

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT OF ROUGH STONE AND GRAVEL QUARRY

(As per EIA Notification, 2006 dated 14.09.2006 and amendments)

CATEGORY - B1 - CLUSTER - MINOR MINERAL - NON-FOREST LAND

Project Proponent

Thiru. K.RANGANATHAN
No. 11/243, Kurumbapalayam
Madukkarai Taluk, Coimbatore District
Tamil Nadu

<i>Proposed Production</i>	<i>Project Site Details</i>
Geological Reserves : 653760m ³ Mineable Reserves : 208296m ³ Production : 151899m ³ Proposed depth : 32m bgl	Extent Area : 2.28.0 Ha S.F. No : 174/4 and 176/1 Idayarpalayam Village Sullur Taluk, Coimbatore District

Terms of Reference (ToR)

Lr. No: SEIAA-TN/File No. 10293/SEAC/ToR-1570/2023 Dated: 06.10.2023

Laboratory

ABM Enviro Lab

NIPBASS PLAZA, 4/77-L, Narasothipatti, Salem-636004

NABL Certificate No: **TC-15822**/ Valid up to: **01.04.2029**

Baseline Monitoring Period: March, 2025 to May, 2025

EIA Consultant

UIN: ABM/MIN/EIA/2025-26/004/R1/2025

AADHI BOOMI MINING & ENVIRO TECH (P) LTD

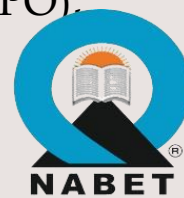
(NABET Accredited EIA Organization)

NABET Certificate No: NABET/EIA/24-27/RA 0365/Valid Up to: 23.10.2027
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Thiru. K. RANGANATHAN
No. 11/243, Kurumbapalayam
Madukkarai Taluk,
Coimbatore District
Tamil Nadu
Mobile No:

Date:

To

District Environmental Engineer
Tamil Nadu Pollution Control Board
No.5, Ramasamy Nagar
Near Fire Service Station, Kavundampalayam
Coimbatore District-641 030, Tamil Nadu.

Sub: Submission of **Draft Environmental Impact Assessment (EIA) Report** as per EIA Notification, 2006 dated 14.09.2006 and amendments for the proposed Rough Stone and Gravel Quarry over an extent of 2.28.0 Hectare in S.F. No: 174/4 and 176/1, Idayarpalayam Village, Sullur Taluk, Coimbatore District, Tamil Nadu –reg.

Ref:

1. MoEF&CC OM vide F.No.IA3-22/11/2023-IA.III (E-208230)
2. Precise area letter vide No: Rc No. 165/Kanimam/2022, dated 20.06.2023
3. Approval of Mining Plan Vide. Rc No. 165/Mines/2022, dated 06.07.2023
4. Modified Mining Plan Vide. Rc No. 165/Mines/2022, dated 08.07.2025
5. ToR Lr. No. SEIAA-TN/F.No: 10293/SEAC/ToR-1570/2023 dated: 06.10.2023
6. Amendment (ToR) Identification No. TO25B0108TN5650668A Dated: 06.08.2025.

Dear Sir,

With reference to the above-mentioned subject, we herewith submit the hard copy of **Draft Environmental Impact Assessment Report** as per the Terms of Reference (ToR) Lr. No. SEIAA-TN/F.No: 10293/SEAC/ToR-1570/2023 dated: 06.10.2023 and Amendment (ToR) Identification No. TO25B0108TN5650668A Dated: 06.08.2025 with a Demand Draft of Rs._____in favour of DEE, TNPCB, Coimbatore for your kind perusal. Hence, we kindly request you to process our application for Public Hearing as per EIA Notification, 2006 for obtaining Environment Clearance from SEIAA/SEAC, Tamil Nadu as early as possible.

Thanking You,

Yours faithfully,

(K. RANGANATHAN)
Project Proponent

Encl: 1. DD Number: Date:
2. Draft EIA Report along with the soft copy.

INDEX

S.NO	PARTICULARS	REFERENCE
1	Proponent Undertaking	I
2	Consultant Undertaking	II
3	Disclosure of Experts	III
4	Table of Contents	IV-XI
5	List of Figures	XII-XV
6	List of Tables	XVI-XIX
7	List of Annexure	XX
8	Abbreviations	XXI
9	ToR Compliance	XXII-LVIII

Thiru. K. RANGANATHAN
No. 11/243, Kurumbapalayam Road,
Madukkarai Taluk,
Coimbatore District
Tamil Nadu
Mobile No:

Undertaking by Project Proponent

I, **K. RANGANATHAN**, as **Project Proponent**, hereby give this undertaking to the effect that the conditions laid down in Terms of Reference ToR vide Lr. No. SEIAA-TN/F.No: 10293/SEAC/ToR-1570/2023 dated: 06.10.2023 and Amendment (ToR) Identification No. TO25B0108TN5650668A Dated: 06.08.2025 for our Rough Stone and Gravel Quarry, in S. F. No. 174/4 and 176/1 over an extent of 2.28.0 Ha of Idayarpalayam Village, Sullur Taluk, Coimbatore District, Tamil Nadu, have been compiled with, and the data submitted and the information presented in this report are true to the best of my knowledge.

Signature and seal of the Project Proponent

Place :

Date :

AADHI BOOMI MINING AND ENVIRO TECH (P) Ltd.

(NABET/QCI Accredited Organisation – 'A' Category)

ISO: 9001:2015 Certified Company

Call: 0427-2444297, +91 9842729655, +91 9443290855

Email: suriyakumarsemban@gmail.com, admin@abmenvirotec.com,Website: www.abmenvirotec.com**Declaration by the Head of the accredited consultant organization/authorized person**

I, **Dr. S. Suriyakumar**, CEO of Aadhi Boomi Mining & Enviro Tech (P) Ltd, hereby confirm that the Draft Environmental Impact Assessment Report has been prepared as per the conditions laid down in Terms of Reference ToR vide Lr. No. SEIAA-TN/F. No: 10293/SEAC/ToR-1570/2023 dated: 06.10.2023 and Amendment (ToR) Identification No. TO25B0108TN5650668A Dated: 06.08.2025 for conducting Public Hearing and obtaining Environment Clearance from SEIAA/SEAC, Tamil Nadu for proposed Rough Stone and Gravel Quarry of **Thiru. K. Ranganathan** located in S. F. No: 174/4 and 176/1, Idayarpalayam Village, Sullur Taluk, Coimbatore District, Tamil Nadu.

I also confirm that I shall be fully accountable for any mis-leading information mentioned in this statement.

Name : **Dr. S. Suriyakumar**

Signature :

Designation : **CEO**

Name of the EIA Consultant Organization: **Aadhi Boomi Mining & Enviro Tech Private Limited.**

QCI/NABET Accredited Consultant, Certificate No: **NABET/EIA/24-27/RA 0365 Valid up to: 23.10.2027.**

LIST OF CONTENTS

CHAPTER NO	TITLE	PAGE NO
1	INTRODUCTION	1-11
	1.1. Purpose of the Report	1
	1.2. Identification of Project and Project Proponent	2
	1.2.1 Identification of Project	3
	1.2.2 Identification of Project Proponent	3
	1.3. Brief Description of the Project	4
	1.3.1 Nature and Size of the Project	4
	1.3.2 Location of the Project	4
	1.4 Scope of the Project	8
	1.5 Methodology of EIA Study	9
2	PROJECT DESCRIPTION	12-47
	2.1. Need for the Project	12
	2.2. Demand – Supply GAP	12
	2.3. Location	12
	2.4 Size or Magnitude of Operation	25
	2.5 Proposed Schedule for Approval and Implementation	26
	2.6 Technology and Process Description	26
	2.6.1 Regional Geology	26
	2.6.2 Geology of the Lease Area	28
	2.6.2.1 Exploration	28
	2.6.3 Method of Mining	30
	2.6.4 Extent of Mechanization	30
	2.7 Land Use Pattern of the Core Zone	33
	2.8 Estimation of Reserves	38
	2.9 Year Wise Production and Development	39
	2.10 Stacking of Mineral Rejects and Disposal of Waste	40
	2.11 Conceptual Mining Plan/ Final Mine Closure Plan	40
	2.11.1 Restoration, Reclamation of already mined out area	41
	2.12 Employment Potential	46
	2.13 Amenities	46
	2.13.1 Sanitary Facilities	46
	2.13.2 First Aid Facility	46
	2.13.3 Labour Health	46
	2.13.4 Precautionary safety measures to the Labourers	47
	2.13.5 The Child Labour Employment	47

	2.14 Project Cost	47
	2.15 End Use	47
3	DESCRIPTION OF THE ENVIRONMENT	48-139
	3.1 General	48
	3.2 Study Area	48
	3.3 Study Period	49
	3.4 Baseline Environment	49
	3.4.1 Scope of Baseline Data Collection	49
	3.5 Meteorology	50
	3.5.1 Regional Meteorology	50
	3.5.2 Meteorological Data Recorded at IMD Station, Coimbatore District	51
	3.6 Air Environment	53
	3.6.1 Ambient Air Monitoring	53
	3.6.1.1 Selection of sampling location	53
	3.6.1.2 Parameters and Monitoring Methodology	53
	3.6.2 Monitoring Result	62
	3.6.3 Observation	62
	3.7 Noise Environment	62
	3.7.1. Method of Monitoring	63
	3.7.2 Interpretation	66
	3.8 Water Environment	67
	3.8.1. Interpretation	71
	3.9 Land Environment	72
	3.9.1 Soil Environment	72
	3.9.2 Methodology	72
	3.9.3 Observation	76
	3.10 Land Use/Land Cover Study	76
	3.10.1 Objectives	76
	3.10.2 Methodology for Baseline Data Generation	79
	3.10.2.1 Methodology Adopted for Thematic Data Extraction From the Satellite	79
	3.10.2.2 Topography	80
	3.10.3 Drainage Pattern of the Area	81
	3.10.4 Contour	84
	3.10.5 Slope	84
	3.10.6 Geological structure	84
	3.10.7 Soil	84
	3.10.9 Conclusion	89

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT
Proponent: K. Ranganathan, Rough Stone and Gravel Quarry, Coimbatore District

	3.11 Hydrogeology of the District	89
	3.11.1 Major Geological formations	89
	3.11.2 Aquifer Systems:	90
	3.11.3 Geophysical Electrical Resistivity Survey	90
	3.11.4 Methodology and Data Acquisition	93
	3.11.5 Geophysical Data Interpretation	93
	3.11.6 Groundwater Levels and flow direction	98
	3.11.7 Conclusions	98
	3.11.7 Conclusion	98
	3.12 Ecology and Biological Environment	98
	3.12.1 Description of Coimbatore District Environment	98
	3.12.2 Agriculture activities in Coimbatore District	99
	3.12.3 Forest resources	100
	3.12.4 Water resources	101
	3.12.5 Study Area Ecology	101
	3.12.6 Methodology of Sampling	101
	3.12.7 Data Collection	102
	3.12.7.1. Rapid Survey and Secondary data collection	102
	3.12.7.2. Field Data Collection	102
	3.12.7.3 Flora	102
	3.12.7.4 Analytical Aspects	102
	3.12.7.5 Flora	102
	3.12.7.6 Flora in Core Zone	104
	3.12.7.7. Flora in Buffer Zone	104
	3.12.7.8 Crop Pattern in Buffer Zone	104
	3.12.8 Fauna	109
	3.12.8.1. Fauna in Core Zone	110
	3.12.8.2. Fauna in Buffer Zone	110
	3.13 Socio-Economic Environment	114
	3.13.1 Introduction	114
	3.13.2 Objectives of the Study	115
	3.13.3 Scope of Work	115
	3.13.4 Study Area – Occupational profile of Edayarpalayam Village	121
	3.13.5. Socio economic studies in buffer area	125
	3.13.6 Social structure	127

EIA Consultant: Aadhi Boomi Mining & Enviro Tech (P) Ltd, Salem, Tamil Nadu

	3.13.7 Literacy levels	129
	3.13.8 Occupational structure	130
	3.13.9 Primary observations in study area	134
4	ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES	140-181
	4.1 Air Environment	140
	4.1.1 Anticipated Impact	140
	4.1.2 Emissions Details	140
	4.1.2.1 Drilling	141
	4.1.2.2 Loading of Rough stone	141
	4.1.2.3 Haul Road	142
	4.1.2.5 Blasting	142
	4.1.2.6 Summary of calculated Emission Rates	143
	4.1.3 Frame Work of Computation & Model Details	143
	4.1.3.1 Model Input data	144
	4.1.3.2 Model Results	144
	4.1.4 Combined Impact on Air Environment due to proposed quarry and adjacent within 500m radius	147
	4.1.5 Air Quality Index	148
	4.1.5.1 Interpretation of Air quality using IND-AQI	150
	4.1.6 Mitigation Measures	150
	4.2 Carbon Emission and Carbon Sinks Due to Proposed Mining Activity	151
	4.2.1 Carbon emissions	151
	4.2.1.1 Carbon emission due to natural activity in project site and carbon sinks	152
	4.2.1.2 Carbon emission due to human activity in project site and carbon sinks	152
	4.3 Soil Carbon Stock	153
	4.4 Noise Environment	153
	4.4.1 Anticipated Impacts due to Noise in Core Zone	154
	4.4.2 Mitigation measures for Control of Noise	157
	4.5 Ground Vibrations	158
	4.5.1 Mitigation measures for Control of Vibration	159
	4.6 Water Environment	160
	4.6.1 Anticipated Impact on Surface water body due to proposed project	161
	4.6.1.1 Mitigation measures	161

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT
Proponent: K. Ranganathan, Rough Stone and Gravel Quarry, Coimbatore District

	4.6.2 Anticipated Impact on Ground water body due to proposed project	161
	4.6.3 Management of rain water in the pit during monsoon season	162
	4.6.4 Water Quality Index	162
	4.6.5 Impact on Hydrogeology	163
	4.6.6 Rainwater Harvesting Potential in Core Zone at the end of project	166
	4.7 Soil Environment	166
	4.7.1 Impact on Soil Environment	166
	4.7.2 Mitigation measures for Soil Conservation	166
	4.8 Waste Dump Management	166
	4.8.1 Anticipated Impact	166
	4.8.2 Mitigation measures	166
	4.9 Municipal Solid Waste Management	167
	4.10 Ecology and Biodiversity	167
	4.10.1 Impact on Ecology and Biodiversity	167
	4.11 Socio Economic	175
	4.11.1 Anticipated Impact	175
	4.11.2 Mitigation Measures	176
	4.12 Land Environment	176
	4.12.1 Anticipated Impact on Land Use / Land Cover	176
	4.12.2 Mitigation measures	177
	4.13 Occupational Health Risks	177
	4.13.1 Anticipated Impact	177
	4.13.2 Anticipated occupational and safety hazards	178
	4.13.3 Anticipated health impacts on people in nearby villages	178
	4.13.4 Mitigation measures	178
	4.14 Agricultural Environment	179
	4.14.1 General	179
	4.14.2 Anticipated Impacts of Proposed project on Agriculture	179
	4.14.3 Mitigation measures	180
	4.15 Post Covid Health Management Plan	180
	5. ANALYSIS OF ALTERNATIVES (TECHNOLOGY AND SITE)	182
	6. ENVIRONMENTAL MONITORING PROGRAMME	183
6	6.1 Measurement Methodologies	183
	6.2 Monitoring Schedule and Frequency	183
	6.3 Data Analysis	184

EIA Consultant: Aadhi Boomi Mining & Enviro Tech (P) Ltd, Salem, Tamil Nadu

	6.4 Emergency Procedures	185
	6.5 Detailed Budget	185
7	ADDITIONAL STUDIES	186-191
	7.1 Public Consultation	186
	7.2 Risk Assessment and Disaster Management Plan	186
	7.2.1 Care and Maintenance during temporary discontinuance	187
	7.2.2 Economic repercussions of closure of mine and manpower retrenchments	188
	7.2.3 Time Scheduling for abandonment	188
8	7.3 Social Impact Assessment, R&R Action Plans	189
	7.4 Detail Study of Rainwater Harvesting After the Completion of Project	189
	7.5 Plastic/Microplastic Waste Management Plan	191
	PROJECT BENEFITS	192-195
	8.1 Physical Infrastructure	192
	8.2 Social Infrastructure	192
	8.3 Employment Potential	193
	8.4 Other Tangible Benefits	193
	8.4.1 Corporate Social Responsibility	193
	8.4.2 CSR activities	193
9	8.4.2.1 CSR Cost Estimation	194
	8.4.3 Corporate Environment Responsibility (CER)	195
	ENVIRONMENTAL COST BENEFIT ANALYSIS	196
10	9.0 Project Cost	196
	ENVIRONMENTAL MANAGEMENT PLAN	197-203
11	10.1 Description of the Administrative Aspects of Ensuring that Mitigative Measures are Implemented and Their Effectiveness Monitored, After Approval of the EIA.	203
	SUMMARY AND CONCLUSIONS	204
11	11.1 Scope of the Project	205
	11.2 Project Description	205
	11.3 Description of the Environment	207
	11.3.1 Base line environmental study	207
	11.4 Anticipated Environmental Impacts and Mitigation Measures	208
	11.4.1 Air Environment	208
	11.4.2 Noise Environment	209
	11.4.3 Water Environment	209

	11.4.4 Soil Environment	210
	11.4.5 Waste Dump	210
	11.4.6 Biological Environment	210
	11.4.7 Land Environment	210
	11.4.8 Socio Economic Environment	210
	11.5 Analysis of Alternatives	215
	11.6 Environmental Monitoring Program	215
	11.7 Project Benefits	216
12	11.8 Conclusion	216
	DISCLOSURE OF CONSULTANTS ENGAGED	217
	12.1 Scope	217
	12.2 Infrastructure	218
	12.3 Disclosure of Consultant for EIA Study	218
	12.4 Declaration of Experts Involved in the EIA Report Preparation	218

LIST OF FIGURES

FIGURE NO	TITLE	PAGE NO
1.1	Showing Location and route map of Proposed quarry lease area	5
1.2	Toposheet showing Location of the quarry	6
1.3	Google Earth Image showing 300m and 500m radius around lease area	7
2.1	Google image showing lease boundary and Coordinates of the Quarry	14
2.2	Quarry Lease and Surface Plan	15
2.3	Geology and Surface Plan of the lease area	16
2.4	Year Wise Development, Production Plan and Sections	17
2.4	Photograph shows general view of lease area	18
2.5	Google Earth Image showing Transport Network of 10 km radius around Proposed Project Site	21
2.6	Earthquake Hazard Map	22
2.7	Flood Hazard Map	23
2.8	Winds and Cyclone Hazard Map	24
2.9	Regional Geology and Geomorphology Map	29
2.10	Conceptual Plan	43
2.11	Section of Ultimate Pit Limit	44
3.1	Wind Rose Pattern	51
3.2	Geo-Referenced Toposheet showing 10km radius of Environmental Monitoring Stations	52
3.3	Air Sampling at Core and Buffer Zone	54
3.4	Georeferenced Toposheet showing air sampling location	55
3.5	Air quality analysis of Core and Buffer Zone	65
3.6	Noise Sampling at Core Zone and Buffer Zone	61
3.7	Georeferenced Toposheet showing Noise sampling locations	65
3.8	Ambient Baseline Noise Level	66
3.9	Water Sampling at Core and Buffer Zone	68
3.10	Geo referenced Toposheet showing water sampling location	69
3.11	Soil Sampling at Core and Buffer Zone	73
3.12	Georeferenced Toposheet showing soil sampling locations	74

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT
Proponent: K. Ranganathan, Rough Stone and Gravel Quarry, Coimbatore District

3.13	Land use / Land cover statistics of project study area Land Use cover of 10km radius.	77
3.14	Toposheet showing Road Accessibility details of 10 Km Radius	78
3.15	Methodology use for land- use classification and mapping	79
3.16	Chart showing Land use/ Land cover Analysis	81
3.17	Project Site Located in the Topomap	82
3.18	Represents the River/Streams (Drainage) of the study area within 10 km radius from the project site	83
3.19	Image Showing Contour and Slope of the lease area around 10km radius	86
3.20	Geology and Geomorphology of 10km Radius	87
3.21	Image Representing the Soil Characteristics around 10km of the Lease area	88
3.22	Schlumberger Array	91
3.23	DDR-3 Electrical Resistivity Meter	91
3.24	Photos showing Geophysical survey conducted at project site	91
3.25	Image showing Resistivity cross section and Resistivity curve, depth of data	92
3.26	Photographs showing Open well water level survey around 1kms radius	93
3.27	Open Well Static Ground Water Elevation Map Showing Direction of Groundwater flow during Post Monsoon (Oct-Dec-2024)	95
3.28	Open Well Static Ground Water Elevation Map Showing Direction of Groundwater flow during Pre Monsoon (Mar to May-2025)	96
3.29	Ground Water prospects map proposed project site around 10km Radius	97
3.30	Photos of Flora in Core and Buffer Area	108
3.31	Floral diversity in Core and buffer Zone	109
3.32	Photos of Fauna in Core Area	109
3.33	Faunal diversity in Core and buffer Zone	113
3.34	Faunal diversity in Core Zone	114
3.35	Faunal diversity in buffer Zone	114
3.36	Edayarpalayam Village Population Facts	115
3.37	Occupational Characteristics of Edayarpalayam Village	124

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DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT
Proponent: K. Ranganathan, Rough Stone and Gravel Quarry, Coimbatore District

3.38	Village Map Proposed Project around 10km Radius	132
3.39	Toposheet showing socio Economic survey around Buffer 10 km Radius	133
4.1	Isopleths of PM10 is 19.06 $\mu\text{g}/\text{m}^3$ (Core) occurred at the project site during i) loading and unloading and ii) transportation of rough stone over the haul road	145
4.2	Isopleths of PM10 is 10.86 $\mu\text{g}/\text{m}^3$ occurred near the project site during blasting in the mining area	146
4.4	Water Balance Chart	160
4.5	Schematic representation of depth of mining and water level	161
4.6	Interpreted resistivity curve matching technique	165
4.7	Maintain social distance of 2m in work place	181
4.8	Sanitizing Hand Frequently	181
4.9	Wear Mask at the work place	181

LIST OF TABLES

TABLE NO	TITLE	PAGE NO
1.1	Identification of Project	3
1.2	Identification of Project Proponent	3
1.3	Land Particulars	4
1.4	Environment Attributes	10
2.1	Co-ordinates of Quarry lease Boundary Pillars	13
2.2	Environmental Settings	18
2.3	Mining Details	25
2.4	Details of drilling equipment	31
2.5	Details of loading equipment	31
2.6	Details of transporting vehicle	31
2.7	Predicted PPV Values Due To Blasting	32
2.8	Computation of present and proposed land use pattern	33
2.9	Computation of Geological Resources and Reserves	38
2.10	Computation of Mineable/Recoverable Reserves	38
2.11	Computation of year wise production and development	39
2.15	Employment Potential of Ranganathan K, Rough stone and gravel quarry)	41
2.16	Water Requirements (3.5 KLD)	41
3.1	Summary of the Meteorological data for the study period	51
3.2	Ambient Air Quality Monitoring Stations	53
3.3	Summary of Ambient Air Quality Results	56
3.4	Noise Monitoring Stations	63
3.5	Summary of Ambient Noise Level during study period	66
3.6	Water Sampling Locations	68
3.7	Summaries of Water Quality Results	70
3.8	Frequency and Methodology for Soil Sampling & Monitoring	72
3.9	Soil Sampling Locations	72
3.10	Result of Soil Sample Analysis for Core and Buffer Zone	75
3.11	LU/LC Classes And Their Coverage in Sq. Km of 10 Km Radius	81
3.12	Aquifer Performance Test	92
3.13	Post-Monsoon Water Level of Open Wells within 1 km Radius	94
3.14	Pre-Monsoon Water Level of Open Wells within 1 km Radius	94

