

**DRAFT EIA / EMP FOR
PROPOSED ROUGH STONE QUARRY
CATEGORY B1 - CLUSTER (CLUSTER AREA – 5.19.00 Ha.)**

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

APPROVED TOR Lr.No.SEIAA-TN/F.No.10023/SEAC/ToR-1499/2023 Dated: 19.07.2023

PROPOSED QUARRY LEASE DETAILS	
SURVEY NOS	214/1(Part 3 & Part 4)
VILLAGE	THELLARAMPATTU
TALUK	CHETPET
DISTRICT	TIRUVANNAMALAI
EXTENT	3.93.50 Ha
PROPOSED PRODUCTION FOR FIVE YEARS	4,06,225 M ³ OF ROUGH STONE & 15,670 M ³ OF TOP SOIL
LAND	GOVERNMENT LAND

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

Category of the Project: B1 Cluster Mining, Total Cluster Area – 5.19.00 Ha

Baseline Monitoring Period – October to December 2023

APPLICANT

**THIRU. A.R. GOVINDAN
S/o. ARUNACHALAM,
No:302, Raja Agraharam, 3rd Cross Street, Poonamallee,
Tiruvallur – 600 056**

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**

May -2024



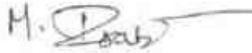
AMENDMENT PAGE

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ACKNOWLEDGEMENT

M/s. Global Mining Solutions, Salem is very much thankful to Thiru.A.R. Govindan, (Lessee) for the confidence and trust placed on our organization for carrying out Environmental Impact Assessment (EIA) study for the proposed Rough Stone Quarry over a cluster area of 5.19.00 Ha at Thellarampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu and formulating the Environmental Management Plan (EMP). We also gratefully acknowledge the cooperation and assistance provided by concerned government authorities for collection of secondary information for the preparation of EIA/EMP report. Our sincere thanks to the local people of Thellarampattu Village and the nearby villages for their whole hearted cooperation and constant involvement during the entire field study without which the study would not have been possible.

For: M/s. Global Mining Solutions



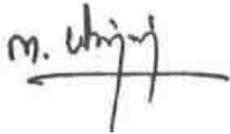
(M.Prabhu)

Managing Director

UNDERTAKING

In Line with MoEF 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 cluster area of 5.19.00 Ha at Thellarampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu.

For M/s. Global Mining Solutions



Name: Manikandan Manickam

EIA Coordinator – Mining of Minerals

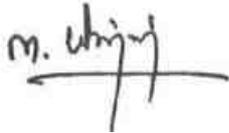
Global Mining Solutions

UNDERTAKING

In Line with MOEF 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 Letter No: .SEIAA-TN/F.No.10023/SEAC/ToR-1499/2023, dated: 19.07.2023 for preparation of EIA/EMP report for the proposed Rough Stone Quarry over a cluster area of 5.19.00 Ha at Thellampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu, for the production of 4,06,225 Cu.m of Rough Stone from the proposed lease area and the details has been complied in the EIA/EMP report is factually correct.

The EIA/EMP report has been prepared by M/s. Global Mining Solutions (GMS), Salem. GMS is a NABET accredited consultant for preparation of EIA/EMP report of Mining of Minerals (Opencast only) vide certificate No. NABET/EIA/2326/IA 0110 valid till 04.01.2026.

For M/s. Global Mining Solutions



*Name: Manikandan Manickam
EIA Coordinator – Mining of Minerals
Global Mining Solutions*

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellarampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

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Certificate of Accreditation

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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.
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Valid up to
January 4, 2026

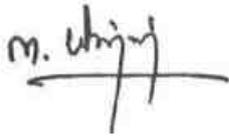
For the updated List of Accredited EIA Consultant Organizations with approved Sectors please refer to the QCI-NABET website.

ANNEXURE - VII

Declaration by Experts contributing to the proposed Rough Stone Quarry over a cluster area of 5.19.00 Ha at Thellampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu.

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

EIA Coordinator Name: M. Manikandan Manickam



Signature & Date

Period of involvement: October 2023 to December 2023.

Contact information:

M/s Global Mining Solutions

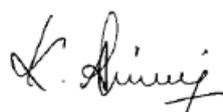
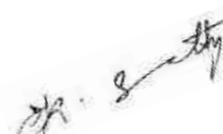
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Kottamettupatty, Omalur,

Salem, Tamil Nadu – 636 455

S. No.	Functional areas	Name of the expert/s	Involvement (period and task**)	Signature and Date
1	AP	Dhanalakshmi Ramanathan	Assessment of existing air quality, Impact of the project on ambient air and suggested mitigation measures for air pollution.	

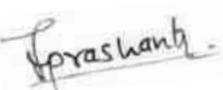
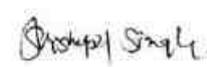
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			<u>Period: October 2023 to December 2023.</u>	
2	WP	Abirami Kaliaperumal	Assessment of existing water quality, impact of the project on surface and ground water quality, suggested mitigation measures for minimizing the impact. <u>Period: October 2023 to December 2023.</u>	
3	SHW	Ramadoss N	Assessment of waste generated from the project, suggested waste management practices. <u>Period: October 2023 to December 2023.</u>	
4	SE	Sarasvathy K	Baseline SE study. Data compilation and assessment. Impact of the project on SE status of the area. Formulation of CER plan. <u>Period: October 2023 to December 2023.</u>	
5	EB	Saravanan S	Baseline data collection of related to ecology of the area. <u>Period: October 2023 to December 2023.</u>	
6	HG	Ravinthiran N	Hydrogeological feature of the area. Ground water depth and impact	

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			<p><i>of project on ground water of the area.</i></p> <p><u><i>Period: October 2023 to December 2023.</i></u></p>	
7	AQ	Srilatha Thiruveedhula	<p><i>Air quality modeling utilizing the area source model. Predication of the ground level concentration of the dust. Suggesting suitable mitigation measures.</i></p> <p><u><i>Period: October 2023 to December 2023.</i></u></p>	T.Srilatha
8	NV	Dhanalakshmi Ramanathan	<p><i>Ambient noise study of the area. Incremental noise generation due to quarry operation and impact of the noise due to the project.</i></p> <p><u><i>Period: October 2023 to December 2023.</i></u></p>	R.Dhams
9	LU	Srilatha Thiruveedhula	<p><i>Preparation of land use map based on satellite imagery. Land use classification and analysis. Impact prediction of the project on the surrounding land environment.</i></p> <p><u><i>Period: October 2023 to December 2023.</i></u></p>	T.Srilatha

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10	RH	S.V. Prashant	<p><i>Identification of the Risk related to the mining activities. Preparation of emergency disaster management plan. Plan for supply of safety equipment for the worker.</i></p> <p><u>Period: October 2023 to December 2023.</u></p>	
11	SC	Shisupal Sing	<p><i>Soil monitoring, secondary data collection on soil type, soil management practices, utilization of topsoil.</i></p> <p><u>Period: October 2023 to December 2023.</u></p>	
12	GEO	Valliappan Meyyappan	<p><i>Geological map, stability of quarry and dump, management plan for mine stability, after use of mining quarry and geological feature of the area.</i></p> <p><u>Period: October 2023 to December 2023.</u></p>	

Contents

1.0 INTRODUCTION

1.1	PURPOSE OF THE REPORT	88
1.2	IDENTIFICATION OF PROJECT AND PROJECT PROPONENT.....	91
1.2.1	IDENTIFICATION OF PROJECT	91
1.2.2	IDENTIFICATION OF PROJECT PROPONENT	91
1.3	BRIEF DESCRIPTION OF THE PROJECT	91
1.3.1	NATURE AND SIZE OF THE PROJECT	91
1.3.2	ATURE OF THE PROJECT.....	93
1.3.3	LOCATION OF PROJECT	93
1.4	IMPORTANCE OF THE PROJECT TO THE REGION	93
1.5	REGULATORY COMPLIANCES.....	93
1.5.1	PRESENT LEGAL STATUS.....	95
1.5.2	SCREENING	96
1.5.3	SCOPE OF THE STUDY.....	96
1.6	NEED AND JUSTIFICATION OF THE PROJECT	97
1.7	STRUCTURE OF THE REPORT.....	98
2.0	PROJECT DESCRIPTION.....	100
2.1	TYPE OF THE PROJECT	100
2.2	NEED FOR THE PROJECT	100
2.3	LOCATION OF THE PROJECT.....	100
2.4	LAND USE PATTERN OF THE PROJECT AREA.....	107
2.5	SIZE AND MAGNITUDE OF THE OPERATION	107
2.6	TOPOGRAPHY AND DRAINAGE.....	107
2.7	GEOLOGY.....	107
2.7.1	REGIONAL GEOLOGY	107
2.7.2	LOCAL GEOLOGY	108
2.8	RESOURCES AND RESERVES.....	109
2.8.1	MINEABLE RESERVES	109
2.9	PROCESS DESCRIPTION AND TECHNOLOGY	110
2.9.1	PROCESS DESCRIPTON	110
2.9.2	DRILLING AND BLASTING PARAMETERS	113

2.9.3	TYPE OF EXPLOSIVE.....	113
2.9.4	STORAGE OF EXPLOSIVES	113
2.9.5	PRODUCTION SCHEDULE.....	114
2.9.6	DISPOSAL OF WASTE	114
2.10	CONCEPTUAL MINING PLAN / FINAL MINE CLOSURE PLAN	115
2.11	PROJECT REQUIREMENT.....	117
2.11.1	WATER REQUIREMENT AND SOURCE.....	117
2.11.2	POWER REQUIREMENT	117
2.11.3	FUEL REQUIREMENT.....	117
2.11.4	EMPLOYMENT GENERATION.....	118
2.11.5	INFRASTRUCTURE REQUIREMENT.....	118
2.11.6	PROJECT COST	118
2.11.7	PROJECT IMPLEMENTATION SCHEDULE.....	118
3.0	DESCRIPTION OF THE ENVIRONMENT	119
3.1	INTRODUCTION	119
3.2	STUDY AREA.....	119
3.3	STUDY PERIOD.....	120
3.4	MONITORING LAB	120
3.5	ENUMERATION OF THE STRUCTURES LOCATED WITHIN 300 M RADIUS FROM THE PROPOSED QUARRY SITE.....	120
3.6	ENVIRONMENTAL SETTINGS OF THE PROJECT.....	124
3.7	EXISTING ENVIRONMENTAL SCENARIO	129
3.7.1	MICRO- METEOROLOGY.....	129
3.7.1.1	CLIMATE AND RAINFALL DATA.....	129
3.7.2	AIR ENVIRONMENT.....	133
3.7.2.1	SAMPLING & ANALYTICAL TECHNIQUES.....	133
3.7.2.2	FREQUENCY AND PARAMETERS FOR SAMPLING	134
3.7.2.3	AMBIENT AIR QUALITY MONITORING STATIONS.....	134
3.7.2.4	DISCUSSION	138
3.7.3	WATER ENVIRONMENT.....	138
3.7.3.1	METHODOLOGY.....	138
3.7.3.2	SURFACE WATER.....	138
3.7.3.3	GROUND WATER.....	139
3.7.3.4	SAMPLING LOCATIONS	139
3.7.3.5	DISCUSSION	145

3.7.4	NOISE ENVIRONMENT.....	145
3.7.4.1	SAMPLING LOCATIONS.....	146
3.7.4.2	METHOD OF MONITORING.....	147
3.7.4.3	NOISE MONITORING RESULT.....	147
3.7.4.4	DISCUSSION.....	148
3.7.5	SOIL ENVIRONMENT.....	148
3.7.5.1	MONITORING LOCATIONS.....	149
3.7.5.2	METHODOLOGY.....	149
3.7.5.3	SOIL TESTING RESULT.....	150
3.7.6	LAND ENVIRONMENT.....	151
3.7.6.1	LAND USE PATTERN OF THE PROJECT AREA.....	151
3.7.6.2	LAND USE PATTERN OF THE STUDY AREA.....	152
3.7.7	BIOLOGICAL ENVIRONMENT.....	153
3.7.7.1	FLORA.....	153
3.7.7.2	FLORISTIC COMPOSITION IN CORE ZONE.....	154
3.7.7.3	FLORISTIC SCENARIO IN BUFFER ZONE AREA.....	154
3.7.7.4	LIST OF FAUNA.....	156
3.7.8	TOPOGRAPHY.....	158
3.7.9	DRAINAGE PATTERN OF THE AREA.....	158
3.7.10	GEOMORPHOLOGY.....	158
3.7.11	GEOLOGY.....	159
3.7.12	LITHOLOGY.....	159
3.7.13	SOCIO-ECONOMIC ENVIRONMENT.....	163
3.7.13.1	OBJECTIVES OF THE STUDY.....	164
3.7.13.2	SCOPE OF WORK.....	164
4.0	ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES.....	169
4.1	GENERAL.....	169
4.2	PROJECT SPECIFIC IMPACTS AND MITIGATION MEASURES.....	169
4.2.1	LAND ENVIRONMENT.....	170
4.2.1.1	ANTICIPATED IMPACT.....	170
4.2.1.2	MITIGATION MEASURES.....	171
4.2.2	SOIL ENVIRONMENT.....	172
4.2.2.1	ANTICIPATED IMPACT.....	172

4.2.2.2	MITIGATION MEASURES FOR SOIL EROSION AND SOIL CONSERVATION.....	172
4.2.3	WATER ENVIRONMENT.....	173
4.2.3.1	ANTICIPATED IMPACT ON SURFACE AND GROUND WATER.....	173
4.2.3.2	ANTICIPATED IMPACT DUE TO WATER USE IN MINE'S	173
4.2.3.3	MITIGATION MEASURES.....	174
4.2.3.4	RAINWATER HARVESTING PLAN	175
4.2.4	AIR ENVIRONMENT	175
4.2.4.1	ANTICIPATED IMPACT	176
4.2.4.2	MITIGATION MEASURES.....	176
4.2.4.3	AIR QUALITY IMPACT PREDICTION.....	179
	ARRIVING EMISSION FACTOR	179
	EMISSIONS FROM THE PROPOSED PROJECT.....	179
	MODEL INPUT DATA:	180
	PREDICTED AMBIENT AIR QUALITY:	184
4.4.4	NOISE ENVIRONMENT	185
4.4.4.3	IMPACT DUE TO NOISE AND VIBRATION	185
4.4.4.4	MITIGATION MEASURES FOR NOISE CONTROL.....	185
4.4.4.5	GROUND VIBRATION	186
4.4.5	BIOLOGICAL ENVIRONMENT.....	187
4.4.5.3	MITIGATION MEASURES.....	191
4.4.5.4	GREENBELT DEVELOPMENT PLAN.....	191
4.4.6	SOCIO – ECONOMIC	193
4.4.7	OCCUPATIONAL HEALTH AND SAFETY	194
4.4.8	WASTE MANAGEMENT	195
4.4.8.3	SOLID WASTE.....	195
4.4.8.4	LIQUID WASTE.....	195
4.4.8.5	HAZARDOUS WASTE MANAGEMENT.....	195
4.4.8.6	PLASTIC WASTE.....	196
5.0	ANALYSIS OF ALTERNATIVES (TECHNOLOGY AND SITE).....	197
5.1	ALTERNATE TECHNOLOGY.....	197
5.2	ALTERNATE SITE	197
6	ENVIRONMENTAL MONITORING PROGRAMME	198
6.1	GENERAL.....	198
6.2	MONITORING MECHANISM.....	198

6.3	ENVIRONMENTAL MONITORING SCHEDULE AND FREQUENCY.....	198
6.4	BUDGET FOR IMPLEMENTAION.....	199
6.5	SUBMISSION OF PERIODICAL REPORTS	199
7	ADDITIONAL STUDIES	201
7.1	PUBLIC CONSULTATION	201
7.2	RISK ASSESSMENT.....	201
7.3	DISASTER MANAGEMENT PLAN	204
7.3.1	MODEL DISASTER MANAGEMENT PLAN	204
7.3.2	OBJECTIVE OF DISASTER MANAGEMENT PLAN	205
7.4	CUMULATIVE IMPACT STUDY	206
7.4.1	AIR ENVIRONMENT	209
7.4.1.2	EMISSION ESTIMATION FROM CLUSTER.....	211
7.4.2	CUMULATIVE IMPACT ON SOCIO-ECONOMIC ENVIRONMENT	214
7.5	CLUSTER MINE CLOSURE PLAN	214
7.6	SLOPE STABILITY PLAN	214
8	PROJECT BENEFITS	216
9	ENVIRONMENTAL COST BENEFIT ANALYSIS	217
10	ENVIRONMENTAL MANAGEMENT PLAN	218
10.1	ENVIRONMENTAL POLICY	218
10.2	ENVIRONMENTAL MANAGEMENT PLAN.....	218
10.3	ADMINISTRATION AND TECHNICAL SETUP	221
10.4	OCCUPATIONAL SAFETY & HEALTH MANAGEMENT	223
10.5	BUDGETARY PROVISION FOR ENVIRONMENTAL MANAGEMENT	223
10.6	CONCLUSION	226
11	. SUMMARY AND CONCLUSION	227
11.1	INTRODUCTION	227
11.2	PROJECT DESCRIPTION	227
11.3	DESCRIPTION OF THE ENVIRONMENT.....	230
11.3.1	LAND ENVIRONMENT	230
11.3.2	SOIL CHARACTERISTICS.....	231
11.3.3	AMBIENT AIR QUALITY.....	231
11.3.4	WATER ENVIRONMENT.....	231
11.3.5	NOISE ENVIRONMENT.....	232
11.3.6	BIOLOGICAL ENVIRONMENT.....	233

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellarampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

11.3.7	SOCIO-ECONOMIC ENVIRONMENT	233
11.4	ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES 233	
11.5	ANALYSIS OF ALTERNATIVES.....	239
11.6	ENVIRONMENTAL MONITORING PROGRAM	240
11.7	ADDITIONAL STUDIES	240
11.8	PROJECT BENEFITS	242
11.9	CONCLUSION	242
12	DISCLOSURE OF CONSULTANTS.....	244

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellarampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

List of Tables	
Description	Page No.
Table – 1.1 Cluster Mines Details	89
Table -1.2 Project Identification	91
Table -1.3- Details of Project Proponent	91
Table 1.4 Brief Description of the project	92
<i>Table 1.5 Present Legal Status</i>	95
<i>Table 2.1 Boundary Coordinates of the Project</i>	101
<i>Table 2.2 Mine Lease Area and its Ownership</i>	101
<i>Table 2.3 Site Connectivity</i>	101
Table 2.4 Land use pattern of the <i>Project</i> area	107
Table 2.5 Available Geological Resources	109
Table 2.6 – Available Mineable Reserves	110
Table 2.7 – Machinery Details	113
Table 2.8 Year wise Production Plan	114
Table 2.9 - Ultimate Pit Dimension	115
Table 2.10 Details of Water requirement	117
Table 3.1 Structures within 300 m radius	120
Table 3.2 Environmental Settings of the Study Area – 10 km radius	124
Table 3.3 Rainfall Data	129
Table 3.4 Meteorological Data Recorded at Site	129
Table 3.5 Methodology for Air Quality Monitoring	133
Table 3.6 – Ambient Air Quality Monitoring Locations	134
Table 3.7 Ambient Air Quality Data	136
Table 3.8 Water Sampling Locations	139
<i>Table 3.9 – Ground Water Analysis Results</i>	141
<i>Table 3.10 Surface Water Analysis Results</i>	142
Table 3.11 Noise Monitoring Locations	146
Table 3.12 Noise Monitoring Result	147
Table 3.13 – Soil Sampling Locations	149
Table 3.14 - Soil Testing Result	151
Table 3.15 Land use pattern of the project site	152
Table 3.16 Land use pattern of the Study area of 10 km radius	152
Table 3.17 List of Flora	154
Table 3.18 List of Fauna	157
Table 3.19 - Population Profile of the Study Area	165
Table 3.20 – Population Profile - Thellarampattu Village	166
Table 4.1 Land use pattern of the project site	170
Table 4.2 – Rainwater Harvesting Plan	175
Table 4.3 Mitigative Measures for Air Environment	177
TABLE 4.4 Types of Source for Air Pollution in Mining	179
TABLE 4.5 Emission Factors for Mining Activities	179
TABLE 4.6 Pm ₁₀ And Pm _{2.5} Emission From Mining Activities	180
Table 4.7 - Area Emissions – Total Material handling	180
Table 4.8 - Line Source – Transport of Rough Stone from Pit to Boundary	180
Table4.9: Concentrations of PM _{2.5} after Project Implementation	184
Table4.10: Concentrations of PM ₁₀ after Project Implementation	184
Table 4.11- The likely noise level in the lease area	185

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellarampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

Table 4.12 Ecological Impact Assessments and Its Mitigations -Part 1	187
Table 4.13 Ecological Impact Assessments and Its Mitigations -Part 2	189
Table – 4.14 greenbelt development plan	192
Table 6.1 Environmental Monitoring Schedule	199
Table 7.1 Risk Assessment and Control Measures	202
Table 7.2 Details of Quarries within 500m radius	207
Table 7. 3 Salient Features of Existing & Proposed Quarries	208
Table 7.4 Cumulative Production Load of Rough Stone	209
Table 7.5 Cumulative Production Load of Gravel	209
Table 7.6 Area Emissions – Total Material Handling - Cluster	210
Table 7.7 Line Source – Transport of Material from pit to Boundary	210
Table 7. 8 Incremental & Resultant GLC within cluster for PM2.5	211
Table 7. 9 Incremental & Resultant GLC within cluster for PM10	211
Table 7.10 Socio-Economic benefits from 2 mines	214
Table 10.1 Environmental management plan	219
Table 10.2 Environmental Management Plan Budget	223
Table 11.1 Salient Features of the Project	227
Table - 11.2 Land use Pattern of the study area	230

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellarampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

List of Figures	
Descriptions	Page No
Figure 1.1 Satellite Image showing cluster quarries	90
Figure 2.1 Location Map	102
Figure 2.2 Google image showing Corner Coordinates of the project site	103
Figure 2.3 Lease Plan	104
Figure 2.4 Village Map	105
Figure 2.5 Site Photographs	106
Figure 2.6 Process Flow Diagram	111
Figure 2.7 Year wise Production Plan and Sections	112
Figure 2.8 Conceptual Plan and Sections	116
Figure 3.1 Google Image showing structures located within 300 m radius	121
Figure 3.2 Photographs of the structures located within 300 m radius	122
Figure 3.3 Existing Features Within 500m Radius	123
Figure 3.4 Satellite Image of the Study Area	126
Figure 3.5 Topo map Showing Study Area	127
Figure 3.6 Google Image Showing 1 km radius	128
Figure 3.7-a Wind Rose Diagram – Blowing From (October – December 2023)	131
Figure 3.7-b Wind Rose Diagram – Blowing Towards (October – December 2023)	132
Figure 3.8 Ambient Air Quality Monitoring Locations	135
Figure 3.9 Graphical Representation of Air Quality Data	137
Figure 3.10 Water Sampling Locations	140
Figure 3.11 Ground Water – Monitoring Results	144
Figure 3.12 Surface Water – Monitoring Results	144
Figure 3.13 Noise Monitoring Location	146
Figure 3.14 Noise Monitoring Results	147
Figure 3.15 - Soil Map of the Study Area	149
Figure 3.16 - Soil Sampling Stations	150
Figure 3.17 Land use map of the study area	153
Figure 3.18 Drainage map of the study area	160
Figure 3.19 Geology map of the study area	161
Figure 3.20 Geomorphology map of the study area	162
Figure 3.21 Lithology map of the study area	163
Figure 3.22 Village Map of the Study Area	165
Figure 3.23 Gender wise Population Distribution	167
Figure 3.24 Gender wise Literacy Distribution	167
Figure 3.25 Occupational Structure within Buffer Zone	168
Figure 4.1 Water Balance Diagram	174
Figure 4.2 Isopleth of GLC Prediction for PM _{2.5}	182
Figure 4.3 - Isopleth of GLC Prediction for PM ₁₀	183
Figure 7.1 Cluster Isopleth of GLC Prediction for PM _{2.5}	212
Figure 7.2 - Cluster Isopleth of GLC Prediction for PM ₁₀	213
Figure 10.1 Organization Chart	222

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellarampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

List of Annexures

Annexure – 1	Precise Area Communication Letter
Annexure – 2	Mine Plan Approval Copy, approval book with annexures
Annexure – 3	Details of other leases within 500m radius
Annexure – 4	VAO Letter for features within 500 m radius
Annexure – 5	Monitoring Report for Air, Water, Noise & Soil
Annexure – 6	The Copy of Blasting Agreement
Annexure – 7	Land Document

COMPLIANCE TO TERMS OF REFERENCE

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellarampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu



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

**STATE LEVEL ENVIRONMENT IMPACT
ASSESSMENT AUTHORITY-TAMILNADU**
3rd Floor, Panagal Maaligai,
No.1, Jeeris Road, Saidapet,
Chennai - 600 015.
Phone No. 044-24359975
Fax No. 044-24359975

TERMS OF REFERENCE (ToR)

Lr.No,SEIAA-TN/E.No.10023/SEAC/ToR-1499/2023 Dated:19.07.2023

To

Thiru. A.R. Govindan,
S/o. Arunachalam,
No.302, Raja Agraharam,
3rd Cross Street,
Poonamallee,
Tiruvallur-600056.

Sir / Madam,

Sub: SEIAA, Tamil Nadu – Terms of Reference with Public Hearing (ToR) for the Proposed Rough Stone Quarry over an extent of 3.93.5Ha at S.F.Nos. 214/1 (Part-3 & Part-4) of Thellarampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu by Thiru. A. R. Govindan - 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/428657/2023, Dated:09/05/2023.
2. Your application submitted for Terms of Reference dated: 11.05.2023.
3. Minutes of the 390th Meeting of SEAC held on 07.07.2023.
4. Minutes of the 640th meeting of Authority held on 19.07.2023.

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


**MEMBER SECRETARY
SEIAA-TN**

Page 1 of 23

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellarampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

Lr No.SEIAA-TN/F.No.10023/SEAC/ToR-1499/2023 Dated:19.07.2023

SEIAA-TN

The proponent, Thiru. A. R. Govindan has submitted application for ToR, in Form-I, Pre-Feasibility report for the Proposed Rough Stone Quarry over an extent of 3.93.5Ha at S.F.No. 214/1 (Part-3 & Part-4) of Thellarampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu.

Discussion by SEAC and the Remarks:-

Proposed Rough Stone Quarry over an extent of 3.93.5Ha at S.F.Nos. 214/1 (Part-3 & Part-4) of Thellarampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu by Thiru. A. R. Govindan-For Terms of Reference. (SIA/TN/MIN/428657/2023, 09/05/2023).

The proposal was placed in this 390th Meeting of SEAC held on 07.07.2023. The details of the project furnished by the proponent are available in the website (parivesh.nic.in).

The SEAC noted the following:

1. The Project Proponent, Thiru. A. R. Govindan has applied for Terms of Reference for the Proposed Rough Stone Quarry over an extent of 3.93.5Ha at S.F.No. 214/1 (Part-3 & Part-4) of Thellarampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu.
2. The proposed quarry/activity is covered under Category "B1" of Item 1(a) "Mining Projects" of the Schedule to the EIA Notification, 2006.
3. As per the mining plan the lease period is 10 years. The mining plan is for the period of Five years & production should not exceed 4,06,225 m³ of Rough Stone with ultimate depth of mining 20.5m BGL.

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

1. The Proponent shall justify the selection of the site for carrying out the stone quarrying with the total volume arrived for the excavation & production adequate details such as lithology of the deposit, reserve estimation, place for waste dump/mined mineral storage, end-use of mined materials, identified potential customers/end-users and travel path.
2. The proponent is requested to carry out a survey and enumerate on the structures located within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m (v) 500m with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places


MEMBER SECRETARY
SEIAA-TN

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

Lr No.SEIAA-TN/F.No.10023/SEAC/ToR-1499/2023 Dated:19.07.2023

SEIAA-TN

- of worship, industries, factories, sheds, etc with indicating the owner of the building, nature of construction, age of the building, number of residents, their profession and income, etc.
3. The PP shall submit a detailed hydrological report indicating the impact of proposed quarrying operations on the waterbodies like lake, water tanks, etc located within 1 km of the proposed quarry.
 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 Proponent shall carry out Bio diversity study through Department of Ecology and Environmental Sciences, Pondicherry University and the same shall be included in EIA Report.
 6. The PP shall prepare the EMP for the entire life of mine and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine.

ANNEXURE – 1

1. The PP shall furnish the letter obtained from the AD (Mines) indicating the existing pit dimensions and pit conditions showing the details on mine having worked during the earlier lease period.
2. The PP shall furnish DFO letter stating that the proximity distance of Reserve Forests, Protected Areas, Sanctuaries, Tiger reserve etc., up to a radius of 25 km from the proposed site.
3. The PP shall provide individual notice regarding the Public Hearing to the nearby house owners located in the vicinity of the project site.
4. The Proponent shall justify the selection of the site for carrying out the stone quarrying with the total volume arrived for the excavation & production adequate details such as lithology of the deposit, reserve estimation, place for waste dump/mined mineral storage, end-use of mined materials, identified potential customers/end-users and travel path.
5. The PP shall also justify the selection of mining methodology (conventional or non-conventional) adopting blasting techniques/non-explosive techniques with proper ground reality & laboratory testing.


MEMBER SECRETARY
SEIAA-TN

Page 3 of 23

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

Lr No. SEIAA-TN/F.No.10023/SEAC/ToR-1499/2023 Dated:19.07.2023

SEIAA-TN

6. The proponent shall submit the "Blast Design Parameters for controlling the vibration and fly rock from the quarry blasting" considering the existence of sensitive structures including habitations within 500 m from the lease boundary.
7. The PP shall justify the estimation of HEMM population for excavation and transportation in the proposed quarries with proper calculation methodology adopted.
8. The PP shall enumerate the environmental settings situated within a radial distance of 1 km such rivers/water bodies/reserve forests/ grazing land/existence of the hospitals and educational institutions/structures.
9. The PP shall provide the details of the anticipated impacts of the mining operations on the surrounding environment and the remedial measures for the same.
10. The proponent is requested to carry out a survey and enumerate on the structures located within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m (v) 500m with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places of worship, industries, factories, sheds, etc with indicating the owner of the building, nature of construction, age of the building, number of residents, their profession and income, etc.
11. The PP shall submit a 'Slope Stability Action Plan' for the proposed quarry where the proposed depth exceeds 30 m and it shall cover the aspects of stability of quarry walls including the access ramp keeping the benches intact.
12. If the blasting operation is to be carried out, the PP shall present a conceptual design for carrying out the NONEL initiation based controlled blasting operation including the line drilling & muffle blasting techniques and a Simulation Model indicating the anticipated Blast-induced Ground Vibration levels in the proposed quarry as stipulated by the DGMS Circular No.7 of 1997, during the EIA Proposal.
13. The PP shall furnish the affidavit stating that the blasting operation in the proposed quarry is carried out by the statutory competent person as per the MMR 1961 such as blaster, mining mate, mine foreman, II/I Class mines manager appointed by the proponent.
14. The PP shall give an affidavit stating that no contractual persons provided by the explosive suppliers will be employed for carrying out the blasting operations in the proposed quarry.
15. The PP shall also give an affidavit that no highly sensitive structure such as fire-cracker manufacturing units, Gas godown/explosive Magazine, LPG Bottling Units, etc are located within a radial distance of 300 m from the lease boundary of the proposed quarry.


MEMBER SECRETARY
SEIAA-TN

Page 4 of 23

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

Lr No. SEIAA-TN/E.No.10023/SEAC/ToR-1499/2023 Dated:19.07.2023

SEIAA-TN

16. The PP shall present a conceptual design for carrying out only controlled blasting operation involving line drilling and muffle blasting in the proposed quarry such that the blast-induced ground vibrations are controlled as well as no fly rock travel beyond 20 m from the blast site.
17. The EIA Coordinators shall obtain and furnish the details of quarry/quarries operated by the proponent in the past, either in the same location or elsewhere in the State with video and photographic evidences.
18. The PP shall provide the environmental mitigation measures implemented for the crusher(s) located within the mining lease.
19. 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 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.
20. 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.
21. 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).
22. The PP shall carry out Drone video survey covering the cluster, Green belt, fencing etc.,
23. The proponent shall furnish photographs of adequate fencing, green belt along the periphery including replantation of existing trees & safety distance between the adjacent quarries &


MEMBER SECRETARY
SEIAA-TN

Page 5 of 23

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

Lr No.SEIAA-TN/F.No.10023/SEAC/ToR-1499/2023 Dated:19.07.2023

SEIAA-TN

- water bodies nearby provided as per the approved mining plan.
24. 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.
 25. The Project Proponent shall conduct the hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD / TWAD so as to assess the impacts on the wells due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided.
 26. 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.
 27. The Proponent shall carry out the Cumulative impact study due to mining operations carried out in the quarry specifically with reference to the specific environment in terms of soil health, biodiversity, air pollution, water pollution, climate change and flood control & health impacts. Accordingly, the Environment Management plan should be prepared keeping the concerned quarry and the surrounding habitations in the mind.
 28. Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.
 29. 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.
 30. 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.
 31. Description of water conservation measures proposed to be adopted in the Project should be


MEMBER SECRETARY
SEIAA-TN

Page 6 of 23

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

Lr No.SEIAA-TN/F.No.10023/SEAC/ToR-1499/2023 Dated:19.07.2023

SEIAA-TN

- given. Details of rainwater harvesting proposed in the Project, if any, should be provided.
32. If the Village road/State highway/National highway are located within a radial distance of 500 m from the lease boundary of the quarry proposal, the PP shall carry out traffic studies to indicate impact on local transport infrastructure due to the Project and mitigation measures.
33. A tree survey study shall be carried out (nos., name of the species, age, diameter etc.,) both within the mining lease applied area & 300m buffer zone and its management during mining activity.
34. A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.
35. Public Hearing points raised and commitments 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 and to be submitted to SEIAA/SEAC with regard to the Office Memorandum of MoEF& CC accordingly.
36. The Public hearing advertisement shall be published in one major National daily and one most circulated vernacular daily.
37. The PP shall produce/display the EIA report, Executive summary and other related information with respect to public hearing in Tamil Language also.
38. As a part of the study of flora and fauna around the vicinity of the proposed site, the EIA coordinator shall strive to educate the local students on the importance of preserving local flora and fauna by involving them in the study, wherever possible.
39. 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 DEO, 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.
40. Taller/one year old Saplings raised in appropriate size of bags, preferably eco-friendly bags should be planted as per the advice of local forest authorities/botanist/Horticulturist with regard to site-specific choices. The proponent shall earmark the greenbelt area with GPS


MEMBER SECRETARY
SEIAA-TN

Page 7 of 23



Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

Lr.No.SEIAA-TN/F.No.10023/SEAC/ToR-1499/2023 Dated:19.07.2023

SEIAA-TN

coordinates all along the boundary of the project site with at least 3 meters wide and in between blocks in an organized manner

41. 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.
42. 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.
43. 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.
44. 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.
45. 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.
46. Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.
47. 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.
48. 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.
49. The PP shall prepare the EMP for the entire life of mine and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine.
50. Concealing any factual information or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this Terms of Conditions besides attracting penal provisions in the Environment (Protection) Act, 1986.


MEMBER SECRETARY
SEIAA-TN

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

Lr No.SEIAA-TN/F.No.10023/SEAC/ToR-1499/2023 Dated:19.07.2023

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**Appendix 1
List of Native Trees Suggested for Planting**

No	Scientific Name	Tamil Name	Tamil Name
1	<i>Agave americana</i>	Vilvam	விளம்
2	<i>Adiantum species</i>	Vilvam	விளம்
3	<i>Albizia lebbekii</i>	Vaagai	வாளை
4	<i>Albizia lebbekii</i>	Vilvam	விளம்
5	<i>Bambusa nana</i>	Kandhavan	கந்தவன்
6	<i>Bambusa nana</i>	Amli	அம்பி
7	<i>Bambusa nana</i>	Govilva	கோவில்
8	<i>Bambusa nana</i>	Kalluvu	கல்வூ
9	<i>Bambusa nana</i>	Pala	பலை
10	<i>Bambusa nana</i>	Munakkattuvu	முனக்கட்டுவூ
11	<i>Bambusa nana</i>	Mani, Kottuvu	மாணி, கட்டுவூ
12	<i>Bambusa nana</i>	Pala	பலை
13	<i>Bambusa nana</i>	Saravali	சரவலி
14	<i>Bambusa nana</i>	Manakkattuvu	மாணக்கட்டுவூ
15	<i>Bambusa nana</i>	Pala	பலை
16	<i>Bambusa nana</i>	Pala	பலை
17	<i>Bambusa nana</i>	Pala	பலை
18	<i>Bambusa nana</i>	Pala	பலை
19	<i>Bambusa nana</i>	Pala	பலை
20	<i>Bambusa nana</i>	Pala	பலை
21	<i>Bambusa nana</i>	Pala	பலை
22	<i>Bambusa nana</i>	Pala	பலை
23	<i>Bambusa nana</i>	Pala	பலை
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56	<i>Bambusa nana</i>	Pala	பலை
57	<i>Bambusa nana</i>	Pala	பலை
58	<i>Bambusa nana</i>	Pala	பலை
59	<i>Bambusa nana</i>	Pala	பலை
60	<i>Bambusa nana</i>	Pala	பலை
61	<i>Bambusa nana</i>	Pala	பலை

40	<i>Ficus religiosa</i>	Muruga	முருகு
41	<i>Ficus religiosa</i>	Nannurana	நன்னூர்
42	<i>Ficus religiosa</i>	Malappuram	மலப்புரம்
43	<i>Ficus religiosa</i>	Vazhuvaran	வாழுவர்
44	<i>Ficus religiosa</i>	Vengai	வெளை
45	<i>Ficus religiosa</i>	Vennampai, Iadu	வெண்பை, இடூ
46	<i>Ficus religiosa</i>	Palaru	பலாறு
47	<i>Ficus religiosa</i>	Kangala	கங்கலா
48	<i>Ficus religiosa</i>	Ugai, Maran	உகை, மரன்
49	<i>Ficus religiosa</i>	Manappuram	மாண்புமரம்
50	<i>Ficus religiosa</i>	Soopala	சூப்பலா
51	<i>Ficus religiosa</i>	Avra	அவரை
52	<i>Ficus religiosa</i>	Pala, Maran	பலை, மரன்
53	<i>Ficus religiosa</i>	Yetti	யெட்டி
54	<i>Ficus religiosa</i>	Therhang Kottai	தெரங்ககட்டை
55	<i>Ficus religiosa</i>	Maran	மரன்
56	<i>Ficus religiosa</i>	Thandir	தாண்டிர
57	<i>Ficus religiosa</i>	Ven, Maran	வெண், மரன்
58	<i>Ficus religiosa</i>	Saravali, Vengai	சரவலி, வெளை
59	<i>Ficus religiosa</i>	Palaru	பலாறு
60	<i>Ficus religiosa</i>	Vallu	வல்லு
61	<i>Ficus religiosa</i>	Veppalai	வெப்பலை
62	<i>Ficus religiosa</i>	Kochukapali	கொக்குப்பலி

MEMBER SECRETARY
SEIAA-TN

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

Lr No.SEIAA-TN/F.No.10023/SEAC/ToR-1499/2023 Dated:19.07.2023

SEIAA-TN

Discussion by SEIAA and the Remarks:-

The subject was placed in the 640th Authority meeting held on 19.07.2023. The Authority noted that the subject was appraised in the 390th Meeting of SEAC held on 07.07.2023. After detailed discussions, the Authority accepts the recommendation of SEAC and decided to grant **Terms of Reference (ToR) along with Public Hearing** under cluster for undertaking the combined Environment Impact Assessment Study and preparation of separate Environment Management Plan subject to the conditions as recommended by SEAC & normal conditions and conditions in **Annexure 'B'** of this minutes in addition to the following conditions.

Annexure 'B'

Cluster Management Committee

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


MEMBER SECRETARY
SEIAA-TN

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

Lr No. SEIAA-TN/F.No.10023/SEAC/ToR-1499/2023 Dated:19.07.2023

SEIAA-TN

10. The committee shall furnish an action plan to achieve sustainable development goals with reference to water, sanitation & safety.
11. The committee shall furnish the fire safety and evacuation plan in the case of fire accidents.

Impact study of mining

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

Agriculture & Agro-Biodiversity

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


MEMBER SECRETARY
SEIAA-TN

Page 11 of 23



Lr No. SEIAA-TN/F.No.10023/SEAC/ToR-1499/2023 Dated:19.07.2023

SEIAA-TN

Forests

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

Water Environment

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


MEMBER SECRETARY
SEIAA-TN

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

Lr No. SEIAA-TN/F.No.10023/SEAC/ToR-1499/2023 Dated:19.07.2023

SEIAA-TN

Energy

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

Climate Change

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

Mine Closure Plan

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

EMP

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

Risk Assessment

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

Disaster Management Plan

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

Others

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


MEMBER SECRETARY
SEIAA-TN

Page 13 of 23



Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

Lr No. SEIAA-TN/F.No.10023/SEAC/ToR-1499/2023 Dated:19.07.2023

SEIAA-TN

40. As per the MoEF& CC office memorandum F.No.22-65/2017-IA.III dated: 30.09.2020 and 20.10.2020 the proponent shall address the concerns raised during the public consultation and all the activities proposed shall be part of the Environment Management Plan.

41. The project proponent shall study and furnish the possible pollution due to plastic and microplastic on the environment. The ecological risks and impacts of plastic & microplastics on aquatic environment and fresh water systems due to activities, contemplated during mining may be investigated and reported.

A. STANDARD TERMS OF REFERENCE

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


MEMBER SECRETARY
SEIAA-TN

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

Lr No. SEIAA-TN/F.No.10023/SEAC/ToR-1499/2023 Dated:19.07.2023

SEIAA-TN

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

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


MEMBER SECRETARY
SEIAA-TN

Page 15 of 23



Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

Lr No.SEIAA-TN/F.No.10023/SEAC/ToR-1499/2023 Dated:19.07.2023

SEIAA-TN

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


MEMBER SECRETARY
SEIAA-TN

Page 16 of 23

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

Lr No. SEIAA-TN/F.No.10023/SEAC/ToR-1499/2023 Dated:19.07.2023

SEIAA-TN

- study area, a need based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine lease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspects should be discussed in the Report.
- 22) One season (non-monsoon) [i.e. March-May (Summer Season); October-December (post monsoon season) ; December-February (winter season)] primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.
 - 23) Air quality modeling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of Vehicles for transportation of mineral. The details of the model used and input parameters used for modeling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map.
 - 24) The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated.
 - 25) Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.
 - 26) Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.
 - 27) Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided.
 - 28) Based on actual monitored data, it may clearly be shown whether working will intersect


MEMBER SECRETARY
SEIAA-TN

Page 17 of 23



Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

Lr No.SEIAA-TN/F.No.10023/SEAC/ToR-1499/2023 Dated:19.07.2023

SEIAA-TN

groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter-alia, shall include details of the aquifers present and impact of mining activities on these aquifers. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.

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

MEMBER SECRETARY
SEIAA-TN

Page 18 of 23

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

Lr No.SEIAA-TN/F.No.10023/SEAC/ToR-1499/2023 Dated:19.07.2023

SEIAA-TN

occupational health mitigation measures with required facilities proposed in the mining area may be detailed.

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


MEMBER SECRETARY
SEIAA-TN

Page 19 of 23

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

Lr No. SEIAA-TN/F.No.10023/SEAC/ToR-1499/2023 Dated:19.07.2023

SEIAA-TN

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

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

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

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


MEMBER SECRETARY
SEIAA-TN

Page 20 of 23

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

Lr.No.SEIAA-TN/F.No.10023/SEAC/ToR-1499/2023 Dated:19.07.2023

SEIAA-TN

8. Detailed mining-closure plan for the proposed project approved by the Geology of Mining department shall be submitted along with EIA report.
9. Obtain a letter /certificate from the Assistant Director of Geology and Mining standing that there is no other Minerals/resources like sand in the quarrying area within the approved depth of mining and below depth of mining and the same shall be furnished in the EIA report.
10. EIA report should strictly follow the Environmental Impact Assessment Guidance Manual for Mining of Minerals published February 2010.
11. Detail plan on rehabilitation and reclamation carried out for the stabilization and restoration of the mined areas.
12. The EIA study report shall include the surrounding mining activity, if any.
13. Modeling study for Air, Water and noise shall be carried out in this field and incremental increase in the above study shall be substantiated with mitigation measures.
14. A study on the geological resources available shall be carried out and reported.
15. A specific study on agriculture & livelihood shall be carried out and reported.
16. Impact of soil erosion, soil physical chemical and biological property changes may be assumed.
17. Site selected for the project - Nature of land - Agricultural (single/double crop), barren, Govt./ private land, status of its acquisition, nearby (in 2-3 km.) water body, population, 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.


MEMBER SECRETARY
SEIAA-TN

Page 21 of 23

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

Lr No. SEIAA-TN/F.No.10023/SEAC/ToR-1499/2023 Dated:19.07.2023

SEIAA-TN

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

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

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

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Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

Lr No. SEIAA-TN/F.No.10023/SEAC/ToR-1499/2023 Dated:19.07.2023

SEIAA-TN

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

- The final EIA report shall be submitted to the SEIAA, Tamil Nadu for obtaining Environmental Clearance.
- The TORs with public hearing prescribed shall be **valid for a period of three years** from the date of issue, for submission of the EIA/EMP report as per OMNo J-1(013/41/2006-1A-II(1)(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, Pariveshi 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

POINT WISE COMPLIANCE OF TOR CONDITIONS

S.No	TOR Points	Reply	Page No
A. ToR in Addition to Standard ToR			
1	The Proponent shall justify the selection of the site for carrying out the stone quarrying with the total volume arrived for the excavation & production adequate details such as Lithology of the deposit, reserve estimation, place for waste dump/mined mineral storage 'end-use of mined materials, identified potential customers/end-users and travel path.	<p>The proposed mining area has the following advantages:</p> <ul style="list-style-type: none"> ➤ The mineral deposit occurs in a non-forest area. ➤ There is no habitation within the applied lease area; hence, no R & R issues exist. ➤ There is no river, stream, nallas and water bodies in the or passing through the applied mine lease areas. ➤ Mine connectivity through road and rail is good. ➤ The proposed mining operations do not intersect the ground water level. Hence, no impact on ground water environment. <p>Geological reserves are estimated to be 13,76,305 m3 of Rough stone and 19,663 m3 of topsoil up to a depth of 35.5 m. The mineable reserves is 5,28,215 m3 of Rough Stone and 15,670 m3 of Top Soil. The PP has proposed to carry out 4,06,225 m3 of Rough Stone and 15,670 m3 of Top Soil upto a depth of 20.5m for first five years. There is no waste anticipated in this rough stone Quarry. The entire quarried minerals</p>	-

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellarampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

		<p>will be utilized. The topsoil generated will be preserved in the safety zone, later will be utilized for afforestation purpose.</p> <p>The excavated rough stone will be loaded into tipper to the needy buyers for producing crusher aggregates, M Sand.</p>	
2	<p>The proponent is requested to carry out a survey and enumerate on the structures located within the radius of (i)50m, (ii)100m, (iii)200m and (iv)300m (v)500m with details such as dwelling houses with number of occupants. whether it belongs to the owner (or) not. Places of worship. industries. factories, sheds. etc with indicating the owner of the building, nature of construction. age of the building. number of residents, their profession and income, etc.</p>	<p>A Site survey has been conducted to identify and list structures located within a 500 m radius from the proposed Quarry and structures located within 500 m radius are given in section 3.5 of Chapter 3.</p>	120
3	<p>The PP shall submit a detailed hydrological report indicating the impact of proposed quarrying operations on the waterbodies like lake, water tanks, etc located within 1 km of the proposed quarry.</p>	<p>A detailed hydro-geological report of the proposed project will be incorporated in the Final EIA/EMP Report.</p>	-
4	<p>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</p>	<p>The fencing and greenbelt development work is in progress.</p> <p>As per precise area communication letter, A safety distance of 7.5 & 10 m provided for adjoining patta and Government land. There is no water</p>	-

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

	nearby provided as per the approved mining plan.	bodies passing on the project area. A seasonal odai passing on southwestern side of the project and is 420m away from the area. There is tank situated on eastern side of the area and is 480m away from the area.	
5	The Proponent shall carry out Bio diversity study through Department of Ecology and Environmental Sciences. Pondicherry University and the same shall be included in EIA Report.	Bio diversity study through Department of Ecology and Environmental Sciences. Pondicherry University will be incorporated in the Final EIA/EMP Report.	
6	The PP shall prepare the EMP for the entire life of mine and furnish the sworn affidavit stating to abide the EMP for the entire life of mine.	The EMP is planned for the entire life of the mine. The affidavit will be incorporated in the Final EIA/EMP Report.	-
ANNEXURE - I			
1	The PP shall furnish the letter obtained from the AD (Mines) indicating the existing pit dimensions and pit conditions showing the details on mine having worked during the earlier lease period.	This is a proposed project. No mining has been carried out in this lease area so far.	-
2	The PP shall furnish DFO letter stating that the proximity distance of Reserve Forests, Protected Areas. Sanctuaries, Tiger reserve etc., up to a radius of 25 km from the proposed site.	DFO Letter will be incorporated in the Final EIA/EMP Report.	
3	The PP shall provide individual notice regarding the Public Hearing to the nearby house owners located in the vicinity of the project site.	Agreed, the Public Hearing notice will be distributed to the nearby area.	-

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellarampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

4	<p>The Proponent shall Justify the selection of the site for carrying out the stone quarrying with the total volume arrived for the excavation & production adequate details such as lithology of the deposit, reserve estimation, place for waste dump/mined mineral storage, end-use of mined materials. identified potential customers/end-users and travel path.</p>	<p>Presence of exposed rocks in the nearby mined out area has proved the availability the material in the lease area. Geological reserves are estimated to be 13,76,305 m³ of Rough stone and 19,663 m³ of topsoil up to a depth of 35.5 m. The mineable reserves is 5,28,215 m³ of Rough Stone and 15,670 m³ of Top Soil. The PP has proposed to carry out 4,06,225 m³ of Rough Stone and 15,670 m³ of Top soil upto a depth of 20.5m for first five years. There is no waste anticipated in this rough stone Quarry. The entire quarried minerals will be utilized. The topsoil generated will be preserved in the safety zone, later will be utilized for afforestation purpose.</p> <p>The excavated rough stone will be loaded into tipper to the needy buyers for producing crusher aggregates, M Sand.</p>	
5	<p>The PP shall also justify the selection of mining methodology (conventional or nonconventional) adopting blasting techniques/non-explosive techniques with proper ground reality & laboratory testing.</p>	<p>This is a proposed Rough Stone Quarry in which Mechanized Open Cast mining will be carried out. It involves jack hammer drilling, blasting, excavation, loading and transportation of Rough stone to the crushing units. As this method is techno economically proven.</p> <p>The PP will use controlled blasting techniques with Nonel to ensure that dust generation, noise, and</p>	-

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		vibration levels remain within the prescribed limits.	
6	The proponent shall submit the "Blast Design parameters for controlling the vibration and fly rock from the quarry blasting" considering the existence of sensitive structures including habitations within 500 m from the lease boundary.	The PP will use controlled blasting techniques with Nonel to ensure that dust generation, noise, and vibration levels remain within the prescribed limits.	-
7	The PP shall justify the estimation of HEMM population for excavation and transportation in the proposed quarries with proper calculation methodology adopted.	The required machinery details are detailed in table 2.7 of Chapter 2.	113
8	The PP shall enumerate the environmental settings situated within a radial distance of 1 km such rivers/water bodies/reserve forest grazing land/existence of the hospitals and educational institutions/structures.	The environmental Settings for 1 km radius are detailed in section 3.5 and Environmental settings for 10 km radius is given in Table 3.2.	120
9	The PP shall provide the details of the anticipated impacts of the mining operations on the surrounding environment and the remedial measures for the same.	The anticipated impacts due to this project and its mitigation measures are detailed in Chapter 4.	169
10	The proponent is requested to carry out a survey and enumerate on the structures located within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m (v) 500m with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not. Places of worship,	A Site survey has been conducted to identify and list structures located within a 500 m radius from the proposed Quarry and structures located within 500 m radius are given in section 3.5 of Chapter 3.	120

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

	industries, factories, sheds, etc with indicating the owner of the building, nature of construction, age of the building, number of residents, their profession and income. etc.		
11	The PP shall submit a 'Slope stability Action plan' for the proposed quarry where the proposed depth exceeds 30 m and it shall cover the aspects of stability of quarry walls including the access ramp keeping the benches intact.	The depth proposed for this quarry is only 20.5 m. However, measures to ensure slope stability is given in Chapter 7.	214
12	If the blasting operation is to be carried out, the pp shall present a conceptual design for carrying out the NoNEL initiation based controlled blasting operation including the line drilling & muffle blasting techniques and a Simulation Model indicating the anticipated Blast- induced Ground vibration levels in the proposed quarry as stipulated by the DGMS Circular No.7 of 1997, during the EIA proposal.	The PP will use controlled blasting techniques with Nonel to ensure that dust generation, noise, and vibration levels remain within the prescribed limits.	-
13	The PP shall furnish the affidavit stating that the blasting operation in the proposed quarry is carried out by the statutory competent person as per the MMR 1961 such as blaster, mining mate, mine foreman, II/I Class mines manager appointed by the proponent.	Affidavit will be incorporated in the Final EIA/EMP Report.	-
14	The PP shall give an affidavit stating that no contractual persons provided by the explosive suppliers will be	Affidavit will be incorporated in the Final EIA/EMP Report.	-

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

	employed for carrying out the blasting operations in the proposed quarry.		
15	The PP shall also give an affidavit that no highly sensitive structure such as fire-cracker manufacturing units, Gas godown/explosive Magazine, LPG Bottling Units, etc are located within a radial distance of 300 m from the lease boundary of the proposed quarry.	Affidavit will be incorporated in the Final EIA/EMP Report.	-
16	The PP shall present a conceptual design for carrying out only controlled blasting operation involving line drilling and muffle blasting in the proposed quarry such that the blast-induced ground vibrations are controlled as well as no fly rock travel beyond 20 m from the blast site.	Controlled blasting techniques using delay detonators and optimum charge per delay will be implemented in this quarry.	-
17	The EIA Coordinators shall obtain and furnish the details of quarry/quarries operated by the proponent in the past either in the same location or elsewhere in the State with video and photographic evidences.	The PP has not carried out any quarrying operation before this project.	-
18	The PP shall provide the environmental mitigation measures implemented for the crusher(s) located within the mining lease.	There is no crusher within mine lease area. The nearest crusher is located at a distance of 171 m in north direction.	-
19	If the proponent has already carried out the mining activity in the proposed mining lease area after 15.01.2016, then the proponent shall furnish the following details from AD/DD, mines'	Not applicable. This is a fresh quarry project.	-
	What was the period of the operation and stoppage of the earlier mines with		

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

	last work permit issued by the AD/DD mines?		
	Quantity of minerals mined out.		-
	Highest production achieved in any one year		
	Detail of approved depth of mining.		
	Actual depth of the mining achieved earlier.		-
	Name of the person already mined in that leases area.		-
	If EC and CTO already obtained, the copy of the same shall be submitted.		-
	Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.		
20	If any quarrying operations were carried out in the proposed quarrying site for which now the EC is sought, the Project Proponent shall furnish the detailed compliance to EC conditions given in the previous EC with the site photographs which shall duly be certified by MoEF&CC. Regional Office, Chennai (or) the concerned DEE/TNPCB.	Not applicable. This is a fresh quarry project.	-
21	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	Project coordinates superimposed in satellite imagery and given as Figure No – 3.4 in Chapter – 3. The geology and geomorphology map are provided in Figure No.3.19, 3.20, Chapter 3.	126, 161 – 163 & 150, 127

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

	ecological features of the study area (core and butler zone).	The Soil map is provided under Figure No. 3.15, Chapter-3. The 10km Radius Index plan showing buffer zone is given in Figure No.3.5 in Chapter – 3.	
22	The PP shall carry out Drone video survey covering the cluster, Green belt, fencing etc.,	Fresh lease. It will be complied after commencement of the mining operation.	
23	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.	Photographs of the site are provided in Figure 2.5 of Chapter-2. As per Precise Order condition No. 1, PP have provided safety distance of 7.5 m & 10m to the adjoining patta land and government land. Green belt will be developed over an area of 0.40 hectares. The work of the same is under process.	106
24	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 figure 10.1 of Chapter 10.	222
25	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	A detailed hydro-geological report of the proposed project will be incorporated in the Final EIA/EMP Report.	-

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

	<p>rivers. tanks, canals. ponds etc. within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD / TWAD so as to assess the impacts on the wells due to mining activity. Based on actual monitored data it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided.</p>		
26	<p>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.</p>	<p>The baseline data were collected for the environmental components including land, soil, water, air, noise, biology, socio-economy, and traffic and the results have been discussed in Chapter 3.</p>	119
27	<p>The Proponent shall carry out the cumulative impact study due to mining operations carried out in the quarry specifically with reference to the specific environment in terms of soil health, biodiversity, air pollution, water pollution, climate change and flood control & health impacts. Accordingly, the Environment Management plan should be prepared keeping the concerned quarry and the surrounding habitations in the mind.</p>	<p>cumulative impact study due to mining operations in cluster are given in Section 7.4 of Chapter 7. EMP are detailed in Chapter 10.</p>	206 & 218
28	<p>Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.</p>	<p>Rain water harvesting Plan is given in section 4.2.3.4 of chapter 4. Water balance is shown in Figure 4.1.</p>	175 & 174

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

29	Land use of the study area delineating forest area, agricultural land. grazing land. Wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational, and post operational phases and submitted. Impact, if any, of change of land use should be given.	Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features has been discussed in Section 3.7.6.2, of Chapter 3. details of surrounding ecological sensitive features have been provided in Table 3.2 under Chapter 3. Land use plan of the project area showing pre-operational, operational and post-operational phases are discussed in Table 2.4 under Chapter 2.	107, 124, 152
30	Details of the land for storage of overburden/waste Dumps (or) Rejects outside the mine lease, such as extent of land area. distance from mine lease. Its land use. R&R issues. If any should be provided.	Not Applicable. No dumps have been proposed outside the lease area. The overburden in the form of top soil will be utilized for afforestation purpose.	-
31	Description of water conservation measures proposed to be adopted in the project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.	The rain water falling in the quarry will be harvested in the sump at the lowest level of the quarry. This sump will act as a settling pond to prevent solids escaping along with discharge, before outlet. etc. Towards surface runoff management, a garland drain will be constructed around the quarry and will be connected to a settling pond with silt traps. The supernatant clear	175 & 174

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

		<p>water from the settling pond will be flow to the downstream users.</p> <p>Rain water harvesting plan is given in section 4.2.3.4 of Chapter 4.</p>	
32	<p>If the Village road / State highway / National highway are located within a radial distance of 500 m from the lease boundary of the quarry proposal. the PP shall carry out traffic studies to indicate impact on local transport infrastructure due to the Project and mitigation measures.</p>	<p>The National Highway (NH-38) Tiruvannamalai – Vellore is about 24.5km on western side of the area.</p> <p>The State Highway (SH-4) Arani – Gingee is about 5.3Km on western side of the area.</p> <p>The traffic density study will be incorporated in the Final EIA/EMP Report.</p>	
33	<p>A tree survey study shall be carried out (nos., name of the species, age, diameter etc.,) both within the mining lease applied area & 300m buffer zone and its management during mining activity.</p>	<p>The details are given in section 3.7.7 of Chapter 3.</p>	153
34	<p>A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.</p>	<p>Detailed mine closure plan is given in section 7.5 of Chapter 7. Post mining land use pattern is shown in section 2.10 of Chapter 2.</p>	115 & 214
35	<p>Public Hearing points raised and commitments 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 and to be</p>	<p>Agreed</p> <p>The time bound Action plan of the Public Hearing will be incorporated in the Final EIA/EMP Report.</p>	-

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

	submitted to SEIAA/SEAC with regard to the Office Memorandum of MoEF& CC accordingly.		
36	The Public hearing advertisement shall be published in one major National daily and one most circulated vernacular daily.	Agreed, it will be done.	-
37	The PP shall produce/display the EIA report, Executive summary and other related information with respect to public hearing in Tamil Language also.	Agreed, it will be done.	-
38	As a part of the study of flora and fauna around the vicinity of the proposed site, the EIA coordinator shall strive to educate the local students on the importance of preserving local flora and fauna by involving them in the study, wherever possible.	Accepted. It will be done.	-
39	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	detailed greenbelt development plan has been provided in Section 4.4.5.4 under Chapter 4.	191

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

	small/medium/tall trees alternating with shrubs should be planted in a mixed manner.		
40	Taller/one year old Saplings raised in appropriate size of bags, preferably eco-friendly bags should be planted as per the advice of local forest authorities / botanist / Horticulturist with regard to site-specific choices. The proponent shall earmark the greenbelt area with GPS coordinates all along the boundary of the project site with at least 3 meters wide and in between blocks in an organized manner	The FAE of ecology and biodiversity has advised the project proponent that saplings of one year old raised in the ecofriendly bags should be purchased and planted with the spacing of 3 m between each plant around the proposed project area as per the advice of local forest authorities/botanist.	
41	A Disaster Management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.	A disaster management plan for the project has been provided in Section 7.3 under Chapter 7.	204
42	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.	A risk assessment plan for the project has been provided in Section 7.2 under Chapter 7.	201
43	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	Occupational health impacts of the project and preventive measures have been discussed in detail in Section 4.4.7 of Chapter 4.	194

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

	facilities proposed in the mining area may be detailed.		
44	Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.	Details of the socio economic survey conducted in the buffer zone has been provided in section 3.7.13, Chapter-3. Public health facilities will be further aimed to be developed through CER activities wherein periodic health checkups, medical camps for the locals will be conducted.	163
45	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.	Details of the socio economic survey conducted in the buffer zone has been provided in section 3.7.13, Chapter-3. No negative impact on socio-economic environment of the study area is anticipated and this project shall benefit the socio-economic environment by offering employment for 30 people directly.	163
46	Details of litigation pending against the project, if any, with direction /order passed by any Court of law against the Project should be given.	No litigation is pending in any court against this project.	-
47	Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.	Benefits of the project is given in Chapter 8.	216
48	If any quarrying operations were carried out in the proposed quarrying site for which now EC is sought, the project proponent shall furnish the	Not applicable. This is a fresh quarry project.	-

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

	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.		
49	The PP shall prepare the EMP for the entire life/lease of mine and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine.	The EMP is planned for the entire life of the mine. The affidavit for the same will be included in the Final EIA/EMP Report.	-
50	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	-

Annexure 'B'

Cluster Management Committee

1	Cluster Management Committee shall be framed which must include all the proponents in the cluster as members including the existing as well as proposed quarry.	There are one existing quarry and this present proposed quarry (1 Existing + 1 Proposed), within a 500-metre radius. The proponent will take the initiative to form a cluster management committee once environmental clearance is obtained for this quarry.	-
2	The members must coordinate among themselves for the effective implementation of EMP as committed including Green Belt Development,	Agreed. It will be complied.	-

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

	water sprinkling, tree plantation, blasting etc.,		
3	The List of members of the committee formed shall be submitted to AD/Mines before the execution of mining lease and the same shall be updated every year to the AD/Mines.	Agreed. The list of members of the committee formed will be submitted to ad/mines after obtaining Environmental Clearance.	-
4	Detailed Operational Plan must be submitted which must include the blasting frequency with respect to the nearby quarry situated in the cluster, the usage of haul roads by the individual quarry in the form of route map and network.	Agreed. Details of the Operation plan for cluster mining operations will be submitted once we get environmental clearance for all three quarries proposed in the cluster area.	-
5	The committee shall deliberate on risk management plan pertaining to the cluster in a holistic manner especially during natural calamities like intense rain and the mitigation measures considering the inundation of the cluster and evacuation plan.	Risk management plan for the individual quarry is given in this report. As far as cluster working condition is concerned, once the committee is formed, risk management as a cluster including inundation of clusters and the evacuation plan will be elaborated.	
6	The Cluster Management Committee shall form Environmental Policy to practice sustainable mining in a scientific and systematic manner in accordance with the law. The role played by the committee in implementing the environmental policy devised shall be given in detail.	Environmental policy for the cluster will be framed by the cluster management committee and the policy will be in accordance with EPA Act, 1986 and its amendments, guidelines by MoEF&CC/SEIAA and other regulatory bodies. This policy will be displayed in the quarry.	-
7	The committee shall furnish action plan regarding the restoration strategy with respect to the individual quarry	Agreed. It will be complied as mentioned in the Point No.4	-

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

	falling under the cluster in a holistic manner.		
8	The committee shall furnish the Emergency Management plan within the cluster'	Agreed. It will be complied as mentioned in the Point No.4	-
9	The committee shall deliberate on the health of the workers/staff involved in the mining as well as the health of the public.	Agreed. It will be complied as mentioned in the Point No.4	-
10	The committee shall furnish an action plan to achieve sustainable development goals with reference to water, sanitation & safety.	Agreed. It will be complied as mentioned in the Point No.4	-
11	The committee shall furnish the fire safety and evacuation plan in the case of fire accidents.	Agreed. It will be complied as mentioned in the Point No.4	-
Impact study of mines			
12	Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area covering the entire mine lease period as per precise area communication order issued from reputed research institutions on the following		
a	Soil health & soil biological, physical land chemical features.	The chemical and physical characteristics of the soil is given in section 3.7.5 of Chapter 3. The anticipated impact and its mitigation measures for soil environment and biological environment are detailed in section 4.2.2 & 4.4.5 of Chapter 4 respectively.	148, 172 & 187
b	Climate change leading to Droughts, Floods etc.	No significant impact on climate change due to this project. This proposed mining activity is a small scale mining extent of 3.93.5 Ha. of	169

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

		<p>Government land. The surrounding environment is already subjected to mining activities and based on the past weather data its inferred that there is no much of change in the climate data of the region and the district profile has no records or past history of climate change leading to droughts and floods.</p> <p>The minor impact to climate change will be controlled by adopting suitable mitigation measures.</p> <p>The anticipated impact and its mitigation measures for various environmental attributes are detailed in chapter 4.</p>	
c	<p>Pollution leading to release of Greenhouse gases (GHG), rise in Temperature, & Livelihood of the local people.</p>	<p>Considering that the quantum of production is less, only 2 nos of excavator, 4 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 200 number of plants will be planted inside the mine lease and 2000 nos will be planted outside the mine lease area.</p>	-

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

d	Possibilities of water contamination and impact on aquatic ecosystem health.	<p>The total water requirement is 5.0 KLD. It will be outsourced from the nearby villages. So no impact in the project area due to water usage.</p> <p>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 suppression 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.</p>	-
e	Agriculture, Forestry & Traditional practices.	<p>There are no Agriculture, forest area and traditional practices within the project area. However, there are some agricultural land 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 suppression 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 400m radius. So, there is no impact for the</p>	-

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellarampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

		Agriculture, Forestry & Traditional practices located nearby.	
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.	Water Bodies: Core Zone – Nil Buffer Zone : <ul style="list-style-type: none"> • Odai – 420 m (SW) • Tank – 530 m – E • Tank – 730 m - NW • Cheyyar River – 4.7 km (NE) <p>Due to mining operation there may be minimum impact to the nearby odai due to dust sedimentation. It will be controlled by wet drilling, water sprinkling and plantation.</p>	-
Agriculture & Agrobiodiversity			
13	impacts on surrounding agricultural fields around the proposed mining Area.	Agreed. It is described in the point no. 12 (e) of this ToR Compliance Annexure-B	-
14	impacts on soil flora & vegetation around the project site.	The chemical and physical characteristics of the soil is given in section 3.7.5 of Chapter 3. The anticipated impact and its mitigation measures for soil environment and biological	148, 172 & 187

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

		environment are detailed in section 4.2.2 & 4.4.5 of Chapter 4 respectively.	
15	Details of type of vegetations including no. of trees & shrubs within the proposed mining area and. If so, transplantation of such vegetations all along the boundary of the proposed mining area shall committed mentioned in EMP.	There is no standing trees or vegetation within the mine lease area.	-
16	The Environmental Impact Assessment should study the biodiversity, the natural ecosystem, the soil micro flora, fauna and soil seed banks and suggest measures to maintain the natural Ecosystem.	The ecological details have been provided in Section 3.7.7 under Chapter 3 and measures have been provided in Section 4.4.5 under Chapter 4.	153 & 187
17	Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.	All the essential environmental protective measures will be followed by the proponent to manage the surrounding environment and restore the ecosystem, as discussed in Chapter 4.	169
18	The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands, Horticulture, Agriculture and livestock.	The impact of project on the land environment has been discussed in Section 4.2.1 under Chapter 4.	170
Forests			
19	The project proponent shall detailed study on impact of mining on Reserve forests free ranging wildlife	Forest in buffer Zone: <ul style="list-style-type: none"> • Vishamangalam R F – 1.1 km (S) • Nedunkunam R F – 5.2 km (S) • Nambedu R F – 7.7 km (NE) 	187

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellarampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

		<p>The anticipated impact and its mitigation measures for biological environment are detailed in section 4.4.5 of Chapter 4.</p> <p>The project proponent shall do barbed wire fencing work and develop a green belt around the lease area to prevent wildlife from entering the site.</p>	
20	The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna	The impacts of the project on ecology and biodiversity have been discussed in Section 4.4.5 under Chapter 4.	187
21	The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection.	Not Applicable.	-
22	The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site.	<p>There are no protected areas, National Parks, environmentally sensitive areas Corridors and Wildlife pathways near project site.</p> <p>The list of RF details within 10 km radius are given below,</p> <p>Forest in buffer Zone:</p> <ul style="list-style-type: none"> • Vishamangalam R F – 1.1 km (S) • Nedunkunam R F – 5.2 km (S) • Nambedu R F – 7.7 km (NE) 	-

