Stone	A.C.Mani,	Vetrilaikara street, Arni.	36/K/2013 25.09.2014	0.67.0	Ariyapadi Arni 12°41'56"N 12° 41' 52"N 79° 13' 20" E 79° 13' 23"E	36244 cbm Rough - Stone
87	Rough Stone	R.Monishkumar	No.35/88, Rajaji Street, Chengalpattu.	Rc.No.379/ Kanimam / 2017 dt:17.07.2018	3.12.5	Ezhacheri Vembakkam 12°43'01.10"N 12°43'08.27"N 79°43'06.48"E 79°43'16.34"E	894250 cbm Rough Stone
88	Rough Stone	R.Gunasekaran	No.50/70 Kalyanasundharam St, Merku Thambaram, Chennai.	Rc.No.378/ Kanimam /2017 dt:06.08.2018	1.49.0	Vazhavandal Vembakkam 12°44'10.61"N 12°44'16.71"N 79°41'19.33"E 79°41'23.75"E	521500 cbm Rough Stone
89	Rough Stone	Tvl.Suganya Blue Stone	No.505/3, Main Road, Thirupanamoor, Vembakkam Taluk. Tiruvannamalai District.	Rc.No.25 / Kanimam / 2018 dt:05.09.2018	2.95.0	Thirupanamoor Vembakkam 12°45'38.82"N 12°45'47.05"N 79°34'45.63"E 79°34'56.70"E	1180000 cbm Rough Stone

90	Rough Stone	A.WILLIAM	No.139, 4 th Main Road, Lakshmi Nagar Extension, Porur, Chennai – 600 116.	Rc.No.32 / Kanimam/ 2018 dt.24.09.2018	2.88.0	Kundiyanthandalam Vembakkam 12°44'06.24"N 12°44'21.05"N 79°43'01.47"E 79°43'05.11"E	692200 cbm Rough Stone
91	Rough Stone	Tvl. NRM SONS BLUE METALS	97A, Ottakuthar street, Mamallan Nagar, Kanchipuram District.	Rc.No.56 / Kanimam/2018 dt.19.09.2018	2.75.0	Kiznayacken palayam & Girijapuram vembakkam 12°44'07.37"N 12°44'13.71"N 79°41'53.84"E 79°41'00.88"E	2133360 cbm Rough Stone
92	Rough Stone	R.Nethaji	No.79, Jain Street, Arpakkam Village, Valajabhath Taluk Kanchipuram District.	Rc.No.33/ Kanimam / 2018 dt.14.10.2018	2.45.0	Kundiyanthandalam Vembakkam 12°43'52"N 12°43'57"N 79°43'16"E 79°43'23"E	1326400 cbm Rough Stone
93	Rough Stone	R.K.Sudhakar Ramakrishnan	No.326, Vivekanandar st, Thadaperumbakkam, Thiruvengadapuram, Ponneri, Tiruvallur District.	Rc.No. 78/ Kanimam / 2018 dt:27.09.2018	1.66.0	Thethurai Cheyyar 12°36'39.72"N 12°36'44.60"N 79°37'16.98"E 79°37'22.96"E	566755 cbm Rough Stone
94	Rough Stone	S.Sivasuriya madhava Raja	No.9/13, Shanmuga Nagar, Mannivakkam, Chennai – 600048.	Rc.No. 09/ Kanimam / 2018 dt.14.12.2018	1.05.5	Palli Cheyyar 12°43'11"N 12°43'15"N 79°36'36"E 79°36'41"E	520800 cbm Rough Stone
95	Rough Stone	S.Gopiraj	No.180/2, Pillaiyar Kovil Street, Kangeyanoor Village & Post, Polur Taluk, Tiruvannamalai.	Rc.No.395/ Kanimam / 2017 dt.10.12.2017	1.00.0	Pudhupalayam Polur 12°29'25.02"N 12°29'29.53"N 79°06'32.03"E 79°06'37.17"E	326190 cbm Rough Stone

96	Rough Stone	K.Ashok Kumar	Maganurpatti Village and Post, Uthangarai Taluk, Krishnagiri District.	Rc.No.20/ Kanimam/2017 dt.04.12.2017	1.00.0	Naradapattu Chengan 12°13'09"N 12°13'12"N 78°41'20"E 78°41'25"E	355250 cbm Rough Stone
97	Rough Stone	S.Manokaran	No.33/60 K, TPT Main Road, Vakkanampatti Post, Jolarpettai, Vellore District.	Rc.No.397/ Kanimam/2017 dt.17.11.2017	1.00.0	Thiruvadathanur Thandarampattu N 12°06'36.89" 12°06'42.33" E 78°53'27.56" 78°53'33.85"	182600 cbm Rough Stone
98	Rough Stone	K.Chandreskaran	No.301, Madhayan Pettai Street, Mamandur Village, Vembakkam Taluk, Tiruvannamalai District	Rc.No.66/ Kanimam / 2018 dt.13.02.2019	1.97.5	Kundiyanthandalam Vembakkam 12°43'59.73"N 12°43'06.66"N 78°43'01.36"E 78°43'06.10"E	681640 cbm Rough Stone
99	Rough Stone	M/s.Bhuvaneswari Blue Metals	No.37 B, Ground Floor, Vembuliamman Kovil Street, Pazhvanthangal, Chennai.	Rc.No.83/ Kanimam/2018 dt.02.02.2019	2.05.5	Kundiyanthandalam Vembakkam 12°43'50.85"N 79°43'05.5"E	807200 cbm Rough Stone
100	Rough Stone	Thiru.R.Ganesan, Director of SRC Projects Pvt. Ltd.,	No.47, Brindhavan Road, Fairlands, Salem District.	Rc.No.18/ Kanimam / 2019 dt:16.05.2019	4.50.0	Athi Cheyyar 12°38'34.74"N 12°38'43.98"N 79°35'58.85"E 79°36'07.81"E	3294775 cbm Rough Stone
101	Rough Stone	M/s.Rajiraj Minerals Pvt. Ltd.,	O/F Penna Complex, Vellore Main Road, 3 rd Street, Anna Nagar, Arcot, Vellore	Rc.No.182/ Kanimam / 2018 dt.20.05.2019	10.90.35	Pavoor & Ezhacheri Vembakkam 12°42'55"N 12°43'08"N 79°41'53"E 79°42'08"E	7630070 cbm Rough Stone

102	Rough Stone	Thiru.Rajganesh	No.192/86, Habibullah Road, Thiyagaraya Nagar, Chennai	Rc.No.135/ Kanimam/2018 dt.02.02.2019	2.58.5	Arugavoor Cheyyar 12°40'40.05"N 12°40'49.43"N 79°30'36.11"E 79°30'42.93"E	1240800 cbm Rough Stone
103	Rough Stone	N.Ragu	S/o.Nadarajan, No.14/2 Center street, Ganapathypuram, East Tambaram, Chennai	Rc.No.117/ Kanimam/2018 dt: 29.05.2019	2.95.0	Menallur Vembakkam 12°43'52.49"N 12°43'58.91"N 79°42'00.13"E 79°42'07.16"E	1178520 cbm Rough Stone
104	Rough Stone	A.Dhasarathan,	No.39, Erikkarai Street, Thiruparuthikundram Village, Sevilimedu, Kanchipuram taluk & District.	Rc.No.79/Kanim am/2018 dt.02.02.2019	2.88.5	Kundiyanthadalam Vembakkam 12°43'42.20"N 12°43'51.08"N 79°42'54.37"E 79°42'59.68"E	1298250 cbm Rough Stone

15) QUALITY/ GRADE OF MINERAL AVAILABLE IN THE DISTRICT

ROUGH STONE

The charnockite series includes rocks of many different types, some being felsic and rich in quartz and microcline, others mafic and full of pyroxene and olivine, while there are also intermediate varieties corresponding mineralogical to norites, quartz-norites and diorites.

A special feature, recurring in many members of the group, is the presence of a strongly pleochroic, reddish or green orthopyroxene (formerly known as hypersthene).

16. USE OF MINERAL

ROUGH STONE:

Aggregates – stone used for its strong physical properties – crushed and sorted into various sizes for use in concrete, coated with bitumen to make asphalt or used 'dry' as bulk fill in construction. Mostly used in roads, concrete and building products.