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT*Proponent: K. Ranganathan, Rough Stone and Gravel Quarry, Coimbatore District*

3.15	Details of Important crops in Coimbatore District	100
3.16	Floral Diversity in Core and Buffer area	105
3.17	Methodology applied during survey of fauna	110
3.19	Faunal in Core and Buffer area	111
3.20	Villages within 10 km of the Project Site	115
3.21	Details of Revenue villages within 10km radius	116
3.22	Edayarpalayam Village – Census 2011 (Sulur Taluk, Coimbatore District)	117
3.23	Population Characteristics – Edayarpalayam Village (2001–2011)	119
3.24	Socio-Economic Profile of Thimmanaikenpalayam Village (Census 2011)	119
3.25	Socio-Economic Profile of Bogampatti Village (Census 2011)	120
3.26	Socio-Economic Profile of Pachapalayam Village (Census 2011)	120
3.27	Occupational Characteristics of Edayarpalayam Village Coimbatore Dt. (2001-2011)	123
3.28	Distribution of Population in the study area	126
3.29	Distribution of population by social structure	127
3.30	Distribution of Population by Social Structure (2011 Census	128
3.31	Distribution of Literates and Literacy Rates (2011 Census	129
3.32	Occupational Structure of the Study Area (2011 Census	130
3.33	Summary of Socio-Economic Profile of Villages in the Study Area (2011 Census)	136
4.1	Source Parameters (Loading of Rough stone)	141
4.2	Source Parameters (During Vehicle Movement on Haul Road)	142
4.3	Source Parameters (During Blasting)	142
4.4	Emissions Rates of PM ₁₀	143
4.5	Emissions Rates of SO _x	143
4.6	Emissions Rates of NO _x	143
4.8	Total predicted GLC of PM ₁₀ in core and buffer zone due to combined action of loading, unloading and Transportation of Rough stone by trucks on the haul road, of the mining lease area.	145
4.9	Total predicted GLC of PM ₁₀ in core and buffer zone due to blasting activity in the mining lease area	146
4.10	Impact of SO _x due to Operation of Excavator and Movement of Vehicle in the mining lease area	147
4.11	Impact of NO _x due to Operation of Excavator and Movement of Vehicle in the mining lease area	147

EIA Consultant: Aadhi Boomi Mining & Enviro Tech (P) Ltd, Salem, Tamil Nadu

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT*Proponent: K. Ranganathan, Rough Stone and Gravel Quarry, Coimbatore District*

4.12	Incremental GLC of PM ₁₀ , PM _{2.5} , SO _x and NO _x due to the proposed mining activity	148
4.13	Total predicted GLC of PM ₁₀ , PM _{2.5} , SO _x and NO _x due to the combined activity in the cluster	148
4.14	AQI and its associated Health Impacts	149
4.15	Proposed Breakpoints for AQI Scale 0-500	149
4.16	Computation of AQI with Baseline data	150
4.17	Emission of carbon monoxide from vehicle	152
4.18	Permissible Exposures in Cases of Continuous Noise (CPCB)	154
4.19	Noise Exposure Levels and Its Effects	154
4.20	Expected Noise Levels	155
4.21	Predicted Noise levels in Core Zone and buffer zone	156
4.22	Estimated Peak Particle velocities for different Explosive Charges	158
4.23	Unit weight of the water quality parameters	159
4.24	Water quality index of water samples	162
4.25	Water quality scale	163
4.26	Resistivity Survey	163
4.27	Resistivity Survey	165
4.28	Ecological Impact Assessments and Its Mitigations -Part 1	170
4.29	Afforestation Plan of the Proposed Rough Stone & Gravel Quarry for the next five years	175
6.1	Instruments used for Monitoring	183
6.2	Monitoring Schedule	184
6.3	Environment monitoring budget	185
7.1	Risk Assessment and Disaster Management Plan	186
10.1	Environmental Management Plan	198
10.2	EMP Budget for Plan period	203
10.3	Budget Allocation for Mine Closure Plan as per ToR	203
11.1	Project Details	205
11.2	Baseline Data	207
11.3	Environmental Management Plan	203
11.4	Post Project Environmental Monitoring Program	205

LIST OF ANNEXURES

ANNEXURE	PARTICULARS	PAGE NO
I	Copy of Terms of Reference	222
II	Copy of Amendment Terms of Reference	244
III	Copy of Precise Area Communication Letter	247
IV	Copy of Approved Mining Plan Letter	250
V	Copy of Approved Modified Mining Plan Letter	253
VI	Copy of Cluster Letter	255
VII	Copy of Patta, FMB and Village Map	257
VIII	Copy of Lab Report	264

LIST OF ABBREVIATIONS AND ACRONYMS

AQI	-	Air Quality Index
AAQ	-	Ambient Air Quality
CPCB	-	Central Pollution Control Board
CAPEXIL	-	Chemical and Allied Export Promotion Council of India
CSR	-	Corporate Social Responsibility
DB	-	Decibel
DGM	-	Department of Geology and Mining
DGPS	-	Differential Global Positioning System
EC	-	Environment Clearance
EMP	-	Environment Management Plan
EIA	-	Environmental Impact Assessment
EMC	-	Environmental Management Cell
LEQ	-	Equivalent Noise Level
GOVT	-	Government of Tamil Nadu
GLC	-	Ground Level Concentration
HSE	-	Health, Safety and Environment
HA	-	Hectare
KLD	-	Kilo Liters Per -Day
KM	-	Kilo Meter
MOEF&CC	-	Ministry of Environment Forest and Climate Change
NH	-	National Highway
PH	-	Public Hearing
R&R	-	Rehabilitation & Resettlement
SEIS	-	Seismograph
SEIAA	-	State Environmental Impact Assessment Authority
SEAC	-	State Expert Appraisal Committee
SH	-	State Highway
SPM	-	Suspended Particulate Matter
TNPCB	-	Tamil Nadu Pollution Control Board
TOR	-	Terms of Reference
WQI	-	Water Quality Index

Compliance of Additional TOR given by SEAC

S. No.	CONDITIONS	COMPLIANCE
ANNEXURE - I		
1.	In case of existing/operating mines, a letter obtained from the concerned AD (Mines) shall be submitted and it shall include the following. (i) Original pit dimension (ii) Quantity achieved Vs EC approved Quantity (iii) Balance Quantity as per Mineable Reserve calculated (iv) Mined out Depth as on date Vs EC permitted depth (v) Details of Illegal/Illicit mining (vi) Violation in the quarry during the past working (vii) Quantity of material mined out outside the mine lease area (viii) Condition of safety zone/benches (ix) Revised/Modified Mining plan showing the benches of not exceeding 6m height and ultimate depth of not exceeding 50m	This is fresh lease
2.	Details of habitations around the proposed mining area and latest VAO certificate regarding the location of habitations within 300m radius from the periphery of the site.	Yes, The Latest habitations detail VAO certificate enclosed.
3.	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 shall be enumerated with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places of worship, industries, factories, sheds, etc., with indicating the owner of the building, nature of construction, age of the building, number of residents, their profession and income, etc.	The details of nearest habitation are given in Table No 2.3 in Chapter 2. Refer Page no 18 and 19.
4.	The PP shall submit a detailed hydrological report indicating the impact of proposed quarrying operations on the water bodies like lake; water tanks, etc., are located within 1 km of the proposed quarry.	The hydro geology study has been conducted within the study area of project site. Refer Page No 89 in Chapter 3. The details of water bodies in the study area are given chapter 2. Refer Table no 2.3 in Page no 18 and 19.

5.	The Proponent shall carry out Bio-diversity study through reputed Institution and the same shall be included in EIA report.	The baseline study on Ecology and Biodiversity are given detail in Chapter 3. Refer Clause 3.12 in Page No 98. The impact on Ecology and Biodiversity are given in Chapter 4. Refer Clause 4.10 in Page No 167.
6.	The DFO letter stating that the proximity distance of Reserve Forests, Protected Areas, Sanctuaries, Tiger reserve etc., up to a radius of 25 km from the proposed site.	Not applicable. The mining area does not involve any forest land (Refer Table 2.3 Pg No.18 and 19)
7.	In the case of proposed lease in an existing (or old) quarry where the benches are nonexistent (or) partially formed critical of the bench geometry approved in the Mining plan, the Project Proponent (PP) shall carry out the scientific studies to assess the slope stability of the working benches to be constructed and existing quarry wall, by involving any one of the reputed Research and Academic Institutions – CSIR – Central Institute of Mining & Fuel Research/Dhanbad, NIRM/Bangalore, Division of Geotechnical Engineering – IIT – Madras, Nit- Dept of mining Engg. Surathkal and Anna University Chennai – CEG Campus. The PP shall submit a copy of the aforesaid report indicating the stability status of the quarry wall and possible mitigation measures during the time of appraisal for obtaining the EC prepare and submit an 'Action plan' for carrying out the realignment of the 'high wall' benches of 16 m to ensure slope stability in the proposed quarry lease which shall be vetted by the concerned Asst. Director of Geology and Mining, during the time of appraisal for obtaining the EC.	It is fresh lease.
8.	The Proponent shall submit a conceptual 'Slope Stability plan' for the proposed quarry indicating the proposed stabilizing measures during the appraisal while obtaining the EC, when the depth of the working is extended beyond 30 m below ground level.	Slope Stability report submit before obtaining direct CTO from TNPCB.
9.	The PP shall furnish the affidavit stating that the blasting operation in the proposed quarry is carried out by the statutory competent person as per the MMR 1961 such as blaster, mining mate, mine	Agreed. The affidavit stating that the blasting operation in the proposed quarry is carried out by the statutory competent person as per the MMR 1961.

	foreman, II/I Class mines manager appointed by the proponent.	
10.	The PP shall present a conceptual design for carrying out only controlled blasting operation involving line drilling and muffle blasting in the proposed quarry such that the blast-induced ground vibrations are controlled as well as no fly rock travel beyond 30m from the blast site.	As it is rough stone quarry, blasting will be carried out to remove blocks from the parent rock by forming crack. Adequate Blast shield or blast mats will be provided wherever necessary for fly rock protection during blasting, thus to prevent the accident on the nearest farms.
11.	The EIA Coordinators shall obtain and furnish the details of quarry/quarries operated by the proponent in the past, either in the same location or elsewhere in the state with video and photographic evidences.	The drone survey will be conducted for this project. The video and photographs handover to SEIAA Meeting.
12.	If the proponent has already carried out the mining activity in the proposed mining lease area after 15.01.2016, then the proponent shall furnish the following details from AD/DD, mines.	This is fresh lease.
13.	What were the period or the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?	This is fresh lease.
14.	Quantity of minerals mined out. • Highest production achieved in any one year. • Detail of approved depth of mining. • Actual depth of the mining achieved earlier. • Name of the person already mined in that leases area. • If EC and CTO already obtained, the copy of the same shall be submitted. • Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.	This is fresh lease.
15.	All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/Topo sheet, topographic sheet, geomorphology, lithology and geology of the mining lease area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).	The Toposheet showing location of the lease area is attached in Chapter 1. Refer 1.2 in Page No.6. The geology and geomorphology of the 10km radius of proposed area is given in Chapter 2. Refer Fig No 2.9 in Page No 29. The land use/land cover image is given Chapter 3. Refer Page No 77.

16.	The PP shall carry out Drone video survey covering the cluster, Green belt, fencing etc.	The PP will be carried out drone survey final EIA report.
17.	The proponent shall furnish photographs of adequate fencing, green belt along the periphery including re plantation of existing trees & safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan.	The fencing and green belt development along the periphery is under process. The photographs will be attached in final EIA Report.
18.	The Project Proponent shall provide the details of mineral reserves and mineable reserves, plan production capacity, and proposed working methodology with justifications, the anticipated impacts of the mining on the surrounding environment and the remedial measures for the same.	The details of reserves, production capacity and methodology are given in Chapter – 2. Refer Page No 38-42 & the impacts on surrounding environment due to mining activity are given in Chapter 4.
19.	The Project Proponent shall provide the organization chart indicating the appointment of various statutory officials and other competent persons to be appointed as per the provisions of Mines Act'1952 and the MMR, 1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment.	The employment potential of proposed project is given in Chapter 2. Refer Page No 46.
20.	The project proponent shall conduct the hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD/TWAD so as to assess the impacts on the wells due to mining activity. Based on actual monitored data, it may be clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided.	The hydro geology study has been conducted within the study area of project site. Refer Page No 89 in Chapter 3. The details of water bodies in the study area are given chapter 2. Refer page no 18 and 19. The depth of water table identified by Geo resistivity survey is 45mbgl whereas the proposed depth of mining is 32m bgl. Therefore, the mining activity will not intersect ground water table.
21.	The proponent shall furnish the baseline data for the environmental and ecological parameters with regard to surface water & ground water quality, air quality, soil quality & flora/fauna including traffic/vehicular movement study.	The baseline data for the environmental and ecological parameters were collected. Refer Chapter 3.
22.	The Proponent shall carry out the Cumulative	The anticipated cumulative impact on

	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.	various environments such as air, water, soil and noise etc due to proposed mining activity are given in Chapter 4 with appropriate mitigation measures. The environmental management plan is given in Chapter 10.
23.	Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) is submitted.	The studies on rain water harvesting is given in Chapter 7. Refer Page No 189.
24.	Land, use of the study area delineating forest area, Agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.	The land use/land covers of 10km radius of proposed mining lease area are given in Chapter 3. Refer Fig No 3.32 in Page No 77.
25.	Details of the land for storage of Overburden/Waste Dumps (or) Rejects outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be provided.	Not applicable. All waste and rejects shall be dumped within the lease area of 2.28.0 Ha of K. Ranganathan.
26.	Proximity to Areas declared as 'Critically Polluted' (or) the Project areas which attracts the court restrictions for mining operations, should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the TNPCB (or) Dept. of Geology and Mining should be secured and furnished to the effect that the proposed mining activities could be considered.	No. There is no boundary of critically polluted area found within 10km radius proposed mining lease area.
27.	Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the project, if any, should be provided.	At the end of mining, the quarried-out pit will be used for storing rain water which will enhance agricultural activity around the lease area. The rain harvesting plan is given detail in Chapter 7. Refer Page No 189.
28.	Impact on local transport infrastructure due to the project should be indicated.	No. The existing roads are available to withstand the traffic generated due to proposed project. Refer Fig No.2.5 in Page No 21 of chapter 2.

29.	A tree survey study shall be carried out (nos., name of the species, age, diameter etc.,) both within the mining lease applied area & 300m buffer zone and its management during mining activity.	Only trees such as Neem trees, coconut trees, palm trees, Pungamin tree, Guava tree, Teak tree are found within 500m radius.
30.	A detailed mine closure plan for the proposed project which should be site specific.	The mine closure plan for the proposed project is included in the EIA report. Refer Fig No 2.10 in Chapter 2. (Page No 43).
31.	As a part of the study of flora and fauna around the vicinity of the proposed site, the EIA coordinator shall strive to educate the local students on the importance of preserving local flora and fauna by involving them in the study, wherever possible.	Agreed. The EIA coordinator will educate the local students on the importance of preserving local flora and fauna.
32.	The purpose of green belt around the project is to capture the fugitive emissions, carbon sequestration and to attenuate the noise generated, in addition to improving the aesthetics. A wide range of indigenous plant species should be planted as given in the appendix-I in consultation with the DFO, State Agriculture University. The plant species with dense/moderate canopy of native origin should be chosen. Species of small/medium/tall trees alternating with shrubs should be planted in a mixed manner.	Agreed. In consultation with the DFO, State Agriculture University, the green belt will be made around the boundary of lease area to capture the fugitive emissions, carbon sequestration and to attenuate the noise generated
33.	Taller/one year old Saplings raised in appropriate size of bags, preferably eco-friendly bags should be planted as per the advice of local forest authority's/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	Agreed. Taller/one year old Saplings will be planted as per the advice of local forest authority's/botanist/ Horticulturist with regard to site specific choices.
34.	A Disaster management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.	The Disaster management Plan has been prepared and included in the EIA report. Refer Clause 7.2 in Page No 186 of Chapter 7.
35.	A Risk Assessment and management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.	Risk Assessment and management Plan has been prepared and included in the EIA report. Refer Clause 7.2 in Page No 186 of Chapter 7.
36.	Occupational Health impacts of the Project should be anticipated and the proposed preventive	An occupational Health impact of the Project has been anticipated and the

	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.	appropriate mitigation measures are given in Chapter 4 of EIA report. Refer Clause 4.13.
37.	Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.	Yes, it is given in EIA report. Refer Clause 4.13 in Page No.177 of EIA report.
38.	The Socio-economic studies should be carried out within a 5 km buffer zone from the mining activity. Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.	The study on Socio-economic for the proposed project is mentioned in Clause 3.10 of Chapter 3. Refer Page No 114 of EIA report.
39	Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.	NA
40	Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.	The benefits of the proposed project are given detail in Chapter 8. Refer Page No 192.
41	If any quarrying operations were carried out in the proposed quarrying site for which now the EC is sought, the Project Proponent shall furnish the detailed compliance to EC conditions given in the previous EC with the site photographs which shall duly be certified by MoEF&CC, Regional Office, Chennai (or) the concerned DEE/TNPCB.	It is fresh quarry
42	The PP shall prepare the EMP for the entire life of mine and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine.	The EMP for the proposed project is mentioned in Chapter 10 along with EMP cost. The affidavit stating to abide the EMP for the entire life of mine will be attached in the EIA report.
43	Concealing any factual information or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this Terms of Conditions besides	Agreed.

	attracting penal provisions in the Environment (Protection) Act, 1986.	
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Compliance of conditions mentioned in TOR letter by SEIAA

Compliance of Annexure 'B'

S. No.	CONDITIONS	COMPLIANCE
Cluster Management Committee		
1	Cluster Management Committee shall be framed which must include all the proponents in the cluster as member including the existing as well as proposed quarry.	Agreed. The Cluster Management Committee will be formed as per SEAC guidance.
2	The members must coordinate among themselves for the effective implementation of EMP as committed including Green Belt Development, Water sprinkling, tree plantation, blasting etc.,	Agreed. After forming CMC, the all the members will implement environment management plan effectively. Effective plan has been given in Chapter – 4.
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 before the commencing the quarry activity.
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.	Certified Blaster will be engaged for blasting having adequate knowledge in Environmental safety aspects. Plan will be included in the EIA report. The usage of haul roads by the individual quarry is attached in EIA report. Refer Fig No 2.5 in page No 21 of Chapter 2.
5	The committee shall deliberate on risk management plan pertaining to the cluster in a holistic manner especially during natural calamities like intense rain and the mitigation measures considering the inundation of the cluster and evacuation plan.	Risk Management is elaborated in Chapter 7 of the EIA report
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.	Agreed. The CMC will form Environmental Policy to practice sustainable mining in a scientific and systematic manner. The same shall be displayed within the cluster area.
7	The committee shall furnish action plan regarding the restoration strategy with respect to the individual quarry falling under the	The conceptual plan for the quarry area 2.28.0 Ha is attached in the EIA report. Refer Fig No 2.10 in page No 43 of Chapter 2.

	cluster in a holistic manner.	After forming CMC, the restoration strategy of individual quarry will be submitted to AD Mines, Coimbatore.
8	The committee shall furnish the Emergency Management plan within the cluster.	Agreed. After forming CMC, the committee will furnish the Emergency Management plan to AD Mines, Coimbatore.
9	The committee shall deliberate on the health of the workers/staff involved in the mining as well as the health of the public.	Occupational safety and Health care of the workers are included in Chapter – 4 in the EIA report
10	The committee shall furnish an action plan to achieve sustainable development goals with reference to water, sanitation & safety.	Agreed. After forming CMC, the committee will furnish the action plan to achieve sustainable development goals with reference to water, sanitation & safety to AD Mines, Coimbatore.
11	The committee shall furnish the fire safety and evacuation plan in the case of fire accidents.	Agreed. After forming CMC, the committee will furnish fire safety and evacuation plan to AD Mines, Coimbatore.
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 - Soil health & bio-diversity. - Climate change leading to Droughts, Floods etc. - Pollution leading to release of Greenhouse gases (CHG), rise in Temperature, & Livelihood of the local people. - Possibilities of water contamination and impact on aquatic ecosystem health. - Agriculture, Forestry & Traditional practices. - Hydrothermal/Geothermal effect due to destruction in the Environment. - Bio-geochemical processes and its foot prints including environmental stress. - Sediment geochemistry in the surface streams.	Impact on Soil Health, biodiversity, carbon emission and impact on water environment including aquatic ecosystem and on agricultural environment are discussed in detail in Chapter 4.

Agriculture & Agri - Biodiversity		
13	Impact on surrounding agricultural fields around the proposed mining area.	The impact on surrounding agricultural fields is given in chapter 4. Refer Clause 4.14 in page No.179.
14	Impact on soil flora & vegetation around the project site.	The impact on ecology and biodiversity including soil flora & vegetation around the project site is mentioned in Chapter 4. Refer Page No.167.
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 the EMP.	As it is new rough stone quarry there is no trees or plants in quarry area. However, PP planted Neem trees along the boundary of mining lease area. There are only few numbers of Neem trees, coconut trees, palm trees, Prosopis juliflora are found within 500m radius buffer zone. It will not be disturbed during quarrying activity.
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 impact on ecology and biodiversity including the soil micro flora, fauna and soil seed banks around the project site is mentioned in Chapter 4. Refer Page No.167.
17	Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.	At the end of mining, the quarried-out pit will be used as water storage pond which improves the agricultural activity in the buffer zone. The afforestation plan for five years is given in Chapter 4. Refer Table No 4.29 in Page No.175.
18	The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands, horticulture, Agriculture and livestock.	Anticipated impact on Agriculture, Horticulture and livestock is given Chapter 4. Refer Clause 4.14 in Page No 179.
Forests		
19	The project proponent shall detailed study on impact of mining on reserve forests free ranging wildlife.	There is No reserve forests located within 10km radius of the project site. There are no wildlife sanctuaries within 10km radius. Refer Table 2.3 in Page No 18 and 19 of Chapter 2.
20	The Environmental Impact Assessment should study on impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.	There is no endangered species found within 10km radius study area.
21	The Environmental Impact Assessment should study impact on standing trees and the	As it is new rough stone quarry, no trees and shrubs are present in the quarry area.

	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.	There are no protected areas, National Parks, Corridors and Wildlife pathways within 10km radius of the project site. There is no reserve forest located within 10km radius. The impact on reserve forest is given in Chapter 4. Refer Clause 4.10 in page No 167.
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 1km (radius) so as to assess the impacts on the nearby water bodies due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided, covering the entire mine lease period.	The hydro geology study has been conducted within the study area of project site. Refer Page No 89 in Chapter 3. The details of water bodies in the study area are given chapter 2. Refer page no 18 and 19. The depth of water table identified by Geo resistivity survey is 45mbgl whereas the proposed depth of mining is 32m bgl. Therefore, the mining activity will not intersect ground water table.
24	Erosion Control measures.	To control the erosion, the tree sapling will be planted along the mining lease boundary. Garland drainage will be developed around the dump to control the washout of dump due to hydrostatic pressure.
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.	The impact of mining on the nearby villages and water bodies are given detail in chapter 4.
26	The Project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir.	The detailed study of impact on fish habitation and food WEB/ food chain in the water body and reservoir is given in Chapter 4. Refer Table 4.28, Page No 170.
27	The Project Proponent shall study and furnish the details on potential fragmentation impact on natural environment, by the activities.	The detailed impact studies are given in Chapter 4.
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 site possible land	The study and the impact on aquatic plants and animals in water bodies are mentioned in Chapter 4. There are no caves, heritage site, and archaeological site found within 10km radius of

	form changes visual and aesthetic impacts.	project site.
29	The terms of reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components.	The impact study on soil health and erosion is given in Clause 4.7 in Chapter 4. Refer Page no 166. The soil physical, chemical components and microbial components are given in Chapter 3. Refer Page No.76.
30	The Environmental Impact Assessment should study on wet lands, water bodies, rivers, streams, lakes and farmer sites.	The impact study on surface water bodies and agricultural land is given in Chapter 4.
Energy		
31	The measures taken to control Noise, Air, Dust control and steps adopted to efficiently utilise the energy shall be furnished.	The mitigation measure for air pollution and noise pollution is given in chapter 4.
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.	The carbon emission due to proposed mining activity and its mitigation measures are given in Chapter 4. Refer in Page No 152.
33	The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock.	The carbon emission due to proposed mining activity and its mitigation measures are given in Chapter 4. Refer Page No 152.
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 covering the entire mine lease period as per precise area communication order issued is given in Chapter 2, pg. no. 43.
EMP		
35	Detailed Environmental Management Plan along with adaption, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued.	Detailed environmental management plan is given in Chapter 10, pg. No. 198.
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 environmental management plan is given chapter 10. The cost for green belt development is mentioned in Table 10.2 in Chapter 10. Refer Page No 203. Budget for mine closure plan is given in Table 10.3 in Page No 203 of Chapter 10.