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

Water Environment			
23	Hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) so as to assess the impacts on the nearby waterbodies due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided, covering the entire mine lease period.	A detailed hydrogeological report will be included in the final EIA/EMP report.	-
24	Erosion Control measures.	There is no waste generation (OB) in this quarry has been envisaged. However, there may be erosion due the rainy season and that is limited within quarry area. The control measures are explained in Chapter 4.	172
25	Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area on the nearby Villages, Water-bodies/ Rivers, & any ecological fragile areas	Complied. The study details are incorporated in Chapter 3. Anticipated impacts and its mitigation measures are detailed in Chapter 4.	119 , 169
26	The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir.	There is no wastewater generation from this Quarry, so this is not applicable.	-
27	The project proponent shall study and furnish the details on potential fragmentation impact on natural environment by the activities.	Section 2.10, Chapter 2, provides the land-use pattern at present and at the end of the quarrying period.	115

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellarampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

		The post mining land use plan showing afforestation and water body is shown in Figure No- 2.8.	
28	The project proponent shall study and furnish the impact on aquatic plants and animals in water bodies and possible scars on the landscape, damages to nearby caves, heritage site, and archaeological sites possible land form changes visual and aesthetic impacts	The Flora and Fauna study covering 10 km radius are detailed in section 3.7.7 of chapter 3. The impacts anticipated with respect to the environment of the project area is very negligible and it will be minimized within the project area. Greenbelt / Plantation will be carried out to enhance the vegetative growth and aesthetic in the safety zone area.	153
29	The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components.	The impact of mining on soil environment has been discussed in Section 4.2.2 under Chapter 4.	172
30	The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites.	The anticipated impact and its mitigation measures for Water Environment are detailed in section 4.2.3 of Chapter 4.	173
Energy			
31	The measures taken to control Noise, Air, Water, Dust Control and steps adopted to efficiently utilize the Energy shall be furnished	The measures taken to control noise, air, water, and dust have been given under Chapter 4.	169
Climate Change			
32	The Environmental Impact Assessment shall study in detail the carbon emission and also suggest the measures to mitigate carbon emission	Only the best equipment will be used, and it will be properly and regularly maintained. Regular vehicular emission tests will be	-

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

	including development of carbon sinks and temperature reduction including control of other emission and climate mitigation activities.	conducted on the transport vehicles to ensure minimal carbon emissions. To further reduce carbon emissions, a good greenbelt plan has been planned.	
33	The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock.		-
Mine Closure Plan			
34	Detailed Mine Closure Plan covering the entire mine lease period as per precise area communication order issued.	Detailed mine closure plan is given in section 7.5 of Chapter 7. Post mining land use pattern is shown in section 2.10 of Chapter 2.	115 & 214
EMP			
35	Detailed Environment Management Plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued.	Complied. The details are described in Chapter 10.	218
36	The Environmental Impact Assessment should hold detailed study on EMP with budget for Green belt development and mine closure plan including disaster management plan.	The capital cost of Rs. 30.01 Lakhs and the recurring cost of Rs. 147.20 Lakhs for five years have been allocated under the EMP budget. The breakup of the same is given in Table 10.2 of Chapter 10.	223
Risk Assessment			
37	To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining.	Risk assessment and Management plan are detailed in section 7.2, chapter 7.	201

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellarampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

Disaster Management Plan			
38	To furnish disaster management plan and disaster mitigation measures in regard to all aspects to avoid,/reduce vulnerability to hazards & to cope with disaster/untoward accidents in & around the proposed mine lease area due to the proposed method of mining activity & its related activities covering the entire mine lease period as per precise area communication order issued.	Disaster Management plan are detailed in section 7.3, Chapter 7.	204
Others			
39	The project Proponent shall furnish VAO certificate with reference to 300m radius regard to approved habitations, schools, Archaeological sites, Structures, railway lines, roads, water bodies such as streams, odai, vaari, canal, channel, river, lake pond, tank etc.	There are no historical places, schools, cemeteries, temples, bird sanctuaries, and wildlife sanctuaries within 500 meters of the proposed project area. In this regard, the project proponent has received an official letter from the Village Administrative Officer, Thellarampattu village, The letter copy enclosed as Annexure – 4.	-
40	As per the MoEF& cc office memorandum F.No.z2-6512017-tA.III dated: 30.09.2020 and 20.10.2020 the proponent shall address the concerns raised during the public consultation and all the activities proposed shall be part of the Environment Management plan.	The concerns raised during the public consultation and all the activities proposed will be updated in the final EIA report.	-
41	The project proponent shall study and furnish the possible pollution due to	Complied. The PP has framed detail solid waste management system for	-

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

	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.	the project are and the same will be executed by proper awareness and sign boards. The sign boards will be in two language i.e., Vernacular language (Tamil) and common language (English). The plastic waste generation is very negligible and it will be collected from the source level in specific dustbin and disposed through the municipal bins.	
C. Standard ToR			
1	Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification 1994 came into force. w.r.t. the highest production achieved prior to 1994	Not applicable. This is a New Proposal for Quarrying Rough Stone.	-
2	A copy of the document in support of the fact that the proponent is the rightful lessee of the mine should be given.	This proposed project area is classified as Government land and the applicant has obtained tender from the Government Please refer annexure no- 1.	-
3	All documents including approved mine plan, EIA and public Hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and should be in the name of the lessee.	Noted & agreed. All documents including approved mine plan, EIA and Public Hearing are compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and is in the name of the lessee.	-

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

4	All corner coordinates of the mine lease area, superimposed on a High - Resolution Imagery/ topo sheet, topographic sheet, geomorphology and geology of the area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).	Project area is superimposed on Satellite imagery is enclosed in Figure No.3.4. Project area boundary coordinates superimposed on Toposheet & Surface Features around the project area covering 10km radius – Figure No. 3.5. Geology map of the project area covering 10km radius - Figure No. 3.19. Geomorphology Map of the Study Area covering 10 km radius – Figure No. 3.20.	126, 161 – 163 & 150, 127
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.	The following map in 1:50,000 Scale: Geology map of the project area covering 10km radius – Figure No. 3.19. Geomorphology Map of the Study Area covering 10 km radius – Figure No. 3.20.	126, 161 – 163 & 150, 127
6	Details about the land proposed for mining activities should be given with information as to whether mining conforms to the land use policy of the State; land diversion for mining should have approval from State land use board or the concerned authority.	(a) Precise Area Communication: The Project Proponent has obtained Precise Area Communication from the Deputy Director, Department of Geology and Mining, Tiruvannamalai, vide RC.NO. 07/kanimam/2023 dated 10.01.2023. The letter copy enclosed as Annexure – 1. (b) Mining Plan Approval: The project proponent has prepared mining plan under rule L9(I),41 &42 of Tamil Nadu Minor Mineral	-

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellarampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

		Concession Rules, 1959 and the same has been approved by the Deputy Director, Dept. of Geology & Mining, Tiruvannamalai vide RC.NO.07/kanimam/2023 dated 14.02.2023. The approval letter along with approved plan is enclosed as Annexure – 2.	
7	It should be clearly stated whether the proponent company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA Report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/ violation of the environmental or forest norms/ conditions? The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the company and/or shareholders or stakeholders at large, may also be detailed in the EIA Report.	The proponent will frame a well-planned environmental policy. Its details are provided under Section 10.1, Chapter-10. Monitoring Mechanism is detailed under Section .10.3.	218 -221
8	Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting	Various risks likely to arise due to mining activities are detailed under section 7.2, Chapter-7. This being an opencast mine, subsidence is not	201 & 186

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

	study etc. should be detailed. The proposed safeguard measures in each case should also be provided.	applicable. The impact due to ground vibrations due to blasting is given in para 4.4.5.5, Chapter-4.	
9	The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc. should be for the life of the mine / lease period.	Noted & Agreed The study area considered for this study is 10 km radius and all data contained in the EIA report such as waste generation etc., is for the Life of the Mine / lease period.	-
10	Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.	The land use of the study area was studied to demarcate various LULC categories and its details are provided under section 3.7.6 Of Chapter-3. The land use pattern at present and at the end of the quarrying period has been provided in Table 2.4, Chapter-2. The Conceptual plan of mine lease area is shown in Figure No- 2.8.	151, 107 & 116
11	Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.	There is no waste generation anticipated in this quarry operation since the entire excavated material will be utilized. The top soil generated will be utilized for afforestation purpose. Hence, there is no external overburden dump involved.	-
12	Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area. In the	There is no Forest Land involved in the proposed project area. The proposed project area is a Government land. Approved Mining Plan is enclosed in Annexure – 2.	-

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

	<p>event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees.</p>		
13	<p>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.</p>	<p>Not Applicable. The proposed project area does not involve any Forest Land.</p>	-
14	<p>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.</p>	<p>Not Applicable. The project doesn't attract Recognition of Forest Rights Act, 2006.</p>	-
15	<p>The vegetation in the RF / PF areas in the study area, with necessary details, should be given.</p>	<p>Forest in buffer Zone:</p> <ul style="list-style-type: none"> • Vishamangalam R F – 1.1 km (S) • Nedunkunam R F – 5.2 km (S) • Nambedu R F – 7.7 km (NE) 	-

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

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.	The mining lease area and the 10 km buffer zone from the periphery of the core zone is devoid of declared ecologically sensitive features like national parks, biospheres, sanctuaries, etc.	-
17	Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/ Elephant Reserves/(existing as well as proposed), if any, within 10 km of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished.	Not Applicable. There are No National Parks, Biosphere Reserves, Wildlife Corridors, and Tiger/Elephant Reserves within 10 km Radius from the periphery of the project area.	-
18	A detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present' In	A detailed study of flora and fauna composition in the core and buffer zone of the project has been made. The details are furnished in section 3.7.7.	153

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

	<p>case of any scheduled 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.</p>		
19	<p>Proximity to Areas declared as 'critically Polluted' or the project areas likely to come under the 'Aravali Range', (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities. such as the SPCB or State Mining Department should be secured and furnished to the effect that the proposed mining activities could be considered.</p>	Not Applicable	-
20	<p>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).</p>	Not Applicable	-

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

21	<p>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.</p>	<p>The mining activities will be carried out within the mine lease area only. The entire mine lease area of 3.93.50 Ha is a Government Land. There is no population within the ML area. Hence, the question of R& R does not arise.</p>	-
22	<p>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.</p>	<p>Baseline Data were collected for One Season (Post Monsoon) October – December 2023 as per CPCB Notification and MoEF & CC Guidelines and Detailed in Chapter - 3.</p>	119

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellarampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

	<p>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.</p>		
23	<p>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.</p>	<p>Air Quality Modelling for prediction of incremental GLC's of pollutant was carried out using AERMOD view and Detailed in Section 4.2.4.3.</p> <p>Air Quality Modelling for Cluster are detailed in section 7.4.2.1 of Chapter 7.</p>	179 & 211
24	<p>The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water</p>	<p>The total water requirement for the project is 5.0 KLD. The required water will be procured from outside agencies initially and later rainwater</p>	174

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellarampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

	requirement for the Project should be indicated.	harvested in the mine pit shall be used other than drinking purpose. Water Balance diagram is presented in Figure No – 4.1.	
25	Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.	Not Applicable Water for dust suppression, greenbelt development and domestic use will be sourced from accumulated rainwater/seepage water in mine pits and purchased from local water vendors through water tankers on daily requirement basis.	-
26	Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.	Rain water will be diverted into working area by constructing drains to store and use for dust suppression and greenbelt development. Details are presented in section 4.2.3.4. The total water requirement for the project will be 5.0 KLD comprising Drinking 1.0 KLD, Dust suppression 2.0 KLD, Greenbelt 2.0 KLD. The water will be sourced initially from outside agencies. Later the rainwater collected in the mine pit sump will be used for this purpose. The water balance diagram for the same is shown in Figure No 4.1.	174 & 175
27	Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided.	Impact Studies and Mitigation Measures of Water Environment including Surface Water and Ground Water are discussed in Section 4.2.3.	173

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

28	Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter-ali4 shall include details of the aquifers present and impact of mining activities on these aquifers. Necessary permission from Central Ground water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.	The quarrying activity will not intersect ground water table as quarrying is proposed upto a depth of 20.5 m bgl and water table is found at a depth of 56 m BGL.	-						
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 No stream passing through the mine 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.	<table border="1"> <tr> <td data-bbox="799 1541 1034 1641">Altitude of the area</td> <td data-bbox="1042 1541 1243 1641">140 m from MSL</td> </tr> <tr> <td data-bbox="799 1653 1034 1686">Ultimate Depth</td> <td data-bbox="1042 1653 1243 1686">20.5 m BGL</td> </tr> <tr> <td data-bbox="799 1697 1034 1731">Ground water</td> <td data-bbox="1042 1697 1243 1731">56 m BGL.</td> </tr> </table>	Altitude of the area	140 m from MSL	Ultimate Depth	20.5 m BGL	Ground water	56 m BGL.	-
Altitude of the area	140 m from MSL								
Ultimate Depth	20.5 m BGL								
Ground water	56 m BGL.								
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	Greenbelt Development Plan & Recommended Species proposed for Greenbelt Development are detailed in Section 4.4.5.4.	191						

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellarampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

	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.	0.40 hectares of land are allotted for greenbelt development.	
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. 4 Nos. of 5T/10T tippers will be used for transport. The trips will be minimum. Hence no major impact on transport is expected	-

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellarampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

33	Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.	Temporary Infrastructure & other facilities will be provided to the Mine Workers after the grant of quarry lease and the same has been discussed in Section 2.11.5 of Chapter 2.	118
34	Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report.	At the conceptual stage the quarried-out land will be fenced and lower benches will be allowed to collect rain water to act as a temporary reservoir and Greenbelt development will be carried out on the top bench, unutilized areas and haul roads. Mine closure plan is detailed in Section 2.10 of Chapter 2.	115
35	Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.	Details of occupational health and safety aspects are given under the Section 4.4.7 & Section 10.4.	194 & 223
36	Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.	No Public Health Implications anticipated due to this project. Details of CER and CSR are discussed under Chapter No. 8,	216

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

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 30 people directly. Local people will be hired for unskilled labour. Through CSR, nearby schools, hospitals will be benefitted. For CSR, INR 5.0 Lakh 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.	218
39	Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.	During public hearing process, the opinions and demands of the people will be noted. The replies and commitment made by the proponent along with time bound action plan wherever applicable will be provided in Final EIA/EMP report.	-
40	Details of litigation pending against the project, if any, with direction /order paced by any Court of Law against the Project should be given.	There is no litigation pending against the project.	-
41	The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.	Project Cost is Rs. 2,85,60,000/- CER Cost is Rs.5.0/- lakhs EMP Cost Capital Cost is Rs. 30.01 Lakhs Recurring Cost is Rs. 147.20 Lakhs for five years.	-

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

42	A Disaster management Plan shall be prepared and included in the EIA/EMP Report.	Disaster management plan are provided under section 7.3 of Chapter-7.	204
43	Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.	Detailed in Chapter 8.	216
44			
A	Executive Summary of the EIA/EMP Report	Yes, Enclosed	
B	All documents to be properly referenced with index and continuous page numbering.	All the documents are properly referenced with index and continuous page numbering.	-
C	Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated.	Yes, Complied	-
D	Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise etc. using the MoEF&CC/ NABL accredited laboratories. All the original analysis/testing reports should be available during appraisal of the Project,	Baseline monitoring results are detailed in Chapter 3. Original Baseline monitoring reports will be made available during appraisal of the project.	119
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	-

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

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- I 1013/41/2006-IA.11 0) dated 4th August, 2009, which are available on the website of this Ministry, should be followed.	Noted & Agreed	-
H	Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the PFR for securing the TOR) should be brought to the attention of MoEF&CC with reasons for such changes and permission should be sought, as the ToR may also have to be altered. Post Public Hearing changes in structure and content of the draft EIA/EMP (other than modifications arising out of the P.H. process) will entail conducting the pH again with the revised documentation.	Noted & Agreed	-
I	As per the circular no. J-I I01 I161812010-1A.II (I) dated 30.5.2012, certified report of the status of compliance of the conditions stipulated in the Environment Clearance the existing operations of the project, should be obtained from the Regional office of Ministry of Environment, Forest and Climate Change, as may be applicable.	Yes, Complied	-

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellarampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

J	The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and sections and (iii) sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area.	Surface Plan and Geological Plan – Figure No. 2.3.	104
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1.0 INTRODUCTION

1.1 PURPOSE OF THE REPORT

Environmental Impact Assessment (EIA) is the management tool to ensure the sustainable development and it is a process, used to identify the environmental, social and economic impacts of a project prior to decision making. It is a decision-making tool, which guides the decision makers in taking appropriate decisions for any project.

EIA systematically examines both beneficial and adverse consequences of the project and ensures that these impacts are taken into account during the project designing. It also reduces conflicts by promoting community participation, information, decision makers, and helps in developing the base for environmentally sound project.

Rough Stone are the major requirements for construction industry. This EIA report is prepared by considering Cumulative load of all proposed & existing quarries located within 500 m radius of the project area.

Thiru. A.R. Govindan proposes to operate Rough Stone Quarry over an extent of 3.93.50 Ha. Government land in S.F. No. 214/1 (Part -3 & Part -4) of Thellarampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu and ToR obtained vide Lr.No.SEIAA-TN/F.No.10023/SEAC/ToR-1499/2023, dated: 19.07.2023.

This proposed project is categorized under category "B1" Activity 1(a) (mining lease area in cluster situation). This cluster includes the one existing Quarry and this proposed Quarry. The existing and proposed quarries located within 500m radius are detailed in below Table.

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

Table – 1.1 Cluster Mines Details			
Sl. No	Extent	Proponent	Status of lease
1	1.25.50 Ha	Thiru. Mubeena	Existing
2	3.93.50 Ha	Mr. A.R. Govindan	Proposed
Total extent is 5.19.0 Ha including this proposed project			

As such Common EIA for the 2 projects falling in the cluster with assessment of impacts and EMP separately is carried out. Cluster area calculated as per MoEF & CC Notification S.O. 2269(E) Dated 1st July 2016. Satellite image of Quarries in Cluster is shown in Fig 1.1.

As per MoEF&CC OM: F.No.L-11011/175/2018-IA-II(M), dated 12.12.2018, the common EIA/EMP report has to be prepared for the cluster area based on ToR recommended by SEIAA. Therefore, the applicant applied for ToR through Parivesh website vide online proposal no. SIA/TN/MIN/428657/2023 Dated 09.05.2023. The ToR proposal was placed in 390th SEAC meeting, dt 07.07.2023 and 640th SEIAA meeting, dated 19.07.2023. Then ToR has been issued by the SEIAA vide Lr.No.SEIAATN/ F.No.10023/SEAC/TOR-1499/2022 dated 19.07.2023 to prepare the draft EIA report as per the recommended ToR for conducting Public hearing and obtaining Environmental Clearance from the SEIAA.



Figure1.1 Satellite Image showing cluster quarries

1.2 IDENTIFICATION OF PROJECT AND PROJECT PROPONENT

1.2.1 IDENTIFICATION OF PROJECT

Table -1.2 Project Identification

Name of the Project	Thiru. A.R. Govindan Rough Stone Quarry
S.F No.	214 (Part 3 & Part 4)
Location of the Project	Thellarampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu
Extent	3.93.50 Ha.
Type of Land	Government Land

1.2.2 IDENTIFICATION OF PROJECT PROPONENT

Table -1.3- Details of Project Proponent

Name of the Project Proponent	Thiru.A.R. Govindan
Communication address	S/o. Arunachalam No-302, Raja Agraharam, 3 rd Cross Street, Poonamallee, Tiruvallur – 600 056.
	ganeshmarg24@gmail.com
Mobile No.	9840662209

1.3 BRIEF DESCRIPTION OF THE PROJECT

1.3.1 NATURE AND SIZE OF THE PROJECT

The quarrying operation is proposed to be carried out by Opencast Mechanized Mining Method by jack hammer drilling, slurry blasting by forming 5.0 m bench height and 5.0 m bench width. Excavator and tippers are proposed for Loading and transportation.

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellarampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

Table – 1.4 Brief Descriptions of the Project

Name of the Quarry	Thiru. A.R. Govindan Rough Stone Quarry	
Toposheet No	57 P/06	
Latitude between	12°31'39.45"N to 12°31'50.90"N	
Longitude between	79°23'22.21"E to 79°23'31.55"E.	
The altitude of the area	140 m (MSL)	
Proposed Depth of Mining	20.5 m BGL	
Geological Resources	Rough Stone	Top Soil
	13,76,305 m ³	19,663 m ³
Mineable Reserves	5,28,215 m ³	15,670 m ³
Proposed Production	4,06,225 m ³	15,670 m ³
Ultimate pit Dimension	308 m (L) X 106 m (W) X 20.5 m (D), Depth - 20.5 m BGL	
Water Level in the area	56 m bgl	
Method of Mining	Opencast Mechanized Mining Method involving drilling and blasting	
Topography	The area applied for quarry lease is almost plain topography covered by topsoil formation. The massive Charnockite formation is noticed below 0.5m (Avg) topsoil and sloping towards northeastern side of the area, the altitude of the area is above 140m (maximum) from MSL.	
Machinery Proposed	Jack Hammer	8 Nos
	Compressor	2 Nos
	Excavator with bucket and rock breaker	2 Nos
	Tipper (5/10 T)	4 Nos
Proposed Manpower Development	30 Nos	
Water Requirement	5 KLD	
Greenbelt Development	The safety zone of 0.40.0 ha will be developed with about 200 nos of plantation.	
Fuel Requirement	1,08,320 liters of HSD (Entire ProjectLife)	
Project Cost	Rs. 2,85,60,000/- Two core eighty five lakhs sixty thousand rupees only.	

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellarampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

EMP Cost	Total EMP Cost for 5 years is 177.21 lakhs i.e., Rs.30.01 Lakhs of Capital + Recurring cost Rs. 147.20 lakhs for Five years
CER Cost	2% of the project cost, ie., Rs.5,71,200/- and Rs.6.0 Lakhs will be spent as CER Cost.

1.3.2 NATURE OF THE PROJECT

Sector	1(a) Non-Coal Mining
Type	Fresh Project
Category	B1 (Cluster Situation)
Mineral	Minor mineral of Rough Stone

1.3.3 LOCATION OF PROJECT

The proposed Quarry lease area is situated at S.F.Nos. 214 (Part – 3 & Part 4), Thellarampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu . The area lies in the north latitude of **12°31'39.45"N to 12°31'50.90"N** and eastern longitude of **79°23'22.21"E to 79°23'31.55"E**. Location of the proposed project is shown in Figure 2.1 and the satellite imagery of the project site is shown in Figure 2.2.

1.4 IMPORTANCE OF THE PROJECT TO THE REGION

Rough stone will continue to be a staple in construction, decoration and industry for years to come. As recycling picks up, mining and quarries may slow down, but we will always need rough stone in general construction and industry.

1.5 REGULATORY COMPLIANCES

Understanding of the applicable environmental legislative framework is crucial for understanding the scope of the EIA study. With respect to prevention and control of environmental pollution, the following Acts and Rules of MoEF&CC (Ministry of Environment Forests and Climate Change), GoI (Government of India) govern the

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellarampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

proposed project. The applicable environmental legislation for the proposed mining project is detailed below,

- Environment protection Act, 1986
- EIA Notification, 2006 & Subsequent amendments
- Water Pollution (Prevention & Control) Act, 1974
- Air Pollution (Prevention & Control) Act, 1981
- Noise Pollution (Regulation & Control) Rules, 2000
- Mines Act,1952
- Tamil Nadu Minor Mineral Concession Rules, 1959
- Mines and Minerals (development and regulation) Act,1957
- Minor Minerals Conservation and Development Amendment Rules 2018
- State Minor Mineral Concession Rules (GMMCR), 2017
- Explosive Act ,1884
- Explosive Rules,2008
- Hazardous and other Wastes (management and Transboundry Movement) Rules, 2016
- Batteries (Management and Handling) Rules 2010
- Solid Waste Management Rule 2016

1.5.1 PRESENT LEGAL STATUS

Table 1.5 – Present Legal Status

Description	Issuing Authority	Status	Letter number	Date	Reference
Precise Communication Area	Deputy Director, Department of Geology and Mining, Tiruvannamalai	Received	Rc.No.07/Kanimam/2023	10.01.2023	Annexure - 1
Mine Plan Approval Letter	Deputy Director, Geology & Mining, Tiruvannamalai	Approved	Rc.No.07/Kanimam/2023	14.02.2023	Annexure-2
District Survey Report	Collector, Assistant Director, Geology & Mining Tiruvannamalai	Authenticated	As per S.O. 3611(E) dated 25.07.2018	19.03.2019	-
500m radius Cluster Letter	Deputy Director, Geology & Mining, Tiruvannamalai	Obtained	Rc.No. 07/Kanimam/2023	14.02.2023	Annexure-3
VAO NOC for features within 300m radius	VAO, Thellampattu Village	obtained	-	22.02.2023	Annexure-4

1.5.2 SCREENING

As per the Environmental Impact Assessment (EIA) Notification dated 14th September 2006 and its subsequent amendments the proposed quarry mining project falls under 'Category B1(Cluster Situation)', which requires Environmental Clearance from the State Environmental Impact Assessment Authority (SEIAA). The project proponent has appointed M/s. Global Mining Solutions, Salem, who are accredited by the National Accreditation Board for Education and Training (NABET), Quality Council of India (QCI), New Delhi, under the registration number NABET/EIA/2326/IA 0110. Their role is to carry out an Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP) study in compliance with the Ministry of Environment, Forest and Climate Change (MoEF & CC) requirements.

1.5.3 SCOPE OF THE STUDY

In line with the prescribed Terms of Reference (TOR), the area comprising 10 km radius around the proposed mine lease boundary is considered as the study area. The EIA/EMP report has been prepared following the generic structure specified in the EIA Notification 2006. The detailed studies have been conducted as per prescribed Standard TOR issued by SEIAA, TamilNadu vide Lr.No.SEIAA-TN/F.No.10023/SEAC/ToR-1499/2023, dated: 19.07.2023. The point wise compliance for the ToR has been incorporated in this EIA/EMP report.

The main scope of the EIA study is to quantify the cumulative impact in the study area due to cluster quarries and formulate the effective mitigation measures for this applied project area. A detailed account of the emission sources, emissions control equipment, background Air quality levels, Meteorological measurements, Dispersion model and all other aspects of pollution like effluent discharge, Dust generation etc., have been discussed in this report. The baseline monitoring study has been carried out during the Period of October to December 2023 for various environmental components so as to assess the anticipated impacts due the cluster quarry projects on the environment and suggest suitable mitigation measures for likely adverse impacts due to this proposed project.

The scope of study broadly covered as below,

- ◆ Literature review and collection of secondary data relevant to the study area.
- ◆ Establish the baseline environmental aspects in and around the proposed project covering 10 km radius.
- ◆ Identify various existing pollution loads due to various mining activities.
- ◆ Predict incremental levels of pollutants in the study area due to the proposed operations.
- ◆ Establishing and analyzing demographic profile including sex ratio, literacy rate, SC/ST, workers classification, land use categorization, etc in the project influenced area
- ◆ Evaluate the predicted impacts on various environmental attributes in the study area by using scientifically developed and widely accepted environmental impact assessment methodologies.
- ◆ Prepare an Environment Management Plan (EMP) outlining the measures for improving the environmental quality and identify critical environmental attributes that are required to be monitored in the post-project scenario.
- ◆ To assess the impacts on human settlement in the project influence area Socio-Economic Assessment
- ◆ Cumulative impact assessment for the quarries in cluster.

1.6 NEED AND JUSTIFICATION OF THE PROJECT

- Proposed mining project will fulfill the local market requirement for real estate and infrastructure industry. This project will also provide employment to local people helping them earn livelihood.
- Employment generated consequent to the mining activity in the project will be benefit local and rural population and will have multiplier effects on local economy.
- The Project will give tremendous boosts to the local and regional economy benefiting the population.
- The social benefits arising out of this proposal can be expressed in terms of increase in the standards of living of local population, educational opportunities, training and development of skills etc.

1.7 STRUCTURE OF THE REPORT

As per the new guidelines of the MoEF & CC the report has been divided into the following chapters and presented as follows:

1. Introduction

This chapter describes the profile of the project proponent, name and contact address with email, project consultants, the purpose of the project, brief description of the project, applicable environmental regulations, objectives and methodology for EIA studies etc.

2. Project Description

This chapter gives a brief description of the project such as the type of project, need for the project, its location, approachability, layout, etc of the proposed project, the project implementation schedule, estimated cost of development etc

3. Description of the Environment

This chapter presents details of the baseline environmental status for microclimate, air quality, noise, water quality (surface and ground), soil quality, flora, fauna and socioeconomic status etc.

4. Anticipated Environmental Impacts & Mitigation Measures

This chapter discusses the possible sources of pollution and environmental impacts due to the project during operation phases and suggests the mitigation measures.

5. Analysis of Alternatives (Site And Technology)

This chapter discusses the analysis of the various alternatives for the technology as well as the site and gives the selection of the most feasible alternative.

6. Environmental Monitoring Program

This chapter discusses the details about the environmental monitoring program during operation phases. The technical aspects of monitoring the effectiveness of mitigation measures are covered in this chapter.

7. Additional Studies

This chapter covers information about the additional studies conducted for this project such as the Risk Analysis, Emergency Response and Disaster Management Plan.

8. Project Benefits

This chapter presents the benefits from this project

9. Environmental Management Plan

This chapter deals with the EM for the proposed sand mining projects and indicates the measures proposed to minimize the likely impacts on the environment during and operation phases and budgetary allocation for the same.

10. Summary and Conclusion

This chapter deals with the overall justification for implementation of the project and explanation of how, adverse effects have been mitigated.

11. Disclosure of Consultant

This chapter deals with the details of consultants engaged and the NABET accreditation details of environmental consultants.

2.0 PROJECT DESCRIPTION

2.1 TYPE OF THE PROJECT

The proposed activity is the extraction of Rough Stone by open cast mechanized mining method.

This project proposed to produce 4,06,225 m³ of Rough Stone and 15,670 m³ of top soil and for the period of first 5 years with ultimate depth up to 20.5 m.

2.2 NEED FOR THE PROJECT

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

2.3 LOCATION OF THE PROJECT

This is a Rough Stone Quarry located in Thellarampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu State. The area lies in the north latitude of **12°31'39.45"N to 12°31'50.90"N** and eastern longitude of **79°23'22.21"E to 79°23'31.55"E** and toposheet number **57 P/06**. Location of the proposed project is shown in Figure 2.1 the satellite imagery of the project site is shown in Figure 2.2.

This proposed project area is classified as Government land and the applicant has obtained tender from the Government. & does not fall within 10 km radius of any Eco – sensitive zone, Wild life Sanctuary, National Park, Tiger Reserve, Elephant Corridor and Biosphere Reserves. The M.L area details are presented in below Table.

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellarampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

Table 2.1 Boundary Coordinates of the Project

Corners	Co- ordinates	
	Latitude	Longitude
1	12° 31' 41.87" N	79° 23' 22.21"E
2	12° 31' 42.94" N	79° 23' 22.67"E
3	12° 31' 42.23" N	79° 23' 24.39"E
4	12° 31' 46.94" N	79° 23' 26.48"E
5	12° 31' 47.76" N	79° 23' 24.78"E
6	12° 31' 49.54" N	79° 23' 25.59"E
7	12° 31' 48.18" N	79° 23' 28.30"E
8	12° 31' 50.90" N	79° 23' 29.57"E
9	12° 31' 48.98" N	79° 23' 31.55"E
10	12° 31' 39.45" N	79° 23' 27.66"E

Table 2.2 Mine Lease Area and its Ownership

Location	S.F. No	Area in Ha	Name of the owner	Govt land	Remarks
Thellaram pattu Village, Chetpet Taluk, Tiruvanna malai	214/1 (Part-3 & Part-4)	3.93.5	Thiru. A.R.Govindan		It is Government land the applicant has obtained tender from the Government Please refer annexure -I.,
Total		3.93.5			

Table 2.3 Site Connectivity

Nearest Roadway	There is an existing road from the area leads to Somavaram - Thavani road on eastern side of the area. The National Highway (NH-38) Tiruvannamalai – Vellore is about 24.5km on western side of the area. The State Highway (SH-4) Arani – Gingee is about 5.3Km on western side of the area.
Nearest Village	Thellarampattu – 1.7 km – NW Alliyandal – 2.0 km - NE Thavani – 1.2 km – SE Konamangalam – 2.5 km - SW
Nearest Railway	Arani Road – 22.84 km – NW The Nearest Railway line is Tiruvannamalai - Vellore line which is about 22.5Km on northwestern side of the area.
Nearest Airport	Puducherry Airport – 78 Km – SE

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

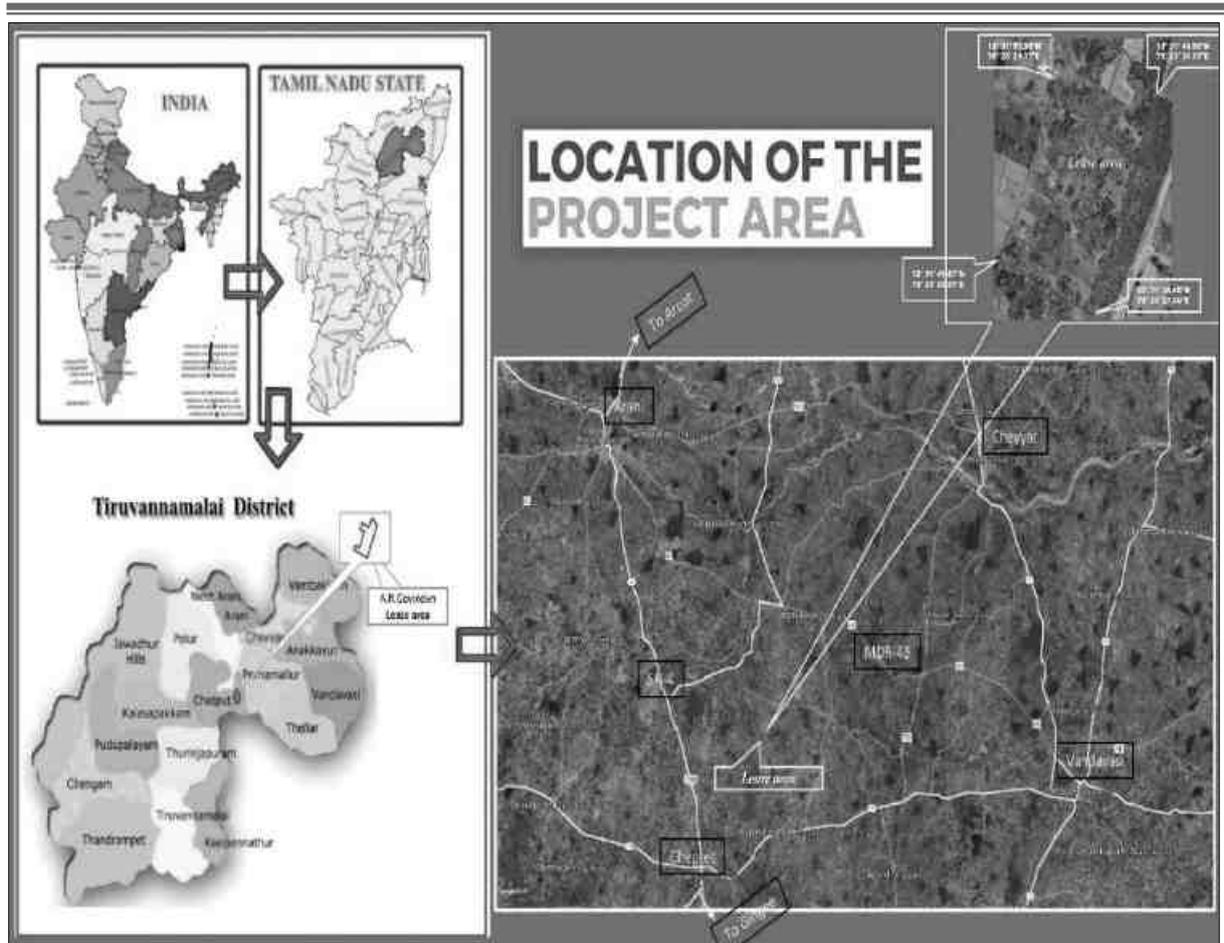


Figure 2.1 Location Map

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu



Figure 2.2 Google Image of the project site

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

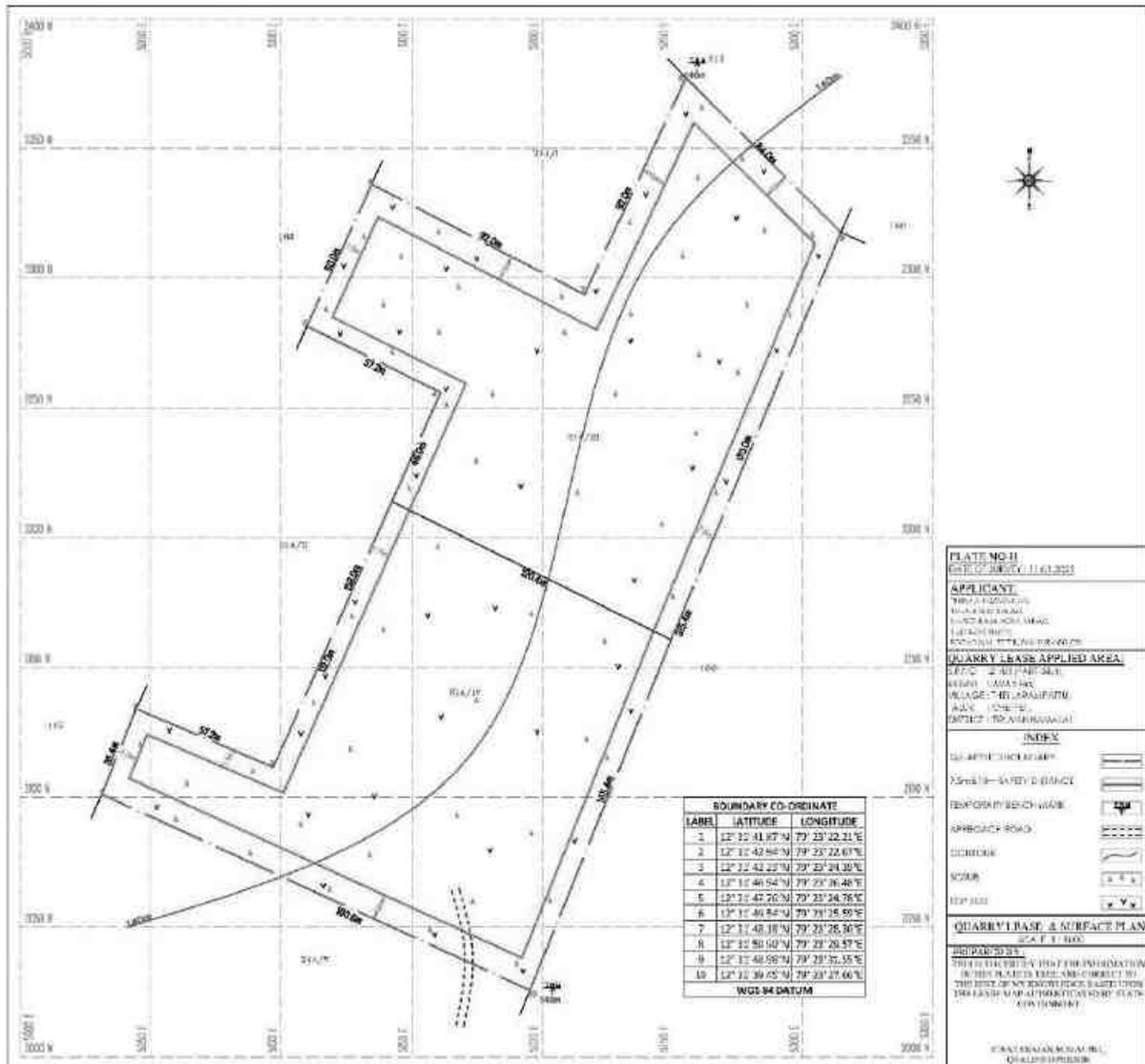


Figure 2.3 Lease Plan

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellarampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

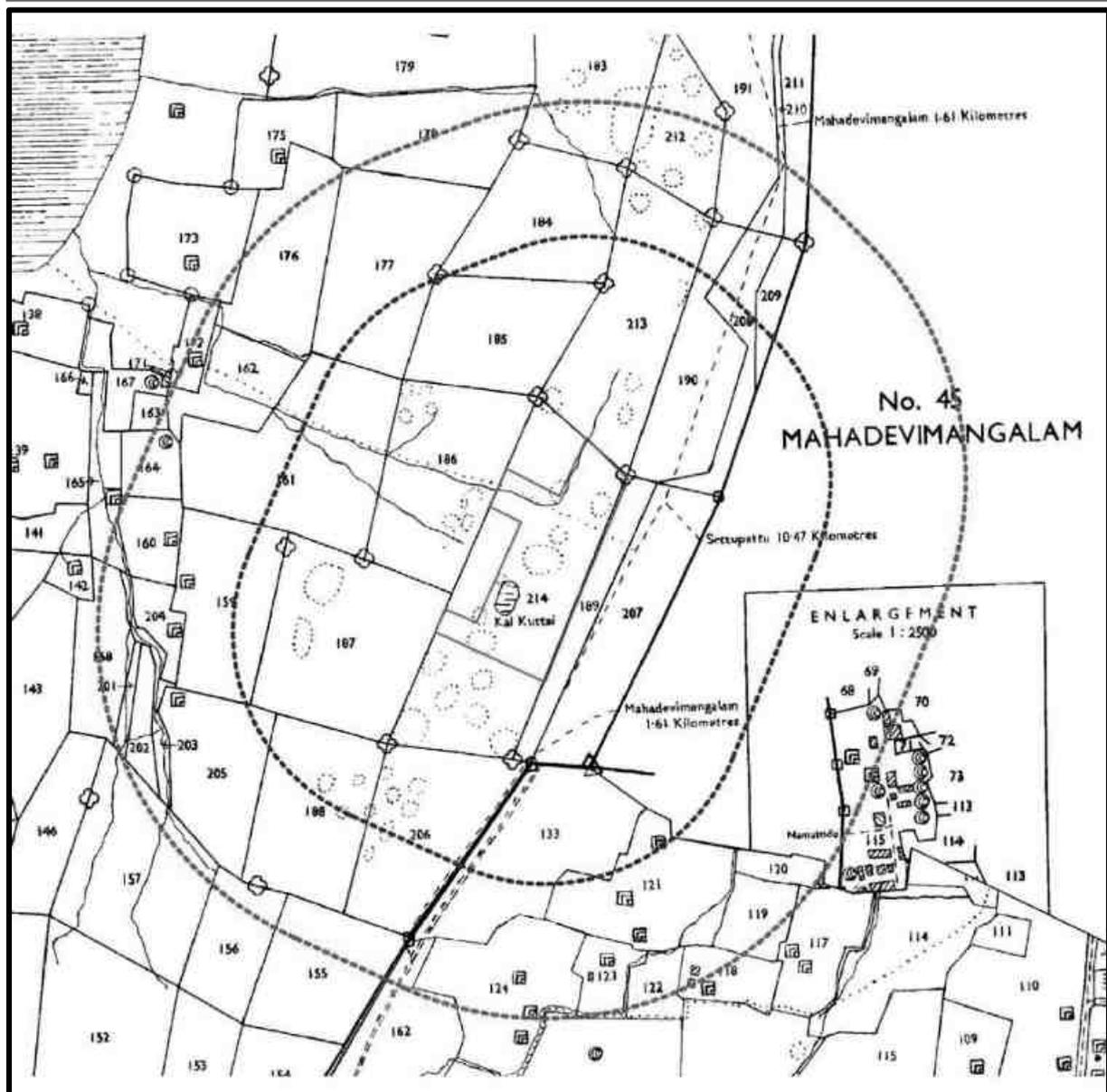


Figure 2.4 Village Map

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellarampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

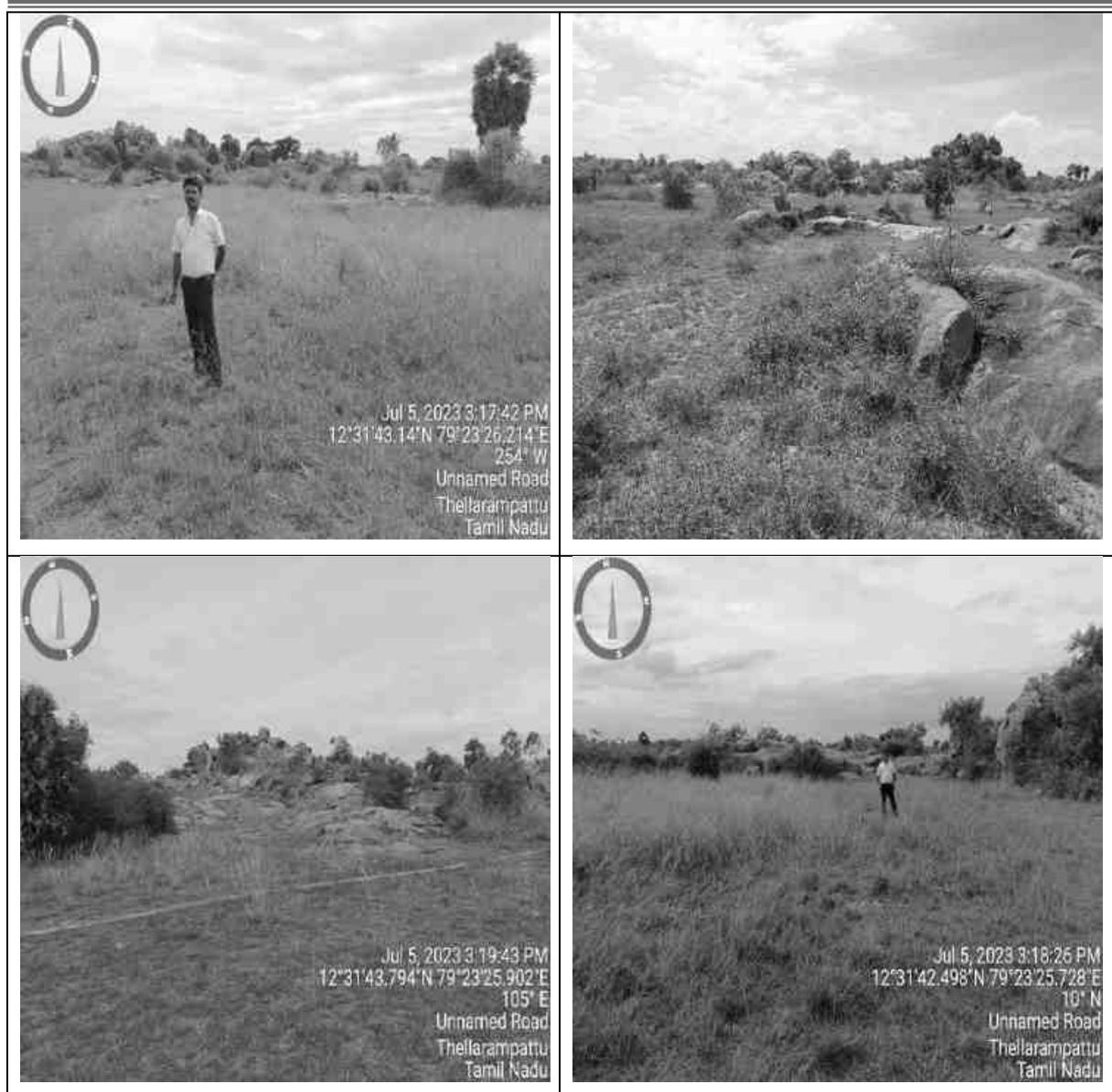


Figure 2.5 Site Photographs

2.4 LAND USE PATTERN OF THE PROJECT AREA

The entire project site is Government land and the allotted to PP for rough stone quarry operation by Government of Tamil Nadu through tender. The land use pattern of the mine lease area as of today and conceptual stage given in Table No. 2.4.

Table 2.4 Land use pattern of the Project area

Description	Present Area in Ha.	Area at the end of life of Quarry in Ha.
Quarrying pit	NIL	3.27.0
Infrastructure	NIL	0.01.0
Roads	NIL	0.01.0
Greenbelt	NIL	0.40.0
Unutilized	3.93.5	0.24.5
Total	3.93.5	3.93.5

2.5 SIZE AND MAGNITUDE OF THE OPERATION

The proposed activity is the extraction of Rough Stone by open cast mechanized mining method over an extent of 3.93.5 Ha and to produce 4,06,225 m³ of Rough Stone and 15,670 m³ of topsoil for the period of 5 years with ultimate depth upto 20.5 m. The details of geological and mineable reserves in the lease area have been provided below in the subsequent sub section.

2.6 TOPOGRAPHY AND DRAINAGE

The area applied for quarry lease is almost plain topography covered by topsoil formation. The massive Charnockite formation is noticed below 0.5m (Avg) topsoil and sloping towards northeastern side of the area, the altitude of the area is above 140m (maximum) from MSL. No major river is found nearby the lease applied area.

2.7 GEOLOGY

2.7.1 REGIONAL GEOLOGY

The geology of the district is mainly 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 entire area is covered by metamorphic

crystalline rocks of Charnockite, composite gneiss of Archaean age. These rocks are highly metamorphosed and have been subjected to severe folding, crushing and faulting. Charnockites group is occupied by North and Southern part of the Tondiar River 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 migmatized. Mostly, micaceous with bands of granites, pegmatites, quartz veins and the rock are 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 ages have been intruded 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.

2.7.2 LOCAL GEOLOGY

The area is underlain by the wide range of metamorphic rocks of peninsular gneissic complex. These rocks are extensively weathered and overlain by the recent valley fills and alluvium at places. The geological formations found in the district are Archaean rocks like Gneisses, Granites, Charnockites basic granulites and calc-gneisses. The younger formations are Quartz veins and pegmatite. The rock type noticed in the area for lease is Charnockite which contains mostly Quartz and Feldspar with some ferromagnesian minerals. The Charnockite is part of peninsular Gneisses, a high- grade metamorphic rock.

The strike of the Charnockite formation is N40° E – S40°W with dipping towards SE70°. The general geological succession of the area is given as under.

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

2.8 RESOURCES AND RESERVES

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

Table 2.5 Available Geological Resources

Section	Length in (m)	Width in (m)	Depth in (m)	Volume in m ³	Topsoil in m ³	Geological Resources of Rough Stone in m ³
XY – AB	187	119	0.5	11127	11127	-
	187	119	35	778855	-	778855
Sub Total (A)					11127	778855
XY-CD	143	81	0.5	5792	5792	-
	143	81	35	405405	-	405405
Sub Total (B)					5792	405405
XIYI-CD	59	93	0.5	2744	2744	-
	59	93	35	192045	-	192045
Sub Total (C)					2744	192045
Grand Total (A+B+C)					19663	1376305

Top soil Formation : 19,663 m³

The Geological Resource of Rough Stone : 13,76,305 m³

2.8.1 MINEABLE RESERVES

The mineable reserves are calculated by deducting 7.5 m and 10 m safety distance and bench loss.

Table 2.6 – Available Mineable Reserves

Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in m ³	Topsoil in m ³	Mineable Reserves of Rough Stone in m ³
XY-AB	I	176	104	0.5	9152	9152	-
	II	174	99	5	86130	-	86130
	III	168	86	5	72240	-	72240
	IV	161	73	5	58765	-	58765
	V	155	60	5	46500	-	46500
	VI	148	47	5	34780	-	34780
	VII	142	34	5	24140	-	24140
	VIII	135	21	5	14175	-	14175
Sub Total						9152	336730
XY – CD	I	132	73	0.5	4818	4818	-
	II	129	71	5	45795	-	45795
	III	123	64	5	39360	-	39360
	IV	116	58	5	33640	-	33640
	V	110	44	5	24200	-	24200
	VI	103	31	5	15965	-	15965
	VII	97	18	5	8730	-	8730
	Sub Total						4818
XIYI – CD	I	40	85	0.5	1700	1700	-
	II	36	83	5	14940	-	14940
	III	23	77	5	8855	-	8855
Sub Total						1700	23795
Grand Total						15670	528215

The Total Mineable Reserves:

Top soil Formation : 15,670 m³

The Geological Resource of Rough Stone : 5,28,215 m³

2.9 PROCESS DESCRIPTION AND TECHNOLOGY

2.9.1 PROCESS DESCRIPTON

The quarry operation involves shallow jack hammer drilling, slurry blasting, excavation, Loading and transportation of Rough stone to the needy buyers. The production of Rough stone in this quarry involves the following method which is typical for Rough Stone quarrying in contrast to other major mineral mining.

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

- Splitting of rock mass of considerable volume from the parent rock mass by jackhammer drilling and blasting, hydraulic excavators are used for loading the Rough Stone from pithead to the needy buyers.
- Occasionally hydraulic excavators are attached with rock breakers for fragmentation to avoid secondary blasting.
- The primary boulders thus splitted are removed from the pits by excavators and further made to smaller sizes by rock breakers attached in excavators.

The process diagram is provided in Figure 2.6. The Geological and production plan and cross section for the 5 years period and conceptual plan and conceptual cross section is given in Figure No. 2.7 and Figure No. 2.8.

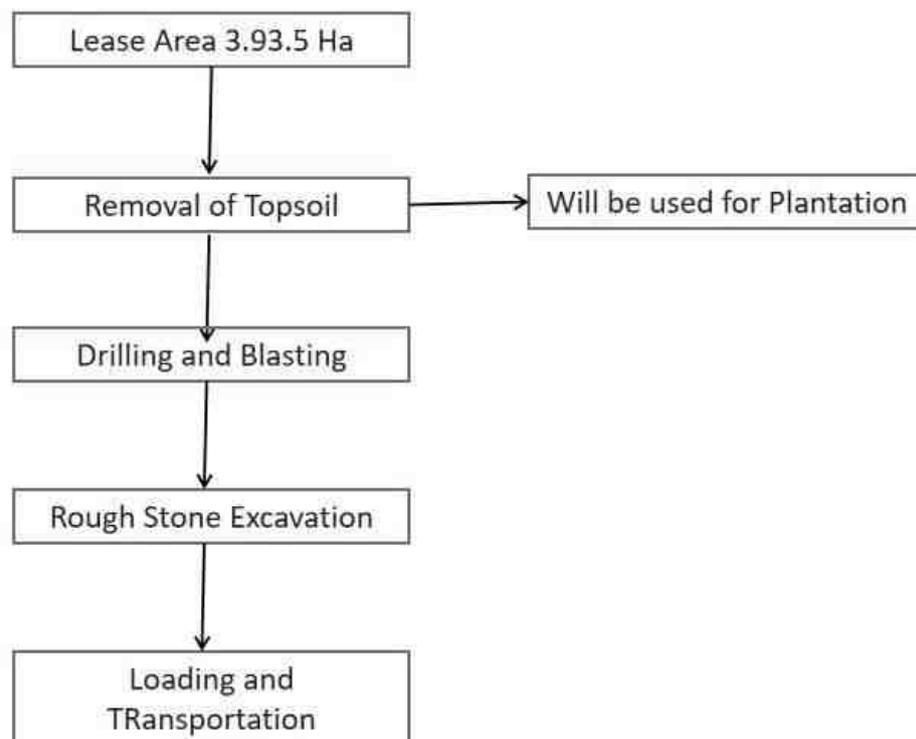


Figure 2.6 Process Flow Diagram

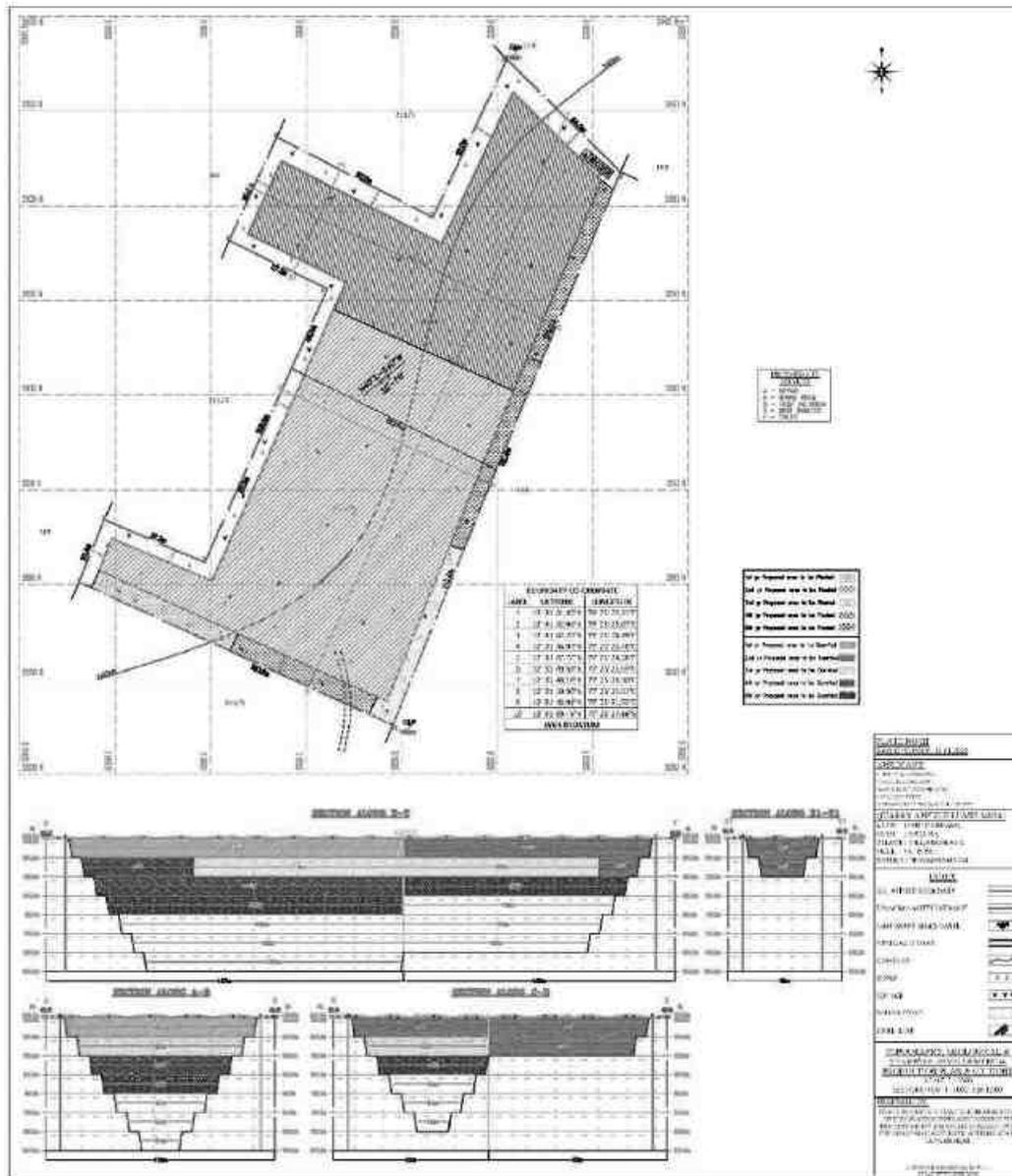


Table 2.7 – Machinery Details

S.NO	Name of the Equipment	Capacity	Requirement
1	Excavator with Rock breaker attachment	0.90 m3	2
2	compressor	400 psi	2
3	jack hammer	1.2m to 6m	8
4	Tipper	5/10 T	4

2.9.2 DRILLING AND BLASTING PARAMETERS

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

Diameter of the hole	32-36 mm
Spacing	0.6m
Depth	1 to 1.5 m
Burden of hole	0.6m
Pattern of hole	Zigzag
Inclination of hole	70 ⁰ from horizontal
Number of holes	234
Powder factor	6Ts/Kg of Explosives
Total explosive required	117 Kg slurry Explosives
Charge / hole	0.5Kg
Blasting time	12-2 Pm

2.9.3 TYPE OF EXPLOSIVE

Slurry explosive is proposed for shattering and heaving effect for removal of rough stone. No deep hole drilling or primary blasting is proposed. The Project Proponent have agreement with Kuberan Explosives & Co to carry out the blasting operation for the proposed quarry. The Blasting Agreement is enclosed as Annexure – 6.

2.9.4 STORAGE OF EXPLOSIVES

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

2.9.5 PRODUCTION SCHEDULE

The year wise production schedule upto lease period of first 5 years is given below, the year wise production plan is given in Figure 2.7.

Table 2.8 Year wise Production Plan

Year	Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in m ³	Topsoil in m ³	Reserves of Rough Stone in m ³
I	XY-AB	I	176	104	0.5	9152	9152	-
		II	174	99	5	86130	-	86130
Sub Total							9152	86130
II	XY - CD	I	132	73	0.5	4818	4818	-
		II	129	71	5	45795		45795
		III	20	64	5	6400		6400
	XIYI- CD	I	40	85	0.5	1700	1700	
		II	36	83	5	14940		14940
		III	23	77	5	8855	-	8855
Sub Total							6518	75990
III	XY-CD	III	103	64	5	32960	-	32960
	XY-AB	III	110	86	5	47300	-	47300
Sub Total							-	80260
IV	XY-AB	III	58	86	5	24940	-	24940
		IV	161	73	5	58765	-	58765
Sub Total							-	83705
V	XY-CD	IV	116	58	5	33640	-	33640
	XY-AB	V	155	60	5	46500	-	46500
Sub Total							-	80140
Grand Total							15670	406225

The Peak production quantity of Rough Stone - 86,130 m³ (1st year)

Total Top soil Quantity – 15,670 m³

2.9.6 DISPOSAL OF WASTE

There is no waste anticipated in this rough stone Quarry. The entire quarried minerals will be utilized. The topsoil generated will be preserved in the safety zone, later will be utilized for afforestation purpose.

2.10 CONCEPTUAL MINING PLAN / FINAL MINE CLOSURE PLAN

Conceptual mining plan is prepared with an object of five years of systematic development of bench layouts, selection of ultimate pit limit, depth of quarrying, ultimate pit slope, selection of sites for construction of infrastructure etc.

The ultimate pit size is designed based on certain practical parameters such as economical depth of mining, safety zones, permissible area, etc. Conceptual cross section and mine closure plan is given in Figure 2.8.

Table 2.9 - Ultimate Pit Dimension

Pit	Length in m (Max)	Width in m (Max.)	Depth in m (Max.), bgl
I	308	106	20.5

Land use pattern of the Project area

Description	Present Area in Ha.	Area at the end of life of Quarry in Ha.
Quarrying pit	NIL	3.27.0
Infrastructure	NIL	0.01.0
Roads	NIL	0.01.0
Greenbelt	NIL	0.40.0
Unutilized	3.93.5	0.24.5
Total	3.93.5	3.93.5

- At the end of life of mine, the excavated mine pit / void of 3.27.0 Ha. will act as artificial reservoir for collecting rain water and helps to meet out the demand or crises during drought season.
- After mine closure the greenbelt (0.40.0 Ha.) will be developed along the safety barrier and top benches and 0.02 ha are approach road and Infrastructure.
- Remaining 0.24.5 ha. of land will be covered with vegetation.

2.11 PROJECT REQUIREMENT

2.11.1 WATER REQUIREMENT AND SOURCE

The total water requirement estimated for the quarry is 5.0 KLD. The required water will be procured from outside agencies initially and later rainwater harvested in the mine pit shall be used other than drinking purpose.

Table 2.10 Details of Water requirement

Activity	Water Requirement in KLD
Drinking & Domestic	1.0
Dust Suppression	2.0
Greenbelt Development	2.0
Total	5.0

2.11.2 POWER REQUIREMENT

All the equipment will be diesel operated. No electricity is needed for mining operation. The minimum power requirement for office, etc will be met from state grid.

2.11.3 FUEL REQUIREMENT

High speed Diesel (HSD) will be used for mining machineries.

i) For Rough Stone

Per hour excavator will consume	16 liters /hr
Per hour excavator will excavate	50 m ³ of Rough Stone
For 4,06,225 m ³	4,06,225/50 = 8125
So, Diesel consumption	=8125 X 16 litres =1,30,000 litres of HSD

ii) For Earth

Per hour excavator will consume	10 liters /hr
Per hour excavator will excavate	100 m ³ of Earth
For 15,670 m ³	15,670/100 = 157
So, Diesel consumption	=157 X 10 litres =1570 litres of HSD

The Total fuel consumption is around 1,31,570 litres of HSD for the entire period of life (5 years).

2.11.4 EMPLOYMENT GENERATION

The project will provide employment opportunities totally to 30 persons directly and 30 indirectly.

Skilled	Operator	12 Nos
	Mechanic	1 No
	Mines Manager	1 No
	Fore Man / Mate	2 Nos
Semi-Skilled	Driver	4 Nos
Unskilled	Labours	10 Nos
Total		30 Nos

2.11.5 INFRASTRUCTURE REQUIREMENT

This is a proposed project. Site services like mine office, first aid room, toilets etc. will be provided as semi-permanent structures.

2.11.6 PROJECT COST

The total project cost of this Rough stone Quarry is Rs. 2,85,60,000/- (Two core eighty five lakhs sixty thousand rupees only)

2.11.7 PROJECT IMPLEMENTATION SCHEDULE

The proponent proposes to implement the production immediately after obtaining all the statutory approvals. The commercial operation will commence after the grant of Environmental Clearance. CTO and CTE will be obtained from the Tamil Nadu State Pollution Control Board. The conditions imposed during the Environmental Clearance will be compiled before the start of mining operation.

3.0 DESCRIPTION OF THE ENVIRONMENT

3.1 INTRODUCTION

As a precursor for the prediction of various types of environmental impacts likely to arise due to implementation of the project, it is essential to establish the baseline environmental setting of the project. Details of the baseline environmental parameters are required for decision making for the project design, implementation and operation from the environmental point of views. The data is to be generated through primary data collection (direct monitoring) and secondary sources (published data).

This chapter describes the environmental baseline data of core zone and surrounding areas of the project. The environmental baseline data includes the physical environment (comprising climate & meteorology, air, water, Noise and land components), biological environment and socio-economic environment, which may get affected due to the this proposed project.

3.2 STUDY AREA

The study area has been divided into two zones, namely, core and buffer zones. Core zone is considered as the total lease area of mine lease, while buffer zone encompasses an area of 10 km radius distance from the periphery of core zone. This chapter incorporates the description of existing environmental status in an area encompassed within 10 km radius from the boundary of mine lease. The environmental data for the following Environmental components were collected in the study area:

- Micro-meteorological monitoring in one of the representative locations.
- Ambient air quality study comprising gaseous, particulate matter at 5 different locations.
- Water quality analysis in 8 different locations (5 Ground Water + 3 Surface Water)
- Noise levels monitoring in 5 different locations
- Soil quality analysis in 3 locations.
- Flora & Fauna status.
- Land use & Land Cover.
- Socio-economic survey.

3.3 STUDY PERIOD

The above-mentioned studies have been carried out systematically and meticulously as per relevant IS codes, CPCB, MoEF&CC guidelines during October to December 2023.

3.4 MONITORING LAB

The baseline information for air, water, noise, and soil was analysed by M/s. Shrient Analytical and Research Labs Pvt Ltd, # 416/15, Dharga Road, Perungalathur, West Tambaram, Chennai – 600 045. (Accredited by NABL as ISO/IEC/17025:2017) between October to December 2023.

3.5 ENUMERATION OF THE STRUCTURES LOCATED WITHIN 300 M RADIUS FROM THE PROPOSED QUARRY SITE

A Site survey has been conducted to identify and list structures located within a 300 m radius from the proposed Quarry. The details structures located within 300 m radius are given in below table and Figure 3.1.