17.DEMAND AND SUPPLY OF THE MINERAL IN THE LAST THREE YEARS :-

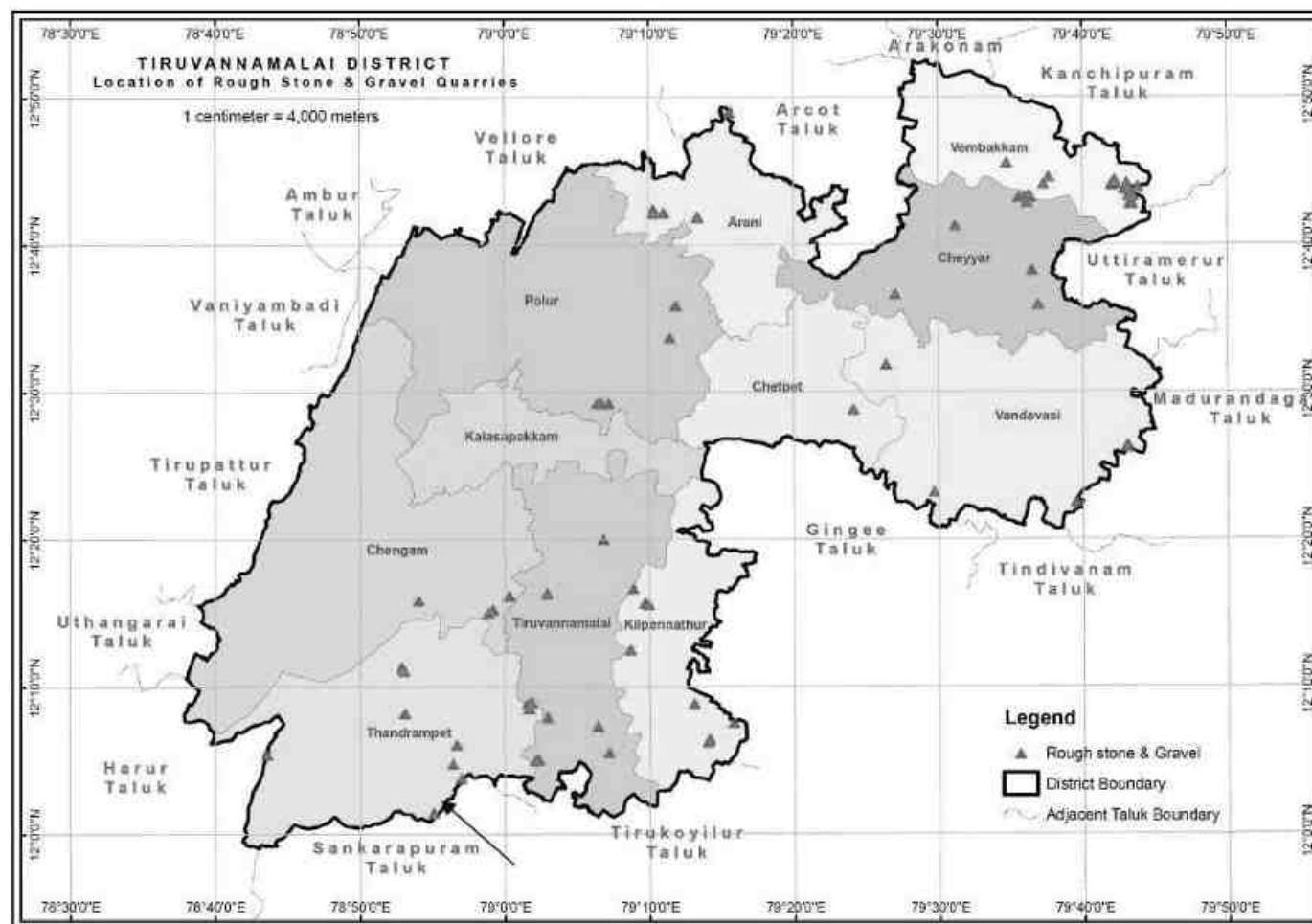
There is a huge demand for Rough stone and Gravel in the district due to the sudden increase of Construction activities and highway projects around the district.

Sl.No	Year	Production of Rough Stone	Revenue realized
1.	2016-2017	688198	33519675
2.	2017-2018	825787	38311705
3.	2018-2019	1023023	59673732

Granite quarry leases are considerably low in the district compare to the other district but the demand and supply of Granite stone is not much more.

18. MINING LEASES MARKED ON THE MAP OF THE DISTRICT

Figure 18.0 Rough stone quarry Leases marked in the District Map



Mining leases marked in the Madathukulam Taluk map

19. DETAILS OF THE AREA OF WHERE THERE IS A CLUSTER OF MINING VIZ., NUMBER OF MINING LEASES, LOCATION (LATITUDE AND LONGITUDE):-

S. No	Name of the Mineral	No. of Mining Lease	Taluk	village	Location of the Mining lease (Latitude & Longitude)	
1	Rough Stone	5	Vembakkam	Ezhacheri	1. N 12°42'46.17" 12°42'52.84" E 79°43'25.08" 79°43'33.59"	
					2. 12° 42' 48" N 12° 43' 1" N 79° 43' 17" E 79° 43' 27" E	
					3. N 12°42'51" 12°42'48" E 79°43'25" 79°43'21"	
					4. N 12°43'16.06" 12°43'19.39" E 79°43'10.40" 79°43'19.71"	
				Chithala-pakkam	5. N12°43'18.09" 12°43'24.02" E 79°43'19.41" 79°43'11.43"	
2		5	Vembakkam	Girijapuram	1. 12°44'03.76" 12°44'12.07N 79°42'00.56E" 79°42'08.36E	
				Mennalur	2. 12°44'08.63"N 12°44'18.71"N 79°42'16.36"E 79°42'21.37"E	
				Girijapuram	3. 12° 44' 11" N 12° 44' 08" N 79° 42' 12" E 79° 42' 09" E	
					4. N 12°44'14" 12°44'21" E 79°42'03" 79°42'09"	
					5. 12° 44'25" 12° 44'19N" 79° 42' 14' 79° 42'11"E	
3		7	Cheyyar	Palli	1. 12° 42' 53"N 12° 43'01"N 79° 36' 08"E 79° 36'15"E	
					2. N 12°43'14" 12°43'20" E 79°35'59" 79°36'02"	
					3. N 12°43'15" to 12°43'19" E 79°35'36" to 79°35'43"	
					4. 12° 43' 20"N 12° 43' 30"N 79° 36' 14" E 79° 36' 24"E	
			Vembakkam	Chithathur	5. N 12°43'15" 12°43'20" E 79°36'25" 79°36'28"	
					6. N 12°43'19.14" 12°43'27.05" E 79°36'22.83" 79°36'34.83"	
				Chithathur	7. N 12°44'09" to 12°44'14" E 79°37'18" to 79°37'25"	
4			5	Vembakkam	Kundiyan-thandalam	1. N 12°43'45.58" 12°43'51.42" E 79°42'58.50" 79°43'02.06"
						2. N 12°43'46.58" 12°43'52.64" E 79°43'15.17" 79°43'21.32"
						3. 12°43'50.86"N 12°43'58.24"N 79°42'56.50"E 79°43'03.46"E
	4. N 12°43'51.14" 12°43'57.08" E 79°43'07.34" 79°43'16.63"					
	5. 12°43'55.90"N 12°43'59.56"N 79°43'6.08" E 79°43'12.04"E					

20 .DETAILS OF ECO – SENSITIVE AREA, IF ANY, IN THE DISTRICT.

- There is no Wild Life Sanctuaries and National Park as per The Indian Wildlife (Protection) Act, 1972.
- There is no Western Ghats region near the district
- There is No Interstate Boundary crossing in the Tiruvannamalai District.
- There is No Coastal Regulation Zone (CRZ) within the 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 check up 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 wash off 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):-

Under Rule 23A, Mine Closure Plan: Every mine shall have Mine Closure Plan, which shall be of two types:-

- (i) Progressive mine closure plan; and
- (ii) Final mine closure plan.

Conceptual Final Landform-

The broad rehabilitation objective for the post-quarry landform is to establish a similar land use on the disturbed areas, with the exception of the final void. The topography of the final landform will consist of a large number of stepped benches formed in an amphitheatre configuration, each with a re-vegetated bench as shown in Figure-1.

Figure 2 shows plan and sectional views of the final landform. The void will be some approximately 1.88.8 Ha in area. Until such time that extraction has ceased, rehabilitation will occur around the perimeter of the pit only along the benches, and will not involve the pit floor. The primary purpose of rehabilitation during the operational phase is to mitigate any visual impacts.



Figure 23.0: Example of Bench Rehabilitation

Once operations have ceased, all buildings and infrastructure will be removed. These areas will be reshaped and ripped where necessary for top-soiling and re-vegetation.

The top benches will be vegetated with appropriate native species. The lower benches will be formed as a shallow depression of retention pond/ rain water harvesting structure.

Rehabilitation and Re-vegetation -

Rehabilitation of the site will be undertaken once extraction is complete. As the extraction progresses through the resource, 5 m wide benches will be left every

5 m of depth to provide a horizontal platform on which native flora species will be established.

The plantation in the mine lease area also includes gap filling plantation on the safety barrier zone left around the mine lease area. Gap filling plantation has been carried out in the safety barrier zone left around the mine lease area from the beginning of the mining operations.

Additional plantation will be carried out in the inactive mining area. Grass and bushes will be planted in areas prone to erosion. Other areas will be spread with organic manures and planted with local species.

The characteristics of this vegetation will resemble that of the natural environment except for the early growth, which may be a protective cover crop of non-seeding annuals. Before re-vegetation, the land will be properly prepared by spreading the top soil, which is rich in organic contents along with mulches and organic manure. Vegetation will be self-sufficient after planting and require no fertilizers or maintenance.

The re-vegetation program will re-establish native tree / shrub / ground cover and will stabilize reshaped and benched areas. Benches will be deep ripped to actively promote infiltration of water which will enhance soil moisture requirements for direct tree seeding and minimize surface runoff to underlying benches. Re-vegetation will also visually screen disturbed areas and will re-establish habitat for native fauna.

24. RISK ASSESSMENT & DISASTER MANAGEMENT PLAN:-

The Disaster Management Plan (DMP) is supposed to be a dynamic, changing, document focusing on continual improvement of emergency response planning and arrangements.

The disaster management plan is aimed to ensure safety of life, protection of environment, protection of installation, restoration of production and salvage operations in this same order of priorities. For effective implementation of the disaster management plan, it should be

widely circulated and personnel training through rehearsals/induction conducted by the respective department from time to time.

General Responsibilities of Employees during an Emergency:

During an emergency, it becomes more enhanced and pronounced when an emergency warning is raised, the workers in-charge, should adopt safe and emergency shut down and attend any prescribed duty as essential employee. If no such responsibility is assigned, he should adopt a safe course to assembly point and await instructions. He should not resort to spread panic. On the other hand, he must assist emergency personnel towards objectives of DMP.

Co-ordination with Local Authorities:

The mine manager who is responsible for emergency will always keep a jeep ready at site. In case any eventualities the victim will be taken to the nearby hospitals after carrying out the first aid at site. A certified first aid certificate holder will be responsible to carry out the first aid at site. The mine manager should collect and have adequate information of the nearby hospitals, fire station, police station, village panchayat heads, taxi stands, medical shop, district revenue authorities etc., and use them efficiently during the case of emergency.

25. DETAILS OF THE OCCUPATION HEALTH ISSUES IN THE DISTRICT. (LAST FIVE-YEAR DATE OF NUMBER OF PATIENTS OF SILICOSIS & TUBERCULOSIS IS ALSO NEEDS TO BE SUBMITTED):-

As per the guidelines of the Mine Rules 1955, occupational health safety stipulated by the ILO/WHO. The proponent's will take all necessary precautions. Normal sanitary facilities should be provided within the lease area. The management will carry out periodic health check up of workers.