		The disaster management plan is given in Chapter 7. Refer page no 186.
Risk Assessment		
37	To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of mining.	Disaster management plan is given in Chapter 7, pg. No. 186.
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.	Details are furnished in Table 7.1 in chapter 7, pg. no. 186.
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.	The letter regarding approved habitations, schools, Archaeological sites, Structures, railway lines, roads, water bodies such as streams, odai, vaari, canal, channel, river, lake, pond, tank within 300m radius has been obtained from VAO.
40	As per the MoEF&CC office memorandum F.No22-65/2017-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.	The Final EIA Report prepared part of the Environment Management Plan.
41	The project proponent shall study and furnish the possible pollution due to plastic and micro plastic on the environment. The ecological risks and impacts of plastic & micro plastics on aquatic environment and fresh water systems due to activities, contemplated during mining may be investigated and reported.	The study on pollution due to plastic its ecological risk is mentioned in Chapter 7. Refer Clause 7.5 in Page no 191.

Compliance of Standard ToR		
S. No	ToR	Compliance
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.	It is a new lease Rough Stone quarry. The mining plan was approved by the Deputy Director, Geology and Mining, Coimbatore during the year 2019 vide letter No. 165/Kanimam/2022 dated 20.06.2023. Refer Chapter 1 (Page No. 1)
2.	A copy of the document in support of the fact that the proponent is the rightful lease of the mine should be given.	The precise area communication was granted by District Collector Coimbatore District in the name of project proponent Thiru. K. Ranganathan, vide Rc. No. 165/Kanimam/2022 dated 20.06.2023. Refer chapter 1 (Pg.No.1 & 2).
3.	All documents including approved mine plan, EIA and Public Hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and should be in the name of the lessee.	Contents in all documents are synchronizing with one another in terms of mine lease area, production levels, waste generation, its management and mining technology. The mining plan was approved by the Deputy Director, Geology and Mining, Coimbatore during the year 2021 vide letter No. 165/Mines/2022 dated 06.07.2023. Refer Chapter 1 (Page No. 1)
4.	All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/ Toposheet; topographic sheet, geomorphology and geology of the area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).	The study area lies between Northern Latitude of 10° 54' 55.96"N to 10°55'1.97"N and Eastern Longitude from 77° 6' 41.92"E to 77°6'49.57"E. The area is marked in the survey of India Toposheet No. 58 F/01. Details are given in clause 1.3.2 of Chapter 1 and Pg. No. 3. Geology & Geomorphology of the mine is given in Fig No: 2.9 (Refer Pg. No: 29). Land Use / Land Cover map of the study area (core and buffer zone) has been prepared on the basis of Satellite imagery using RS & GIS Technique & the same has been incorporated in Fig No: 3.13 & 3.16 of Chapter 3 (Refer Pg.

		No: 77, 81).
5.	Information should be provided in Survey of India Toposheet in 1:50,000 scale indicating geological map of the area, geomorphology of land forms of the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics.	Survey of India Toposheet No. 58 F/01 in 1:50,000 scale indicating physical and surface features 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 is given in Fig No: 1.1, 1.2, 2.4, 2.7, 2.9, 3.3, 3.4, 3.5 respectively.
6.	Details about the land proposed for mining activities should be given with information as to whether mining conforms to the land use policy of the State; land diversion for mining should have approval from State land use board or the concerned authority.	The land proposed for mining activities is given in Table No.2.8 of Pg. No. 23. In Chapter 2.
7.	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 Thiru. K. Ranganathan is very much conscious of implementing Environment management plan with systematic mining. The proponent will submit the compliance the EC conditions with stipulated time.
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.	Issues relating to mine safety pertaining to failure of Pit slope for open cast mining is described in Table 7.1, Refer Pg. No. 186.
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	The Study area of the proposed mining project comprises of 10 km zone around the mining Lease boundary has been prepared. Refer Fig

	waste generation etc. should be for the life of the mine/ lease period.	No. 1.2 & Pg. No. 6. Data like reserves, waste generation up to life of mine (at the end of the 5 th year) have been incorporated in Chapter 2.
10.	Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human 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.	10 km radius map of the Study area delineating forest area, agricultural land, grazing land, wildlife sanctuary and national park, migratory routes of fauna, water bodies, human settlements, other existing mines/industrial activity and other ecological features are shown in Fig No. 3.13 of Chapter 3, Pg. No. 77. Land use plan of the mine lease area showing is given in in Table No. 2.8 of Pg. No. 33.
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.	The dump proposed for this rough stone quarries Refer page no. 41. The mining operations will not disturb/relocate any villages or need resettlement. Details of nearby villages and their population are given in Table 3.22 of Chapter 3) No reclamation or re- habitation Plan (R & R) is proposed (Refer Clause 7.3 of Chapter 7).
12.	A Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area. In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees.	The quarry area dos not involves forest land. Refer Annexure-VII
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	The quarry area dos not involves forest land. Refer Annexure-VII

	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.	Not Applicable
15.	The vegetation in the RF / PF areas in the study area, with necessary details, should be given.	The quarry area does not involve forest land. Refer Annexure-VII
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.	Eco biodiversity (EB) study has been done for the project which details the impact on surrounding wildlife and mitigation measures are discussed and given in Chapter- 4.
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.	The location of Reserve Forest within 10 km radius is referred in Page No 18 and 19 of Chapter 2. There is no wild life.
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	Details of Flora and Fauna found in the study area are given in the clause 3.12 (Pg. No 98) in Chapter 3.

	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.	No
20.	Similarly, for coastal Projects, A CRZ map duly authenticated by one of the authorized agencies demarcating LTL, HTL, CRZ area, location of the mine lease w.r.t CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).	Not Applicable. The mining area is located 222 km from Bay of Bengal (SE). Hence, the project doesn't attract the C.R.Z. Notification, 2011. Refer chapter 11.
21.	R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need-based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine lease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspects should be discussed in the Report.	The mining project does not involve any kind of displacement of the population since the mining will be concentrated only in the quarry area. The impact of mining activity on the population will be insignificant. Hence, Rehabilitation of settlements is not anticipated under this project as it will not be required. (Refer Clause 7.3 Pg. No. 189). The Socio-Economic study detailed in Clause 3.23 of Chapter 3, (Pg. No:114 of the EIA 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.	Winter season monitoring data on Air quality for a period of three months and Water quality, and Noise level, Soil and Flora & Fauna in core and buffer zones are detailed in Chapter 3
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.	The detail on air quality status predicted is detailed in Clause 4.1 of Chapter 4, Pg. No. 140-152. Wind Rose Pattern is shown in Fig. 3.2, (Pg. No: 51) of Chapter 3.
24.	The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated.	The water requirement for the Project is 3.5 KLD. Refer clause 4.6 of Chapter 4. (Pg. No:160). Water Balance chart in clause 4.6 of chapter 4 & Fig No: 4.4 (Pg. No. 160).
25.	Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.	Requires water for drinking and for water spraying, dust suppression and plantation. Water for drinking will be utilized from the certified supplier of water vendor. Water for

		dust control shall be taken from the existing bore wells.
26.	Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.	The project does not consume any process water except for drinking, dust suppression & plantation. Plantation is proposed, which will increase the water holding capacity & help in recharging of ground water. The storm water collection pond will be used for rain water harvesting post operationally.
27.	Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided.	The impacts of the project on the water quality are assessed and necessary safeguard measures will be provided. (Refer Clause 4.6.2 of Chapter 4).
28.	Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter-alia, shall include details of the aquifers present and impact of mining activities on these aquifers. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.	The mining operation will be maximum of Below Ground Level. The ground water table is 70 m below the ground level and therefore mine working as proposed on higher level will not affect water regime. Hence there will not be any intersect of mining operation with ground water table. Refer Fig 4.5 page No 161 in chapter 4. A detailed Hydro Geological Study has been carried out and furnished in Clause 3.11 of Chapter 3, Pg. No:89.
29.	Details of any stream, seasonal or otherwise, passing through the lease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be brought out.	There is no stream crossing inside the mine lease area and no need for modification / diversion. (Refer Fig No 1.2 Page No 5 in Chapter 1).
30.	Information on site elevation, working depth, groundwater table etc. should be provided both in AMSL and bgl. A schematic diagram may also be provided for the same.	Site elevated from 532m above MSL. The mining operation will be Maximum of 32m bgl. The ground water table at 45m below ground level and mine workings are proposed on higher and will not affect water regime. Hence there will not be any intersect of mining operation with ground water table. (Refer Clause 4.6.2 and fig 4.5 of Chapter 4, Pg. No: 161).
31.	A time bound Progressive Greenbelt	Phase-wise plan of plantation and

	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.	Compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the name of the species is detailed in Table 4.29. Refer pg. No. 175.
32.	Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines.	The mining activities will be carried out through the existing roadways during leisure hours only, with no increase in the existing traffic pattern. (Refer Fig No 2.9 Page No 21 in Chapter 2.
33.	Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.	Onsite shelter and facilities like temporary shed will be provided to the mine workers. Refer Page No 22 of chapter 2. The workers in the mines will be provided rest shed, first aid centre, ambulance facility. The hazardous protecting equipment also will be provided to the employees such as helmet, ear muff, mask etc. (Refer Table 11.3 of Chapter 11)
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.	Post-Mining (Conceptual) Land Use with Environment Management has been prepared. Reclamation of mined area is given in Clause 2.9 of Chapter 2.

35.	Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.	Occupational Health impacts of the Project will be anticipated and the proposed preventive measures are detailed in EIA the report. (Refer Clause 4.9 of Chapter 4).
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.	All control measure for air emission, noise control, and waste management will be taken as per norms. Hence there will not be any impact on population. (Refer Chapter 4).
37.	Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.	Details of community welfare activities proposed for the local community, along with proposed budget have been incorporated in EIA Report (Refer Clause 8.1 of Chapter 8).
38.	Detailed environmental management plan (EMP) to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project.	Environmental Management Plan for the existing mining project has been prepared and incorporated in Chapter 10.
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.	Public hearing is will be conducted.
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.	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	Total Cost of the Project (capital cost) is Rs.81.0 lakhs and EMP Cost is Rs. 6.75 lakhs. (Refer Clause 2.14 Pg. No: 47).

	spelt out.	
42.	A Disaster management Plan shall be prepared and included in the EIA/EMP Report.	A detailed Risk and Disaster Management Plan has been prepared and detailed in clause 7.2 of Chapter 7.
43.	Benefits of the Project if implemented shall clearly indicate environmental, social, economic, employment potential, etc.	If the Project is implemented, mining activity will help in improving environmental, social, and economic and employment potential directly and indirectly in the study area. Refer Chapter 8.
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/i, IABL accredited laboratories. All the original analysis/testing reports should be available during appraisal of the Project e) Where the documents provided are in a language other than English, an English translation should be provided. f) The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted. g) While preparing the EIA report, the instructions for the Proponents and instructions for the Consultants issued by MoEF&CC vide O.M. No. J-1 1013/4112006-IA. II (D dated 4th August, 2009, which are available on the website of this Ministry, should be followed.	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. i) As per the circular no. J- 1 101 1/618/2010-1A. 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 reopen should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and sections and (iii) sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area.	
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CHAPTER – 1: INTRODUCTION

1.1 PURPOSE OF THE REPORT

The applicant, Thiru. K.Ranganathan, S/o Sri. Karuppusamy, residing at No. 11/243, Kurumbapalayam Road, Madukkarai Taluk, Coimbatore District, Tamil Nadu. The State Government has granted mining lease over an extent of 2.28.0 Hectares in S.F. No: 174/4 and 176/1 Patta land of Idayarpalayam Village, Sullur Taluk, Coimbatore District, Tamil Nadu for quarrying rough stone and gravel. The validity of lease period is 10 years (From the date of execution)

The Deputy Director, Department of Geology and Mining, Coimbatore has directed the applicant, Thiru. K.Ranganathan, vide his precise area communication letter Roc. No. 165/Kanimam/2022 dated 20.06.2023 obtain Environmental clearance from the State Environment Impact Assessment Authority (SEIAA) as per the EIA Notification, 2006 and its amendments for grant of quarrying lease to rough stone and gravel quarry in Idayarpalayam Village, Sullur Taluk, Coimbatore District, Tamil Nadu for the period of 10 years (From the date of execution).

The mining plan is prepared as per the Precise area communication letter, 165/Kanimam/2022 dated 20.06.2023 under Rule 41& 42 of Tamil Nadu Minor Minerals Concession Rules, 1959 for quarrying rough stone and gravel it is approved by Deputy Director, Department of Geology and Mining, Coimbatore vide letter Rc. No. 165/Mines/2022 dated 06.07.2023. The project proponent has applied for Environmental Clearance to SEIAA-TN vide online proposal No. SIA/TN/MIN/436694/2023 Dated. 14.07.2023. The proposal was placed in 409th SEAC meeting on 21.09.2023 during the meeting the SEAC recommend the Terms of Reference (ToR) with condition to prepare the Modified Mining Plan and get approval from competent authority leaving a distance of 150 m from the Windmill structure. In continuation, the file was placed 660th SEIAA meeting dated 06.10.2023 and grant the ToR vide Lr. No: SEIAA-TN/F.No: 10293/SEAC/ToR-1570/2023 dated: 06.10.2023. Later the project proponent has filed the case in Hon'ble High Court of Madras (Writ Jurisdiction), W.P. No: 14936 of 2024 Dated: 22.05.2024 as against the ToR for reducing the safety distance of 150 m to 50 m as per the TNMMCR, 1959.

In this connection the SEAC called the project proponent for personal hearing on 06.04.2025 (548th SEAC meeting). During the meeting the proponent request the SEAC committee to reduce the safety distance of 150m to 50m from the windmill. Finally, the SEAC committee accept to reduce the safety distance 150m to 70m from the Windmill structure.

As per the direction of SEAC committee the project proponent prepared the Modified Mining Plan (MMP) with provide the safety distance of 70m from the windmill. In continuation modified mining plan and approved from Deputy Director, Department of Geology and Mining, Coimbatore vide letter Rc. No. 165/Mines/2022 dated 08.07.2025. The project proponent has again applied for Environmental Clearance to SEIAA-TN vide online proposal No. SIA/TN/MIN/537484/2025 Dated. 19.08.2025. The proposal was placed in 594th SEAC meeting on 18.07.2025 and 866th SEIAA meeting on 06.08.2025 during the meeting the SEAC/SEIAA grand the amendment Terms of Reference (ToR) Identification No. TO25B0108TN5650668A with condition to prepare the Environmental Impact Assessment and Environmental Management Plan with Public Hearing.

As per the cluster letter issued by Deputy Director, Department of Geology and Mining, Coimbatore vide Rc.No.165/Mines/2022, dated 06.07.2023 for Thiru. K.Ranganathan (2.28.0 Ha) the lease area of above said 6 applicants comes in cluster of 500m radius. The total area of cluster is 14.49.32 Ha. The extents of lease area of all individual as per cluster letter are given below,

Existing Quarries

1. N.Chithradevi	—	3.64.50 Ha
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Proposed Quarries

1. Mr.K.Ranganathan	—	2.28.0 Ha
2. Mr.N. Kathiresh	—	1.42.50 Ha
3. Ultra Redaymin Concrete (P) Ltd.,—		4.10.50 Ha
4. Mr. Saravanan	—	1.84.0 Ha

Expired Quarries

1. Mr. Sakthivel	—	1.19.50 Ha
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Abandoned Quarries

1. Government	—	3.13.50 Ha
2. Tmt. Ponnammal	—	2.34.5 Ha

As per MoEF&CC OM: F. No. L-11011/175/2018-IA-II(M), dated 12.12.2018, the 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/436694/2023 Dated. 14.07.2023. The proposal was placed in 409th SEAC meeting on 21.09.2023 and 660th SEIAA meeting dated 06.10.2023 and grant the ToR vide Lr. No: SEIAA-TN/F.No: 10293/SEAC/ToR-1570/2023 dated: 06.10.2023 and the project proponent has again applied for Environmental Clearance to SEIAA-TN vide online

proposal No. SIA/TN/MIN/537484/2025 Dated. 19.08.2025. The proposal was placed in 594th SEAC meeting on 18.07.2025 and 866th SEIAA meeting on 06.08.2025 during the meeting the SEAC/SEIAA grand the amendment Terms of Reference (ToR) Identification No. TO25B0108TN5650668A Dated: 06.08.2025. The EIA report has been prepared based on the recommended Standard ToR and Specific ToR.

1.2. IDENTIFICATION OF PROJECT AND PROJECT PROPONENT

1.2.1. IDENTIFICATION OF PROJECT

The applicant, Thiru.K.Ranganathan, proposed to Rough stone and gravel quarry located in S.F. No. 174/4 and 176/1 over an extent of 2.28.0 Ha in Idayarpalayam Village, Sullur Taluk, Coimbatore District, Tamil Nadu. The Deputy Director, Department of Geology and Mining, Coimbatore District has directed the applicant, Thiru.K.Ranganathan through his Precise area communication letter Roc.No.165/Kanimam/2022, dated 20.06.2023 to get AMMP and obtain EC form SEIAA as per the EIA Notification, 2006.

1.2.2. IDENTIFICATION OF PROJECT PROPONENT

Table. 1.1 Identification of Project	
Particulars	Details
Applicant	Thiru. K.Ranganathan
Lease Area	2.28.0 Hectares (Patta land)
Site Location	Idayarpalayam Village, Sullur Taluk, Coimbatore District, Tamil Nadu
Precise Area Communication	Roc.No.165/Kanimam/2022 dated 20.06.2023
Period of Lease	10 Years
Mining Plan Approval Details	Roc.No.165/Mines/2022, dated 14.07.2023
Modified Mining Plan Details	Roc.No.165/Mines/2022, dated 08.07.2023

Table. 1.2 Identification of Project Proponent	
Address of the Project Proponent	Thiru. K.Ranganathan, No. 11/243, Kurumbapalayam Road, Madukkarai Taluk, Coimbatore District, Tamil Nadu
Status	Individual

Table No: 1.3 Land Particulars

State & District	Taluk	Village	S.F. No	Permissible for quarrying (Ha)	Ownership Occupancy
Tamil Nadu & Coimbatore	Sullur	Idayarpalayam	174/4	0.90.0	Patta land
			176/1	1.38.0	
			TOTAL	2.28.0 Ha	

1.3. BRIEF DESCRIPTION OF THE PROJECT

1.3.1. Nature and Size of the Project

Open cast Mechanized mining shall be adopted to raise the production in this area and transportation of ore and waste. The excavated rough stone is used for building's basement stones and also used for crushing units and other infrastructure development work in and around the district.

The geological resources of rough stone are estimated as 6,53,760m³ or 17,97,840 MT the mineable reserves are estimated as 2,08,296m³ or 5,72,814 MT of rough stone and 30,646 m³ or 45,969 MT of gravel by leaving the required statutory safety distance from the lease boundary as indicated in the letter issued by the Deputy Director of the Department of Geology and Mining, Coimbatore. Production Schedule is proposed as 1,51,899m³ or 4,17,722 MT @ 95 % of rough stone for five years, up to depth of 32m. Average year wise production of rough stone is 30,380m³ or 83,545 MT per annum or 101.26 m³ or 278.46 MT per day for the 300-working day in a year by open cast mining. The above said reserves and productions are as per approved Modified mining plan.

1.3.2. LOCATION OF THE PROJECT

The area is accessible from Coimbatore to Kannampalayam by 10 km further travel to reach Pappampatti 6.2 km then travel 5.7 km reach the site. The village road is located on the east side for transportation materials.

Route:

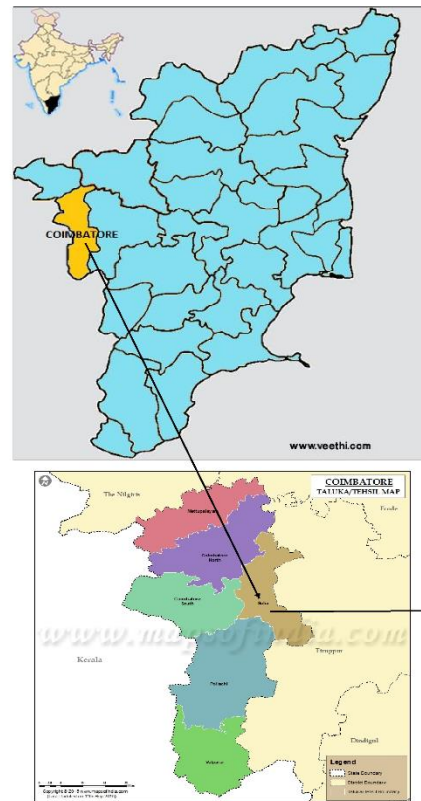
Coimbatore 10 Km --> Pappampatti 6.2 Km --> Lease area 5.7 km

The area is represented by Survey of India Toposheet No. 58 F/01. It is given in fig 1.2. The location map is given in fig 1.1. The area lies in the northern latitude of 10° 54' 55.96"N to 10°55'1.97"N and eastern longitude of 77° 6' 41.92"E to 77°6'49.57"E.