1. Structures Details

Table 3.1 Structures within 300 m radius

Range	No. of Structures	Structures Details
0 – 50 m	0	-
50-100 m	0	-
100-150	1	Cot Shed
150 – 200 m	1	Crusher Plant
200 – 250 m	2	Crusher Office & Shed
250 – 300 m	3	Motor Room, Cot Shed & Farmhouse

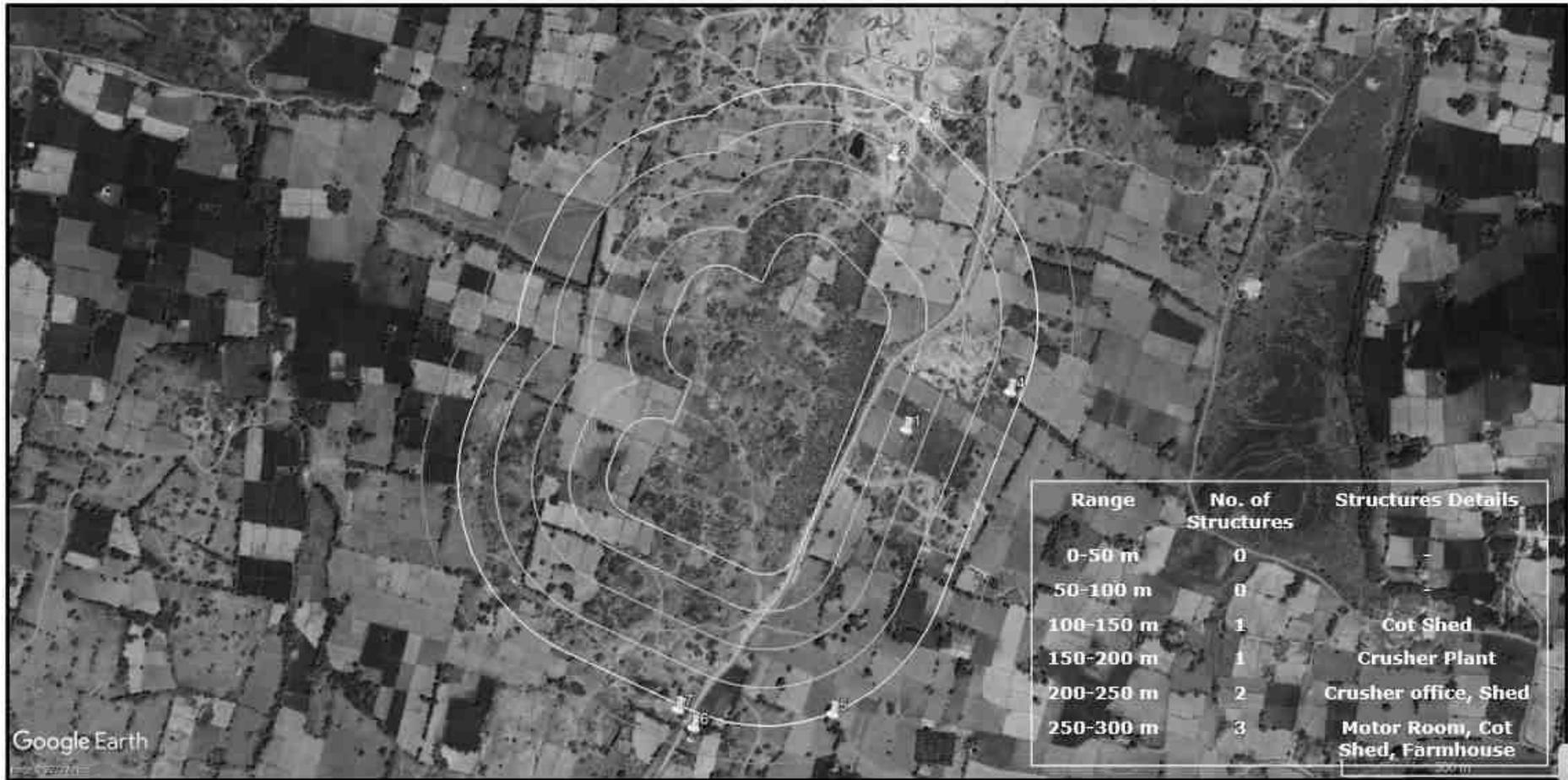


Figure 3.1 Google Image showing structures located within 300 m radius

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<p>1. Shed-120m(E)</p>	<p>2. Crusher-171m(N)</p>	<p>3. Crusher office-246m(N)</p>	<p>4. Cotshed-233m(E)</p>
			
<p>5. Cot Shed – 270m(SE)</p>	<p>6. Motor Room-280m(S)</p>	<p>7. Farmhouse-271(S)</p>	

Figure 3.2 Photographs of the structures located within 300 m radius

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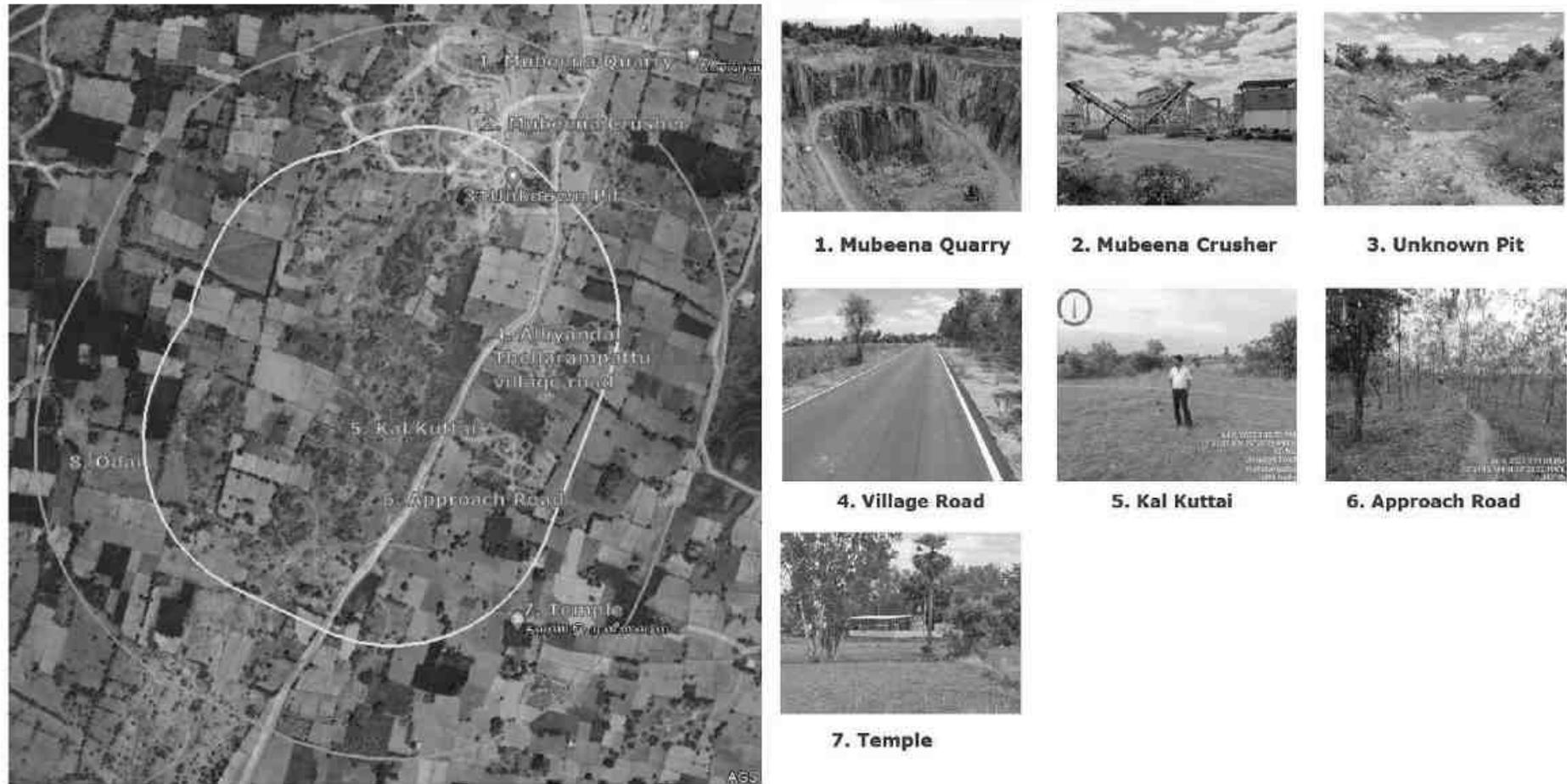


Figure 3.3 Existing Features Within 500m Radius

3.6 ENVIRONMENTAL SETTINGS OF THE PROJECT

The Environmental settings of the project covering 10km radius of study area is given in Table 3.2. The study area map is given in Figure- 3.5 and satellite image showing 10 km radius is given in Figure 3.4.

Table 3.2 Environmental Settings of the Study Area – 10 km radius

S.NO	Particulars	Description
1.	Latitude & Longitude	Latitude: 12°31'39.45"N to 12°31'50.90"N Longitude: 79°23'22.21"E to 79°23'31.55"E
2.	The altitude of the area	140 m from MSL
3.	Topography	Plain Terrain
4.	Land use of M.L. area	Government Land
5.	Extent of the Lease area	3.93.5 Ha.
6.	Nearest Highway	The National Highway (NH-38) Tiruvannamalai – Vellore is about 24.5km on western side of the area. The State Highway (SH-4) Arani – Gingee is about 5.3Km on western side of the area.
7.	Nearest Railway Station	Arani Road – 22.84 km – NW The Nearest Railway line is Tiruvannamalai - Vellore line which is about 22.5Km on northwestern side of the area.
8.	Nearest airport	Puducherry Airport – 78 Km – SE
9.	Nearest Village	Thellarampattu – 1.7 km – NW Alliyandal – 2.0 km - NE Thavani – 1.2 km – SE Konamangalam – 2.5 km - SW
10.	Nearest Town	Chetpet – 8.0 km - S
11	Water Bodies	Core Zone – NIL Buffer Zone <ul style="list-style-type: none"> • Odai – 420 m (SW) • Tank – 530 m – E • Tank – 730 m - NW • Cheyyar River – 4.7 km (NE)

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12	Historical Places/Places of Tourist/ Archeological site	NIL within 10 km radius
13.	Environmental sensitive areas, Protected areas as per Wildlife Protection Act, 1972 (Tiger reserve, Elephant reserve, Biospheres, National parks, Wildlife sanctuaries, community reserves and conservation reserves)	NIL within 10 km radius
14	Reserved / Protected Forests	<ul style="list-style-type: none"> • Vishamangalam R F – 1.1 km (S) • Nedunkunam R F – 5.2 km (S) • Nambedu R F – 7.7 km (NE)
15	Defence Installations	NIL within 10 km radius
16	Seismic Zone	Zone II
17	Other Industries in the study area	NIL within 10 km radius
18	Interstate boundary	NIL

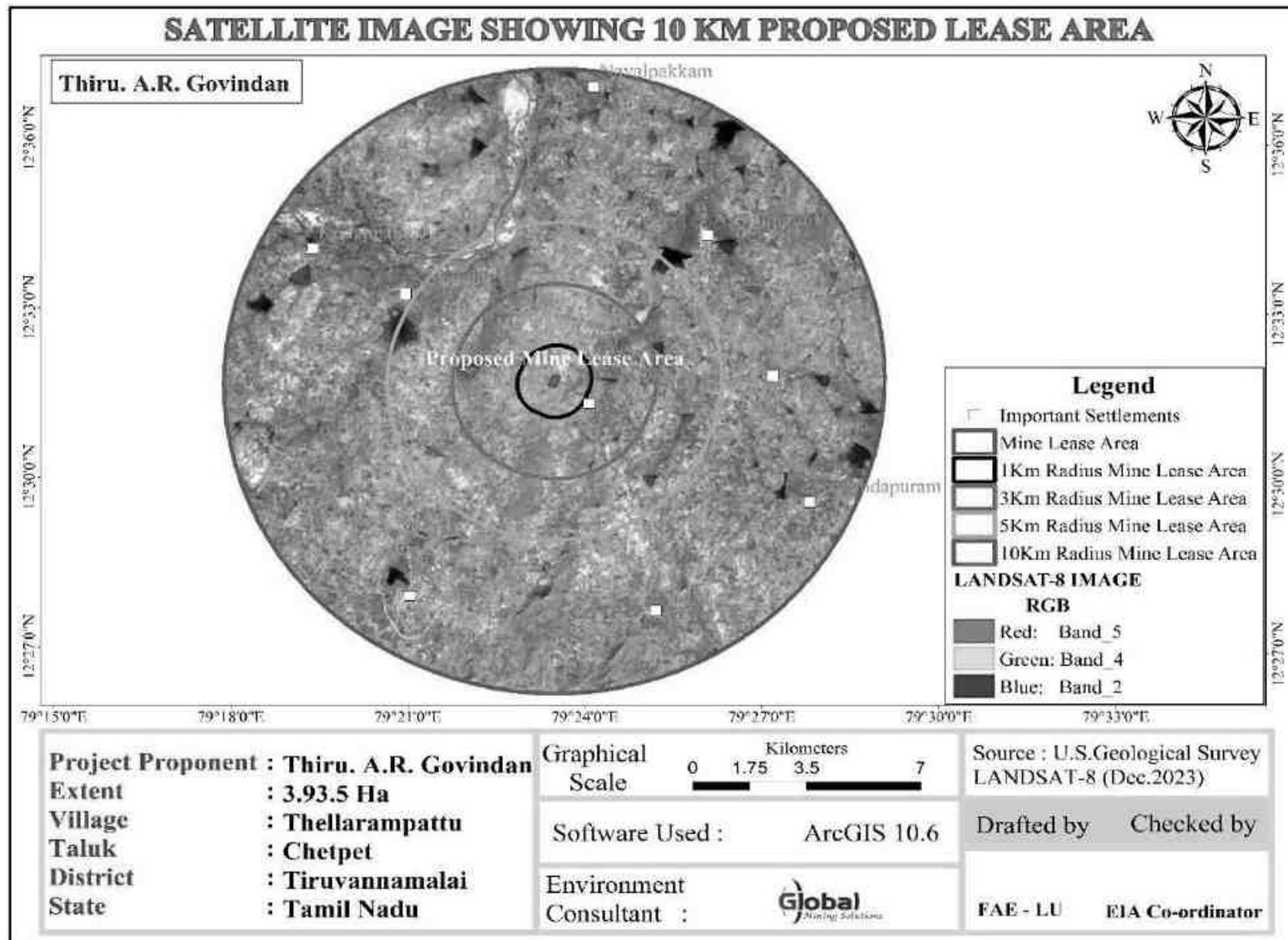


Figure 3.4 Satellite Image of the Study Area

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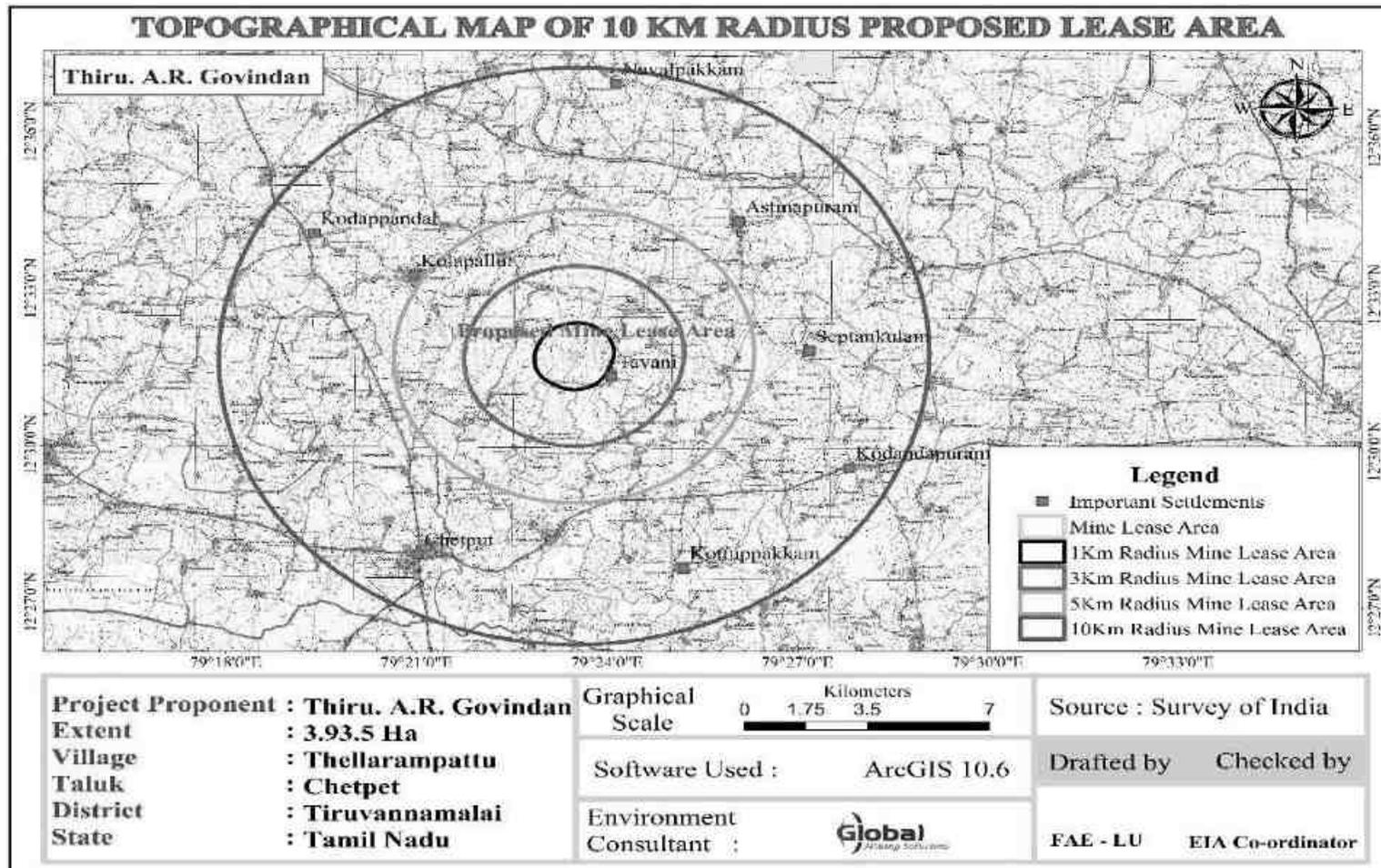


Figure 3.5 Topo map Showing Study Area

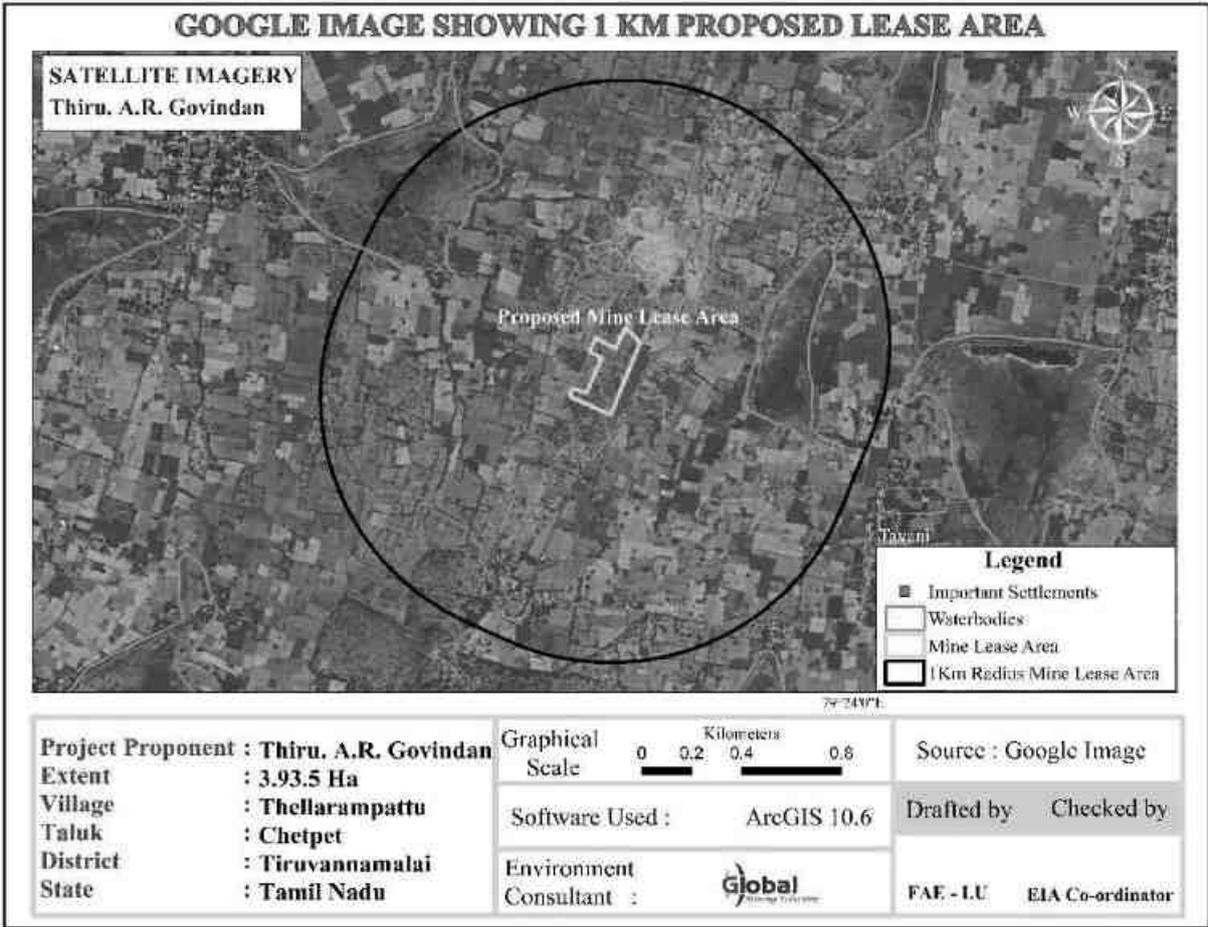


Figure 3.6 Google Image showing 1 km radius

3.7 EXISTING ENVIRONMENTAL SCENARIO

3.7.1 MICRO- METEOROLOGY

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

3.7.1.1 CLIMATE AND RAINFALL DATA

Tiruvannamalai has a tropical climate. The summers are much rainier than the winters in Tiruvannamalai. This location is classified as Aw by Köppen and Geiger (Aw, or the tropical wet and dry climate, also known as the savanna climate, where there is an extended dry season during the winter. During the wet season, rainfall is less than 1000mm, occurring mainly in the summertime). The average annual temperature is 27.4 °C | 81.3 °F in Tiruvannamalai. The district receives rainfall from North East and South West monsoons.

Table 3.3 Rainfall Data

Actual Rainfall in mm					Normal Rainfall in mm
2017	2018	2019	2020	2021	
1251.3	799.2	1071.9	1034.5	1592.2	985

Seismic Sensitivity

The proposed project site falls in the seismic Zone II, low damage risk zone as per BMTPC, Vulnerability Atlas of Seismic zone of India IS: 1893 – 2002.

Table 3.4 Meteorological Data Recorded at Site

S.NO	Parameters	October to December 2023	
1.	Temperature (°C)	Min	19
		Max.	34
		Avg	26
2.	Relative Humidity (%)	Min	41

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		Max	97
		Avg	77
3.	Wind Speed (km/h)	Min	0
		Max	28
		Avg	8
4.	Wind Direction	Blowing From – NE Blowing Towards - SW	

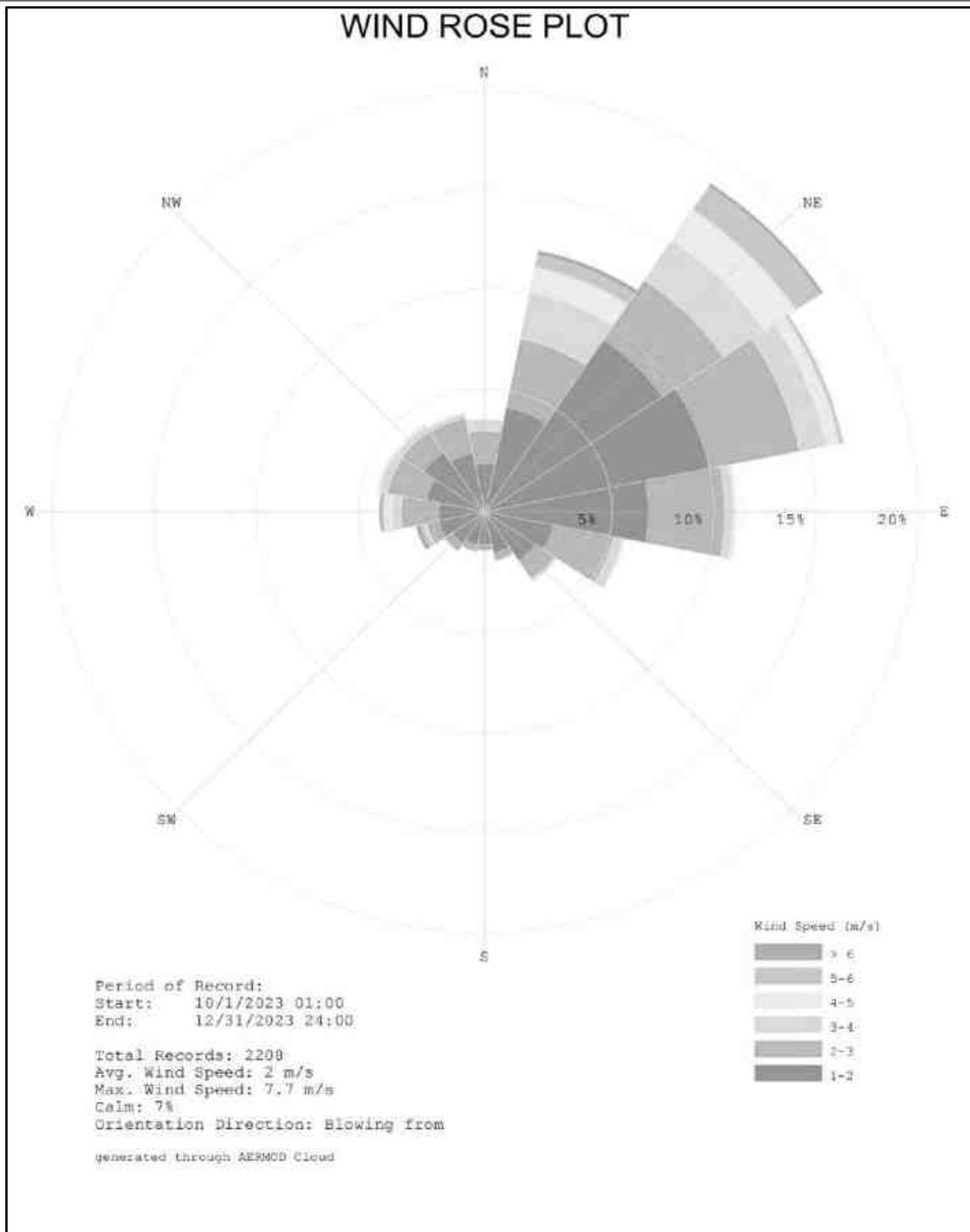


Figure 3.7 -a Wind Rose Diagram – Blowing From (October – December 2023)

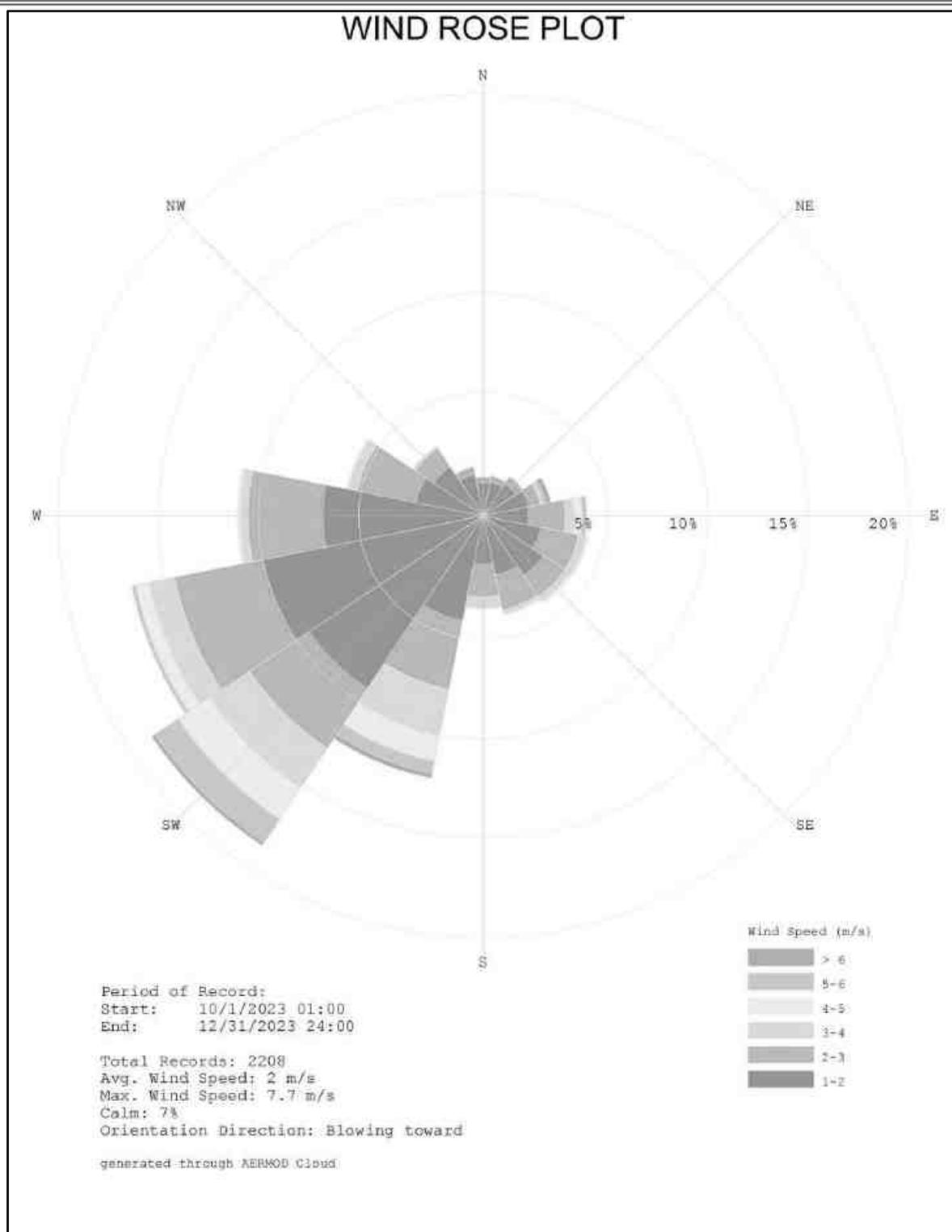


Figure 3.7-b Wind Rose Diagram – Blowing Towards (October – December 2023)

3.7.2 AIR ENVIRONMENT

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

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

3.7.2.1 SAMPLING & ANALYTICAL TECHNIQUES

Table 3.5 Methodology for Air Quality Monitoring

Table 3.4 : Air Quality Monitoring		
1.	Monitoring Period	Post Monsoon (October 2023 to December 2023)
2.	Monitoring Location	The monitoring locations for ambient air study is given in Table – 3.6 and Figure 3.8.
Methodology		
3.	A. Sampling	(IS-5182:Part 1:2018)
	B. Analysis	
Parameters		Protocol
4.	Particulate Matter (PM ₁₀)	Gravimetric (IS 5182: Part 23:2017)
	Particulate Matter (PM _{2.5})	Gravimetric (IS 5182: Part 24:2019)
	Sulphur Dioxide	Colorimetric (West & Gaeke Method) (IS 5182: Part 02: 2017)
	Nitrogen Dioxide	Colorimetric (Modified Jacob & Hocheiser Method) (IS 5182: Part 06:2017)
	Carbon Monoxide	CO Monitor
	Monitoring Frequency	2 days in a week, 4 weeks in a month for 3 months in a season.

3.7.2.2 FREQUENCY AND PARAMETERS FOR SAMPLING

Ambient air quality monitoring has been carried out with a frequency of two samples per week at five (5) locations, adopting a continuous 24 hourly (3 shift of 8-hour) schedule for the period October to December, 2023. The baseline data of ambient air has been generated for PM₁₀, PM_{2.5}, Sulphur Dioxide (SO₂), Nitrogen Dioxide (NO₂) and Carbon Monoxide Monitoring has been carried out as per the CPCB, MoEF & CC guidelines and notifications.

It was ensured that the equipment was placed preferably at a height of at least 1.8 to 2.2 m above the ground level at each monitoring station, for negating the effects of wind-blown ground dust. The equipment was placed at open space free from trees and vegetation which otherwise act as a sink of pollutants resulting in lower levels in monitoring results.

3.7.2.3 AMBIENT AIR QUALITY MONITORING STATIONS

Five (5) monitoring stations were set up in the study area as depicted in Figure 3.8 for assessment of the existing ambient air quality. Details of the sampling locations are as per given below.

Table 3.6 – Ambient Air Quality Monitoring Locations

S.NO	Location Code	Monitoring Locations	Latitude and longitude
1	A1	Within Mine Lease area	12° 31'43.89"N & 79° 23'26.22" E
2	A2	Thavani	12° 31'33.19"N & 79° 24'05.37" E
3	A3	Namathodu	12° 32'08.33"N & 79° 22'36.86" E
4	A4	Alliyandal	12° 32'44.74"N & 79° 24'19.16" E
5	A5	Avaniyapuram	12° 34'51.14"N & 79° 23'28.27" E

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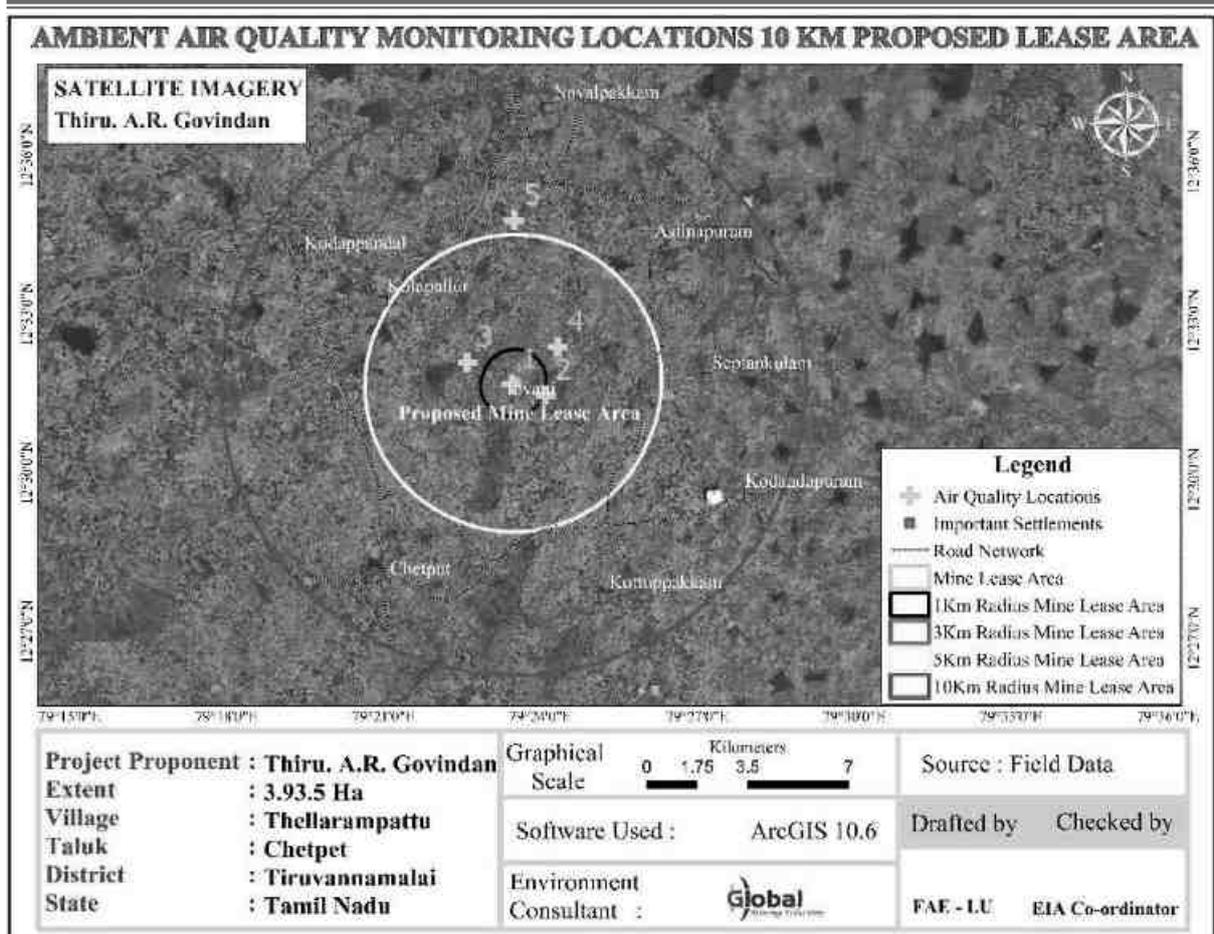


Figure 3.8 Ambient Air Quality Monitoring Locations

Table 3.7 Ambient Air Quality Data

S.NO	Parameters Locations	Ambient Air Quality									All Value in µg/m3		
		PM10			PM2.5			SO2			NO2		
		Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max
1	A1-Mine Lease Area	54.6	63.7	72.4	25.2	29.4	33.4	4.5	5.5	6.3	7.3	10.0	12.6
2	A2- Thavani	51.5	58.5	66.6	23.9	27.2	31.0	4.7	5.3	5.9	7.2	8.8	11.2
3	A3- Namathodu	50.3	57.0	65.1	23.3	26.5	30.3	4.2	4.7	5.7	7.4	9.75	12.4
4	A4- Alliyandal	47.0	51.6	56.2	21.9	23.9	26.1	3.8	4.9	6.1	7.7	10.0	12.8
5	A5- Avaniyapuram	46.7	50.9	55.9	21.7	23.6	26.0	3.8	4.4	5.3	7.9	9.8	11.9
6	CPCB NAAQS 2009	100			60			80			80		

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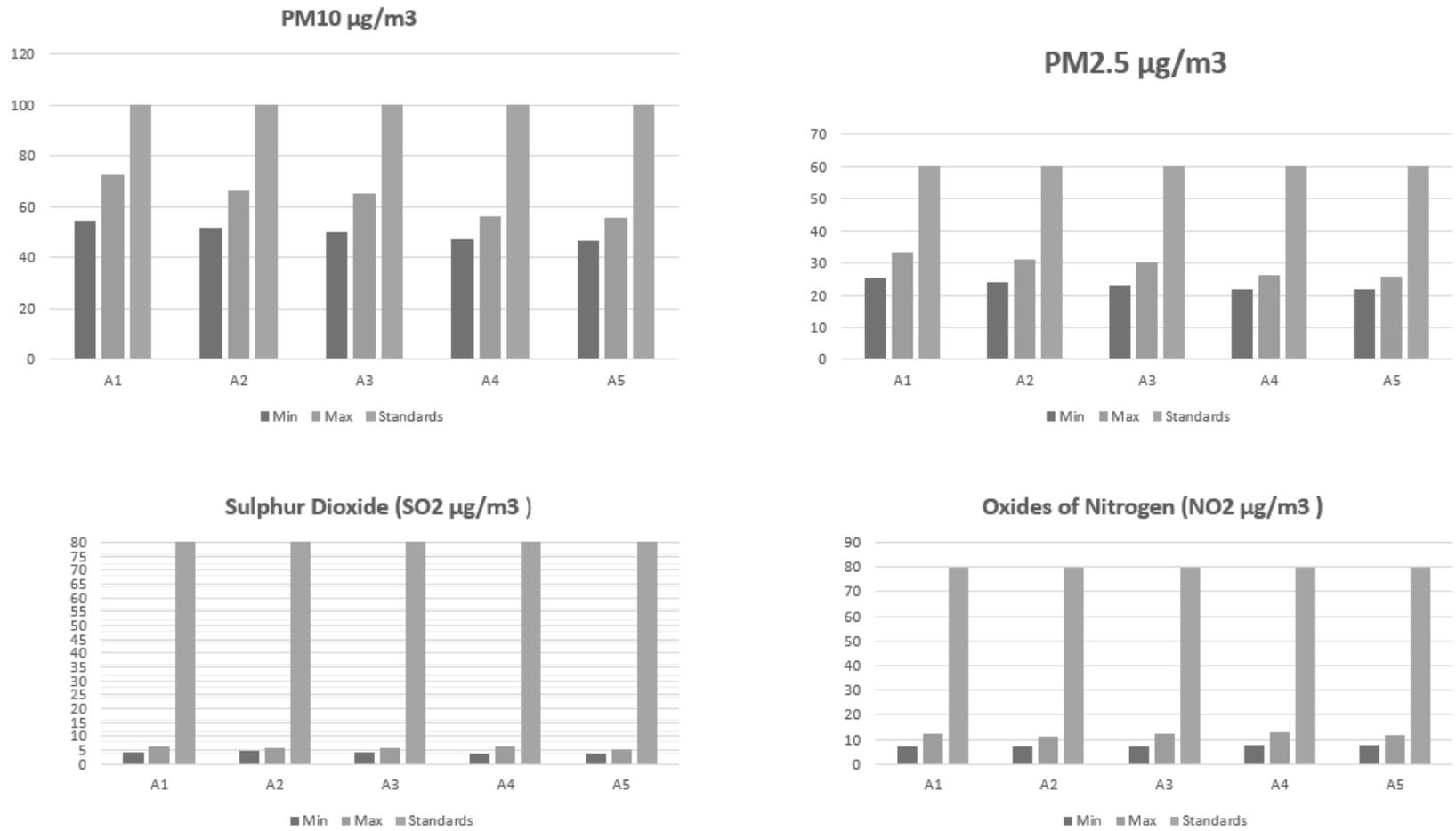


Figure –3.9 - Graphical Representation of Air Quality Data

3.7.2.4 DISCUSSION

From the table it is seen that, in the ambient air, the PM₁₀ values were in the range of 46.7 – 72.4 µg/m³. PM_{2.5} values were in the range of 21.7 – 33.4 µg/m³. SO₂ levels were ranging from 3.8 – 6.3 µg/m³. NO₂ levels were ranging from 7.2 – 12.8 µg/m³. While comparing with the NAAQ Norms laid by MoEF, all monitored values of PM₁₀, PM_{2.5}, SO₂, NO₂ & CO were found to be well within the prescribed standards. The CO values in the all locations found to be below detectable limit (DL – 1144 µg/m³).

3.7.3 WATER ENVIRONMENT

The water resources, both surface and groundwater play a significant role in the development of the area. The purpose of this study is to assess the water quality characteristics for critical parameters and evaluate the impacts on agricultural productivity, domestic community usage, recreational resources and aesthetics in the vicinity. The water samples were collected and transported as per the standard guidelines issued by CPCB for analysis.

3.7.3.1 METHODOLOGY

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

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

3.7.3.2 SURFACE WATER

Cheyar River is situated at a distance of 4.7 km in north east direction. The area is studded with few tanks that serve as the source for agriculture and also their surplus feeds adjoining tanks. The rainfall over the area is moderate, the rainwater storage in open wells, trenches is in practice over the area and the stored water acts as source of freshwater.

3.7.3.3 GROUND WATER

The district is underlain by both porous and fissured formations, Unconsolidated & Semi-consolidated formations and Weathered, Fissured and fractured crystalline rocks constitute the important aquifer systems in the Tiruvannamalai region. Ground water occurs under phreatic to semi-confined conditions in these formations and is being developed by means of dug wells and filter points. Proterozoic formation is the basement rocks which consist of quartzite, crystalline limestone, calcgranulite, hornblende - biotite gneiss, charnockite or pyroxene granulite, granite and pegmatite. Weathered, a fissured cracks, shear zones and joints in the basement rock act as a good groundwater potential zone in the study area.

3.7.3.4 SAMPLING LOCATIONS

Three (3) surface water samples and Five (5) ground water samples were collected from the study area and were analysed for physio-chemical, heavy metals and bacteriological parameters in order to assess the effect of mining and other activities on ground water. The samples were analysed as per the procedures specified by CPCB, IS-10500:2012. The water sampling locations are given in Table 3.8 and shown as Figure 3.10.

Table 3.8 Water Sampling Locations

S.NO	Location Code	Monitoring Locations	Latitude and longitude
Surface Water			
1	SW1	Cheyar River (Upstream) - 4.7 km - NW	12° 33'53.51"N & 79° 21'35.56" E
2	SW2	Cheyar River (Down stream) - 4.7 km NW	12° 33'58.64"N & 79° 22'09.62" E
3	SW3	Odai -420 m - SW	12° 31'48.93"N & 79° 23'05.40" E
Ground Water			
1	GW1	Within Mine Lease area	12° 31'43.89"N & 79° 23'26.22" E
2	GW2	Thavani	12° 31'33.19"N & 79° 24'05.37" E
3	GW3	Namathodu	12° 32'08.33"N & 79° 22'36.86" E
4	GW4	Alliyandal	12° 32'44.74"N & 79° 24'19.16" E
5	GW5	Avaniyapuram	12° 34'51.14"N & 79° 23'28.27" E

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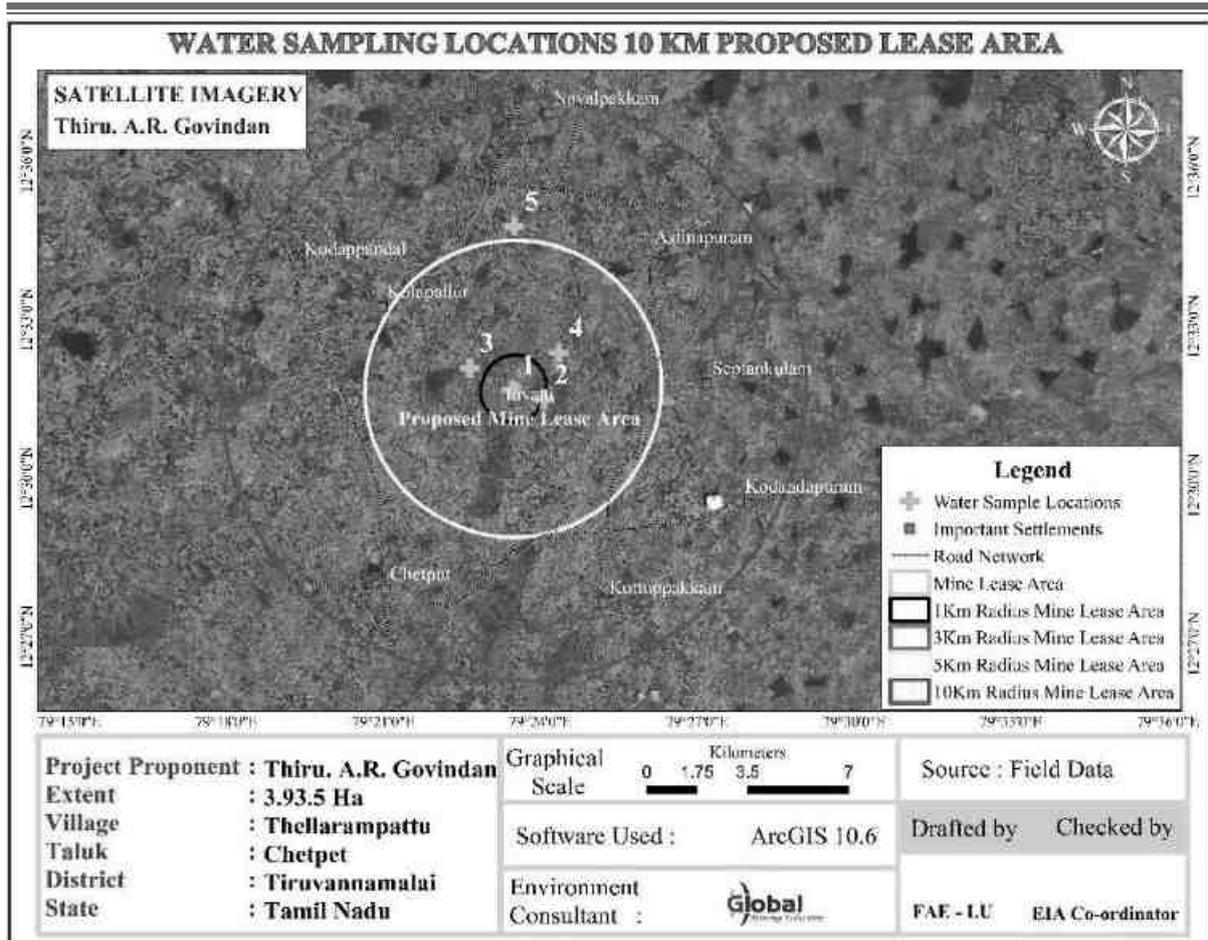


Figure 3.10 – Water Monitoring Locations

Table 3.9 – Ground Water Analysis Results

Parameter	GW1	GW2	GW3	GW4	GW5	Standards as Per IS 10500: 2012	
						Acceptable Limits	Permissible Limits
Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
Turbidity, NTU	<1.0	<1.0	<1.0	<1.0	<1.0	1	5
pH at 25 °C	7.37	7.38	7.45	7.31	7.15	6.5- 8.5	No Relaxation
Electrical Conductivity, $\mu\text{S/cm}$	2226	1955	1224	1645	992.4	-	-
Total Dissolved Solids, mg/l	1340	1190	740	990	596	500	2000
Total hardness as CaCO_3 mg/l	412	343	325	335	392	200	600
Calcium as Ca mg/l	99.6	79.2	65.9	75.6	68.0	75	200
Magnesium as Mg mg/l	39.0	46.6	38.6	35.0	53.3	30.0	100
Calcium as CaCO_3 mg/l	249	198	165	189	170	-	-
Magnesium as CaCO_3 mg/l	163	194	161	146	222	-	-
Total alkalinity as CaCO_3 mg/l	519	433	290	320	241	200	600
Chloride as Cl^- mg/l	594	503	105	334	122	250	1000
Free Residual chlorine as Cl^- mg/l	BDL(D.L-0.2)	BDL(D.L-0.2)	BDL (D.L - 0.2)	BDL(D.L-0.2)	BDL(D.L-0.2)	0.2	1
Sulphates as SO_4^{2-} mg/l	126	86.3	295	216	102	200	400
Iron as Fe mg/l	0.021	BDL(DL-0.01)	BDL(DL-0.01)	0.05	0.06	0.3	No Relaxation
Nitrate as NO_3 mg/l	5.62	4.33	3.25	2.56	3.32	45	No Relaxation
Fluoride as F mg/l	0.52	0.55	0.39	0.42	0.36	1	1.5
Manganese as Mn mg/l	BDL(D.L-0.05)	BDL(D.L-0.05)	BDL (D.L - 0.05)	BDL(D.L-0.05)	BDL(D.L-0.05)	0.1	0.3

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Table 3.10 Surface Water Analysis Results

Parameter	SW1	SW2	SW3	Surface water standards (IS 2296 Class-A)
Odour	Agreeable	Agreeable	Agreeable	Agreeable
Turbidity, NTU	5.0	12	192	1
Temperature	30.5	31.0	31.5	-
pH at 25 °C	7.53	7.69	6.99	6.5- 8.5
Electrical Conductivity, $\mu\text{S/cm}$	830.5	856.4	99.26	-
Total Dissolved Solids, mg/l	506	526	65.0	500
Total Suspended Solids, mg/l	12.0	20.0	8.0	-
Total hardness as CaCO_3 mg/l	151	157	35.3	300
Calcium as Ca, mg/l	84.3	88.2	28.4	-
Magnesium as Mg mg/l	66.6	68.6	6.86	-
Calcium as CaCO_3 mg/l	33.7	35.3	11.4	-
Magnesium as CaCO_3 mg/l	16.0	16.5	1.65	-
Total alkalinity as CaCO_3 , mg/l	188	194	17.6	-
Chloride as Cl^- mg/l	132	137	12.3	250
Free Residual chlorine as Cl^- mg/l	BDL(DL-0.2)	BDL(DL-0.2)	BDL(DL-0.2)	0.2
Sulphates as SO_4^{2-} mg/l	166	170	13.8	400
Iron as Fe, mg/l	BDL(DL-0.01)	BDL(DL-0.01)	0.14	0.3

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Nitrate as NO ₃ , mg/l	2.98	3.19	2.86	20
Fluoride as , mg/l	BDL(DL-0.1)	BDL(DL-0.1)	BDL(DL-0.1)	1.56
Manganese as Mn, mg/l	BDL(DL-0.05)	BDL(DL-0.05)	BDL(DL-0.05)	0.1
COD as O ₂ , mg/l	BDL(DL-4.0)	BDL(DL-4.0)	BDL(DL-4.0)	-
BOD, 3 days @ 27°C, mg/l	BDL(DL-2.0)	BDL(DL-2.0)	BDL(DL-2.0)	2
DO, mg/l	5.8	6.4	6.1	6

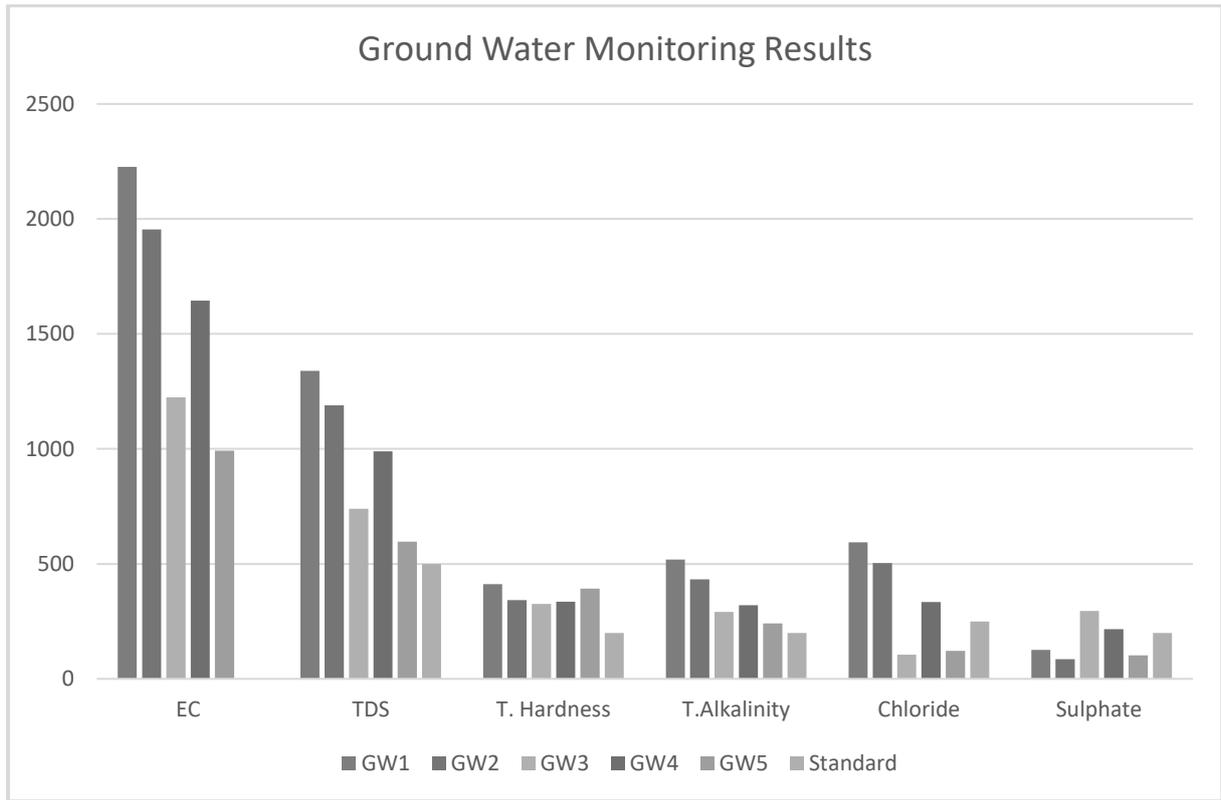


Figure 3. 11 Ground Water - Monitoring Results

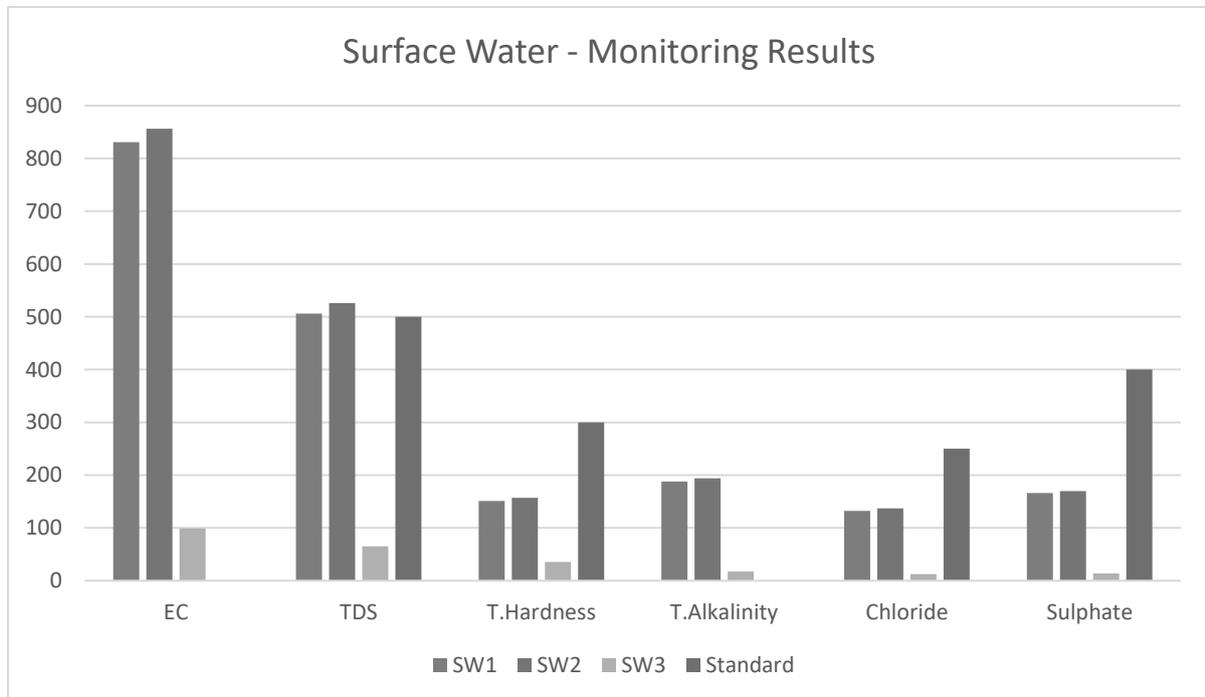


Figure 3. 12 Surface Water - Monitoring Results

3.7.3.5 DISCUSSION

Surface Water

The pH varied from 6.99 to 7.69 while turbidity found within the standards (Optimal pH range for sustainable aquatic life is 6.5 to 8.5 pH). Total Dissolved Solids varied from 65 to 526 mg/l. Chloride varied between 12.3 mg/l and 137 mg/l. Nitrates varied from 2.86 to 3.19 mg/l, while sulphates varied from 13.8 to 170 mg/l.

Ground Water

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

As Per the data it has been observed that the pH value varies from 7.15 to 7.45, Chlorides Ranges From 105- 594 mg/l, Sulphates value found to be between 86.3 - 295 mg/l, Fluoride Ranges low in lease area i.e. 0.36 – 0.55, Hardness varies from 325 – 412 mg/l, and Total dissolved solid 596 – 1340 mg/l. The ground water has been analyzed as per IS10500: 2012 and found to be suitable for drinking purpose. So the results of chemical and bacteriological analysis of water samples are classified under good class for drinking purpose with respect to total dissolved solids. Total hardness of the samples ranged from soft to moderately hard waters and can be fairly used for drinking. Regular ground water monitoring is suggested as the quality of ground water may fluctuate with groundwater consumption and seasonal variations.

3.7.4 NOISE ENVIRONMENT

The vehicular movement on road and mining activities is the major sources of noise in study area, the environmental assessment of noise from the mining activity and vehicular traffic can be undertaken by taking into consideration various factors like potential damage to hearing, physiological responses, and annoyance and general community responses.

3.7.4.1 SAMPLING LOCATIONS

In order to assess the ambient noise levels within the study area, noise monitoring was carried out at five (5) locations. The noise level of monitoring locations were carried out by covering 10 km radius of the project area. A noise monitoring methodology was chosen such that it best suited the purpose and objectives of the study. The noise monitoring locations are given in Figure 3.13 and in below table.

Table 3.11 Noise Monitoring Locations

S.NO	Location Code	Monitoring Locations	Latitude and longitude
1	N1	Within Mine Lease area	12° 31'43.89"N & 79° 23'26.22" E
2	N2	Thavani	12° 31'33.19"N & 79° 24'05.37" E
3	N3	Namathodu	12° 32'08.33"N & 79° 22'36.86" E
4	N4	Alliyandal	12° 32'44.74"N & 79° 24'19.16" E
5	N5	Avaniyapuram	12° 34'51.14"N & 79° 23'28.27" E

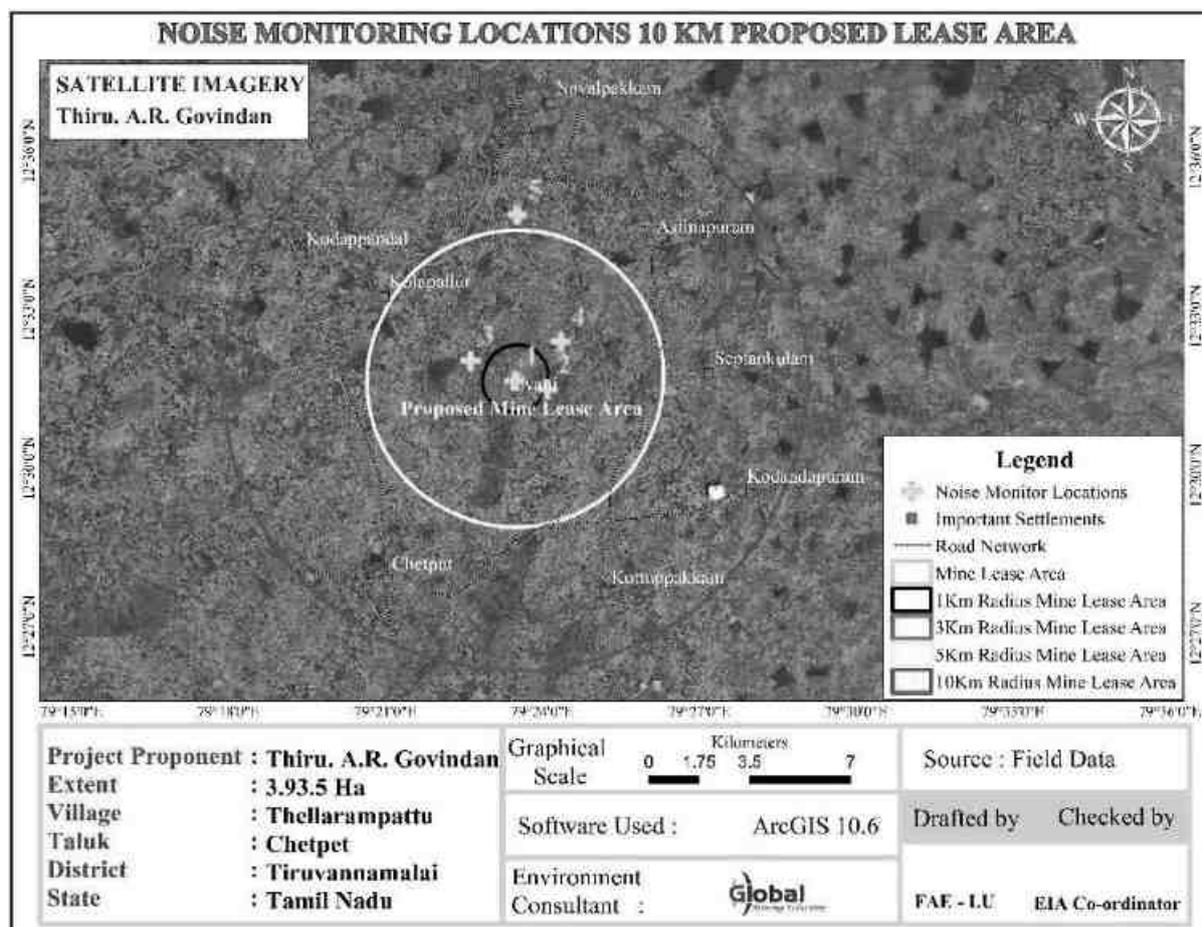


Figure 3.13 Noise Monitoring Location

3.7.4.2 METHOD OF MONITORING

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

3.7.4.3 NOISE MONITORING RESULT

An analysis of the different Leq data obtained during the study period has been made. Variation was noted during the day-time as well as night-time. The results are presented in below Table 3.12.

Table 3.12 Noise Monitoring Result

Monitoring Location	N1	N2	N3	N4	N5
DAY EQUIVALENT	45.4	47.9	46.7	45.6	49.2
NIGHT EQUIVALENT	37.8	38.2	39.1	37.6	38.8
DAY & NIGHT EQUIVALENT	44.0	46.3	45.3	44.2	47.7
Limits as per MoEF&CC					
Day equivalent - 55 dB (A); Night equivalent - 45 dB (A); Work zone Exposure in 8 hr - 90 dB (A)					

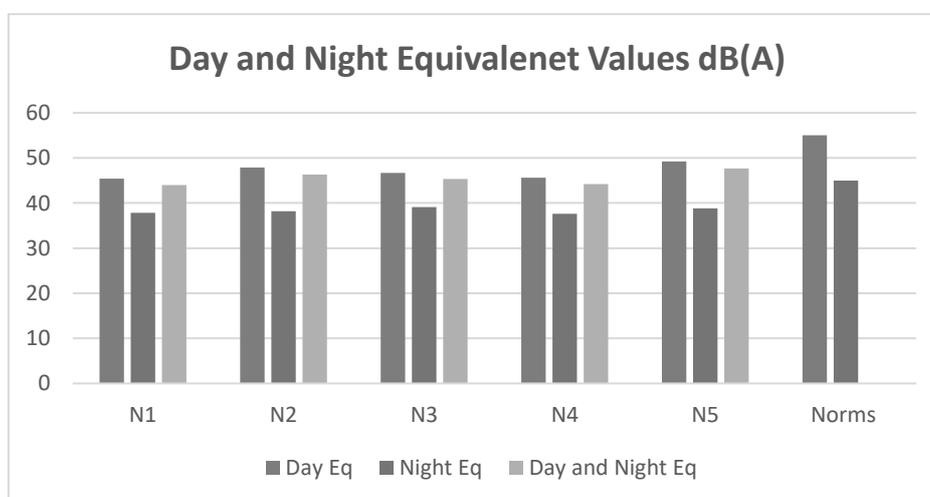


Figure 3.14 Noise Monitoring Results

3.7.4.4 DISCUSSION

From the table it is observed that the day Equivalent Noise (Leq-d) level were ranging from 45.4 to 49.2 dB(A) and Night Equivalent Noise (Leq-n) level were ranging from 37.6 to 39.1 (A). Day and Night Equivalent Noise (Leq-n) level were ranging from 44.0 to 47.7 dB(A). While comparing with the MoEF Norm of 55 dB(A) for day time and 45 dB(A) for night time in Residential areas, the monitored ambient noise levels are within the limit values.

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

3.7.5 SOIL ENVIRONMENT

Soil quality of the study area is one of the important components of the land environment. The composite soil samples were collected from the study area and analyzed for different parameters. The locations of the monitoring sites are detailed in Table 3.13 and Figure 3.16. The soil type of the study area is detailed below.

Sl.No.	SOIL TYPE	Area in Sq.Km	Area in Percentage
1	Calcareous black soil	89.17	27.55
2	Calcareous clayey soil	35.99	11.12
3	Clayey soil	161.95	50.04
4	Red gravelly loam soil	11.79	3.64
5	Red loam soil	24.72	7.64
	Total	323.64	100.00

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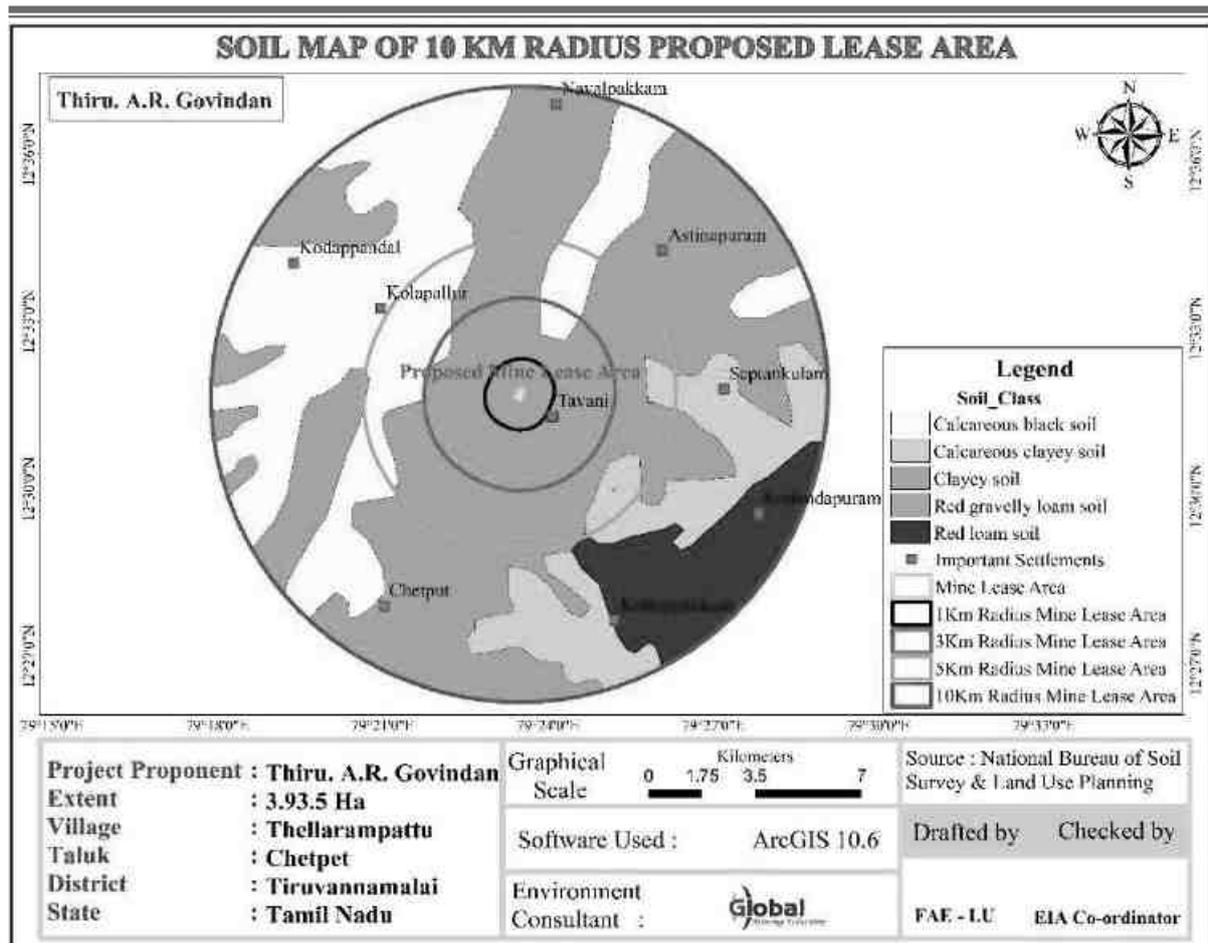


Figure 3.15 - Soil Map of the Study Area

3.7.5.1 MONITORING LOCATIONS

Soil samples were collected from 3 locations to assess the soil quality in and around the mines. Soil samples collected using sampling augers and field capacity apparatus.

Table 3.13 – Soil Sampling Locations

S.No	Location Code	Monitoring Locations	Latitude and longitude
1	S1	Within Mine Lease area	12° 31'43.89"N & 79° 23'26.22" E
2	S2	Thavani	12° 31'33.19"N & 79° 24'05.37" E
3	S3	Namathodu	12° 32'08.33"N & 79° 22'36.86" E

3.7.5.2 METHODOLOGY

For studying soil quality, sampling locations were selected to assess the existing soil conditions in and around the project site representing various land use

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conditions. The samples were collected by auger boring into the soil up to 90-cm depth. Three locations were selected for soil sampling on the basis of soil types, vegetative cover, industrial & residential activities including infrastructure facilities, which would accord an overall idea of the soil characteristics.