Occupational hazards involved in mines are related to dust pollution, Noise pollution, blasting and injuries from moving machineries & equipment and fall from high places. DGMS has given necessary guidelines for safety against these occupational hazards. The management will strictly follow these guidelines.

All necessary first aid and medical facilities will be provided to the workers. The mine shall be well equipped with Personal Protective Equipment (PPE). Further all the necessary protective equipment's such as helmets, safety goggles, earplugs, earmuffs, etc. will be provided to persons working in mines as per Mines Rules. All operators and mechanics will be trained to handle fire-fighting equipment's.

26. PLANTATION OF GREEN BELT DEVELOPMENT IN RESPECT OF LEASES ALREADY GRANTED IN THE DISTRICT:-

Green Belt Development

- ❖ A well planned Green Belt with multi rows (Three tier) preferably with long canopy leaves shall be developed with dense plantations around the boundary and haul roads to prevent air, dust noise propagation to undesired places. Efforts will be taken for the enhancement of survival rate since the soil is alkaline in nature.

Species Recommended for Plantation

Following points have been considered while recommending the species for plantation:

- ❖ Natural growth of existing species and survival rate of various species.
- ❖ Suitability of a particular plant species for a particular type of area.
- ❖ Creating of bio-diversity.
- ❖ Fast growing, thick canopy cover, perennial and evergreen large leaf area,
- ❖ Efficient in absorbing pollutants without major effects on natural growth.
- ❖ The following species may be considered primarily for plantation best suited for the prevailing climatic condition in the area.

RECOMMENDED SPECIES TO PLANT IN THE GREENBELT

S.No	Name of the plant (Botanical)	Family Name	Common Name	Habit
1.	<i>Azadirachta indica</i>	<i>Meliaceae</i>	Neem, Vembu	Tree
2.	<i>Albizia falcataria</i>	<i>Fabaceae</i>	Tamarind, Puliyaaram	Tree
3.	<i>Polyalthia longifolia</i>	<i>Annonaceae</i>	Kattumaram	Tree
4.	<i>Borassus flabellifer</i>	<i>Arecaceae</i>	Palmyra Palm	Tree


27. ANY OTHER INFORMATION:-


The well developed Environmental management plan and remedial measures is proposed to carryout in all mining areas in the District.

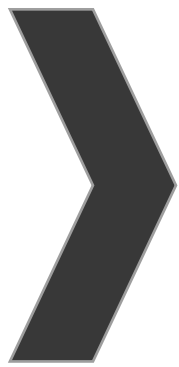
CER/CSR activities shall be carried out by providing social and welfare measures to the local community of the nearby villages. The main activities would be like drinking water facilities for the government schools children, public toilets to the local community and government schools, conducting free medical camps, providing solar lights to the villages besides encouraging the local cultural activities of the area.

This District Survey Report has been prepared in a short span of time by doing rapid field work. The details related to the occurrence of mineral resources and other data of the district are subject to updation from time to time. Before grant of any quarry lease, the parameters related to geosciences and sustainable developments are to be considered on the basis of ground reality.

The Thiruvannamalai District is having very large deposits of Charnockite rock which is the raw material for the production of aggregates and M-sand. M-sand is the need of the hour to replace the utilisation of river sand. The Charnockite / Rough Stones are crushed in the crushing units for the manufacture of aggregates and M-sand which gives direct and indirect employment to the local people. Preferences and encouragements can be given to the Entrepreneurs for set up of new units for the production of M-sand.


Assistant Director
Dept. of Geology & Mining
Thiruvannamalai District.


COLLECTOR
Thiruvannamalai District,
Thiruvannamalai.



ANNEXURE-8



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TEST REPORT

Report No.	SARL/24/2069	Report Date.	16.03.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-NEAR PROPOSED 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-2069	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	63.3	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	29.8	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	9.8	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL – Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

8 Paul
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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/24/2070	Report Date.	16.03.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Somaspad
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2070	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	56.1	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	5.4	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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Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/2071	Report Date.	16.03.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-NEAR PROPOSED 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-2071	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	69.7	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	32.8	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	11.9	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL – Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

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J. 4
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/2072	Report Date.	16.03.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyanganam Village, Kilpennathur Taluk, Tiruvannamalai 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-Somaspad
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2072	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	51.9	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	5.0	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

For Shrient Analytical and Research Labs Pvt. Ltd

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J. K.
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/2073	Report Date.	16.03.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Karampoondi
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2073	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	56.7	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	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

8 Paul
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END OF THE REPORT

J. 4
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/2074	Report Date.	16.03.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Iyangunnam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2074	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	49.2	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	7.5	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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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/2075	Report Date.	16.03.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Karampoondi
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2075	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	54.3	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	25.6	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	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	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 Paul
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J. 4
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/2076	Report Date.	16.03.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Iyangunnam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2076	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	51.6	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	4.7	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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END OF THE REPORT

J. K.
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



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TEST REPORT

Report No.	SARL/24/2077	Report Date.	16.03.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Kazhikulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2077	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	43.9	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	19.9	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	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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END OF THE REPORT

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/24/2078	Report Date.	16.02.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Namiyandal SO
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2078	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	46.9	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	3.9	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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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/24/2079	Report Date.	16.03.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Kazhikulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2079	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	47.5	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	3.4	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

8 Paul
Verified



END OF THE REPORT

J. K.
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/24/2080	Report Date.	16.03.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Namiyandal SO
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2080	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	51.7	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	5.1	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

For Shrient Analytical and Research Labs Pvt. Ltd

8 Paul
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END OF THE REPORT

J. 4
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/2143	Report Date.	23.03.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Kazhikulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2143	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	49.3	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	3.7	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

8 Paul
Verified



J. 4
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

END OF THE REPORT

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TEST REPORT

Report No.	SARL/24/2144	Report Date.	23.03.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyanganam Village, Kilpennathur Taluk, Tiruvannamalai 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-Namiyandal SO
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2144	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	42.9	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	20.5	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	2.9	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

8 Paul
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END OF THE REPORT

J. K.
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/24/2145	Report Date.	23.03.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Kazhikulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2145	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	52.9	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	4	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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END OF THE REPORT

J. 4
Authorized Signatory
J. GNANAPRAKASAM
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TEST REPORT

Report No.	SARL/24/2146	Report Date.	23.03.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyanganam Village, Kilpennathur Taluk, Tiruvannamalai 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-Namiyandal SO
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2146	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	47.7	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.8	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	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

8 Paul
Verified



END OF THE REPORT

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R

Page 4 of 12



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TEST REPORT

Report No.	SARL/24/2147	Report Date.	23.03.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Karampoondi
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2147	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	49.9	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	4.6	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

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/24/2148	Report Date.	23.03.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Iyangunnam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2148	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	46.5	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	20.9	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	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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Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/2149	Report Date.	23.03.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyanganam Village, Kilpennathur Taluk, Tiruvannamalai 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-Karampoondi
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2149	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	51.9	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	5.1	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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J. GNANAPRAKASAM
Technical Manager

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Page 7 of 12



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TEST REPORT

Report No.	SARL/24/2150	Report Date.	23.03.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Iyangunnam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2150	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	48.6	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	21.8	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	7.1	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/24/2151	Report Date.	23.03.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-NEAR PROPOSED 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-2151	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	76.2	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	35.8	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	13.4	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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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/2152	Report Date.	23.03.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Somaspad
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2152	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	62.7	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	5.9	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	10.4	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

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/2153	Report Date.	23.03.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-NEAR PROPOSED 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-2153	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	73.7	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	34.7	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	6.7	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	13.1	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/24/2154	Report Date.	23.03.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Somaspad
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2154	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	53.1	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	5.1	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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Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/2217	Report Date.	30.03.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-NEAR PROPOSED 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-2217	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	71.3	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	33.5	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	12.5	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL – Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

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END OF THE REPORT

J. 4
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

Please Contact:

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TEST REPORT

Report No.	SARL/24/2218	Report Date.	30.03.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Somaspad
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2218	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	65.1	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	30.0	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	11.0	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL – Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

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Authorized Signatory
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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TEST REPORT

Report No.	SARL/24/2219	Report Date.	30.03.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-NEAR PROPOSED 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-2219	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	64.9	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	30.5	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	10.4	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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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/2220	Report Date.	30.03.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Somaspad
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2220	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	58.5	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	5.6	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.0	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL – Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

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J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

LAB SERVICES FOR:- Food, Water, Milk, Environment, Academic & Industrial Segment.

CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R

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Report No.	SARL/24/2221	Report Date.	30.03.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Karampoondi
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2221	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	50.3	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	4.7	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	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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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/2222	Report Date.	30.03.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Iyangunnam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2222	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	52	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	23.4	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	8.9	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

8 Paul
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END OF THE REPORT

J. 4
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/2223	Report Date.	30.03.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Karampoondi
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2223	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	52.3	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	24.6	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	8.1	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/24/2224	Report Date.	30.03.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Iyangunnam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2224	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	49.6	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	4.4	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

For Shrient Analytical and Research Labs Pvt. Ltd

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TEST REPORT

Report No.	SARL/24/2225	Report Date.	30.03.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Kazhikulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2225	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	46.9	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	3.4	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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TEST REPORT

Report No.	SARL/24/2226	Report Date.	30.03.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Namiyandal SO
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2226	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	51.3	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	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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END OF THE REPORT

J. 4
Authorized Signatory
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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TEST REPORT

Report No.	SARL/24/2227	Report Date.	30.03.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Kazhikulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2227	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	40.9	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	18.5	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	2.9	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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J. K.
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/24/2228	Report Date.	30.03.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Namiyandal SO
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2228	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	46.5	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	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/24/2291	Report Date.	06.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Kazhikulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2291	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	48.7	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	3.5	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

For Shrient Analytical and Research Labs Pvt. Ltd

8 Paul
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END OF THE REPORT

J. 4
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/2292	Report Date.	06.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Namiyandal SO
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2292	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	52.1	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	25	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	8.8	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/24/2293	Report Date.	06.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Kazhikulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2293	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	52.3	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	3.9	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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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/24/2294	Report Date.	06.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Namiyandal SO
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2294	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	47.3	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.8	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	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