Location and Accessibility Map of Quarry Lease Boundary

Location: **Extent: 2.28.00 Ha** **Village: Idayarpalayam** **Taluk: Suler** **District: Coimbatore**

INDEX



SCALE: 1: 1000



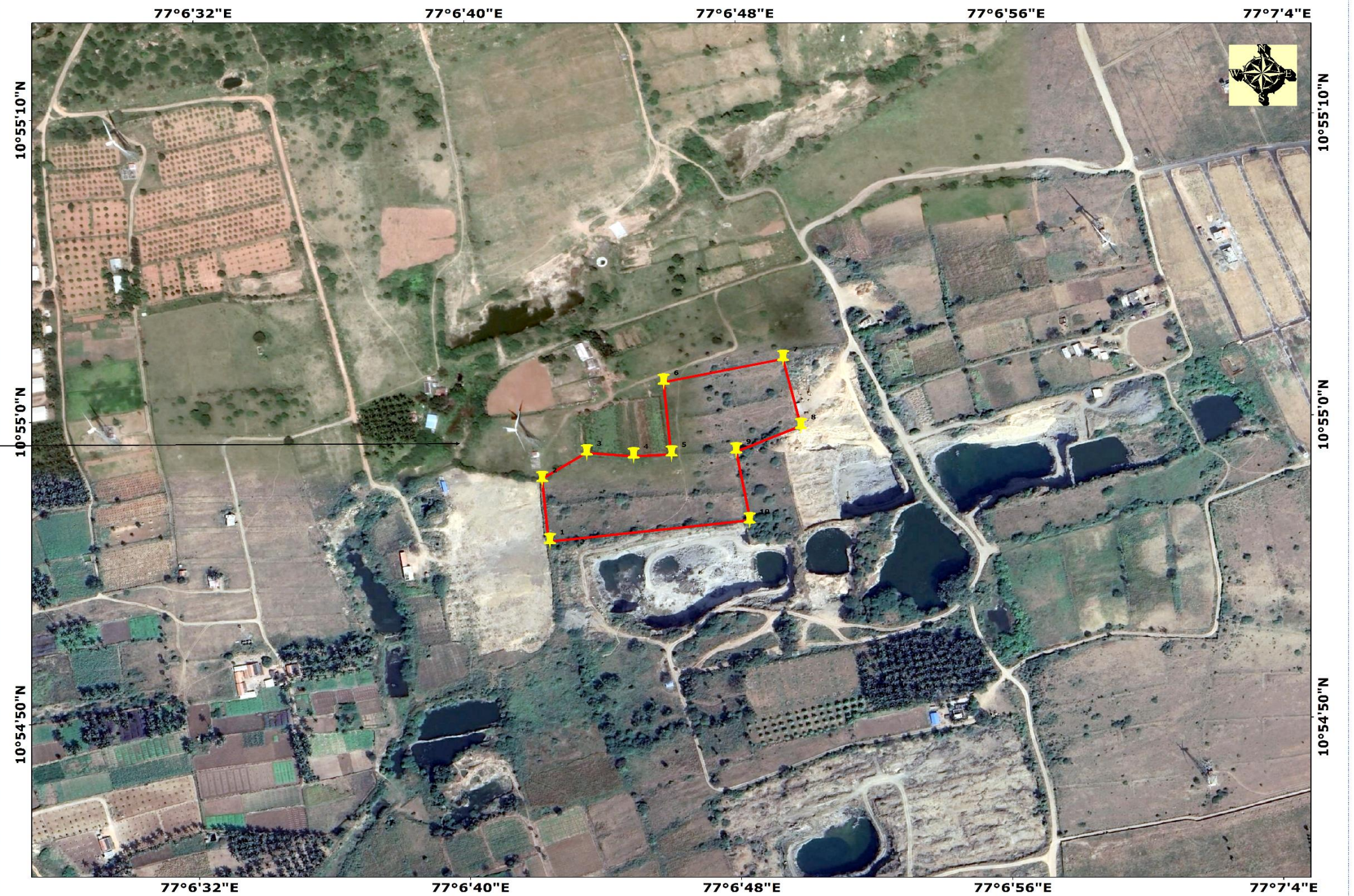
LEGEND

Lease Boundary

PROONENT

Thiru. K.Ranganathan
Extent: 2.28.00 Ha

Source: Google Image



GPS-Coordinates

Latitude: 10°54'55.96"N to 10°55'1.97"N
Longitude: 77° 6'41.92"E to 77° 6'49.57"E

Prepared by

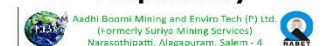
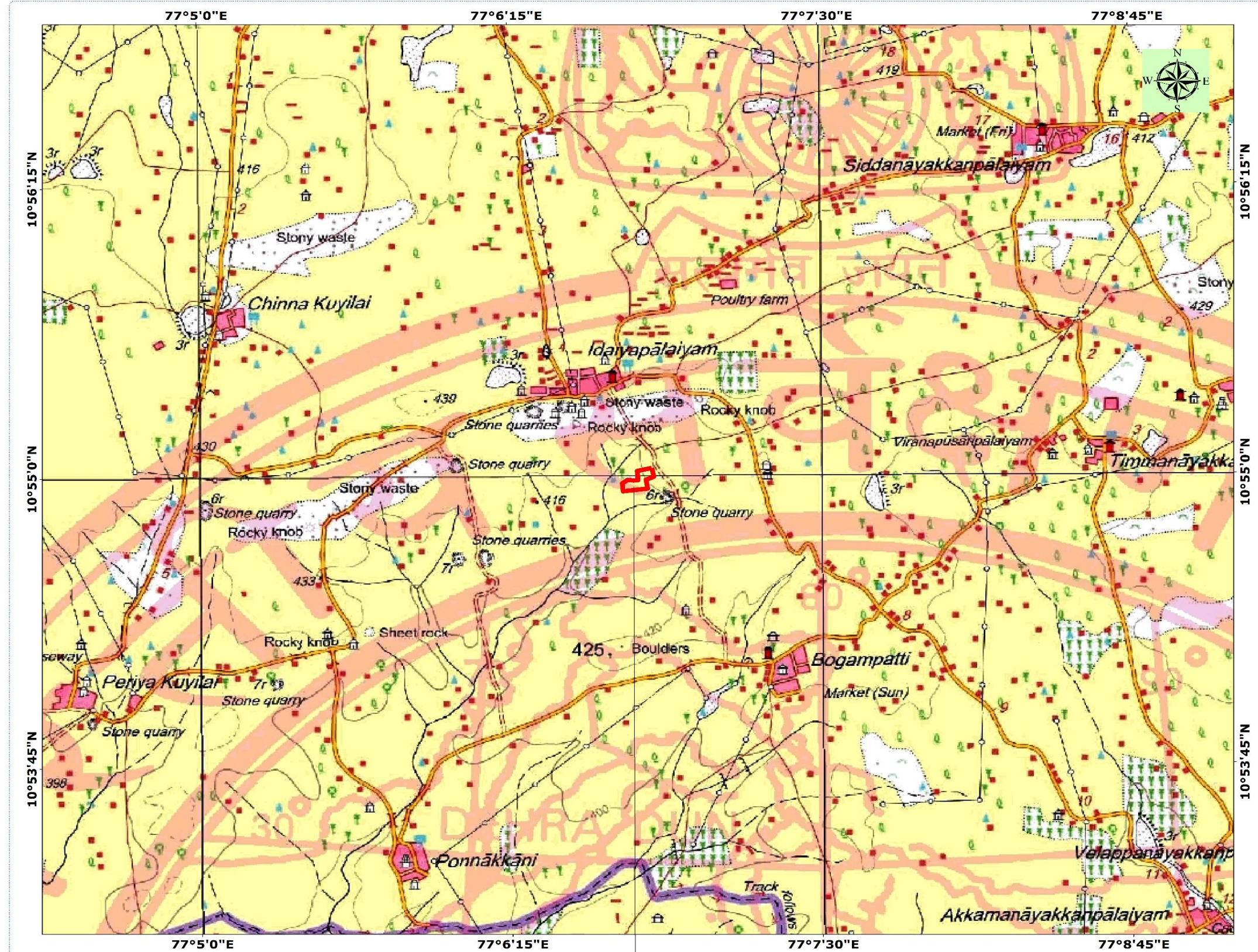


Fig.No.1.1: Showing Location and route map of Proposed quarry lease area

Toposheet Showing location of Quarry Lease Boundary

SCALE: 1 : 10,000



Source: Survey of India

LEASE AREA

INDEX

Toposheet No: 58 F/01

CONVENTIONAL SYMBOLS

Express Highway: with toll; with bridge, with distance stone	
Roads, metalled: according to importance	
Roads, double cartilageway: according to importance	
Unmetalled road, Cart-track, Pack track with pass, Foot-path	
Streams: with track in bed, undrained, Canal	
Dam: masonry or rock-filled, earthwork, Weir	
River: dry with water channel, with island & rocks, Tidal river	
Submerged rocks, Shoal, Swamp, Reeds	
Wells: lined, unlined, Tube-well, Spring, Tanks: perennial, dry	
Embankments: road or rail, tank, Broken ground	
Railways, broad gauge: double, single with station, under constr.	
Railways, other gauges: double, single with distance stone, do	
Mine: line or tramway, Kln. Cutting with tunnel	
Contours with sub-features, Rocky slopes, Cliffs	
Sand features: (1) flat, (2) sand-hills (permanent), (3) dunes (shifting)	
Towns or Villages: inhabited, deserted, Fort	
Huts: permanent, temporary, Tower, Antiquities	
Temple (Chhatra), Church, Mosque, Dargah, Tomb, Graves	
Lighthouse, Lightship, Buoys: lighted, unlighted, Anchorage	
Mine: Vnu de bells, Grass, Scrub	
Palms: palmyra, other, Flax, Conifer, Bamboo, Other trees	
Acres: cultivated, wooded, Surveyed trees	
Boundary: international	
state: demarcated, undemarcated	
district: subdivision, tahsil or taluk, forest	
Boundary pillars: surveyed, uncoloured	
Heights, triangulated station: point: approximate	
Bench-mark: geodetic, tertiary, canal	
Post office, Telegraph office, Overhead tank	
Rest house or Inspection bungalow, Circuit house, Police station	
Camping ground, Forest: reserved, protected	
Spaced names: administrative, locality or tribal	
Hospital, Dispensary, Veterinary: Hospital / Dispensary	
Aerodrome, Helipad, Tourist site	
Power line: with pylons surveyed; with poles unsurveyed	

LOCATION

S.F.No: 174/4 & 176/1
Extent: 2.28.00 Ha
Village: Idayarpalayam
Taluk: Sulur
District: Coimbatore

APPLICANT

Thiru. K.Ranganathan
D.No: 11/243,
Kurambampalayam Road,
Madukkarai Taluk,
Coimbatore

LEGEND

Lease Boundary

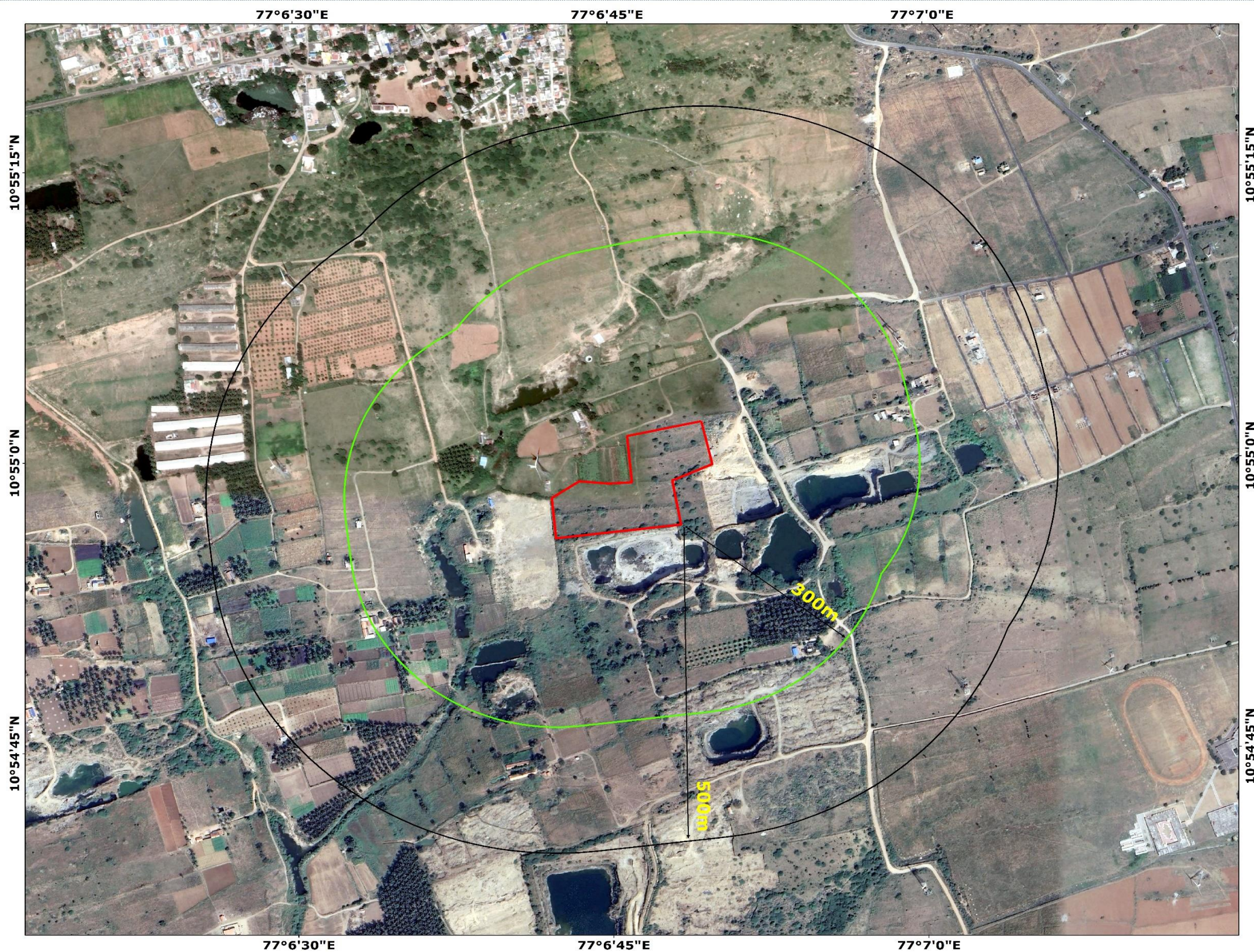
Prepared by



Fig.No.1.2: Toposheet showing Location of the quarry

GIS based buffer of 300/500m radius over the Google Image

SCALE: 1 : 2000



Source: Google Image

INDEX

LOCATION

S.F.No: 174/4 & 176/1
Extent: 2.28.00 Ha
Village: Idayarpalayam
Taluk: Sulur
District: Coimbatore

APPLICANT

Thiru. K.Ranganathan
D.No: 11/243,
Kurambampalayam Road,
Madukkarai Taluk,
Coimbatore

LEGEND

- Lease Boundary
- Buffer Zone 500m Radius
- Buffer Zone 300m Radius

Prepared by



Fig.No.1.3: Google Earth Image showing 300m and 500m radius around lease area

1.4. ENVIRONMENTAL CLEARANCE

The Environmental Clearance process for the project will comprise of four stages. These stages in sequential order are given below: -

1. Screening,
2. Scoping
3. Public consultation &
4. Appraisal

SCREENING:

- ✚ The precise area communication Letter **Rc. No: Na. Ka. 165/Kanimam/2022 dated: 20.06.2023** for a period of 10 years.
- ✚ The mining plan was prepared in respect of rough stone and gravel quarry and the same was approved by the Deputy Director of Geology and Mining, Coimbatore, vide **Rc. No. 165/Mines/2022 dated 06.07.2023**.
- ✚ The Modified Mining Plan approved by Deputy Director of Geology and Mining, Coimbatore, vide **Rc. No. 165/Mines/2022 dated 08.07.2025**.
- ✚ Proponent applied for ToR to get Environmental Clearance vide online Proposal No. **SIA/TN/MIN/511310/2024, Dated: 02/12/2024**.
- ✚ Proponent again applied for Amendment ToR to get Environmental Clearance vide online Proposal No. **SIA/TN/MIN/537484/2025 Dated. 19.08.2025**.

SCOPING:

- The proposal was placed in 409rd SEAC meeting held on 21.09.2023 the committee recommended for issue of ToR.
- The proposal was considered 660th SEIAA meeting held on 06.10.2023 and issued **ToR vide Lr. No: SEIAA-TN/F.No: 10293/SEAC/ToR-1570/2023 dated: 06.10.2023**.
- The proposal was placed in 594rd SEAC meeting held on 18.07.2025 the committee recommended for issue of Amendment ToR.
- The proposal was considered 866th SEIAA meeting held on 06.08.2025 and issued amendment Terms of Reference (ToR) Identification No. **TO25B0108TN5650668A Dated: 06.08.2025**.

PUBLIC CONSULTATION:

Application to The District Environmental Engineer of the Tamil Nadu Pollution Control Board (TNPCB) to conduct Public Hearing in a systematic, time bound and

transparent manner ensuring widest possible public participation at the project site or in its close proximity in the district is submitted along with this Draft EIA/ EMP Report English and Tamil. The outcome of public hearing proceedings will be detailed in the Final EIA/EMP Report.

1.5. SCOPE OF THE PROJECT

The proposal for Environment Clearance of Rough stone and gravel quarry lease of Thiru.K.Ranganathan, requires Environmental Impact Assessment (EIA) study to be carried out as per Standard, Specific and additional TOR specified by the SEAC. Based on the documents furnished for TOR, the Committee observed that the project falls under the category B1(Cluster) and schedule 1(a) of the EIA Notification, 2006 as the cluster area is greater than 5 Ha and less than 250 Ha. This is primarily to ascertain the potential impacts of the mining activity on environmental components, prediction and evaluation of environmental impacts to delineate Environment Management Plan.

The EIA/EMP report also includes an independent chapter prepared by an Accredited Consultant. The collection and analysis of air, water and soil sample required for preparation of EIA report data will be done by an Environmental Laboratory duly notified under the Environment (Protection) Act, 1986, accredited by NABET/NABL.

The scope of the study includes a detailed characterization of the environment in an area of 10km radius from the quarry lease Area. The EIA covers one season baseline environmental data, as per the standard generic model given by the MoEFCC, New Delhi.

In order to assess the likely impacts arising out of this project on the surrounding environment and evaluating the quantum of likely negative impacts, if any, from this mine, the proponent has selected Aadhi Boomi Mining and Enviro Tech Pvt. Ltd., Salem as their EIA consultant for this project. ABM prepared an Environmental Impact Assessment (EIA) report and made an effective Environment management Plan (EMP) for various environmental components likely to be affected.

The scope covers all the conditions along with the specific and additional TOR prescribed by SEAC/SEIAA, Tamil Nadu ToR vide **Lr. No: SEIAA-TN/F.No: 10293/SEAC/ToR-1570/2023 dated: 06.10.2023** and amendment Terms of Reference (ToR) Identification No. **TO25B0108TN5650668A Dated: 06.08.2025**.

1.5 METHODOLOGY OF EIA STUDY

The EIA study includes detailed baseline data generation and characterization of existing status of environment in an area of 10km radius with the project as its Centre for

various environmental components viz. air, noise, water, land, geo-hydrology, Noise & Vibration, biological and socio-economic components and other parameters of interest. The envisaged scope of EIA is as follows:

- To assess the present status of air, biota, water, land, biological and socio-economic components of environment within 10km radius of study area from the project site.
- To identify and quantify the significant positive and negative impacts due to various mining operation in various components of the environment through identification and prediction of impacts
- To identify the impact and description of the impact with quantitative and qualitative data
- To prepare a detailed Environment Management Plan for implementation of mitigate measures
- To suggest a monitoring program to evaluate the effectiveness of mitigate measures
- Post-project environmental quality monitoring program to be followed

The baseline monitoring study has been carried out during the March 2025 to May 2025 for various environmental components so as to assess the anticipated impact on the environment and suggest suitable mitigation measures for likely adverse impacts due to the project. Environmental attributes, source and frequency of monitoring are outlined in table 1.4.

Table: 1.4 Environment Attributes

S. No	Attributes	Parameters	Source and Frequency
1	Meteorology	Temperature, Wind Speed, Wind Direction, Rain fall, Relative Humidity,	Secondary sources of IMD station, Coimbatore. Hourly recorded data for the period of 3months.
2	Ambient Air Quality	PM ₁₀ , PM _{2.5} , SO ₂ and NO _x	8-hour samples twice in a week for three months at 5 locations.
3	Water Quality	Physical, Chemical and Biological parameters	Grab sampling at 5 locations once during study period.
4	Noise levels	Noise levels in dB(A)	At 5 locations data monitored once in a month for three months for 24 hours during EIA study.
5	Soil Characteristics	Physical and Chemical parameters	Once at 5 locations during study period
6	Hydrogeology	Drainage area and pattern, nature of streams, aquifer	Based on data collected through field investigation devices once

		characteristics, recharge and discharge areas	in a study.
7	Land use	Existing land use for different categories	Based on Survey of India Toposheet and Google Earth imagery
8	Ecology and Biodiversity	Existing terrestrial flora and fauna within 10Km radius	Field observation and utilization of Secondary data.
9	Socio–Economic aspects	Socio–economic and demographic characteristics, worker characteristics	Based on collection of primary data through questionnaire analyses and utilization of Secondary data from census records (2001 –2011), statistical hand books, topo sheets, health records and relevant official records.
10	Risk assessment and Disaster Management Plan	Identify areas where disaster can occur by fires and explosions and release of toxic substances if any	Based on the findings of risk associated with explosives, landslides, slips and fire/explosion during blasting etc.,

The impacts of the project activities on environmental components can be quantified through EIA Studies within the impact zone of the project activities. The results of EIA studies form the basis for the preparation of a viable EMP for mitigation of the adverse impacts.

1.7. Regulatory Compliance & Applicable Laws/Regulations.

- ✚ Application for Quarrying Lease as per Tamil Nadu Minor Mineral Concession Rules, 1959.
- ✚ Obtained Precise Area Communication Letter as per Tamil Nadu Minor Mineral Concession Rules, 1959 for Preparation of Mining Plan and obtaining Environmental Clearance
- ✚ The Mining Plan of Mining rough stone quarry has been approved under Rule 41 & 42 as amended of Tamil Nadu Minor Mineral Concession Rules, 1959.
- ✚ ToR vide **Lr. No: SEIAA-TN/F.No: 10293/SEAC/ToR-1570/2023 dated: 06.10.2023**
- ✚ Amendment ToR Identification No. **TO25B0108TN5650668A Dated: 06.08.2025.**

CHAPTER – 2: PROJECT DESCRIPTION

2.1. NEED FOR THE PROJECT

The applicant Thiru. K. Ranganathan, residing at, 11/243, Kurumbapalayam Road, Madukkarai Taluk, Coimbatore District, and Tamil Nadu has applied for quarry lease rough stone and gravel quarry in a Patta land over an area of 2.28.0 hectares, located in S.F. No: 174/4 and 176/1 Patta land of Idayarpalayam Village, Sullur Taluk, Coimbatore District, Tamil Nadu.

The mining plan was approved by Deputy Director, Department of Geology and Mining, Coimbatore vide letter Rc. No. 165/Mines/2022, dated 06.07.2023 and Modified Mining plan approved by Deputy Director, Department of Geology and Mining, Coimbatore vide letter Rc. No. 165/Mines/2022, dated 08.07.2025. The proposed rate of production of Rough Stone is about 1,51,899 m³ or 4,17,722 MT up to the depth of 32m bgl.

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.

2.2 DEMAND – SUPPLY GAP

The coarse and fine aggregate are the basic raw material for the building construction and the road formation. It takes place in all villages, towns, cities and metropolitan cities. There is great demand in availability of rough stone. So, it is necessary to fulfill the demand by starting the proposed rough stone quarry.