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

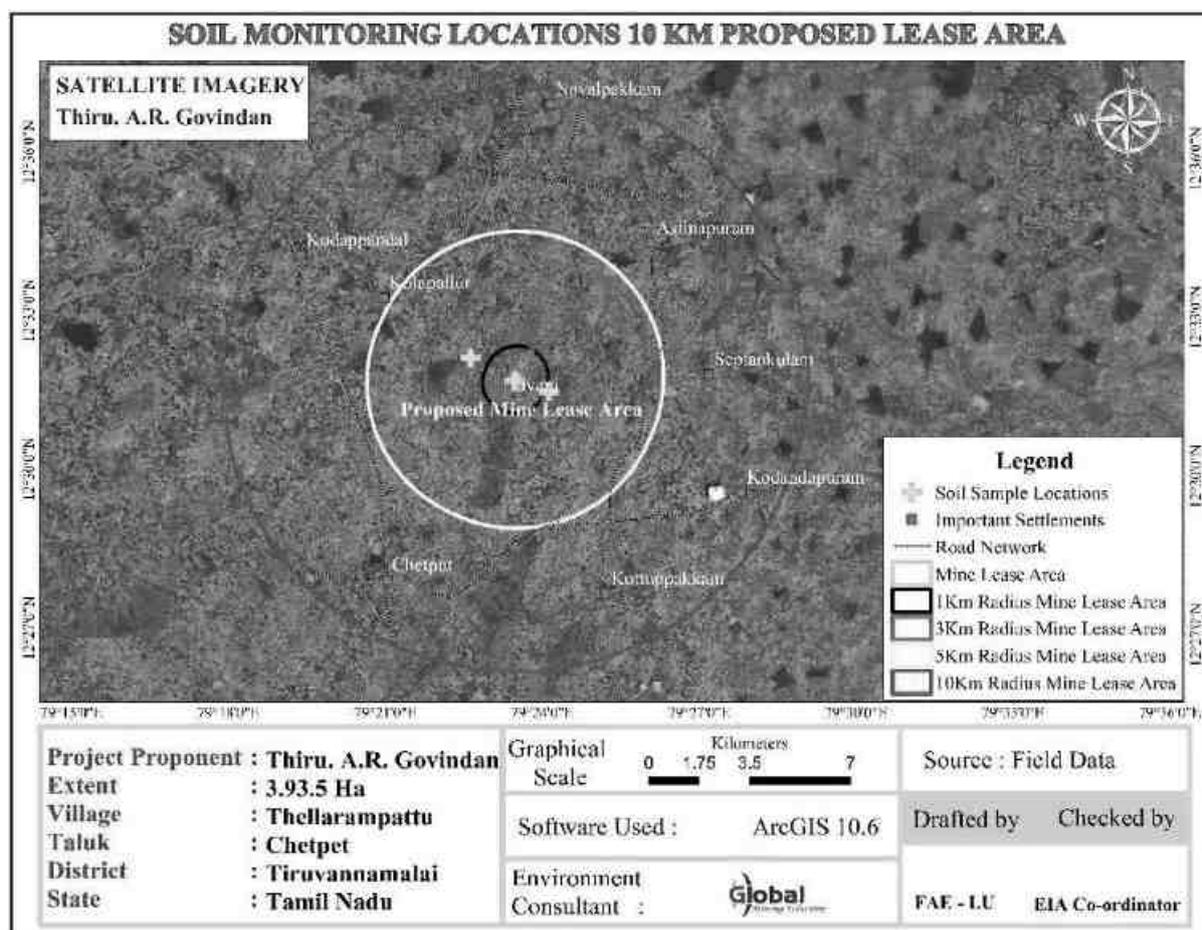


Figure 3.16 - Soil Sampling Stations

3.7.5.3 SOIL TESTING RESULT

Results of the soil samples show that the pH values were found to be 8.23 to 8.55 and Electrical Conductivity values were ranging between 13.09 – 187.4 µmhos/cm. Soils are generally Silt Loam. Organic matter values were ranging between 0.20 – 1.82 %. Total Nitrogen values were ranging between 155 – 246 mg/kg. Phosphorus values were ranging between 0.56 – 0.74 µg/g. Potassium

values were ranging between 314 – 533 mg/kg. Sodium values were ranging between 450 – 787 mg/kg. Total Sulphate values were observed to be BDL. The soil quality data for the 3 samples collected and analyzed are provided in Table no – 3.14.

Table 3.14 - Soil Testing Result

Parameter	Units	S1	S2	S3
PH		8.23	8.43	8.55
EC	µmhos/cm	92.77	187.4	13.09
DRY MATTER	%	88.50	96.86	91.06
WATER CONTENT	%	11.50	3.14	8.94
ORGANIC MATTER	%	0.31	0.20	1.82
SOIL TEXTURE		SILT LOAM	SILT LOAM	SILT LOAM
Grain Size Distribution				
SAND	%	25.67	34.53	23.78
SILT	%	58.62	53.20	66.82
CLAY	%	15.71	12.27	9.40
PHOSPHORUS	mg/kg	0.57	0.74	0.56
SODIUM	mg/kg	787	450	472
POTASSIUM	mg/kg	533	340	314
NITROGEN & NITROGENOUS	mg/kg	246	218	155
SULPHATE	%	BDL(D.L - 0.02)	BDL(D.L - 0.02)	BDL(D.L - 0.02)
Water Holding Capacity	%	4.5	3.8	3.5
Porosity	%	16.8	15.6	16.4

3.7.6 LAND ENVIRONMENT

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

3.7.6.1 LAND USE PATTERN OF THE PROJECT AREA

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

Table 3.15 Land use pattern of the project site

Description	Present Area in Ha.	Area at the end of life of Quarry in Ha.
Quarrying pit	NIL	3.27.0
Infrastructure	NIL	0.01.0
Roads	NIL	0.01.0
Greenbelt	NIL	0.40.0
Unutilized	3.93.50	0.24.5
Total	3.93.50	3.93.5

- At the end of life of mine, the excavated mine pit / void of 3.27.0 Ha. will act as artificial reservoir for collecting rain water and helps to meet out the demand or crises during drought season.
- After mine closure the greenbelt (0.40.0 Ha.) will be developed along the safety barrier and top benches and 0.02 ha are approach road and Infrastructure.
- Remaining 0.24.5 ha. of land will be covered with vegetation.

3.7.6.2 LAND USE PATTERN OF THE STUDY AREA

A visual interpretation technique has been adopted for land use classification based on the keys suggested in the chapter – V of the guidelines issued by NNRMS Bangalore & Level III classification with 1:50,000 scale for the preparation of land use mapping. Land use pattern of the area was studied through LISS III imagery of Bhuvan (ISRO). The 10 km radius map of study area was taken for analysis of Land use cover. The land use map of the study area is given in Figure 3.17.

Table 3.16 Land use pattern of the Study area of 10 km radius

Sl.No.	LAND USE / LAND COVER	Area in Sq.Km	Area in Percentage
1	Built-up land	8.76	2.71
2	Crop land	27.54	8.51
3	Fallow land	81.76	25.26
4	Land with scrub	8.49	2.62
5	Land without scrub	0.10	0.03
6	Mining process	0.02	0.01
7	Plantations	142.42	44.01
8	Reserved Forest	14.02	4.33
9	River	1.84	0.57
10	Water bodies	38.69	11.95
	Total Area	323.64	100.00

Source : Survey of India Toposheet and Landsat Satellite Imagery

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From above table it is inferred that the majority of the land in the study area is Plantations (44.01 %) followed by Fallow Land (25.26).

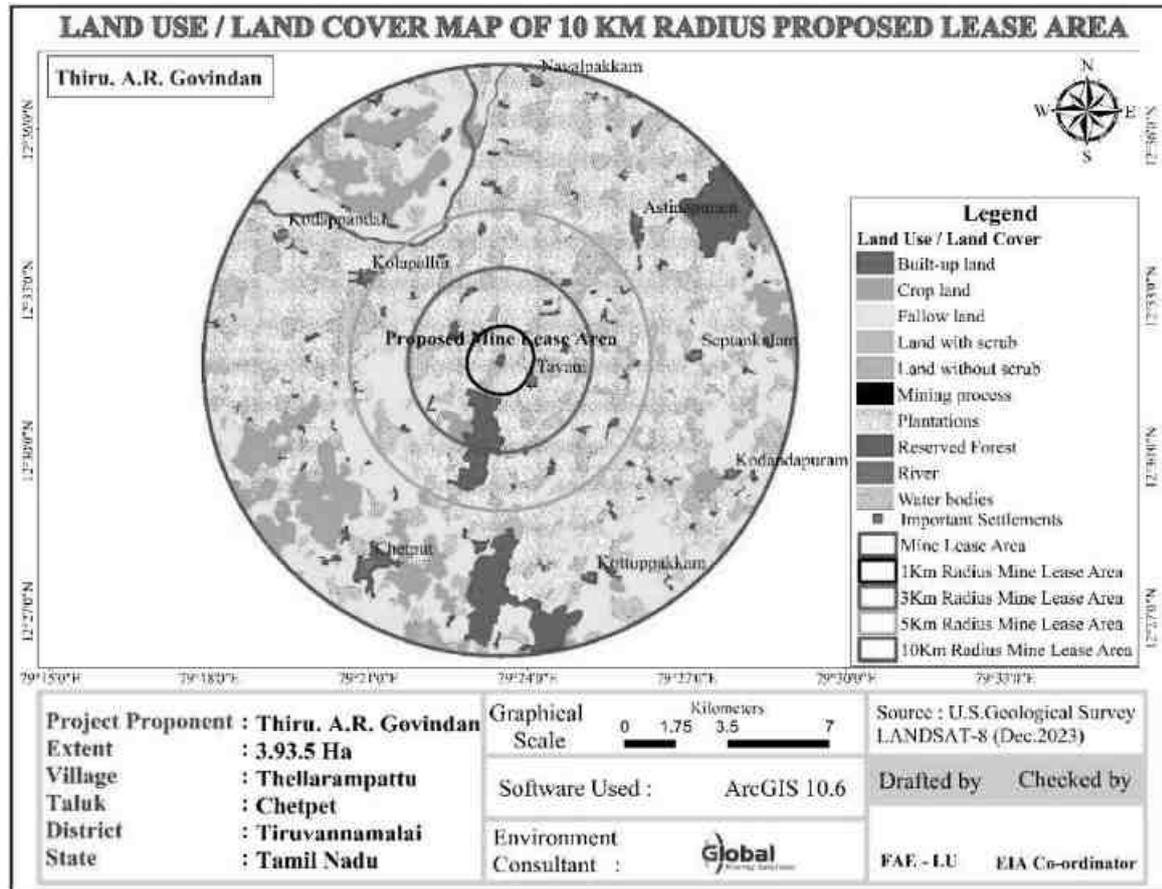


Figure 3.17 Land use map of the study area

3.7.7 BIOLOGICAL ENVIRONMENT

Study of the biological environment of any area comprises of well-planned ecological survey for the floristic and faunal composition of the areas through various scientifically planned techniques. Accordingly, the ecological survey for the proposed Rough stone quarry area including core and buffer zone were carried out to identify various species occurring in the area.

3.7.7.1 FLORA

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

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

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

3.7.7.2 FLORISTIC COMPOSITION IN CORE ZONE

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

3.7.7.3 FLORISTIC SCENARIO IN BUFFER ZONE AREA

The present report gives the review of published secondary data and the results of field sampling conducted during October to December 2023 and there are no forest blocks in study area. The detailed ecological assessment of the study area has been carried out and are presented in below Table.

Table 3.17 List of Flora

S.NO	Scientific Name	Family	Local Name
GRASS			
1	<i>Arundo donax</i>	Poaceae	Common needle, grass
2	<i>Dendrocalamus strictus</i>	Poaceae	Kalamungil
3	<i>Heteropogon contortus</i>	Poaceae	Oosipullu
TREES			
1	<i>Citrus limon</i>	Rutaceae	Lemon
2	<i>Ficus benghalensis</i>	Moraceae	Krishna Fig, Krishna's
3	<i>Thespesia lampas</i>	Malvaceae	Common mallow, kattupparuthi
4	<i>Musa paradisiaca</i>	Musaceae	Plantain, vazhai
5	<i>Azadirachta indica</i>	Meliaceae	Veppai,
6	<i>Psidium gujava</i>	Myrtaceae	Guava
7	<i>Syzygium cumini</i>	Myrtaceae	Nagai
8	<i>Adina cordifolia</i>	Rubiaceae	Manjakadambu
9	<i>Acacia chundra</i>	Fabaceae	
10	<i>Erythrina indica</i>	Fabaceae	Mullu murungai
11	<i>Euphorbia antiquorum</i>	Euphorbiaceae	Kalli

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12	<i>Ailanthus excelsa</i>	Simaroubaceae	Perumaram
13	<i>Pongamia pinnata</i>	Fabaceae	Indian beech, pungam
14	<i>Acacia leucophloea</i>	Mimosaceae	Velvelam
15	<i>Morinda tinctorial</i>	Rubiaceae	Nuna
16	<i>Dalbergia sissoo</i>	Fabaceae	nukkam totakatti
17	<i>Erythrina variegata</i>	Fabaceae	Kalyana murungai
18	<i>Borassus flabellifer</i>	Arecaceae	Palmyra palm
19	<i>Thespesia lampas</i>	Malvaceae	Common mallow, kattupparuthi
20	<i>Lannea coromandelica</i>	Anacardiaceae	Indian Ash Tree, Moya, Wodier
21	<i>Samanea saman</i>	Mimosodeae	Thoongumoonj maram
22	<i>Prosopis juliflora</i>	Fabaceae	Algaroba, Mesquite
23	<i>Eucalyptus globulus</i>	Mytaceae	Blue gum
24	<i>Tamarindus indica</i>	Caesalpiniaceae	Puli
25	<i>Dalbergia paniculate</i>	Fabaceae	Porapachalai
26	<i>Cocus nucifera</i>	Arecaceae	Coconut, thennai
27	<i>Delonix regia</i>	Caesalpiniaceae	Flame Tree, Royal Poinciana
28	<i>musa paradisiaca</i>	Musaceae	Plantain, vazhai
29	<i>Albizia lebeck</i>	Mimosaceae	Siridam
30	<i>Punica granatum</i>	Lythraceae	Pomegranate, mathulai
31	<i>Tectona grandis</i>	Lamiaceae	Teak
32	<i>Acacia ferruginea</i>	Fabaceae	Parambai
HERBS			
1	<i>Datura metal</i>	Solanaceae	Thom, apple
2	<i>Boerhavia diffusa</i>	Nyctaginaceae	Red hogweed, Tar Vine
3	<i>Zea mays</i>	Poaceae	Maize, Corn
4	<i>Thespesia populnea</i>	Malvaceae	Indian tulip tree poovarasu
5	<i>Agave Americana</i>	Agavaceae	Anaikathalai
6	<i>Vemonia cinereal</i>	Asteraceae	Purplefleabane, mookuthipoondu
7	<i>Partheniumhysterophorus</i>	Asteraceae	Congress grass
8	<i>Amaranthus viridis</i>	Amaranthaceae	kuppai-k-kirai
9	<i>Acalypha indica</i>	Euphorbiaceae	koli-p-puntu, kuppai-meni
10	<i>Chloris dolichostachya</i>	Poaceae	Finger grass, kuruthupillu
11	<i>Vemonia cinereal</i>	Asteraceae	Purplefleabane, mookuthipoondu
12	<i>Ocimum americanum</i>	Lamiaceae	Hoary basil, nai thulasi
13	<i>Abutilon indicum</i>	Malvaceae	Country Mallow, Tutti Herb
14	<i>Tribulus terrestris</i>	Zygophyllaceae	Puncture vine, nerunji
15	<i>Agave angustifolia</i>	Asparagaceae	Caribbean agave

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16	<i>Croton saparsiflorus</i>	Euphorbiaceae	Reilpoondu
17	<i>Cynodon dactylon</i>	Poaceae	Bermuda, grass, arugampul
18	<i>Blumea lacera</i>	Asteraceae	Kattumullangi
19	<i>Achchyranthes aspera</i>	Amaranthaceae	Prickly chaff flower
20	<i>Aerva lanata</i>	Amaranthaceae	ciru-pula, ulinai
21	<i>Vinca rosea</i>	Apocynaceae	Nithyakalyani
22	<i>Agave angustifolia</i>	Asparagaceae	Caribbean agave
23	<i>Ocimum sanctum</i>	Lamiaceae	Holy basil, thulasi
24	<i>Amaranthus spinosus</i>	Amaranthaceae	Mullukkeerai
25	<i>Capsicum frutescens</i>	Solanaceae	Tezpur Chilli
26	<i>Agave sisalana Perrine</i>	Agavaceae	Sisal Agave, agave
27	<i>Amaranthus viridis</i>	Amaranthaceae	kuppai-k-kirai
28	<i>Aloe vera</i>	Liliaceae	Kathalai
29	<i>Croton saparsiflorus</i>	Euphorbiaceae	Reilpoondu
30	<i>Thespesia populnea</i>	Malvaceae	Indian tulip tree poovarasu
SHRUBS			
1	<i>Canna indica</i>	Cannaceae	Indian Shot, Wild canna
2	<i>Vitex negundo.</i>	Verbenaceae	Nocchi
3	<i>Tabernaemontana coronarial</i>	Apocynaceae	Nandiyarvattam
4	<i>Cassia auriculate</i>	Fabaceae	Aavarampoo
5	<i>Calotropis gigantea R.Br.</i>	Fabaceae	Tuvarai
6	<i>Lantana camara</i>	Verbenaceae	Unnichi
7	<i>Ricinus communis</i>	Euphorbiaceae	Castor bean plant
8	<i>Carica papaya</i>	Caricaceae	Pappali
9	<i>Jatropha glandulifera</i>	Euphorbiaceae	Kaatuamanakku
10	<i>Gossyplum arboretum</i>	Malvaceae	Cotton, paruthi
11	<i>Solanum trilobatum</i>	Solanaceae	Thoodhuvalai
12	<i>Lawsonia inermis</i>	Lythraceae	Henna, maruthondri
13	<i>Argemone Mexicana</i>	Papaveraceae	Prickly poppy, kudiyotti
14	<i>Solanum torvum</i>	Solanaceae	Sundaikkai
15	<i>Capparis sepiaria</i>	Capparaceae	Karindu
CLIMBERS			
1	<i>Cucurbita pepo</i>	Cucurbitaceae	Parangi
2	<i>Cissus quadrangularis</i>	Vitaceae	Perandai
3	<i>Pergularia daemia</i>	Asclepiadaceae	Uttamani
4	<i>Abrus precatorius</i>	Fabaceae	Coral bead
5	<i>Ipomea hederifolia</i>	Convolvulaceae	Kanavali kkodi

3.7.7.4 LIST OF FAUNA

The list of fauna within the study area is given in Table No – 3.18.

Table 3.18 List of Fauna

S.No	Common name	Scientific name	Family	IUCN / WPA schedule
MAMMALS				
1	Indian Palm squirrel	Funambulus palmarum	Squirrel	IV
2	Hare	Lepus nigricollis	Leporids	IV
3	House rat	Rattus rattus	Murids	IV
4	Mannuli paambu	Eryx johnei	Boidae	-
5	Indian Grey Mongoose	Herpestes edwardsii	Mongoose	IV
6	Field mouse	Rattus norvegicus	Murids	IV
7	Rusty spotted Cat	Felis rubiginosa	Felidae	IV
REPTILES				
1	Common Garden lizard	Calotes versicolor	Agamid lizards	IV
2	Rough tailed Sand boa	Gongylophis conicus	Boidae	IV
3	Indian Cobra	Naja naja	elapid snakes	II
4	Indian mud turtle	Lissemys punctate	Softshell turtles	IV
5	Common Green Snake	Passerita mycterizaris	Colubrid Snakes	IV
6	Common rat snake	Ptyas mucosus	Colubrid Snakes	II
BIRDS				
1	Grey Partridge	Francolinus pondicerianus	Phasianidae	IV
2	Indian Ring Dove	Streptopelia decaocto	Pigeons and doves	IV
3	Red collared dove	Streptopelia tranquebarica	Pigeons and doves	IV
4	Astur badius	Shikra	Accipitridae	IV
5	Black Drongo	Dicrurus macrocerus	Drongos	IV
6	House Sparrow	Passer domesticus	Sparrow	IV
7	Weaver bird	Ploceus Philippines	Ploceidae	IV
8	Rose Ringed Parakeet	Psittacula krameria	Parrots	IV
9	Little egret	Egretta garzetta	Heron	IV
10	Redvented BulBul	Pycnonotus cafer	Bulbul	IV
FISH				
1	Common carp	Cyprinus earpio	Minnows and Carps	IV
2	Tilapia	Oreochromis mossambicus	Cichlid	IV
3	Carplet	Amblypharyngodon Sp	Cyprinidae	IV
4	Trout	Chela sp	-	IV
5	Punctatus	Ophiocephalus	Snakehead	IV

The core zone of the area is Government land, No forest land is involved in the project area. The proposed quarry area is covered by thorny bushes. There is no Wild Life Sanctuary or National Park within the study area of 10km. There is no schedule I species of animals observed within study area as per Wildlife Protection Act 1972 as well as no species is in vulnerable, endangered or threatened category as per IUCN. There is no endangered red list species found in the study area. Hence this small mining operation over short period of time will not have any significant impact on the surrounding flora and fauna.

3.7.8 TOPOGRAPHY

The area applied for quarry lease is exhibits almost plain topography covered by Top soil formation. The massive Charnockite formation is noticed below 0.5m (Avg) topsoil and sloping towards northeastern side of the area, the altitude of the area is above 140 m (maximum) from MSL.

3.7.9 DRAINAGE PATTERN OF THE AREA

Cheyyar river at 4.7 km in Northeast direction. A seasonal odai passing at 420 m in South west direction. There are two tanks at 530 m (east) and 730m (NW). The area is studded with few tanks that serve as the source of drinking water and also their surplus feeds adjoining tanks. The drainage map of the study area is given in Figure 3.18.

3.7.10 GEOMORPHOLOGY

Predominantly the buffer zone is dominated by Shallow & Moderately Buried Pediplan, and the lease area falls under pediment. Geomorphology of the study area is detailed below. The geomorphology of the study area is given in Figure 3.20.

SI.No.	GEOMORPHOLOGY	Area in Sq.Km	Area in Percentage
1	Dome type Denudational Hills	2.49	0.77
2	Dome type Residual Hills	0.44	0.14
3	Inselberg	0.77	0.24
4	Linear Ridge/ Dyke	0.86	0.26
5	Moderately buried Pediplain	96.61	29.85
6	Pediment - Inselberg Complex	0.95	0.29
7	Pediment	32.83	10.14

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8	Shallow Flood Plain	9.28	2.87
9	Shallow buried Pediplain	179.40	55.43
	Total Area	323.64	100.00

3.7.11 GEOLOGY

The regional geology of the study area is shown below in Figure 3.19. The type of rock formation in the core and buffer zone is composed of Charnockite Gneissic complex and Migmatite Gneiss. The lease area falls under Charnockite Gneissic complex category. The geology of the study area is detailed below.

Sl.No.	GEOLOGY	Area in Sq.Km	Area in Percentage
1	Charnockite	276.11	85.31
2	Migmatite-Gneiss	47.53	14.69
	Total Area	323.64	100.00

3.7.12 LITHOLOGY

The study area is mainly dominated by Granite (216.14 Sq.m), followed by Pink Migmatite (50.24 Sq.m). The project site falls under Granite category. lithology of Core & Buffer Zone map is given in Figure 3.21. Lithology of the study area is detailed below.

Sl.No.	Lithology	Area in Sq.km
1	Champion gneiss	6.81
2	Granite	216.14
3	Granitoid gneiss	37.37
4	Pink Migmatite	50.24
5	Syenite / Nephelene Syenite	13.07

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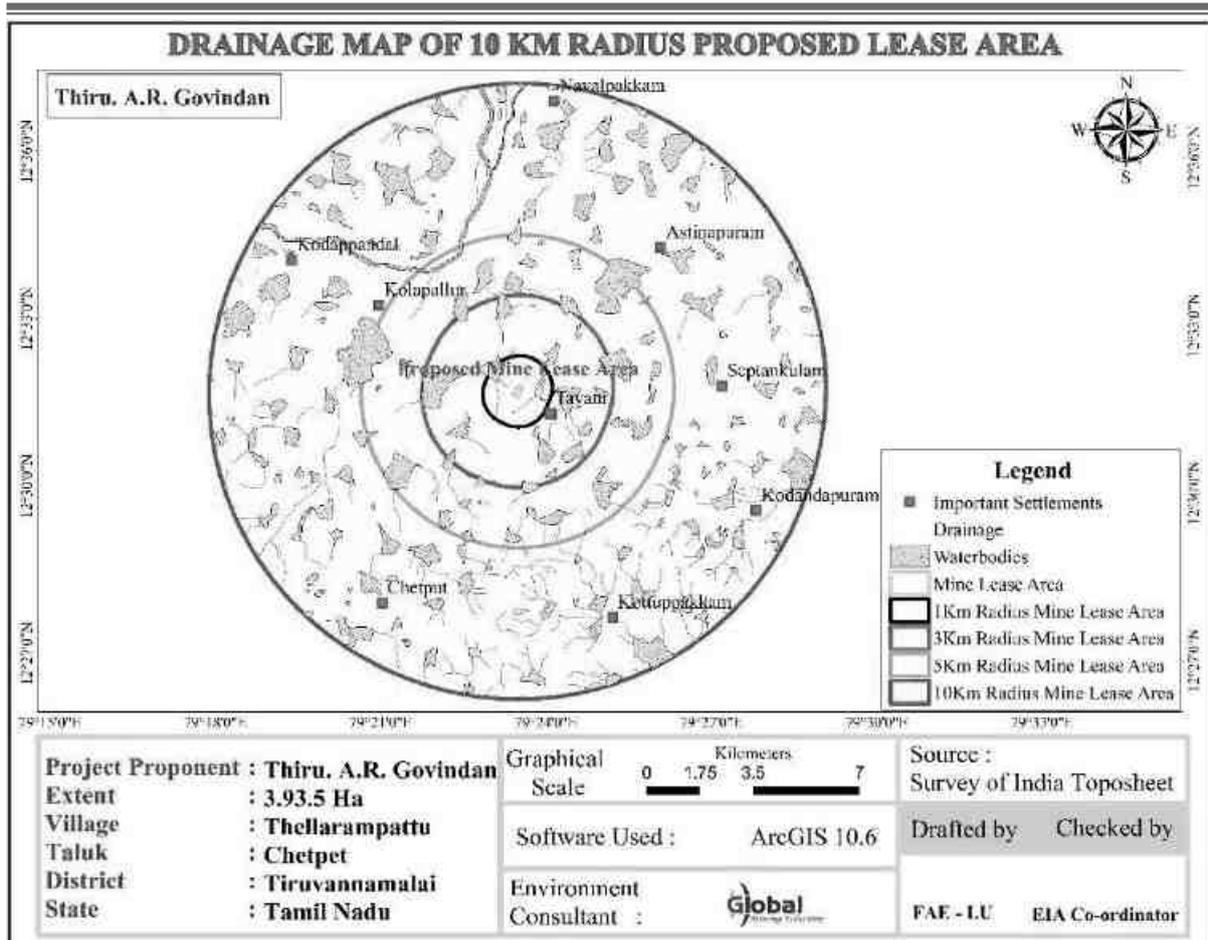


Figure 3.18 Drainage map of the study area

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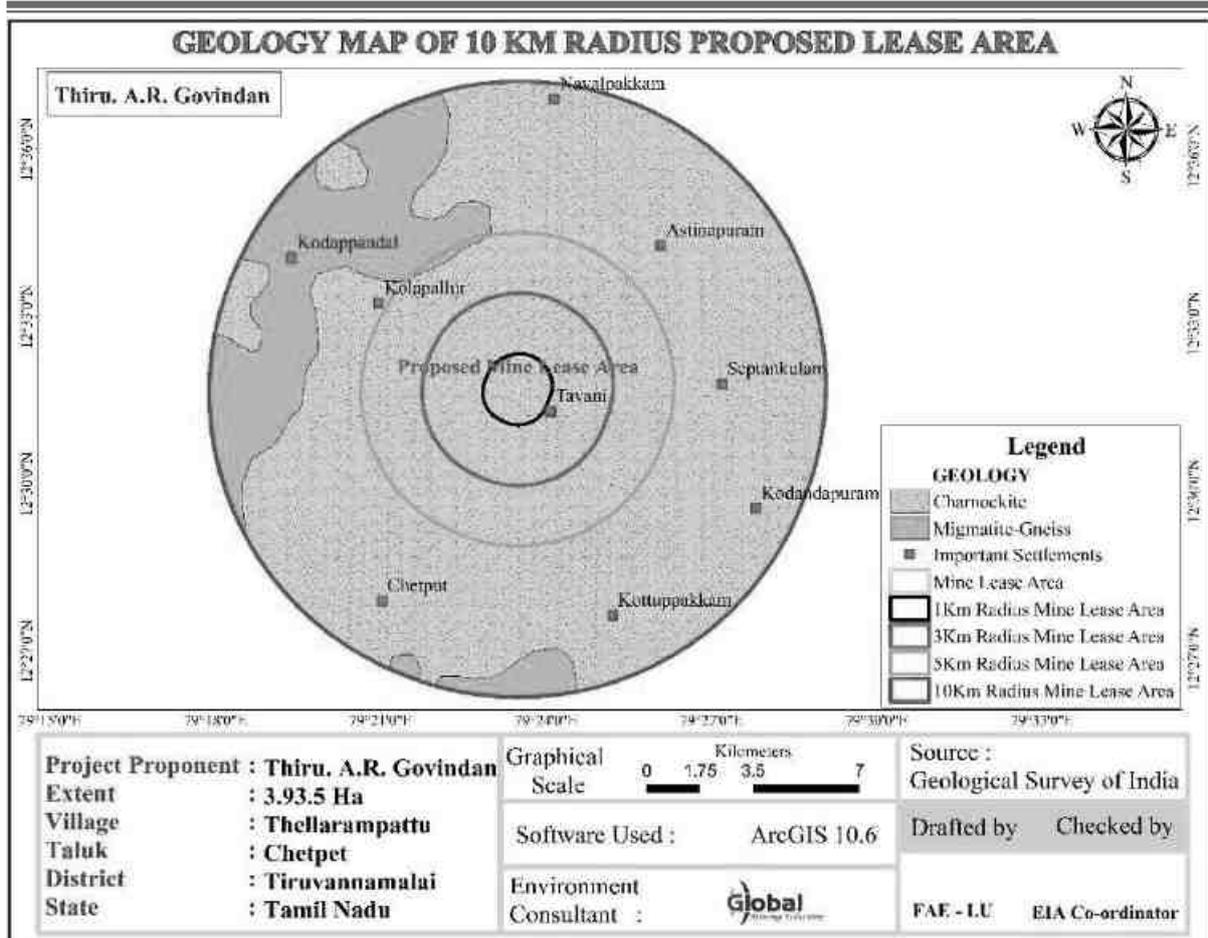


Figure 3.19 Geology map of the study area

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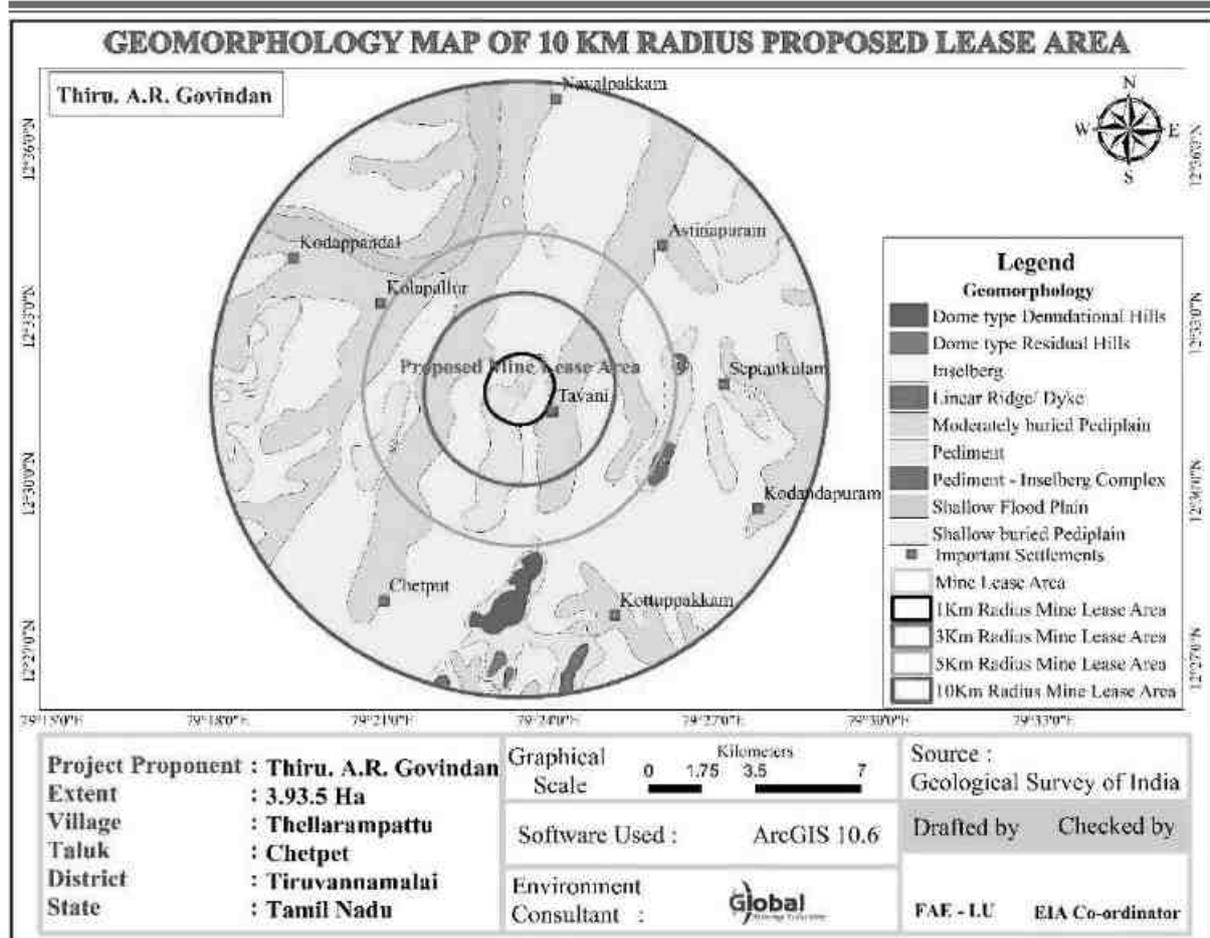


Figure 3.20 Geomorphology map of the study area

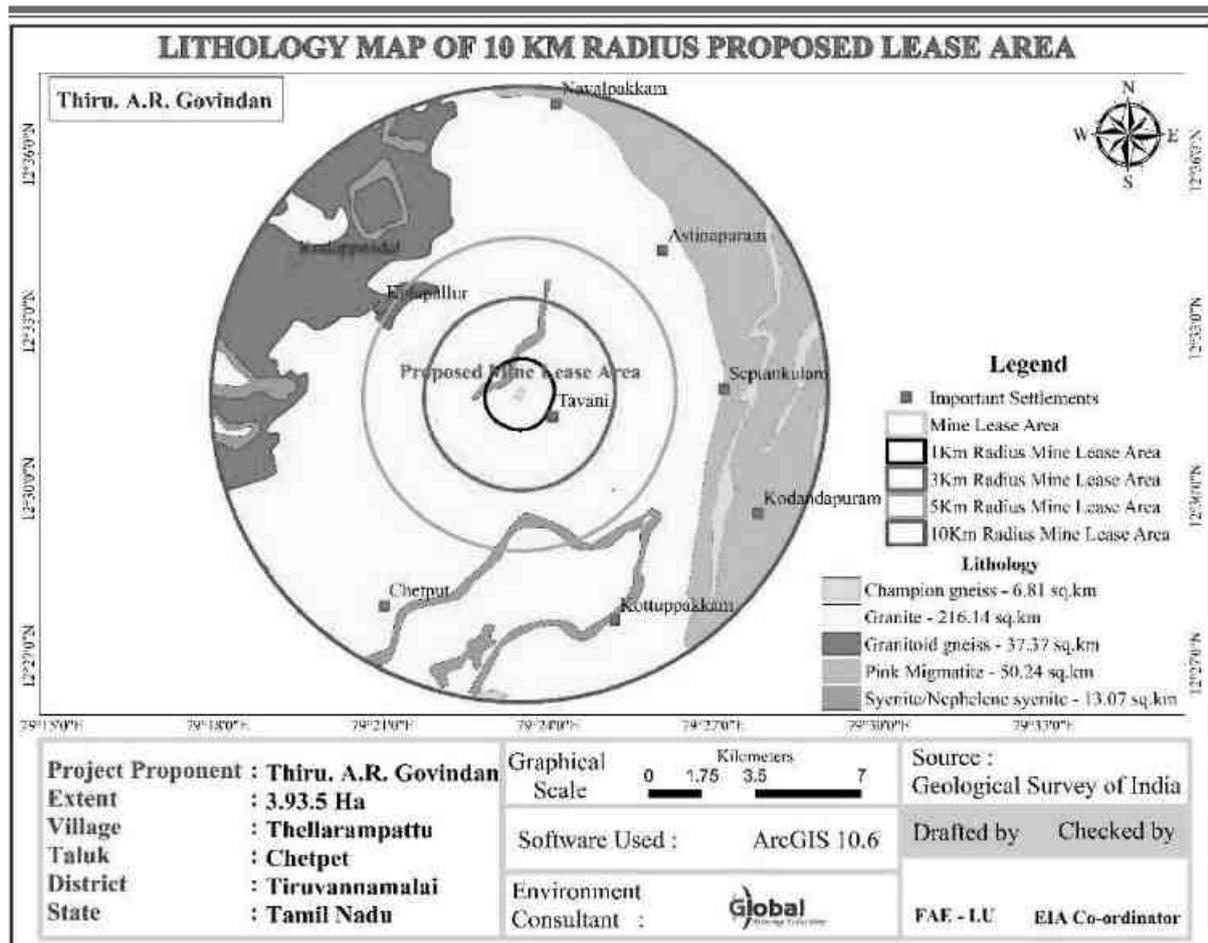


Figure 3.21 Lithology map of the study area

3.7.13 SOCIO-ECONOMIC ENVIRONMENT

Socio-economic study is an essential part of environmental study. It includes demographic structure of the area, provision of basic amenities viz., housing, education, health and medical services, occupation, water supply, sanitation, communication, transportation, prevailing diseases pattern as well as feature like temples, historical monuments etc., at the baseline level. This will help in visualizing and predicting the possible impact depending upon the nature and magnitude of the project.

It is expected that the Socio-Economic Status of the area will substantially improve because of this proposed project. As the proposed project will provide direct and indirect employment and improve the infrastructural facilities in that area and, thus, improve their standard of living.

3.7.13.1 OBJECTIVES OF THE STUDY

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

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

3.7.13.2 SCOPE OF WORK

- To study the Socio-economic Environment of the area from the secondary sources;
- Data Collection & Analysis
- Prediction of project impact
- Mitigation Measures

SUMMARY OF VILLAGES IN BUFFER ZONE

S.NO	Block / Taluk	No. of Urban Areas	No. of Villages	District
1	Peranamallur	1	46	Tiruvannamalai
2	Chetpet	1	10	Tiruvannamalai
3	Cheyvar	0	9	Tiruvannamalai
4	West Arani	0	5	Tiruvannamalai
Total			70	

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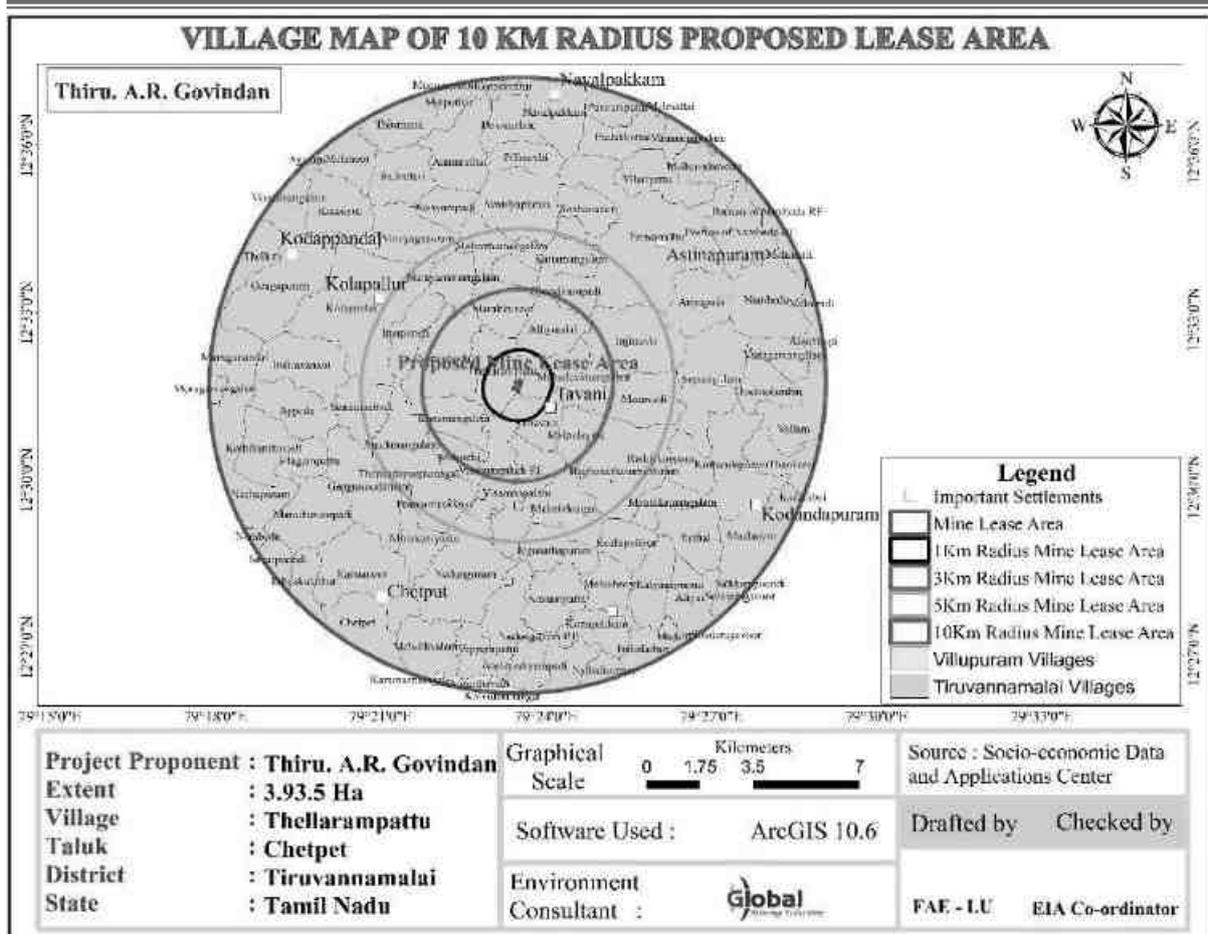


Figure 3.22 Village Map of the Study Area

Table 3.19 - Population profile of the study area

Population profile of the study area		
Particulars	No of Population	Percentage (%)
A. Population break-up by Gender		
Male Population	147362	49.90
Female Population	147918	50.09
Total	295280	100
B. Population break-up by Caste		
Scheduled Caste	53056	17.9
Scheduled Tribes	2792	1.10
Others	239432	81.0
Total	295280	100
C. Literacy Level		
Total Literate Population	197621	67.0
Others	97659	33.0

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Total	295280	100
D. Occupational structure		
Main workers	121531	41.15
Marginal workers	42295	14.33
Total Workers	163826	55.48
Total Non-workers	131454	44.52
Total	295280	100

Table 3.20 Population profile - Thellampattu Village		
Particulars	No of Population	Percentage (%)
A. Population break-up by Gender		
Male Population	153	50.6
Female Population	149	49.4
Total	302	100
B. Population break-up by Caste		
Scheduled Caste	2	0.66
Scheduled Tribes	6	1.99
Others	294	97.35
Total	302	100
C. Literacy Level		
Total Literate Population	213	70.53
Others	89	29.47
Total	302	100
D. Occupational structure		
Main workers	164	54.30
Marginal workers	23	7.61
Total Workers	187	61.91
Total Non-workers	115	38.09
Total	302	100

Basic Amenities

A better network of physical infrastructure facilities (well-built roads, rail links, irrigation, power and telecommunication, information technology, market-network and social infrastructure support, viz. health and education, water and sanitation, veterinary services and co-operative) is essential for development of the rural

economy. All basic amenities Education (higher education, colleges, universities, Medical college, Transport facilities, Railway station, Bus station are available.

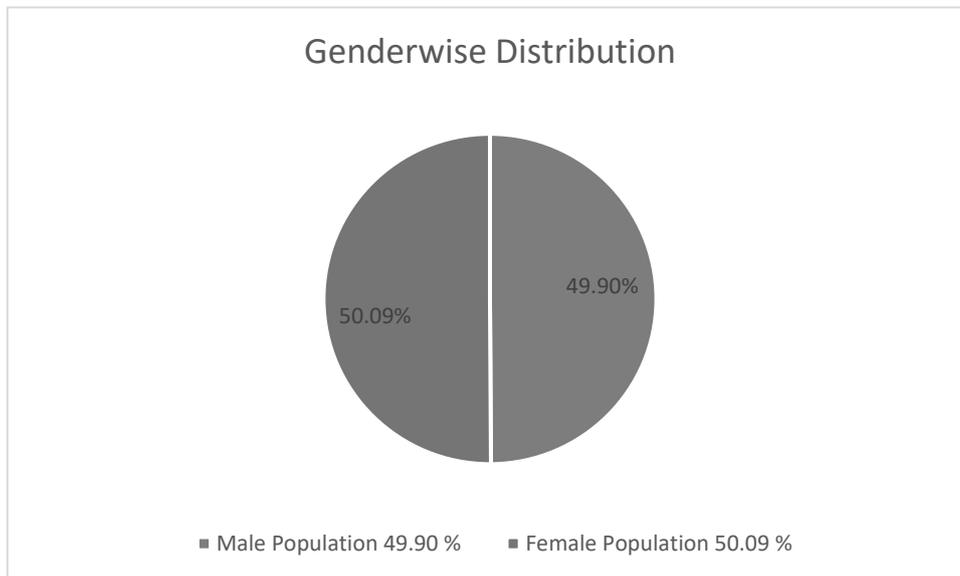


FIG 3.23 GENDER-WISE POPULATION DISTRIBUTION

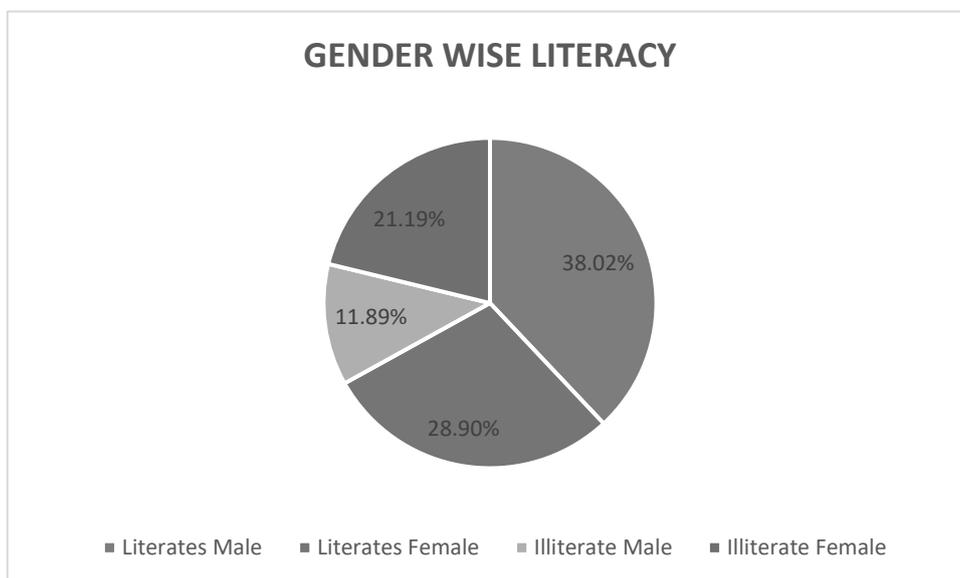


FIG 3.24 GENDER WISE LITERACY DISTRIBUTION

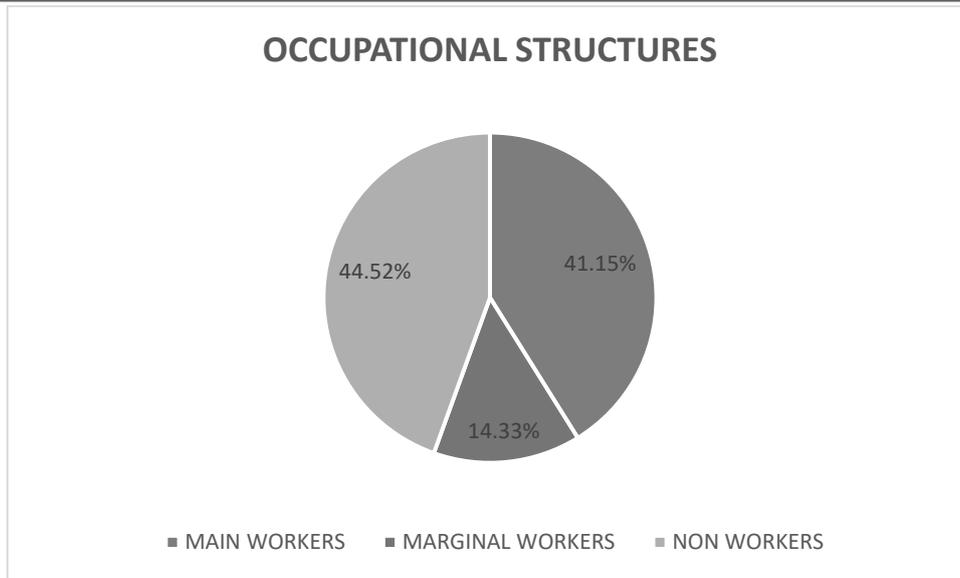


FIG 3.25 OCCUPATIONAL STRUCTURE WITHIN BUFFER ZONE

4.0 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

4.1 GENERAL

Environmental impacts both direct and indirect on various environmental attributes due to cluster quarries will be created in the surrounding environment, during the operational and post-operational phases. The occurrence of mineral deposits, being site specific, their exploitation, often, does not allow for any choice except adoption of eco-friendly operation. The methods are required to be selected in such a manner, so as to maintain environmental equilibrium ensuring sustainable development.

In order to maintain the environmental commensuration with the mining operation, it is essential to undertake studies on the existing environmental scenario and assess the impact on different environmental components. This would help in formulating suitable management plans sustainable resource extraction.

4.2 PROJECT SPECIFIC IMPACTS AND MITIGATION MEASURES

This is a proposed project and Mechanized Open Cast mining will be carried out to quarry out Rough Stone. The identified impacts during mining and associated activities have been studied in relation to various environmental components like Air, water, noise, vibration, land, transport etc., and the details of the same are elaborated in this chapter. The impact assessment is done for the peak production of the mine lease period and the entire area of quarry operation and can be construed as applicable for the entire lease period. Based on the baseline environmental status at the project site, the environmental factors that are likely to be affected (Impacts) are identified, quantified and assessed.

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

- Land environment
- Soil environment
- Water Environment

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

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

4.2.1 LAND ENVIRONMENT

4.2.1.1 ANTICIPATED IMPACT

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 of 3.93.50 Ha. is Government land. The project area of 3.29.0 Ha is proposed to be altered by effective quarrying operation such as excavation (3.27.0 Ha), Infrastructure (0.01 Ha), Road (0.01 Ha) and greenbelt (0.40.0 Ha). The ultimate depth of quarrying is proposed by formation of 1 pit with maximum depth of 20.5 m below the ground level and will not intersect the ground water table. The mine closure plan is given in 2.8. The present land use pattern and the post mining land use pattern is shown below.

Table 4.1 Land use pattern of the project site

Description	Present Area in Ha.	Area at the end of life of Quarry in Ha.
Quarrying pit	NIL	3.27.0
Infrastructure	NIL	0.01.0
Roads	NIL	0.01.0
Greenbelt	NIL	0.40.0
Unutilized	3.93.5	0.24.5
Total	3.93.5	3.93.5

- Change in topography of the mine lease area will change at the end of the life of the mine.

- At the end of life of mine, the excavated mine pit / void of 3.27.0 Ha. will act as artificial reservoir for collecting rain water and helps to meet out the demand or crises during drought season.
- After mine closure the greenbelt (0.40.0 Ha.) will be developed along the safety barrier and top benches and 0.02 ha are approach road and Infrastructure.
- Remaining 0.24.5 ha. of land will be covered with vegetation.
- Problems to agricultural land and human habitations due to dust, and noise caused by movement of heavy vehicles.
- Degradation of the aesthetic environment of the core zone due to quarrying.
- Soil erosion and sediment deposition in the nearby water bodies due to earthworks during the rainy season.
- Siltation of water course due to wash off from the exposed working area.

4.2.1.2 MITIGATION MEASURES

In the rough stone quarrying operation, land degradation is minimal. After completion of the quarrying operation, the land will be allowed to collect rainwater, this rough stone does not produce any toxic effluents in the form of solids, liquids, or gases.

It is a simple quarrying operation where 100% of stones will be removed systematically, according to the approved Mining Plan.

The periphery of the mining lease area will be converted to a greenbelt to prevent Noise and sound propagation to the nearby lands.

Entire mined out area will be properly fenced to prevent inadvertent entry of human and animals.

Since the entire material from the quarry face will be directly dispatched to the consumers, there will not be any stockpiles. There are no waste dumps in this quarry. As such there will not be any wash out due to stock pile or waste dumps. To manage surface runoff, garland drain will be constructed around the quarry and connected to a settling pond with silt traps.

In terms of aesthetics, natural vegetation surrounding the quarry will be retained (such as in a buffer area i.e., 7.5 m safety barrier & 10 m provided to the adjoining patta and poramboke lands) so as to help minimize dust emissions.

4.2.2 SOIL ENVIRONMENT

4.2.2.1 ANTICIPATED IMPACT

Mining activities often disrupt the existing environment as they involve disturbing the untouched earth materials. The overburden in the form of top soil generated will be utilized for afforestation purpose, the surface consists of top soil formation followed by Rough stone which is proposed to excavate completely during the quarrying operation. Erosion of top layer (top soil), extracted fine material can result in substantial sediment loading to surface waters and drainage ways. During rainy season surface run off may cause sedimentation in low lying areas.

4.2.2.2 MITIGATION MEASURES FOR SOIL EROSION AND SOIL CONSERVATION

- Runoff water will be collected in bottom of the quarry and used for plantation and dust suppression during dry season. no run off water will be discharged beyond lease area.
- Wet drilling and haul road water sprinkling will be carried out to minimise air born dust at source level, which may cause soil pollution due to sedimentation.
- Garland drains will be constructed around the project area with silt traps to control the soil erosion during rainy seasons.
- Greenbelt development (0.40.0 Ha.) all along the periphery of the project area (i.e., 7.5 m safety barrier) will ensure binding strength and minimizes soil erosion.
- Soil sampling will be carried out in the core zone for every season to ensure the soil quality is not affected due to the quarrying activities.
- Monitoring and maintenance – Weekly monitoring and daily maintenance of erosion control systems so that they perform as specified specially during rainy season.

4.2.3 WATER ENVIRONMENT

4.2.3.1 ANTICIPATED IMPACT ON SURFACE AND GROUND WATER

The impact due to quarrying on the water quality is expected to be insignificant because of no use of chemicals or hazardous substances during quarrying process. The quarrying activity will not intersect ground water table as quarrying is proposed upto a depth of 20.5 bgl and water table is found at a depth of 53 to 56 m BGL.

Cheyar River is situated at a distance of 4.7 km in north east direction and an odai passing at 420 m in SW direction. Two tanks at 530 m (East) and 730 m (NW). No other water bodies close to the project site, There is no proposal for discharging of wastewater outside the project area. There is no proposal for a rough stone processing or workshop within the project area, so no effluent is anticipated in the mine.

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

4.2.3.2 ANTICIPATED IMPACT DUE TO WATER USE IN MINE'S

The total water requirement for the project will be 5.0 KLD comprising Drinking 0.6 KLD, Dust suppression 2.0 KLD, Greenbelt 2.0 KLD and Domestic purpose 0.4 KLD. The water will be sourced initially from outside agencies. Later the rainwater collected in the mine pit sump will be used for this purpose. The water balance diagram for the same is shown in Figure No 4.1.

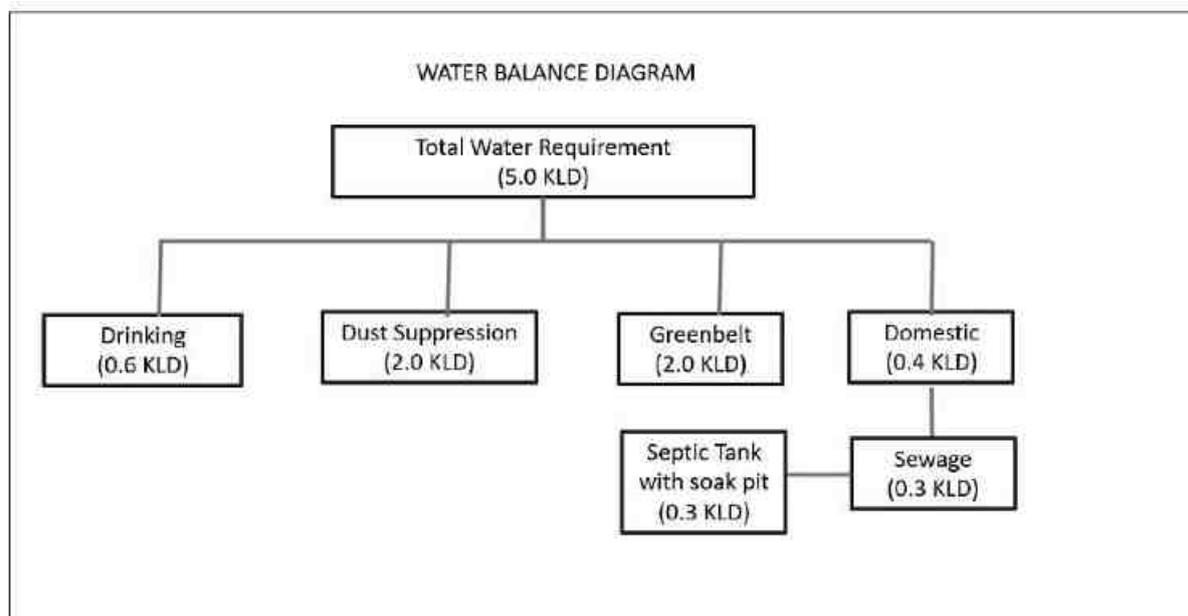


Figure 4.1 Water Balance Diagram

4.2.3.3 MITIGATION MEASURES

The following mitigation measures are suggested for water management

- Rainwater will be collected in lower part of the quarry pit by construction of garland drains to divert surface run-off and will be connected to setting tank of 6 m (l) x 6m (w) x 3m (d) to allow suspended solids to settle down if any. This collected water will act as a rain water harvesting system and will be used for dust suppression and greenbelt development.
- Regular water quality will be carried in nearby villages to ensure the water quality is not affected due to the quarrying activities.
- Domestic sewage from site office & urinals/latrines provided in project area will be discharged through septic tank followed by soak pit system.
- Only clear and settled water free from silt content will be used for dust suppression and greenbelt development.
- De-silting will be carried out before and immediately after the monsoon season and the settling tank and drains will be cleaned weekly, especially during monsoons.

4.2.3.4 RAINWATER HARVESTING PLAN

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

- Development of garland drain around the quarry connected to settling tank.
- Cleaning of drain periodically to prevent siltation
- The supernatant clear water from the settling pond will drain into the nearby channel on the eastern side of the lease.
- Utilizing the rainwater harvested in the mine pit to meet the water requirement of the project.

The average annual rainfall of the area is 900 mm. Taking into consideration of 0.35 as runoff co-efficient for mining area, the total quantity of rain water can be harvested per annum from the area has been tabulated as below.

Table 4.2 – Rainwater Harvesting Plan

S.NO	Rainwater Harvesting Area	Area in Sq.m	Average annual rainfall	Volume of harvestable quantity (Cum) of rain water per annum
1	Quarry Area	32700	0.9	10,300
2	Unutilized Area	2400	0.9	756
Total Harvested Rainfall				11,056

Total surface water runoff is 11,056 Cum per Annum. 10% of this amount will be evaporated and rest 9950 m³ will be recharged in the rain water harvesting pit.

The dimension of the rain water harvesting pond will be 25m x 20m x20m with capacity of 10000 cu.m. The rain water stored in the pond will be utilized for plantation, dust suppression activities. The capacity of Rain water harvesting post will be sufficient to arrest the surface runoff from the lease area considering the highest amount of rain fall.

4.2.4 AIR ENVIRONMENT

The existing ambient air quality in the area has been described in Chapter-3. Opencast mechanized mining, using jackhammer drilling, blasting, and excavation

through an excavator, as well as mineral transport through tippers, will be carried out for the excavation of rough stone.

4.2.4.1 ANTICIPATED IMPACT

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

The air-borne particulate matter generated by quarrying operations and transportation is mainly PM₁₀ and PM_{2.5}, and emissions of sulfur dioxide (SO₂) and oxides of nitrogen (NO₂) due to excavation/loading equipment and vehicles plying on haul roads are the cause of air pollution in the project area.

Furthermore, the loading, unloading, and transportation of rough stone, as well as wind erosion of the exposed area and movement of light vehicles, will cause pollution within a 500-meter radius of the project area due to quarrying activities. This has a cumulative impact on the ambient air environment around the project area.

4.2.4.2 MITIGATION MEASURES

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

Table 4.3 Mitigative Measures for Air Environment

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

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5	Greenbelt	Dust emission, Gaseous Emission	Development of greenbelt / barriers around mine in the safety zone and carrying out plantation within the lease area.
6	Occupation Health	Dust emanation, Gaseous Emission	Dust mask will be provided to the workers and their use will be strictly monitored
			Annual medical checkups, trainings and campaigns will be arranged to ensure awareness about importance of wearing dust masks among all mine workers & tipper drivers
			Ambient Air Quality Monitoring will be conducted six months once to assess effectiveness of mitigation measures proposed.

4.2.4.3 AIR QUALITY IMPACT PREDICTION

The AERMOD atmospheric dispersion modeling (AERMOD Cloud remote version) is used for assessment of incremental Ground level concentration (GLC) for the proposed production. Area source model taken into consideration taking into consideration of wet drilling and loading. Further line source model was taken into consideration for transportation through haul road. Baseline meteorological studies were conducted for the period of October to December 2023. The following sources are considered.

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

ARRIVING EMISSION FACTOR

Emission factor for PM₁₀ for different activities are given below.

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

Source

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

EMISSIONS FROM THE PROPOSED PROJECT

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

TABLE 4.6 Pm 10 And Pm 2.5 Emission From Mining Activities

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

MODEL INPUT DATA:

The air pollution modeling carried out represents the normal operating scenarios. As the project is a mining project the major source of pollution is particulate matter. The SO_x and NO_x emission will be very less only due to vehicular emission. So the pollutant taken for prediction of incremental concentration is particulate matter (PM₁₀ & PM_{2.5}). The predicted incremental Ground Level Concentrations (GLCs) for particulate matter is likely to be contributed by the proposed project. The average predicted 24 hr average concentration has been tabulated as below.

EMISSION ESTIMATION

The emission estimations for the activities are detailed below.

Table 4.7 - Area Emissions – Total Material handling

Quantity, TPA	Rough Stone: 406225 Topsoil :15670
Operational Hours Per Year	2400
Activity Rate, t/hr.	400.5416667
Emission of dust, g/t.	0.14
Emission of dust, g /hr.	56.07583333
Area of influence, m ²	635
Uncontrolled emission rate g/s/m ²	0.000041234
Controlled emission rate, PM10 g/s/m ²	0.0000041234
Controlled emission rate, PM2.5 g/s/m ²	0.000002009

Table 4.8 - Line Source – Transport of Rough Stone from Pit to Boundary

Quantity, TPA	Rough Stone : 406225 Topsoil :15670
Operational Hours Per Year	2400
Capacity of each Dumper (T)	10
Total No. of Tippers/ year	44650

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Lead length/trip, Km	0.8
Total VKT/Year	76904
Emission Kg/VKT	0.26
Total emission Kg/Year	19325.02
Uncontrolled emission rate g/s/m	4. 41234
Controlled emission rate, PM10 g/s/m	0.41234
Controlled emission rate, PM2.5 g/s/m	0.2009

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 - 4.9 to 4.10.

SL.No	Location	Background Concentration	Predicted incremental Concentration	Post Project Concentration	Statutory Limits in µg/m ³
1	A1-Mine Lease Area	33.4	<1.0	34.4	60
2	A2- Thavani	31.0	<1.0	32.0	
3	A3- Namathodu	30.3	<1.0	31.3	
4	A4- Alliyandal	26.1	<1.0	27.1	
5	A5- Avaniyapuram	26.0	<1.0	27.0	

SL.No	Location	Background Concentration	Predicted incremental Concentration	Post Project Concentration	Statutory Limits in µg/m ³
1	A1-Mine Lease Area	72.4	2.75	75.15	100
2	A2- Thavani	66.6	2.47	69.07	
2	A3- Namathodu	65.1	2.20	67.30	
3	A4- Alliyandal	56.2	1.92	58.12	
4	A5- Avaniyapuram	55.9	1.65	57.55	

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 PM₁₀ are in the range of 75.15 µg/m³ to 69.07 µg/m³ and for PM_{2.5} are in the range of 34.4 µg/m³ to 27.0 µg/m³ 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.

4.4.4 NOISE ENVIRONMENT

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

4.4.4.3 IMPACT DUE TO NOISE AND VIBRATION

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

Table 4.11 - The likely noise level in the lease area

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

4.4.4.4 MITIGATION MEASURES FOR NOISE CONTROL

The following noise mitigation measures are proposed for control of Noise

- Usage of sharp drill bits while drilling which will help in reducing noise;
- Secondary blasting will be totally avoided and hydraulic rock breaker are utilized for breaking boulders;
- Controlled blasting with proper spacing, burden, stemming and optimum charge/delay will reduce noise;
- The blasting will be carried out during favourable atmospheric condition and less human activity timings by using nonelectrical initiation system;
- Proper maintenance, oiling and greasing of machines will be done every week to reduce generation of noise;

- Provision of sound insulated chambers for the workers working on machines (HEMM) producing higher levels of noise;
- Green Belt will be developed around the project areas and along the haul roads. The plantation minimizes propagation of noise;
- Personal Protective Equipment (PPE) like ear muffs/ear plugs will be provided to the operators of HEMM and persons working near HEMM and their use will be ensured through training and awareness.
- Regular medical check-up and proper training to personnel to create awareness about adverse noise level effects

4.4.4.5 GROUND VIBRATION

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

Mitigative Measures

- Proper quantity of explosive, suitable stemming materials and appropriate delay system should be adopted to avoid overcharging and for safe blasting;
- Adequate safe distance from blasting should be maintained as per DGMS guidelines;
- Blasting shelter should be provided as per DGMS guidelines;
- Blasting operations shall be carried out only during day time;
- The charge per delay shall be minimized and preferably more number of delays will be used per blasts;
- During blasting, other activities in the immediate vicinity shall be temporarily stopped;
- Drilling parameters like depth, diameter and spacing will be properly designed to give proper blast;
- Blasting will be carried out under the supervision of statutory persons as approved by DGMS.

- A well-defined SOP will be framed under the leadership of top management and the same will be followed for each blasting.
- Regular PPV monitoring will be carried out to ensure PPV limits i.e., 0.5 mm/s.

4.4.5 BIOLOGICAL ENVIRONMENT

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

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

Table 4. 12 Ecological Impact Assessments and Its Mitigations -Part 1

S.NO	Issues	Assessment	Mitigations
1	Proximity to national park/ wildlife sanctuary / reserve forest / mangroves / coastline/estuary/sea	Vishamangalam R F – 1.1 km (S) Nedunkunam R F – 5.2 km (S) Nambedu R F – 7.7 km (NE) No forests are situated within 1.0 km radius. The proposed project does not attract Forest Conservation Act, 1980. There is no wild life sanctuaries found around 10km radius and the area does not attract Wildlife Protection Act, 1972 and C.R.Z. Notification, 1991.	The fugitive dust generated by the mining activity will be suppressed by frequent sprinkling of water based on evaporation rate in the site specific.
2	Activities of the project affects the breeding/nesting sites of birds and animals	No breeding and nesting site was identified in mining lease site. The fauna sighted mostly migrated from buffer area. The fauna in the buffer zone may be affected by noise generated due to mining activity.	The noise due to the mining activity will be controlled by developing green belt all along the lease boundary, regular maintenance of tippers, excavators, transporting the tippers within speed limits.