8 Paul
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END OF THE REPORT

J. 4
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/2295	Report Date.	06.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Karampoondi
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2295	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	48.3	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	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. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/2296	Report Date.	06.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Iyangunnam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2296	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	46	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	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

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/24/2297	Report Date.	06.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Karampoondi
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2297	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	51.1	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	4.9	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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J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/2298	Report Date.	06.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Iyangunnam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2298	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	47.5	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	4.5	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

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/24/2299	Report Date.	06.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-NEAR PROPOSED 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-2299	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	56.9	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	26.8	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	7.4	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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Technical Manager

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TEST REPORT

Report No.	SARL/24/2300	Report Date.	06.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Somaspad
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2300	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	51.3	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	5.0	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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J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/2301	Report Date.	06.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-NEAR PROPOSED 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-2301	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	62.5	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	29.4	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	9.5	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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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R

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TEST REPORT

Report No.	SARL/24/2302	Report Date.	06.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Somaspad
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2302	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	54.9	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	5.3	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/24/2365	Report Date.	13.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-NEAR PROPOSED 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-2365	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	70.5	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	33.2	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	12.3	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL – Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

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J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/2366	Report Date.	13.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Somaspad
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2366	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	60.9	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	28.0	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	9.8	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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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/2367	Report Date.	13.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-NEAR PROPOSED 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-2367	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	59.3	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	27.9	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	8.3	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/24/2368	Report Date.	13.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Somaspad
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2368	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	54.3	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	25.0	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	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

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TEST REPORT

Report No.	SARL/24/2369	Report Date.	13.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Karampoondi
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2369	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	58.7	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	6.1	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	11	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	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/24/2370	Report Date.	13.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Iyangunnam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2370	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	53.2	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	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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TEST REPORT

Report No.	SARL/24/2371	Report Date.	13.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Karampoondi
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2371	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	55.5	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	5.9	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.6	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL – Detectable limit

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TEST REPORT

Report No.	SARL/24/2372	Report Date.	13.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Iyangunnam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2372	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	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	4.5	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/24/2373	Report Date.	13.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Kazhikulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2373	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	46.3	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	3.3	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

For Shrient Analytical and Research Labs Pvt. Ltd

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TEST REPORT

Report No.	SARL/24/2374	Report Date.	13.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Namiyandal SO
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2374	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	43.3	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	20.9	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	3.1	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

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/2375	Report Date.	13.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Kazhikulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2375	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	41.5	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	18.6	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	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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J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R

Page 11 of 12



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Phone Number +91 82208 36377 Email: - info@shrientanalytical.com
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TEST REPORT

Report No.	SARL/24/2376	Report Date.	13.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Namiyandal SO
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2376	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	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	4.3	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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J. GNANAPRAKASAM
Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R

Page 12 of 12



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TEST REPORT

Report No.	SARL/24/2439	Report Date.	20.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Kazhikulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2439	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	54.7	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	4.3	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

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/24/2440	Report Date.	20.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Namiyandal SO
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2440	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	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	3.7	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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J. GNANAPRAKASAM
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TEST REPORT

Report No.	SARL/24/2441	Report Date.	20.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Kazhikulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2441	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	51.1	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	3.7	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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J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/2442	Report Date.	20.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Namiyandal SO
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2442	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	50.9	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	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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J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/2443	Report Date.	20.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Karampoondi
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2443	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	55.9	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	26.3	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

For Shrient Analytical and Research Labs Pvt. Ltd

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Technical Manager

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TEST REPORT

Report No.	SARL/24/2444	Report Date.	20.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Iyangunnam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2444	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	52.9	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	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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Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/2445	Report Date.	20.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Karampoondi
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2445	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	51.5	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	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

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/24/2446	Report Date.	20.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Iyangunnam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2446	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	51	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	4.5	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

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/24/2447	Report Date.	20.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-NEAR PROPOSED 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-2447	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	75.3	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	32.4	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	13.8	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL – Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

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Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/2448	Report Date.	20.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Somaspad
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2448	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	66.4	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	30.6	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	11.6	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL – Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

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Technical Manager

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LAB SERVICES FOR:- Food, Water, Milk, Environment, Academic & Industrial Segment.

CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R

Page 10 of 12



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TEST REPORT

Report No.	SARL/24/2449	Report Date.	20.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-NEAR PROPOSED 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-2449	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	72.9	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	34.3	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	13.0	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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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R

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TEST REPORT

Report No.	SARL/24/2450	Report Date.	20.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Somaspad
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2450	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	59.7	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	27.5	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	9.4	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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Authorized Signatory
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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TEST REPORT

Report No.	SARL/24/2513	Report Date.	27.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-NEAR PROPOSED 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-2513	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	60.9	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	28.7	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	8.9	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL – Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

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END OF THE REPORT

J. 4
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/2514	Report Date.	27.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Somaspad
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2514	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	55.5	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	5.3	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
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TEST REPORT

Report No.	SARL/24/2515	Report Date.	27.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-NEAR PROPOSED 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-2515	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	65.7	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	30.9	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	10.7	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL – Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

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TEST REPORT

Report No.	SARL/24/2516	Report Date.	27.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Somaspad
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2516	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	59.1	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	5.6	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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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/2517	Report Date.	27.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Karampoondi
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2517	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	49.5	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	4.5	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

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/24/2518	Report Date.	27.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Iyangunnam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2518	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	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	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

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Technical Manager

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TEST REPORT

Report No.	SARL/24/2519	Report Date.	27.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Karampoondi
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2519	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	52.7	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	5.3	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

For Shrient Analytical and Research Labs Pvt. Ltd

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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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TEST REPORT

Report No.	SARL/24/2520	Report Date.	27.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Iyangunnam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2520	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	52.4	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	4.9	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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Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/2521	Report Date.	27.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Kazhikulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2521	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	42.1	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	3.1	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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Technical Manager

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TEST REPORT

Report No.	SARL/24/2522	Report Date.	27.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Namiyandal SO
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2522	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	48.5	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	4.3	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	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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Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/2523	Report Date.	27.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Kazhikulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2523	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	44.5	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	3.3	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	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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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/2524	Report Date.	27.04.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Namiyandal SO
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2524	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	43.7	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	20.9	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	3.1	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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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/2587	Report Date.	04.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Kazhikulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2587	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	50.5	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	23.4	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	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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Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/2588	Report Date.	04.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Namiyandal SO
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2588	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	50.5	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	4.7	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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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/24/2589	Report Date.	04.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Kazhikulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2589	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	54.1	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	4.2	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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J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/2590	Report Date.	04.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Namiyandal SO
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2590	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	45.7	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	3.6	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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Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/2591	Report Date.	04.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Karampoondi
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2591	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	56.3	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	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	10.0	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL – Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

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J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/2592	Report Date.	04.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Iyangunnam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2592	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	46.3	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	4.1	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

For Shrient Analytical and Research Labs Pvt. Ltd

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Technical Manager

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TEST REPORT

Report No.	SARL/24/2593	Report Date.	04.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Karampoondi
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2593	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	53.9	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	25.4	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	8.8	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/24/2594	Report Date.	04.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Iyangunnam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2594	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	48	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	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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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/2595	Report Date.	04.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-NEAR PROPOSED 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-2595	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	60.1	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	5.5	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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TEST REPORT

Report No.	SARL/24/2596	Report Date.	04.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Somaspad
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2596	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	56.7	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	5.4	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

8 Paul
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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 10 of 12



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TEST REPORT

Report No.	SARL/24/2597	Report Date.	04.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-NEAR PROPOSED 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-2597	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	66.5	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	31.3	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	11.0	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

8 Paul
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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/24/2598	Report Date.	04.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Somaspad
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2598	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	60.3	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	27.8	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	9.6	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

8 Paul
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J. 4
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/2661	Report Date.	11.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-NEAR PROPOSED 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-2661	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	57.7	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	5.2	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

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/24/2662	Report Date.	11.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Somaspad
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2662	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	61.5	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	5.8	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	10.0	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL – Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

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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/24/2663	Report Date.	11.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-NEAR PROPOSED 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-2663	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	64.1	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	6.0	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	10.1	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

8.06.24
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END OF THE REPORT

J. 4
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

Please Contact:

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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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TEST REPORT

Report No.	SARL/24/2664	Report Date.	11.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Somaspad
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2664	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	63.3	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	29.1	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	10.6	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL – Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

8 Pail
Verified



END OF THE REPORT

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/24/2665	Report Date.	11.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Karampoondi
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2665	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	48.7	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	4.3	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	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

8 Paul
Verified



END OF THE REPORT

J. 4
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/2666	Report Date.	11.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Iyangunnam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2666	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	55.2	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	5.5	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	10.6	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL – Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

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J. 4
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TEST REPORT

Report No.	SARL/24/2667	Report Date.	11.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Karampoondi
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2667	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	53.1	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	25.0	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.4	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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Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/2668	Report Date.	11.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Iyangunnam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2668	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	53.6	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	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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Technical Manager

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TEST REPORT

Report No.	SARL/24/2669	Report Date.	11.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Kazhikulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2669	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	45.1	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	3.3	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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J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/2670	Report Date.	11.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Namiyandal SO
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2670	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	49.3	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	4.5	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	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/24/2671	Report Date.	11.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Kazhikulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2671	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	42.7	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	3	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

For Shrient Analytical and Research Labs Pvt. Ltd

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Technical Manager

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CIN : U74999TN2017PTC116807 / **GST No :** 33AAYCS7325R1ZA / **PAN No:** AAYCS7325R



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TEST REPORT

Report No.	SARL/24/2672	Report Date.	11.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Namiyandal SO
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2672	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	44.5	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	3.4	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

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/24/2735	Report Date.	18.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Kazhikulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2735	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	51.7	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	3.8	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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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/24/2736	Report Date.	18.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Namiyandal SO
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2736	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	50.1	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	24	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/24/2737	Report Date.	18.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Kazhikulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2737	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	48.1	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	3.5	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

8.05.24
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TEST REPORT

Report No.	SARL/24/2738	Report Date.	18.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Namiyandal SO
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2738	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	45.3	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	3.5	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