2.3 LOCATION

The area is represented by Survey of India Toposheet No. 58 F/01. The lease boundary with Geo Co-ordinates is shown in fig 2.1. The area lies in the northern latitude of 10° 54' 55.96"N to 10° 55'1.97"N and eastern longitude of 77°6' 41.92"E to 77°6'49.57"E. Latitude and Longitude of all boundary Pillars are given below,

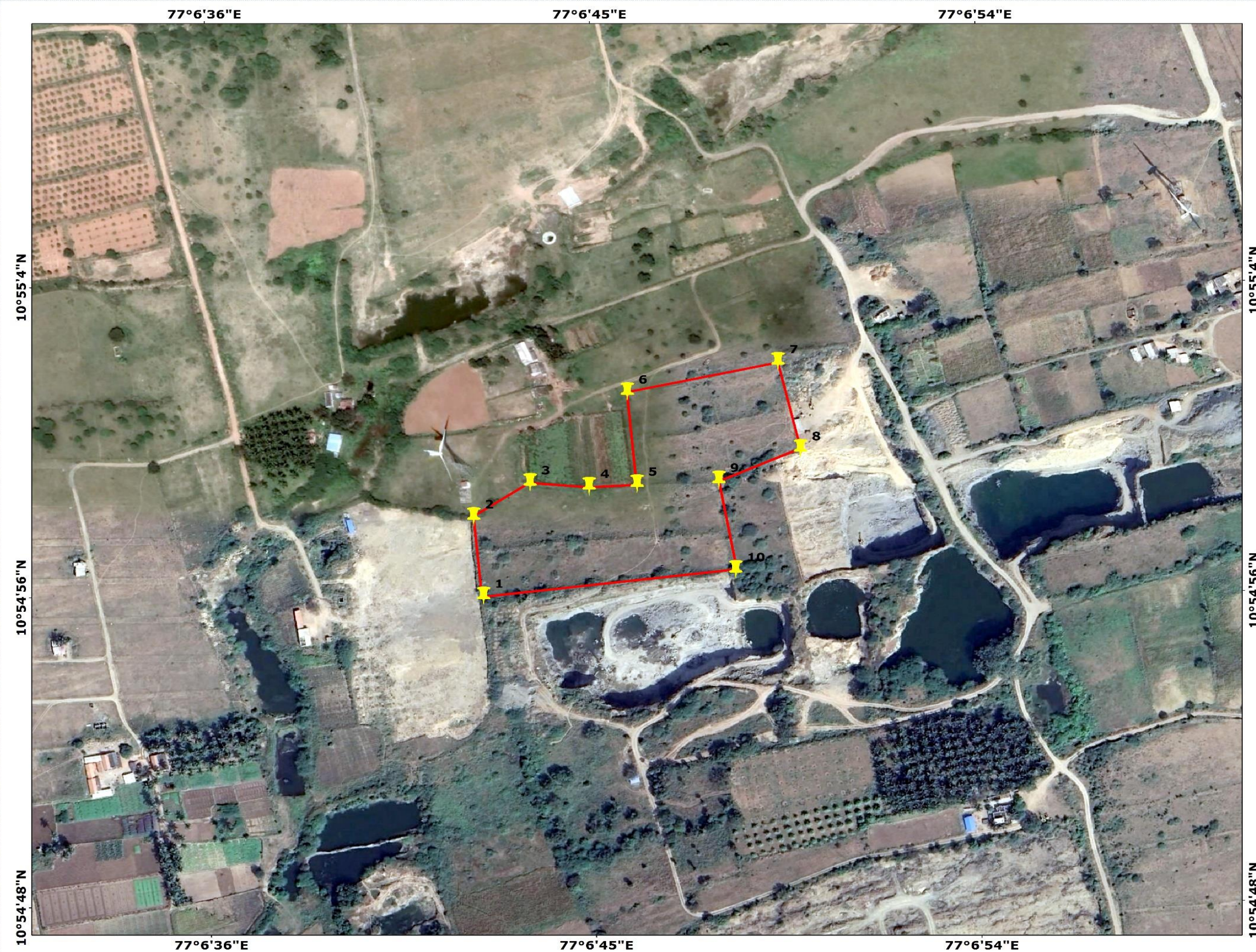
Table No-2.1 Co-ordinates of Quarry lease Boundary Pillars

P. No	Latitude	Longitude
1	10°54'55.96"N	77° 6'42.14"E
2	10°54'58.02"N	77° 6'41.92"E
3	10°54'58.89"N	77° 6'43.24"E
4	10°54'58.78"N	77° 6'44.63"E
5	10°54'58.84"N	77° 6'45.75"E
6	10°55'1.21"N	77° 6'45.53"E
7	10°55'1.97"N	77° 6'49.06"E
8	10°54'59.72"N	77° 6'49.57"E
9	10°54'58.92"N	77° 6'47.66"E
10	10°54'56.61"N	77° 6'48.03"E

- No Trees will be uprooted due to this quarrying operation.
- The existing road from the main road to quarry is in good condition and the same will be maintained and utilized for Transportation of Rough stone.
- There will be no Export of this quarrying rough stone

Google Image Showing Lease Boundary with Coordinates

SCALE: 1 : 1000



Source: Google Image



Coordinates of Pillars

P.No	Latitude	Longitude
1	10°54'55.96"N	77° 6'42.14"E
2	10°54'58.02"N	77° 6'41.92"E
3	10°54'58.89"N	77° 6'43.24"E
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INDEX

LOCATION

S.F.No: 174/4 & 176/1
Extent: 2.28.00 Ha
Village: Idayarpalayam
Taluk: Suler
District: Coimbatore

APPLICANT

Thiru. K.Ranganathan
D.No: 11/243,
Kurambampalayam Road,
Madukkarai Taluk,
Coimbatore

LEGEND

Lease Boundary

Prepared by

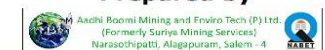


Fig.No.2.1: Google image showing lease boundary and Coordinates of the Quarry

LEASE PLAN

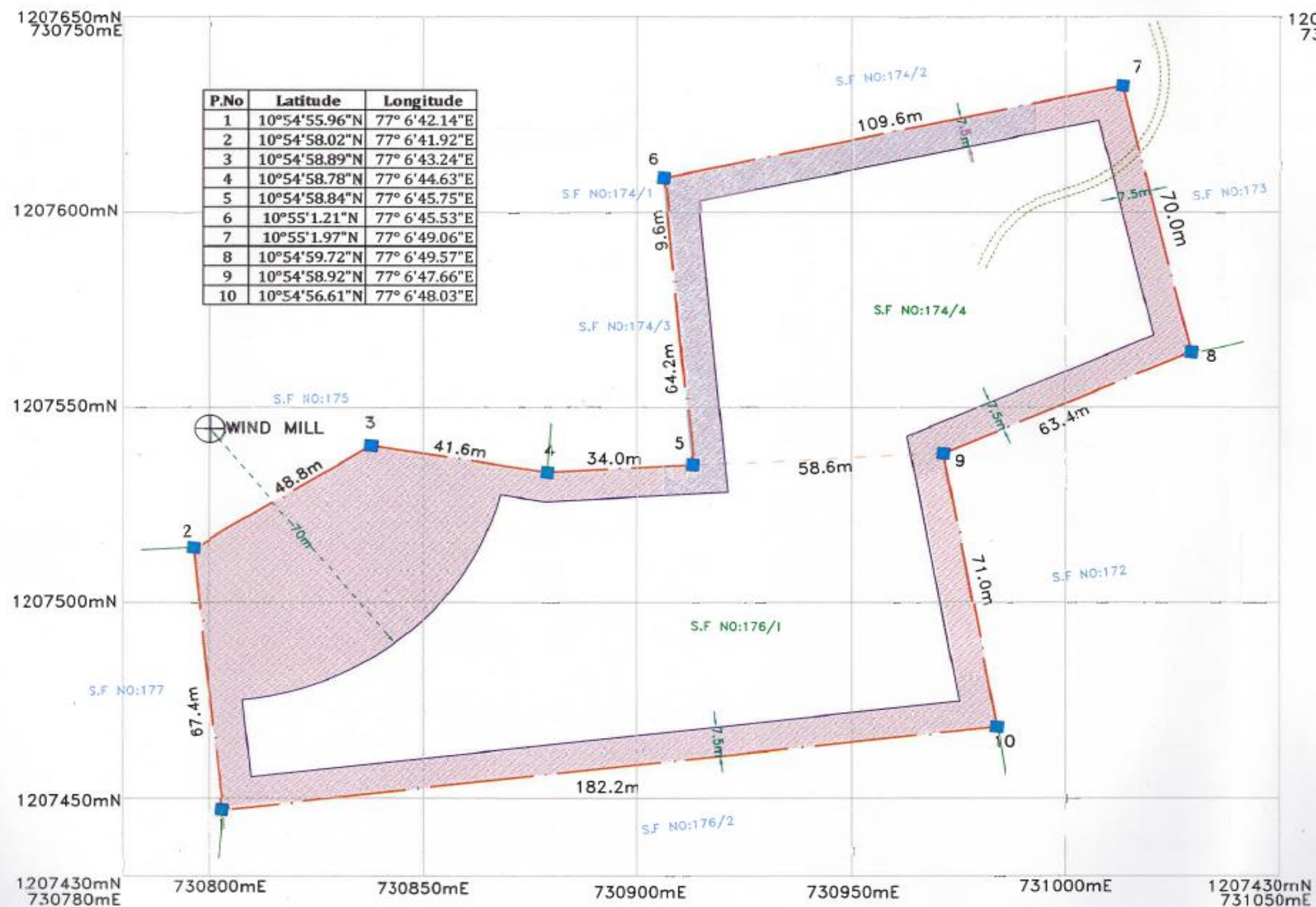
IDAYARPALAYAM ROUGH STONE&GRAVEL QUARRY

Scale : 1:1000

PLATE · II



P.No	Latitude	Longitude
1	10°54'55.96"N	77° 6'42.14"E
2	10°54'58.02"N	77° 6'41.92"E
3	10°54'58.89"N	77° 6'43.24"E
4	10°54'58.78"N	77° 6'44.63"E
5	10°54'58.84"N	77° 6'45.75"E
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9	10°54'58.92"N	77° 6'47.66"E
10	10°54'56.61"N	77° 6'48.03"E



INDEX

- | | |
|---|------------------|
|  | LEASE BOUNDARY |
|  | PERMISSIBLE AREA |
|  | APPROACH ROAD |
|  | SAFETY BARRIER |
|  | WIND MILL |
|  | SURVEY PILLER |

LOCATION OF QUARRY

EXTENT :2.28.00Ha
S.F.NO :174/4,176/1
VILLAGE :IDAYARPALAYAM
TALUK :SULUR
DISTRICT :COIMBATORE

APPLICANT

K.RANGANATHAN,
S/O.KARUPPUSAMY,
D/NO.11/243,
KURUMBAPALAYAM VILLAGE,
MADUKARAI(T.K),
COIMEATORE(D.T).

DATE OF SURVEY: 05.05.2025

Certified that plans and section
are prepared as per TNMMCR,
1959 and MMCDR,2010

S. Pringali

S.SURIYA KUMAR
M.Sc.,M.phil(Geo),F.C.C(Mining)
Recognised Qualified person

Fig.No.2.2: Quarry Lease Plan

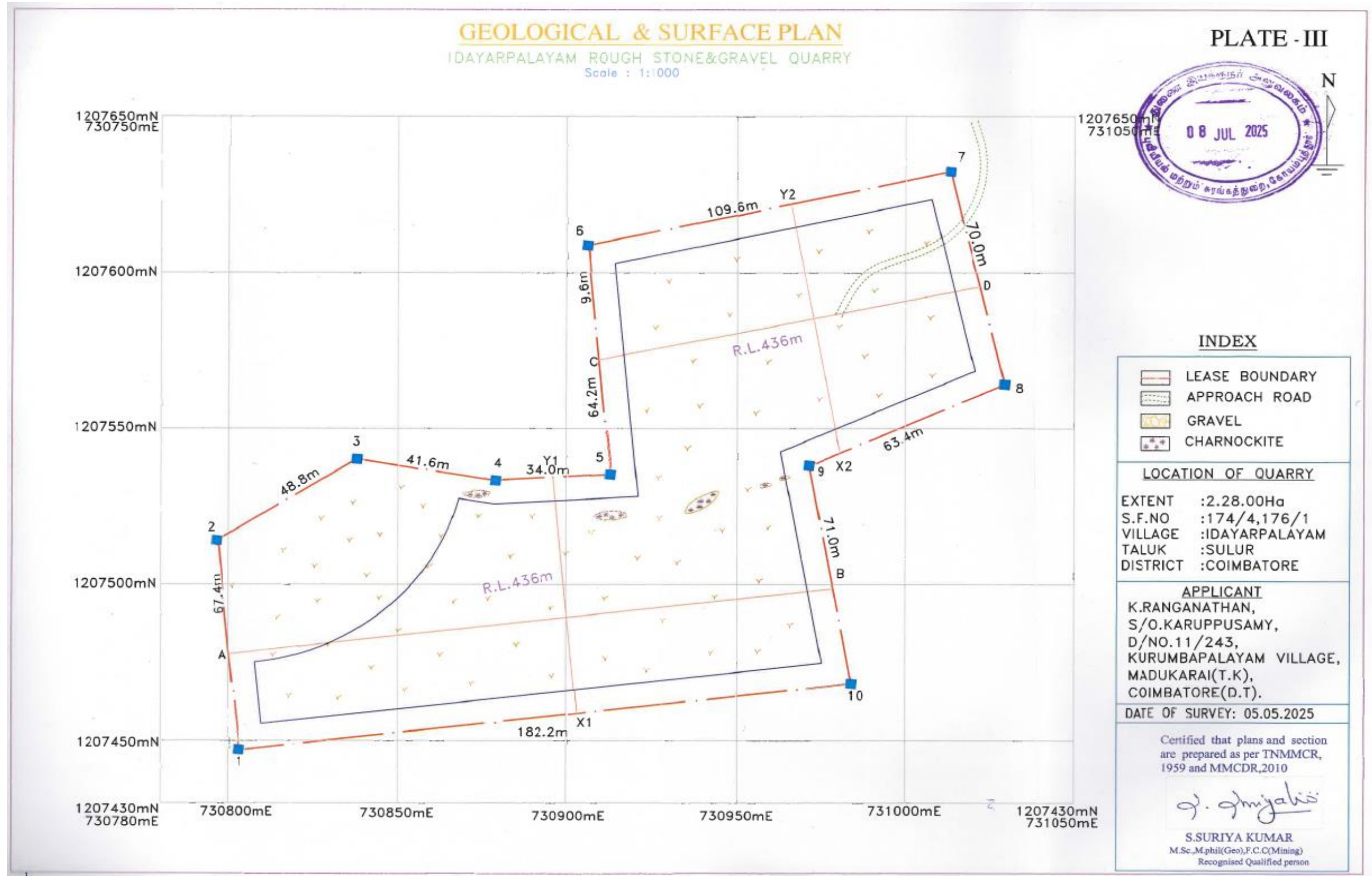


Fig.No.2.3: Geology and Surface Plan of the lease area

GEOLOGICAL CROSS SECTIONS EDAIYARPALAYAM ROUGH STONE & GRAVEL QUARRY Scale : Horizontal = 1:1000 Vertical = 1:500

PLATE - IV



INDEX

- [L.B.] LEASE BOUNDARY
- [Gravel Pattern] GRAVEL
- [Star Pattern] CHARNOCKITE
- [D.O.E] DEPTH OF ESTIMATION

LOCATION OF QUARRY

EXTENT : 2.28.00Ha
S.F.NO : 174/4,176/1
VILLAGE : IDAYARPALAYAM
TALUK : SULUR
DISTRICT : COIMBATORE

APPLICANT

K.RANGANATHAN,
S/O.KARUPPUSAMY,
D/NO.11/243,
KURUMBAPALAYAM VILLAGE,
MADUKARAI(T.K),
COIMBATORE(D.T).

DATE OF SURVEY: 05.05.2025

Certified that plans and section
are prepared as per TNMMCR,
1959 and MMCDR,2010

S. Suriya Kumar

S.SURIYA KUMAR
M.Sc., M.Phil(Geo), F.C.C(Mining)
Recognised Qualified person

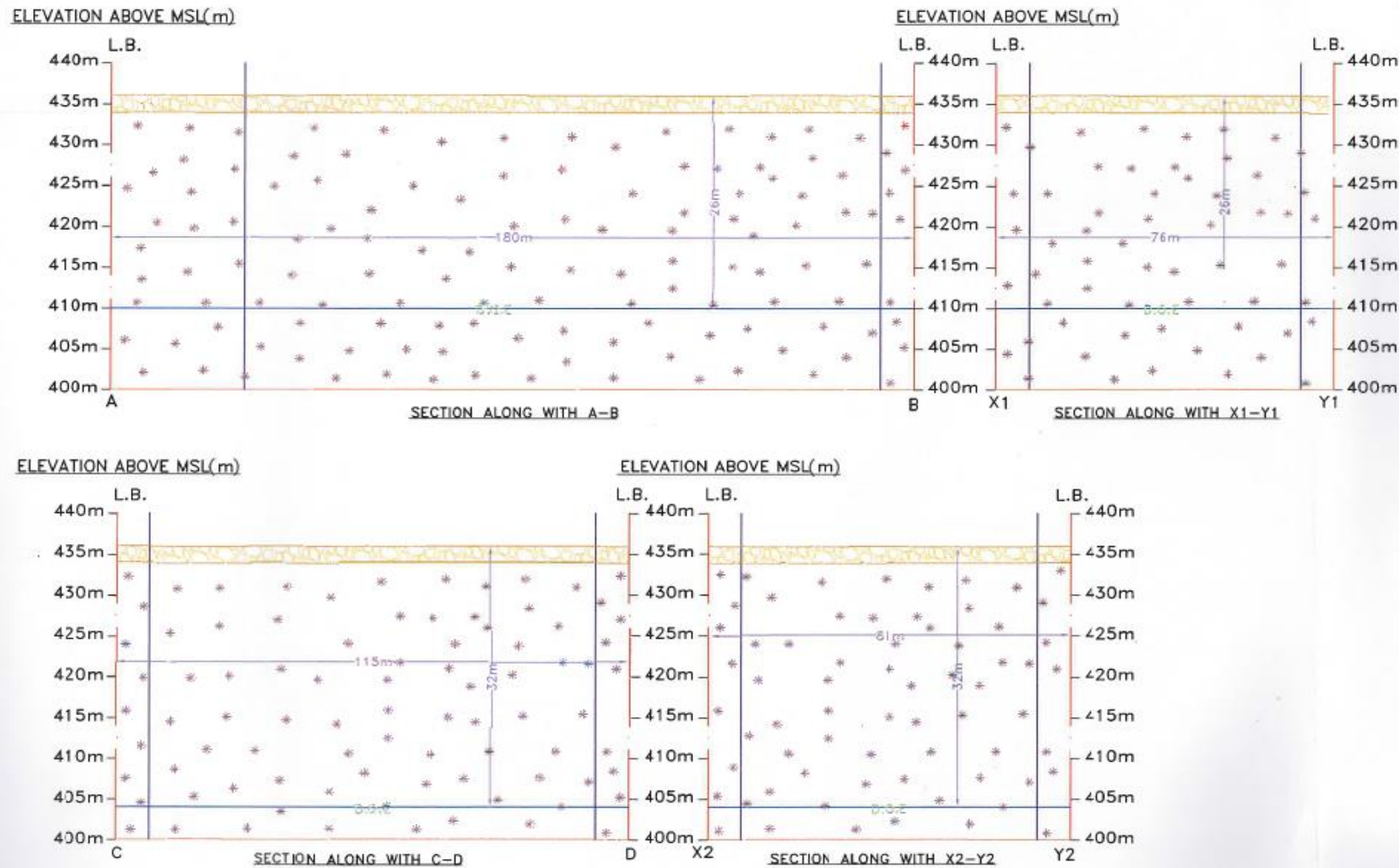


Fig. No. 2.4: Geological Cross Sections



Fig. No. 2.4 Photograph shows general view of lease area

Table No. 2.2.: Environmental Settings

Project Details	
Proponent	Thiru. K. Ranganathan
Total Mine Lease Area	2.28.0 Ha
Survey No.	174/4 and 176/1 (Patta land)
Site Location	Idayarpalayam Village, Sullur Taluk, Coimbatore District, Tamil Nadu
Geographical Co-ordinates	Latitude: 10° 54' 55.96"N to 10° 55'1.97"N Longitude: 77°6' 41.92"E to 77°6'49.57"E
ToposheetNo.	58 F/01
Elevation	Elevation of the area is 438 m above MSL and Toposheet No. 58F/01.
Accessibility	
Nearest Habitation	Wind Mill – NW Adjacent (Safety distance of 70m left) Local Amman Temple – 123m – NW Shed – 57m - NW
Nearest Village	Edayarpalayam – 0.53km - N

	Name of Village	Direction	Distance from Mines (Approx.)	Population
Nearest Settlement	Pappampatti	N	3.32 km	4143
	Bogampatti	SE	1.50 km	2415
	Chinnakuyili	NW	3.30 km	1178
	Panappatti	SW	5.0 km	2635
Nearest Town	Pappampatti – 5.0 km -N			
Nearest Roadway	SH -163- Chettipalayam to Palladam -6.5 km- W NH-544- Salem to Kochi - 12.0 km- W			
Nearest Railway station	Chettipalayam –8.5km - W			
Nearest Airport	Coimbatore –15.0 km -NW			
Environmental Sensitiveness				
Interstate Boundary	Tamil Nadu – Kerala interstate boundary is located at the distance of 26 km in west side.			
Coastal Zone	Arabian Sea – 127km - W			
Reserve Forest	Bolvampatti R.F – 19.6km – W. There is no Reserve Forest up to 25 km in lease area. The proposed project site is not a forest land. Hence it does not attract Forest Conservation Act, 1980.			
Wildlife sanctuary	Indira Gandhi Wildlife Sanctuary – 44.8km – SW. Nil within 10km radius. There is no wild life sanctuary found within 10 Km radius from the proposed area and this project doesn't fall under the Wildlife (Protection) Act, 1972.			
Water bodies	Edayarpalayam Lake –1.05km– NW A Lake – 1.5km - E There is no major water bodies located around the project site.			
Defense Installations	Sullur Air Force Runway – 10 km – NE.			
Critically Polluted area	Nil within 10km radius			
Quarries around 500m radius	One existing quarry, four present proposed quarries and one abandoned quarry located within the 500m radius from the			

	lease boundary of the proposed project site. Total Cluster area: 14.49.32 Ha AD Cluster Letter: Rc. No: 165/Mines/2022 dated: 06.07.2023
Seismic zone	Zone-III, Low damage risk zone as per BMTPC, Vulnerability atlas Seismic zone of India IS: 1893-2002

Transport Network Map of Lease Area Around 10km Radius

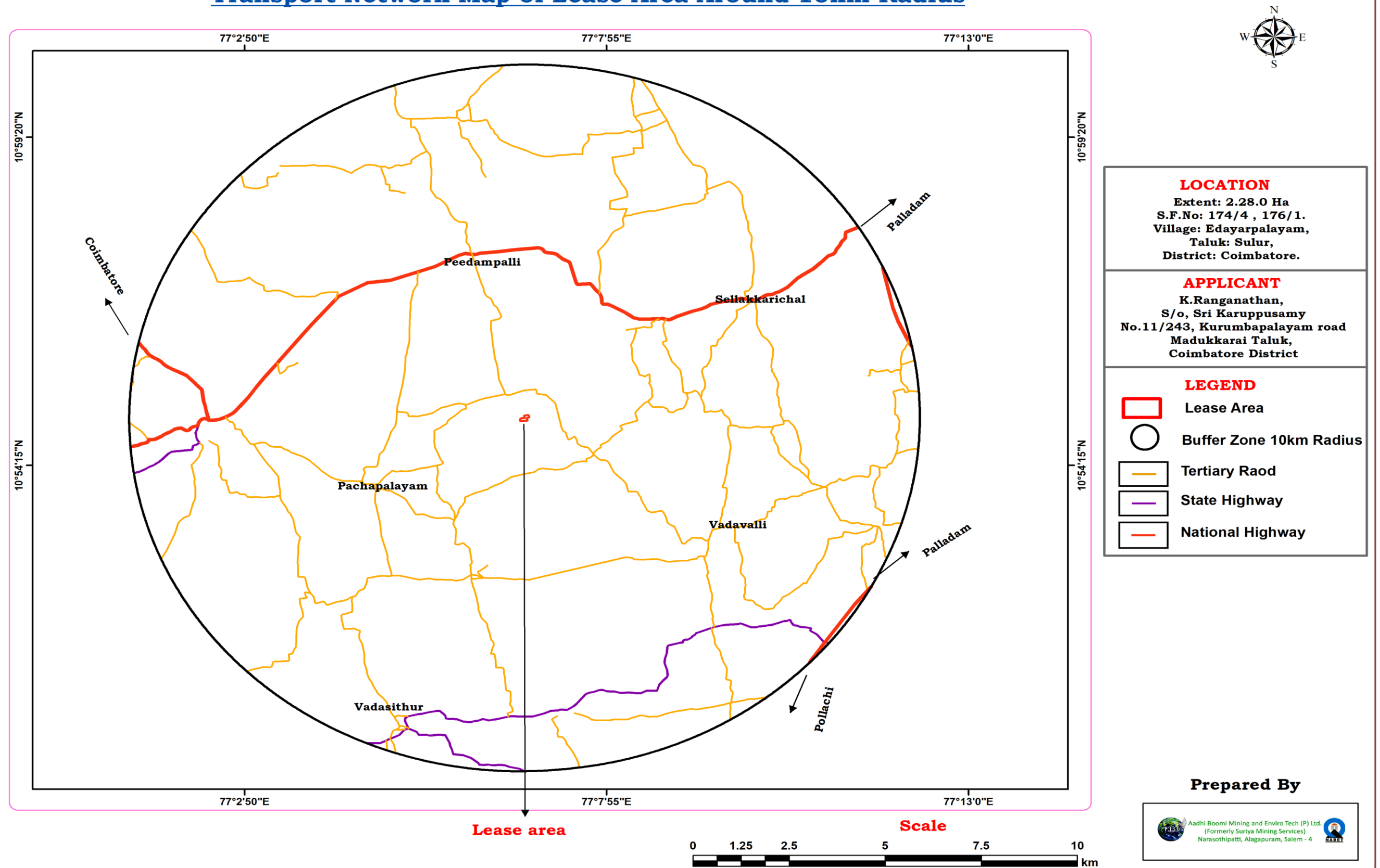


Fig.No.2.5: Google Earth Image showing Transport Network of 10 km radius around Proposed Project Site