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3	Located near an area populated by rare or endangered species	No endangered, critically endangered, vulnerable species sighted in core mining lease area and also in buffer zone.	NIL
4	Proposed project restricts access to waterholes for wildlife	No waterholes are in core zone. No Wild life sanctuary within 10km radius.	NIL
5	Proposed mining project impact surface water quality that also provide water to wildlife	„NO“ scheduled or threatened wildlife animal sighted regularly in core area. There is no proposal for discharge of wastewater to nearby water bodies.	NIL
6	Proposed mining project increase siltation that would affect nearby Biodiversity area.	Surface runoff management structures like garland drain, settling pond etc. as explained above will be constructed and as such there will not be any appreciable impact on surface water quality which in turn can affect the bio diversity of the area.	
7	Risk of fall/slip or cause death to wild animals due to project activities	In the post mining stage, wire fencing is proposed all around the mined-out void to prevent falling of animals in the mine pits.	
8	The project release effluents into a water body that also supplies water to a wildlife	As the proposed project is mining activity there will be no possibilities of release of effluents. Also, no Wild life sanctuary within 10km radius.	NIL
9	Mining project effect the forest-based livelihood/ any specific forest production which local livelihood depended	Two reserved forest located beyond 1 km radius. So, the proposed mining activity does not affect forest and forest products.	NIL
10	Project likely to affect migration routes	No migration route observed during monitoring period.	NIL
11	Project likely to affect flora of an area, which have medicinal value	No such significantly important medicinal value species within the ML area and its nearby region.	NIL
12	Forestland is to be diverted, has carbon high sequestration	„NO“. There is no forest land within the lease area.	NIL
13	The project likely to affect wetlands, fish breeding grounds, marine ecology	„NO“. No wetland, fish breeding grounds, marine ecology present in core mining area.	NIL

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

Table 4.13 Ecological Impact Assessments and Its Mitigations -Part 2

Identified Impacts	Ecological Significance of impact	Magnitude	Phase / duration	Reversibility	Mitigation
Project site Habitat due to Site Clearance.	There are no trees in the core zone. The Mining activity will be carried within the lease area. No clearance of vegetation in the buffer zone	Low impact	Planning stage	Irreversible	The quarried-out pit will be used as water storage pond which increases agricultural activity in the buffer zone.
Impact on Surrounding habitat due to fugitive emission	The fugitive emission due to the mining activities such as drilling, blasting, loading and transportation on the haul road will be deposited on the flora and crop field in the buffer zone which affects growth and its productivity.	Temporary Impact	Operational stage	Reversible	The sprinkling of water over the haul road will be done. Then completely wet drilling will be take place. The transportation vehicles will be maintained and serviced Properly.
road construction	No Road construction is required to assess the project site. The existing internal Road connects the project site to the existing SH and NH	No Impact	-	-	-
Ecological Impact on Surrounding/ Eco sensitive habitat due to waste water generated from the project activity.	Since the proposed project is a mining activity no waste water generation is expected. Sewage will be generated due to the workers	No impact	-	-	-
Ecological Impact on Surrounding / Eco sensitive habitat due to Noise generated from the project activity.	During drilling or blasting, transportation of rough stone, noise will be generated and it may slightly affect the movement of fauna around the lease area.	Temporary impact	Only during drilling, blasting operation and transportation period. (5 years)	NO	Avenue trees will be planted along the lease area to minimize the noise level. Milli second detonators shall be used preferably 25–50ms per delay to control vibrations. Regular maintenance of

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

					vehicles and driving the tipper within specified limits also control the noise generations.
Ecological Impact on Surrounding/ Eco sensitive habitat due to Transportation	There is no eco sensitive habitat found around the lease area. The fugitive emission from drilling, blasting, vehicle movement will form layer in leaves thus reducing the gaseous exchange process. This ultimately affects the growth of plants. The animals like dog, cattle may get accident due to truck movement.	Temporary impact	During Operation Phase	NO	The truck driver will be advised to drive the vehicle within 20km/hr inside the lease area and 40km/hr outside the lease area. The sprinkling of water over the haul road will be done. Then completely wet drilling will be take place.

4.4.5.3 MITIGATION MEASURES

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

Carbon Emission:

Carbon released from quarrying machineries and tippers during quarrying would be 281 kg per day, 70,521 kg per year and 3,52,607 kg over five years, as provided in below Table.

Description	Per Day	Per year	For Five Years
Total fuel consumption in liters	105	26,314	1,31,570
Co ₂ emission in kg	281	70,521	3,52,607

4.4.5.4 GREENBELT DEVELOPMENT PLAN

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

Table – 4.14 GREENBELT DEVELOPMENT PLAN

Year	No. of trees proposed to be planted	Survival %	Name of the Species	No. of trees expected to be grown
I	40	80%	Neem, Casuarina, Pongamia pinnata, etc.,	32
II	40	80%		32
III	40	80%		32
IV	40	80%		32
V	40	80%		32

Nearly 0.40 Ha. of area is proposed for Greenbelt development by planting 40 Nos of trees during every year and expected growth is around 32 Nos @ survival rate of 80%.

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

- Noise abatement.
- Reuse of waste water to the extent possible.
- Prevention of soil erosion.
- Ecological restoration.
- Aesthetic, biological and visual improvement of area due to improved vegetative and plantations cover.

Carbon Sequestration:

To mitigate carbon emission due to mining activities, we recommend planting trees around the quarry to offset the carbon emission during quarrying. A tree can sequester 24 kg of carbon per year. Therefore, we recommend planting large number of trees around the quarry and near school campuses, government wasteland, roadsides etc.

As per the greenbelt development plan, about 2200 trees will be planted (Inside mine lease area – 200 Nos. and Outside lease area – 2000 Nos.).

These trees, when grown up would sequester carbon of about 92.53 kg of the total carbon, as provided in below Table.

Carbon Sequestration

Description	Per day	Per year	For five years
CO2 sequestration in kg	92.53	24,987	124932
Remaining CO2 not sequestered in kg	188.7	45,534	2,27,675

4.4.6 SOCIO – ECONOMIC

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

The mining operations in the proposed mine will employ about 30 persons directly and 30 people on indirect basis through allied opportunities in logistics, trading, repairing works etc. good employment potential will arise, which will provide raising income levels and standards of living in the area through various service related activities connected with the project operations as shown under.

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

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

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

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

4.4.7 OCCUPATIONAL HEALTH AND SAFETY

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

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

- Respiratory hazards
- Noise
- Explosive storage and handling

Respiratory Hazards

Long-term exposure to silica dust may cause silicosis the following measures are proposed:

- Cabins of excavators and tippers will be enclosed with AC and sound proof
- Use of personal dust masks will be made compulsory

Noise

Workers are likely to get exposed to excessive noise levels during mining activities.

The following measures are proposed for implementation

- No employee will be exposed to a noise level greater than 85 dB(A) for a duration of more than 8 hours per day without hearing protection
- The use of hearing protection will be enforced actively when the equivalent sound level over 8 hours reaches 85 dB(A), the peak sound levels reach 140 dB(C), or the average maximum sound level reaches 110 dB(A)
- Ear muffs provided will be capable of reducing sound levels at the ear to at least 85 dB(A)

- Periodic medical hearing checks will be performed on workers exposed to high noise levels

Occupational Health Survey

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

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

The PP will establish first aid station within project site.

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

4.4.8 WASTE MANAGEMENT

4.4.8.3 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.

4.4.8.4 LIQUID WASTE

There is no process effluent generation from this mine. Hence no liquid waste is generated. Domestic wastewater i.e 0.3 KLD will be discharged in soak pit via septic tank.

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

4.4.8.6 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.

5.0 ANALYSIS OF ALTERNATIVES (TECHNOLOGY AND SITE)

5.1 ALTERNATE TECHNOLOGY

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

5.2 ALTERNATE SITE

The project is a mining project and will be operated within the lease grant area. So no alternate sites have been assessed. Since the resource (Rough stone) is site-specific, the chosen location is the only site to carry out Rough Stone quarry.

6 ENVIRONMENTAL MONITORING PROGRAMME

6.1 GENERAL

The monitoring and evaluation of environmental parameters indicates potential changes occurring in the environment, which paves way for implementation of rectifying measures wherever required to maintain the status of the natural environment. Evaluation is also a very effective tool to judge the effectiveness or deficiency of the measures adopted and provides insight for future corrections.

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

6.2 MONITORING MECHANISM

The PP will undertake effective monitoring and implementation of various environmental control measures promptly and effectively and to oversee various environmental management schemes for air quality control, water quality status, noise level control, plantation programme, social development schemes, etc in the mine.

6.3 ENVIRONMENTAL MONITORING SCHEDULE AND FREQUENCY

The monitoring schedules are planned for systematic study of various pollution levels with respect to air and water qualities, noise levels, etc. to ensure that they conform to the standards laid down by Environmental Protection Act and various statutory Limits. However, based on the need and priority it may be suitably modified / improved in consultation with local authorities. Monitoring may include socio-economic interaction, through local liaison activities or even assessment of

complaints. The monitoring schedules to be adopted in this quarry are given below.

Table 6.1 Environmental Monitoring Schedule

S.NO	Environmental Attribute	Parameters to be monitored	Monitoring Locations	Frequency
1	Air Quality	Particulate Matter (PM2.5 and PM10), Sulphur dioxide (SO ₂), Oxides of Nitrogen (NO ₂), Respirable.	4 locations in the buffer zone and 2 work zone locations.	Once in season
2	Water Quality	General, Physical, and chemical parameters	Ground Water samples (around the project area) and Mine Pit water samples	Once in season
3	Hydrogeology	Water Levels	Nearby wells and Borewells	On yearly basis pre and post monsoon level
4	Noise	Leq. Lmax Lmin, Leq Day & Leq Night dB(A)	Work zone locations and buffer zone villages	Once in Season
5	Vibration	Peak Particle Velocity	Mine periphery	Regular Interval
6	Soil	Physical and Chemical Characteristics	2 Locations (1 Core & 1 Buffer)	Once in Season.
7	Greenbelt	Maintenance	Within the lease area	Regular interval

6.4 BUDGET FOR IMPLEMENTAION

The cost in respect of monitoring of environmental attributes, parameter to be monitored, sampling/monitoring locations with frequency and Monitoring work will be outsourced to external laboratory approved by NABL / MoEF. The capital and recurring cost required for the project are detailed in below table.

Total EMP Cost for 5 years is 177.21 lakhs i.e., Rs.30.01 Lakhs of Capital + Recurring cost Rs. 147.20 lakhs for Five years. The breakup of EMP cost is elaborated in Table 10.2 of Chapter 10.

6.5 SUBMISSION OF PERIODICAL REPORTS

The monitored data on air quality, water quality, noise levels and other environmental attributes will be periodically examined by the Mine Management

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellarampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

Coordinator and Respective Head of Organization for taking necessary corrective measures.

The monitoring data will be submitted to Tamil Nadu State Pollution Control Board in the Compliance to CTO Conditions & environmental audit statements every year to MoEF & CC and Half-Yearly Compliance Monitoring Reports to MoEF & CC Regional Office and SEIAA.

Periodical reports to be submitted to: -

- MoEF & CC – Six month EC compliance report
- TNPCB - Half yearly CTO Compliance report
- MOEF & CC & TNPCB – annual Environmental Statement Report. (Form – V)
- Annual Hazardous Waste Return(Form – IV)
- Department of Geology and Mining: quarterly, half yearly annual reports.

7 ADDITIONAL STUDIES

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

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

7.1 PUBLIC CONSULTATION

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

7.2 RISK ASSESSMENT

The DGMS risk assessment process is intended to identify existing and probable hazards in the work environment and all operations and assess the risk levels of those hazards in order to prioritize those that need immediate attention. Further, mechanisms responsible for these hazards are identified and their control measures, set to timetable are recorded along with pinpointed responsibilities.

The whole quarry operation will be carried out under the direction of a Qualified Competent person holding certificate of competency to manage a metalliferous mine granted by the DGMS. Factors of risks involved due to human induced activities in connection with this proposed mining & allied activity with detailed analysis of causes and control measures for the mine is given in below Table 7.1.

Table 7.1 Risk Assessment and Control Measures

S.NO	Risk Factor	Causes of risk	Control Measures
1	Accidents due to explosives and heavy mining machineries	Improper handling and unsafe working practice	All safety precautions and provisions of Mine Act, 1952, Metalliferous Mines Regulation, 1961 and Mines Rules, 1955 will be strictly followed during all mining operations. Entry of unauthorized persons will be prohibited. Fire-fighting and first-aid provisions in the mine office complex and mining area. Provisions of all the safety appliances such as safety boot, helmets, goggles etc. will be made available to the employees and regular check for their use. Quarry operation will be done as per approved mining plan and other applicable statutory guidelines issued by DGMS, Dept. of Mining & Geology-TamilNadu. Handling of explosives, charging and firing shall be carried out under competent statutory persons. A comprehensive standard operating procedure (SOP) will be prepared as per DGMS guidelines and the same will be circulated to all the employees and it will be strictly followed in the all face of mining operation.
2	Drilling	Improper and unsafe practices. Due to high pressure of compressed air, hoses may burst. Drill Rod may break.	Safe operating procedure established for drilling (SOP) will be strictly followed. Only trained operators will be deployed. No drilling shall be commenced in an area where shots have been fired until the blaster/blasting foreman has made a thorough Examination of all places. Drilling shall not be carried on simultaneously on the benches at places directly one above the other. Periodical preventive maintenance and replacement of worn-out accessories in the compressor and drill equipment as per operator manual. Drills unit shall be provided with wet drilling to ensure efficient working.
3	Blasting	Fly rock, ground vibration, Noise and dust. Improper	Restrict maximum charge per delay as per approved mining plan.

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellarampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

		charging, stemming & Blasting/ fining of blast holes. Vibration due to movement of vehicles.	Proper blasting design with optimum spacing & burden, Charge per delay and stemming. SOP for Charging, Stemming & Blasting/Firing of Blast Holes will be followed by blasting crew during initial stage of operation. Shots are fired during day time only. Charging and firing shall be carried out in the same day. Siren will be done for each blasting. Blasting evacuation plan prepared and executed. The danger zone will be distinctly demarcated (by means of red flags).
5	Transportation	Potential hazards and unsafe workings contributing to accident and injuries. Overloading of material. While reversal & overtaking of vehicle. Operator of truck leaving his cabin when it is loaded.	Before commencing work, drivers personally check the dumper/truck/tipper for oil(s), fuel and water levels, tyre inflation, general cleanliness and inspect the brakes, steering system, warning devices including automatically operated audio-visual reversing alarm, rear view mirrors, side indicator lights etc., are in good condition. Unauthorized person will not be allowed to operate or ride on the vehicle. Loading according to the vehicle capacity. Periodical maintenance of vehicles as per operator manual.
6	Natural calamities	Unexpected happenings	An emergency management plan will be prepared considering all possible natural calamity and the same will be executed if any such situation occurs. Escape Routes will be provided to prevent inundation of storm water. Fire Extinguishers & Sand Buckets in the designated areas.
7	Failure of Mine Benches and Pit Slope	Slope geometry, Geological structure	Ultimate or over all pit slope shall be below 60° and each bench height shall be 5m height.

7.3 DISASTER MANAGEMENT PLAN

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

7.3.1 MODEL DISASTER MANAGEMENT PLAN

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

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

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

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

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

7.3.2 OBJECTIVE OF DISASTER MANAGEMENT PLAN

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

Communication System

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

Facilities

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

Personnel

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

Operating Procedures

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

7.4 CUMULATIVE IMPACT STUDY

There are one existing Quarry and this proposed quarry are located within a radius of 500 m from this proposed project area. The existing and proposed quarries situated within 500 m radius are presented in below Table 7.2 and the letter received from Dept. of Geology and Mining, Tiruvannamalai stating the quarries detail within 500m radius is enclosed in Annexure – 3.

Table 7.2 Details of Quarries within 500m radius

S.No	Name and address of the lessee	Village & S. F. Nos	Extent in Hectare	Lease Period
i. Existing Quarries				
1	Thiru. Mubeena, No.14, Savadi street, Perana mallur, Vandavasi Taluk, Tiruvannamalai	S.F.Nos.183/2A 3& 212/1C Thellarampattu	1.25.5	24.01.2020 to 23.01.2025
ii. Abandoned Quarries				
Nil				
iii. Proposed Quarries				
1	Thiru. A.R.Govindan S/o.Arunachalam, No.302, Raja Agraharam, 3rd Cross Street, Poonamallee, Tiruvallur. Pincode-600056.	S.F.No. 214/1 (Part-3 & Part- 4) Thellarampattu	3.93.5	Proposed Quarry

As seen above, although the individual lease area of this project is less than 5 hectares, the one existing Quarry within a 500-meter radius, along with this subject project, add up to more than 5 hectares i.e. 5.19.0 Ha. A map showing the existing and proposed quarry located within 500m radius is given in Figure 1.1.

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

Table 7. 3 Salient Features of Existing & Proposed Quarries

Description		P1	P2
Name of the Quarry		Thiru.A.R. Govindan	Thiru. Mubeena
Geological Resources in m3	Rough stone	13,76,305	5,01,906
	Gravel	-	29,920
Mineable Reserves in m3	Rough stone	5,28,215	85,180
	Gravel	-	9,226
Five years plan period as in the approved mining plan	Rough stone	4,06,225	85,180
	Gravel	-	9,226
Production per day in m3	Peak Production	718	73
Lorry Loads per day in Nos	-	72	7.3
Employment in Nos		30	16
Proposed Depth in meters		20.5	37 (3m AGL + 34m BGL)
Status of the quarry		Proposed	Existing

7.4.1 AIR ENVIRONMENT

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

The data on the cumulative production resulting from the 2 projects have been given in Tables 7.4 and 7.5.

Table 7.4 Cumulative Production Load of Rough Stone

Quarry	Production Details				
	Five years in m3	Per year in m3	Per day in m3	Per Day in tons	Number of Lorry load per day
P1	4,06,225	86,130	287	718	72
P2	85,180	17,870	60	149	15
Grand Total	491,405	104,000	347	867	87

Table 7.5 Cumulative Production Load of Gravel

Quarry	Production Details				
	Five years in m3	Per year in m3	Per day in m3	Per Day in tons	Number of Lorry load per day
P1	-	-	-	-	-
P2	9,226	3920	13	33	4
Grand Total	9,226	3920	13	33	4

The cumulative study shows that the overall production of rough stone from the 2 quarries is 347 m3 per day with a capacity of 87 trips of rough stone per day and that production of gravel from the existing quarry is 13 m3 per day accounting for 4 trips/day.

As P2 project is an existing quarry, they are part of the current traffic. The proposed project will bring 72 trips per day. The existing road can absorb this additional traffic

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

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.

Table 7.6 Area Emissions – Total Material handling – Cluster

Quantity, TPA	Thiru.A.R. Govindan Rough Stone : 406225 Topsoil:15670 Thiru. Mubeena Rough Stone 85,180 & Gravel: 9,226
Operational Hours Per Year	2400
Activity Rate, t/hr.	400.5416667
Emission of dust, g/t.	0.14
Emission of dust, g /hr.	56.07583333
Area of influence, m ²	635
Uncontrolled emission rate g/s/m ²	0.000048526
Controlled emission rate, PM10 g/s/m ²	0.0000048526
Controlled emission rate, PM2.5 g/s/m ²	0.000002803

Table 7.7 Line Source – Transport of Material from Pit to Boundary

Quantity, TPA	Rough Stone : 406225 Gravel:15670
Operational Hours Per Year	2400
Capacity of each Dumper (T)	10
Total No. of Tippers/ year	44650
Lead length/trip, Km	0.8
Total VKT/Year	76904
Emission Kg/VKT	0.26
Total emission Kg/Year	19325.02
Uncontrolled emission rate g/s/m	4.8526
Controlled emission rate, PM10 g/s/m	0.48526
Controlled emission rate, PM2.5 g/s/m	0.2803

7.4.1.2 EMISSION ESTIMATION FROM CLUSTER

Table 7. 8 Incremental & Resultant GLC within cluster for PM_{2.5}

SL.No	Location	Background Concentration	Predicted incremental Concentration	Post Project Concentration	Statutory Limits in $\mu\text{g}/\text{m}^3$
1	A1-Mine Lease Area	33.4	1.38	34.78	60
2	A2- Thavani	31.0	1.24	32.24	
3	A3- Namathodu	30.3	1.10	31.40	
4	A4- Alliyandal	26.1	<1.0	27.1	
5	A5- Avaniyapuram	26.0	<1.0	27.0	

Table 7. 9 Incremental & Resultant GLC within cluster for PM₁₀

SL.No	Location	Background Concentration	Predicted incremental Concentration	Post Project Concentration	Statutory Limits in $\mu\text{g}/\text{m}^3$
1	A1-Mine Lease Area	72.4	4.06	76.46	100
2	A2- Thavani	66.6	3.65	70.25	
3	A3- Namathodu	65.1	2.84	67.94	
4	A4- Alliyandal	56.2	2.03	58.23	
5	A5- Avaniyapuram	55.9	0.81	56.71	

The air quality modeling report for cluster seems that, even in the worst-case scenario, the resultant added concentrations with baseline figures show that the values of ambient air quality for PM₁₀ are in the range of 76.46 $\mu\text{g}/\text{m}^3$ to 56.71 $\mu\text{g}/\text{m}^3$ and for PM_{2.5} are in the range of 34.78 $\mu\text{g}/\text{m}^3$ to 27.0 $\mu\text{g}/\text{m}^3$ which are within the statutory limits in each case.

7.4.2 CUMULATIVE IMPACT ON SOCIO-ECONOMIC ENVIRONMENT

The mining operations in the 2 mines will provide direct employment opportunity and indirect employment opportunity for scores of people through allied opportunities in logistics, contract workers, trading, repairing works etc. Various mitigative measures suggested in this report will be properly implemented to ensure that no adverse impact is felt on the socio economic and ecological front in the area.

Table 7.10 SOCIO ECONOMIC BENEFITS FROM 2 MINES

	Employment	Project Cost	CER
P1	30	Rs. 2,85,60,000	Rs.5,71,200/-
P2	16	Rs.24,91,123	Rs.50,000/-
Total	46	Rs. 3,10,51,123/-	Rs.6,21,200/-

7.5 CLUSTER MINE CLOSURE PLAN

In the mine closure stage all necessary measures will be taken as per Act & Rules, there is no proposal for back filling, reclamation and rehabilitation in any of the proposals. The quarried pits after the end of life of mine will be properly fenced all around to prevent inherent entry of public and cattle and all the statutory requirements will be fulfilled. As already explained, in the post mining stage the rainwater harvested in the mined- out void shall be utilized for irrigation and domestic needs locally. The mine closure plan is provided in Figure 2.8.

7.6 SLOPE STABILITY PLAN

The factors that affect slope stability of the mine are detailed below.

- Geological structure comprising dip, intervening shear zone formation, clay intrusion, joints / discontinuities, faults etc.,
- Lithology of formation
- slope geometry
- Ground water availability which may cause increased thrust on the faces

Site Specific Analysis

- The quarry lease area is plain terrain which is covered by topsoiled rock formation. The rock type noticed in the lease area is Charnockite which contains mostly Quartz and Feldspar with some ferromagnesian.
- Since the formation is of homogeneous rock type probability of slope failure is low and can be avoided if proper measures are adopted.
- There will be a 7.5m safety zone which will form a ridge which can also take care of the top section and as such no risk is envisaged on this front.

Mitigation Measures

- Regular inspection of the mine faces to be carried out by pp for ensuring absence of any structural features like faults, joints, dyke, intrusive material in the rock strata which may affect the slope stability and cleared.
- No loose material or boulders is to be stacked on the mine top or pit benches.
- Height of the benches should be 5m.
- Haul road formation will be at 1 in 15 slope with adequate road width.
- There will be no ground water table intersection.
- No seepage is expected due to formation. Adequate drainage management system comprising peripheral garland drain, settling pond to regulate monsoon water will be created to prevent saturation of compact layers, apparent drainage over the bench slope to avert damages to quarry face and manage the water flow.

8 PROJECT BENEFITS

The project area is located on barren 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.

The mining activity at proposed Rough Stone Quarry of Thiru. A.R. Govindan will create direct employment opportunity for 30 local people. The PP has proposed CER amount of Rs. 5.0 Lakhs for surrounding schools development.

9 ENVIRONMENTAL COST BENEFIT ANALYSIS

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

10 ENVIRONMENTAL MANAGEMENT PLAN

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

10.1 ENVIRONMENTAL POLICY

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

The Proponent will:

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

10.2 ENVIRONMENTAL MANAGEMENT PLAN

The impacts due to this mining project are detailed in chapter 4. Mitigation measures at the source level and an overall Management Plan at the site level are elaborated

in this chapter. Details of EMP measures for implementation in the mine are given in the table 10.1.

Table 10.1 - ENVIRONMENTAL MANAGEMENT PLAN

Environmental Parameter	Mitigation Measures
Air	Wet drilling to suppress the dust emission from drill machine
	Regular water sprinkling on haulage road through fixed water sprinkler.
	2.0 m ³ /day of water will be used for dust suppression.
	Avoiding blasting during high wind period, night times and temperature inversion periods.
	Regular grading of haul road to clear accumulation of loose material.
	It will be ensured that vehicles are properly maintained to comply with exhaust emission requirements
	Maintenance as per operator manual of the equipment and machinery in the mines to minimizing air pollution
	Ambient Air Quality Monitoring carried out in the project area and in surrounding villages to assess the impact due to the mining activities and the efficacy of the adopted air pollution control measures.
Afforestation for control of dust.	
Water	
Surface water	<p>Cheyar River is situated at a distance of 4.7 km in north east direction and an odai passing at 420 m in SW direction. No other water bodies close to the project site, There is no effluent discharge from this proposed Quarry. So no impact is anticipated.</p> <p>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.</p> <p>Monthly or after rainfall, inspection for performance of water management structures and systems.</p>

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

	There is no discharge of any effluent into nearby water bodies.
Ground Water	The quarrying operation is proposed upto a depth of 20.5 m maximum below ground level, the water table in the area is 53m & 56m below ground level, hence the project will not intersect the Gund water table during entire quarry period.
Water Consumption and Wastewater generation	The required water of 5.0 KLD will be procured from outside agencies initially and later rainwater harvested in the mine pit shall be used other than drinking purpose.
	Domestic wastewater generation of 0.3 KLD will be discharged in soak pit via septic tank.
	Conduct ground water and surface water monitoring for parameters specified by CPCB
Noise	The workers employed are provided with personal protective equipment (PPE) as such, earmuffs and ear- plugs for the protection from high noise level generated at the mine site wherever required.
	Noise levels are controlled by using optimum explosive charge, proper delay detonators and proper stemming to prevent blow out of holes.
	Development of thick greenbelt all along the Buffer Zone (7.5 Meters) of the project area to attenuate the noise and the same will be maintained.
	Preventive maintenance of mining machinery and replacement of worn-out accessories to control noise generation.
	Regular ambient noise level monitoring will be carried out in the project area and in surrounding villages to access the impact due to the mining activities and the efficacy of the adopted noise control measures.
Ground Vibration and Fly Rock Control	Controlled blasting using delay detonators will be carried out to maintain the PPV value well within the prescribed standards of DGMS.
	Drilling and blasting will be carried under the supervision of qualified persons.

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	ensure blast holes are adequately stemmed for the depth of the hole and stemmed with suitable angular material.
	Undertake noise or vibration monitoring.
Land Environment	There is no change will be in the land use pattern as mentioned in the approved mining plan a such mine pit, safety zone etc., At conceptual stage, the mining pits will be converted into Rain Water Harvesting. Remaining area will be converted into greenbelt area.
	Garland drains with catch pits / settlement traps to be provided all around the project area to prevent run off affecting the surrounding lands.
	The periphery of Project area will be planted with thick plantation to arrest the fugitive dust, which will also act as acoustic barrier.
	Frequent Soil and ground water testing as per Environmental Monitoring Plan.
Top Soil / Overburden	There is no waste anticipated in this rough stone Quarry. The entire quarried minerals will be utilized.
Biological Environment	During mining, three layer thick plantation will be carried out around the project periphery, on safety barrier zone, on top benches of quarried out area etc.,
	The main attributes that retard the survival of sapling is fugitive dust, this fugitive dust can be controlled by water sprinkling on the haul roads and installing a sprinkler unit near the newly planted area.
	Regular review on Greenbelt development programme.
	Year wise greenbelt development plan mentioned in Chapter IV

10.3 ADMINISTRATION AND TECHNICAL SETUP

The Environment Monitoring Cell discussed under Chapter 6 will ensure effective implementation of environment management plan and to ensure compliance of environmental statutory guidelines through Mine Management Level. The organizational chart for the same has been given below.

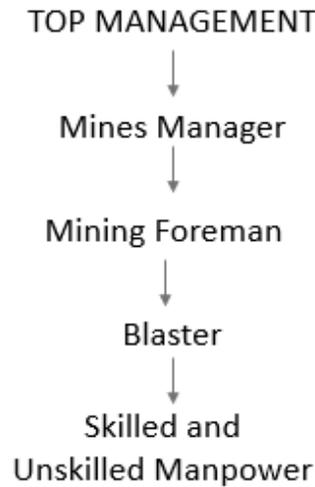


Figure 10.1 Organization Chart

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

- Monitoring of the water/ waste water quality, air quality and solid waste generated
- Analysis of the water and air samples collected through external laboratory
- Implementation and monitoring of the pollution control and protective measures/ devices which shall include financial estimation, ordering, installation of air pollution control equipment, waste water treatment plant, etc.
- Co-ordination of the environment related activities within the project as well as with outside agencies
- Green belt development
- Monitoring the progress of implementation of the environmental monitoring programme

- Compliance to statutory provisions, norms of State Pollution Control Board, Ministry of Environment and Forests and the conditions of the environmental clearance as well as the consents to establish and consents to operate.

10.4 OCCUPATIONAL SAFETY & HEALTH MANAGEMENT

Occupational safety and health are very closely related to productivity and good employer-employee relationship. The main factors of occupational health impact in quarries are fugitive dust and noise. Safety of employees during quarrying operation and maintenance of mining equipment will be taken care as per Mines Act 1952 and Rule 29 of Mines Rules 1955. To avoid any adverse effect on the health of workers due to dust, noise and vibration sufficient measures have been provided. The health status of workers in the mine shall be regularly monitored under an occupational surveillance program. Under this program, all the employees are subjected to a detail medical examination at the time of employment.

10.5 BUDGETARY PROVISION FOR ENVIRONMENTAL MANAGEMENT

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

Table 10.2 Environmental Management Plan Budget

EMP Cost			
Sl. No.	Mitigation Measure	Capital cost	Recurring Cost /Annum
Air Environment			
1	Haul Road Maintenance	0.39	0.39
2	Water Sprinkler Arrangement	8.00	1.00

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellarampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

3	AAQ Monitoring	0.00	0.50
4	Control Blasting (Muffle blasting)	0.00	0.01
5	Wet Drilling	2.00	0.20
6	No overloading of trucks/tippers/tractors	0.00	0.05
7	Stone carrying trucks will be covered by tarpaulin	0.00	0.10
8	Enforcing speed limits of 20 km/hr within ML area	0.20	0.00
9	Regular monitoring of exhaust fumes as per RTO norms	0.00	0.05
10	Regular sweeping and maintenance of approach roads for at least about 200 m from ML Area	0.00	0.23
11	Installing wheel wash system near gate of quarry	0.50	0.20
Sub-Total (A)		11.09	2.73
Noise Environment			
12	Provision for Portable blaster shed	0.50	0.02
13	NONEL Blasting will be practiced to control Ground vibration and fly rocks	0.00	8.0
Sub-Total (B)		0.50	8.02
Water Environment			
14	Water management (Garland Drain)	0.39	0.05
15	Sump Maintenance	0.00	0.20
16	Dewatering Cost	0.00	1.00
Sub-Total (C)		0.39	1.25

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Implementation of EC, Mining Plan & DGMS Condition			
17	Waste management (Spent Oil, Grease etc.,)	0.25	0.20
18	Providing Waste Dustbin	0.05	0.02
19	Environmental Parameters Display Board	0.10	0.01
20	Issue of PPE's	1.20	0.30
21	IME & PME Checkup	0.00	0.30
22	First Aid facility Provision	0.00	0.15
23	Signage & boards for safety precautions	0.10	0.02
24	Barbed Wire Fencing to quarry area	7.87	0.10
25	Parking yard Management	1.96	0.10
26	Installation of CCTV cameras in the mines and mine entrance	0.30	0.05
27	Implementation as per Mining Plan and ensure safe quarry working	0.00	7.80
Sub-Total (D)		11.83	9.05
Green Belt Development			
28	Plantation inside ML area (200 Nos)	0.40	0.06
29	Plantation outside ML area (2000 Nos)	5.40	0.54
Sub-Total (E)		5.8	0.6
Additional Key EMP Expenses			
30	Establishing Rainwater Structure	0.10	5.00
31	Environmental Awareness Programme	0.30	0.00

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	Sub-Total (F)	0.40	5.00
	Grand Total in Lakhs (A+B+C+D+E+F)	30.01	26.65
EMP Cost for 5 years			
32	1 st Year	0.0	26.65
33	2 nd Year	0.0	27.98
34	3 rd Year	0.0	29.37
35	4 th year	0.0	30.83
36	5 th year	0.0	32.37
	Sub Total (G)	0.0	147.20
Total EMP Cost for 5 years is 177.21 lakhs			
i.e., Rs.30.01 Lakhs of Capital + Recurring cost Rs. 147.20 lakhs for Five years			

10.6 CONCLUSION

Various aspects of mining activities were considered and related impacts were evaluated. Considering all the possible ways to mitigate the environmental concerns, Environmental Management Plan was prepared and fund has been allocated for the same. The EMP is dynamic, flexible and subjected to periodic review. For project where the major environmental impacts are associated, EMP will be under regular review. Senior Management responsible for the project will conduct a review of EMP and its implementation to ensure that the EMP remains effective and appropriate. Thus, the proper steps will be taken to accomplish all the goals mentioned in the EMP and the project will bring the positive impact in the study area.

11. SUMMARY AND CONCLUSION

11.1 INTRODUCTION

This EIA Report is prepared for Thiru. A.R.Govindan Rough Stone Quarry over an extent of 3.93.50 Ha. Government land in S.F. No. 214/1 (Part 3 & Part 4) of Thellarampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu in compliance with ToR obtained vide Lr.No.SEIAA-TN/F.No.10023/SEAC/ToR-1499/2023, dated: 19.07.2023.

Although the individual lease area of this project is less than 5 hectares, the one existing Quarry within a 500-meter radius, along with this subject project, add up to more than 5 hectares i.e. 5.19.00 Ha. A map showing the existing and proposed quarry located within 500m radius is given in Figure 1.1.

This cluster includes the nearby one existing Quarry namely Thiru. Mubeena, Thellarampattu Village, 183/2A3 & 212/1C (1.25.5 Ha).

This project proposed to produce 4,06,225 m³ of Rough Stone for the period of 5 years with ultimate depth upto 20.5 m BGL.

11.2 PROJECT DESCRIPTION

Table 11.1 Salient Features of the Project

Description	Salient Feature
Name of the Project	Thiru. A.R. Govindan Rough Stone Quarry
Location of the Project	S.F. No. 214 (Part – 3 & Part 4) of Thellarampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu.
Latitude & Longitude	Latitude: 12°31'39.45"N to 12°31'50.90"N Longitude: 79°23'22.21"E to 79°23'31.55"E.
Toposheet No.	57 P/06

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

ML Area	3.93.50 Ha
Type of Land	Government Land
Geological Resource	Rough Stone – 13,76,305 m ³ Top Soil - 19,663 m ³
Mineable Reserves	Rough Stone – 5,28,215 m ³ Top Soil - 15,670 m ³
Proposed Production for first Five years	Rough Stone – 4,06,225 m ³ Top Soil- 15,670 m ³
Life of the mine	First 5 years
Proposed depth of mining	20.5 m bgl
Method of Mining	Opencast mechanized mining involving drilling and blasting
Proposed bench height and width	Bench Height & Width – 5m.
Total Waste	Overburden in the form of topsoil generated (15,670 m ³) will be utilized for afforestation purpose.
Top Soil / Overburden	Overburden in the form of topsoil generated (15,670 m ³) will be utilized for afforestation purpose.
Water Requirement & source	Total – 5.0 KLD. The required water will be procured from outside agencies initially. Later, water collected in the mine pit will be used to meet the needs.
Proposed Manpower Deployment	30 Nos
Total Project Cost	Rs. 2,85,60,000/- Two core eighty five lakhs sixty thousand rupees only.
Nearest Highway	There is an existing road from the area leads to Somavaram - Thavani road on eastern side of the area.

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

	The National Highway (NH-38) Tiruvannamalai – Vellore is about 24.5km on western side of the area. The State Highway (SH-4) Arani – Gingee is about 5.3Km on western side of the area.
Nearest Railway Station	Arani Road – 22.84 km – NW The Nearest Railway line is Tiruvannamalai - Vellore line which is about 22.5Km on northwestern side of the area.
Nearest Airport	Puducherry Airport – 78 Km – SE
Nearest Major Water bodies	Core Zone – NIL Buffer Zone <ul style="list-style-type: none"> • Odai – 420 m (SW) • Tank – 530 m – E • Tank – 730 m - NW • Cheyyar River – 4.7 km (NE)
Environmental sensitive areas, Protected areas as per Wildlife Protection Act, 1972 (Tiger reserve, Elephant reserve, Biospheres, National parks, Wildlife sanctuaries, community reserves and conservation reserves)	NIL within 10 km radius
Reserved / Protected Forests	<ul style="list-style-type: none"> • Vishamangalam R F – 1.1 km (S) • Nedunkunam R F – 5.2 km (S) • Nambedu R F – 7.7 km (NE)
Nearest Village	Thellampattu – 1.7 km – NW Alliyandal – 2.0 km - NE Thavani – 1.2 km – SE Konamangalam – 2.5 km - SW
Seismic Zone	Zone II

11.3 DESCRIPTION OF THE ENVIRONMENT

The baseline monitoring study was carried out during October to December 2023 to assess the existing environmental scenario in the area. For the purpose of EIA studies, project area was considered as the core zone and area outside the project area up to 10km radius from the periphery of the project site was considered as buffer zone. Baseline Environmental data has been collected for: -

- a) Land
- b) Water
- c) Air
- d) Noise
- e) Biological
- f) Socio-economic status

11.3.1 LAND ENVIRONMENT

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

Table - 11.2 Land use Pattern of the study area

Sl.No.	LAND USE / LAND COVER	Area in Sq.Km	Area in Percentage
1	Built-up land	8.76	2.71
2	Crop land	27.54	8.51
3	Fallow land	81.76	25.26
4	Land with scrub	8.49	2.62
5	Land without scrub	0.10	0.03
6	Mining process	0.02	0.01
7	Plantations	142.42	44.01
8	Reserved Forest	14.02	4.33
9	River	1.84	0.57
10	Water bodies	38.69	11.95
	Total Area	323.64	100.00

Source: Survey of India Toposheet and Landsat Satellite Imagery

11.3.2 SOIL CHARACTERISTICS

Results of the soil samples show that the pH values were found to be 8.23 to 8.55 and Electrical Conductivity values were ranging between 13.09 – 187.4 $\mu\text{mhos/cm}$. Soils are generally Silt Loam. Organic matter values were ranging between 0.20 – 1.82 %. Total Nitrogen values were ranging between 155 – 246 mg/kg. Phosphorus values were ranging between 0.56 – 0.74 $\mu\text{g/g}$. Potassium values were ranging between 314 – 533 mg/kg. Sodium values were ranging between 450 – 787 mg/kg. Total Sulphate values were observed to be BDL. The soil quality data for the 3 samples collected and analyzed are provided in Table no – 3.14.

11.3.3 AMBIENT AIR QUALITY

The results of ambient air quality monitoring for the period (March to May 2023) are presented in Chapter 3. The ambient air quality data for PM₁₀, PM_{2.5}, SO₂, NO₂, CO studied at 5 locations as per prescribed guidelines/ methods. As per the monitoring data, the PM₁₀ values were in the range of 46.7 – 72.4 $\mu\text{g/m}^3$. PM_{2.5} values were in the range of 21.7 – 33.4 $\mu\text{g/m}^3$. SO₂ levels were ranging from 3.8 – 6.3 $\mu\text{g/m}^3$. NO₂ levels were ranging from 7.2 – 12.8 $\mu\text{g/m}^3$. While comparing with the NAAQ Norms laid by MoEF, all monitored values of PM₁₀, PM_{2.5}, SO₂, NO₂ & CO were found to be well within the prescribed standards. The CO values in the all locations found to be below detectable limit (DL – 1144 $\mu\text{g/m}^3$).

11.3.4 WATER ENVIRONMENT

Surface Water

The pH varied from 6.99 to 7.69 while turbidity found within the standards (Optimal pH range for sustainable aquatic life is 6.5 to 8.5 pH). Total Dissolved Solids varied from 65 to 526 mg/l. Chloride varied between 12.3 mg/l and 137 mg/l. Nitrates varied from 2.86 to 3.19 mg/l, while sulphates varied from 13.8 to 170 mg/l.

Ground Water

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

As Per the data it has been observed that the pH value varies from 7.15 to 7.45, Chlorides Ranges From 105- 594 mg/l, Sulphates value found to be between 86.3 - 295 mg/l, Fluoride Ranges low in lease area i.e. 0.36 – 0.55, Hardness varies from 325 – 412 mg/l, and Total dissolved solid 596 – 1340 mg/l. The ground water has been analyzed as per IS10500: 2012 and found to be suitable for drinking purpose. So the results of chemical and bacteriological analysis of water samples are classified under good class for drinking purpose with respect to total dissolved solids. Total hardness of the samples ranged from soft to moderately hard waters and can be fairly used for drinking. Regular ground water monitoring is suggested as the quality of ground water may fluctuate with groundwater consumption and seasonal variations.

11.3.5 NOISE ENVIRONMENT

From the table 3.12, it is observed that the day Equivalent Noise (Leq-d) level were ranging from 45.4 to 49.2 dB(A) and Night Equivalent Noise (Leq-n) level were ranging from 37.6 to 39.1 (A). Day and Night Equivalent Noise (Leq-n) level were ranging from 44.0 to 47.7 dB(A). While comparing with the MoEF Norm of 55 dB(A) for day time and 45 dB(A) for night time in Residential areas, the monitored ambient noise levels are within the limit values.

11.3.6 BIOLOGICAL ENVIRONMENT

There is no schedule I species of animals observed within study area as per Wildlife Protection Act 1972 as well as no species is in vulnerable, endangered or threatened category as per IUCN. There is no endangered red list species found in the study area. Hence this small operation over short period of time will not have any significant impact on the surrounding flora and fauna.

11.3.7 SOCIO-ECONOMIC ENVIRONMENT

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

11.4 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

The main scope of the EIA study is to quantify the cumulative impact in the study area due to cluster quarries and formulate the effective mitigation measures for each individual leases. A detailed account of the emission sources, emissions control equipment, background Air quality levels, Meteorological measurements, Dispersion model and all other aspects of pollution like effluent discharge, Dust generation etc., have been discussed in Chapter 4 of this report.

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

Anticipated Impacts & Mitigation Measures

Impact	Mitigation Measures
Land Environment	
<ul style="list-style-type: none"> ❖ Destruction of natural landscapes ❖ Changes in soil characteristics ❖ Soil erosion and slope instability ❖ Problems to agricultural land and human habitations due to dust, and noise caused by movement of heavy vehicles. 	<ul style="list-style-type: none"> ❖ Rough stone does not produce any toxic effluents in the form of solids, liquids, or gases. ❖ At the end of life of mine, the excavated mine pit / void of 3.27.0 Ha. will act as artificial reservoir for collecting rain water and helps to meet out the demand or crises during drought season. ❖ After mine closure the greenbelt (0.40.0 Ha.) will be developed along the safety barrier and top benches and 0.02 ha are approach road and Infrastructure. ❖ Remaining 0.24.5 ha. of land will be covered with vegetation. ❖ The periphery of the mining lease area will be converted to a greenbelt to prevent Noise and sound propagation to the nearby lands. ❖ Entire mined out area will be properly fenced to prevent inadvertent entry of human and animals. ❖ Construction of garland drains all around the quarry pit and construction of settling traps at strategic location in lower elevations to prevent soil erosion due to surface runoff during rainfall and also to collect the storm water for various uses within the proposed area.
Water Environment	
<ul style="list-style-type: none"> ❖ Impact due to Usage of Water in mines 	<ul style="list-style-type: none"> ❖ Cheyyar River is situated at a distance of 4.7 km in north east

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

<ul style="list-style-type: none"> ❖ Generation of waste water from vehicle washing ❖ Domestic sewage ❖ Washouts from surface exposure or working areas ❖ Impact on Surface Water Resources ❖ Impact on Ground water ❖ Impact on Water Quality ❖ 	<p>direction and an odai passing at 420 m in SW direction. Two tanks at 530m (East) and 730 m (NW) No other water bodies close to the project site, There is no proposal for discharging of wastewater outside the project area.</p> <ul style="list-style-type: none"> ❖ There is no proposal for a rough stone processing or workshop within the project area, so no effluent is anticipated in the mine. ❖ The required water (5.0 KLD) will be sourced initially from outside agencies. Later the rainwater collected in the mine pit sump will be used for this purpose. ❖ Regular water quality will be carried in nearby villages to ensure the water quality is not affected due to the quarrying activities. ❖ Domestic sewage from site office & urinals/latrines provided in project area will be discharged through septic tank followed by soak pit system. ❖ Only clear and settled water free from silt content will be used for dust suppression and greenbelt development. ❖ De-silting will be carried out before and immediately after the monsoon season and the settling tank and drains will be cleaned weekly, especially during monsoons. ❖ The dimension of the rain water harvesting pond will be 25m x 20m x20m with capacity of 10000 cu.m. The rain water stored in the pond will be utilized for plantation, dust suppression activities.
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Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellarampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

Air Environment	
<ul style="list-style-type: none"> ❖ Generation of Fugitive Dust ❖ Dust will be generated mainly during excavation, loading & unloading activities. ❖ Reduction in visibility due to dust plumes. ❖ Coating of vegetation leading to reduced photosynthesis. ❖ Inhibited growth, destroying of foliage, degradation of crops; ❖ Increase in health hazards due to inhalation of dust. 	<ul style="list-style-type: none"> ❖ 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. ❖ Speed restrictions will be imposed to avoid spillage of loaded materials upon the road and to reduce wear and tear of the road. ❖ Weekly inspections of the condition of the access road by competent person employed, and immediate action will be taken to address any potholes or damage to the road surface. ❖ Development of greenbelt is proposed in the safety zone of 10m and 7.5m barriers in the lease area. ❖ Personal Protective Equipment's will be provided to all workers
Noise & Vibration	
<ul style="list-style-type: none"> ❖ The main noise generating source during mining operation and related activities are drilling, excavation, loading, unloading and transportation. 	<ul style="list-style-type: none"> ❖ Usage of sharp drill bits while drilling which will help in reducing noise; ❖ Secondary blasting will be totally avoided and hydraulic rock breaker are utilized for breaking boulders; ❖ Controlled blasting with proper spacing, burden, stemming and optimum charge/delay will reduce noise; ❖ The blasting will be carried out during favourable atmospheric condition and

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellarampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

	<p>less human activity timings by using nonelectrical initiation system;</p> <ul style="list-style-type: none"> ❖ Proper maintenance, oiling and greasing of machines will be done every week to reduce generation of noise; ❖ Provision of sound insulated chambers for the workers working on machines (HEMM) producing higher levels of noise; ❖ Green Belt will be developed around the project areas and along the haul roads. The plantation minimizes propagation of noise; ❖ Personal Protective Equipment (PPE) like ear muffs/ear plugs will be provided to the operators of HEMM and persons working near HEMM and their use will be ensured through training and awareness. ❖ Regular medical check-up and proper training to personnel to create awareness about adverse noise level effects
<p>Ground Vibration</p>	
<ul style="list-style-type: none"> ❖ The vibration due to blasting can cause damage to the nearby structures if appropriate technology and control measures are not adopted in the blasting operation. ❖ Fly rock is another possible damage causing outcome of blasting. 	<ul style="list-style-type: none"> ❖ Proper quantity of explosive, suitable stemming materials and appropriate delay system should be adopted to avoid overcharging and for safe blasting; ❖ Adequate safe distance from blasting should be maintained as per DGMS guidelines; ❖ Blasting shelter should be provided as per DGMS guidelines; ❖ Blasting operations shall be carried out only during day time; ❖ The charge per delay shall be minimized and preferably more

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellarampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

	<p>number of delays will be used per blasts;</p> <ul style="list-style-type: none"> ❖ During blasting, other activities in the immediate vicinity shall be temporarily stopped; ❖ Drilling parameters like depth, diameter and spacing will be properly designed to give proper blast; ❖ Blasting will be carried out under the supervision of statutory persons as approved by DGMS. ❖ A well-defined SOP will be framed under the leadership of top management and the same will be followed for each blasting. ❖ Regular PPV monitoring will be carried out to ensure PPV limits i.e., 0.5 mm/s.
Biological Environment	
<ul style="list-style-type: none"> ❖ Direct impacts include land clearance and excavation causing destruction of flora and fauna and loss of habitats. ❖ Indirect impacts include habitat degradation due to noise, dust, and human activity. 	<ul style="list-style-type: none"> ❖ Only some common herbs, shrubs and grass will be cleared. So, there will be no impact on the biodiversity. ❖ Green belt development with suitable species will enhance the biodiversity of the project area. ❖ The core zone or buffer zone does not encompass any threatened flora or fauna species.
Socio-Economic Environment	
<ul style="list-style-type: none"> ❖ Health and safety of workers and the general public. ❖ Increase in traffic volumes and sizes of road vehicles. ❖ Economic issues, including the increase in employment opportunities. 	<ul style="list-style-type: none"> ❖ Around 30 local workers will get employment opportunities along with periodical training to generate local skills. ❖ Mine management will contribute for the upliftment of these villages by conducting regular medical camps, assistance in developing necessary infrastructure facilities like

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

	<p>maintenance of schools, village roads, drinking water supply, etc.</p>
<p>Occupational Health & Safety</p>	
<ul style="list-style-type: none"> ❖ Exposure to Dust ❖ Noise and Vibration Exposure ❖ Physical Hazards ❖ Respiratory hazards due to Dust exposure 	<ul style="list-style-type: none"> ❖ Provision of rest shelters for mine workers with amenities like drinking water etc. ❖ All safety measures like use of safety appliances, such as dust masks, helmets, shoes, safety awareness programs, awards, posters, slogans related to safety etc. ❖ Training of employees for use of safety appliances and first aid in vocational training centre. ❖ Weekly maintenance and testing of all equipment as per manufacturers' guidelines. ❖ Pre placement and Yearly Medical Examination of all workers by a medical Officer. ❖ First Aid facility will be provided at the mine site. ❖ Close surveillance of the factors in working environment and work practices which may affect environment and worker's health by the mine's manager employed. ❖ Working of mine as per approved mining plan and environmental plans.

11.5 ANALYSIS OF ALTERNATIVES

There are no alternatives suggested as the proposed mining area has the following advantages:

- ❖ The mineral deposit occurs in a non-forest area.

- ❖ There is no habitation within the applied lease area; hence, no R & R issues exist.
- ❖ There is no river, stream, nallas and water bodies in the or passing through the applied mine lease areas.
- ❖ Mine connectivity through road and rail is good.
- ❖ The proposed mining operations do not intersect the ground water level. Hence, no impact on ground water environment.

11.6 ENVIRONMENTAL MONITORING PROGRAM

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

PP will supervise the overall environmental management plan of the project during operation. The capital cost of Rs. 30.01 Lakhs and the recurring cost of Rs. 147.20 Lakhs have been allocated under the EMP budget which includes Environmental Monitoring Cost.

11.7 ADDITIONAL STUDIES

Risk Analysis & Disaster Management Plan

The methodology for the risk assessment has been based on the specific risk assessment guidance issued by the Directorate General of Mine Safety (DGMS). The DGMS risk assessment process is intended to identify existing and probable hazards in the work environment and all operations and assess the risk levels of those hazards in order to prioritize those that need immediate attention.

Further, mechanisms responsible for these hazards are identified and their control measures set to time table are recorded along with pinpointed responsibilities. In the unlikely event that a consequence has occurred, disaster management kicks in. This

includes instituting procedures pertaining to a number of issues such as communication, rescue, and rehabilitation. These are addressed in the disaster management plan. Both, the RA and DMP, are living documents and need to be updated whenever there are changes in operations, equipment, or procedures. Assessment is all about preventing accidents and taking necessary steps to prevent it from happening.

The Disaster Management Plan (DMP) is a guide, giving general considerations, directions, and procedures for handling emergencies likely to arise from planned operations. The DMP has been prepared on the basis of the Risk Assessment and related findings covered in the report.

Terms of Reference with Public Hearing (ToR) for the project was issued vide Lr.No.SEIAA-TN/F.No.10023/SEAC/ToR-1499/2023, dated: 19.07.2023. Now, this Draft EIA / EMP Report is prepared for conducting Public Hearing as the projects falls under B1 Category.

Although the individual lease area of this project is less than 5 Ha, the one existing and this proposed quarries within the 500m radius along with this subject project works out to >5 Ha. A Cumulative impact study is conducted to determine the impact of the existing and proposed quarries located within 500m radius on the environment and are detailed in Section 7.4.

Cumulative Impact Study

The baseline monitoring conducted for this project reflects the cumulative impact of the existing quarry and impact of this proposed project on air environment do not exceed the permissible limits set by CPCB for air pollution.

As P2 project is an existing quarry, they are part of the current traffic. The proposed project will bring 72 trips per day. The existing road can absorb this additional traffic due to this project.

The existing project provided employment opportunities for 16 people and this proposed will provide direct employment opportunities for 30 people.

The previous project had a CER budget of Rs. 50, 000/-, and this proposed project has allocated Rs. 5.0 Lakhs as the CER budget.

11.8 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 30 people directly. Local people will be hired for unskilled labour.
- Through CSR, nearby schools, hospitals will be benefitted.

11.9 CONCLUSION

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

The project will increase the revenue of the State Govt. as well as it will help in the social upliftment of the local community. The green belt development programme will

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

help in increasing the green cover in the area. Thus, the proposed project is not likely to affect the environment or adjacent ecosystem adversely.

The Mine Management will be responsible for the project review of EMP and its implementation to ensure that the EMP remains effective and appropriate. Thus, the proper steps will be taken to accomplish all the goals mentioned in the EMP and the project will bring the positive impact in the study area.

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 Chetty Patty, Kottamettupatty, Omalur, Salem, Tamilnadu-636455.

Declaration by Experts contributing to the proposed Rough Stone Quarry over an extent of 3.93.50 Ha, while total cluster area of 5.19.0 Ha at Thellarampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu.

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

EIA Coordinator Name: Manikandan Manickam

Signature & Date

Period of involvement: October 2023 to December 2023.

Contact information:

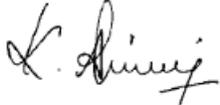
M/s Global Mining Solutions

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

Kottamettupatty, Omalur,

Salem, Tamil Nadu – 636 455

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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: October 2023 to December 2023.</u>	
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: October 2023 to December 2023.</u>	
3	SHW	Ramadoss N	Assessment of waste generated from the project, suggested waste management practices. <u>Period: October 2023 to December 2023.</u>	

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellarampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

4	SE	Sarasvathy K	<p>Baseline SE study. Data compilation and assessment. Impact of the project on SE status of the area. Formulation of CER plan.</p> <p><u>Period: October 2023 to December 2023.</u></p>	
5	EB	Saravanan S	<p>Baseline data collection of related to ecology of the area.</p> <p><u>Period: October 2023 to December 2023.</u></p>	
6	HG	Ravinthiran N	<p>Hydrogeological feature of the area. Ground water depth and impact of project on ground water of the area.</p> <p><u>Period: October 2023 to December 2023.</u></p>	
7	AQ	Srilatha Thiruveedhula	<p>Air quality modeling utilizing the area source model. Predication of the ground level concentration of the dust. Suggesting suitable mitigation measures.</p>	

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellarampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

			<u>Period: October 2023 to December 2023.</u>	
8	NV	Dhanalakshmi Ramanathan	<p>Ambient noise study of the area. Incremental noise generation due to quarry operation and impact of the noise due to the project.</p> <p><u>Period: October 2023 to December 2023.</u></p>	R. Dhami
9	LU	Srilatha Thiruveedhula	<p>Preparation of land use map based on satellite imagery. Land use classification and analysis. Impact prediction of the project on the surrounding land environment.</p> <p><u>Period: October 2023 to December 2023.</u></p>	T. Srilatha

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellarampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

10	RH	S.V. Prashant	<p><i>Identification of the Risk related to the mining activities. Preparation of emergency disaster management plan. Plan for supply of safety equipment for the worker.</i></p> <p><u>Period: October 2023 to December 2023.</u></p>	<i>S.V. Prashant</i>
11	SC	Shisupal Sing	<p><i>Soil monitoring, secondary data collection on soil type, soil management practices, utilization of topsoil.</i></p> <p><u>Period: October 2023 to December 2023.</u></p>	<i>Shisupal Sing</i>
12	GEO	Valliappan Meyyappan	<p><i>Geological map, stability of quarry and dump, management plan for mine stability, after use of mining quarry and geological feature of the area.</i></p> <p><u>Period: October 2023 to December 2023.</u></p>	<i>Valliappan Meyyappan</i>

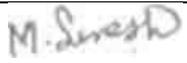
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TM-FAE:

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	October to December 2023	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 hydro-geology pattern of study area, studying water and the impact of the project on ground water.	
2	Manikandan Manickam	EB	S.Saravanan	October to December 2023	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 report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellarampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

TM-FAA

S. No	Name of TM (FAE)	Functional Area	Approved FAE (to work under)	Period of involvement	Type of work	Signature
1	Suresh	WP	Abirami Kaliyaperumal	October to December 2023	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		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	October to December 2023	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.	

Draft EIA EMP report of Proposed Rough stone Quarry of Thiru. A.R. Govindan, S.F.No. 214 (Part – 3 & Part 4) over an Extent of 3.93.50 Ha in Thellarampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu

				Preparation of emergency disaster management plan, plan for supply of safety equipment for the workers.	
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ANNEXURE - 1

Precise Area

Communication Letter

ந.க.எண்:07/கனிமம்/2023

துணை இயக்குநர் அலுவலகம்,
மாவட்ட ஆட்சியர் அலுவலக வளங்குறி,
திருவண்ணாமலை மாவட்டம்
திருவண்ணாமலை-4.

நாள்:10.01.2023.

அறிவிக்கை

பொருள்: கனிமங்களும் குவாரிகளும் - கல்குவாரிகள் - டெண்டர் / பொது ஏலம் - திருவண்ணாமலை மாவட்டம் - சேத்துபட்டம் வட்டம் - தெள்ளாரம்பட்டு கிராமம் - அரசு புறம்போக்கு புல எண் 214/1(பகுதி 3 மற்றும் பகுதி 4) பரப்பு 3935 ஹெக்டேர் - 10 ஆண்டுகளுக்கு கல்குவாரி செய்ய குத்தகை உரிமம் வழங்கும் பொருட்டு மாவட்ட அரசிதழில் சிறப்பு வெளியீடு செய்யப்பட்டது - திரு.A.R.கோவிந்தன் த.பெ. அருணாச்சலம் என்பவருக்கு ஏலம் உறுதி செய்யப்பட்டது - ஏலத்தொகை முழுவதும் வசூலிக்கப்பட்டு அரசு கணக்கில் செலுத்தப்பட்டது - ஒப்புதல் பெறப்பட்ட சுரங்க திட்ட அறிக்கை மற்றும் சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணைய தடையின்மைச் சான்று பெற்று சமர்ப்பிக்க அறிவுறுத்துதல் - தொடர்பாக.

- பார்வை: 1. திருவண்ணாமலை மாவட்ட அரசிதழ் சிறப்பு வெளியீடு எண் 43, நாள் 02.12.2022
2. திரு.A.R.கோவிந்தன் த.பெ. அருணாச்சலம் எண் 302, ராஜா அகரகாரம், 3வது குறுக்கு தெரு, பூந்தமல்லி, திருவள்ளூர் மாவட்டம் என்பவரின் விண்ணப்ப நாள் 19.12.2022
3. இவ்வலுவலக குறிப்பாணை ந.க.எண் 11/கனிமம்/2022 நாள் 20.12.2022
4. திரு.A.R.கோவிந்தன் த.பெ. அருணாச்சலம் பூந்தமல்லி, திருவள்ளூர் மாவட்டம் என்பவரின் விண்ணப்ப நாள் 03.01.2023

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பார்வை 1-ல் காணும் திருவண்ணாமலை மாவட்ட அரசிதழ் சிறப்பு வெளியீடு எண் 43, நாள் 02.12.2022 மூலம் திருவண்ணாமலை மாவட்டத்திற்குட்பட்ட, அரசு புறம்போக்கு நிலங்களில் அமைந்துள்ள 9 கற்குவாரிகளுக்கு பொது ஏலமுறையில் குத்தகை உரிமம் வழங்க ஏல / டெண்டர் விண்ணப்பங்கள் வரவேற்கப்பட்டது. அதன்படி வரிசை எண் 9-ல் கண்ட சேத்துபட்டு வட்டம், தெள்ளாரம்பட்டு கிராமம், அரசு புறம்போக்கு புல எண் 214/1(பகுதி 3 மற்றும் பகுதி 4) பரப்பு 3935 ஹெக்டேர் பரப்பிலுள்ள புதிய கற்குவாரிக்கு குறிப்பிட்ட காலக்கெடுவான 19.12.2022 அன்று மாலை 5 மணி வரை ஒரு டெண்டர் விண்ணப்பம் மட்டும் வரபெற்றது. அதனை தொடர்ந்து 20.12.2022 அன்று நடைபெற்ற பொது ஏலத்தில் டெண்டர்தாரர் உட்பட 9 நபர்கள் கலந்து கொண்டனர். டெண்டர் மற்றும் பொது ஏலத்தில் கலந்து கொண்டவர்கள் மற்றும் அவர்கள் கோரிய ஏல தொகை விவரம் பின்வருமாறு:

டெண்டர் :

வ. எண்	டெண்டர்தாரர் பெயர் மற்றும் முகவரி	டெண்டரில் கோரப்பட்ட தொகை
1.	திரு.A.R.கோவிந்தன் த.பெ. அருணாச்சலம் பூந்தமல்லி, திருவள்ளூர் மாவட்டம்	ரூ.1,00,50,000/-

MAR 2023

ஏலம் :

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வ. எண்	ஏலதாரர் பெயர் மற்றும் முகவரி	ஏலத்தில் கோரப்பட்ட தொகை
1.	திரு.A.R.கோவிந்தன் த.பெ. அருணாச்சலம் பூந்தமல்லி, திருவள்ளூர் மாவட்டம்.	ரூ.2,04,20,000/-
2.	திரு.முத்துகுமார், த.பெ. கணேசன், சென்னை.	ரூ.2,00,00,000/-
3.	திரு.R.ராமு, த.பெ. ராமசிங்காரம், சென்னை.	ரூ.2,03,20,000/-
4.	திரு.S.கோகுல்ராஜ் த.பெ. சரவணராஜ் காமராஜ் தெரு, பம்மல், சென்னை	ரூ.1,33,00,000/-
5.	திரு.S.நிர்மல், த.பெ. சரவணராஜ் காமராஜ் தெரு, பம்மல், சென்னை	ரூ.1,30,00,000/-
6.	திரு.PRS.சரவணராஜ், காமராஜ் தெரு, பம்மல், சென்னை	ரூ.2,04,10,000/-
7.	திரு.K.அருள் குமார், த.பெ. கன்னியப்பன், நீர்குன்றம் கிராமம், காஞ்சிபுரம் மாவட்டம்.	ரூ.1,29,50,000/-
8.	திரு.N.சக்திவேல் த.பெ. நாராயணசாமி தேவர், திருவண்ணாமலை.	ரூ.1,20,00,000/-
9.	திரு.K.பிரபாகரன் த.பெ. கன்னியப்பன் நீர்குன்றம் கிராமம், காஞ்சிபுரம் மாவட்டம்.	ரூ.2,03,50,000/-



2. பொது ஏலத்தில் திரு.A.R.கோவிந்தன் த.பெ. அருணாச்சலம் என்பவரால் அதிகபட்சமாக மேற்படி குவாரிக்கு ரூ.2,04,20,000/- (ரூபாய் இரண்டு கோடியே நான்கு லட்சத்து இருபதாயிரம் மட்டும்) ஏலம் கோரப்பட்டது. அதனை தொடர்ந்து டெண்டர் விண்ணப்பங்கள் திறக்கப்பட்டு பரிசீலிக்கப்பட்டதில் திரு.A.R.கோவிந்தன் த.பெ. அருணாச்சலம் என்பவர் டெண்டர் மூலம் ரூ.1,00,50,000/- (ரூபாய் ஒரு கோடியே ஐம்பதாயிரம் மட்டும்) டெண்டர் கோரியிருந்தார். எனவே, மேற்படி பொது ஏலத்தில் திரு.A.R.கோவிந்தன் என்பவரால் கோரப்பட்ட தொகையானது டெண்டரில் கோரப்பட்ட தொகை மற்றும் மேற்படி குவாரிக்கு அரசால் நிர்ணயம் செய்யப்பட்ட குறுமத்தொகையைக் காட்டிலும் கூடுதலாக இருந்ததினால் மேற்படி ஏலத்தொகையில் விதிகளின்படி 10% விட அதிக தொகையாக வங்கி வரைவோலைகளாக ரூ.2,07,00,000/-ஐ உயர்நதபட்ச ஏலதாரர் திரு.A.R.கோவிந்தன் என்பவர் செலுத்தியதைடுத்து மேற்படியாருக்கு ஏலம் உறுதி செய்யப்பட்டது.

3. பார்வை 3-ல் காணும் குறிப்பானையில் அறிவுறுத்தியவாறு ஏலத்தொகையில் ஏற்கனவே செலுத்தப்பட்ட ரூ.20,70,000/- மற்றும் பிணை வைப்புத்தொகையான ரூ.25,000/-ஐ நீக்கி மீதமுள்ள தொகையான ரூ.1,13,25,000/-க்கு ஏலதாரர் வங்கி வரைவோலைகள் பெற்று குறிப்பிட்ட காலக்கெடுவிற்குள் பார்வை 4-ல் காணும் கடிதம் மூலம் சமர்ப்பித்ததையடுத்து மேற்படி வங்கி வரைவோலைகளை பாரத ஸ்டேட் வங்கி, திருவண்ணாமலை மின்னஞ்சல் மூலம் 02.01.2023 தேதியில் உரிய அரசு கணக்கில் வரவு வைக்கப்பட்டுள்ளது.



4. மேலும், ஏலதாரர் மேற்கண்ட ஏலத்தொகைக்கு 2% வருமானவரி (TCS) கணக்கிட்டு ரூ.4,08,400/-ஐ 03.01.2023 அன்று மின்னஞ்சல் மூலம் செலுத்தப்பட்டதற்கான ஆவணங்களை இவ்வலுவலகத்தில் சமர்ப்பித்துள்ளார்.

5. எனவே, ஏலதாரர் திரு.A.R.கோவிந்தன் த.பெ. அருணாச்சலம் என்பவருக்கு திருவண்ணாமலை மாவட்டம், சேத்துபட்டு வட்டம், தெள்ளாரம்பட்டு கிராமம், அரசு புறம்போக்கு புல எண் 214/1(பகுதி 3 மற்றும் பகுதி 4) பரப்பு 3.935 ஹெக்டேர் பரப்பினை 10 ஆண்டுகளுக்கு கற்றவாரி செய்ய உகந்த புலம் (Preclse Area) என தீர்மானித்து கீழ்க்கண்ட நிபந்தனைகளுக்கு உட்பட்டு அறிவிப்பு செய்யப்படுகிறது.

நிபந்தனைகள்

1. அருகில் உள்ள பட்டா மற்றும் புறம்போக்கு நிலங்களுக்கு முறையே 7.5மீ மற்றும் 10மீ பாதுகாப்பு இடைவெளி விடவேண்டும்.
2. நிலையான அமைப்புகளுக்கு (நீர் நிலைகள், நெடுஞ்சாலைகள், மின் சாதனங்கள், இரயில் பாதைகள்) 50மீ பாதுகாப்பு இடைவெளி விடவேண்டும்.
3. அருகில் உள்ள நிலங்களுக்கும் மற்றும் பொதுமக்களுக்கும் எவ்வித பாதிப்பும் இன்றி குவாரிப்பணி மேற்கொள்ள வேண்டும்.
4. குவாரிப்பணி ஆரம்பிப்பதற்கு முன்பாக குத்தகை உரிமம் வழங்கப்பட்ட புலத்தினைச் சுற்றி முன்கம்பி வேலி அமைத்து குத்தகை காலம் முழுவதும் பராமரித்து வரவேண்டும்.
5. பாறைகளைத் தகர்க்க கைத்துணைப்பான்களை கொண்டு பாறைகளை துளையிட்டு குறைவான வெடிபொருட்கள் பயன்படுத்த வேண்டும்.
6. குவாரிப்பணியினை விஞ்ஞானப்பூர்வமாகவும், முறையாகவும் மேற்கொள்ள வேண்டும்.

6. தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 1959 விதிகள் 41 மற்றும் 42-ன்படி கல் மற்றும் இதர சிறு கனிமங்களுக்கு குவாரி குத்தகை உரிமம் வழங்கும் முன்பு ஒப்புதல் பெறப்பட்ட சுரங்கத்திட்ட அறிக்கை மற்றும் சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணைய தடையின்மை சான்று பெறப்பட வேண்டும் என வரையறுக்கப்பட்டுள்ளது.

7. எனவே, ஏலதாரர் திரு.A.R.கோவிந்தன் த.பெ. அருணாச்சலம் என்பவர் ஒப்புதல் பெறப்பட்ட சுரங்கத்திட்ட அறிக்கை மற்றும் சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணைய தடையின்மைச் சான்றினை பெற்று சமர்ப்பிக்கும் பட்சத்தில் திருவண்ணாமலை மாவட்டம், சேத்துபட்டு வட்டம், தெள்ளாரம்பட்டு கிராமம், அரசு புறம்போக்கு புல எண் 214/1(பகுதி 3 மற்றும் பகுதி 4) பரப்பு 3.935 ஹெக்டேர் பரப்பில் கற்குவாரி செய்ய 1959-ஆம் வருடத்திய தமிழ்நாடு சிறுகனிம சலுகை விதிகளின், விதி 8(6)(a)-ன்படி 10 ஆண்டுகளுக்கு குத்தகை உரிமம் வழங்க உரிய நடவடிக்கை மேற்கொள்ளப்படும் என்ற விவரம் தெரிவிக்கப்படுகிறது.