For Shrient Analytical and Research Labs Pvt. Ltd

8.05.24
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END OF THE REPORT

J. Gnanaprakasam
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/2739	Report Date.	18.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Karampoondi
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2739	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	57.1	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	6.1	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	10.4	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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Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/2740	Report Date.	18.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Iyangunnam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2740	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	46.9	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	4.3	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


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Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/2741	Report Date.	18.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Karampoondi
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2741	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	55.1	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	25.9	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	9.4	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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Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/2742	Report Date.	18.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Iyangunnam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2742	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	48.9	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.0	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	7.3	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/24/2743	Report Date.	18.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-NEAR PROPOSED 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-2743	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	72.1	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	33.9	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	12.8	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

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TEST REPORT

Report No.	SARL/24/2744	Report Date.	18.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Somaspad
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2744	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	53.7	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	5.2	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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Technical Manager

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TEST REPORT

Report No.	SARL/24/2745	Report Date.	18.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-NEAR PROPOSED 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-2745	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	67.3	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	31.7	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	11.3	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL –Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd


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Technical Manager

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TEST REPORT

Report No.	SARL/24/2746	Report Date.	18.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Somaspad
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2746	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	57.9	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	26.6	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	8.8	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. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/2809	Report Date.	25.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-NEAR PROPOSED 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-2809	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	61.7	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	29.1	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	9.3	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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Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/2810	Report Date.	25.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Somaspad
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2810	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	24.2	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	7.0	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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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/2811	Report Date.	25.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-NEAR PROPOSED 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-2811	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	58.5	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	27.5	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	8.0	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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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/2812	Report Date.	25.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Somaspad
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2812	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	62.1	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	28.6	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	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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Technical Manager

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TEST REPORT

Report No.	SARL/24/2813	Report Date.	25.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Karampoondi
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2813	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	49.1	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	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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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/2814	Report Date.	25.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Iyangunnam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2814	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	47.2	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	4.4	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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Technical Manager

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TEST REPORT

Report No.	SARL/24/2815	Report Date.	25.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Karampoondi
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2815	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	50.7	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	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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J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/2816	Report Date.	25.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Iyangunnam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2816	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	50.4	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	4.4	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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Technical Manager

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TEST REPORT

Report No.	SARL/24/2817	Report Date.	25.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Kazhikulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2817	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	43.3	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	19.6	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	3.1	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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END OF THE REPORT

J. 4
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

Please Contact:

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TEST REPORT

Report No.	SARL/24/2818	Report Date.	25.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Namiyandal SO
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2818	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	44.1	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	3.2	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

For Shrient Analytical and Research Labs Pvt. Ltd

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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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TEST REPORT

Report No.	SARL/24/2819	Report Date.	25.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Kazhikulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2819	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	45.7	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	3.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	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/24/2820	Report Date.	25.05.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Namiyandal SO
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2820	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	48.9	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	4.5	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	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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Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/2900	Report Date.	01.06.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Kazhikulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2900	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	53.5	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	24.5	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	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

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/24/2901	Report Date.	01.06.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Namiyandal SO
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2901	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	49.7	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	4.6	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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J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/2902	Report Date.	01.06.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Kazhikulam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-290	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	49.9	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	3.6	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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J. 4
Authorized Signatory
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TEST REPORT

Report No.	SARL/24/2903	Report Date.	01.06.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Namiyandal SO
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2903	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	44.9	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	3.4	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/24/2904	Report Date.	01.06.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Karampoondi
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2904	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	53.5	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	5.5	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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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/2905	Report Date.	01.06.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Iyangunnam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2905	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	54.3	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	5.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	10.1	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL – Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

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J. 4
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

Please Contact:

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TEST REPORT

Report No.	SARL/24/2906	Report Date.	01.06.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Karampoondi
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2906	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	54.7	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	5.8	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

For Shrient Analytical and Research Labs Pvt. Ltd

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TEST REPORT

Report No.	SARL/24/2907	Report Date.	01.06.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Iyangunnam
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2907	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	51.2	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	23.0	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	8.5	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/24/2908	Report Date.	01.06.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-NEAR PROPOSED 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-2908	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	74.5	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	35.1	60
3	Sulphur dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	6.7	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	13.3	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL – Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

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J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/2909	Report Date.	01.06.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Somaspad
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2909	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	64.5	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	29.7	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	10.8	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL – Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

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Technical Manager

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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R

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TEST REPORT

Report No.	SARL/24/2910	Report Date.	01.06.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-NEAR PROPOSED 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-2910	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	68.1	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	6.3	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	11.6	80
5	Carbon monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	-

Remarks: Limits: *National Ambient air quality standards from CPCB. BDL- Below detectable limit. DL – Detectable limit

For Shrient Analytical and Research Labs Pvt. Ltd

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Technical Manager

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TEST REPORT

Report No.	SARL/24/2911	Report Date.	01.06.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-Somaspad
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	By Mail	Sampling Duration	24 hrs
Sample Reference No	SARL/A/CHE-2911	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	57.3	100
2	Particulate Matter less than 2.5micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	26.4	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	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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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R

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TEST REPORT

Report No.	SARL/2024/2912	Report Date.	01.06.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyanganam Village, Kilpennathur Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	WATER
Sample Mark	W1-NEAR PROPOSED MINE LEASE AREA

Customer Reference	By Mail	Sampling Procedure	IS 17614: Part 14: 2021
Sample Reference No	SARL/W/CHE-2912	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	-	7.59	6.50-8.50
4	Electrical Conductivity	APHA 24 th Edition 2510 B: 2023	(µS/cm)	753.9	-
B.	Chemical parameters				
5	Total Dissolved Solids	APHA 24th Edition 2540-C: 2023	mg/L	450	2000
6	Total hardness (as CaCO3)	APHA 24th Edition 2340 C: 2023	mg/L	293	600
7	Calcium (as Ca)	IS 3025 (Part 40): 1991	mg/L	79.2	200
8	Magnesium (as Mg)	IS 3025 (Part 46): 1994	mg/L	22.8	100
9	Calcium Hardness (as CaCO3)	APHA 24th Edition 3500 Ca B: 2023	mg/L	198	-
10	Magnesium Hardness (as CaCO3)	APHA 24th Edition 3500 Mg B: 2023	mg/L	95.0	-
11	Total alkalinity (as CaCO3)	APHA 24th Edition 2320 B: 2023	mg/L	283	600
12	Chloride (as Cl)	APHA 24th Edition 4500 Cl- B: 2023	mg/L	90.5	1000



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TEST REPORT

Report No.	SARL/2024/2912
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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 (SO42-)	APHA 24th Edition 4500 SO42- E: 2023	mg/L	45.6	400
15	Iron (as Fe)	APHA 24th Edition 3500 Fe B: 2023	mg/L	0.05	0.3
16	Nitrate (as NO3)	IS 3025 (Part 34): 1988	mg/L	2.34	45
17	Fluoride (as F)	APHA 24th Edition 4500 F- D: 2023	mg/L	0.42	1.5
18	Manganese (as Mn)	APHA 24th Edition 3500 Mn B: 2023	mg/L	BDL (D.L - 0.05)	0.3

Remarks: *Drinking Water Specifications as per IS – 10500:2012. BDL – Below Detectable limit (DL - Detectable limit).

For Shrient Analytical and Research Labs Pvt. Ltd


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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/2024/2913

Report Date. 01.06.2024

Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyanganam Village,Kilpennathur Taluk,Tiruvannamalai District,Tamil Nadu
Sample Description	WATER
Sample Mark	W2-Somaspadi

Customer Reference	By Mail	Sampling Procedure	IS 17614: Part 14: 2021
Sample Reference No	SARL/W/CHE-2913	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	-	7.62	6.50-8.50
4	Electrical Conductivity	APHA 24 th Edition 2510 B: 2023	(µS/cm)	1352	-
B.	Chemical parameters				
5	Total Dissolved Solids	APHA 24th Edition 2540-C: 2023	mg/L	810	2000
6	Total hardness (as CaCO3)	APHA 24th Edition 2340 C: 2023	mg/L	309	600
7	Calcium (as Ca)	IS 3025 (Part 40): 1991	mg/L	66.5	200
8	Magnesium (as Mg)	IS 3025 (Part 46): 1994	mg/L	34.2	100
9	Calcium Hardness (as CaCO3)	APHA 24th Edition 3500 Ca B: 2023	mg/L	166	-
10	Magnesium Hardness (as CaCO3)	APHA 24th Edition 3500 Mg B: 2023	mg/L	143	-
11	Total alkalinity (as CaCO3)	APHA 24th Edition 2320 B: 2023	mg/L	424	600
12	Chloride (as Cl)	APHA 24th Edition 4500 Cl- B: 2023	mg/L	195	1000



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TEST REPORT

Report No.	SARL/2024/2913
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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	210	400
15	Iron (as Fe)	APHA 24th Edition 3500 Fe B: 2023	mg/L	0.11	0.3
16	Nitrate (as NO ₃)	IS 3025 (Part 34): 1988	mg/L	4.35	45
17	Fluoride (as F)	APHA 24th Edition 4500 F- D: 2023	mg/L	0.47	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/2024/2914	Report Date.	01.06.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village,Kilpennathur Taluk,Tiruvannamalai District,Tamil Nadu
Sample Description	WATER
Sample Mark	W3-Karampoondi

Customer Reference	By Mail	Sampling Procedure	IS 17614: Part 14: 2021
Sample Reference No	SARL/W/CHE-2914	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	-	7.05	6.50-8.50
4	Electrical Conductivity	APHA 24 th Edition 2510 B: 2023	(µS/cm)	1579	-
B.	Chemical parameters				
5	Total Dissolved Solids	APHA 24th Edition 2540-C: 2023	mg/L	950	2000
6	Total hardness (as CaCO3)	APHA 24th Edition 2340 C: 2023	mg/L	519	600
7	Calcium (as Ca)	IS 3025 (Part 40): 1991	mg/L	124	200
8	Magnesium (as Mg)	IS 3025 (Part 46): 1994	mg/L	50.4	100
9	Calcium Hardness (as CaCO3)	APHA 24th Edition 3500 Ca B: 2023	mg/L	309	-
10	Magnesium Hardness (as CaCO3)	APHA 24th Edition 3500 Mg B: 2023	mg/L	210	-
11	Total alkalinity (as CaCO3)	APHA 24th Edition 2320 B: 2023	mg/L	384	600
12	Chloride (as Cl)	APHA 24th Edition 4500 Cl- B: 2023	mg/L	264	1000