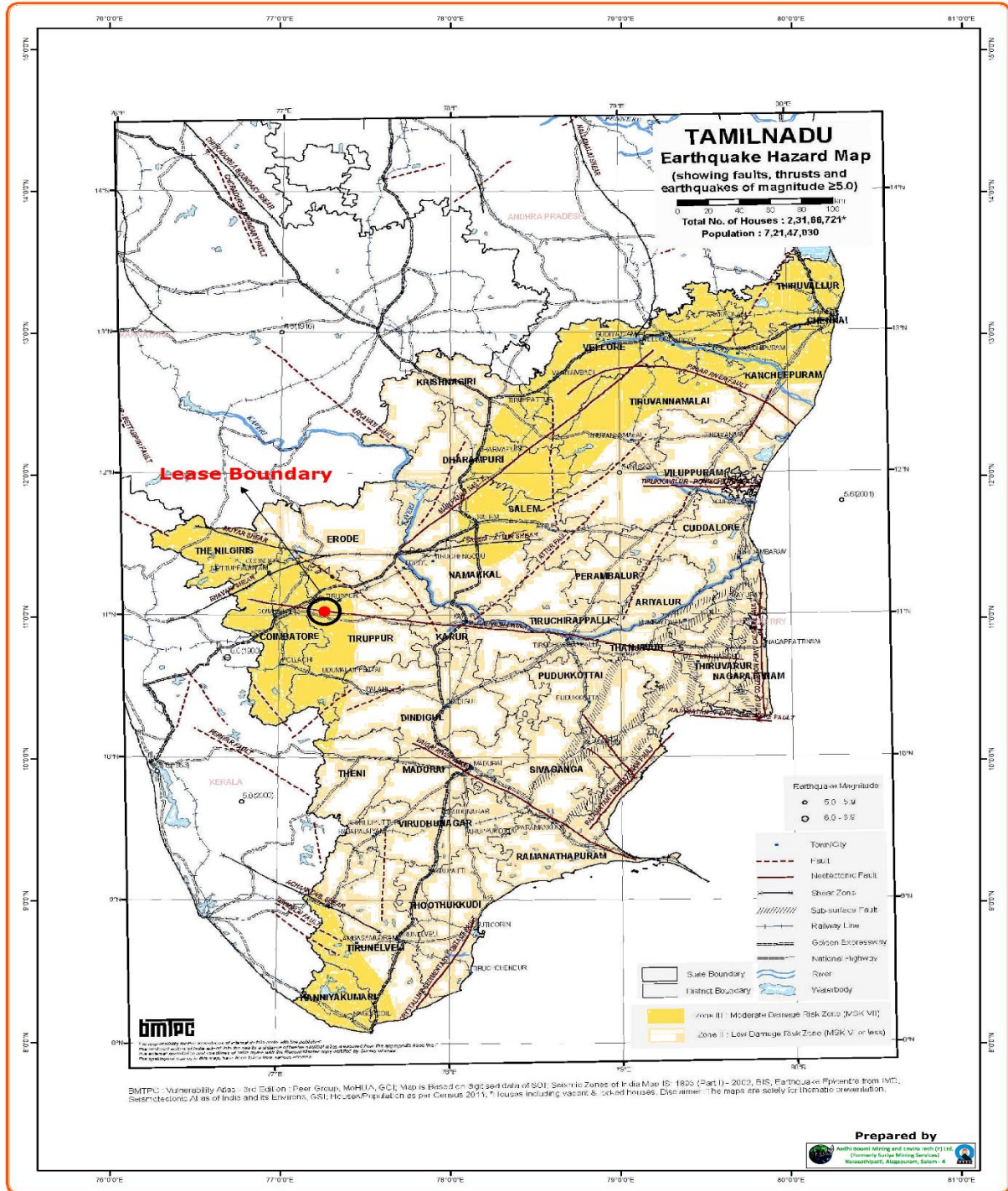


Fig No: 2.6 Earthquake Hazard Map

The area falls under Zone-II, Low damage risk zone as per BMTPC, Vulnerability atlas Seismic zone of India IS: 1893-2002.

Proponent: K. Ranganathan, Rough Stone and Gravel Quarry, Coimbatore District



Page 23

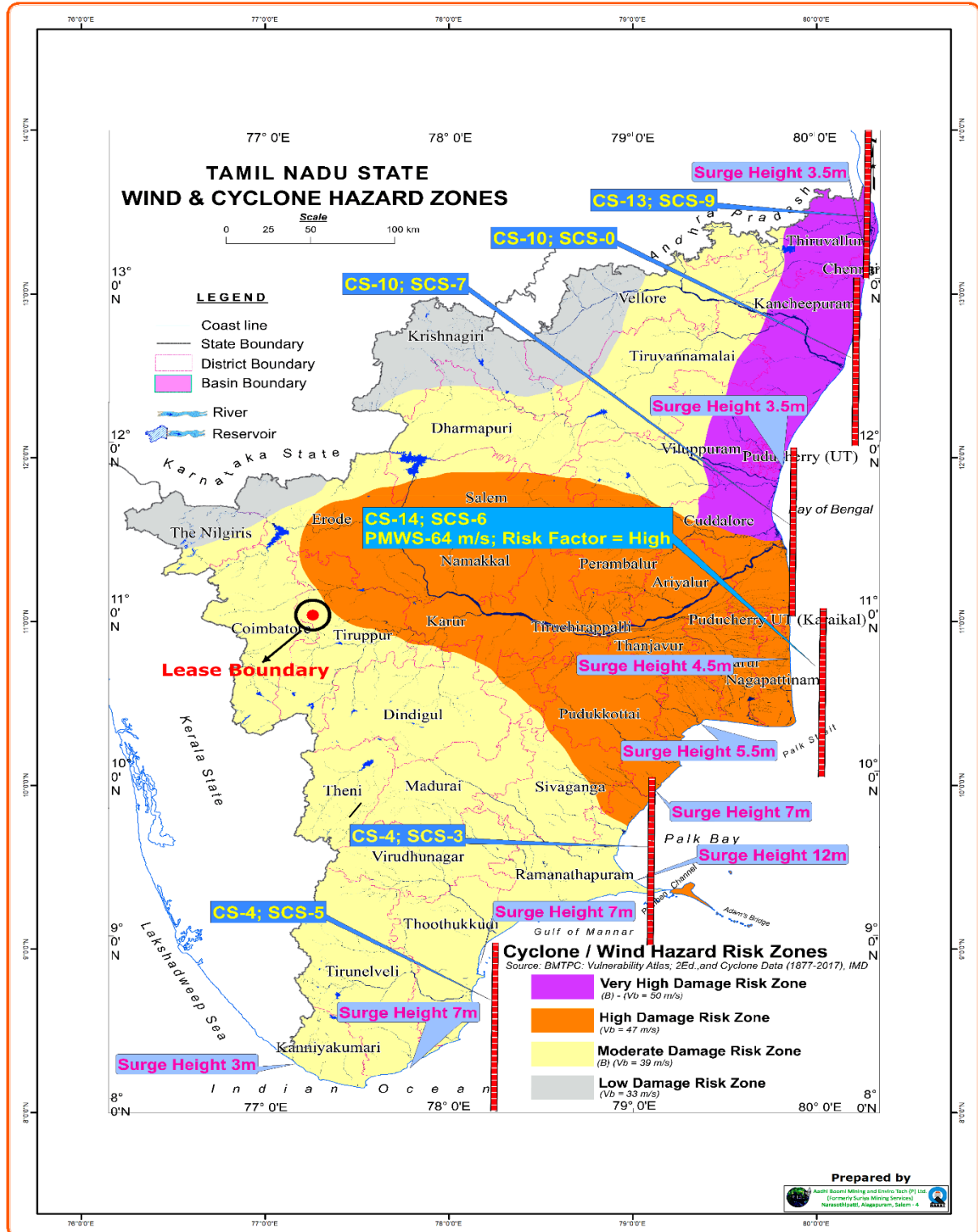


Fig No: 2.8 Winds and Cyclone Hazard Map

The area falls under moderate Damage Risk Zone-B ($V_b = 39 \text{ m/s}$).

2.4 Size or Magnitude of Operation

Table No. 2.3: Mining Details

Particulars	Details
Method of Mining	Open cast mechanized mining
Geological resources	6,53,760m ³ or 17,97,840 MT
Mineable reserves	2,08,296m ³ or 5,72,814 MT of Rough stone 30,646 m ³ or 45,969 MT of Gravel
Production (95%)	1,51,899m ³ or 4,17,722 MT @ 95 % of rough stone for five years. 30,646 m ³ or 45,969 MT of gravel for three years. Average year wise production of rough stone is 30,380m ³ or 83,545 MT per annum.
Rejection (5%)	7,995 m ³
Top soil	-
Ore: Waste ratio	1: 0.05
Depth of Mining	32 m bgl
Water Table	45 m bgl
Road design	1: 10 inside the pit and ramp 1:16 for transport
Overall Pit Slope	45°
Period of Lease	10 years from the date of execution

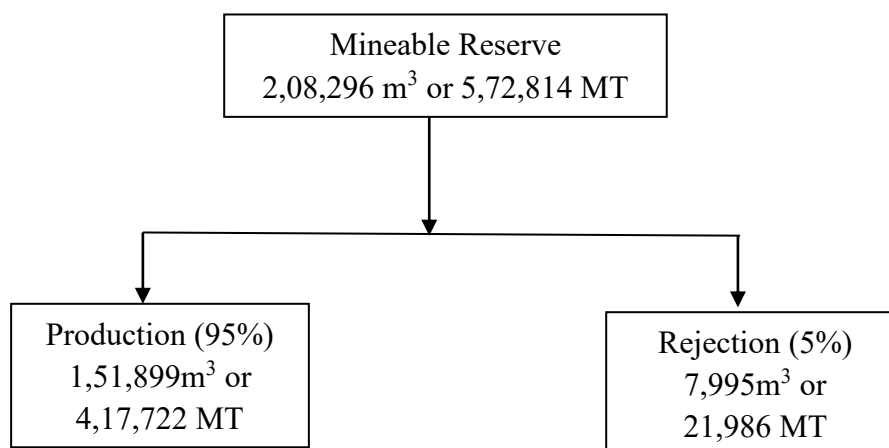


Fig. No. 2.9 Material Balance chart

2.5 Proposed schedule for approval and implementation

The proposed activity will be commenced only after obtaining Environment Clearance from SEAC/SEIAA, Tamil Nadu and CTE/CTO from TNPCB and other necessary clearance from concerned departments.

2.6 Technology and process description

2.6.1 Regional Geology

Geologically, Coimbatore district of Tamil Nadu forms a part of southern Granulitic terrain and is predominantly occupied by crystalline rocks of Archaean to late Proterozoic age. Regionally, the rocks can be grouped under five categories namely i. Charnockite Group represented by Charnockite, Pyroxene Granulite and Magnetite Quartzite, ii. Peninsular Gneissic Complex (II) comprising hornblende-biotite gneiss, iii. Basic intrusive include Pyroxinite/Dunite iv. Younger intrusive comprising, Nepheline-Syenite, Pink Granite, Pegmatite and Quartz veins and v. Quaternary sediments of Kankar and soil. Coimbatore District is predominantly occupied by hornblende Biotite gneisses of PGC (II) with enclaves of Magnetite Quartzite, Pyroxene Granulite and Charnockite. The area exposes several bands of Pyroxene Granulite which is medium grained, medium to dark grey in colour and stand out prominently in the gneissic country generally parallel to regional foliation. Charnockite is coarse grained, massive, many places it is foliated, grey coloured and greasy and exposed as bouldery outcrops and small knolls. It is well exposed in Central, Western and Southern parts of the Coimbatore District. The general strike of foliation varies from ENE-WSW, E-W with dipping towards NW and N respectively.

Hornblende-Biotite gneiss is well foliated, medium to coarse grained, pale grey and exposed as sheets and small knolls. Pink Granite gneiss occurs as thin bands and lensoidal bodies. It is a medium grained rock composed of alternating bands of mafic (mainly of biotite and hornblende) and felsic (Feldspar and Quartz) minerals. It is well recognized in Avinashi area.

Stratigraphy of the area

Age	Group	Lithology
Holocene		Block cotton soil/clay±gypsum
Cenozoic		Kankar/calc-tufa
Neoproterozoic	Acid intrusive	Quartz veins, Pegmatite and Pink Granite
	Sivamalai syenite Complex	Nepheline-syenite

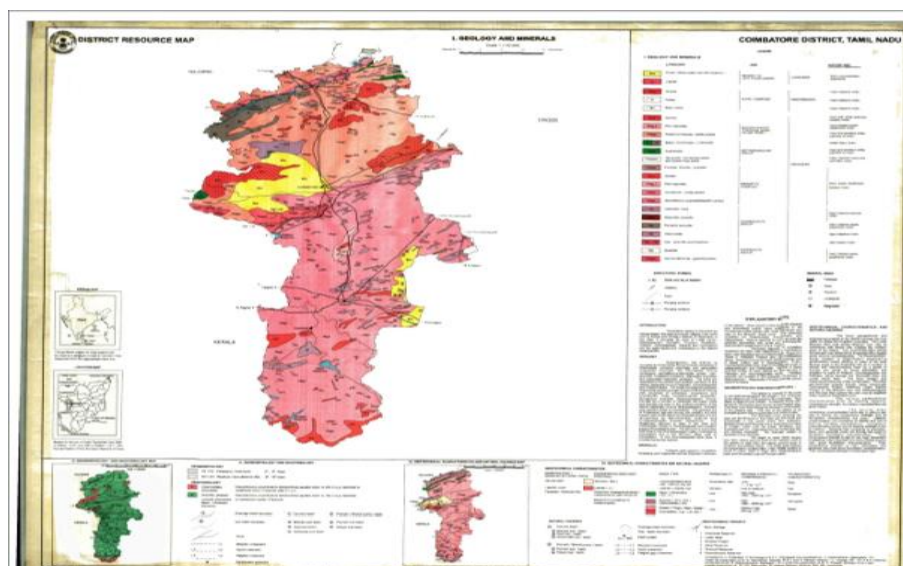
	Chalk Hills (Basic Intrusives)	Pyroxenite/Dunite
Archaean- Palaeoproterozoic	Peninsular Gneissic Complex (II)PGC (II)	Pink Granite Gneiss Hornblende Biotite gneiss
Archaean	Charnockite Group	Charnockite (Unclassified) Pyroxene Granulite Banded Magnetite Quartzite

Basic rocks such as pyroxenite/dunite occur as outcrop and lensoidal body in the country rock and mostly concordant to the regional foliation. Many basic intrusive are reported in south and south-east of Tiruppur town. The trend of these bodies is east-west. Nepheline syenite is a leucocratic, coarse-grained rock and composed mainly of Feldspar with Nepheline and shows pitted appearance due to removal of Nepheline. This alkaline rock is available in and around Sivanmalai area only.

Acid intrusive comprising pink granite, pegmatite and quartz veins are traversed country rocks in micro (cm wide-meter long) to meso-scale (few meters wide and several meter long) extend. Granite is exposed around 9 km SW of Avanashi. Small scale pegmatite and quartz veins are noticed almost in all the rock types.

Acid intrusives are overlain by sediments of Quaternary age, represented by Kankar and black cotton soil with Gypsum. Most of the area is covered by brown and red brown soil. Some part of the area covered with black cotton soil contains Gypsum lumps. Black cotton soil covers south-western part of the district.

GEOLOGY MAP OF COIMBATORE DISTRICT



2.6.2. Geology of the lease area

Mining activities carried out in the district is Opencast Semi Mechanized/Mechanized and Manual method.

Geologically, the district is covered by rocks belonging to Archean age comprising the khondalite group, Charnockite Group, migmatite group, Sathayamangalam group, Bhavani Group and Alkali complex of Proterozoic age and Recent too Late Pleistocene rocks of Cainozoic age.

The Charnockite Group of rocks consisting of Charnockite, pyroxene granulites and associated magnetite quartzite, the Knodalite Group comprising gametiferous – sillimanite gneiss, calc-granulite, crystalline limestone, sillimanite quartzites and associated migmatitic gneisses. The rocks are restricted to the central and southern portions of the district, especially around Sulur, Madukkarai and Pollachi taluks.

The fissile homblende gneisses (Peninsular gneiss – younger phase) of Bhavani Group with enclaves of schistose, micaceous and amphibolitic rocks, fuchsite – kyanite quartzites, ferruginous quartzite (Satyamangalam Group) intruded by a number of ultramafic and basic rocks and granites are seen in the Northern portions of the district especially around Mettupalayam and Northern areas of Coimbatore.

The granites are Proterozoic age and occupy the Western end and Eastern Part of the District as separate bodies and are recognized as Maruthamalai Granite and Punjapuliampatti Granites respectively.

The quaternary alluvium is seen in the Western areas of Coimbatore town. The alluvium is more than 30m thick in the Chinnathadagam valley northwest of Coimbatore and in the Siruvani valley west of Coimbatore.

It is mainly used in fencing stone and Stone crushing units and size reduced in to $\frac{1}{2}$, $\frac{3}{4}$ and $1\frac{1}{2}$ inches Jelly and M sand, P sand which are mainly used in road and building construction purpose.

PHYSICAL FEATURES MAP AROUND 10KM RADIUS

Extent: 2.28.0Ha

S.F.No: 174/4 ,176/1.

Village: Edayarpalayam

Taluk: Suler

District: Coimbatore

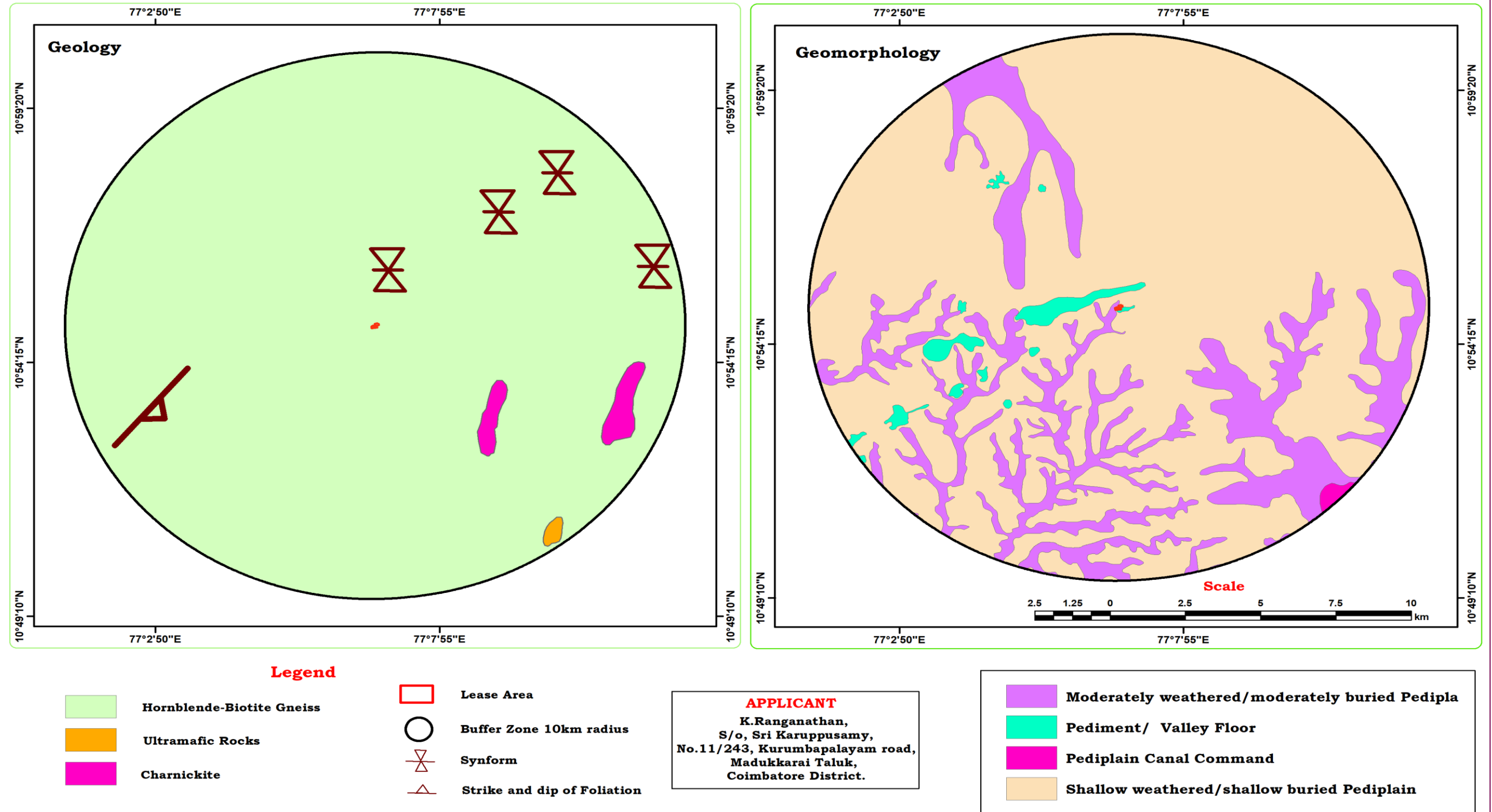


Fig.No.2.9: Regional Geology and Geomorphology Map

2.6.3 Method of Mining

a) Open cast working:

Mechanized opencast quarrying method will be adopted for exploiting the rough stone. Before opening a mine, several aspects should be considered like construction of semi-permanent structures, planning for the development / production works, formation of faces, lying of approach road to various benches for movement of dumpers, recruitment of man power, deployment of machinery, selection of dump sites, stacking yards etc.

Hydraulic excavators and tippers in combination will be utilized to recover the sizeable rough lumps and deliver to the crushing plant to get the required size of M. Sand, ½, ¾, 1½ inches and Jelly chips, etc. Bench height is designed as 6m based on boom height of excavator (8.5m) and permitted additional height of 1.5m for hard formations as per Reg. 106 (2) (b) of MMR, 1961. The bench slope is 60°. S1 fencing shall be constructed at the top of high benches in order to safe guard the unauthorized entry of men and machinery. In the case of entry and exit of pit(s), G1 fencing as a parapet should be made to control tress passes.