MAR 2023



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8 மேலும், எல்தாரர் இவ்வறிவிப்பு சிடைக்கப்பெற்ற 90 நாட்களுக்குள் மேற்சொன்ன நிபந்தனைகளை குறிக்கும் வகையில் வரைவு கரங்கத்தின் அறிக்கை தயார் செய்து துணை பேரவைக்கு, புவியியல் மற்றும் கரங்கத்துறை திருவள்ளூர் மன்றம் அவர்களிடம் ஒப்பந்தம் பெற சமர்ப்பிக்குமாறு அறிவுறுத்தப்படுகிறது.

துணை பேரவை,
புவியியல் மற்றும் கரங்கத்துறை,
திருவள்ளூர் மன்றம்.

10/01/23

பெறுநர்:
திரு. A.R. கோவிந்தன்
த.பெ. அருணாச்சலம்
எண். 302, ராஜா அகரகாரம்,
5வது குறுக்கு தெரு,
புத்தமல்லி,
திருவள்ளூர் - 600056

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ANNEXURE - 2

**Mining Plan Approval
Letter and approved mine
plan report with Annexure**

From

To

Thiru.A.Perumal, M.Sc., M.Phil.,
Deputy Director,
Geology and Mining,
Tiruvannamalai - 4.

Thiru.A.R.Govindan,
S/o. Arunachalam,
No.302, Raja Agraharam,
3rd Cross Street, Poonamallee,
Tiruvallur.

Rc.No. 07/Kanimam/2023, dated:14.02.2023

Sir,

Sub: Quarries and Minerals - Minor Mineral - Rough stone -
Tiruvannamalai District - Chetpet Taluk -
Thellarampattu village - Govt. Poramboke Land In
SF.No.214/1 (Part-3 & Part-4) over an extent of 3.93.5
Hectare - preferred by Thiru.A.R.Govindan - Highest
Bidder - Precise area communicated - Submission of
Mining Plan for approval - Approved- Regarding.

- Ref: 1. Application from Thiru.A.R.Govindan S/o.
Arunachalam dated.19.12.2022.
2. Precise Area Communication Notice
Rc.No.07/Kanimam/2023, dated.10.01.2023.
3. Mining Plan submitted by Thiru.A.R.Govindan
dated.01.02.2023.

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In the reference (2)nd cited, it has been communicated the SF.No. 214/1 (Part-3 & Part-4) over an extent of 3.93.5 hect., of Thellarampattu Village, Chetpet Taluk as precise area for grant of quarry lease for quarrying Rough Stone for a period of 10 years to **Thiru.A.R.Govindan S/o. Arunachalam** 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, for the first 5 years though the precise area been granted for 10 years.
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.

MAR S/o

- 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 Deputy Director, Geology and Mining Letter Rc.No.07/Kanimam/2023 dated:10.01.2023 have been incorporated in the mining plan.
- iii) The available geological and mineable resources in the precise area restricted to a depth of **35.5m below ground level** for 10 years is as follows.

Depth in Mts.	Geological reserves in Cu.m	Mineable Reserves in Cu.m
35.5m (35m Rough Stone + 0.5m Topsoil)	Rough Stone : 13,76,305 Topsoil : 19,663	Rough Stone : 5,28,215 Topsoil : 15,670

- iv) The recoverable reserves estimated for the first 5 years in the mining plan for quarrying Rough Stone to a depth of **20.5 below the ground level** is as follows.

Depth in Mts.	Mineable Reserves in Cu.m
20.5m (20m Rough Stone + 0.5m Topsoil)	Rough Stone : 4,06,225 Topsoil : 15,670

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.R.Govindan 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 Rules, 1959.

MAR 2023

// 3 //

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.

M. S. S.
14/11/22
Deputy Director,
Geology and Mining,
Tiruvannamalai.

Copy submitted to:

- com*
14/02/23
1. The Chairman, SEIAA,
Tamil Nadu, 3rd Floor, Panagal Maaligal,
No.1, Jeenis Road, Saidapet, Chennai-15.
 2. The Commissioner of Geology and Mining, Chennai-32.
 3. The District Collector, Tiruvannamalai.

MAR S S

MINING PLAN FOR THELLARAMPATTU ROUGH STONE QUARRY



(Prepared Under Rule 8, 41 & 42 of Tamil Nadu
Minor Mineral Concession Rules, 1959)

LOCATION OF THE QUARRY LEASE APPLIED AREA

STATE : TAMIL NADU
DISTRICT : TIRUVANNAMALAI
TALUK : CHETPET
VILLAGE : THELLARAMPATTU
S.F.NO : 214/1(PART-3 & PART-4)
EXTENT : 3.93.5Ha

ECO-FRIENDLY



SUSTAINABILITY



SAFETY



FOR APPLICANT

THIRUA.R.GOVINDAN,

S/o.Arunachalam,

No.302, Raja Agraharam,

3rd Cross Street, Poonamallee,

Tiruvallur-600 056.

PREPARED BY

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

Qualified Person

No.93/36E2, Subramaniyar Kovil Street,

Omalar Taluk, Salem District,

Tamil Nadu, Pin-636/455.

Mobile: 97502 23535 & 94446 54520.



PERSONAL PROTECTIVE EQUIPMENT (PPE)

A.R.Govindan,
S/o.Arunachalam,
No.302, Raja Agraharam,
3rd Cross Street,
Poonamallee,
Tiruvallur-600 056.



CONSENT LETTER FROM THE APPLICANT

The Mining Plan in respect of **Rough Stone** quarry over an extent of 3.93.5hectares of Government land in S.F.No.214/1(Part-3 & Part-4) of Thellarampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu State has been prepared by

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

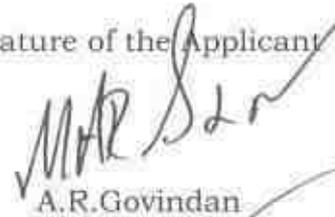
I request the Deputy Director, Department of Geology and Mining, Tiruvannamalai District to make further correspondence regarding modifications of the Mining Plan with the said Qualified Person on this following address.

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

No.93/36E2, Subramaniyar Kovil Street,
Omalur Taluk, Salem District,
Tamil Nadu, Pin code-636 455.
Mobile:97502 23535 & 94446 54520.

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

Signature of the Applicant


A.R.Govindan

Place: Tiruvallur

Date: 11.01.2023





A.R.Govindan,
S/o.Arunachalam,
No.302, Raja Agraharam,
3rd Cross Street,
Poonamallee,
Tiruvallur-600 056.

DECLARATION

The Mining Plan in respect of **Rough Stone** quarry over an extent of 3.93.5hectares of Government land in S.F.No. 214/1(Part-3 & Part-4) of Thellarampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu State has been prepared with my consultation and I have understood the contents and agree to implement the same in accordance with the Mining Laws.

Signature of the Applicant

(Handwritten Signature)
A.R.Govindan

Place: Tiruvallur

Date: 11.01.2023



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

Qualified Person

No.93/36E2,Subramaniyar Kovil Street,

Omalar Taluk, Salem District,

Tamil Nadu, Pin code-636 455.

Mobile:97502 23535 & 94446 54520.

CERTIFICATE

This is to certify that, the provisions of Minor Minerals Conservation and Development Rules, 2010 (MMCDR) have been observed in the Mining Plan for the grant of **Rough Stone** quarry lease over an extent of 3.935hectares of Government land in S.F.No. 214/1(Part-3 & Part-4) of Thellarampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu State applied by Thiru.A.R.Govindan, for fresh quarry lease.

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

Certified

Signature of Qualified Person.


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

Qualified Person

C.NATARAJAN M.Sc.,M.Phil.,

Qualified Person

Place: Salem

Date: 12.01.2023





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

Qualified Person

No.93/36E2,Subramaniyar Kovil Street,

Omalur Taluk, Salem District,

Tamil Nadu, Pin code-636 455.

Mobile:97502 23535 & 94446 54520.

CERTIFICATE

Certified that, in preparation of Mining Plan for **Rough Stone** quarry over an extent of 3.93.5hectares of Government land in S.F.No. 214/1(Part-3 & Part-4) of Thellarampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu State for Thiru.A.R.Govindan covers all the provisions of Mines Act, Rules, and Regulations etc made there under and whenever specific permission are required, the applicant will approach the Director General of Mines Safety, Chennai. The standards prescribed by DGMS in respect of Mines Health will be strictly implemented.

Certified

Signature of Qualified Person.


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

Qualified Person

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

Place: Salem

Date: 12.01.2023

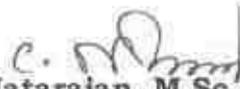


CERTIFICATE

Certified that I, C.Natarajan, residing at No.93/36 E2, Suburban, Kovil Street, Omalur Taluk, Salem District, Tamil Nadu, Pin Code-636 455. I am a Post graduate in Geology (M.Sc., Geology) from Annamalai university and more than five years of experience in mining Field.

Rule 15(1)(a) and (b) of Minerals (Other than Atomic, Hydro Carbons Energy Minerals) concession Rules 2016 stipulates the eligibility for preparing Mining Plans as "(1)(a) a post graduate degree in Geology granted by a university established" and (1)(b) "Professional experience of five years of working in a supervisory capacity in the field of mining after obtaining the degree". Since my qualification and experience are satisfied the Rule (1)(a) and (1)(b) of 15 of the Said Rules, I am eligible to prepare Mining Plans for both Major and Minor Minerals.

Accordingly I prepared this Mining Plan in respect of Rough Stone quarry lease applied for an extent of 3.93.5Ha of (Government land) in S.F.No.214/1(Part-3 & Part-4) of Thellarampattu Village, Chetpet Taluk, Tiruvannamalai District by Thiru.A.R.Govindan, for a period of Ten years. Since the Mining Plan is prepared as per the provisions contained in Rule 15(1) (a) and (b) of Minerals (Other than Atomic, Hydro Carbons Energy Minerals) concession Rules 2016, the same may be approved by the Competent Authority.


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

Qualified Person

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

Place: Salem

Date: 12.01.2023



CONTENTS



S. No.	Description	Page No.
1.0	Introduction	1
2.0	General Information	5
3.0	Location	6
4.0	Geology and Mineral Reserves	8
5.0	Mining	10
6.0	Blasting	14
7.0	Mine Drainage	15
8.0	Other Permanent Structures	16
9.0	Employment Potentials & Welfare Measures	17
10.0	Environment Management Plan	19
11.0	Mine Closure Plan	22
12.0	Any Other Details Intend to furnish by the Applicant	23

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Annexure

S. No.	Description	Annexure No.
1.0	Precise Area Communication letter issued Deputy Director, Department of Geology and Mining, Tiruvannamalai	I
2.0	Copy of FMB	II
3.0	Copy of Village map	III
4.0	Copy of Adangal	IV
5.0	Copy of A Register	V
6.0	Copy of Identity Proof	VI
7.0	Copy of QP Certificate	VII

LIST OF PLATES

S. No.	Description	Plate No.
1.0	Location Plan	I
2.0	Environmental Plan	I-A
3.0	Satellite imagery map	I-B
4.0	Topo sketch of Quarry lease applied area for 10Km Radius	I-C
5.0	Key Plan	I-D
6.0	Quarry lease & Surface plan	II
7.0	Topography and Geological Plan & Sections	III
8.0	Progressive quarry Closure plan & Section	IV
9.0	Conceptual Plan & Section	V

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MINING PLAN FOR MINOR MINERALS

ROUGH STONE

Over an extent of 3.93.5hectares of Government land in
S.F.No. 214/1 (Part-3 & Part-4) of Thellarampattu Village, Chetpet Taluk,
Tiruvannamalai District, Tamil Nadu State.

(PREPARED UNDER RULE 8, 41 and 42 OF TNMMCR 1959)



1.0 Introduction and Executive Summary;

1. The present Mining Plan is prepared for Thiru.A.R.Govindan, S/o.Arunachalam, residing at No.302, Raja Agraharam, 3rd Cross Street, Poonamallee, Tiruvallur-600056.
2. The application was processed by the Deputy Director, Department of Geology and Mining, Tiruvannamalai, and passed an order vide Rc.No.07/Kanimam/2023 dated 10.01.2023 directing the applicant to produce approved Mining Plan under Rule 41(5) of the Tamil Nadu Minor Mineral Concession Rules, 1959 and Environmental Clearance Certificate under Rule 42 from the State Level Environmental Impact Assessment Authority (SEIAA) for the grant of quarry lease to quarry **Rough Stone** over an extent of 3.93.5hectares of Government lands in S.F.No.214/1(Part-3 & Part-4) of Thellarampattu Village, Chetpet Taluk, Tiruvannamalai District of Tamil Nadu State for a period of Ten years.
3. Accordingly, Mining Plan is prepared under the provisions of rule 8, 41 and 42 as per the amendments under Tamil Nadu Minor Mineral Concession Rules, 1959 by incorporating following the conditions imposed in the precise area communication letter.
 - a) A safety distance of 7.5m & 10m should be provided to the adjoining patta and Poramboke lands.
 - b) A safety distance of 50m should be provided to the Permanent Structures (Water bodies, Highways, Electrical lines and Railway tracks)

MAR 2023



- c) Applicant should not cause any hindrance to adjacent lands and public during quarrying operation.
 - d) Barbed wire fencing should be erected all along the boundary of the lease granted area before quarrying operation.
 - e) Applicant should use jackhammer and mild explosive during blasting in quarry.
 - f) Quarrying operation should be done proper scientific method only.
4. Geological Resources is estimated at 13,76,305m³ of Rough stone and 19,663m³ of Topsoil formation and Mineable Reserves is estimated at 5,28,215m³ of Rough Stone, and 15,670m³ of Topsoil and after leaving necessary safety distance from the lease boundary as indicated in the precise area letter and relevant mining laws in force.
 5. Production Schedule is proposed production of 4,06,225m³ of Rough Stone and 15,670m³ of Topsoil for the period of first five years.
 6. applicant ensured that, child labours under 18 years of age will not be engaged for quarrying operation.
 7. The applicant ensure that will engage should have valid certified persons (Mines Manager, Foreman, Mate) during quarrying operation.
 8. Environmental parameters,
 - i) The area does not attract the Forest Conservation Act, 1980 as there is no forest around 1.06km radius.
 - ii) There is no interstate boundary around 10kms radius.
 - iii) There is no wild life animal sanctuary within 10Kms radius from the project site area under the Wildlife (Protection) Act, 1972.

Therefore the project seeks clearance only from State Level Environmental Impact Assessment Authority (SEIAA) under B2 Category.

MAK Sda



9. Environmental measures to be adopted shall be,

- i) Dust Control at source while drilling and blasting.
- ii) Dust suppression at loading point and transport haul roads.
- iii) Noise Control in blasting, control of fly rock missiles and vibration by doing peak particle velocity with in standard as prescribed by the DGMS and MOEF.
- iv) Unnecessary land degradation should be avoided or damaged land should be reclaimed or rehabilitated.
- v) Avoid uneven rat hole mining and follow scientific and systematic mining by safe bench system of open cast mining.
- vi) Mining near major fracture zones if any should be avoided to control ground water fluctuation in the adjacent agricultural lands.
- vii) Emission test of vehicles should be in tack to maintain minimum emission level of flue gases.
- viii) Noise level should not exceed 80db and the vehicles should use only permitted Air Horn while on road near residential areas.
- ix) Safety zones as prescribed by the Department of Geology and Mining from adjacent infrastructures should be strictly adhere to.
- x) And any other conditions as stipulated by the concerned authorities should be followed to protect the environment.

(Handwritten signature)



EXECUTIVE SUMMARY:

a.	Name of the Village Panchayat	:	Thellarampattu
b.	Name of the Panchayat Union	:	Peranamallur
c.	The proposed total Movable Reserves	:	5,28,215m ³ of Rough Stone, 15,670m ³ of Topsoil
d.	The proposed quantity of reserves (level of production) for Five years to be mined is (Recoverable reserves)	:	4,06,225m ³ of Rough Stone, 15,670m ³ of Topsoil
e.	Total extent of the area	:	3.93.5Ha
f.	Proposed Period of mining	:	Five Years
g.	Existing depth	:	Its fresh quarry lease applied area
h.	Proposed Depth of mining	:	20.5m below ground level for the proposed mining plan.
i.	Method of mining/level of mechanization	:	Opencast, Semi-mechanized Mining with a bench height of 5m and bench width of 5m and 80° Slope is proposed.
j.	Types of Machineries used in the quarry	:	Machineries like Tractor mounted compressor attached with Jack hammers, Excavators are proposed to deploy for quarrying operation.
k.	Cost of the Project A. Fixed Assets Cost B. Operational Cost C. EMP Cost		Rs. 2,07,20,000/- Rs. 72,50,000/- Rs. 5,90,000/- Total Project cost(A+B+C)= Rs.2,85,60,000/-

l. The area applied for lease is bounded by ten corners and the coordinates are clearly marked in plate no II.

Corners	Co-ordinates		Distance between the corners
	Latitude	Longitude	
1	12° 31' 41.87"N	79° 23' 22.21"E	1-2 = 35.4m
2	12° 31' 42.94"N	79° 23' 22.67"E	2-3 = 57.2m
3	12° 31' 42.23"N	79° 23' 24.39"E	3-4 = 158.0m
4	12° 31' 46.94"N	79° 23' 26.48"E	4-5 = 57.2m
5	12° 31' 47.76"N	79° 23' 24.78"E	5-6 = 60.0m
6	12° 31' 49.54"N	79° 23' 25.59"E	6-7 = 92.0m
7	12° 31' 48.18"N	79° 23' 28.30"E	7-8 = 92.0m
8	12° 31' 50.90"N	79° 23' 29.57"E	8-9 = 84.0m
9	12° 31' 48.98"N	79° 23' 31.55"E	9-10 = 315.4m
10	12° 31' 39.45"N	79° 23' 27.66"E	10-1 = 180.6m

MAR 2014



2.0 General Information:

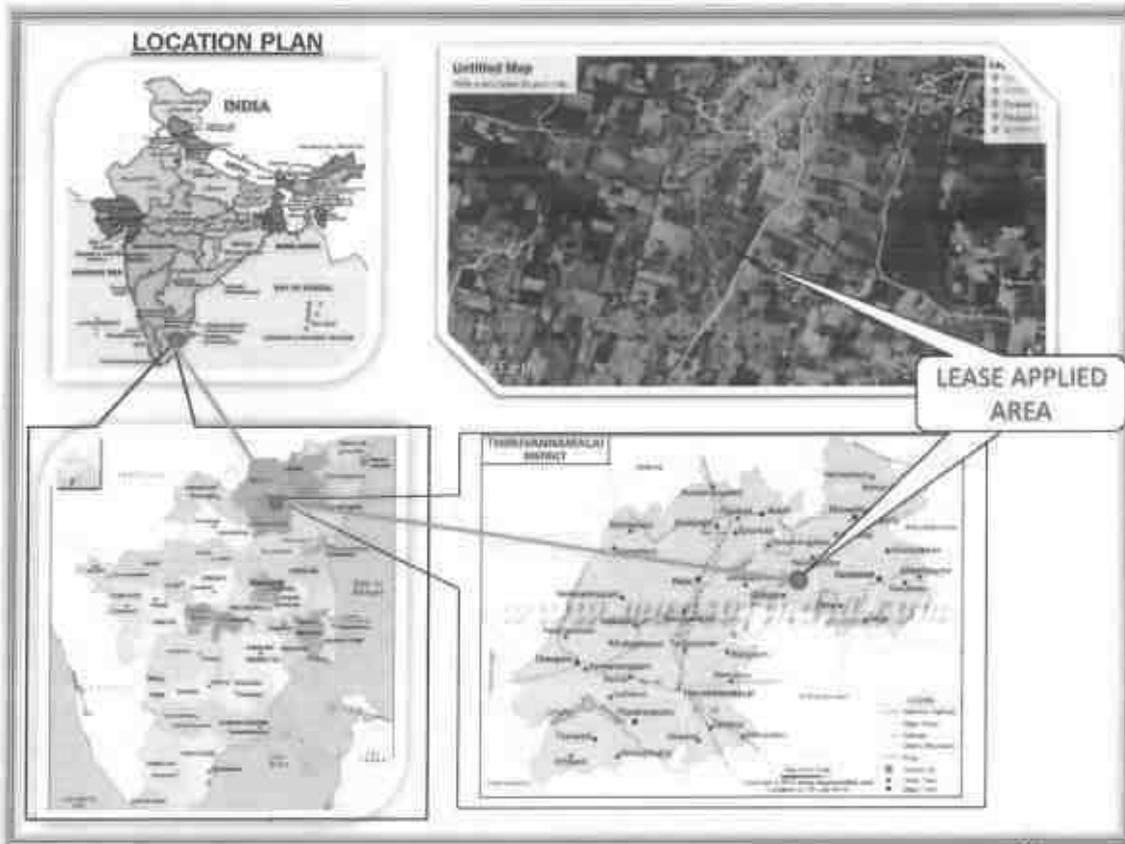
a.	Name of the Applicant	:	Thiru.A.R.Govindan,
b.	Address of the Applicant with phone No and e-mail id if any	:	S/o.Arunachalam, No.302, Raja Agraharam, 3 rd Cross Street, Poonamallee, Tiruvallur. Pincode-600056. Cell No.: 9840662209
c.	Status of the Applicant	:	Individual
2.2	a.	Mineral Which the applicant intends to mine	: Rough Stone.
	b.	Precise area communication letter No.	: Precise area communication letter received from the Deputy Director, Tiruvannamalai vide Rc.No.07/Kanimam/2023 dated 10.01.2023
	c.	Period of permission / lease granted	: The Deputy Director, Tiruvannamalai, has grant of lease Period for Ten years .
	d.	Name and Address of the QP preparing Mining Plan	: C.Natarajan, M.Sc.,M.Phil., Qualified Person No.93/36E2, Subramaniyar Kovil Street, Omalur Taluk, Salem District, Tamil Nadu, Pin-636 455. Mobile: 97502 23535 & 94446 54520.

MAR Sca



3.0 Location:

S.No	Details of the Area:	
1	Corner Coordinates	Latitude :12°31.39.45"N to 12°31'50.90"N Longitude :79°23'22.21"E to 79°23'31.55"E
2	Toposheet Number	57 P/ 06
3	The altitude of the area	140m (MSL)
4	Extent	3.93.5Ha
5	Survey No	214/1 (Part-3 & Part-4)
6	Village	Thellarampattu
7	Taluk	Chetpet
8	District	Tiruvannamalai
9	State	Tamil Nadu



MAR 20



a.	Classification of the Area (Ryotwari / poramboke / others)	: Government poramboke land
b.	Ownership / Occupancy of the Applied area (Surface rights)	: It is Government land the applicant has obtained tender from the Government. Please refer annexure no -I.
c.	Toposheet No. with Latitude and Longitude	: Topo Sheet No: 57 P/ 06 : Latitude: 12°31.39.45"N to 12°31'50.90"N : Longitude: 79°23'22.21"E to 79°23'31.55"E
d.	Existence of Public Road / Railway line if any nearby the area and approximate distance	: There is an existing road from the area leads to Somavaram - Thavani road on eastern side of the area. The Nearest Railway line is Tiruvannamalai - Vellore line which is about 22.5km on northwestern side of the area.



SATELLITE IMAGERY OF THE LEASE APPLIED AREA



TOPOGRAPHICAL VIEW OF LEASE APPLIED AREA

MAR Sar



PART - A

4.0 Geology and Mineral Reserves:

4.1	a. Topography	<p>: ➤ The area applied for quarry lease is almost plain topography covered by topsoil formation. The massive Charnockite formation is noticed below 0.5m (Avg) topsoil and sloping towards northeastern side of the area, the altitude of the area is above 140m (maximum) from MSL.</p> <p>➤ No major river is found nearby the lease applied area.</p> <p>➤ Water table is found at a depth of 56m in summer and 53m in rainy seasons.</p> <p>➤ Temperature of the area is reported to be 18°C to a maximum of 42°C during summer.</p> <p>➤ Rainfall of this area is about 800mm to 900 mm during the both NE & SW monsoons.</p>
	b. General Geology of the Area	<p>: The area is underlain by the wide range of metamorphic rocks of peninsular gneissic complex. These rocks are extensively weathered and overlain by the recent valley fills and alluvium at places. The geological formations found in the district are Archaean rocks like Gneisses, Granites, Charnockites basic granulites and calc-gneisses. The younger formations are Quartz veins and pegmatite.</p> <p>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.</p> <p>The strike of the Charnockite formation is N40°E-S40°W with dipping towards SE70°.</p> <p>The general geological succession of the area is given as under.</p>

MAR 2018



			AGE	ROCK TYPE
			Recent Unconformity	Topsoil
			Archaean	Dolerite dyke Charnockite. Peninsular Gneissic complex and Calc Gneiss
4.2		Details of Exploration already carried out if any	:	No exploration was carried out, as the Rough stone formations are clearly visible from out crops with in the lease applied area.
4.3	a.	Estimation of Reserves	:	The Geological and Recoverable reserves are estimated by cross sectional method. Totally four sections have been drawn, two sections drawn length wise as (X-Y), (X1-Y1) and another two sections drawn width wise as (A-B), (C-D) to cover maximum area considered for lease. The Plans and Sections have been drawn with a scale of 1:1000 and 1:500 respectively. Please refer plate No.III.

a. Geological Resources

The quarrying is restricted up to a depth of 35.5m below ground level only. Availability of Resources is given below.

Table No-1

Section	Length in (m)	Width in (m)	Depth in (m)	Volume in m ³	Topsoil in m ³	Geological Resources of Rough stone in m ³
XY-AB	187	119	0.5	11127	11127	
	187	119	35	778855		778855
					11127	778855
XY-CD	143	81	0.5	5792	5792	
	143	81	35	405405		405405
					5792	405405
XIY1-CD	59	93	0.5	2744	2744	
	59	93	35	192045		192045
					2744	192045
Grand Total					19663	1376305

Topsoil Formation : 19,663m³

The Geological Resources of Rough stone : 13,76,305m³

MAR 2009



b. Mineable Reserve

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

Table No-2

section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in m ³	Topsoil in m ³	Mineable Reserve of Rough stone in m ³
XY-AB	I	176	104	0.5	9152	9152	
	II	174	99	5	86130		86130
	III	168	86	5	72240		72240
	IV	161	73	5	58765		58765
	V	155	60	5	46500		46500
	VI	148	47	5	34780		34780
	VII	142	34	5	24140		24140
	VIII	135	21	5	14175		14175
Total						9152	336730
XY-CD	I	132	73	0.5	4818	4818	
	II	129	71	5	45795		45795
	III	123	64	5	39360		39360
	IV	116	58	5	33640		33640
	V	110	44	5	24200		24200
	VI	103	31	5	15965		15965
	VII	97	18	5	8730		8730
Total						4818	167690
XIY1-CD	I	40	85	0.5	1700	1700	
	II	36	83	5	14940		14940
	III	23	77	5	8855		8855
Total						1700	23795
Grand Total						15670	528215

The mineable reserve is computed as 5,28,215m³ of Rough stone and 15,670m³ of Topsoil upto a depth of 35.5m below ground level only.

5.0 Mining:

5.1	Method of Mining	of	:	<ol style="list-style-type: none"> 1. Opencast method of semi mechanized mining with 5.0m height 5m width and 80° slope of the bench. 2. However, as far as the quarrying of Rough stone is concerned, observance of the provisions of Regulation 106(2) (b) as above is seldom possible due to various inherent petrogenetic factors coupled with mining difficulties. Hence it is proposed to obtain relaxation to the provisions of the above regulation from the Director of mines safety for which necessary provision is available with the regulation 106 (2) (b) of MMR-1961, under Mine Act-1952.
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MAR 2010



5.2	Mode of Working	<p>The rough stone is proposed to quarry Single bench height, 5m width with 80° slope and with conventional opencast semi-Mechanized method.</p> <p>The quarry operation involves shallow jack hammer drilling, slurry blasting, excavation, Loading and transportation of Rough stone to the needy buyers. The production of Rough stone in this quarry involves the following method which is typical for Rough Stone quarrying in contrast to other major mineral mining.</p> <p>Splitting of rock mass of considerable volume from the parent rock mass by jackhammer drilling and blasting, hydraulic excavators are used for loading the Rough Stone from pithead to the needy buyers.</p> <p>Occasionally hydraulic excavators are attached with rock breakers for fragmentation to avoid secondary blasting.</p> <p>The primary boulders thus splitted are removed from the pits by excavators and further made to smaller sizes by rock breakers attached in excavators. It is a conventional opencast semi mechanized method of mining.</p>
5.3	Proposed bench height & Width	<p>Quarrying of Rough Stone is proposed bench height of 5m and bench width of 5m.</p>
5.4	Details of Overburden / Mineral Production proposed for the first 5 years.	<p>The overburden in the form of topsoil, after excavation it will be preserved along the boundary barrier utilized for afforestation purpose. The excavated rough stone will be directly loaded into tipper to the needy crusher/other buyers</p>

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The Yearwise Production and Development Table

Table No-3

Year	section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in m ³	Topsoil in m ³	Reserves of Rough stone in m ³
I	XY-AB	I	176	104	0.5	9152	9152	
		II	174	99	5	86130		86130
Total							9152	86130
II	XY-CD	I	132	73	0.5	4818	4818	
		II	129	71	5	45795		45795
		III	20	64	5	6400		6400
	XIY1-CD	I	40	85	0.5	1700	1700	
		II	36	83	5	14940		14940
		III	23	77	5	8855		8855
Total							6518	75990
III	XY-CD	III	103	64	5	32960		32960
	XY-AB	III	110	86	5	47300		47300
Total								80260
IV	XY-AB	III	58	86	5	24940		24940
		IV	161	73	5	58765		58765
Total								83705
V	XY-CD	IV	116	58	5	33640		33640
	XY-AB	V	155	60	5	46500		46500
Total								80140
Grand Total							15670	406225

The mineable reserve estimated as 5,28,215m³ of Rough stone and 15,670m³ of Topsoil but the applicant has proposed to carry out 4,06,225m³ of Rough stone and 15,670m³ of Topsoil at the rate of 100% recovery upto a depth of 20.5m below ground level for the period of first five years.

5.5	Machineries to be used						
a.	Drilling	:	It is proposed to use following machineries for quarrying rough stone				
	S.No	Type	Nos	Dia Hole mm	Size Capacity	Make	Motive power
	1	Jack hammer	8	32	1.2m to 6m	Atlas Copco	Compressed air
	2	Compressor	2	-	400 psi	Atlas Copco	Diesel Drive

MAR 2012



	b. Loading	:	Excavator of 0.90m ³ bucket capacity (with Rock breaker attachment) (2No).																								
	c. Transportation	:	Tipper 4Nos (5/10Ts) capacity.																								
5.6	Disposal of Overburden	:	The overburden in the form of topsoil after excavation of topsoil, it will be preserved along the boundary barrier utilized for afforestation purpose.																								
5.7	Brief Note on Conceptual Mining Plan for the entire lease period	:	<p>Conceptual Mining Plan is prepared with an object of ten years of systematic development of bench lay outs, selection of ultimate pit limit, depth of quarrying, ultimate pit slope, selection of sites for construction of infrastructures etc.</p> <p>Ultimate pit size is designed based on certain practical factors such as the economical depth of mining, safety zones, permissible areas etc.</p> <p>Ultimate Pit dimension is given as under,</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="4">Ultimate Pit dimension (M) end of Mining plan Period</th> </tr> <tr> <th>Pit No</th> <th>Length (max) in (m)</th> <th>Width (Avg) in (m)</th> <th>Depth(max) in(m)</th> </tr> </thead> <tbody> <tr> <td>I</td> <td>308</td> <td>106</td> <td>20.5m</td> </tr> </tbody> </table> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="4">Ultimate pit dimension End of the lease period</th> </tr> <tr> <th>Pit No</th> <th>Length (max) in (m)</th> <th>Width (Avg) in (m)</th> <th>Depth(max) in(m)</th> </tr> </thead> <tbody> <tr> <td>I</td> <td>308</td> <td>106</td> <td>35.5</td> </tr> </tbody> </table> <p>Afforestation has been proposed on all along the boundary barrier by planting trees.</p> <p>All the baseline information studies like Air Quality monitoring, Noise and Vibration monitoring, Water Analysis studies will be carried out every year as per the MOEF norms.</p>	Ultimate Pit dimension (M) end of Mining plan Period				Pit No	Length (max) in (m)	Width (Avg) in (m)	Depth(max) in(m)	I	308	106	20.5m	Ultimate pit dimension End of the lease period				Pit No	Length (max) in (m)	Width (Avg) in (m)	Depth(max) in(m)	I	308	106	35.5
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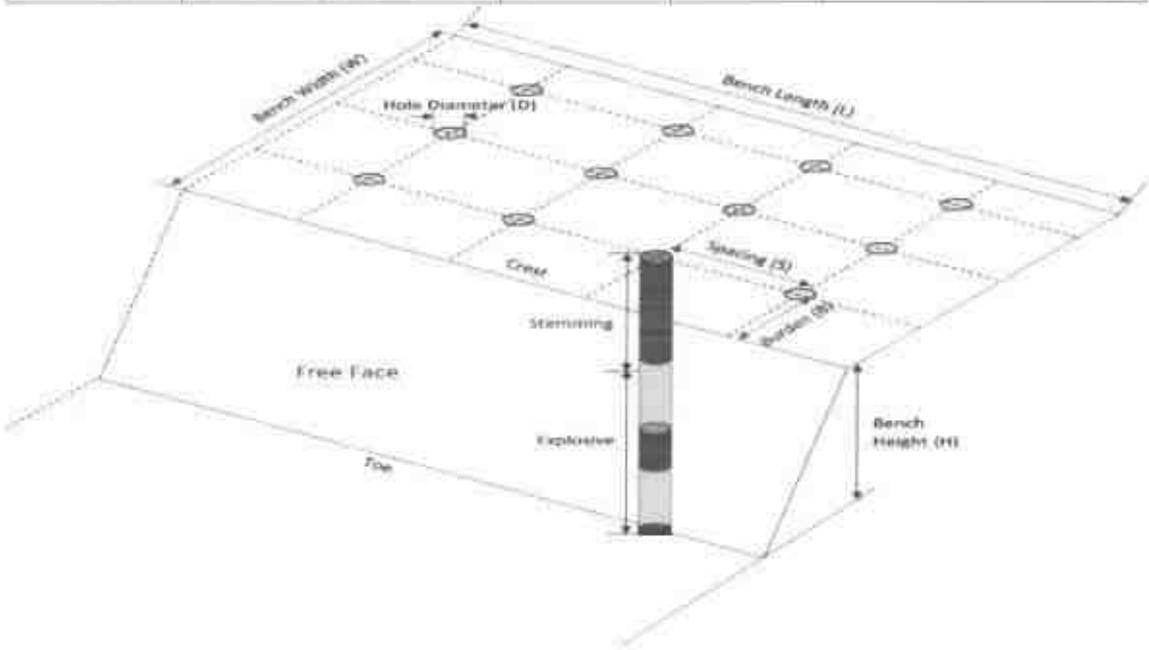
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6.0 Blasting:

6.1 Blasting Pattern : The massive formation shall be broken into pieces of portable size by drilling and blasting using jack hammers and shot hole blasting. Powder factor of explosives for breaking such hard rock shall be in the order of 6 to 7 Tonnes per K.g of explosives. Blasting parameters are as follows.

Diameter of the hole	Spacing	Depth	Burden for hole	Pattern of hole	Inclination of hole
32-36mm	0.6m	1 to 1.5m	0.6m	Zig Zag	70° from the horizontal



6.2 Types of Explosives : Small dia, 25mm slurry explosive are proposed to be used for shattering and heaving effect for removal and winning of Rough stone. No deep hole drilling or primary blasting is proposed.

MAR 26



<p>6.3 Measures proposed to minimize ground vibration due to blasting</p>	<p>: > Controlled blasting measures will be adopted for minimizing ground vibration and fly rock.</p> <p>> Shallow depths jackhammer drilling and blasting is proposed to be carried out with minimum use of explosive mainly to give shattering effect in rough stone for easy excavation and to control fly rock.</p> <table border="1" data-bbox="734 504 1332 739"> <tr> <td>Number of holes</td> <td>: 234</td> </tr> <tr> <td>Powder factor</td> <td>: 6Ts/Kg of explosives</td> </tr> <tr> <td>Total explosive required</td> <td>: 117Kg slurry explosives</td> </tr> <tr> <td>Charge / hole</td> <td>: 0.5Kg</td> </tr> <tr> <td>Blasting time</td> <td>: 12-2 Pm</td> </tr> </table>	Number of holes	: 234	Powder factor	: 6Ts/Kg of explosives	Total explosive required	: 117Kg slurry explosives	Charge / hole	: 0.5Kg	Blasting time	: 12-2 Pm
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Blasting time	: 12-2 Pm										
<p>6.4 Storage of Explosives and safety measures to be taken while blasting.</p>	<p>: > The applicant will engage an authorized explosive agency to carry out the small amount of blasting and it will be supervised by competent and statutory foreman/ mines manager.</p> <p>> The applicant ensure that will appoint the Mate (Should have Valid Blaster Certificate) during Blasting Operation.</p>										

7.0 Mine Drainage:

<p>7.1 Depth of Water table</p>	<p>: The ground water table is reported as 56m below ground level. In the proposed mining plan only 20.5m below ground level and 35.5m depth has been envisaged as workable depth for safe & economic quarrying for the entire lease period. Hence the quarrying operation may not affect the ground water.</p>
<p>7.2 Arrangement and Places where the mine water is finally proposed to be discharged</p>	<p>: The ground water may not rise immediately in this type of mining. However, the rain water percolation and collection of water from the seepage shall be less than 300lpm and it shall be pumped about periodically by a stand by diesel powered Centrifugal pump motivated with 7.5H.P.Motor. The quality of water is potable and it is not contaminated with any hazardous things. Hence, water stored in the quarry pit will be pumped into the adjacent agricultural fields. Further the water stored in the old pit will also be used for plantation purposes</p>

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8.0 Other Permanent Structures:		
8.1	Habitations / Village	: There are no habitations within a radius of 300m.
8.2	Power lines (HT/LT)	: There is no Power lines (HT/LT) within a radius of 50m.
8.3	Water bodies (River, Pond, Lake, Odai, Channel etc)	: There is seasonal odai passing on Southwestern side of the area and is 420m away from the area. There is tank situated on eastern side of the area and is 480m away from the area.
8.4	Archeological / Historical Monuments	: There are no Archeological / Historical Monuments within a radius of 500m.
8.5	Road (NH, SH, Village Road etc)	: The National Highway (NH-38) Tiruvannamalai - Vellore is about 24.5km on western side of the area. The State Highway (SH-4) Arani - Gingee is about 5.3Km on western side of the area.
8.6	Places of Worship	: There are no Places of Worship within a radius of 500m.
8.7	Reserved Forest / Forest / Social Forest / Wild Life Sanctuary etc.,	: There is no Reserved Forest /Wild Life Sanctuary etc within a radius of 1Km.
8.8	Any Interstate Border, Protected areas under the Wild Life (Protection) Act, 1972, Critically Polluted Areas as Identified by Central Pollution Control Board and Notified Eco sensitive areas	: There are No inter State border within a radius of 10kms.
8.9	Any Other Structures	: Nil

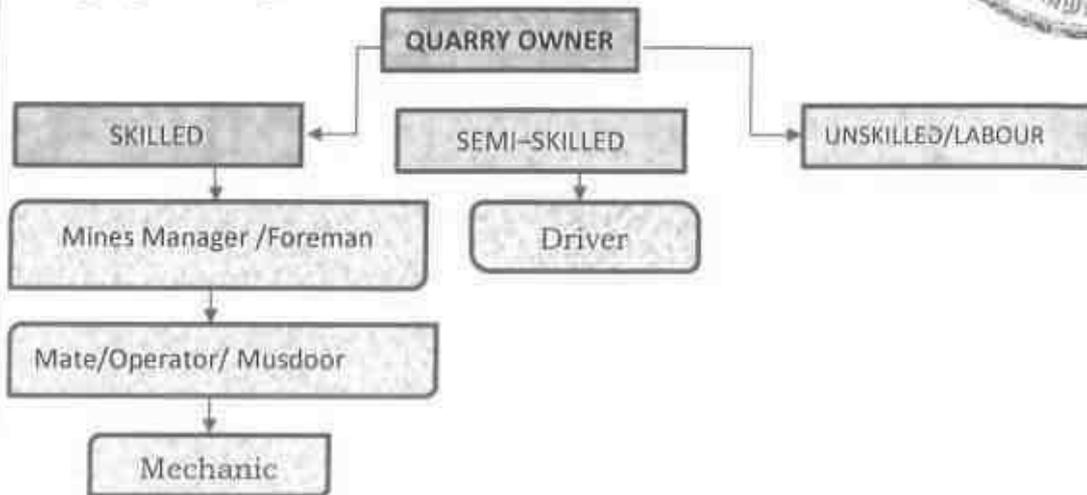
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Employment Potential & Welfare Measures:

9.1 Employment Potential (Management & Supervisory personal)

The proposed organization chart



1.	Skilled	Mines Manager	1 No.
		Foreman / Mate	2 No.
		Operator	12 No.
		Mechanic	1 No.
2.	Semi-skilled	Driver	4 No.
3.	Unskilled	Labours	10Nos
			Total = 30Nos

Allowing 10% absentee, the no. of men of roll will be around 27.

The above man power is adequate to meet out the production schedule and the machinery strength envisaged in the mining plan and to comply the statutory provisions of Mines Safety Regulations.

- > **It is been ensured that, child labours under 18 years of age will not be engaged for quarrying operation.**
- > **Necessary life insurance policies will be taken by the applicant to all the employees up to the end of the lease period.**

9.2 Welfare Measures

a.	Drinking Water	:	Packaged drinking water is available from the nearby approved water vendors in Thellarampattu Village which is about 1.7Km on Northwestern side of the area.
b.	Sanitary facilities	:	Semi-permanent latrines & urinals shall be maintained at convenient places for use of labours as per the provisions of Rule (33) of the Mines Rules, 1960 separately for males and females. Washing facilities shall also be arranged as per rule (36) of the Mines Rules, 1960.

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c.	First Aid Facility	: First aid kits are kept in Mines office rooms. In case of such eventualities the victim will be given first aid immediately at the site and injured person will be taken to the hospital. Hospital is available at distance of 7.5Km (SW) in Chetpet the competent and Statutory foreman/ permit manager will be in charge of first aid.
d.	Labour Health	: As per Mines Rule, Periodic medical examination related to occupational health safety will be conducted to all the workers in applicant's own cost.

e. Precautionary safety measures to the Labourers:

Safety provisions like helmet, goggles, safety shoes, Dust mask, Ear muffs etc., have to be provided as per the circulars and amendments made for Mine labours under the guidance of DGMS being a mechanized operation.

Necessary training will be conducted once in a year to all the employees with the help of qualified and experienced officers to train about the safe and systematic quarrying operation.



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PART - B

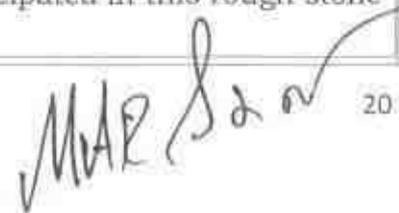
9.0 Environmental Management Plan:

10.1	Existing Land Use Pattern	<p>: 1. The area exhibits almost plain topography covered by topsoil formation.</p> <p>2. Quarrying operation is proposed up to a depth of 20.5m below ground level for the proposed mining plan period.</p> <p>3. Fluctuation of Water table in this area is in between 56m and 53m during a year.</p> <p>4. This region receives the average annual rainfall of 800mm to 900mm. The surrounding area is practiced by the seasonal cultivation.</p> <p>The existing land use pattern is given as under.</p> <p style="text-align: center;">Table No-4</p> <table border="1" data-bbox="662 795 1372 1086"> <thead> <tr> <th>Sl. No.</th> <th>Land Use</th> <th>Present Area (Hect)</th> <th>Area in use during the quarrying period (Hect)</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>Quarrying Pit</td> <td>Nil</td> <td>3.27.0</td> </tr> <tr> <td>2.</td> <td>Infrastructure</td> <td>Nil</td> <td>0.01.0</td> </tr> <tr> <td>3.</td> <td>Roads</td> <td>Nil</td> <td>0.01.0</td> </tr> <tr> <td>4.</td> <td>Green Belt</td> <td>Nil</td> <td>0.40.0</td> </tr> <tr> <td>5.</td> <td>Unutilized</td> <td>3.93.5</td> <td>0.24.5</td> </tr> <tr> <td colspan="2" style="text-align: center;">Total =</td> <td>3.93.5</td> <td>3.93.5</td> </tr> </tbody> </table>	Sl. No.	Land Use	Present Area (Hect)	Area in use during the quarrying period (Hect)	1.	Quarrying Pit	Nil	3.27.0	2.	Infrastructure	Nil	0.01.0	3.	Roads	Nil	0.01.0	4.	Green Belt	Nil	0.40.0	5.	Unutilized	3.93.5	0.24.5	Total =		3.93.5	3.93.5
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5.	Unutilized	3.93.5	0.24.5																											
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10.2	Water Regime	<p>: Water table in this area is noticed at a depth of 56m and presently, in the proposed mining plan only 20.5m (Below Ground Level) only and 35.5m depth has been envisaged as workable depth for safe & economic quarrying for the entire lease period. hence, it will not affect the ground water depletion of this area.</p>																												
10.3	Flora and Fauna	<p>: Except acacia bushes, no other valuable trees are noticed in the applied area. Further, neither flora of botanical interest nor fauna of zoological interest is noticed in this area.</p>																												
10.4	Climatic conditions	<p>: Generally subtropical climatic condition prevails throughout the year and there is no sharp variation in climate.</p> <p>This District receives rain both in south west and north east monsoon.</p> <p>The average rainfall is about 800mm to 900mm and the temperature ranges from 18°C during winter and to a maximum of 42°C during the summer.</p>																												

MAR 2022



10.5	Human Settlement	<p>The nearest habitations with the population is given as under.</p> <p style="text-align: center;">Table No-5</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%;">S. No</th> <th style="width: 30%;">Name of the Village</th> <th style="width: 30%;">Approximate distance & Direction from lease applied area</th> <th style="width: 30%;">Approximate population</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>Alliyandal</td> <td>2.0Km - NE</td> <td>400</td> </tr> <tr> <td>2.</td> <td>Thellarampattu</td> <td>1.7km - NW</td> <td>500</td> </tr> <tr> <td>3.</td> <td>Thavani</td> <td>1.2Km - SE</td> <td>200</td> </tr> <tr> <td>4.</td> <td>Konamangalam</td> <td>2.5km-SW</td> <td>300</td> </tr> </tbody> </table>	S. No	Name of the Village	Approximate distance & Direction from lease applied area	Approximate population	1.	Alliyandal	2.0Km - NE	400	2.	Thellarampattu	1.7km - NW	500	3.	Thavani	1.2Km - SE	200	4.	Konamangalam	2.5km-SW	300
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3.	Thavani	1.2Km - SE	200																			
4.	Konamangalam	2.5km-SW	300																			
10.6	Plan for Air, Dust Suppression	<p>Air or dust expected to be generated from drilling process, hauling roads, places of excavation etc., will be suppressed by periodical wetting of land by water spraying. Wet drilling and dust extractor arrangements will be provided to drilling units so as to control raise of dust from the site of drilling. Operators, those exposed directly to such conditions will be provide such protective equipment like mask, ear plug, helmet, gloze etc., as per the Mines Act.</p>																				
10.7	Plan for Noise Control	<p>Quarrying of Rough Stone will be carried out by drilling and blasting by using low power explosives, and hence, noise will be very minimum. However, periodical noise level monitoring will be carried out to check the noise level in and around the quarry site. Nowhere the noise level should exceed the permissible limit of 80db during the quarry working hours.</p>																				
10.8	Environmental Impact Assessment Statement Describing Impact on mining on the next Five years	<p>The mining plan proposed is for a small production of Rough stone without involving deep hole drilling and heavy blasting. Such limited mining activity is not likely to cause any impact adversely on environment as far as pollution of air, water and noise is concerned, anyhow environmental impact studies will be conducted as per EIA notification issued by MOEF. It is B2 Category mine.</p>																				
10.9	Proposal for Waste Management	<p>There is no waste anticipated in this rough stone quarry operation.</p>																				





10.10 Proposal of Reclamation of Land affected during mining activities and at the end of mining : In the proposed mining plan 26.5m Ground Level and 35.5m depth has been envisaged as workable depth for safe & economic mining during the lease period. Hence, after quarry reaches ultimate pit limit (for this lease period) of 35.5m depth, fencing will be constructed around the quarried pits to prevent inherent entry of the public and cattle.

10.11 Program for Afforestation : The 7.5m and 10m safety distance along the lease boundary has been identified to be utilized for afforestation. Appropriate native species of Neem/Pungan trees will be planted in a phased manner as described below.

Table No-6

Year	No. of trees proposed to be planted	Survival %	Area to be covered Sq.m	Name of the species	No of trees expected to be grown
I	50	80%	800	Neem/Pungan	40
II	50	80%	800	Neem/Pungan	40
III	50	80%	800	Neem/Pungan	40
IV	50	80%	800	Neem/Pungan	40
V	50	80%	800	Neem/Pungan	40

Nearly 4000Sq.m area is proposed to use under afforestation by planting 50nos. of Neem/Pungan trees during every year with an anticipated survival rate of 80%. The Quarry landuse, layout and afforestation plan is shown in Plate No.III.

10.12 Proposed Financial Estimate / Budget for (EMP) Environment Management

A.Fixed Asset Cost:	
1. Land Cost (Tender amount) :	Rs. 2,04,20,000
2. First aid room and accessories :	Rs.1,00,000
3. Labour Shed :	Rs.1,00,000
4. Sanitary Facility :	Rs.1,00,000
Total=	Rs. 2,07,20,000/-

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B.Operational Cost:		
1. Machineries	:	Rs.70,00,000/-
2. Fencing cost	:	Rs. 2,50,000
Total	:	Rs.72,50,000/-
C.EMP Cost:		Budget Provision for the entire quarrying period.
	:	Air Quality Sampling = Rs. 40,000/-
	:	Water Quality Sampling = Rs. 40,000/-
	:	Noise Monitoring = Rs. 20,000/-
	:	Ground vibration test = Rs. 20,000/-
Expenditure		
1. Drinking water facility	:	Rs.1,50,000/-
2. Sanitary Arrangments	:	Rs. 50,000/-
3. Safety kids	:	Rs. 50,000/-
4. Water sprinkling	:	Rs. 1,50,000/-
5. Afforestation	:	Rs. 70,000/-
Total=	:	Rs. 5,90,000/-
Total Project Cost (A+B+C)		Rs. 2,85,60,000/-
CSR Cost(2% of Total Project Cost)		Rs. 5,71,200/-

10.0 Mine Closure Plan:

11.1	Steps proposed for phased restoration, reclamation of already mined out area.	:	There is no proposal for back filling, reclamation and rehabilitation. The quarried pits after the end of the life of lease will be fenced to prevent inherent entry of public and cattles.
11.2	Measures to be under taken on mine closure as per Act & Rules	:	Measures will be taken as per the Acts and Rules. The quarried pit will be fenced by using Barbed wire fencing to prevent inherent entry of public and cattle.
11.3	Mitigation measures to be undertaken for safety and restoration/ reclamation of the already mined out area	:	Mitigation measures: Drilling will be carried out by wet drilling mode to control the dust propagation into the air. Blasting will be carried out on limited scale. Mist Water spraying on haul road is proposed to prevent the dust propagation into the air.

MAR 22



11.0 Any Other Details Intend to Furnish by the Applicant:

- (i) Permission will be obtained from the District Mines Office to extract the Rough Stone from the Boundary barriers and for slopes.
- (ii) Care and precautionary measures will be taken for the safety of workers as per Rules and Acts.
- (iii) The applicant will endeavor every attempt to quarry the Rough Stone economically without any wastage and to improve the environment and ecology.
- (iv) The Mining Plan is prepared by incorporating the conditions stipulated in the precise area communication issued and relevant mining laws in force.
- (v) Any violation pointed out by the inspecting authorities shall be rectified as per the guidelines of the Department.

Prepared by

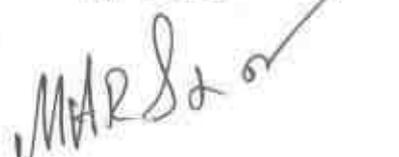

C.Natarajan, M.Sc.,M.Phil.,
Qualified Person
C.NATARAJAN M.Sc.,M.Phil.,
Qualified Person

Place : Salem
Date : 12.01.2023

This Mining Plan Is Approved
Subject to the Conditions/Stipulation
Indicated In The Mining Plan Approval
Letter No. 07 /mines/2023 Dt:14.02.23
Office Of The Deputy Director Of
Geology And Mining, Tiruvannamalai.

This Mining Plan is approved based on incorporation of the particulars specified in the letter of the Commissioner of Geology and Mining, Chennai Lr.No: 3868/LC/2012, Dated: 19-11-2012 and subject to further fulfillment of the conditions laid down under Tamil Nadu Minor Mineral Concession Rules, 1959.


Deputy Director
Dept. of Geology and Mining
Tiruvannamalai.

14/02/23


நக.எண்:07/கனிமம்/2023

துணை இயக்குநர் அலுவலகம்,
மாவட்ட ஆட்சியர் அலுவலக வளாகம்,
திருவண்ணாமலை மாவட்டம்
திருவண்ணாமலை-4.

நாள்:10.01.2023.

அறிவிக்கை

பொருள்: கனிமங்களும் குவாரிகளும் - கல்குவாரிகள் - டெண்டர் / பொது ஏலம் - திருவண்ணாமலை மாவட்டம் - சேத்துப்பட்ட வட்டம் - தெள்ளாரம்பட்டு கிராமம் - அரசு புறம்போக்கு புல எண் 214/1(பகுதி 3 மற்றும் பகுதி 4) பரப்பு 3935 ஹெக்டேர் - 10 ஆண்டுகளுக்கு கல்குவாரி செய்ய குத்தகை உரிமம் வழங்கும் பொருட்டு மாவட்ட அரசிதழில் சிறப்பு வெளியீடு செய்யப்பட்டது - திரு.A.R.கோவிந்தன் த.பெ. அருணாச்சலம் என்பவருக்கு ஏலம் உறுதி செய்யப்பட்டது - ஏலத்தொகை முழுவதும் வசூலிக்கப்பட்டு அரசு கணக்கில் செலுத்தப்பட்டது - ஒப்புதல் பெறப்பட்ட சுரங்க திட்ட அறிக்கை மற்றும் சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணைய தடையின்மைச் சான்று பெற்று சமர்ப்பிக்க அறிவுறுத்துதல் - தொடர்பாக.

- பார்வை: 1. திருவண்ணாமலை மாவட்ட அரசிதழ் சிறப்பு வெளியீடு எண் 43, நாள் 02.12.2022
2. திரு.A.R.கோவிந்தன் த.பெ. அருணாச்சலம் எண் 302, ராஜா அகரகாரம், 3வது குறுக்கு தெரு. பூந்தமல்லி, திருவள்ளூர் மாவட்டம் என்பவரின் விண்ணப்ப நாள் 19.12.2022
3. இவ்வலுவலக குறிப்பாணை நக.எண்.11/கனிமம்/2022 நாள் 20.12.2022
4. திரு.A.R.கோவிந்தன் த.பெ. அருணாச்சலம் பூந்தமல்லி, திருவள்ளூர் மாவட்டம் என்பவரின் விண்ணப்ப நாள் 03.01.2023

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பார்வை 1-ல் காணும் திருவண்ணாமலை மாவட்ட அரசிதழ் சிறப்பு வெளியீடு எண்.43, நாள் 02.12.2022 மூலம் திருவண்ணாமலை மாவட்டத்திற்குட்பட்ட அரசு புறம்போக்கு நிலங்களில் அமைந்துள்ள 9 கற்குவாரிகளுக்கு பொது ஏலமுறையில் குத்தகை உரிமம் வழங்க ஏல / டெண்டர் விண்ணப்பங்கள் வரவேற்கப்பட்டது அதன்படி வரிசை எண் 9-ல் கண்ட சேத்துபட்டு வட்டம், தெள்ளாரம்பட்டு கிராமம், அரசு புறம்போக்கு புல எண் 214/1(பகுதி 3 மற்றும் பகுதி 4) பரப்பு 3935 ஹெக்டேர் பரப்பிலுள்ள புதிய கற்குவாரிக்கு குறிப்பிட்ட காலக்கெடுவான 19.12.2022 அன்று மாலை 5 மணி வரை ஒரு டெண்டர் விண்ணப்பம் மட்டும் வரபெற்றது. அதனை தொடர்ந்து 20.12.2022 அன்று நடைபெற்ற பொது ஏலத்தில் டெண்டர்தாரர் உட்பட 9 நபர்கள் கலந்து கொண்டனர். டெண்டர் மற்றும் பொது ஏலத்தில் கலந்து கொண்டவர்கள் மற்றும் அவர்கள் கோரிய ஏல தொகை விவரம் பின்வருமாறு:

டெண்டர் :

வ. எண்	டெண்டர்தாரர் பெயர் மற்றும் முகவரி	டெண்டரில் கோரப்பட்ட தொகை
1.	திரு.A.R.கோவிந்தன் த.பெ. அருணாச்சலம் பூந்தமல்லி, திருவள்ளூர் மாவட்டம்	ரூ.1,00,50,000/-

MAR 2023

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- 2 -



வ. எண்	ஏலதாரர் பெயர் மற்றும் முகவரி	ஏலத்தில் கோரப்பட்ட தொகை
1.	திரு.A.R.கோவிந்தன் த.பெ. அருணாச்சலம் புந்தமல்லி, திருவள்ளூர் மாவட்டம்.	ரூ.2,04,20,000/-
2.	திரு.முத்துகுமார், த.பெ. கணேசன், சென்னை.	ரூ.2,00,00,000/-
3.	திரு.R.ராஜா, த.பெ. ராமசிங்காரம், சென்னை.	ரூ.2,03,20,000/-
4.	திரு.S.கோகுல்ராஜ் த.பெ. சரவணராஜ் காமராஜ் தெரு. பம்மல், சென்னை	ரூ.1,33,00,000/-
5.	திரு.S.நிர்மல், த.பெ. சரவணராஜ் காமராஜ் தெரு. பம்மல், சென்னை	ரூ.1,30,00,000/-
6.	திரு.PRS.சரவணராஜ், காமராஜ் தெரு. பம்மல், சென்னை	ரூ.2,04,10,000/-
7.	திரு.K.அருள் குமார், த.பெ. கன்னியப்பன், நீர்குன்றம் கிராமம், காஞ்சிபுரம் மாவட்டம்.	ரூ.1,29,50,000/-
8.	திரு.N.சக்திவேல் த.பெ. நாராயணசாமி தேதூர், திருவண்ணாமலை.	ரூ.1,20,00,000/-
9.	திரு.K.பிரபாகரன் த.பெ. கன்னியப்பன் நீர்குன்றம் கிராமம், காஞ்சிபுரம் மாவட்டம்.	ரூ.2,03,50,000/-

2. பொது ஏலத்தில் திரு.A.R.கோவிந்தன் த.பெ. அருணாச்சலம் என்பவரால் அதிகபட்சமாக மேற்படி குவாரிக்கு ரூ.2,04,20,000/- (ரூபாய் இரண்டு கோடியே நான்கு லட்சத்து இருபதாயிரம் மட்டும்) ஏலம் கோரப்பட்டது. அதனை தொடர்ந்து டெண்டர் விண்ணப்பங்கள் திறக்கப்பட்டு பரிசீலிக்கப்பட்டதில் திரு.A.R.கோவிந்தன் த.பெ. அருணாச்சலம் என்பவர் டெண்டர் மூலம் ரூ.1,00,50,000/- (ரூபாய் ஒரு கோடியே ஐம்பதாயிரம் மட்டும்) டெண்டர் கோரியிருந்தார். எனவே, மேற்படி பொது ஏலத்தில் திரு.A.R.கோவிந்தன் என்பவரால் கோரப்பட்ட தொகையானது டெண்டரில் கோரப்பட்ட தொகை மற்றும் மேற்படி குவாரிக்கு அரசால் நிர்ணயம் செய்யப்பட்ட குறுமத்தொகையைக் காட்டிலும் கூடுதலாக இருந்ததினால் மேற்படி ஏலத்தொகையில் விதிகளின்படி 10% விட அதிக தொகையாக வங்கி வரைவோலைகளாக ரூ.20,70,000/-ஐ உயர்ந்தபட்ச ஏலதாரர் திரு.A.R.கோவிந்தன் என்பவர் செலுத்தியதைக்குத்து மேற்படியாருக்கு ஏலம் உறுதி செய்யப்பட்டது.



3. பார்வை 3-ல் காணும் குறிப்பானையில் அறிவிக்கியவாறு ஏலத்தொகையில் ஏற்கனவே செலுத்தப்பட்ட ரூ.20,70,000/- மற்றும் பிணை வைப்புத்தொகையான ரூ.25,000/-ஐ நீக்கி மீதமுள்ள தொகையான ரூ.3,32,500/-க்கு ஏலதாரர் வங்கி வரைவோலைகள் பெற்று குறிப்பிட்ட காலக்கெடுவிற்குள் பார்வை 4-ல் காணும் கடிதம் மூலம் சமர்ப்பித்ததையடுத்து மேற்படி வங்கி வரைவோலைகளை பாரத ஸ்டேட் வங்கி, திருவண்ணாமலை மின்னஞ்சல் மூலம் 02.01.2023 தேதியில் உரிய அரசு கணக்கில் வரவு வைக்கப்பட்டுள்ளது.

4. மேலும், ஏலதாரர் மேற்கண்ட ஏலத்தொகைக்கு 2% வருமானவரி (TCS) கணக்கிட்டு ரூ.4,08,400/-ஐ 03.01.2023 அன்று மின்னஞ்சல் மூலம் செலுத்தப்பட்டதற்கான ஆவணங்களை இவ்வலுவலகத்தில் சமர்ப்பித்துள்ளார்.

5. எனவே, ஏலதாரர் திரு.A.R.கோவிந்தன் த.பெ. அருணாச்சலம் என்பவருக்கு திருவண்ணாமலை மாவட்டம், சேத்துபட்டு வட்டம், தெள்ளாரம்பட்டு கிராமம், அரசு புறம்போக்கு புல எண் 214/1(பகுதி 3 மற்றும் பகுதி 4) பரப்பு 3935 ஹெக்டேர் பரப்பினை 10 ஆண்டுகளுக்கு கற்குவாரி செய்ய உகந்த புலம் (Precise Area) என தீர்மானித்து கீழ்க்கண்ட நிபந்தனைகளுக்கு உட்பட்டு அறிவிப்பு செய்யப்படுகிறது.

நிபந்தனைகள்

1. அருகில் உள்ள பட்டா மற்றும் புறம்போக்கு நிலங்களுக்கு முறையே 7.5மீ மற்றும் 10மீ பாதுகாப்பு இடைவெளி விடவேண்டும்.
2. நிலையான அமைப்புகளுக்கு (நீர் நிலைகள், நெடுஞ்சாலைகள், மின் சாதனங்கள், இரயில் பாதைகள்) 50மீ பாதுகாப்பு இடைவெளி விடவேண்டும்.
3. அருகில் உள்ள நிலங்களுக்கும் மற்றும் பொதுமக்களுக்கும் எவ்வித பாதிப்பும் இன்றி குவாரிப்பணி மேற்கொள்ள வேண்டும்.
4. குவாரிப்பணி ஆரம்பிப்பதற்கு முன்பாக குத்தகை உரிமம் வழங்கப்பட்ட புலத்தினைச் சுற்றி முள்கம்பி வேலி அமைத்து குத்தகை காலம் முழுவதும் பராமரித்து வரவேண்டும்.
5. பாறைகளைத் தகர்க்க கைத்துளைப்பான்களை கொண்டு பாறைகளை துளையிட்டு குறைவான வெடிபொருட்கள் பயன்படுத்த வேண்டும்.
6. குவாரிப்பணியினை விஞ்ஞானப்பூர்வமாகவும், முறையாகவும் மேற்கொள்ள வேண்டும்.

6. தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 1959 விதிகள் 41 மற்றும் 42-ன்படி கல் மற்றும் இதர சிறு கனிமங்களுக்கு குவாரி குத்தகை உரிமம் வழங்கும் முன்பு ஒப்புதல் பெறப்பட்ட சுரங்கத்திட்ட அறிக்கை மற்றும் சுற்றுத்தழல் தாக்க மதிப்பீட்டு ஆணைய தடையின்மை சான்று பெறப்பட வேண்டும் என வரையறுக்கப்பட்டுள்ளது.

7. எனவே, ஏலதாரர் திரு.A.R.கோவிந்தன் த.பெ. அருணாச்சலம் என்பவர் ஒப்புதல் பெறப்பட்ட சுரங்கத்திட்ட அறிக்கை மற்றும் சுற்றுத்தழல் தாக்க மதிப்பீட்டு ஆணைய தடையின்மைச் சான்றினை பெற்று சமர்ப்பிக்கும் பட்சத்தில் திருவண்ணாமலை மாவட்டம், சேத்துபட்டு வட்டம், தெள்ளாரம்பட்டு கிராமம், அரசு புறம்போக்கு புல எண் 214/1(பகுதி 3 மற்றும் பகுதி 4) பரப்பு 3935 ஹெக்டேர் பரப்பில் கற்குவாரி செய்ய 1959-ஆம் வருடத்திய தமிழ்நாடு சிறுகனிம சலுகை விதிகளின், விதி 8(5)(a)-ன்படி 10 ஆண்டுகளுக்கு குத்தகை உரிமம் வழங்க உரிய நடவடிக்கை மேற்கொள்ளப்படும் என்ற விவரம் தெரிவிக்கப்படுகிறது.

MAR 2023



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8 மேலும் ஏலதாரர் இவ்வறிவிப்பு விடைக்கப்பெற்ற 90 நாட்களுக்குள் மேற்சொன்ன நிபந்தனைகளை குறிக்கும் வகையில் வரைவு சுரங்கத்திட்ட அறிக்கை தயார் செய்து துணை இயக்குநர் புவியியல் மற்றும் சுரங்கத்துறை திருவண்ணாமலை அவர்களிடம் ஒப்புதல் பெற சம்பர்ப்பிக்குமாறு அறிவுறுத்தப்படுகிறார்.

துணை இயக்குநர்,
புவியியல் மற்றும் சுரங்கத்துறை,
திருவண்ணாமலை.

பெறுநர்:
திரு. A.R. கோவிந்தன்
த.பெ. அருணாச்சலம்
எண் 302, ராஜா அகரகாரம்,
3வது குறுக்கு தெரு,
பூந்தமல்லி,
திருவள்ளூர் - 600056

10/01/23

MAR 2023

எண்.31 தொள்ளரம்பட்டு



1	2	3	4	5	6	7	8	9	10		
213	3	213-3	ச	ச.ர.ம	...	—	...	கு. ஸப. தொ.சா.ந. கு. ஸப	2 19.5	...	
									5 62.5	6 87	
214	1	214-1	ச	ச.ர.ம	...	—	7 91.5	...	தரிசு
2	-2	4	...	8-4	6	2 00	0 91.5	1 80	461 ராமகிருஷ்ண பள்ளி
									8 83.0	1 80	
									384 895	1218 06	
<p>தொள்ளரம்பட்டு</p> <p>ச.ர.ம. ச.ர.ம. ச.ர.ம. ச.ர.ம. ச.ர.ம. ச.ர.ம. ச.ர.ம. ச.ர.ம. ச.ர.ம. ச.ர.ம. ச.ர.ம.</p>											

* தபரிமலில்லை பரக்காயம்

சுப்பிரமணியன்,
 செ. மல். தொழிலாளர்
 சி. உ. ப. சே. திட்டம்
 வந்தகாலி அளவு 2 (2)
 தரணி.

தமிழ்நாடு சட்டமன்றப் பேரவை,
 க. சி. சாஜகாண்டி
 சி. உ. ப. சே. திட்டம்
 வந்தகாலி அளவு 2 (2)
 தரணி.

உதவி இயக்குநர்,
 டி. விஸ்வநாதன்,
 சி. உ. ப. சே. திட்டம் துறை
 காஞ்சிபுரம்.

Handwritten signature and date:
 11.7.2020
 சி. உ. ப. சே. திட்டம்
 எண்.31, தொள்ளரம்பட்டு
 எண்.33, திருச்சேலம்
 தொள்ளரம்பட்டு வட்டம், திருச்சேலம் டி.உ.

Handwritten signature:
 V. M. S. S.



இந்திய அரசாங்கம்
Government of India

சு. இ. கோவிந்தன்
A R GOVINDAN



பிறந்த நாள் / DOB: 21/01/1976
பாலினம் / Male



6842 4323 7155

ஆதார் - சாதாரண மனிதனின் அதிகாரம்



Unique Identification Authority of India

தலைநகர் அலுவலகம்
102, ராஜா சாராசாரை
சர்ப்-கிராஸ்-ஸ்ட்ரீட்
பொன்னியை, பொன்னியை
திருவல்லூர், தமிழ்நாடு
605058

Address: தலைநகர் அலுவலகம்
102, RAJA SARASARAI
SRB-CROSS STREET
Ponnaniyaie, Ponnaniyaie
Tiruvallur, Tamil Nadu
605058

6842 4323 7155

1947
100 200 1047

100 200 1047

www.uidai.gov.in

Handwritten signature: MAR Sa

CHIETTINAD CEMENT CORPORATION LTD.,

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

WORKS OFFICE: PULIYUR

TELEPHONE 21144 KARUR
 TELE 21745
 GRAM "CEMENT" PULIYUR C.F.
 Telex: 0450-215.
 STD Code: 04324



All Correspondences to
 Kumararajah Muthiah Nagar,
 PULIYUR CEMENT FACTORY POST 630114
 (Karur Taluk, Trichy Dt.)