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TEST REPORT

Report No.	SARL/2024/2914
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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	229	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	1.98	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


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Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/2024/2915	Report Date.	01.06.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village,Kilpennathur Taluk,Tiruvannamalai District,Tamil Nadu
Sample Description	WATER
Sample Mark	W4-Iyangunnam

Customer Reference	By Mail	Sampling Procedure	IS 17614: Part 14: 2021
Sample Reference No	SARL/W/CHE-2915	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	-	6.60	6.50-8.50
4	Electrical Conductivity	APHA 24 th Edition 2510 B: 2023	(µS/cm)	2255	-
B.	Chemical parameters				
5	Total Dissolved Solids	APHA 24th Edition 2540-C: 2023	mg/L	1350	2000
6	Total hardness (as CaCO3)	APHA 24th Edition 2340 C: 2023	mg/L	582	600
7	Calcium (as Ca)	IS 3025 (Part 40): 1991	mg/L	130	200
8	Magnesium (as Mg)	IS 3025 (Part 46): 1994	mg/L	61.8	100
9	Calcium Hardness (as CaCO3)	APHA 24th Edition 3500 Ca B: 2023	mg/L	325	-
10	Magnesium Hardness (as CaCO3)	APHA 24th Edition 3500 Mg B: 2023	mg/L	257	-
11	Total alkalinity (as CaCO3)	APHA 24th Edition 2320 B: 2023	mg/L	436	600
12	Chloride (as Cl)	APHA 24th Edition 4500 Cl- B: 2023	mg/L	394	1000



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TEST REPORT

Report No.	SARL/2024/2915
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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 (SO42-)	APHA 24th Edition 4500 SO42- E: 2023	mg/L	365	400
15	Iron (as Fe)	APHA 24th Edition 3500 Fe B: 2023	mg/L	0.04	0.3
16	Nitrate (as NO3)	IS 3025 (Part 34): 1988	mg/L	6.89	45
17	Fluoride (as F)	APHA 24th Edition 4500 F- D: 2023	mg/L	0.52	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/2024/2916	Report Date.	01.06.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village,Kilpennathur Taluk,Tiruvannamalai District,Tamil Nadu
Sample Description	WATER
Sample Mark	W5-Kazhikulam

Customer Reference	By Mail	Sampling Procedure	IS 17614: Part 14: 2021
Sample Reference No	SARL/W/CHE-2916	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	-	7.06	6.50-8.50
4	Electrical Conductivity	APHA 24 th Edition 2510 B: 2023	(µS/cm)	1627	-
B.	Chemical parameters				
5	Total Dissolved Solids	APHA 24th Edition 2540-C: 2023	mg/L	974	2000
6	Total hardness (as CaCO3)	APHA 24th Edition 2340 C: 2023	mg/L	586	600
7	Calcium (as Ca)	IS 3025 (Part 40): 1991	mg/L	165	200
8	Magnesium (as Mg)	IS 3025 (Part 46): 1994	mg/L	41.8	100
9	Calcium Hardness (as CaCO3)	APHA 24th Edition 3500 Ca B: 2023	mg/L	412	-
10	Magnesium Hardness (as CaCO3)	APHA 24th Edition 3500 Mg B: 2023	mg/L	174	-
11	Total alkalinity (as CaCO3)	APHA 24th Edition 2320 B: 2023	mg/L	291	600
12	Chloride (as Cl)	APHA 24th Edition 4500 Cl- B: 2023	mg/L	277	1000



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TEST REPORT

Report No.	SARL/2024/2916
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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	247	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	5.64	45
17	Fluoride (as F)	APHA 24th Edition 4500 F- D: 2023	mg/L	0.54	1.5
18	Manganese (as Mn)	APHA 24th Edition 3500 Mn B: 2023	mg/L	BDL (D.L - 0.05)	0.3

Remarks: *Drinking Water Specifications as per IS – 10500:2012. BDL – Below Detectable limit (DL - Detectable limit).

For Shrient Analytical and Research Labs Pvt. Ltd

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END OF THE REPORT

Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/2024/2917	Report Date.	01.06.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village,Kilpennathur Taluk,Tiruvannamalai District,Tamil Nadu
Sample Description	WATER
Sample Mark	W6-Namiyandal SO

Customer Reference	By Mail	Sampling Procedure	IS 17614: Part 14: 2021
Sample Reference No	SARL/W/CHE-2917	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	-	6.98	6.50-8.50
4	Electrical Conductivity	APHA 24 th Edition 2510 B: 2023	(µS/cm)	2268	-
B.	Chemical parameters				
5	Total Dissolved Solids	APHA 24th Edition 2540-C: 2023	mg/L	1362	2000
6	Total hardness (as CaCO3)	APHA 24th Edition 2340 C: 2023	mg/L	576	600
7	Calcium (as Ca)	IS 3025 (Part 40): 1991	mg/L	141	200
8	Magnesium (as Mg)	IS 3025 (Part 46): 1994	mg/L	53.8	100
9	Calcium Hardness (as CaCO3)	APHA 24th Edition 3500 Ca B: 2023	mg/L	352	-
10	Magnesium Hardness (as CaCO3)	APHA 24th Edition 3500 Mg B: 2023	mg/L	224	-
11	Total alkalinity (as CaCO3)	APHA 24th Edition 2320 B: 2023	mg/L	420	600
12	Chloride (as Cl)	APHA 24th Edition 4500 Cl- B: 2023	mg/L	456	1000



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TEST REPORT

Report No.	SARL/2024/2917
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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 (SO42-)	APHA 24th Edition 4500 SO42- E: 2023	mg/L	354	400
15	Iron (as Fe)	APHA 24th Edition 3500 Fe B: 2023	mg/L	0.05	0.3
16	Nitrate (as NO3)	IS 3025 (Part 34): 1988	mg/L	4.62	45
17	Fluoride (as F)	APHA 24th Edition 4500 F- D: 2023	mg/L	0.59	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/24/2918	Report Date.	01.06.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai District, Tamil Nadu		
Sample Description	SOIL		
Sample Mark	S1-NEAR PROPOSED MINE LEASE AREA		

Customer Reference	By Mail	Sampling Procedure	-
Sample Reference No	SARL/SO/CHE-2918	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	-	6.78
2	Electrical Conductivity	IS 14767: 2000	µmhos/cm	70.24
3	Dry matter content	IS 15106: 2002	%	95.68
4	Water Content	IS 15106: 2002	%	4.32
5	Organic Matter	IS 2720: Part 22: 1972	%	1.25
6	Nitrogen and Nitrogenous compounds	IS 14684: 1999	mg/kg	232
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	%	61.00
	i. Sand	Methods Manual - Soil testing in India - P. No-67: 2011	%	36.95
	ii. Silt	Methods Manual - Soil testing in India - P. No-67: 2011	%	53.74
	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	0.69
10	Sodium as Na	USEPA 3050 B: 1996	mg/kg	745
11	Potassium as K	USEPA 3050 B: 1996	mg/kg	366
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	%	20.7
14	Water holding capacity	Methods Manual - Soil testing in India - P. No-76: 2011	Inches/foot	38

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/24/2919	Report Date.	01.06.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai District, Tamil Nadu		
Sample Description	SOIL		
Sample Mark	S2-Somaspadi		

Customer Reference	By Mail	Sampling Procedure	-
Sample Reference No	SARL/SO/CHE-2919	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	-	6.66
2	Electrical Conductivity	IS 14767: 2000	µmhos/cm	158.80
3	Dry matter content	IS 15106: 2002	%	94.67
4	Water Content	IS 15106: 2002	%	5.33
5	Organic Matter	IS 2720: Part 22: 1972	%	1.95
6	Nitrogen and Nitrogenous compounds	IS 14684: 1999	mg/kg	364
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	%	37.76
	i. Sand	Methods Manual - Soil testing in India - P. No-67: 2011	%	21.04
	ii. Silt	Methods Manual - Soil testing in India - P. No-67: 2011	%	41.20
	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	0.78
10	Sodium as Na	USEPA 3050 B: 1996	mg/kg	998
11	Potassium as K	USEPA 3050 B: 1996	mg/kg	1056
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	%	24.4
14	Water holding capacity	Methods Manual - Soil testing in India - P. No-76: 2011	Inches/foot	36

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:

For any Technical Issues & Complaints: vimalnath@shrientanalytical.com

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TEST REPORT

Report No.	SARL/24/2920	Report Date.	01.06.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	SOIL
Sample Mark	S3-Karampoondi

Customer Reference	By Mail	Sampling Procedure	-
Sample Reference No	SARL/SO/CHE-2920	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	-	7.26
2	Electrical Conductivity	IS 14767: 2000	µmhos/cm	104.30
3	Dry matter content	IS 15106: 2002	%	96.14
4	Water Content	IS 15106: 2002	%	3.86
5	Organic Matter	IS 2720: Part 22: 1972	%	2.09
6	Nitrogen and Nitrogenous compounds	IS 14684: 1999	mg/kg	297
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	%	17.89
	ii. Silt	Methods Manual - Soil testing in India - P. No-67: 2011	%	65.70
	iii. Clay	Methods Manual - Soil testing in India - P. No-67: 2011	%	16.41
9	Phosphorus as P	IS 10158: 1982	mg/kg	1.32
10	Sodium as Na	USEPA 3050 B: 1996	mg/kg	1020
11	Potassium as K	USEPA 3050 B: 1996	mg/kg	976
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	%	23.1
14	Water holding capacity	Methods Manual - Soil testing in India - P. No-76: 2011	Inches/foot	40

BDL – Below Detectable limit (DL - Detectable limit).