Gravel shall be removed and used for construction and afforestation purposes.

b) Mode of working:

The quarry operation involves drilling, muffle blasting, excavation, loading and transportation of rough stone to the needy crusher/other buyers. The production of rough stone and gravel in this quarry involves the following method which is typical for rough stone and gravel quarrying in contrast to other major mineral mining.

Splitting of rock mass of considerable volume from the parent rock mass by jackhammer drilling and blasting, hydraulic excavators are used for loading the rough stone from pit head to the needy crusher/other buyers.

2.6.4 Extent of Mechanization

The following machinery is proposed to be exclusively for the development and production work at this quarry. The machinery is proposed to be purchased or engaged on hire basis.

i) Drilling equipment:

Drilling of shot-holes will be carried out using compressor and Jack Hammers combination on hire basis. Depth of holes shall be 1-2m. The spacing shall be 0.75m and burden shall be 0.60m from the preface. To achieve a correct blasting geometry certain amount of trial blast is prerequisite to effect a perfect pre-determined fragmentation and fly rock control. In case of heavy blasting qualified mine manager has to be appointed for proper

calculation of powder factor and control blasting sequencing and arrangement of explosives etc. Details of drilling equipment's are below as

Table No. 2.4: Details of drilling equipment

Type	Nos	Dia.of hole	Size/Capacity Make	Make	Motive Power
Jack Hammer	2	32mm	Hand held	-	Compressed Air
Hydraulic Breaker	1	-	Tata Ex 200	Tata	Diesel
Compressor	1	-	400psi	-	Diesel

ii) Loading Equipment:

Loading of waste and reject materials shall be done by excavator into 15 tonnes tippers from the working place periodically. The applicant is proposed to engage one hydraulic excavator with 1.2 Metric tons capacity and two tippers' of 10/15 tonnes capacity for internal transport of waste from the working face to the dumps. Details of loading equipment are tabulated below,

Table No. 2.5: Details of loading equipment

Type	Nos	Bucket/Capacity(m ³)	Make	Motive Power
Hydraulic excavator	2	1.20 m ³	Tata Hitachi	Diesel

iii) Transportation:

Transport of Rough stone, Rejects and waste shall be done by Tippers of 10tonne capacity.

Table No. 2.6: Details of transportation equipment

Type	Nos	Size/Capacity(m ³)	Make	Motive Power
Tipper	4	10/15 tones	Ashok Leyland and Tata	Diesel

iv) Blasting Pattern

The massive formation shall be broken into pieces of portable size by jack hammer drilling and shot hole blasting. Powder factor of explosives for breaking such hard rock shall be in the order of 6-7 tons per Kg of explosives. Blasting parameter proposed to be adopted for shot holes shall be,

$$\text{Depth (m)} * \text{Burden (m)} * \text{Spacing (m)} = \text{Volume (m}^3\text{)}$$

$$1.00 \quad \times \quad 0.60 \quad \times \quad 0.75 = 0.45 \text{ m}^3$$

$$\text{Quantity of broken rock per hole} = 0.45 \times 2.6 = 1.17 \text{ MT}$$

Blasting efficiency @90%	= 1.17 x 90% = 1.05 MT/hole
Charge per hole	= 140 gm of 25 mm dia. cartridge.
Quantity of rock broken per day (ROM)	= 101m ³ or 263 M.T.
Requirement of explosives per day	= 38 Kg (@7 M.T. per Kg explosives)
No. of holes to be drilled per day	= 263MT/1.05= 250 Holes

v) Types of Explosives

Following explosives are recommended for efficient blasting with safe practice.

Table No. 2.7: Explosives Details

S. No.	Description	Class / Division	Type	Size
1	Slurry	Class-3	Nitro compound	25x200
2	Detonators OD, Delay, E.D or Nonel tubes	Class – 6	Ordinary, Electric and non- electric types	6.5 x 32

Slurry explosives will be initiated directly by blue sump fuse with ordinary detonators or electric detonators. The Powder factor for waste rock development shall be 7 Tonnes per Kg. of explosives.

The following steps shall be adopted to control ground vibration during blasting. Geometry of blasting pattern like burden, spacing and inclination of hole should be

$$\begin{array}{ccc} \text{Burden (m)* Spacing (m)} & \text{Inclination} \\ 0.60 & \times 0.75 & 70^\circ \end{array}$$

- ❖ High strength explosives like slurry in the form of cartridge should be used. ANFO mixture for shot holes should not be used which may cause huge fly rock fragments in view of critical diameter problem.
- ❖ To control vibration abatement, use delay or relay arrangements with specific charges.
- ❖ Charge per hole should exceed the powder factor designed for each hole based on quantum of blasting, strength of rocks, fracture pattern etc.
- ❖ In case any objection from the public, a long trench in the direction of blasting near lease boundary may be opened to a depth of 2m to control longitudinal waves (P-waves) to arrest any damage to infrastructures.

- ❖ If any building lies within 50m, muffle blasting practice may be followed in addition to the regular safety procedures and the charge per blast hole shall not exceed 2kg as specified by DGMS.

Any other method of safety measures shall be advised to the Applicant as and when required by the qualified Mine Manager

vi) Storage of explosives

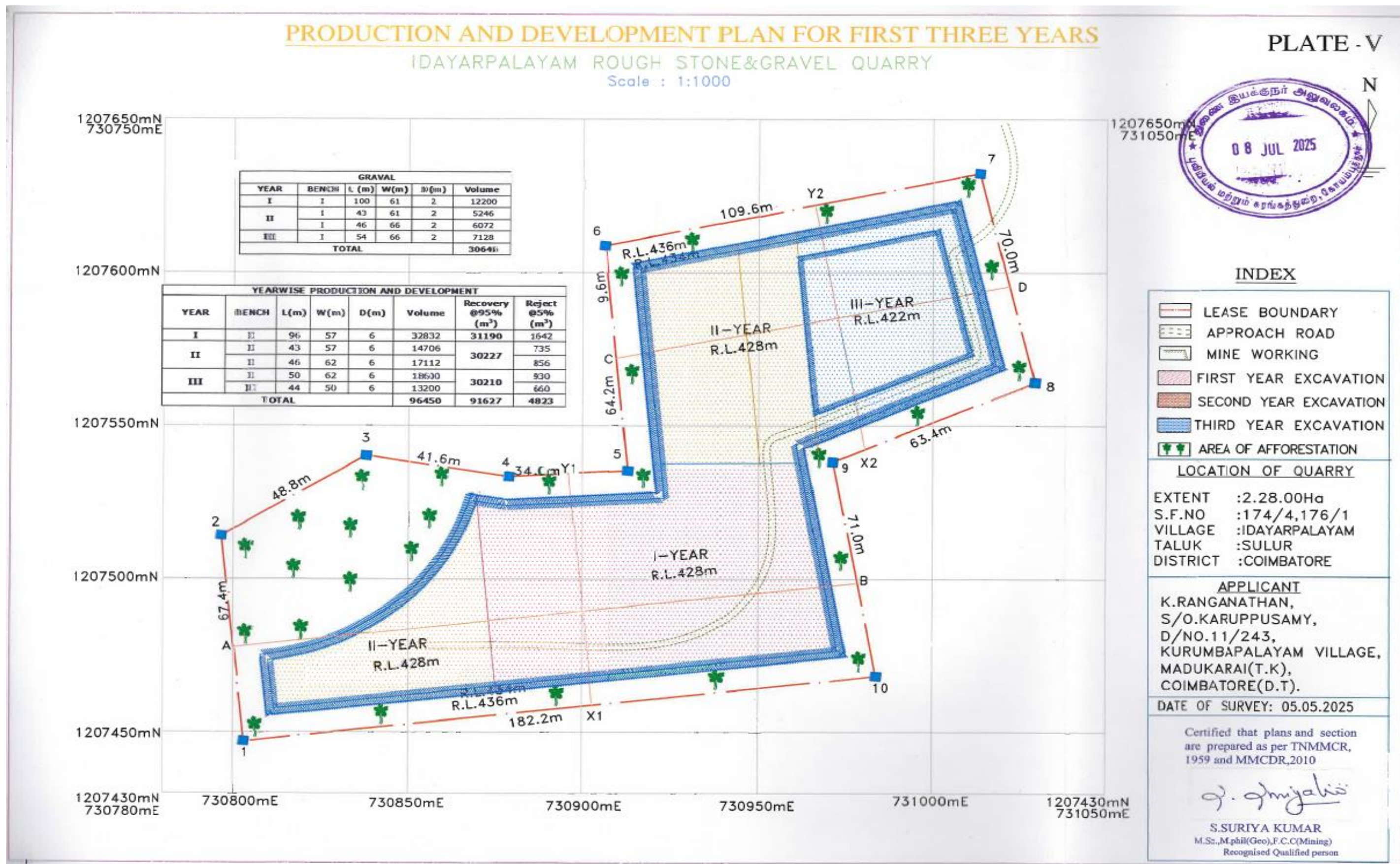
The Applicant is advised to store the explosives as per the Indian Explosives Act, 1958 and the Explosive Rules, 1983. Necessary permissions should be obtained from the Joint Controller of Explosives to store and uses of explosives in the quarry in the magazine permit under Form -23 or Agreement shall be made with holder of Form-22 who can supply and fire explosives as per safety practices. However, blasting in the quarry shall be done as per MMR 1961 under the supervision of Mines Blasting certificate holder appointed under Reg160 of Metalliferous Mines Regulations, 1961.

2.7 Land Use Pattern of the Core Zone

The proposed area is flat terrain, composed of gravel with elevation about 391m above mean sea level. The table indicating the area put on use at start of plan and additional requirement during plan period for calculation of net area and the area considered for reclamation has given below.

Table No 2.8: Computation of present and proposed land use pattern

S. No	Head	Area put on use at start of plan (Ha) (Present)	Total Area used at the end of plan (Ha)	% of use
i)	Mining Area	-	1.44.05	63%
ii)	Road	-	0.05.50	2%
iii)	Safety area and Plantation	-	0.77.55	34%
iv)	Labour Shed and office	-	0.00.90	1%
v)	Virgin Area	2.28.0	-	0%
Total		2.28.0 Ha	2.28.0	100 %



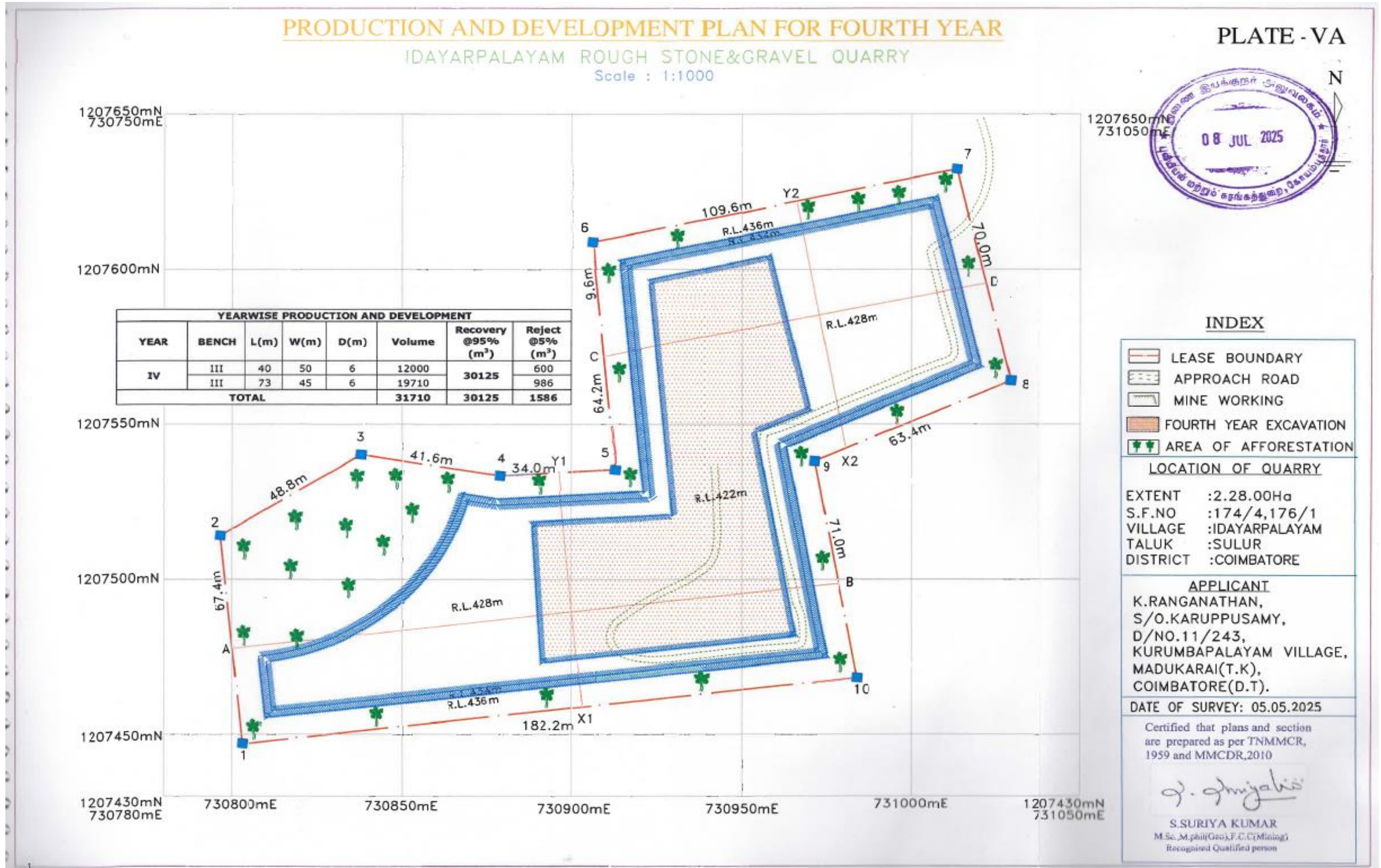


Fig. No. 2.5: Production and Development Plan for Fourth Year

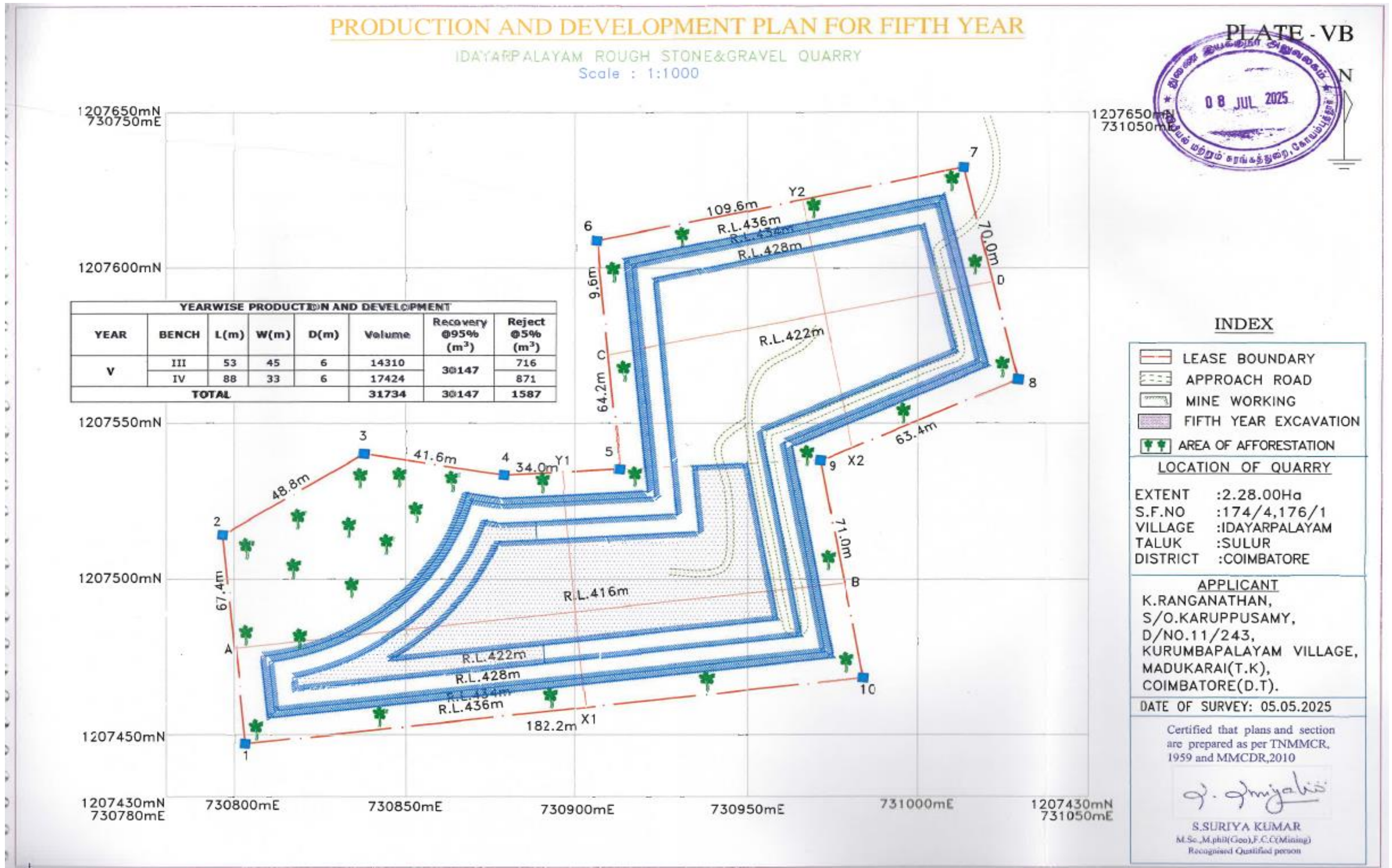


Fig. No. 2.5: Production and Development Plan for Fifth Year

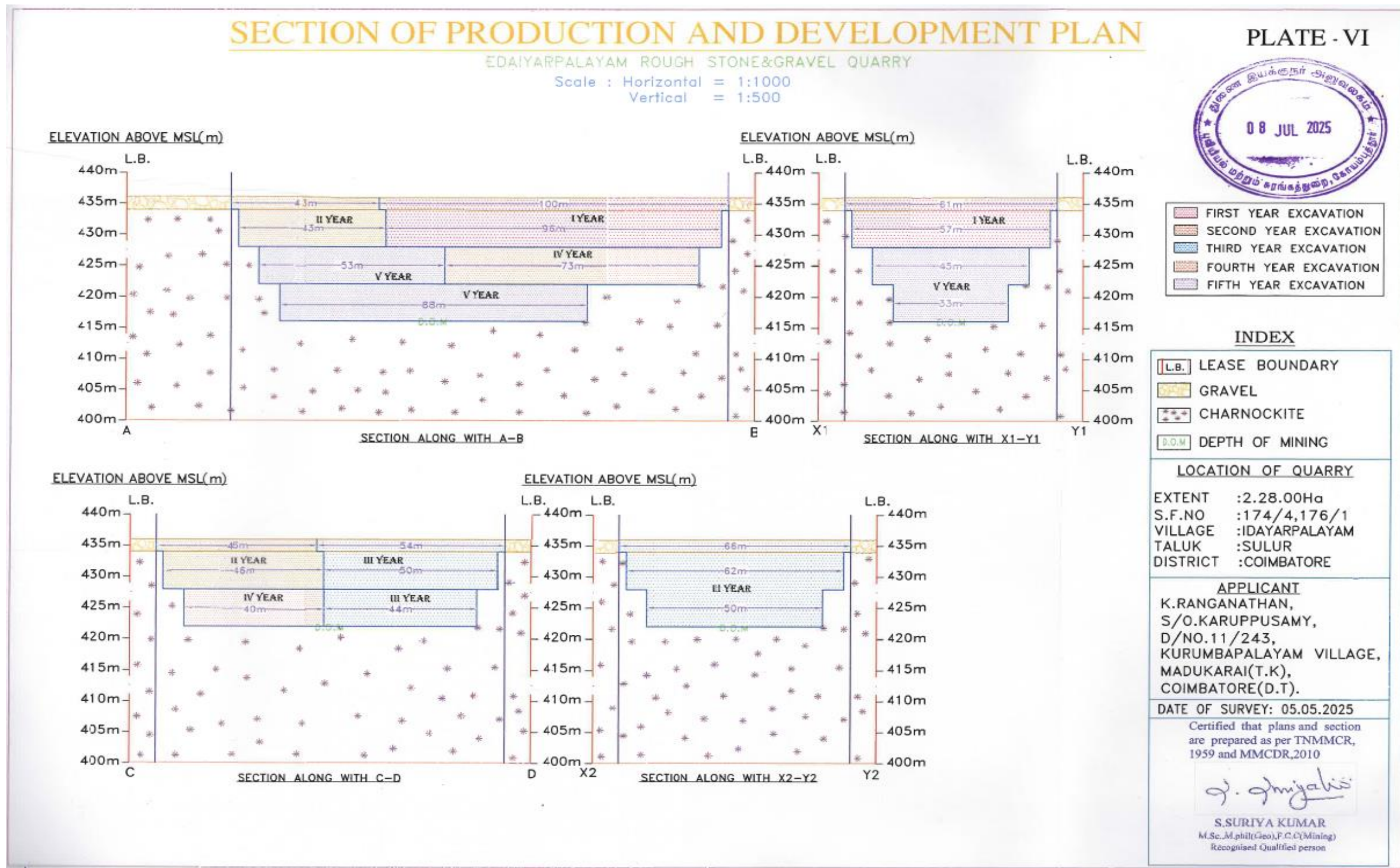


Fig. No. 2.8: Section of Production and Development Plan

2.8 ESTIMATION OF RESERVES

a) GEOLOGICAL RESOURCES

The geological resources are computed based on the geological cross-sections up to the economically workable depth of 32 meters below ground level, which is calculated to be **6,53,760** cubic meters of rough stone. Due consideration is given to the depth of mining, recovery, safety barriers, and other relevant factors. A detailed estimation of the geological reserves is provided below.:

Table No. 2.9: Computation of Geological Resources and Reserves

SECTION	L (m)	W(m)	D(m)	Volume	Recovery @95%	Reject @5%
AB-X1Y1	180	76	26	355680	337896	17784
CD-X2Y2	115	81	32	298080	283176	14904
TOTAL				653760	621072	32688

The Geological Resources up to a depth of 32 m = **6,53,760 m³ or**

The Geological Resources up to a depth of 32 m = **17,97,840 MT**

Geological Resources has been computed based on the physical investigation and filed survey data.

b) ESTIMATION OF MINEABLE RESERVES:

The mineable reserve is estimated by the cross-sectional method, taking into account the factors such as the recovery factor, depth of mining, and safety barriers. The estimated mineable reserve is **1,97,881 m³ or 544,173 MT** as 95% recovery up to a depth of 32 meters, as well as **30,646 m³ or 45,969 MT @ 1.50 gms/cc** of gravel. Further details about the estimation of the mineable reserves are provided below.