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

21st September, 1987.

CERTIFICATE.

This is to certify that Mr. C. Natarsajan has been working as a Geologist from 14-12-1979 to till date. He has been incharge of supervision of day to day functions in respect of Exploration, Preparation of Geological Plans & Sections, Preparation of Mines Plans, ~~and~~ Quality control and other allied mining activities in the following Pits of our Seethainagar Limestone Mines in Anna District.

<u>Name of the Pit.</u>	<u>Average Raising/day.</u>
1. Alambadi Pit.	- 1,700 T.
2. Mallapuram Pit.	- 900 T.
3. Karikkali Pit.	- 150 T.
<u>Total.</u>	<u>- 2,750 T.</u>

He has got nearly Eight years of total experience in our Mines in the above supervisory capacity.

For CHIETTINAD CEMENT CORPORATION LTD.,

(Signature)

(T. RAJU).

Mines Manager & Dy. General Manager.

(Signature)



Faculty of Science

The Senate of the Anna University hereby makes known that _____ has been admitted to the Degree of Master of Science (by Examination) in _____, he having been certified by duly appointed Examiners at the examination held in April, 1976, to be qualified to receive the same and that he was placed in the _____ Class.

Given under the seal of the University

MR. S. S.

Secretary
24 December 1976

Chairman
The Council 50



PLATE NO: 1

DATE OF SURVEY : 11.07.2022

APPLICANT:

THIRU AILGOVINDAN
MORUNACHALAM,
No.533, RAJA AGRAHA,
5th CROSS STREET,
POONAMALLEE TIRUVALLUR DISTRICT

QUARRY LEASE APPLIED AREA:

S.F.NO : 214/1(PART-3&4),
EXTENT : 3.93.5 Hq.,
VILLAGE: THELLARAMPATU,
TALUK : CHETPEI,
DISTRICT : TIRUVANNAMALAI.

INDEX

Q. L. A. AREA : ●

TOPO SHEET NO : 57 P/06

LATITUDE : 12°31'39.45"N to 12°31'50.90"N

LONGITUDE : 79°23'22.21"E to 79°23'31.55"E

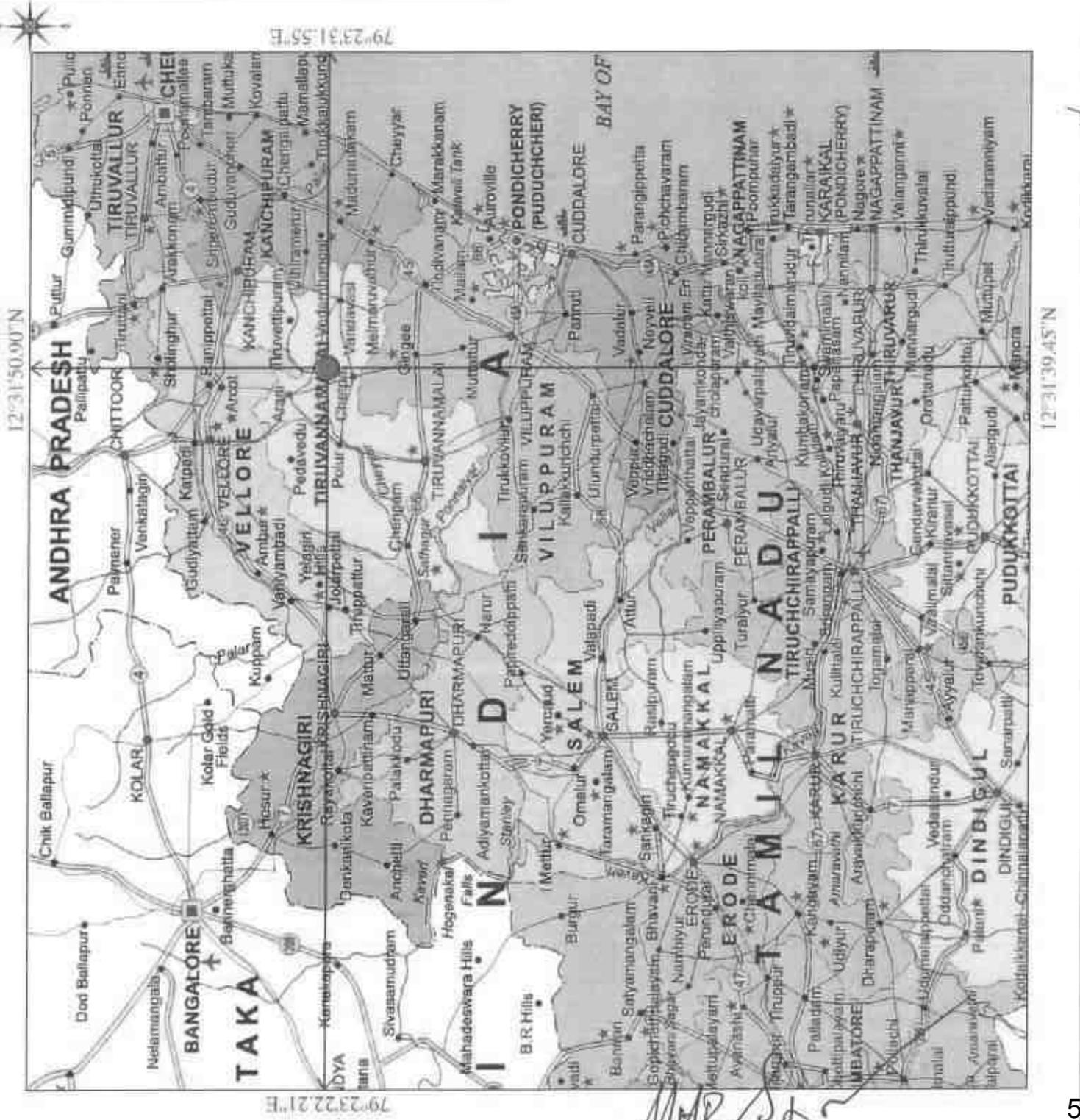
LOCATION PLAN

NOT TO SCALE

PREPARED BY :

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

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



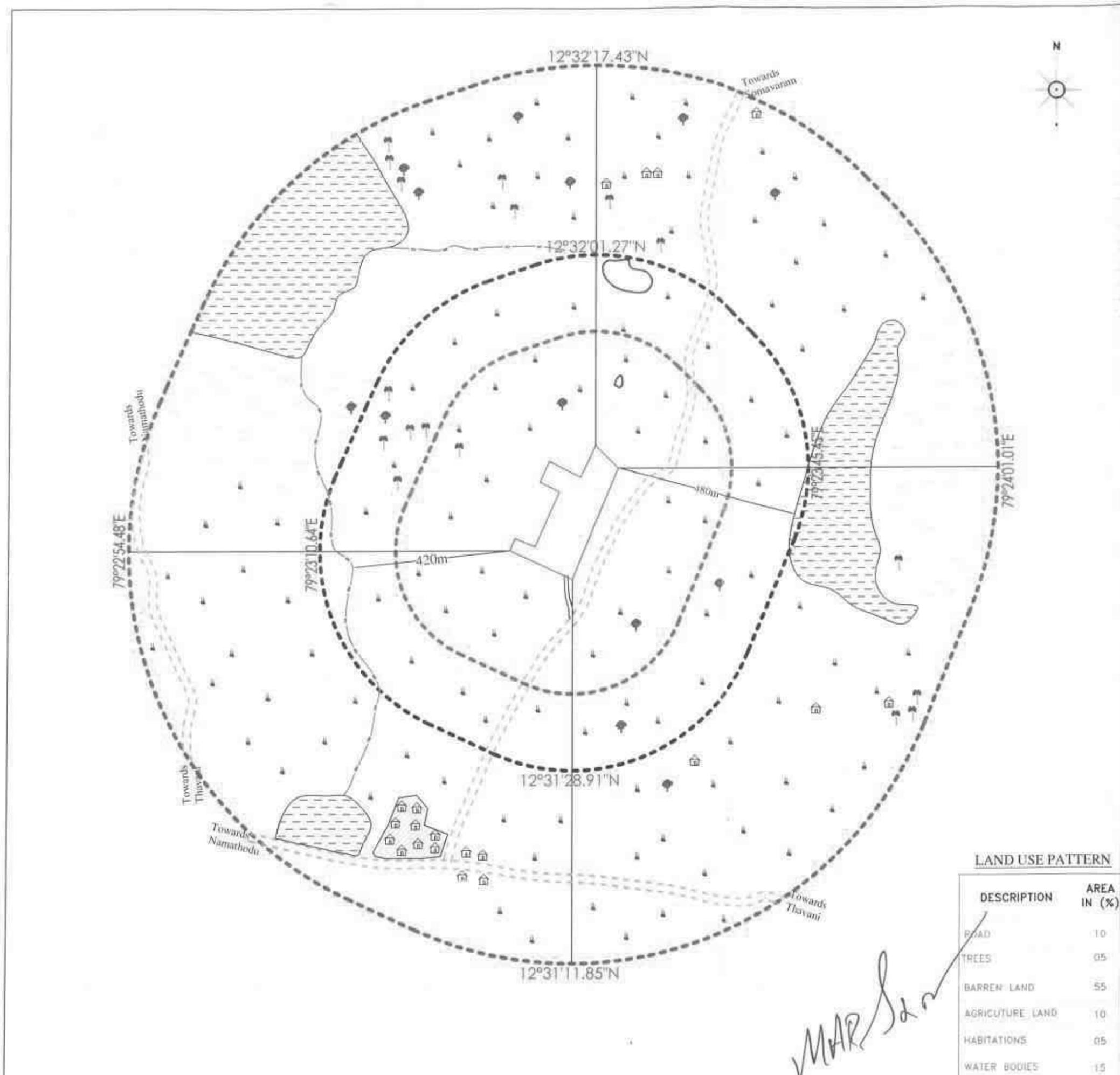


PLATE NO: 1A
DATE OF SURVEY : 11.01.2023



APPLICANT:
THIRU A.R. GOVINDAN,
No ARU/NAGI ALAM,
No.502, RAJA AGRAHARAM,
3rd CROSS STREET,
POONAMALLEE TIRUVALLUR-600 056

QUARRY LEASE APPLIED AREA:
S.F.NO : 214/1 (PART-3&4),
EXTENT : 3.93.5 Ha.,
VILLAGE : THELLARAMPATTU,
TALUK : CHETPET,
DISTRICT : TIRUVANNAMALAI.

INDEX
TOPO SHEET NO : 57 P/06
LATITUDE : 12°31'39.45"N to 12°31'50.90"N
LONGITUDE : 79°23'22.21"E to 79°23'31.55"E

Q.L.APPLIED AREA	
300M RADIUS	
500M RADIUS	
1KM RADIUS	
APPROACH ROAD	
PANCHAYAT ROAD	
ODAI	
BARREN LAND	
TREES	
SEASONAL AGRICULTURE	
HABITATIONS	
QUARRY PIT	
TANK	
ODAI	

LAND USE PATTERN

DESCRIPTION	AREA IN (%)
ROAD	10
TREES	05
BARREN LAND	55
AGRICULTURE LAND	10
HABITATIONS	05
WATER BODIES	15

ENVIRONMENTAL PLAN

SCALE 1: 10,000

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

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

MAR 2023

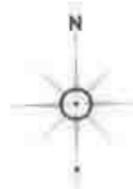


PLATE NO: 1B
 DATE OF SURVEY : 11.01.2023

APPLICANT:
 THIRU A.R.GOVINDAN,
 No ARUNACHALAM,
 No.302, RAJA AGRAHARAM,
 5th CROSS STREET,
 POONAMALLEE TIRUVALLUR-600 056

QUARRY LEASE APPLIED AREA:
 S.F.NO : 214/1 (PART-3&4),
 EXTENT : 3.93.5 Ha,
 VILLAGE : THELLARAMPATTU,
 TALUK : CHETPET,
 DISTRICT : TIRUVANNAMALAI.

INDEX

TOPO SHEET NO : 57 P/06
 LATITUDE : 12°31'39.45"N to 12°31'50.90"N
 LONGITUDE : 79°23'22.21"E to 79°23'31.55"E

Q.L.APPLIED AREA	
300M RADIUS	
500M RADIUS	
1KM RADIUS	
APPROACH ROAD	
PANCHAYAT ROAD	

SATELLITE IMAGERY MAP

SCALE 1: 10,000

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

MAR Sar

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

KEY PLAN



PLATE NO: ID
 DATE OF SURVEY: 15.01.2023

APPLICANT:
 THIRU A.R. GOVINDAN,
 S/O ARUNACHALAM,
 NO. 302, RAJA AGRAJARAM,
 5th CROSS STREET,
 POONAMALLEE TIRUVALLUR-600 056

QUARRY LEASE APPLIED AREA:
 S.F.NO : 214/1 (PART-3&4),
 EXTENT : 3.93.5 HG.,
 VILLAGE : THELLARAMPATU,
 TALUK : CHEPET,
 DISTRICT : TIRUVANMALAI.

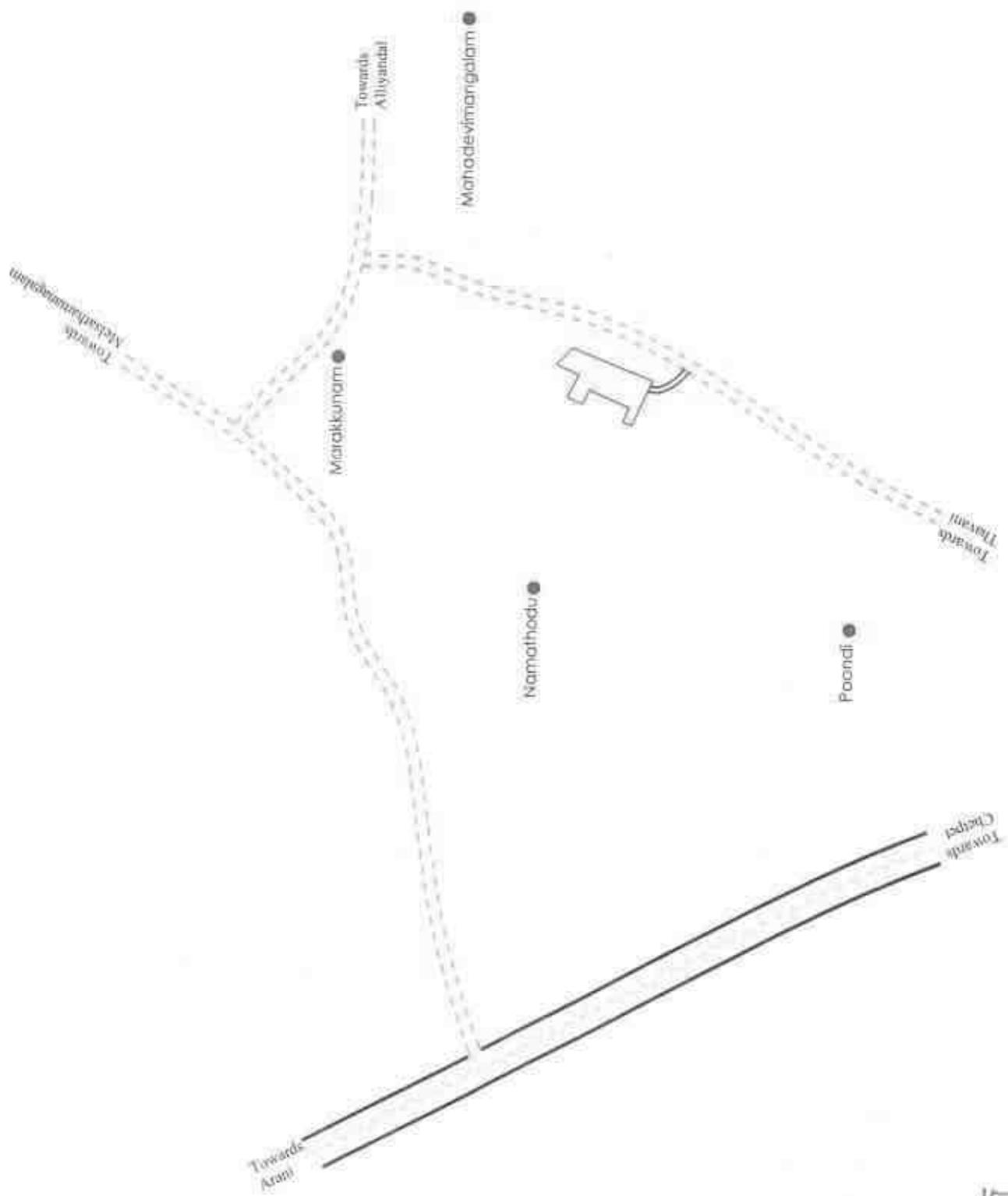
INDEX

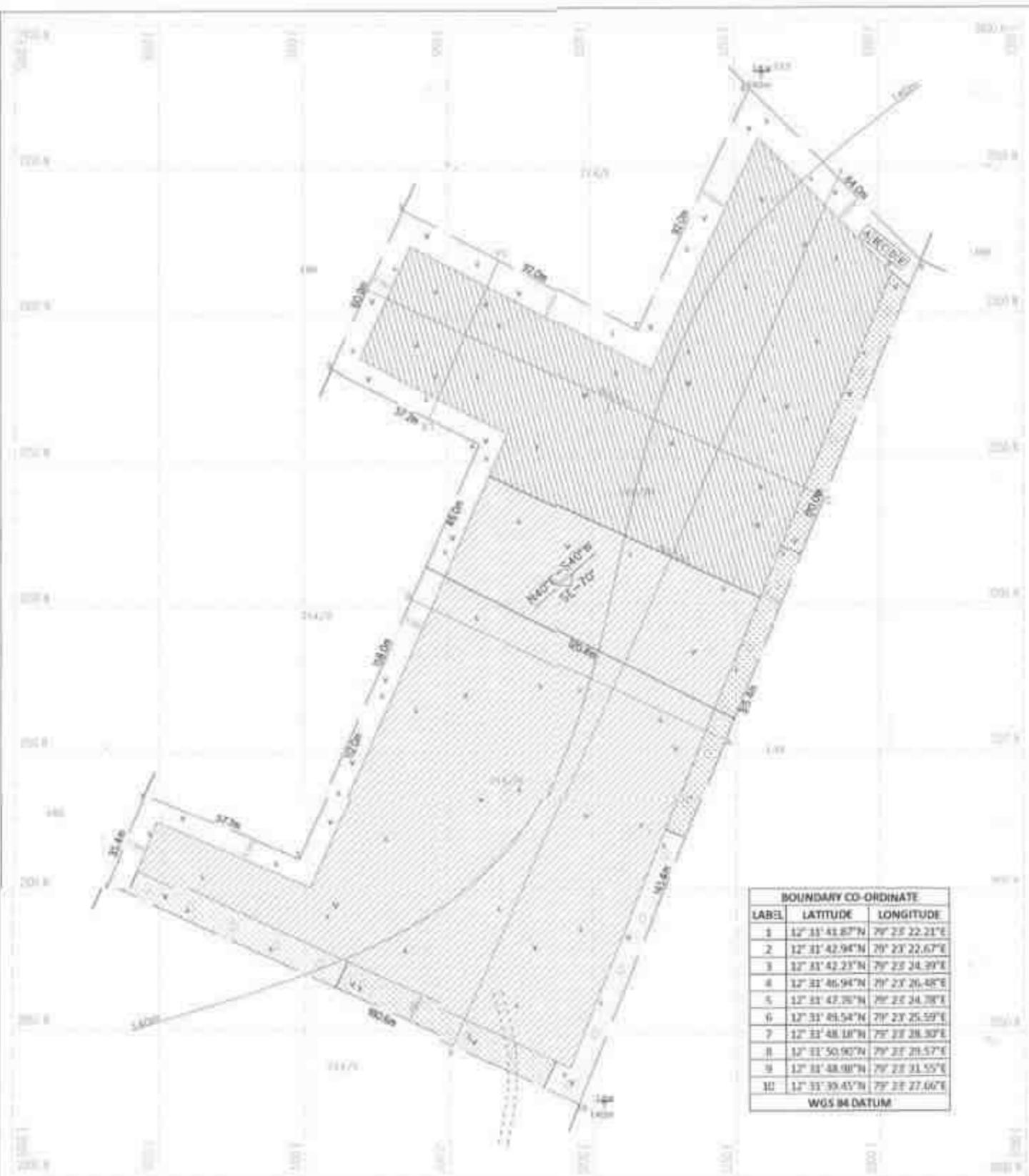
Q.L. APPLIED AREA	
APPROACH ROAD	
PANCHAYAT ROAD	
NATIONAL HIGHWAY	
HABITATIONS	

KEY PLAN
 Not To Scale

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

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





INDEX

A - APPROACH ROAD
 B - 7.5m & 10m SAFETY DISTANCE
 C - TEMPORARY BENCH MARK
 D - CONTOUR
 E - SCUR
 F - TOP SOIL
 G - ROUGH STONE
 H - DRIKE & DIP

BOUNDARY CO-ORDINATE

LABEL	LATITUDE	LONGITUDE
1	12° 31' 41.87"N	79° 23' 22.21"E
2	12° 31' 42.94"N	79° 23' 22.67"E
3	12° 31' 42.23"N	79° 23' 24.39"E
4	12° 31' 46.94"N	79° 23' 26.48"E
5	12° 31' 47.76"N	79° 23' 24.78"E
6	12° 31' 46.54"N	79° 23' 25.59"E
7	12° 31' 48.18"N	79° 23' 28.30"E
8	12° 31' 50.90"N	79° 23' 29.57"E
9	12° 31' 48.90"N	79° 23' 31.55"E
10	12° 31' 39.43"N	79° 23' 27.06"E

WGS 84 DATUM

1st or Proposed area to be Planned (---)

2nd or Proposed area to be Planned (---)

3rd or Proposed area to be Planned (---)

4th or Proposed area to be Planned (---)

5th or Proposed area to be Planned (---)

6th or Proposed area to be Planned (---)

7th or Proposed area to be Planned (---)

8th or Proposed area to be Planned (---)

9th or Proposed area to be Planned (---)

10th or Proposed area to be Planned (---)

SECTION ALONG E-Y

SECTION ALONG X1-Y1



SECTION ALONG A-B

SECTION ALONG P-Q

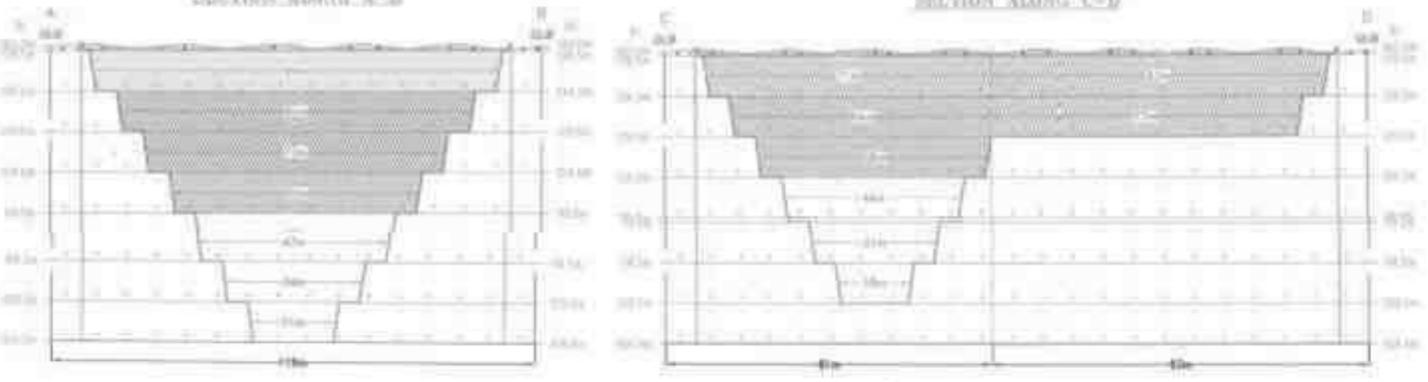


PLATE NO-III
 DATE OF SURVEY - 11.05.2023

APPLICANT:
 TRINITY CONCRETE
 CHANDRANAGAR
 HELBO BALAKRISHNA
 2/10/2023
 PLOT NO. 12/10/2023

QUARRY APPLIED LEASE AREA:
 SF. NO. 214/PART-D&E
 EXTENT 1392.5 Sq.
 VILLAGE - HELBANAPATEL
 TALUK - CHITRE
 DISTRICT - BRUVANNAWALA

INDEX

QL APPLIED BOUNDARY

7.5m & 10m SAFETY DISTANCE

TEMPORARY BENCH MARK

APPROACH ROAD

CONTOUR

SCUR

TOP SOIL

ROUGH STONE

DRIKE & DIP

TOPOGRAPHY, GEOLOGICAL & YEARWISE DEVELOPMENT & PRODUCTION PLAN & SECTIONS
 SCALE 1 : 1000
 SECTIONS FOR 1 : 1000, VER 1:200

PREPARED BY:
 THE ENGINEER IN CHARGE
 SURVEY DEPARTMENT
 BUBANESWAR

(Signature)

ANNEXURE - 3

500m radius cluster letter

From

Thiru.A.Perumal, M.Sc., M.Phil.,
Deputy Director,
Geology and Mining,
Tiruvannamalai - 4.

To

Thiru.A.R.Govindan,
S/o. Arunachalam,
No.302, Raja Agraharam,
3rd Cross Street, Poonamallee,
Tiruvallur.

Rc.No.07/Kanimam/2023, dated:14.02.2023

Sir,

Sub: Quarries and Minerals - Minor Mineral - Rough stone
- Tiruvannamalai District - Chetpet Taluk -
Thellarampattu village - Govt. Poramboke Land in
SF.No.214/1 (Part-3 & Part-4) over an extent of
3.93.5 Hectare - preferred by Thiru.A.R.Govindan -
Particulars called for - furnished - regarding.

- Ref: 1. Tender/Auction application preferred by
Thiru.A.R.Govindan S/o. Arunachalam
dated.19.12.2022.
2. Thiru.A.R.Govindan S/o. Arunachalam,
Tiruvallur Letter, dated.01.02.2023.

In the reference cited, the bidder of proposed stone quarry in
SF.No.214/1 (Part-3 & Part-4) over an extent of 3.93.5 hect., of
Thellarampattu Village, Chetpet Taluk, **Thiru.A.R.Govindan S/o.
Arunachalam**, 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
1.	Mubeena, No.14 Savadi street, Perana mallur, Vandavasi Taluk, Tiruvannamalai.	Thellarampattu 183/2A3 & 212/1C	1.25.5	24.01.2020 to 23.01.2025	Existing Quarry

MAR S/o

ii). Abandoned quarries

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

iii). Present Proposed quarries

Sl. No	Name of the Owner (Tvl)	Village & S.F. Nos.	Extent in Hect.	Lease Period
1.	Thiru.A.R.Govindan, S/o. Arunachalam, No.302, Raja Agraharam, 3 rd Cross Street, Poonamallee, Tiruvallur.	Thellarampattu 214/1 (Part-3 & Part-4)	3.93.5	--

iv). Future Proposed quarries

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

Thiru
Deputy Director,
Geology and Mining,
Tiruvannamalai.

copy
14/02/23

MAR 20

ANNEXURE - 4

VAO Letter

TOPOGRAPHICAL VIEW OF THELLARAMPATTU

ROUGH STONE QUARRY



Name of the applicant : A.R.Govindan
S.F.Nos : 214/1 (Part-3 & Part-4)
Extent : 3.93.5Ha,
Name of the Village : Thellarampattu Village,
Taluk : Chetpet
District : Tiruvannamalai,

(P) அண்ணா
22-02-2023
VAO SIGN & SEAL
சென்னை மாநகராட்சி
சென்னை மாநகராட்சி
சென்னை மாநகராட்சி

Place: திருந்தாளையூர் [திருந்தாளையூர் கிராமம்]

Date: 22.02.2023.

Handwritten signature: A.R. Govindan

ANNEXURE - 5

**Monitoring Report carried
out by NABL Lab**



Shrient Analytical and Research Labs Pvt. Ltd.

416/15, Dharga Road, Perungalathur, West Tambaram, Chennai- 600045.
Phone No: 9841074398 / 9698141777 E-mail : info@shrientanalytical.com
Website : www.shrientanalytical.com

TEST REPORT

Report No.	SARL/23-469	Report Date.	21.10.2023
------------	-------------	--------------	------------

Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Within' Mine Lease Area		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-469	Sample Received on	16.10.2023
Sample Collected by	LABORATORY	Test Commenced on	16.10.2023
Sample Collected Date	10.10.2023	Test Completed on	21.10.2023
Temperature	33°C	Relative Humidity	45%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	70.6	100
2	Particulate Matter less than 2.5 micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	32.6	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	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)	02

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

21/10/23

Verified



For Shrient Analytical and Research Labs Pvt. Ltd

21/10/23
Authorized Signatory

J. GNANAPRAKASAM
Technical Manager

Please Contact:

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

Terms and conditions:

(1) The test items will not be retained for more than 15 days from the date of issue of test report. (2) The results relate only to the items tested (3) The test report shall not be reproduced except in full without the written approval of the laboratory (4) Any use for advertising purposes must be granted in writing. This technical report may only be quoted in full. This report is the result of a single examination of the object in question and is not generally applicable evaluation of the quality of other products in regular production. For further details, please see testing and certification regulation, chapter A-3.4. (5) The correctness of the information related to sample(s) in the Test Request Form/Customer letterhead/Email is the customer's responsibility. The laboratory reports the said information in the test report and is not liable for the same.

Page 1 of 1

LAB SERVICES FOR : *Food *Water *Milk *Environment *Academic & Industry Segment

Corporate Address: No. 32, SATHAGIRI NAGAR, PUZHUTHIVAKKAM, CHENNAI - 600091. ☎: 044 42113369

CIN : U74999TN2017PTC116807 / GST No. 33AAYCS7325R1ZA / Pan No: AAYCS7325R



Shrient Analytical and Research Labs Pvt. Ltd.

416/15, Dharga Road, Perungalathur, West Tambaram, Chennai- 600045.
Phone No: 9841074398 / 9698141777 E-mail : Info@shrientanalytical.com
Website : www.shrientanalytical.com

TEST REPORT

Report No.	SARL/23-470	Report Date.	21.10.2023
------------	-------------	--------------	------------

Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Thavani Village
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-470	Sample Received on	16.10.2023
Sample Collected by	LABORATORY	Test Commenced on	16.10.2023
Sample Collected Date	10.10.2023	Test Completed on	21.10.2023
Temperature	33°C	Relative Humidity	45%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	56.3	100
2	Particulate Matter less than 2.5 micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	26.2	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	7.9	80
5	Carbon Monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date - 01.03.2023)	mg/m ³	BDL (D.L - 1.1)	02

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

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Please Contact:

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J. GNANAPRAKASAM
Technical Manager



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TEST REPORT

Report No.	SARL/23-471	Report Date.	21.10.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Within Mine Lease Area		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-471	Sample Received on	16.10.2023
Sample Collected by	LABORATORY	Test Commenced on	16.10.2023
Sample Collected Date	11.10.2023	Test Completed on	21.10.2023
Temperature	26°C	Relative Humidity	82%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	63.4	100
2	Particulate Matter less than 2.5 micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	29.3	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	9.9	80
5	Carbon Monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date - 01.03.2023)	mg/m ³	BDL (D.L - 1.1)	02

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

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Technical Manager

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TEST REPORT

Report No.	SARL/23-472	Report Date.	21.10.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Thavani Village		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-472	Sample Received on	16.10.2023
Sample Collected by	LABORATORY	Test Commenced on	16.10.2023
Sample Collected Date	11.10.2023	Test Completed on	21.10.2023
Temperature	26°C	Relative Humidity	82%
Sample Condition	Fit for Analysis		

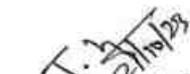
S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	52.1	100
2	Particulate Matter less than 2.5 micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	24.2	60
3	Sulphur Dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.8	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.4	80
5	Carbon Monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	02

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/23-473	Report Date.	21.10.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Namathodu Village		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-473	Sample Received on	16.10.2023
Sample Collected by	LABORATORY	Test Commenced on	16.10.2023
Sample Collected Date	12.10.2023	Test Completed on	21.10.2023
Temperature	31°C	Relative Humidity	58%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	54.8	100
2	Particulate Matter less than 2.5 micron 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	4.6	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)	02

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

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Technical Manager

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TEST REPORT

Report No.	SARL/23-474	Report Date.	21.10.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Alliyandal Village
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-474	Sample Received on	16.10.2023
Sample Collected by	LABORATORY	Test Commenced on	16.10.2023
Sample Collected Date	12.10.2023	Test Completed on	21.10.2023
Temperature	31°C	Relative Humidity	58%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	52.2	100
2	Particulate Matter less than 2.5 micron 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	5.1	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.7	80
5	Carbon Monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date - 01.03.2023)	mg/m ³	BDL (D.L - 1.1)	02

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

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Technical Manager

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TEST REPORT

Report No.	SARL/23-475	Report Date.	21.10.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Namathodu Village		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-475	Sample Received on	16.10.2023
Sample Collected by	LABORATORY	Test Commenced on	16.10.2023
Sample Collected Date	13.10.2023	Test Completed on	21.10.2023
Temperature	32°C	Relative Humidity	43%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	50.6	100
2	Particulate Matter less than 2.5 micron 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	4.2	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)	02

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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21/10/23



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Technical Manager

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TEST REPORT

Report No.	SARL/23-476	Report Date.	21.10.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellampattu Village, Chetpet 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-Alliyandal Village		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-476	Sample Received on	16.10.2023
Sample Collected by	LABORATORY	Test Commenced on	16.10.2023
Sample Collected Date	13.10.2023	Test Completed on	21.10.2023
Temperature	32°C	Relative Humidity	43%
Sample Condition	Fit for Analysis		

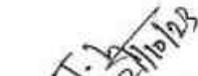
S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	54.6	100
2	Particulate Matter less than 2.5 micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	25.4	60
3	Sulphur Dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.7	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	11.5	80
5	Carbon Monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	02

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

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Technical Manager

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TEST REPORT

Report No.	SARL/23-477	Report Date.	21.10.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Avaniyapuram Village		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-477	Sample Received on	16.10.2023
Sample Collected by	LABORATORY	Test Commenced on	16.10.2023
Sample Collected Date	14.10.2023	Test Completed on	21.10.2023
Temperature	31°C	Relative Humidity	45%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	49.9	100
2	Particulate Matter less than 2.5 micron 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	4.1	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)	02

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

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Technical Manager

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TEST REPORT

Report No.	SARL/23-478	Report Date.	21.10.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Avaniyapuram Village		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-478	Sample Received on	16.10.2023
Sample Collected by	LABORATORY	Test Commenced on	16.10.2023
Sample Collected Date	15.10.2023	Test Completed on	21.10.2023
Temperature	31°C	Relative Humidity	57%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	52.3	100
2	Particulate Matter less than 2.5 micron 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	4.5	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)	02

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

For Shrient Analytical and Research Labs Pvt. Ltd

Verified
21/10/23



Authorized Signatory
21/10/23

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J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/23-501	Report Date.	04.11.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Within Mine Lease Area		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-501	Sample Received on	30.10.2023
Sample Collected by	LABORATORY	Test Commenced on	30.10.2023
Sample Collected Date	24.10.2023	Test Completed on	04.11.2023
Temperature	33°C	Relative Humidity	41%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	71.4	100
2	Particulate Matter less than 2.5 micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	33.0	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	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)	02

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
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Technical Manager

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TEST REPORT

Report No.	SARL/23-502	Report Date.	04.11.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Thavani Village
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-502	Sample Received on	30.10.2023
Sample Collected by	LABORATORY	Test Commenced on	30.10.2023
Sample Collected Date	24.10.2023	Test Completed on	04.11.2023
Temperature	33°C	Relative Humidity	41%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	65.3	100
2	Particulate Matter less than 2.5 micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	30.4	60
3	Sulphur Dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.9	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)	02

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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24/11/23



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04/11/23

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Technical Manager



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TEST REPORT

Report No.	SARL/23-503	Report Date.	04.11.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Within Mine Lease Area		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-503	Sample Received on	30.10.2023
Sample Collected by	LABORATORY	Test Commenced on	30.10.2023
Sample Collected Date	25.10.2023	Test Completed on	04.11.2023
Temperature	32°C	Relative Humidity	43%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	69.1	100
2	Particulate Matter less than 2.5 micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	31.9	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	11.7	80
5	Carbon Monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date - 01.03.2023)	mg/m ³	BDL (D.L - 1.1)	02

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

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79



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TEST REPORT

Report No.	SARL/23-504	Report Date.	04.11.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Thavani Village		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-504	Sample Received on	30.10.2023
Sample Collected by	LABORATORY	Test Commenced on	30.10.2023
Sample Collected Date	25.10.2023	Test Completed on	04.11.2023
Temperature	32°C	Relative Humidity	43%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	58.7	100
2	Particulate Matter less than 2.5 micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	27.3	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	8.6	80
5	Carbon Monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date - 01.03.2023)	mg/m ³	BDL (D.L - 1.1)	02

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/23-505	Report Date.	04.11.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Namathodu Village		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-505	Sample Received on	30.10.2023
Sample Collected by	LABORATORY	Test Commenced on	30.10.2023
Sample Collected Date	26.10.2023	Test Completed on	04.11.2023
Temperature	31°C	Relative Humidity	51%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	63.8	100
2	Particulate Matter less than 2.5 micron 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	5.3	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	11.8	80
5	Carbon Monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date - 01.03.2023)	mg/m ³	BDL (D.L - 1.1)	02

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/23-506	Report Date.	04.11.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Alliyandal Village		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-506	Sample Received on	30.10.2023
Sample Collected by	LABORATORY	Test Commenced on	30.10.2023
Sample Collected Date	26.10.2023	Test Completed on	04.11.2023
Temperature	31°C	Relative Humidity	51%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	50.2	100
2	Particulate Matter less than 2.5 micron 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	4.6	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)	02

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/23-507	Report Date.	04.11.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Namathodu Village		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-507	Sample Received on	30.10.2023
Sample Collected by	LABORATORY	Test Commenced on	30.10.2023
Sample Collected Date	27.10.2023	Test Completed on	04.11.2023
Temperature	32°C	Relative Humidity	48%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	57.2	100
2	Particulate Matter less than 2.5 micron 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	4.8	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)	02

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

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04/11/23




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TEST REPORT

Report No.	SARL/23-508	Report Date.	04.11.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Alliyandal Village		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-508	Sample Received on	30.10.2023
Sample Collected by	LABORATORY	Test Commenced on	30.10.2023
Sample Collected Date	27.10.2023	Test Completed on	04.11.2023
Temperature	32°C	Relative Humidity	48%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	53.4	100
2	Particulate Matter less than 2.5 micron 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	5.4	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	10.9	80
5	Carbon Monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date -- 01.03.2023)	mg/m ³	BDL (D.L - 1.1)	02

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

For Shrient Analytical and Research Labs Pvt. Ltd

Q. A. P.
29/11/23
Verified



J. Gnanaprakasam
04/11/23
Authorized Signatory

Please Contact:

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J. GNANAPRAKASAM
Technical Manager

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Phone No: 9841074398 / 9698141777 E-mail : Info@shrientanalytical.com
Website : www.shrientanalytical.com

TEST REPORT

Report No.	SARL/23-509	Report Date.	04.11.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Avaniyapuram Village		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-509	Sample Received on	30.10.2023
Sample Collected by	LABORATORY	Test Commenced on	30.10.2023
Sample Collected Date	28.10.2023	Test Completed on	04.11.2023
Temperature	31°C	Relative Humidity	54%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	52.7	100
2	Particulate Matter less than 2.5 micron 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	4.6	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	10.9	80
5	Carbon Monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date - 01.03.2023)	mg/m ³	BDL (D.L - 1.1)	02

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

For Shrient Analytical and Research Labs Pvt. Ltd

Verified
04/11/23



Authorized Signatory

END OF THE REPORT
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Technical Manager

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TEST REPORT

Report No.	SARL/23-510	Report Date.	04.11.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Avaniyapuram Village		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-510	Sample Received on	30.10.2023
Sample Collected by	LABORATORY	Test Commenced on	30.10.2023
Sample Collected Date	29.10.2023	Test Completed on	04.11.2023
Temperature	31°C	Relative Humidity	48%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	50.3	100
2	Particulate Matter less than 2.5 micron 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	4.2	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)	02

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/23-511	Report Date.	11.11.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Avaniyapuram Village		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-511	Sample Received on	06.11.2023
Sample Collected by	LABORATORY	Test Commenced on	06.11.2023
Sample Collected Date	31.10.2023	Test Completed on	11.11.2023
Temperature	29°C	Relative Humidity	66%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	46.7	100
2	Particulate Matter less than 2.5 micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	21.7	60
3	Sulphur Dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	3.8	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.9	80
5	Carbon Monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	02

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. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/23-512	Report Date.	11.11.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Avaniyapuram Village		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-512	Sample Received on	06.11.2023
Sample Collected by	LABORATORY	Test Commenced on	06.11.2023
Sample Collected Date	01.11.2023	Test Completed on	11.11.2023
Temperature	32°C	Relative Humidity	54%
Sample Condition	Fit for Analysis		

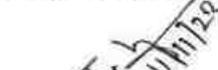
S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	48.2	100
2	Particulate Matter less than 2.5 micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.4	60
3	Sulphur Dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.3	80
4	Nitrogen 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)	02

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

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Technical Manager

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TEST REPORT

Report No.	SARL/23-513	Report Date.	11.11.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Namathodu Village		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-513	Sample Received on	06.11.2023
Sample Collected by	LABORATORY	Test Commenced on	06.11.2023
Sample Collected Date	02.11.2023	Test Completed on	11.11.2023
Temperature	30°C	Relative Humidity	66%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	50.3	100
2	Particulate Matter less than 2.5 micron 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	4.2	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)	02

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/23-514	Report Date.	11.11.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellampattu Village, Chetpet 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-Alliyandal Village		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-514	Sample Received on	06.11.2023
Sample Collected by	LABORATORY	Test Commenced on	06.11.2023
Sample Collected Date	02.11.2023	Test Completed on	11.11.2023
Temperature	30°C	Relative Humidity	66%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	55.4	100
2	Particulate Matter less than 2.5 micron 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	5.9	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)	02

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

For Shrient Analytical and Research Labs Pvt. Ltd

11/11/23
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TEST REPORT

Report No.	SARL/23-515	Report Date.	11.11.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellampattu Village, Chetpet 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-Namathodu Village		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-515	Sample Received on	06.11.2023
Sample Collected by	LABORATORY	Test Commenced on	06.11.2023
Sample Collected Date	03.11.2023	Test Completed on	11.11.2023
Temperature	30°C	Relative Humidity	68%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	53.6	100
2	Particulate Matter less than 2.5 micron 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	4.5	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)	02

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/23-516	Report Date.	11.11.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Alliyandal Village		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-516	Sample Received on	06.11.2023
Sample Collected by	LABORATORY	Test Commenced on	06.11.2023
Sample Collected Date	03.11.2023	Test Completed on	11.11.2023
Temperature	30°C	Relative Humidity	68%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	50.6	100
2	Particulate Matter less than 2.5 micron 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	4.7	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)	02

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

For Shrient Analytical and Research Labs Pvt. Ltd


Verified 11/11/23




Authorized Signatory

J. GNANAPRAKASAM
Technical Manager

Please Contact:

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92



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Website : www.shrientanalytical.com

TEST REPORT

Report No.	SARL/23-517	Report Date.	11.11.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellampattu Village, Chetpet 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	AI-Within Mine Lease Area
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-517	Sample Received on	06.11.2023
Sample Collected by	LABORATORY	Test Commenced on	06.11.2023
Sample Collected Date	04.11.2023	Test Completed on	11.11.2023
Temperature	28°C	Relative Humidity	75%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	54.6	100
2	Particulate Matter less than 2.5 micron 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	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)	02

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/23-518	Report Date.	11.11.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Thavani Village		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-518	Sample Received on	06.11.2023
Sample Collected by	LABORATORY	Test Commenced on	06.11.2023
Sample Collected Date	04.11.2023	Test Completed on	11.11.2023
Temperature	28°C	Relative Humidity	75%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	51.5	100
2	Particulate Matter less than 2.5 micron 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	7.2	80
5	Carbon Monoxide (CO)	SARL/10P/013 (Issue No:01, Issue Date - 01.03.2023)	mg/m ³	BDL (D.L - 1.1)	02

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

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TEST REPORT

Report No.	SARL/23-519	Report Date.	11.11.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Within Mine Lease Area		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-519	Sample Received on	06.11.2023
Sample Collected by	LABORATORY	Test Commenced on	06.11.2023
Sample Collected Date	05.11.2023	Test Completed on	11.11.2023
Temperature	26°C	Relative Humidity	81%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	59.4	100
2	Particulate Matter less than 2.5 micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	27.4	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	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)	02

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/23-520	Report Date.	11.11.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Thavani Village		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-520	Sample Received on	06.11.2023
Sample Collected by	LABORATORY	Test Commenced on	06.11.2023
Sample Collected Date	05.11.2023	Test Completed on	11.11.2023
Temperature	26°C	Relative Humidity	81%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	55.1	100
2	Particulate Matter less than 2.5 micron 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	5.1	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.1	80
5	Carbon Monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	02

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/23-521	Report Date.	18.11.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Within Mine Lease Area		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-521	Sample Received on	13.11.2023
Sample Collected by	LABORATORY	Test Commenced on	13.11.2023
Sample Collected Date	07.11.2023	Test Completed on	18.11.2023
Temperature	28°C	Relative Humidity	77%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	57.3	100
2	Particulate Matter less than 2.5 micron 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	4.8	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)	02

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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18/11/23



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18/11/23

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TEST REPORT

Report No.	SARL/23-522	Report Date.	18.11.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Thavani Village		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-522	Sample Received on	13.11.2023
Sample Collected by	LABORATORY	Test Commenced on	13.11.2023
Sample Collected Date	07.11.2023	Test Completed on	18.11.2023
Temperature	28°C	Relative Humidity	77%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	61.1	100
2	Particulate Matter less than 2.5 micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	28.4	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	9.4	80
5	Carbon Monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date - 01.03.2023)	mg/m ³	BDL (D.L - 1.1)	02

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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18/11/23



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TEST REPORT

Report No.	SARL/23-523	Report Date.	18.11.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Within Mine Lease Area
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-523	Sample Received on	13.11.2023
Sample Collected by	LABORATORY	Test Commenced on	13.11.2023
Sample Collected Date	08.11.2023	Test Completed on	18.11.2023
Temperature	26°C	Relative Humidity	86%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	58.6	100
2	Particulate Matter less than 2.5 micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	27.1	60
3	Sulphur Dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.2	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.2	80
5	Carbon Monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	02

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/23-524	Report Date.	18.11.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Thavani Village		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-524	Sample Received on	13.11.2023
Sample Collected by	LABORATORY	Test Commenced on	13.11.2023
Sample Collected Date	08.11.2023	Test Completed on	18.11.2023
Temperature	26°C	Relative Humidity	86%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	54.5	100
2	Particulate Matter less than 2.5 micron 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	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)	02

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. GNANAPRAKASAM
Technical Manager

Please Contact:

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Phone No: 9841074398 / 9698141777 E-mail : Info@shrientanalytical.com
Website : www.shrientanalytical.com

TEST REPORT

Report No.	SARL/23-525	Report Date.	18.11.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu.		
Sample Description	AMBIENT AIR QUALITY		
Sampling Procedure	IS - 5182 (Part - 14: 2000 & Part - V: Reaffirmed - 2003), CPCB Guide lines		

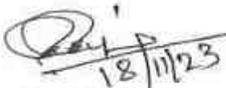
Sample Location	A3-Namathodu Village		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-525	Sample Received on	13.11.2023
Sample Collected by	LABORATORY	Test Commenced on	13.11.2023
Sample Collected Date	09.11.2023	Test Completed on	18.11.2023
Temperature	30°C	Relative Humidity	64%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	59.6	100
2	Particulate Matter less than 2.5 micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	27.7	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	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)	02

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/23-526	Report Date.	18.11.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Alliyandal Village
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-526	Sample Received on	13.11.2023
Sample Collected by	LABORATORY	Test Commenced on	13.11.2023
Sample Collected Date	09.11.2023	Test Completed on	18.11.2023
Temperature	30°C	Relative Humidity	64%
Sample Condition	Fit for Analysis		

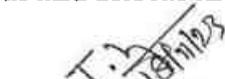
S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	47.0	100
2	Particulate Matter less than 2.5 micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	21.9	60
3	Sulphur Dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	3.8	80
4	Nitrogen 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)	02

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/23-527	Report Date.	18.11.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Namathodu Village		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-527	Sample Received on	13.11.2023
Sample Collected by	LABORATORY	Test Commenced on	13.11.2023
Sample Collected Date	10.11.2023	Test Completed on	18.11.2023
Temperature	28°C	Relative Humidity	75%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	53.2	100
2	Particulate Matter less than 2.5 micron 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	4.4	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)	02

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

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103



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TEST REPORT

Report No. SARL/23-528

Report Date. 18.11.2023

Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Alliyandal Village
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-528	Sample Received on	13.11.2023
Sample Collected by	LABORATORY	Test Commenced on	13.11.2023
Sample Collected Date	10.11.2023	Test Completed on	18.11.2023
Temperature	28°C	Relative Humidity	75%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	49.8	100
2	Particulate Matter less than 2.5 micron 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	4.5	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.1	80
5	Carbon Monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	02

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/23-529	Report Date.	18.11.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Avaniyapuram Village		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-529	Sample Received on	13.11.2023
Sample Collected by	LABORATORY	Test Commenced on	13.11.2023
Sample Collected Date	11.11.2023	Test Completed on	18.11.2023
Temperature	29°C	Relative Humidity	64%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	53.9	100
2	Particulate Matter less than 2.5 micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	25.1	60
3	Sulphur Dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.9	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	11.5	80
5	Carbon Monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	02

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/23-530	Report Date.	18.11.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Avaniyapuram Village		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-530	Sample Received on	13.11.2023
Sample Collected by	LABORATORY	Test Commenced on	13.11.2023
Sample Collected Date	12.11.2023	Test Completed on	18.11.2023
Temperature	29°C	Relative Humidity	55%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	50.7	100
2	Particulate Matter less than 2.5 micron 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	4.3	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)	02

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/23-531	Report Date.	26.11.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu.		
Sample Description	AMBIENT AIR QUALITY		
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines		

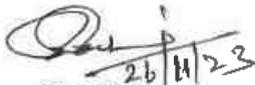
Sample Location	A5-Avaniyapuram Village
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-531	Sample Received on	20.11.2023
Sample Collected by	LABORATORY	Test Commenced on	20.11.2023
Sample Collected Date	14.11.2023	Test Completed on	26.11.2023
Temperature	25°C	Relative Humidity	79%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	53.6	100
2	Particulate Matter less than 2.5 micron 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	4.8	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)	02

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

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107



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TEST REPORT

Report No.	SARL/23-532	Report Date.	26.11.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Avaniyapuram Village		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-532	Sample Received on	20.11.2023
Sample Collected by	LABORATORY	Test Commenced on	20.11.2023
Sample Collected Date	15.11.2023	Test Completed on	26.11.2023
Temperature	29°C	Relative Humidity	60%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	51.7	100
2	Particulate Matter less than 2.5 micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	24.0	60
3	Sulphur Dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.3	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)	02

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

For Shrient Analytical and Research Labs Pvt. Ltd

26/11/23
Verified



26/11/23
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/23-533	Report Date.	26.11.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Namathodu Village
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-533	Sample Received on	20.11.2023
Sample Collected by	LABORATORY	Test Commenced on	20.11.2023
Sample Collected Date	16.11.2023	Test Completed on	26.11.2023
Temperature	32°C	Relative Humidity	51%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	65.1	100
2	Particulate Matter less than 2.5 micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	30.3	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	12.4	80
5	Carbon Monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date - 01.03.2023)	mg/m ³	BDL (D.L - 1.1)	02

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. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/23-534	Report Date.	26.11.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Alliyandal Village
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-534	Sample Received on	20.11.2023
Sample Collected by	LABORATORY	Test Commenced on	20.11.2023
Sample Collected Date	16.11.2023	Test Completed on	26.11.2023
Temperature	32°C	Relative Humidity	51%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	55.8	100
2	Particulate Matter less than 2.5 micron 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	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)	02

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/23-535	Report Date.	26.11.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Namathodu Village		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-535	Sample Received on	20.11.2023
Sample Collected by	LABORATORY	Test Commenced on	20.11.2023
Sample Collected Date	17.11.2023	Test Completed on	26.11.2023
Temperature	31°C	Relative Humidity	57%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	58.4	100
2	Particulate Matter less than 2.5 micron 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	4.9	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	10.2	80
5	Carbon Monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	02

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

For Shrient Analytical and Research Labs Pvt. Ltd

Verified *[Signature]* 26/11/23



Authorized Signatory *[Signature]*

J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/23-536	Report Date.	26.11.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Alliyandal Village		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-536	Sample Received on	20.11.2023
Sample Collected by	LABORATORY	Test Commenced on	20.11.2023
Sample Collected Date	17.11.2023	Test Completed on	26.11.2023
Temperature	31°C	Relative Humidity	57%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	54.2	100
2	Particulate Matter less than 2.5 micron 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	5.6	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)	02

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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26/11/23



Authorized Signatory
J. Gnanaprakasam
26/11/23

END OF THE REPORT J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/23-537	Report Date.	26.11.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Within Mine Lease Area		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-537	Sample Received on	20.11.2023
Sample Collected by	LABORATORY	Test Commenced on	20.11.2023
Sample Collected Date	18.11.2023	Test Completed on	26.11.2023
Temperature	30°C	Relative Humidity	61%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	67.4	100
2	Particulate Matter less than 2.5 micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	31.1	60
3	Sulphur Dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.8	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	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)	02

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/23-538	Report Date.	26.11.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Thavani Village
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-538	Sample Received on	20.11.2023
Sample Collected by	LABORATORY	Test Commenced on	20.11.2023
Sample Collected Date	18.11.2023	Test Completed on	26.11.2023
Temperature	30°C	Relative Humidity	61%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	66.6	100
2	Particulate Matter less than 2.5 micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	31.0	60
3	Sulphur Dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.9	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	11.2	80
5	Carbon Monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date - 01.03.2023)	mg/m ³	BDL (D.L - 1.1)	02

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

For Shrient Analytical and Research Labs Pvt. Ltd

Verified
26/11/23



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26/11/23

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TEST REPORT

Report No.	SARL/23-539	Report Date.	26.11.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Within Mine Lease Area		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-539	Sample Received on	20.11.2023
Sample Collected by	LABORATORY	Test Commenced on	20.11.2023
Sample Collected Date	19.11.2023	Test Completed on	26.11.2023
Temperature	27°C	Relative Humidity	80%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	72.4	100
2	Particulate Matter less than 2.5 micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	33.4	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	12.6	80
5	Carbon Monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date - 01.03.2023)	mg/m ³	BDL (D.L - 1.1)	02

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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26/11/23



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26/11/23

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Technical Manager

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TEST REPORT

Report No.	SARL/23-540	Report Date.	26.11.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Thavani Village		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-540	Sample Received on	20.11.2023
Sample Collected by	LABORATORY	Test Commenced on	20.11.2023
Sample Collected Date	19.11.2023	Test Completed on	26.11.2023
Temperature	27°C	Relative Humidity	80%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	59.9	100
2	Particulate Matter less than 2.5 micron 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	5.5	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)	02

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

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Website : www.shrientanalytical.com

TEST REPORT

Report No.	SARL/23-541	Report Date.	02.12.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Within Mine Lease Area		
Positioned height of Sampler	1.5 M above Ground Level		

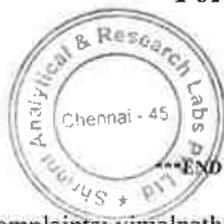
Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-541	Sample Received on	27.11.2023
Sample Collected by	LABORATORY	Test Commenced on	27.11.2023
Sample Collected Date	21.11.2023	Test Completed on	02.12.2023
Temperature	32°C	Relative Humidity	54%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	69.8	100
2	Particulate Matter less than 2.5 micron 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	6.1	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	11.9	80
5	Carbon Monoxide (CO)	SARL/TOP/013 (Issue No:01, Issue Date - 01.03.2023)	mg/m ³	BDL (D.L - 1.1)	02

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

For Shrient Analytical and Research Labs Pvt. Ltd

Verified
03/12/23



Authorized Signatory
T. J. GNANAPRAKASAM
02/12/23

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TEST REPORT

Report No.	SARL/23-542	Report Date.	02.12.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Thavani Village
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-542	Sample Received on	27.11.2023
Sample Collected by	LABORATORY	Test Commenced on	27.11.2023
Sample Collected Date	21.11.2023	Test Completed on	02.12.2023
Temperature	32°C	Relative Humidity	54%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	55.7	100
2	Particulate Matter less than 2.5 micron 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	5.1	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.6	80
5	Carbon Monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	02

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/23-543	Report Date.	02.12.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Within Mine Lease Area		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-543	Sample Received on	27.11.2023
Sample Collected by	LABORATORY	Test Commenced on	27.11.2023
Sample Collected Date	22.11.2023	Test Completed on	02.12.2023
Temperature	30°C	Relative Humidity	69%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	55.4	100
2	Particulate Matter less than 2.5 micron 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	4.6	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)	02

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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02/12/23



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J. GNANAPRAKASAM
Technical Manager

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119



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TEST REPORT

Report No.	SARL/23-544	Report Date.	02.12.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Thavani Village		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-544	Sample Received on	27.11.2023
Sample Collected by	LABORATORY	Test Commenced on	27.11.2023
Sample Collected Date	22.11.2023	Test Completed on	02.12.2023
Temperature	30°C	Relative Humidity	69%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	59.3	100
2	Particulate Matter less than 2.5 micron 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	5.4	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)	02

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

For Shrient Analytical and Research Labs Pvt. Ltd

02/12/23
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J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/23-545	Report Date.	02.12.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Namathodu Village
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-545	Sample Received on	27.11.2023
Sample Collected by	LABORATORY	Test Commenced on	27.11.2023
Sample Collected Date	23.11.2023	Test Completed on	02.12.2023
Temperature	29°C	Relative Humidity	69%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	54.2	100
2	Particulate Matter less than 2.5 micron 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	4.5	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)	02

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. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/23-546	Report Date.	02.12.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Alliyandal Village		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-546	Sample Received on	27.11.2023
Sample Collected by	LABORATORY	Test Commenced on	27.11.2023
Sample Collected Date	23.11.2023	Test Completed on	02.12.2023
Temperature	29°C	Relative Humidity	69%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	48.2	100
2	Particulate Matter less than 2.5 micron 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	4.1	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	8.3	80
5	Carbon Monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	02

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/23-547	Report Date.	02.12.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Namathodu Village		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-547	Sample Received on	27.11.2023
Sample Collected by	LABORATORY	Test Commenced on	27.11.2023
Sample Collected Date	24.11.2023	Test Completed on	02.12.2023
Temperature	30°C	Relative Humidity	59%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	57.8	100
2	Particulate Matter less than 2.5 micron 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	4.8	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)	02

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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02/12/23

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J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/23-548	Report Date.	02.12.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Alliyandal Village		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-548	Sample Received on	27.11.2023
Sample Collected by	LABORATORY	Test Commenced on	27.11.2023
Sample Collected Date	24.11.2023	Test Completed on	02.12.2023
Temperature	30°C	Relative Humidity	59%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	51.8	100
2	Particulate Matter less than 2.5 micron 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	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)	02

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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02/12/23



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Website : www.shrientanalytical.com

TEST REPORT

Report No.	SARL/23-549	Report Date.	02.12.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Avaniyapuram Village		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-549	Sample Received on	27.11.2023
Sample Collected by	LABORATORY	Test Commenced on	27.11.2023
Sample Collected Date	25.11.2023	Test Completed on	02.12.2023
Temperature	29°C	Relative Humidity	70%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	54.7	100
2	Particulate Matter less than 2.5 micron 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	5.1	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)	02

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

For Shrient Analytical and Research Labs Pvt. Ltd

02/12/23
Verified



02/12/23
Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/23-550	Report Date.	02.12.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Avaniyapuram Village		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-550	Sample Received on	27.11.2023
Sample Collected by	LABORATORY	Test Commenced on	27.11.2023
Sample Collected Date	26.11.2023	Test Completed on	02.12.2023
Temperature	29°C	Relative Humidity	68%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	53.1	100
2	Particulate Matter less than 2.5 micron 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	4.7	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	11.1	80
5	Carbon Monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date - 01.03.2023)	mg/m ³	BDL (D.L - 1.1)	02

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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02/12/23



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02/12/23

J. GNANAPRAKASAM
Technical Manager

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126



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TEST REPORT

Report No.	SARL/23-551	Report Date.	09.12.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Avaniyapuram Village		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-551	Sample Received on	04.12.2023
Sample Collected by	LABORATORY	Test Commenced on	04.12.2023
Sample Collected Date	28.11.2023	Test Completed on	09.12.2023
Temperature	29°C	Relative Humidity	67%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	47.0	100
2	Particulate Matter less than 2.5 micron 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	3.9	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)	02

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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09/12/23



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J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/23-552	Report Date.	09.12.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Avaniyapuram Village		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-552	Sample Received on	04.12.2023
Sample Collected by	LABORATORY	Test Commenced on	04.12.2023
Sample Collected Date	29.11.2023	Test Completed on	09.12.2023
Temperature	28°C	Relative Humidity	72%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	48.7	100
2	Particulate Matter less than 2.5 micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.6	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	8.9	80
5	Carbon Monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	02

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

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For Shrient Analytical and Research Labs Pvt. Ltd

J. GNANAPRAKASAM
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Technical Manager

END OF THE REPORT

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TEST REPORT

Report No.	SARL/23-553	Report Date.	09.12.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Theilarampattu Village, Chetpet 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-Namathodu Village		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-553	Sample Received on	04.12.2023
Sample Collected by	LABORATORY	Test Commenced on	04.12.2023
Sample Collected Date	30.11.2023	Test Completed on	09.12.2023
Temperature	24°C	Relative Humidity	91%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	55.4	100
2	Particulate Matter less than 2.5 micron 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	4.6	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.2	80
5	Carbon Monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date - 01.03.2023)	mg/m ³	BDL (D.L - 1.1)	02

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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09/12/23



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09/12/23

Please Contact:
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TEST REPORT

Report No.	SARL/23-554	Report Date.	09.12.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Alliyandal Village		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-554	Sample Received on	04.12.2023
Sample Collected by	LABORATORY	Test Commenced on	04.12.2023
Sample Collected Date	30.11.2023	Test Completed on	09.12.2023
Temperature	24°C	Relative Humidity	91%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	56.2	100
2	Particulate Matter less than 2.5 micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	26.1	60
3	Sulphur Dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	6.1	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)	02

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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09/12/23




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J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/23-555	Report Date.	09.12.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Namathodu Village
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-555	Sample Received on	04.12.2023
Sample Collected by	LABORATORY	Test Commenced on	04.12.2023
Sample Collected Date	01.12.2023	Test Completed on	09.12.2023
Temperature	29°C	Relative Humidity	64%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	59.0	100
2	Particulate Matter less than 2.5 micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	27.4	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	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)	02

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/23-556	Report Date.	09.12.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Alliyandal Village		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-556	Sample Received on	04.12.2023
Sample Collected by	LABORATORY	Test Commenced on	04.12.2023
Sample Collected Date	01.12.2023	Test Completed on	09.12.2023
Temperature	29°C	Relative Humidity	64%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	53.8	100
2	Particulate Matter less than 2.5 micron 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	5.5	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	11.1	80
5	Carbon Monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	02

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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09/12/23



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J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/23-557	Report Date.	09.12.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Within Mine Lease Area
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-557	Sample Received on	04.12.2023
Sample Collected by	LABORATORY	Test Commenced on	04.12.2023
Sample Collected Date	02.12.2023	Test Completed on	09.12.2023
Temperature	28°C	Relative Humidity	64%
Sample Condition	Fit for Analysis		

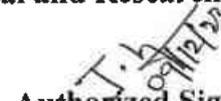
S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	62.6	100
2	Particulate Matter less than 2.5 micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	28.9	60
3	Sulphur Dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.5	80
4	Nitrogen 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)	02

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/23-558	Report Date.	09.12.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu.		
Sample Description	AMBIENT AIR QUALITY		
Sampling Procedure	IS - 5182 (Part - 14: 2000 & Part - V: Reaffirmed - 2003), CPCB Guide lines		

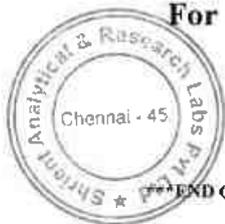
Sample Location	A2-Thavani Village
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-558	Sample Received on	04.12.2023
Sample Collected by	LABORATORY	Test Commenced on	04.12.2023
Sample Collected Date	02.12.2023	Test Completed on	09.12.2023
Temperature	28°C	Relative Humidity	64%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	56.9	100
2	Particulate Matter less than 2.5 micron 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	5.2	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)	02

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

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For Shrient Analytical and Research Labs Pvt. Ltd

Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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134



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TEST REPORT

Report No.	SARL/23-559	Report Date.	09.12.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Within Mine Lease Area
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-559	Sample Received on	04.12.2023
Sample Collected by	LABORATORY	Test Commenced on	04.12.2023
Sample Collected Date	03.12.2023	Test Completed on	09.12.2023
Temperature	27°C	Relative Humidity	71%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	66.6	100
2	Particulate Matter less than 2.5 micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	30.8	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	11.2	80
5	Carbon Monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date - 01.03.2023)	mg/m ³	BDL (D.L - 1.1)	02

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


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Technical Manager

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TEST REPORT

Report No.	SARL/23-560	Report Date.	09.12.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Thavani Village		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-560	Sample Received on	04.12.2023
Sample Collected by	LABORATORY	Test Commenced on	04.12.2023
Sample Collected Date	03.12.2023	Test Completed on	09.12.2023
Temperature	27°C	Relative Humidity	71%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	60.5	100
2	Particulate Matter less than 2.5 micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	28.1	60
3	Sulphur Dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.5	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.2	80
5	Carbon Monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	02

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

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09/12/23

J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/23-561	Report Date.	16.12.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Within Mine Lease Area		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-561	Sample Received on	11.12.2023
Sample Collected by	LABORATORY	Test Commenced on	11.12.2023
Sample Collected Date	05.12.2023	Test Completed on	16.12.2023
Temperature	30°C	Relative Humidity	60%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	57.8	100
2	Particulate Matter less than 2.5 micron 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	4.9	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)	02

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/23-562	Report Date.	16.12.2023
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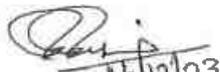
Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu.		
Sample Description	AMBIENT AIR QUALITY		
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines		

Sample Location	A2-Thavani Village		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-562	Sample Received on	11.12.2023
Sample Collected by	LABORATORY	Test Commenced on	11.12.2023
Sample Collected Date	05.12.2023	Test Completed on	16.12.2023
Temperature	30°C	Relative Humidity	60%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	61.7	100
2	Particulate Matter less than 2.5 micron 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	5.6	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)	02

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


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Technical Manager



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TEST REPORT

Report No.	SARL/23-563	Report Date.	16.12.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Within Mine Lease Area		
Positioned height of Sampler	1.5 M above Ground Level		

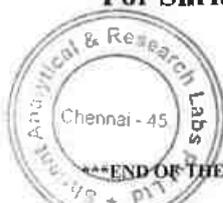
Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-563	Sample Received on	11.12.2023
Sample Collected by	LABORATORY	Test Commenced on	11.12.2023
Sample Collected Date	06.12.2023	Test Completed on	16.12.2023
Temperature	30°C	Relative Humidity	57%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	64.2	100
2	Particulate Matter less than 2.5 micron 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	5.6	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)	02

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/23-564	Report Date.	16.12.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Thavani Village
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-564	Sample Received on	11.12.2023
Sample Collected by	LABORATORY	Test Commenced on	11.12.2023
Sample Collected Date	06.12.2023	Test Completed on	16.12.2023
Temperature	30°C	Relative Humidity	57%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	63.5	100
2	Particulate Matter less than 2.5 micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	29.5	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	10.2	80
5	Carbon Monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	02

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

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Website : www.shrientanalytical.com

TEST REPORT

Report No.	SARL/23-565	Report Date.	16.12.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Namathodu Village		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-565	Sample Received on	11.12.2023
Sample Collected by	LABORATORY	Test Commenced on	11.12.2023
Sample Collected Date	07.12.2023	Test Completed on	16.12.2023
Temperature	31°C	Relative Humidity	54%
Sample Condition	Fit for Analysis		

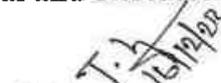
S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	60.2	100
2	Particulate Matter less than 2.5 micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	28.0	60
3	Sulphur Dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.7	80
4	Nitrogen 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)	02

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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Please Contact:

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

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J. GNANAPRAKASAM
Technical Manager

Page 1 of 1

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141



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TEST REPORT

Report No.	SARL/23-566	Report Date.	16.12.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Alliyandal Village		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-566	Sample Received on	11.12.2023
Sample Collected by	LABORATORY	Test Commenced on	11.12.2023
Sample Collected Date	07.12.2023	Test Completed on	16.12.2023
Temperature	31°C	Relative Humidity	54%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	47.8	100
2	Particulate Matter less than 2.5 micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.2	60
3	Sulphur Dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.1	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)	02

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

Please Contact:

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TEST REPORT

Report No.	SARL/23-567	Report Date.	16.12.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Namathodu Village		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-567	Sample Received on	11.12.2023
Sample Collected by	LABORATORY	Test Commenced on	11.12.2023
Sample Collected Date	08.12.2023	Test Completed on	16.12.2023
Temperature	30°C	Relative Humidity	63%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	61.9	100
2	Particulate Matter less than 2.5 micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	28.8	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	11.4	80
5	Carbon Monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	02