For Shrient Analytical and Research Labs Pvt. Ltd


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Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/2921	Report Date.	01.06.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai District, Tamil Nadu		
Sample Description	SOIL		
Sample Mark	S4-Iyangunnam		

Customer Reference	By Mail	Sampling Procedure	-
Sample Reference No	SARL/SO/CHE-2921	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	-	7.05
2	Electrical Conductivity	IS 14767: 2000	µmhos/cm	110.60
3	Dry matter content	IS 15106: 2002	%	97.84
4	Water Content	IS 15106: 2002	%	2.16
5	Organic Matter	IS 2720: Part 22: 1972	%	1.68
6	Nitrogen and Nitrogenous compounds	IS 14684: 1999	mg/kg	255
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	%	36.47
	ii. Silt	Methods Manual - Soil testing in India - P. No-67: 2011	%	43.60
	iii. Clay	Methods Manual - Soil testing in India - P. No-67: 2011	%	19.93
9	Phosphorus as P	IS 10158: 1982	mg/kg	0.96
10	Sodium as Na	USEPA 3050 B: 1996	mg/kg	812
11	Potassium as K	USEPA 3050 B: 1996	mg/kg	765
12	Total soluble sulphates	IS 2720: Part 27: 1977	%	BDL (D.L.0.02)
13	Porosity	SARL/SOP/SO/001 (Issue No:01, Issue Date – 01.03.2023): 2023	%	21.6
14	Water holding capacity	Methods Manual - Soil testing in India - P. No-76: 2011	Inches/foot	42

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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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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TEST REPORT

Report No.	SARL/24/2922	Report Date.	01.06.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyanganam Village, Kilpennathur Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	SOIL
Sample Mark	S5-Kazhikulam

Customer Reference	By Mail	Sampling Procedure	-
Sample Reference No	SARL/SO/CHE-2922	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	-	7.56
2	Electrical Conductivity	IS 14767: 2000	µmhos/cm	174.10
3	Dry matter content	IS 15106: 2002	%	90.70
4	Water Content	IS 15106: 2002	%	9.30
5	Organic Matter	IS 2720: Part 22: 1972	%	2.09
6	Nitrogen and Nitrogenous compounds	IS 14684: 1999	mg/kg	366
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	%	5.86
	i. Sand	Methods Manual - Soil testing in India - P. No-67: 2011	%	39.55
	ii. Silt	Methods Manual - Soil testing in India - P. No-67: 2011	%	54.59
	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	1.75
10	Sodium as Na	USEPA 3050 B: 1996	mg/kg	656
11	Potassium as K	USEPA 3050 B: 1996	mg/kg	794
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	%	20.5
14	Water holding capacity	Methods Manual - Soil testing in India - P. No-76: 2011	Inches/foot	40

BDL – Below Detectable limit (DL - Detectable limit).

For Shrient Analytical and Research Labs Pvt. Ltd

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J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/24/2923	Report Date.	01.06.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai District, Tamil Nadu
Sample Description	SOIL
Sample Mark	S6-Namiyandal SO

Customer Reference	By Mail	Sampling Procedure	-
Sample Reference No	SARL/SO/CHE-2923	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	-	6.96
2	Electrical Conductivity	IS 14767: 2000	µmhos/cm	95.64
3	Dry matter content	IS 15106: 2002	%	97.78
4	Water Content	IS 15106: 2002	%	2.22
5	Organic Matter	IS 2720: Part 22: 1972	%	1.65
6	Nitrogen and Nitrogenous compounds	IS 14684: 1999	mg/kg	455
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	%	6.48
	i. Sand	Methods Manual - Soil testing in India - P. No-67: 2011	%	46.68
	ii. Silt	Methods Manual - Soil testing in India - P. No-67: 2011	%	46.84
	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	1.11
10	Sodium as Na	USEPA 3050 B: 1996	mg/kg	1042
11	Potassium as K	USEPA 3050 B: 1996	mg/kg	896
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	%	22.3
14	Water holding capacity	Methods Manual - Soil testing in India - P. No-76: 2011	Inches/foot	36

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For Shrient Analytical and Research Labs Pvt. Ltd


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Technical Manager

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TEST REPORT

Report No.	SARL/24/2924
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Report Date.	01.06.2024
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Customer Name & Address	Rough stone & Gravel Quarry of Thiru.A.Krishnamoorthy extent of 2.50.0 Ha in S.F.No. 135 (Part-6) Govt Poramboke Land at Iyangunam Village, Kilpennathur Taluk, Tiruvannamalai 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-2924	Date of Monitoring	25.05.2024/ 26.05.2024
Sample Collected by	LABORATORY		

Time in hrs	N1	N2	N3	N4	N5	N6
06.00	41.4	37.5	41.2	40.7	37.5	37.0
07.00	43.2	38.2	40.8	42.0	39.5	38.9
08.00	44.6	42.3	42.3	42.8	41.2	42.7
09.00	43.0	44.6	47.7	47.9	45.8	46.9
10.00	47.7	50.7	49.8	49.9	50.8	47.2
11.00	43.8	51.2	48.9	44.8	52.3	42.8
12.00	44.6	48.8	49.5	44.0	51.2	44.8
13.00	46.5	50.7	48.8	50.8	48.8	42.9
14.00	43.9	47.2	48.3	51.2	46.6	43.7
15.00	44.3	46.8	47.7	48.9	47.2	45.9
16.00	41.6	50.8	40.5	50.7	53.7	48.0
17.00	43.8	52.0	39.9	49.3	51.2	49.2
18.00	42.3	48.9	42.3	45.3	52.8	46.9
19.00	40.7	47.2	43.9	42.3	47.7	47.7
20.00	41.4	38.9	40.4	40.5	42.5	43.6
21.00	38.8	38.2	38.9	40.0	42.0	42.8
22.00	39.4	37.7	39.5	38.7	38.9	40.7
23.00	40.5	37.2	38.7	37.3	38.0	39.9
24.00	37.6	37.0	37.6	38.2	37.7	37.8
01.00	39.3	36.5	36.9	37.8	38.3	36.9
02.00	37.2	37.3	37.0	37.0	39.0	37.0
03.00	36.3	38.6	37.3	36.5	43.0	38.2
04.00	37.6	38.7	37.6	39.2	40.8	39.5
05.00	39.6	37.8	36.5	40.4	39.8	38.7

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TEST REPORT

Report No.	SARL/24/2924
------------	--------------

Report Date.	01.06.2024
--------------	------------

	N1	N2	N3	N4	N5	N6
DAY EQUIVALENT	43.8	48.1	46.1	47.3	49.1	45.4
NIGHT EQUIVALENT	38.6	37.7	37.7	38.3	39.8	38.8
DAY & NIGHT EQUIVALENT	42.6	46.5	44.6	45.8	47.6	44.1

Remarks:

LOCATIONS:

N1-Near Proposed ML Area

N2-Somaspadi

N3-Karampoondi

N4-Iyangunnam

N5-Kazhikulam

N6-Namiyandal SO

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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CIN : U74999TN2017PTC116807 / GST No : 33AAYCS7325R1ZA / PAN No: AAYCS7325R



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

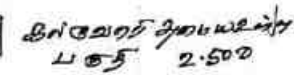


N. Venkateswaran
Chief Executive Officer



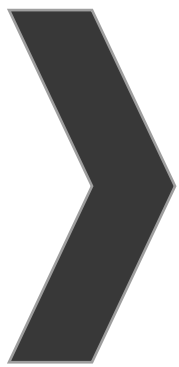
ANNEXURE-10

பெயர்: இயங்குணம்

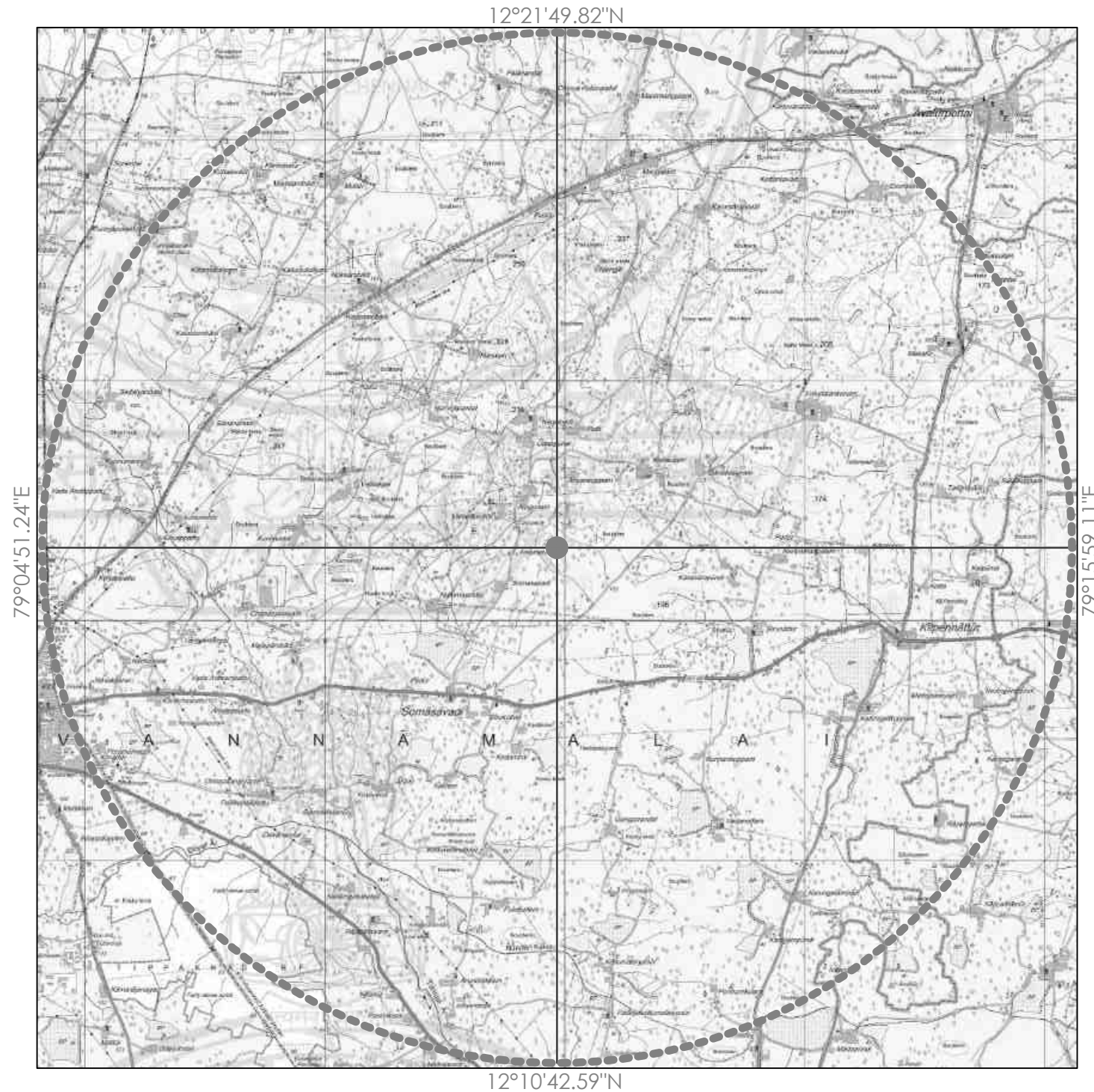


	(B7.0)	
	86.2	63.2
	19.0	6.6
	Q10A	
	(163.6)	
7.0	45.4	
5.0	19.2	
	P10G	
	(135.6)	
	90.0	7.2
7.2	89.0	
	Q10F	
	(330.8)	
	177.8	5.0
32.4	172.6	
19.2	33.4	
	A10B	
	(232.0)	
21.6	118.6	
	G10A	
	(132.2)	
	98.0	14.8
32.8	38.0	
	F10G	
	(17.4)	
	5.8	1.8
	4.6	13.2
	F10E	
	(87.0)	
	39.2	14.8
	E10F	
	(111.4)	
32.6	80.4	
	D10E	
	(125.8)	
1.6	79.4	
6.4	70.6	
20.6	27.6	
	B10C	
	(176.8)	
6.4	57.6	
	A10B	

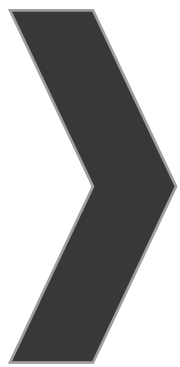
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ANNEXURE-11

[illegible]

483



ANNEXURE-12



தமிழ்நாடு தமிழ்நாடு TAMILNADU 27.1.2025

100/-
EK 069444

A. Krishnamoorthi

M. J.

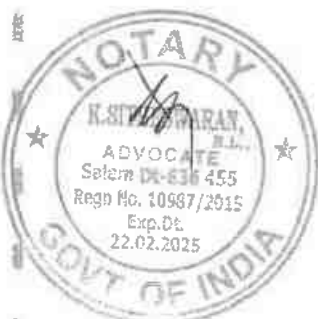
Tiruvannamalai

AFFIDAVIT TO SEIAA, TAMIL NADU

ம. கோல் (எ) காரிமுரளி, அ.கா.க.
உரிமை எண்: 6206-14/91
கச்சேரி வீதி, கும்பகோணம்
மாவட்டம்

Thiru.A.Krishnamoorthy, S/o.Arumugam, residing at No.116/1, Main Karathur, Thandrapattu Taluk, Tiruvannamalai District, have applied for getting Environmental Clearance to SEIAA, Tamil Nadu for quarry lease for Rough Stone quarry over an extent is 2.50.0 hectares of Government lands in S.F.Nos. 135 (Part-6) of Iyunkunam Village, Kilpennathur Taluk, Tiruvannamalai District, Tamil Nadu State, do hereby solemnly declare and sincerely affirm that;

1. None of the following features are located within a 10 km radius from my proposed quarry site;
 - a. Protected areas notified under the Wildlife (Protection) Act, 1972 (NBWL).
 - b. Wild Life Sanctuary.
 - c. Critically polluted areas as notified by the central pollution control board constituted under Water (Prevention and Control of Pollution) Act 1974.



A. Krishnamoorthi

2. Proposal for Corporate Environment Responsibility (CER) activities are given as follows:

Sl. No	Proposed CER Activities	Cost (In Lakhs)
1	Providing books & racks for the library Plantations inside the school premises Providing benches, desks and repairing of classrooms School Toilet maintenance for the entire lease period	5.0
Total CER Cost		5.0

The above proposed CER cost will be spent for nearby Government school. I assure you that, I will complete the above proposed Corporate Environment Responsibility (CER) activities before the commencement of the quarrying operations.

3. Proposal for Environmental Management Plan (EMP) and its cost is given as follows;

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	0.25	0.25
	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	0.25	0.03
	No overloading of trucks/tippers/tractors	0.00	0.05
	Stone carrying trucks will be covered by tarpaulin	0.00	0.10
	Enforcing speed limits of 20 km/hr within ML area	0.15	0.02
	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	0.50
	Installing wheel wash system near gate of quarry	0.50	0.20
Sub-Total (A)		9.15	1.74

A. சிவசுந்தரம்

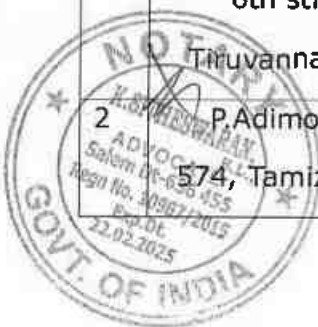
Noise Environment	Provision for Portable blaster shed	0.50	0.02
	NONEL Blasting will be practiced to control Ground vibration and fly rocks	0.00	4.66
Sub-Total (B)		0.50	4.68
Waste Management	Provision for domestic waste collection and disposal through authorized agency	0.25	0.20
	Installation of dust bins	0.05	0.02
Sub-Total (C)		0.30	0.22
Mine Closure	Provision for garland drain @ Rs. 10,000/- per Hectare with maintenance of Rs. 5,000/- per annum	0.25	0.05
	Per Hectare fencing Cost @ Rs. 2,00,000/- with Maintenance of Rs 10,000/- per annum	5.00	0.10
	Plantation inside ML area (240 Nos.)	0.48	0.07
	Plantation outside ML area (1010 Nos.)	3.03	0.30
Sub-Total (D)		8.76	0.53
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	0.84	0.21
	Health checkup for workers will be provisioned	0.00	0.21
	First Aid facility Provision	0.00	0.05
	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	1.25	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	4.80
Sub-Total (E)		2.59	5.95
Grant Total (A+B+C+D+E+F)		21.30	13.12
Total EMP Cost for 5 years is 93.80 lakhs i.e., Rs.21.30 Lakhs of Capital Cost + Rs. 72.50 Lakhs of Recurring cost (For 5 Years)			



A. Srinivasan

4. Details of quarries located within a 500m radius from the applied mine lease area:

S. No	Name and address of the lessee	Village & S. F. Nos	Extent in Hectare	Lease Period	Remarks
a. Existing Quarries -Nil-					
b. Abandoned Quarries					
1	Sumathi Chandran, Iynkunam village, Tiruvannamalai.	Iyangunam 135(Part-1)	1.00.0Ha	08.09.2008 to 07.09.2018	Lease Expired
2	R.Karthikeyan 23/29, Lakshmipuram, Gandhi Nagar, Tiruvannamalai	Iyangunam 135(Part-3)	1.00.0Ha	20.04.2011 to 19.04.2021	
c. Present Proposed Quarries					
1	A.Krishnamoorthi, S/o.Arumugam, No.116/ 1, Manikkara street, Thandaramapattu Taluk Tiruvannamalai.	Iyangunam 135 (Part-6)	2.50.0Ha	-	Proposed Quarry
d. Future Proposed Quarries					
1	Tmt.A.Kalpana, W/o.Adhimoolam, No.4, Gandhi nagar, 6th street, Tiruvanna malai.	Iyangunam 135 (Part 4)	1.00.0Ha	-	Future Proposed Quarries
2	P.Adimoolam, 574, Tamizhnagar,	Iyangunam 135(Part-5)	1.00.0Ha	-	



A. S. Sivasubramaniam

	Tiruavannamalai				
3	P.Adimoolam, 57A, Tamizhnagar, Tiruavannamalai	Iyangunam 135 (Part 7)	4.00.0Ha	-	
4	Thiru.Alavudeen Bhasa, Director of City Blue metals, Iyangunam village, Tiruvannamalai.	Iyangunam 135 (Part 2)	1.00.0Ha	-	

The total Cluster Extent within the 500m radius (Proposed - 1no + Future Proposed - 4nos) works out to 9.50.0 Ha.

5. There will be no hindrance/disturbance due to the proposed quarrying activities to the people living nearby my proposed quarry site.
6. There are no approved habitations within a 300m radius from the periphery of my proposed quarry lease.
7. I assure you that the greenbelt will be developed and maintained before commencing the quarrying operations as proposed in the EC application.
8. I assure you that the required life insurance policy for the employees engaged in the quarrying operations will be taken without fail.
9. The existing main road connecting the quarry road will be maintained in good condition and it will be utilized for the mineral transportation.
10. 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.
11. Personnel Protective Equipment (PPE) will be provided to all the employees engaged in the quarrying operations.
12. No permanent structures, such as temples, etc., are located within a 300 meter radius of the periphery of our quarry.
13. I will erect the wire fence with barbed wires all around the periphery of the quarry lease before the commencement of mining activities.
14. The mining operations will be carried out in a systematic and scientific manner by employing a qualified statutory person as per the requirement of the Mines Act, Mines Rules, and other Guidelines issued by Govt.
15. I will inform DGMS before the commencement of mining activities.



A. Subramanian

16. To the best of our knowledge, I ensure to do the social and environmental commitments as mentioned in the mining plan.
17. The blasting operation in the proposed quarry will be carried by the statutory competent person as per MMR 1961 such blaster, mining mate, mine foreman, II/I class mines manager appointed by the proponent.
18. I will ensure that all the EMP measures are followed for the entire lease period.

Notary Sign & Seal

Lessee Sign & Seal

A. Krishnamoorthy

A. Krishnamoorthy

K. Sitheswaran
K. SITHESWARAN, BL.,
Advocate & Notary Public
Opp. BDO Office, Omalur (Tk),
SALEM (Dt)-636 455.
Regn. No: 10987/2015.
Cell: 94435 16211



A. Krishnamoorthy