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

For Shrient Analytical and Research Labs Pvt. Ltd

Verified
16/12/23



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16/12/23

J. GNANAPRAKASAM
Technical Manager

Please Contact:

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

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TEST REPORT

Report No.	SARL/23-568	Report Date.	16.12.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Alliyandal Village		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-568	Sample Received on	11.12.2023
Sample Collected by	LABORATORY	Test Commenced on	11.12.2023
Sample Collected Date	08.12.2023	Test Completed on	16.12.2023
Temperature	30°C	Relative Humidity	63%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	49.4	100
2	Particulate Matter less than 2.5 micron 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	4.4	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)	02

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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16/12/23



Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

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

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TEST REPORT

Report No.	SARL/23-569	Report Date.	16.12.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Avaniyapuram Village		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-569	Sample Received on	11.12.2023
Sample Collected by	LABORATORY	Test Commenced on	11.12.2023
Sample Collected Date	09.12.2023	Test Completed on	16.12.2023
Temperature	29°C	Relative Humidity	63%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	55.9	100
2	Particulate Matter less than 2.5 micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	26.0	60
3	Sulphur Dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.3	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)	02

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/23-570	Report Date.	16.12.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Avaniyapuram Village		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-570	Sample Received on	11.12.2023
Sample Collected by	LABORATORY	Test Commenced on	11.12.2023
Sample Collected Date	10.12.2023	Test Completed on	16.12.2023
Temperature	29°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	54.3	100
2	Particulate Matter less than 2.5 micron 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	5.0	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	11.7	80
5	Carbon Monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	02

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

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Technical Manager

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TEST REPORT

Report No.	SARL/23-571	Report Date.	23.12.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Avaniyapuram Village		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-571	Sample Received on	18.12.2023
Sample Collected by	LABORATORY	Test Commenced on	18.12.2023
Sample Collected Date	12.12.2023	Test Completed on	23.12.2023
Temperature	28°C	Relative Humidity	59%
Sample Condition	Fit for Analysis		

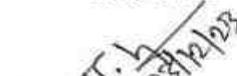
S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	47.6	100
2	Particulate Matter less than 2.5 micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.1	60
3	Sulphur Dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.4	80
4	Nitrogen 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)	02

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

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Technical Manager

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TEST REPORT

Report No.	SARL/23-572	Report Date.	23.12.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Avaniyapuram Village		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-572	Sample Received on	18.12.2023
Sample Collected by	LABORATORY	Test Commenced on	18.12.2023
Sample Collected Date	13.12.2023	Test Completed on	23.12.2023
Temperature	27°C	Relative Humidity	63%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	49.6	100
2	Particulate Matter less than 2.5 micron 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	4.1	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)	02

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/23-573	Report Date.	23.12.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Namathodu Village		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-573	Sample Received on	18.12.2023
Sample Collected by	LABORATORY	Test Commenced on	18.12.2023
Sample Collected Date	14.12.2023	Test Completed on	23.12.2023
Temperature	28°C	Relative Humidity	54%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	52.4	100
2	Particulate Matter less than 2.5 micron 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	4.4	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)	02

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

For Shrient Analytical and Research Labs Pvt. Ltd

Verified
23/12/23



Authorized Signatory
23/12/23

J. GNANAPRAKASAM
Technical Manager

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149



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TEST REPORT

Report No.	SARL/23-574	Report Date.	23.12.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Alliyandal Village
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-574	Sample Received on	18.12.2023
Sample Collected by	LABORATORY	Test Commenced on	18.12.2023
Sample Collected Date	14.12.2023	Test Completed on	23.12.2023
Temperature	28°C	Relative Humidity	54%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	52.6	100
2	Particulate Matter less than 2.5 micron 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	5.2	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	10.5	80
5	Carbon Monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	02

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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23/12/23



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J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/23-575	Report Date.	23.12.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu.		
Sample Description	AMBIENT AIR QUALITY		
Sampling Procedure	IS – 5182 (Part – 14: 2000 & Part – V: Reaffirmed - 2003), CPCB Guide lines		

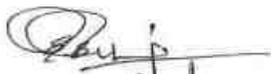
Sample Location	A3-Namathodu Village		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-575	Sample Received on	18.12.2023
Sample Collected by	LABORATORY	Test Commenced on	18.12.2023
Sample Collected Date	15.12.2023	Test Completed on	23.12.2023
Temperature	24°C	Relative Humidity	76%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	56.6	100
2	Particulate Matter less than 2.5 micron 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	4.7	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)	02

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. GNANAPRAKASAM
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TEST REPORT

Report No.	SARL/23-576	Report Date.	23.12.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Alliyandal Village		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-576	Sample Received on	18.12.2023
Sample Collected by	LABORATORY	Test Commenced on	18.12.2023
Sample Collected Date	15.12.2023	Test Completed on	23.12.2023
Temperature	24°C	Relative Humidity	76%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	51.4	100
2	Particulate Matter less than 2.5 micron 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	4.9	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)	02

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/23-577	Report Date.	23.12.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Within Mine Lease Area		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-577	Sample Received on	18.12.2023
Sample Collected by	LABORATORY	Test Commenced on	18.12.2023
Sample Collected Date	16.12.2023	Test Completed on	23.12.2023
Temperature	29°C	Relative Humidity	58%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	71.8	100
2	Particulate Matter less than 2.5 micron 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	6.2	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	12.6	80
5	Carbon Monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	02

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/23-578	Report Date.	23.12.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Thavani Village
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-578	Sample Received on	18.12.2023
Sample Collected by	LABORATORY	Test Commenced on	18.12.2023
Sample Collected Date	16.12.2023	Test Completed on	23.12.2023
Temperature	29°C	Relative Humidity	58%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	53.9	100
2	Particulate Matter less than 2.5 micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	25.1	60
3	Sulphur Dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.0	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.5	80
5	Carbon Monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	02

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/23-579	Report Date.	23.12.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Within Mine Lease Area		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-579	Sample Received on	18.12.2023
Sample Collected by	LABORATORY	Test Commenced on	18.12.2023
Sample Collected Date	17.12.2023	Test Completed on	23.12.2023
Temperature	22°C	Relative Humidity	89%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	68.2	100
2	Particulate Matter less than 2.5 micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	31.5	60
3	Sulphur Dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.9	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	11.4	80
5	Carbon Monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	02

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/23-580	Report Date.	23.12.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Thavani Village		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-580	Sample Received on	18.12.2023
Sample Collected by	LABORATORY	Test Commenced on	18.12.2023
Sample Collected Date	17.12.2023	Test Completed on	23.12.2023
Temperature	22°C	Relative Humidity	89%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	58.1	100
2	Particulate Matter less than 2.5 micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	27.0	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	8.4	80
5	Carbon Monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date - 01.03.2023)	mg/m ³	BDL (D.L - 1.1)	02

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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156



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Phone No: 9841074398 / 9698141777 E-mail : Info@shrientanalytical.com
Website : www.shrientanalytical.com

TEST REPORT

Report No.	SARL/23-581	Report Date.	30.12.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Within Mine Lease Area		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-581	Sample Received on	25.12.2023
Sample Collected by	LABORATORY	Test Commenced on	25.12.2023
Sample Collected Date	19.12.2023	Test Completed on	30.12.2023
Temperature	28°C	Relative Humidity	54%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	65.8	100
2	Particulate Matter less than 2.5 micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	30.4	60
3	Sulphur Dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.7	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	10.9	80
5	Carbon Monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	02

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/23-582	Report Date.	30.12.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Thavani Village		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-582	Sample Received on	25.12.2023
Sample Collected by	LABORATORY	Test Commenced on	25.12.2023
Sample Collected Date	19.12.2023	Test Completed on	30.12.2023
Temperature	28°C	Relative Humidity	54%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	52.7	100
2	Particulate Matter less than 2.5 micron 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	4.9	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)	02

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

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Technical Manager

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TEST REPORT

Report No. SARL/23-583

Report Date. 30.12.2023

Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Within Mine Lease Area
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-583	Sample Received on	25.12.2023
Sample Collected by	LABORATORY	Test Commenced on	25.12.2023
Sample Collected Date	20.12.2023	Test Completed on	30.12.2023
Temperature	24°C	Relative Humidity	76%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	61.1	100
2	Particulate Matter less than 2.5 micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	28.2	60
3	Sulphur Dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.3	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	9.1	80
5	Carbon Monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	02

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

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Technical Manager

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TEST REPORT

Report No.	SARL/23-584	Report Date.	30.12.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Thavani Village		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-584	Sample Received on	25.12.2023
Sample Collected by	LABORATORY	Test Commenced on	25.12.2023
Sample Collected Date	20.12.2023	Test Completed on	30.12.2023
Temperature	24°C	Relative Humidity	76%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	62.3	100
2	Particulate Matter less than 2.5 micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	29.0	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	9.9	80
5	Carbon Monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date - 01.03.2023)	mg/m ³	BDL (D.L - 1.1)	02

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/23-585	Report Date.	30.12.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Namathodu Village		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-585	Sample Received on	25.12.2023
Sample Collected by	LABORATORY	Test Commenced on	25.12.2023
Sample Collected Date	21.12.2023	Test Completed on	30.12.2023
Temperature	29°C	Relative Humidity	58%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	51.2	100
2	Particulate Matter less than 2.5 micron 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	4.3	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)	02

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

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Technical Manager

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TEST REPORT

Report No.	SARL/23-586	Report Date.	30.12.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Alliyandal Village		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-586	Sample Received on	25.12.2023
Sample Collected by	LABORATORY	Test Commenced on	25.12.2023
Sample Collected Date	21.12.2023	Test Completed on	30.12.2023
Temperature	29°C	Relative Humidity	58%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	51.0	100
2	Particulate Matter less than 2.5 micron 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	4.8	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)	02

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/23-587	Report Date.	30.12.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Namathodu Village
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-587	Sample Received on	25.12.2023
Sample Collected by	LABORATORY	Test Commenced on	25.12.2023
Sample Collected Date	22.12.2023	Test Completed on	30.12.2023
Temperature	22°C	Relative Humidity	89%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	60.8	100
2	Particulate Matter less than 2.5 micron 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	5.1	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	11.1	80
5	Carbon Monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date -- 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	02

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

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163



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TEST REPORT

Report No.	SARL/23-588	Report Date.	30.12.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellampattu Village, Chetpet 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-Alliyandal Village		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-588	Sample Received on	25.12.2023
Sample Collected by	LABORATORY	Test Commenced on	25.12.2023
Sample Collected Date	22.12.2023	Test Completed on	30.12.2023
Temperature	22°C	Relative Humidity	89%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	55.0	100
2	Particulate Matter less than 2.5 micron 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	5.8	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	11.8	80
5	Carbon Monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date - 01.03.2023)	mg/m ³	BDL (D.L - 1.1)	02

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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Phone No: 9841074398 / 9698141777 E-mail : Info@shrientanalytical.com
Website : www.shrientanalytical.com

TEST REPORT

Report No.	SARL/23-589	Report Date.	30.12.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Avaniyapuram Village		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-589	Sample Received on	25.12.2023
Sample Collected by	LABORATORY	Test Commenced on	25.12.2023
Sample Collected Date	23.12.2023	Test Completed on	30.12.2023
Temperature	25°C	Relative Humidity	72%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	47.9	100
2	Particulate Matter less than 2.5 micron 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	4.2	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)	02

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

For Shrient Analytical and Research Labs Pvt. Ltd

Verified  30/12/23



Authorized Signatory

J. GNANAPRAKASAM
Technical Manager

Please Contact:

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

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TEST REPORT

Report No.	SARL/23-590	Report Date.	30.12.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Avaniyapuram Village
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-590	Sample Received on	25.12.2023
Sample Collected by	LABORATORY	Test Commenced on	25.12.2023
Sample Collected Date	24.12.2023	Test Completed on	30.12.2023
Temperature	27°C	Relative Humidity	62%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	51.1	100
2	Particulate Matter less than 2.5 micron 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	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)	02

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

For Shrient Analytical and Research Labs Pvt. Ltd

Verified 30/12/23



Authorized Signatory

Please Contact:

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J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/23-591	Report Date.	06.01.2024
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Avaniyapuram Village		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-591	Sample Received on	01.01.2024
Sample Collected by	LABORATORY	Test Commenced on	01.01.2024
Sample Collected Date	26.12.2023	Test Completed on	06.01.2024
Temperature	28°C	Relative Humidity	60%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	55.0	100
2	Particulate Matter less than 2.5 micron 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	5.2	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)	02

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

For Shrient Analytical and Research Labs Pvt. Ltd

Verified 06/01/24



Authorized Signatory

J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/23-592	Report Date.	06.01.2024
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Avaniyapuram Village		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-592	Sample Received on	01.01.2024
Sample Collected by	LABORATORY	Test Commenced on	01.01.2024
Sample Collected Date	27.12.2023	Test Completed on	06.01.2024
Temperature	28°C	Relative Humidity	57%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	51.9	100
2	Particulate Matter less than 2.5 micron 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	4.5	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	10.5	80
5	Carbon Monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	02

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

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06/01/24



For Shrient Analytical and Research Labs Pvt. Ltd

Authorized Signatory

J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/23-593	Report Date.	06.01.2024
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Namathodu Village		
Positioned height of Sampler	1.5 M above Ground Level		

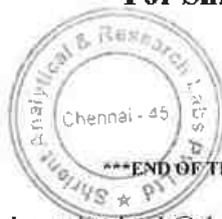
Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-593	Sample Received on	01.01.2024
Sample Collected by	LABORATORY	Test Commenced on	01.01.2024
Sample Collected Date	28.12.2023	Test Completed on	06.01.2024
Temperature	27°C	Relative Humidity	66%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	63.2	100
2	Particulate Matter less than 2.5 micron 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	5.2	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)	02

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

For Shrient Analytical and Research Labs Pvt. Ltd

Verified *[Signature]*
06/01/24



[Signature]
06/01/24
Authorized Signatory

J. GNANAPRAKASAM
Technical Manager

Please Contact:

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TEST REPORT

Report No.	SARL/23-594	Report Date.	06.01.2024
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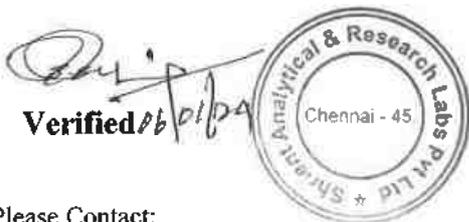
Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu.		
Sample Description	AMBIENT AIR QUALITY		
Sampling Procedure	IS - 5182 (Part - 14: 2000 & Part - V: Reaffirmed - 2003), CPCB Guide lines		

Sample Location	A4-Alliyandal Village		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-594	Sample Received on	01.01.2024
Sample Collected by	LABORATORY	Test Commenced on	01.01.2024
Sample Collected Date	28.12.2023	Test Completed on	06.01.2024
Temperature	27°C	Relative Humidity	66%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	48.6	100
2	Particulate Matter less than 2.5 micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	22.6	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	8.5	80
5	Carbon Monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date - 01.03.2023)	mg/m ³	BDL (D.L - 1.1)	02

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



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For Shrient Analytical and Research Labs Pvt. Ltd

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END OF THE REPORT J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/23-595	Report Date.	06.01.2024
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Namathodu Village
Positioned height of Sampler	1.5 M above Ground Level

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-595	Sample Received on	01.01.2024
Sample Collected by	LABORATORY	Test Commenced on	01.01.2024
Sample Collected Date	29.12.2023	Test Completed on	06.01.2024
Temperature	29°C	Relative Humidity	58%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	56.1	100
2	Particulate Matter less than 2.5 micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	26.0	60
3	Sulphur Dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.7	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)	02

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

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Technical Manager

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TEST REPORT

Report No.	SARL/23-596	Report Date.	06.01.2024
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Alliyandal Village		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-596	Sample Received on	01.01.2024
Sample Collected by	LABORATORY	Test Commenced on	01.01.2024
Sample Collected Date	29.12.2023	Test Completed on	06.01.2024
Temperature	29°C	Relative Humidity	58%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	53.0	100
2	Particulate Matter less than 2.5 micron 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	5.3	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)	02

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

For Shrient Analytical and Research Labs Pvt. Ltd

Verified 06/01/24



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J. GNANAPRAKASAM
Technical Manager

END OF THE REPORT

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CIN : U74999TN2017PTC116807 / GST No. 33AAYCS7325R1ZA / Pan No: AAYCS7325R



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416/15, Dharga Road, Perungalathur, West Tambaram, Chennai- 600045.
Phone No: 9841074398 / 9698141777 E-mail : Info@shrientanalytical.com
Website : www.shrientanalytical.com

TEST REPORT

Report No.	SARL/23-597	Report Date.	06.01.2024
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Within Mine Lease Area		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-597	Sample Received on	01.01.2024
Sample Collected by	LABORATORY	Test Commenced on	01.01.2024
Sample Collected Date	30.12.2023	Test Completed on	06.01.2024
Temperature	28°C	Relative Humidity	57%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	56.2	100
2	Particulate Matter less than 2.5 micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	26.0	60
3	Sulphur Dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	4.7	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	7.3	80
5	Carbon Monoxide (CO)	SARL/IOP/013 (Issue No:01, Issue Date – 01.03.2023)	mg/m ³	BDL (D.L – 1.1)	02

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

For Shrient Analytical and Research Labs Pvt. Ltd

[Signature]
Verified 06/01/24



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Authorized Signatory

END OF THE REPORT*** J. GNANAPRAKASAM
Technical Manager

Please Contact:

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

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TEST REPORT

Report No.	SARL/23-598	Report Date.	06.01.2024
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Thavani Village		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-598	Sample Received on	01.01.2024
Sample Collected by	LABORATORY	Test Commenced on	01.01.2024
Sample Collected Date	30.12.2023	Test Completed on	06.01.2024
Temperature	28°C	Relative Humidity	57%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	64.7	100
2	Particulate Matter less than 2.5 micron size (PM _{2.5})	IS 5182 (Part 24):2019	µg/m ³	30.1	60
3	Sulphur Dioxide (SO ₂)	IS:5182: Part 02:2001	µg/m ³	5.8	80
4	Nitrogen Dioxide (NO ₂)	IS:5182: Part 06:2006	µg/m ³	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)	02

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

For Shrient Analytical and Research Labs Pvt. Ltd

Verified
06/01/24



Authorized Signatory

END OF THE REPORT J. GNANAPRAKASAM
Technical Manager

Please Contact:

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

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TEST REPORT

Report No.	SARL/23-599	Report Date.	06.01.2024
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Within Mine Lease Area		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-599	Sample Received on	01.01.2024
Sample Collected by	LABORATORY	Test Commenced on	01.01.2024
Sample Collected Date	31.12.2023	Test Completed on	06.01.2024
Temperature	29°C	Relative Humidity	52%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	61.8	100
2	Particulate Matter less than 2.5 micron 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	5.5	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)	02

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. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/23-600	Report Date.	06.01.2024
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet 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-Thavani Village		
Positioned height of Sampler	1.5 M above Ground Level		

Customer Reference	As per work order	Sampling Procedure	24 hrs
Sample Reference No	SARL/A/CHE-600	Sample Received on	01.01.2024
Sample Collected by	LABORATORY	Test Commenced on	01.01.2024
Sample Collected Date	31.12.2023	Test Completed on	06.01.2024
Temperature	29°C	Relative Humidity	52%
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results	*Limits
1	Particulate Matter less than 10 micron size (PM ₁₀)	IS:5182: Part 23:2006	µg/m ³	57.5	100
2	Particulate Matter less than 2.5 micron 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	5.3	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)	02

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

Please Contact:

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

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TEST REPORT

Report No.	SARL/23-479	Report Date.	21.10.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu.
Sample Description	WATER
Sample Mark	SW 1 - Cheyyar River (Upstream) 4.7 km - NW

Customer Reference	As per work order	Sampling Procedure	IS 17614: Part 23: 2021
Sample Reference No.	SARL/W/CHE-479	Sample Received on	15.10.2023
Sample Collected by	LABORATORY	Test Commenced on	15.10.2023
Sample Collected Date	14.10.2023	Test Completed on	21.10.2023
Sample Condition	Fit for Analysis		

Sl. No.	Parameters	Protocol	Unit	Result
A. Physical parameters				
1	Odour	IS 3025 (Part 5): 2018	-	Agreeable
2	Turbidity	APHA 24 th Edition 2130 B: 2023	NTU	5.0
3	pH at 25 °C	APHA 24 th Edition 4500 – H+ B: 2023	-	7.53
4	Electrical Conductivity	APHA 24 th Edition 2510 B: 2023	(µmhos/cm)	830.5
5	Temperature	APHA 24 th Edition 2550 B: 2023	°C	30.5
B. Chemical parameters				
6	Total Dissolved Solids	APHA 24 th Edition 2540-C: 2023	mg/L	506
7	Total Hardness (as CaCO ₃)	APHA 24 th Edition 2340 C: 2023	mg/L	151
8	Calcium (as Ca)	IS 3025 (Part 40): 1991	mg/L	33.7
9	Magnesium (as Mg)	IS 3025 (Part 46): 1994	mg/L	16.0
10	Calcium Hardness (as CaCO ₃)	APHA 24 th Edition 3500 Ca B: 2023	mg/L	84.3
11	Magnesium Hardness (as CaCO ₃)	APHA 24 th Edition 3500 Mg B: 2023	mg/L	66.6
12	Total Alkalinity (as CaCO ₃)	APHA 24 th Edition 2320 B: 2023	mg/L	188

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TEST REPORT

Report No. SARL/23-479

Report Date. 21.10.2023

Sl. No.	Parameters	Protocol	Unit	Result
13	Chloride (as Cl)	APHA 24th Edition 4500 Cl- B: 2023	mg/L	132
14	Free Residual chlorine	APHA 24 th Edition 4500 Cl- B: 2023	mg/L	BDL (D.L - 0.2)
15	Sulphate as (SO ₄ ²⁻)	APHA 24 th Edition 4500 SO ₄ ²⁻ - E: 2023	mg/L	166
16	Iron (as Fe)	APHA 24 th Edition 3500 Fe B: 2023	mg/L	BDL (D.L - 0.01)
17	Nitrate (as NO ₃)	IS 3025 (Part 34): 1988	mg/L	2.98
18	Fluoride (as F)	APHA 24 th Edition 4500 F- D: 2023	mg/L	BDL (D.L - 0.1)
19	Manganese (as Mn)	APHA 24 th Edition 3500 Mn B: 2023	mg/L	BDL (D.L - 0.05)
20	Total suspended solids	APHA 24 th Edition 2540-D: 2023	mg/L	12.0
21	Chemical Oxygen Demand	APHA 24 th Edition 5220 B: 2023	mg/L	BDL (D.L - 4.0)
22	Biochemical oxygen demand (3 days at 27°C)	IS 3025 (Part 44): 1993	mg/L	BDL (D.L - 2.0)
23	Dissolved Oxygen	IS 3025 (Part 38): 1989	mg/L	5.8

Remarks: BDL - Below Detectable limit (DL - Detectable limit).

For Shrient Analytical and Research Labs Pvt. Ltd


21/10/23
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21/10/23
Authorized Signatory

J. GNANAPRAKASAM
Technical Manager

Please Contact:

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

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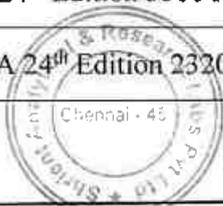
Report No.	SARL/23-480	Report Date.	21.10.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu.
Sample Description	WATER
Sample Mark	SW 2 - Cheyyar River (Downstream) 4.7 km - NW

Customer Reference	As per work order	Sampling Procedure	IS 17614: Part 23: 2021
Sample Reference No.	SARL/W/CHE-480	Sample Received on	15.10.2023
Sample Collected by	LABORATORY	Test Commenced on	15.10.2023
Sample Collected Date	14.10.2023	Test Completed on	21.10.2023
Sample Condition	Fit for Analysis		

Sl. No.	Parameters	Protocol	Unit	Result
A.	Physical parameters			
1	Odour	IS 3025 (Part 5): 2018	-	Agreeable
2	Turbidity	APHA 24 th Edition 2130 B: 2023	NTU	12
3	pH at 25 °C	APHA 24 th Edition 4500 – H+ B: 2023	-	7.69
4	Electrical Conductivity	APHA 24 th Edition 2510 B: 2023	(µmhos/cm)	856.4
5	Temperature	APHA 24 th Edition 2550 B: 2023	°C	31.0
B.	Chemical parameters			
6	Total Dissolved Solids	APHA 24 th Edition 2540-C: 2023	mg/L	526
7	Total Hardness (as CaCO ₃)	APHA 24 th Edition 2340 C: 2023	mg/L	157
8	Calcium (as Ca)	IS 3025 (Part 40): 1991	mg/L	35.3
9	Magnesium (as Mg)	IS 3025 (Part 46): 1994	mg/L	16.5
10	Calcium Hardness (as CaCO ₃)	APHA 24 th Edition 3500 Ca B: 2023	mg/L	88.2
11	Magnesium Hardness (as CaCO ₃)	APHA 24 th Edition 3500 Mg B: 2023	mg/L	68.6
12	Total Alkalinity (as CaCO ₃)	APHA 24 th Edition 2320 B: 2023	mg/L	194

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21/10/23



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21/10/23



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TEST REPORT

Report No. SARL/23-480

Report Date. 21.10.2023

Sl. No.	Parameters	Protocol	Unit	Result
13	Chloride (as Cl)	APHA 24th Edition 4500 Cl- B: 2023	mg/L	137
14	Free Residual chlorine	APHA 24th Edition 4500 Cl- B: 2023	mg/L	BDL (D.L - 0.2)
15	Sulphate as (SO ₄ ²⁻)	APHA 24th Edition 4500 SO ₄ ²⁻ - E: 2023	mg/L	170
16	Iron (as Fe)	APHA 24th Edition 3500 Fe B: 2023	mg/L	BDL (D.L - 0.01)
17	Nitrate (as NO ₃)	IS 3025 (Part 34): 1988	mg/L	3.19
18	Fluoride (as F)	APHA 24th Edition 4500 F- D: 2023	mg/L	BDL (D.L - 0.1)
19	Manganese (as Mn)	APHA 24th Edition 3500 Mn B: 2023	mg/L	BDL (D.L - 0.05)
20	Total suspended solids	APHA 24th Edition 2540-D: 2023	mg/L	20.0
21	Chemical Oxygen Demand	APHA 24th Edition 5220 B: 2023	mg/L	BDL (D.L - 4.0)
22	Biochemical oxygen demand (3 days at 27°C)	IS 3025 (Part 44): 1993	mg/L	BDL (D.L - 2.0)
23	Dissolved Oxygen	IS 3025 (Part 38): 1989	mg/L	6.4

Remarks: BDL - Below Detectable limit (DL - Detectable limit).

For Shrient Analytical and Research Labs Pvt. Ltd

Verified 21/10/23



END OF THE REPORT

Authorized Signatory

J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

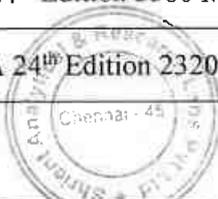
Report No.	SARL/23-481	Report Date.	21.10.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu.
Sample Description	WATER
Sample Mark	SW 3 - Kulam 480 m - E

Customer Reference	As per work order	Sampling Procedure	IS 17614: Part 23: 2021
Sample Reference No.	SARL/W/CHE-481	Sample Received on	15.10.2023
Sample Collected by	LABORATORY	Test Commenced on	15.10.2023
Sample Collected Date	14.10.2023	Test Completed on	21.10.2023
Sample Condition	Fit for Analysis		

Sl. No.	Parameters	Protocol	Unit	Result
A. Physical parameters				
1	Odour	IS 3025 (Part 5): 2018	-	Agreeable
2	Turbidity	APHA 24 th Edition 2130 B: 2023	NTU	192
3	pH at 25 °C	APHA 24 th Edition 4500 – H+ B: 2023	-	6.99
4	Electrical Conductivity	APHA 24 th Edition 2510 B: 2023	(µmhos/cm)	99.26
5	Temperature	APHA 24 th Edition 2550 B: 2023	°C	31.5
B. Chemical parameters				
6	Total Dissolved Solids	APHA 24 th Edition 2540-C: 2023	mg/L	65.0
7	Total Hardness (as CaCO ₃)	APHA 24 th Edition 2340 C: 2023	mg/L	35.3
8	Calcium (as Ca)	IS 3025 (Part 40): 1991	mg/L	11.4
9	Magnesium (as Mg)	IS 3025 (Part 46): 1994	mg/L	1.65
10	Calcium Hardness (as CaCO ₃)	APHA 24 th Edition 3500 Ca B: 2023	mg/L	28.4
11	Magnesium Hardness (as CaCO ₃)	APHA 24 th Edition 3500 Mg B: 2023	mg/L	6.86
12	Total Alkalinity (as CaCO ₃)	APHA 24 th Edition 2320 B: 2023	mg/L	17.6

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Page 1 of 2



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Phone No: 9841074398 / 9698141777 E-mail : Info@shrientanalytical.com
Website : www.shrientanalytical.com

TEST REPORT

Report No. SARL/23-481

Report Date. 21.10.2023

Sl. No.	Parameters	Protocol	Unit	Result
13	Chloride (as Cl)	APHA 24th Edition 4500 Cl- B: 2023	mg/L	12.3
14	Free Residual chlorine	APHA 24 th Edition 4500 Cl- B: 2023	mg/L	BDL (D.L - 0.2)
15	Sulphate as (SO ₄ ²⁻)	APHA 24 th Edition 4500 SO ₄ ²⁻ - E: 2023	mg/L	13.8
16	Iron (as Fe)	APHA 24 th Edition 3500 Fe B: 2023	mg/L	0.14
17	Nitrate (as NO ₃)	IS 3025 (Part 34): 1988	mg/L	2.86
18	Fluoride (as F)	APHA 24 th Edition 4500 F- D: 2023	mg/L	BDL (D.L - 0.1)
19	Manganese (as Mn)	APHA 24 th Edition 3500 Mn B: 2023	mg/L	BDL (D.L - 0.05)
20	Total suspended solids	APHA 24 th Edition 2540-D: 2023	mg/L	8.0
21	Chemical Oxygen Demand	APHA 24 th Edition 5220 B: 2023	mg/L	BDL (D.L - 4.0)
22	Biochemical oxygen demand (3 days at 27°C)	IS 3025 (Part 44): 1993	mg/L	BDL (D.L - 2.0)
23	Dissolved Oxygen	IS 3025 (Part 38): 1989	mg/L	6.1

Remarks: BDL - Below Detectable limit (DL - Detectable limit).

For Shrient Analytical and Research Labs Pvt. Ltd


21/10/23
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21/10/23
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J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/23-482	Report Date.	21.10.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu.
Sample Description	WATER
Sample Mark	GW1 - Within Mine Lease Area

Customer Reference	As per work order	Sampling Procedure	IS 17614: Part 14: 2021
Sample Reference No.	SARL/W/CHE-482	Sample Received on	15.10.2023
Sample Collected by	LABORATORY	Test Commenced on	15.10.2023
Sample Collected Date	14.10.2023	Test Completed on	21.10.2023
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	-	7.37	6.50-8.50
4	Electrical Conductivity	APHA 24 th Edition 2510 B: 2023	(µmhos/cm)	2226	-
B. Chemical parameters					
5	Total Dissolved Solids	APHA 24 th Edition 2540-C: 2023	mg/L	1340	2000
6	Total Hardness (as CaCO ₃)	APHA 24 th Edition 2340 C: 2023	mg/L	412	600
7	Calcium (as Ca)	IS 3025 (Part 40): 1991	mg/L	99.6	200
8	Magnesium (as Mg)	IS 3025 (Part 46): 1994	mg/L	39.0	100
9	Calcium Hardness (as CaCO ₃)	APHA 24 th Edition 3500 Ca B: 2023	mg/L	249	-

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TEST REPORT

Report No. SARL/23-482

Report Date. 21.10.2023

Sl. No.	Parameters	Protocol	Unit	Result	*Limits
					Permissible
10	Magnesium Hardness (as CaCO ₃)	APHA 24 th Edition 3500 Mg B: 2023	mg/L	163	-
11	Total Alkalinity (as CaCO ₃)	APHA 24 th Edition 2320 B: 2023	mg/L	519	600
12	Chloride (as Cl)	APHA 24 th Edition 4500 Cl- B: 2023	mg/L	594	1000
13	Free Residual chlorine	APHA 24 th Edition 4500 Cl- B: 2023	mg/L	BDL (D.L - 0.2)	1.0
14	Sulphate as (SO ₄ ²⁻)	APHA 24 th Edition 4500 SO ₄ ²⁻ - E: 2023	mg/L	126	400
15	Iron (as Fe)	APHA 24 th Edition 3500 Fe B: 2023	mg/L	0.021	0.3
16	Nitrate (as NO ₃)	IS 3025 (Part 34): 1988	mg/L	5.62	45
17	Fluoride (as F)	APHA 24 th Edition 4500 F- D: 2023	mg/L	0.52	1.5
18	Manganese (as Mn)	APHA 24 th Edition 3500 Mn B: 2023	mg/L	BDL (D.L - 0.05)	0.3

Remarks: Permissible Limit in the Absence of Alternate Source of Drinking Water Specifications IS: 10500:2012.
BDL - Below Detectable limit (DL - Detectable limit).

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For Shrient Analytical and Research Labs Pvt. Ltd

Authorized Signatory

J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/23-483	Report Date.	21.10.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu.
Sample Description	WATER
Sample Mark	GW2 - Thavani Village

Customer Reference	As per work order	Sampling Procedure	IS 17614: Part 14: 2021
Sample Reference No.	SARL/W/CHE-483	Sample Received on	15.10.2023
Sample Collected by	LABORATORY	Test Commenced on	15.10.2023
Sample Collected Date	14.10.2023	Test Completed on	21.10.2023
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	-	7.38	6.50-8.50
4	Electrical Conductivity	APHA 24 th Edition 2510 B: 2023	(µmhos/cm)	1955	-
B. Chemical parameters					
5	Total Dissolved Solids	APHA 24 th Edition 2540-C: 2023	mg/L	1190	2000
6	Total Hardness (as CaCO ₃)	APHA 24 th Edition 2340 C: 2023	mg/L	343	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	46.6	100
9	Calcium Hardness (as CaCO ₃)	APHA 24 th Edition 3500 Ca B: 2023	mg/L	198	-

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TEST REPORT

Report No. SARL/23-483

Report Date. 21.10.2023

Sl. No.	Parameters	Protocol	Unit	Result	*Limits
					Permissible
10	Magnesium Hardness (as CaCO ₃)	APHA 24 th Edition 3500 Mg B: 2023	mg/L	194	
11	Total Alkalinity (as CaCO ₃)	APHA 24 th Edition 2320 B: 2023	mg/L	433	600
12	Chloride (as Cl)	APHA 24 th Edition 4500 Cl- B: 2023	mg/L	503	1000
13	Free Residual chlorine	APHA 24 th Edition 4500 Cl- B: 2023	mg/L	BDL (D.L – 0.2)	1.0
14	Sulphate as (SO ₄ ²⁻)	APHA 24 th Edition 4500 SO ₄ ²⁻ - E: 2023	mg/L	86.3	400
15	Iron (as Fe)	APHA 24 th Edition 3500 Fe B: 2023	mg/L	BDL (D.L – 0.01)	0.3
16	Nitrate (as NO ₃)	IS 3025 (Part 34): 1988	mg/L	4.33	45
17	Fluoride (as F)	APHA 24 th Edition 4500 F- D: 2023	mg/L	0.55	1.5
18	Manganese (as Mn)	APHA 24 th Edition 3500 Mn B: 2023	mg/L	BDL (D.L – 0.05)	0.3

Remarks: Permissible Limit in the Absence of Alternate Source of Drinking Water Specifications IS: 10500:2012.
BDL – Below Detectable limit (DL - Detectable limit).

For Shrient Analytical and Research Labs Pvt. Ltd

Verified
21/10/23



END OF THE REPORT

Authorized Signatory

J. GNANAPRAKASAM
Technical Manager

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TEST REPORT

Report No.	SARL/23-484	Report Date.	21.10.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu.
Sample Description	WATER
Sample Mark	GW3 - Namathodu Village

Customer Reference	As per work order	Sampling Procedure	IS 17614: Part 14: 2021
Sample Reference No.	SARL/W/CHE-484	Sample Received on	15.10.2023
Sample Collected by	LABORATORY	Test Commenced on	15.10.2023
Sample Collected Date	14.10.2023	Test Completed on	21.10.2023
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	-	7.45	6.50-8.50
4	Electrical Conductivity	APHA 24 th Edition 2510 B: 2023	(µmhos/cm)	1224	-
B. Chemical parameters					
5	Total Dissolved Solids	APHA 24 th Edition 2540-C: 2023	mg/L	740	2000
6	Total Hardness (as CaCO ₃)	APHA 24 th Edition 2340 C: 2023	mg/L	325	600
7	Calcium (as Ca)	IS 3025 (Part 40): 1991	mg/L	65.9	200
8	Magnesium (as Mg)	IS 3025 (Part 46): 1994	mg/L	38.6	100
9	Calcium Hardness (as CaCO ₃)	APHA 24 th Edition 3500 Ca B: 2023	mg/L	165	-

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TEST REPORT

Report No. SARL/23-484

Report Date. 21.10.2023

Sl. No.	Parameters	Protocol	Unit	Result	*Limits
					Permissible
10	Magnesium Hardness (as CaCO ₃)	APHA 24 th Edition 3500 Mg B: 2023	mg/L	161	-
11	Total Alkalinity (as CaCO ₃)	APHA 24 th Edition 2320 B: 2023	mg/L	290	600
12	Chloride (as Cl)	APHA 24 th Edition 4500 Cl- B: 2023	mg/L	105	1000
13	Free Residual chlorine	APHA 24 th Edition 4500 Cl- B: 2023	mg/L	BDL (D.L – 0.2)	1.0
14	Sulphate as (SO ₄ ²⁻)	APHA 24 th Edition 4500 SO ₄ ²⁻ E: 2023	mg/L	295	400
15	Iron (as Fe)	APHA 24 th Edition 3500 Fe B: 2023	mg/L	BDL (D.L – 0.01)	0.3
16	Nitrate (as NO ₃)	IS 3025 (Part 34): 1988	mg/L	3.25	45
17	Fluoride (as F)	APHA 24 th Edition 4500 F- D: 2023	mg/L	0.39	1.5
18	Manganese (as Mn)	APHA 24 th Edition 3500 Mn B: 2023	mg/L	BDL (D.L – 0.05)	0.3

Remarks: Permissible Limit in the Absence of Alternate Source of Drinking Water Specifications 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/23-485	Report Date.	21.10.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu.
Sample Description	WATER
Sample Mark	GW4 - Alliyandal Village

Customer Reference	As per work order	Sampling Procedure	IS 17614: Part 14: 2021
Sample Reference No.	SARL/W/CHE-485	Sample Received on	15.10.2023
Sample Collected by	LABORATORY	Test Commenced on	15.10.2023
Sample Collected Date	14.10.2023	Test Completed on	21.10.2023
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	-	7.31	6.50-8.50
4	Electrical Conductivity	APHA 24 th Edition 2510 B: 2023	(µmhos/cm)	1645	-
B. Chemical parameters					
5	Total Dissolved Solids	APHA 24 th Edition 2540-C: 2023	mg/L	990	2000
6	Total Hardness (as CaCO ₃)	APHA 24 th Edition 2340 C: 2023	mg/L	335	600
7	Calcium (as Ca)	IS 3025 (Part 40): 1991	mg/L	75.6	200
8	Magnesium (as Mg)	IS 3025 (Part 46): 1994	mg/L	35.0	100
9	Calcium Hardness (as CaCO ₃)	APHA 24 th Edition 3500 Ca B: 2023	mg/L	189	-

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TEST REPORT

Report No. SARL/23-485

Report Date. 21.10.2023

Sl. No.	Parameters	Protocol	Unit	Result	*Limits
					Permissible
10	Magnesium Hardness (as CaCO ₃)	APHA 24 th Edition 3500 Mg B: 2023	mg/L	146	-
11	Total Alkalinity (as CaCO ₃)	APHA 24 th Edition 2320 B: 2023	mg/L	320	600
12	Chloride (as Cl)	APHA 24 th Edition 4500 Cl- B: 2023	mg/L	334	1000
13	Free Residual chlorine	APHA 24 th Edition 4500 Cl- B: 2023	mg/L	BDL (D.L - 0.2)	1.0
14	Sulphate as (SO ₄ ²⁻)	APHA 24 th Edition 4500 SO ₄ ²⁻ E: 2023	mg/L	216	400
15	Iron (as Fe)	APHA 24 th Edition 3500 Fe B: 2023	mg/L	0.05	0.3
16	Nitrate (as NO ₃)	IS 3025 (Part 34): 1988	mg/L	2.56	45
17	Fluoride (as F)	APHA 24 th Edition 4500 F- D: 2023	mg/L	0.42	1.5
18	Manganese (as Mn)	APHA 24 th Edition 3500 Mn B: 2023	mg/L	BDL (D.L - 0.05)	0.3

Remarks: Permissible Limit in the Absence of Alternate Source of Drinking Water Specifications 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/23-486	Report Date.	21.10.2023
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Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu.
Sample Description	WATER
Sample Mark	GW5 - Avaniyapuram Village

Customer Reference	As per work order	Sampling Procedure	IS 17614: Part 14: 2021
Sample Reference No.	SARL/W/CHE-486	Sample Received on	15.10.2023
Sample Collected by	LABORATORY	Test Commenced on	15.10.2023
Sample Collected Date	14.10.2023	Test Completed on	21.10.2023
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	-	7.15	6.50-8.50
4	Electrical Conductivity	APHA 24 th Edition 2510 B: 2023	(µmhos/cm)	992.4	-
B.	Chemical parameters				
5	Total Dissolved Solids	APHA 24 th Edition 2540-C: 2023	mg/L	596	2000
6	Total Hardness (as CaCO ₃)	APHA 24 th Edition 2340 C: 2023	mg/L	392	600
7	Calcium (as Ca)	IS 3025 (Part 40): 1991	mg/L	68.0	200
8	Magnesium (as Mg)	IS 3025 (Part 46): 1994	mg/L	53.3	100
9	Calcium Hardness (as CaCO ₃)	APHA 24 th Edition 3500 Ca B: 2023	mg/L	170	-

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Website : www.shrientanalytical.com

TEST REPORT

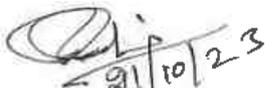
Report No. SARL/23-486

Report Date. 21.10.2023

Sl. No.	Parameters	Protocol	Unit	Result	*Limits
					Permissible
10	Magnesium Hardness (as CaCO ₃)	APHA 24 th Edition 3500 Mg B: 2023	mg/L	222	-
11	Total Alkalinity (as CaCO ₃)	APHA 24 th Edition 2320 B: 2023	mg/L	241	600
12	Chloride (as Cl)	APHA 24 th Edition 4500 Cl- B: 2023	mg/L	122	1000
13	Free Residual chlorine	APHA 24 th Edition 4500 Cl- B: 2023	mg/L	BDL (D.L - 0.2)	1.0
14	Sulphate as (SO ₄ ²⁻)	APHA 24 th Edition 4500 SO ₄ ²⁻ E: 2023	mg/L	102	400
15	Iron (as Fe)	APHA 24 th Edition 3500 Fe B: 2023	mg/L	0.06	0.3
16	Nitrate (as NO ₃)	IS 3025 (Part 34): 1988	mg/L	3.32	45
17	Fluoride (as F)	APHA 24 th Edition 4500 F- D: 2023	mg/L	0.36	1.5
18	Manganese (as Mn)	APHA 24 th Edition 3500 Mn B: 2023	mg/L	BDL (D.L - 0.05)	0.3

Remarks: Permissible Limit in the Absence of Alternate Source of Drinking Water Specifications IS: 10500:2012.
BDL - Below Detectable limit (DL - Detectable limit).

For Shrient Analytical and Research Labs Pvt. Ltd


Verified
21/10/23




Authorized Signatory

J. GNANAPRAKASAM
Technical Manager

Please Contact:

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

Terms and conditions:

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Page 2 of 2

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CIN : U74999TN2017PTC116807 / GST No. 33AAYCS7325R1ZA / Pan No: AAYCS7325R



Shrient Analytical and Research Labs Pvt. Ltd.

416/15, Dharga Road, Perungalathur, West Tambaram, Chennai- 600045.
Phone No: 9841074398 / 9698141777 E-mail : Info@shrientanalytical.com
Website : www.shrientanalytical.com

TEST REPORT

Report No.	SARL/23-487	Report Date.	21.10.2023
------------	-------------	--------------	------------

Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu.		
Sample Description	SOIL		
Sample Mark	S1 - Within Mine Lease Area		

Customer Reference	As per work order	Sampling Procedure	EPA/600/R-92/128
Sample Reference No.	SARL/SO/CHE-487	Sample Received on	15.10.2023
Sample Collected by	LABORATORY	Test Commenced on	15.10.2023
Sample Collected Date	14.10.2023	Test Completed on	21.10.2023
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results
1	pH at 25 °C	IS 2720: Part 26: 1987	-	8.23
2	Electrical Conductivity	IS 14767: 2000	µmhos/cm	92.77
3	Dry matter content	IS 15106: 2002	%	88.50
4	Water Content	IS 15106: 2002	%	11.50
5	Organic Matter	IS 2720: Part 22: 1972	%	0.31
6	Nitrogen and Nitrogenous compounds	IS 14684: 1999	mg/kg	246
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	%	25.67
	i. Sand	Methods Manual - Soil testing in India - P. No-67: 2011	%	58.62
	ii. Silt	Methods Manual - Soil testing in India - P. No-67: 2011	%	15.71
	iii. Clay	Methods Manual - Soil testing in India - P. No-67: 2011	%	
9	Phosphorus as P	IS 10158: 1982	mg/kg	0.57
10	Sodium as Na	USEPA 3050 B: 1996	mg/kg	787
11	Potassium as K	USEPA 3050 B: 1996	mg/kg	533
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	%	16.8
14	Water holding capacity	Methods Manual - Soil testing in India - P. No-76: 2011	Inches/foot	4.5

Remarks: BDL - Below Detectable limit (DL - Detectable limit).

Verified  21/10/23



For Shrient Analytical and Research Labs Pvt. Ltd

Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

Please Contact:

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

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Page 1 of 1

LAB SERVICES FOR : •Food •Water •Milk •Environment •Academic & Industry Segment

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CIN : U74999TN2017PTC116807 / GST No. 33AAYCS7325R1ZA / Pan No: AAYCS7325R



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Phone No: 9841074398 / 9698141777 E-mail : Info@shrientanalytical.com
Website : www.shrientanalytical.com

TEST REPORT

Report No.	SARL/23-488	Report Date.	21.10.2023
------------	-------------	--------------	------------

Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu.
Sample Description	SOIL
Sample Mark	S2 - Thavani Village

Customer Reference	As per work order	Sampling Procedure	EPA/600/R-92/128
Sample Reference No.	SARL/SO/CHE-488	Sample Received on	15.10.2023
Sample Collected by	LABORATORY	Test Commenced on	15.10.2023
Sample Collected Date	14.10.2023	Test Completed on	21.10.2023
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results
1	pH at 25 °C	IS 2720: Part 26: 1987	-	8.43
2	Electrical Conductivity	IS 14767: 2000	µmhos/cm	187.4
3	Dry matter content	IS 15106: 2002	%	96.86
4	Water Content	IS 15106: 2002	%	3.14
5	Organic Matter	IS 2720: Part 22: 1972	%	0.20
6	Nitrogen and Nitrogenous compounds	IS 14684: 1999	mg/kg	218
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	%	34.53
	i. Sand	Methods Manual - Soil testing in India - P. No-67: 2011	%	53.20
	ii. Silt	Methods Manual - Soil testing in India - P. No-67: 2011	%	12.27
	iii. Clay	Methods Manual - Soil testing in India - P. No-67: 2011	%	
9	Phosphorus as P	IS 10158: 1982	mg/kg	0.74
10	Sodium as Na	USEPA 3050 B: 1996	mg/kg	450
11	Potassium as K	USEPA 3050 B: 1996	mg/kg	340
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	%	15.6
14	Water holding capacity	Methods Manual - Soil testing in India - P. No-76: 2011	Inches/foot	3.8

Remarks: BDL - Below Detectable limit (DL - Detectable limit).

Verified 21/10/23



For Shrient Analytical and Research Labs Pvt. Ltd

END OF THE REPORT

Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

Please Contact:

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

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Phone No: 9841074398 / 9698141777 E-mail : Info@shrientanalytical.com
Website : www.shrientanalytical.com

TEST REPORT

Report No.	SARL/23-489	Report Date.	21.10.2023
------------	-------------	--------------	------------

Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellarampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamil Nadu.		
Sample Description	SOIL		
Sample Mark	S3 - Namathodu Village		

Customer Reference	As per work order	Sampling Procedure	EPA/600/R-92/128
Sample Reference No.	SARL/SO/CHE-489	Sample Received on	15.10.2023
Sample Collected by	LABORATORY	Test Commenced on	15.10.2023
Sample Collected Date	14.10.2023	Test Completed on	21.10.2023
Sample Condition	Fit for Analysis		

S. No.	Parameters	Protocol	Unit	Results
1	pH at 25 °C	IS 2720: Part 26: 1987	-	8.55
2	Electrical Conductivity	IS 14767: 2000	µmhos/cm	13.09
3	Dry matter content	IS 15106: 2002	%	91.06
4	Water Content	IS 15106: 2002	%	8.94
5	Organic Matter	IS 2720: Part 22: 1972	%	1.82
6	Nitrogen and Nitrogenous compounds	IS 14684: 1999	mg/kg	155
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	%	23.78
	i. Sand	Methods Manual - Soil testing in India - P. No-67: 2011	%	66.82
	ii. Silt	Methods Manual - Soil testing in India - P. No-67: 2011	%	9.40
	iii. Clay	Methods Manual - Soil testing in India - P. No-67: 2011	%	
9	Phosphorus as P	IS 10158: 1982	mg/kg	0.56
10	Sodium as Na	USEPA 3050 B: 1996	mg/kg	472
11	Potassium as K	USEPA 3050 B: 1996	mg/kg	314
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	%	16.4
14	Water holding capacity	Methods Manual - Soil testing in India - P. No-76: 2011	Inches/foot	3.5

Remarks: BDL - Below Detectable limit (DL - Detectable limit).

Verified
21/10/23



For Shrient Analytical and Research Labs Pvt. Ltd

END OF THE REPORT

Authorized Signatory
J. GNANAPRAKASAM
Technical Manager

Please Contact:

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

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Phone No: 9841074398 / 9698141777 E-mail : Info@shrientanalytical.com
Website : www.shrientanalytical.com

TEST REPORT

Report No. SARL/23-490

Report Date. 21.10.2023

Customer Name & Address	The proposed quarry Of Thiru A.R. Govindan survey nos. 214/1 (Part -3 & Part -4) over an extent of 3.93.5, Thellampattu Village, Chetpet 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-490	Date of Monitoring	14.10.2023
Sample Collected by	LABORATORY		

Level in dB (A)

Time in hrs	N1	N2	N3	N4	N5
06.00	41.9	38.5	40.2	40.7	38.4
07.00	44.1	46.0	42.9	48.7	40.8
08.00	46.4	50.1	45.9	47.6	47.1
09.00	48.0	51.6	47.9	49.3	50.8
10.00	49.4	49.0	49.0	41.7	52.7
11.00	45.8	52.1	48.2	45.1	50.1
12.00	47.8	46.4	49.2	46.3	49.2
13.00	46.4	47.3	49.9	44.6	48.7
14.00	46.7	50.4	48.1	47.6	52.2
15.00	45.2	49.6	45.5	43.9	52.6
16.00	45.7	48.5	47.7	45.2	51.0
17.00	43.3	43.6	43.9	46.7	49.9
18.00	42.0	41.5	44.3	45.6	47.4
19.00	39.8	40.8	45.7	43.2	45.9
20.00	38.7	39.6	41.4	40.7	43.7
21.00	40.3	41.5	42.5	38.7	42.7
22.00	39.5	37.7	40.6	36.8	39.2
23.00	39.9	36.3	39.7	37.3	38.6
24.00	36.5	38.5	38.2	38.0	37.7
01.00	37.0	36.9	38.6	36.9	36.9
02.00	35.7	37.7	38.0	38.3	38.7
03.00	36.3	39.0	38.7	37.4	39.1
04.00	37.0	36.9	39.5	37.6	39.8
05.00	38.8	40.6	38.5	38.4	39.3

Handwritten signature
21/10/23



Handwritten signature
21/10/23

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Corporate Address: No. 32, SAPTHAGIRI NAGAR, PUZHUTHIVAKKAM, CHENNAI - 600091. ☎: 044 42113369

CIN : U74999TN2017PTC116807 / GST No. 33AAYCS7325R1ZA / Pan No: AAYCS7325R



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416/15, Dharga Road, Perungalathur, West Tambaram, Chennai- 600045.
Phone No: 9841074398 / 9698141777 E-mail : Info@shrientanalytical.com
Website : www.shrientanalytical.com

TEST REPORT

Report No. SARL/23-490

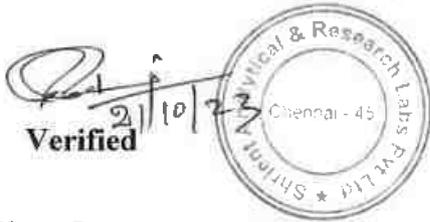
Report Date. 21.10.2023

	N1	N2	N3	N4	N5
DAY EQUIVALENT	45.4	47.9	46.7	45.6	49.2
NIGHT EQUIVALENT	37.8	38.2	39.1	37.6	38.8
DAY & NIGHT EQUIVALENT	44.0	46.3	45.3	44.2	47.7

Remarks:

LOCATIONS:

- N1 - Within Mine Lease Area
- N2 - Thavani Village
- N3 - Namathodu Village
- N4 - Alliyandal Village
- N5 - Avaniyapuram Village



For Shrient Analytical and Research Labs Pvt. Ltd

Authorized Signatory

J. GNANAPRAKASAM
Technical Manager

END OF THE REPORT

Please Contact:

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

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CIN : U74999TN2017PTC116807 / GST No. 33AAYCS7325R1ZA / Pan No: AAYCS7325R

ANNEXURE - 6

Blasting Agreement with Certificate

KUBERAN EXPLOSIVES & CO

Explosives Blasting Contractors & Dealers

Plot No. 1, Meenakshi Avenue, 3rd Cross Street, Old Perungalathur, Chennai - 600063

Tele Fax No: 2276 1987, Cell No: 9444814614, 9941181779.

E.mail ID: dhanamexplo1@yahoo.com

Date- 28.02.2023

Mr.A.R.Govindan
S/o.Arunachalam,
No.302, Raja Agraharam,
3rd Cross Street, Poonammallee,
Tiruvallur.

Sub : Regarding Blasting work using Explosive in your proposed Quarry.

Dear Sir,

With reference to the subject, we would like to introduce our self that we are having Explosive License in Form 22 No. E/HQ/TN/22/298(E56920) situated in Survey No. 592/2B 1A, 164 Arungunam Village, Madhurandagam Taluk, Kancheepuram District and our office functioning at Address No. 1 Meenakshi Avenue, 3rd Cross Street, Old Perungalathur, Chennai Tamilnadu- 600063.

We are enacting Explosive Vans separately for Transporting Class 2 Explosives and Class 6 Detonators from our Magazine to your work site. We engaged well experienced Licensed Blasters and Shot Firer for safe Blasting work since 6 Years. We are carrying the Blasting work without untoward any incident.

We are willing to undertake Blasting work on Contract basis at your proposed Quarry at SF. No. 214/1 (part-3 & part-4) over in 3.93.5 Hectors in Thellarampattu Village, Chetpet Taluk, Tiruvannamalai District, Tamilnadu.

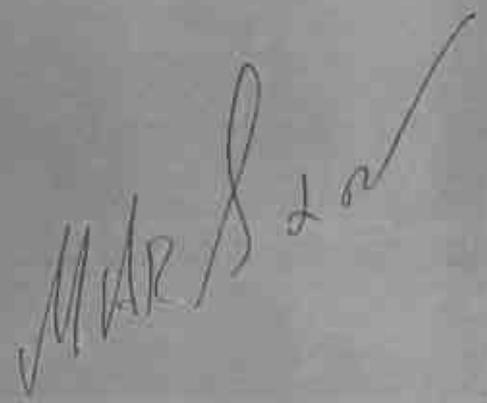
Thanking You,

Yours Faithfully,

For KUBERAN EXPLOSIVES & CO.


Authorized Signatory

Encl: Explosives License.





भारत सरकार | Government of India
 वाणिज्य और उद्योग मंत्रालय | Ministry of Commerce & Industry
 पेट्रोलियम तथा विस्फोटक सुरक्षा संगठन (पेसो) | Petroleum & Explosives Safety Organisation (PESO)
 पूर्व नाम- विस्फोटक विभाग | Formerly- Department of Explosives
 A और D - विंग ब्लॉक 1-8, दूसरा तल, शास्त्री भवन | A & D - Wing, Block 1-8, IInd Floor, Shastri Bhavan
 26 हड्डोउस रोड, नुंगम्बकम चेन्नै | 26 Haddous Road, Nungambakkam Chennai 600006
 फोन (Phone) - 28281023 | फैक्स (Fax) - 28284848
 ई-मेल (Email) : jtocechennai@explosives.gov.in

संख्या (No.): E/HQ/TN/22/298(E56920)

दिनांक (Date): 07/04/2021

सेवा में | To,

M/s. Kuberan Explosives & Co.,
 D. No. 164, Varanavasi Village, Banrutti (Post), Thenneri (Vui), Town Village - Kanchipuram
 District-KANCHIPURAM, State-Tamil Nadu, Pincode -

08 APR 2021

विषय: Survey No(s).592/2B 1A, ग्राम 164, Arugunam village, Madurantakam Taluk, जिला KANCHIPURAM, राज्य Tamil Nadu में विस्फोटक के मैगजीन में उपयोग के लिए कब्जा हेतु विस्फोटक नियम, 2008 के अंतर्गत LE-3 में जारी अनुज्ञप्ति सं E/HQ/TN/22/298(E56920) के नवीनीकरण संदर्भ में।
 Subject: Possession for Use of Explosives from magazine situated at Survey No(s).592/2B 1A, 164, Arugunam village, Madurantakam Taluk, Dist. KANCHIPURAM, Tamil Nadu -Licence No.: E/HQ/TN/22/298(E56920) granted in Form LE-3 of Explosives Rules, 2008 - Renewal regarding

महोदय | Sir,

आपका उपर्युक्त विषय पर पत्र संख्या X दिनांक 23/03/2021 का संदर्भ ग्रहण करें। विस्फोटक नियम, 2008 के अंतर्गत प्ररूप LE-3 में जारी अनुज्ञप्ति दिनांक 31/3/2026 तक नवीनीकृत कर इस पत्र के साथ भेजी जा रही है।

Reference to your letter No.: X dated: 23/03/2021, the subject licence duly renewed upto 31/3/2026 and issued in Form LE-3 of Explosives Rules, 2008 is forwarded herewith.

अनुज्ञप्ति के आगामी नवीकरण हेतु कृपया निम्नलिखित दस्तावेज दिनांक 31/03/2026 से पहले इस कार्यालय को भेजे जाएं।

For further renewal of licence, please submit the following documents so as to reach this office on or before 31/3/2026.

- प्ररूप आरई-1 में विधिवत पूर्ण एवं हस्ताक्षरित आवेदन।
Application in Form RE-1 duly filled in and signed.
- एक से पाँच वर्ष के अनुज्ञप्ति शुल्को का, विस्फोटक नियम, 2008 के तहत ऑनलाइन आवेदन पोर्टल पर उपलब्ध ई-भुगतान सुविधा के माध्यम से लाइसेंस शुल्क ऑनलाइन जमा किया जाना है।
Licence fees renewable for one to five years, to be submitted online through e-payment facility available on online application portal under the Explosives Rules, 2008.
- अनुमोदित प्लान के साथ मूल अनुज्ञप्ति।
Original licence with approved plan.
- कृपया इस संबंध में विस्फोटक नियम, 2008 के नियम 112 का भी संदर्भ ग्रहण करें।
In this connection, please also refer to Rule 112 of Explosives Rules, 2008.
- विस्फोटकों के क्रय हेतु आरई-11 में मांगपत्र (इंडेंट) आपूर्तिकर्ता को दिया जाए और उसी की एक प्रति इस कार्यालय को भेजी जाए (अतिशबाजी गोदाम के लिए लागू नहीं है)।
Indent for purchase of explosives shall be placed in RE-11 with the supplier and copy of the same shall be sent to this office. (Not applicable for fireworks store house)
- कृपया विस्फोटकों की त्रैमासिक विवरणी हर तिमाही के अंत में आरई-7 में प्रस्तुत की जाए। विवरणी इस कार्यालय के कार्यालय में आगामी तिमाही के 10 तारीख से पहले पहुंच जानी चाहिए (अतिशबाजी गोदाम के लिए लागू नहीं है)। Please submit quarterly returns of explosives in RE-7 at the end of every quarter so as to reach this office by 10th of the succeeding quarter. (Not applicable for fireworks store house)
- सभी ब्लास्टिंग ऑपरेशन एक सक्षम द्वारा की जाएगी जो उपरोक्त नियमों के तहत एक वैध शॉट फायर प्रमाणपत्र धारक हो। हालांकि, खान अधिनियम 1952 के अधीन आने वाले खानों में ब्लास्टिंग ऑपरेशन करने वाले ब्लास्टर की योग्यता उसी अधिनियम से निर्धारित हो।
All blasting operations shall be carried out by a competent person holding a valid shot firer's permit granted under above rules. However, blasting operations in mines coming under the purview of the Mines Act 1952, the blaster shall have qualifications prescribed in the regulations framed under the said Act.

भवदीय | Your's faithfully

(डॉ. ए. शेख हुसैन | Dr. A SHEKH HUSSAIN)

उप विस्फोटक नियंत्रक | Dy. Controller of Explosives

कृते संयुक्त मुख्य विस्फोटक नियंत्रक | For Joint Chief Controller of Explosives

दक्षिणांचल, चेन्नै | South Circle, Chennai

प्रतालाय प्राप्त | Copy Forwarded to:

1. जिला मजिस्ट्रेट (District Magistrate), KANCHIPURAM (Tamil Nadu)- सूचना के लिए (for information.)

कृते संयुक्त मुख्य विस्फोटक नियंत्रक | For Joint Chief Controller of Explosives
दक्षिणांचल, चेन्नै | South Circle, Chennai

(अधिक जानकारी जैसे आवेदन की स्थिति, शुल्क आदि के लिए हमारा वेबसाइट <http://peso.gov.in> देखें।
 (For more information regarding status, fees and other details please visit our website <http://peso.gov.in>)

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

अनुज्ञापित प्ररूप एत. ई.-3 | LICENCE FORM LE-3

(विस्फोटक नियम, 2008 को अनुसूचा 4 के भाग 1 के अनुच्छेद 3(क) से (घ) देखिए।)
(See article 3(a) to (d) of Part 1 of Schedule IV of Explosives Rules, 2008)(ग) उपयोग के लिए एक समय पर वर्ग 1, 2, 3, 4, 5 या वर्ग 7 के विस्फोटक या किसी मैगजीन में वर्ग 6 के विस्फोटक रखें
Licence to possess (c) for use, explosives of class 1, 2, 3, 4, 5, 6 or 7 in a magazineअनुज्ञापित सं. (Licence No.): E/HQ/TN/22/298(E56920)
वार्षिक फीस रूपए (Annual Fee Rs): 12400/-

1. Licence is hereby granted to

M/s. Kuheran Explosives & Co. (अधिभोगी / Occupier : K. DhanaKoteswaran), D. No. 164, Varanvazi Village, Banrutti (Post), Thenneri (Via), Town/Village - Kanchipuram, District-KANCHIPURAM, State-Tamil Nadu, Pincode -

को अनुज्ञापित अनुदत्त की जाती है।

2. अनुज्ञापितधारी की प्रास्थिति : Status of licensee - Individual

3. अनुज्ञापित निम्नलिखित प्रयोजनों के लिए विधिमान्य है।

Licence is valid only for the following purpose

possess for use of Nitrate Mixture, Detonating Fuse, Detonators, के उपयोग के लिए

4. अनुज्ञापित विस्फोटकों के निम्नलिखित किस्मों, प्रकार और मात्रा के लिए विधिमान्य है।

Licence is valid for the following kinds and quantity of explosives - (क) (a)

क्र. सं.	नाम और विवरण	वर्ग और प्रभाग	उप-प्रभाग	मात्रा किसी एक समय में
Sr. No.	Name and Description	Class & Division	Sub-division	Quantity at any one time
1.	Nitrate Mixture	2.0	0	6400 Kg
2.	Detonating Fuse	6.2	0	50000 Mtrs
3.	Detonators	6.3	0	44000 Nos

(ख) किसी एक कलेंडर मास में खरीदे जाने वाले विस्फोटक की मात्रा (अनुच्छेद 3(ख) और (ग) के अधीन अनुज्ञापित के लिए)

20 times

(b) Quantity of explosives to be purchased in a calendar month (applicable for licences under article 3(b) and (c))

as above.

5. निम्नलिखित रेखाचित्र (रेखाचित्रों) से अनुज्ञापित परिसर की पुष्टि होती है।

The licensed premises shall conform to the following drawing(s)

रेखाचित्र क्र. (Drawing No.) E/HQ/TN/22/298(E56920)
दिनांक (Dated) 10/01/2012

6. अनुज्ञापित परिसर निम्नलिखित पते पर स्थित हैं। The licensed premises are situated at following address:

Survey No(s), 592/2B 1A, ग्राम (Town/Village) : 164, Arogunam village, Madurantakam Taluk

पोलिस थाना (Police Station) : Maduranthagam

जिला (District) KANCHIPURAM

राज्य (State) Tamil Nadu

पिनकोड (Pincode)

दूरभाष (Phone) 944814614

ई-मेल (E-Mail)

फैक्स (Fax)

7. अनुज्ञापित परिसर में निम्नलिखित सुविधाएँ अंतर्भूत हैं।

The licensed premises consist of following facilities

a main magazine room, a lobby and a detonators store room.

8. अनुज्ञापित समय - समय पर पचासशोधित विस्फोटक अधिनियम, 1884 और उनके अधीन विरचित विस्फोटक नियम, 2004 के उपबंधों, शर्तों और अतिरिक्त शर्तों और निम्नलिखित उपाबंधों के अधीन रहते हुए अनुदत्त की जाती है।

The licence is granted subject to the provision of Explosives Act 1884 as amended from time to time and the Explosives Rules, 2004 framed there under and the conditions, additional conditions and the following Annexures.

1. उपर्युक्त क्रम सं. 5 में पचास कथित रेखाचित्र (स्थान, संनिर्माण संबंधी और अन्य विवरण दर्शित करते हुए)।

Drawings (showing site, constructional and other details) as stated in serial No. 5 above.

2. अनुज्ञापित प्राधिकारी द्वारा हस्ताक्षरित इस अनुज्ञापित की शर्तों और अतिरिक्त शर्तों।

Conditions and Additional Conditions of this licence signed by the licensing authority.

3. दूरी प्ररूप DE-2 | Distance Form DE-2.

9. यह अनुज्ञापित तारीख 31 मार्च 2012 तक विधिमान्य रहेगी। This licence shall remain valid till 31st day of March 2012.

यह अनुज्ञापित, अधिनियम या उसके अधीन विरचित नियमों या अनुसूची V के भाग 4 के प्रति निर्दिष्ट सेट VII के अधीन तथा उपवर्णित इस अनुज्ञापित की शर्तों का अधिकतम करने या यदि अनुज्ञापित परिसर योजना या उससे संलग्न उपबंध में दर्शित विवरण के अनुरूप नहीं पाए जाने पर निलंबित या प्रतिसंहत की जा सकती है, जहाँ वह लागू हो।

This licence is liable to be suspended or revoked for any violation of the Act or Rules framed there under or the conditions of this licence as set forth under Set VIII, wherever applicable, referred to in Part 4 of Schedule V or if the licensed premises are not found conforming to the description shown in the plans and Annexure attached hereto.

तारीख | The Date - 10/01/2012

मुख्य विस्फोटक नियंत्रक | Chief Controller of Explosives

Sd/-

Amendments :

- Amendment of Quantity of Explosives/Monthly Purchase Limit dated : 01/08/2012
- Amendment of Quantity of Explosives/Monthly Purchase Limit dated : 08/03/2013
- Amendment of Quantity of Explosives/Monthly Purchase Limit dated : 18/07/2014

नवीनीकरण के पृष्ठांकन के लिए स्थान
Space for Endorsement of Renewalनवीनीकरण का तारीख
Date of Renewalसमाप्ति का तारीख
Date of Expiryअनुज्ञापन प्राधिकारी के हस्ताक्षर और स्टाम्प
Signature of licensing authority and stamp

07/04/2021

31/03/2026

Jt. Chief Controller of Explosives, South Circle, Chennai

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

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

ANNEXURE - 7
Land Documents



இந்திய அரசாங்கம்
Government of India

சு. இ. கோவிந்தன்
A R GOVINDAN



பிறந்த நாள் / DOB: 21/01/1976
பாலினம் / Male



6842 4323 7155

ஆதார் - சாதாரண மனிதனின் அதிகாரம்



Unique Identification Authority of India

தலைநகர் அலுவலகம்
102, ராஜா சாராசாரை
சர்ப்-கிராஸ்-ஸ்ட்ரீட்
பொன்னியை, பொன்னியை
திருவல்லூர், தமிழ்நாடு
684055

Address: 102, RAJA SARASARAI
SRB CROSS STREET
Ponnaniye, Ponnaniye
Tiruvallur, Tamil Nadu
684055

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1000 200 1147

1947
1000 200 1147

www
www.uidai.gov.in

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