Table No. 2.10: Computation of Mineable/Recoverable Reserves

SECTION	L (m)	W(m)	D(m)	Volume	Recovery @95%	Reject @5%
AB-X1Y1	139	57	6	47538	45161	2377
	127	45	6	34290	32576	1715
	115	33	6	22770	21632	1139
	103	21	6	12978	12329	649
CD-X2Y2	96	62	6	35712	33926	1786
	84	50	6	25200	23940	1260
	72	38	6	16416	15595	821
	60	26	6	9360	8892	468

	48	14	6	4032	3830	202
TOTAL				208296	197881	10415

GRAVEL

SECTION	L (m)	W(m)	D(m)	Volume	-----	-----
AB-X1Y1	143	61	2	17446	-----	-----
CD-X2Y2	100	66	2	13200	-----	-----
TOTAL				30646	-----	-----
GRAND TOTAL				238942	197881	10415

Total Rom Mineable reserves to a depth of 32m = **2,08,296m³**

Total Mineable reserves @ 95% = **1,97,881m³**

Total Reject @ 5% = **10,415m³**

Total Gravel = **30,646m³**

Total Waste Ratio for Rough Stone = **10415/197881**

= **1:0.05**

The recovery factor is taken as 95% from the top bench to the bottom of the mine. Based on an average production rate of **30,378 m³** per annum, or **101** cubic meters per day, the life of the mine is estimated to be 5 years for the depth of 32 meters below the surface. Reserves located below this level are expected to significantly extend the life of the mine.

2.9 Year Wise Production and Development

The five years period of production and the generation of waste are described in the year-wise development/production schedule as tabulated for Rough Stone & Gravel in Table-VIII. The five years production is designed up to a depth of 32m. The waste ratio with reference to the production of Rough Stone & Gravel would be 1:0.05 The year-wise development /production plan is shown in Plate V- VB and the composite Plan of year-wise sections is given in Plate VII

Table No: 2.11. Computation of year wise production and development

YEARWISE PRODUCTION AND DEVELOPMENT							
YEAR	BENCH	L(m)	W(m)	D(m)	Volume	Recovery @95% (m ³)	Reject @5% (m ³)
I	II	96	57	6	32832	31190	1642
II	II	43	57	6	14706	30227	735
	II	46	62	6	17112		856
III	II	50	62	6	18600	30210	930
	III	44	50	6	13200		660
IV	III	40	50	6	12000	30125	600

	III	73	45	6	19710		986
V	III	53	45	6	14310	30147	716
	IV	88	33	6	17424		871
TOTAL					159894	151899	7995

GRAVEL							
YEAR	BENCH	L (m)	W(m)	D(m)	Volume	----	----
I	I	100	61	2	12200	----	----
II	I	43	61	2	5246	----	----
	I	46	66	2	6072	----	----
III	I	54	66	2	7128	----	----
TOTAL					30646	----	----
GRAND TOTAL					190540	151899	7995

Overall pit slope 45°

Total production of Rough stone for the five years = **1,59,894 m³**

Total Recovery of Rough stone for the five years @95% = **1,51,899 m³**

Total Production of Gravel = **30,646 m³**

Total Rejects @ 5% = **7,995 m³**

Rough Stone to waste ratio = 7995 /1,51,899 = **1:0.05**

2.10 Mineral Rejects and Disposal of overburden/ Waste

There is no Waste anticipated during this plan period hence, disposal of waste does not arise. The overburden in the form of Gravel, the Gravel will be directly loaded into Tippers for the filling and leveling of low-lying areas. The excavated rough stone (100%) will be directly loaded into Tippers to the needy customers.

2.11 Conceptual Mining Plan/ Final Mine Closure Plan

Conceptual Mining Plan is prepared for the life of mining period to determine the ultimate pit limits, depth of mining and final slope angle adapted with an object of long-term and systematic development of bench lay-outs, selection of permanent dump(s), avoidance of re-handling, selection of sites for construction of infrastructures, laying of roads. Kindly refer Table- VII and Plate No-VII

The ultimate pit size is so designed based on certain practical factors such as the economical depth of mining, safety zones followed, available area for mining. The Ultimate pit size of the mine in bench-wise arrived and calculated as hereunder.

Table No.3.10. Computation of Ultimate pit – I dimension

Bench	Length(m)	Width(m)	Depth(m)
I	143	61	2
II	139	57	6
III	127	45	6
IV	115	33	6
V	103	21	6
	Total		26m

Table No. 3.11: Computation of Ultimate pit-II dimension

Bench	Length(m)	Width(m)	Depth(m)
I	100	66	2
II	96	62	6
III	84	50	6
IV	72	38	6
V	60	26	6
VI	48	14	6
	Total		32m

However, mining with 6m vertical bench and slope of bench not exceeding 60° from horizontal during extraction of blocks will be maintained for safety and scientific point of view.

The amount of production from the mined-out area is estimated to be 1,51,899 m³ of Rough stone up to a depth of 32 meters below ground level. The quantity of Gravel is estimated as 30,646 m³.

There is no topsoil in the proposed area but top layer is treated as Gravel. Gravel also very high demand in market and it will be sale with valid permit and partly will used as afforestation purpose and making earth bund and there is no dump proposed during five years plan period. The reject shall be used for making road for vehicle movements.

Description		Volume (m ³)
Reject		7,995m ³
Total		7,995m³

2.11.1 Restoration, Reclamation of land affected during mining activities and at the end of (refilling /fencing etc.).

In the mining plan only to a maximum depth of 32m below ground level has been envisaged as workable depth for safe & economic quarrying operation during entire life of quarry. There is no waste generated hence, backfilling is not possible. After completion of quarry operation, the quarried-out pit will be allowed to collect the seepage and rainwater and the water storage will be kept as temporary reservoir for charging the nearby wells and the

water will be utilized for green belt development purpose. The quarry area will be fenced with Barbed wire fencing also safety bund constructed around the quarry to prevent inadvertent entry of public and cattle

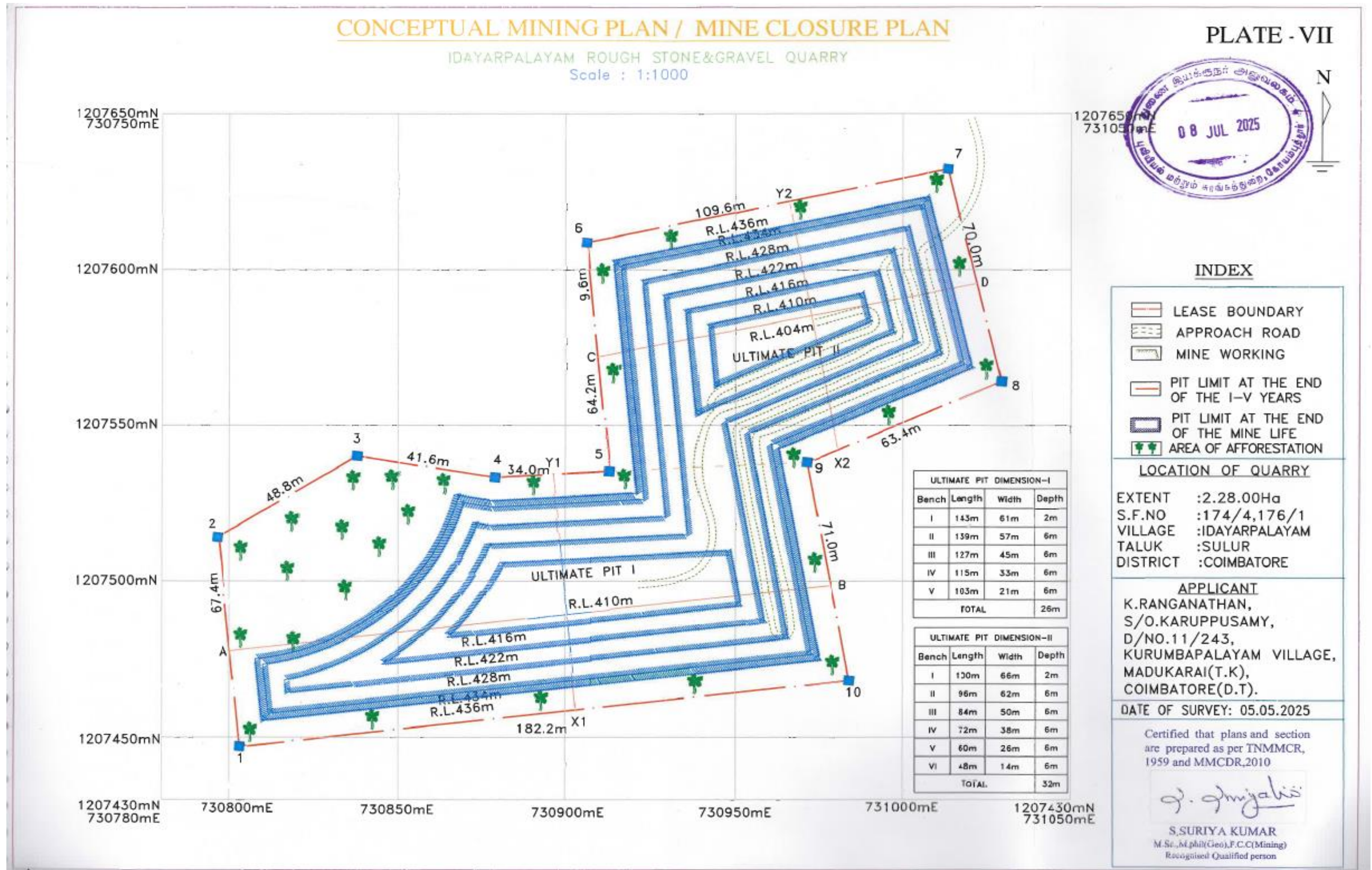


Fig. No. 2.10: Conceptual Mining plan/ Mine Closure Plan

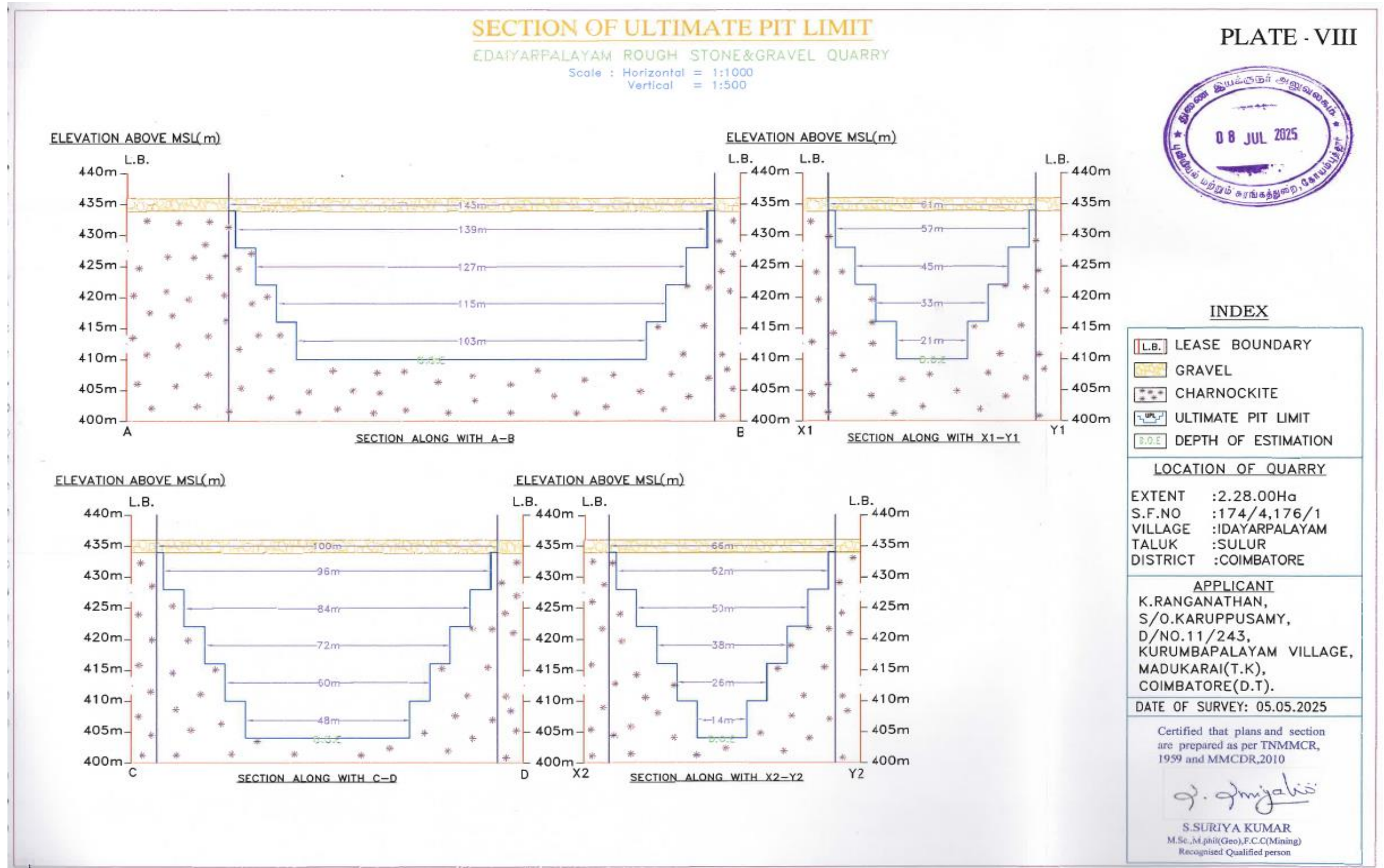


Fig. No. 2.11: Section of Ultimate Pit Limit

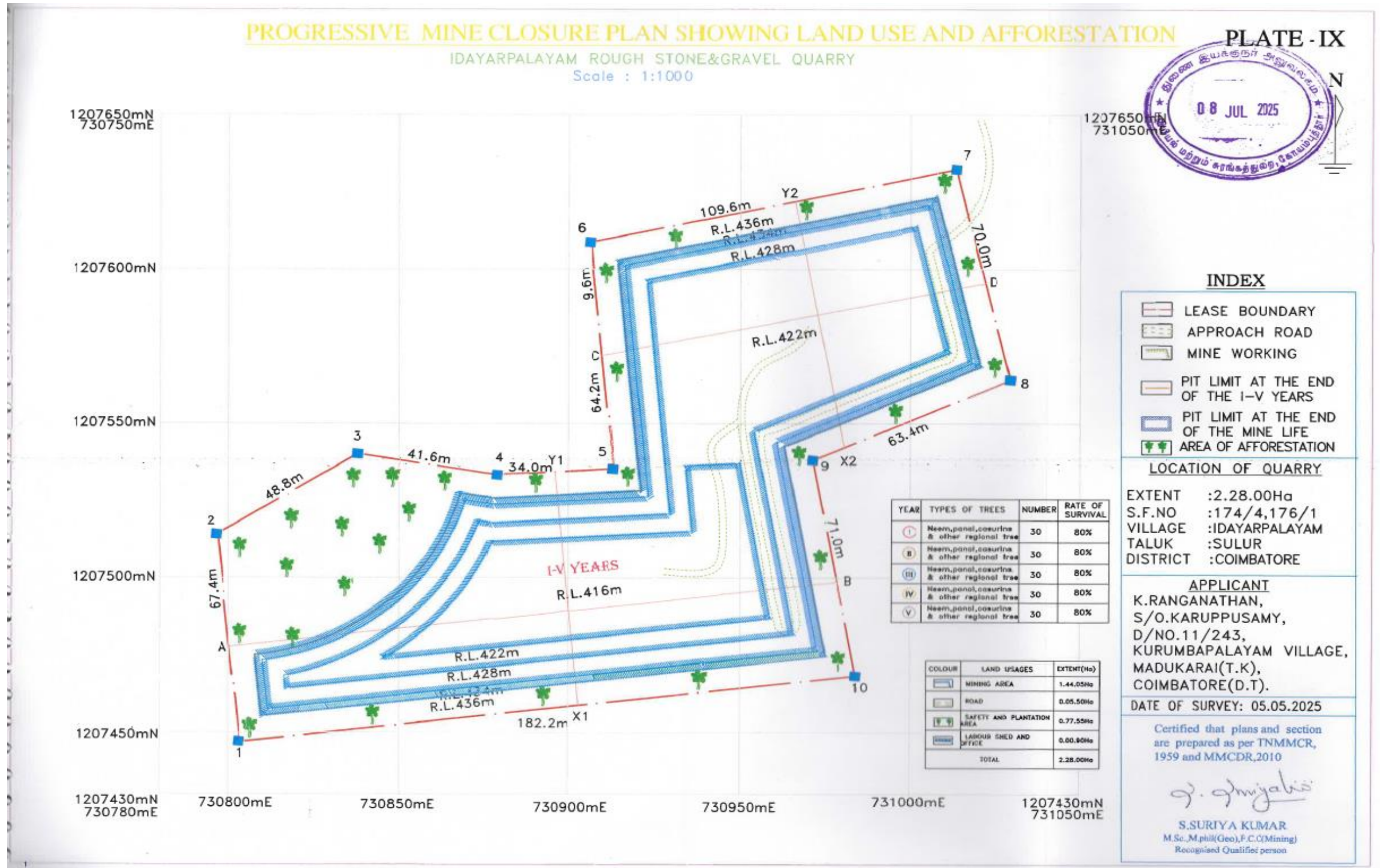


Fig. No. 2.11: Progressive Mine closure plan and Afforestation

2.12 Employment Potential (Management & Supervisory personal)

Table No 2.15: Employment Potential

Management and supervisory personal	Mining Engineer	1 No
Skilled	Mine foremen	1 No
	Blaster	1 No
	Register Keeper (Workman Cader)	1 No
	Excavator- Operator	2 No
	Tipper driver	4 No
Un-skilled	Musdoors/ Labours	8 No's
	Cleaners	2 No's
	Register Keeper	1 No
Total		21 No's

Table No 2.16: Water Requirements (5.0 KLD)

Domestic & Sanitary	Drinking Water- 0.5KLD Domestic Purposes- 1.0KLD
Dust suppression & Green Belt	Green belt purpose -1.0 KLD water sprinkling on haul roads – 2.0KLD Wet drilling – 0.5 KLD
Source	Drinking water - Mineral water industries by water canes. Domestic, Dust suppression and green belt - water tank vendor

2.13 Amenities

2.13.1 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 main rules, 1955 separately for males and Females. Washing facilities shall also be arranged as per rule (36) of the mines Rules, 1955.

2.13.2 First Aid facility

First Aid station as per provisions under Rule (44) of the Mines Rules, 1955 will be provided and First aid kits kept in mines office room, the qualified first aid personnel should be appointed or nominated to attend emergency first aid treatment.

In case of eventuality, the victim will be given first aid immediately at the site and the injured person will be taken to the hospital located in Sullur. The competent and statutory of Foreman / Mate / Permit Manager will be in charge of the First aid.

2.13.3 Labour Health

Periodic medical examination has to be made for occupational health once in a year in addition to attending medical treatment of occupational injuries under Rule 45(A).

2.13.4 Precautionary safety measures to the Labourers

Safety provisions like helmet, goggles, safety belt, safety shoes etc., have to be provided as per the circulars and amendments made for Mine labors under guidance of DGMS.

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

2.13.5 The Child labor Employment

As per the Mines Act, 1952, no child labors below 18 years of old were engaged for any work in the quarry.

2.14 Project Cost/operational cost /investment

Proposed financial estimate / budget for (EMP) Environment Management

a) Project cost / investment

a) Land Cost	=	Rs 30,00,000/-
b) Machinery to be used	=	Rs 45,00,000/-
c) Building & Welfare amenities	=	Rs 5,00,000/-
d) Fencing of the lease boundary	=	<u>Rs 1,00,000/-</u>
Total	=	<u>Rs 81,00,000/-</u>

(* Part of machineries shall be hired)

b) EMP Cost (per year)

a) Personal protective equipment	=	Rs 75,000
b) Environmental Monitoring	=	Rs 1,50,000/-
c) Occupation Health	=	Rs 1,00,000/-
d) Green Belt & Dust suppression	=	<u>Rs 3,50,000/-</u>
Total	=	<u>Rs 6,75,000/-</u>

2.15 End Use

The excavated rough stone is used for building's basement stones and other infrastructure development work in and around the district.

CHAPTER – 3: DESCRIPTION OF THE ENVIRONMENT

3.1 GENERAL

Collection of baseline environmental data of the project influenced area helps to predict the magnitude of impacts that are likely to be caused due to proposed activity of project. It also helps to identify critical environmental attributes required to be monitored during and after the proposed improvements. The baseline status of the project on environment is described section wise for better understanding of the broad-spectrum conditions. The baseline environment quality represents the background environment scenario of various environment components such as Land, Water, Air, Noise, Biological and Socio-economic status of the study area. Field monitoring studies to evaluate the base line status of the project site were carried out covering March 2025 – May 2025 with CPCB guidelines. Environmental data has been collected with reference to proposed rough stone and gravel quarry for:

- ❖ Land
- ❖ Water
- ❖ Air
- ❖ Noise
- ❖ Biological
- ❖ Socio-economic status

3.2 STUDY AREA

Exploitation of mineral resources from the land through mining causes Environmental and ecological instability, severe land degradation besides biological physical and socio-economic imbalance. The impact of the mining activities can be quantified through Environmental Impact Assessment Studies within the impact zone. The findings of EIA studies help in preparation of the environmental management plan for mitigating the adverse impacts. For the purpose of studying the baseline status of the environment, core zone and buffer zone are considered for Impact Assessment.

The core area for the purpose comprises mining lease area of 2.28.0 Ha and located in S.F. No. 174/4 and 176/1, Idayarpalayam Village, Sullur Taluk, Coimbatore District, Tamil Nadu. Geographical coordinates of the project site are 10° 54' 55.96"N to 10°55'1.97"N and eastern longitude of 77° 6' 41.92"E to 77°6'49.57"E. The buffer zone comprises a 10 km from around the core area. This section contains a description of the existing baseline environmental status of the area surrounding the core zone. The data collected has been used

to define the environmental scenario of the area, against which the potential impacts of the project has been assessed.

3.3 STUDY PERIOD

Collection of base line data is an integral part of the preparation of environmental impact assessment reports. The scope of the study includes preparation of Environmental Impact Assessment study with detailed characterization of various environmental components such as, air, noise, water, land, biological and socio economic and other impacts of mining like hydrogeological disturbances of the area around 10 km radius around the mine located at Idayarpalayam Village, Sullur Taluk, Coimbatore District, Tamil Nadu. The scope covers all the conditions outlined in the TOR prescribed by SEIAA, Tamil Nadu for this mining project vide Lr. No: SEIAA-TN/F.No: 10293/SEAC/ToR-1570/2023 dated: 06.10.2023 and Amendment TOR Identification No. TO25B0108TN5650668A Dated: 06.08.2025. EIA study was conducted during the period of March 2025 – May 2025 to assess the Impact of this project to the environment and society.

3.4. BASELINE ENVIRONMENT

3.4.1. Scope of Baseline Data Collection

The scope of baseline data collection with respect to project activity covers the following environmental components.

- **Site Meteorology:** Collection of micro meteorological data on wind speed, Wind direction, temperature, relative humidity and solar radiation on hourly basis continuously during the study period.
- **Ambient Air Quality:** Collection of AAQ data at five locations for PM₁₀, PM_{2.5}, SO_x and NO_x.
- **Noise Environment:** Collection of noise levels at five locations on hourly basis to compute the day equivalent and night equivalent.
- **Water Environment:** Collection of water samples from various sources in and around mine site within 10 km radius were collected for assessment of the existing physico-chemical and bacteriological quality.
- **Land Environment:**
 - ❖ **Soil quality:** Collection of soil samples from five locations within 10 km radius of in site for analysis of the Physico-chemical characteristics.
 - ❖ **Land use and land cover:** Assessment of land use and land cover pattern of the study area through Remote sensing technique.

- ❖ **Hydrology:** Collection of information on surface water bodies is to assess the interference with project activities.
- ❖ **Hydro Geology:** Collection of information on ground water status (Quality, quantity and ground water table) is to assess impact of mining on subsurface water bodies.
- **Ecology and Biodiversity:** Collection of primary data to understand baseline ecological status, important floristic and faunal elements, sensitive habitat and rare species; from field observation; collection of data from local village about importance and status of plants and animals. Compare the data so generated with authentic past records to understand changes with respect to proposed project; Identification of sensitive locations or protected as per Wildlife Conservation and Protection Act, 1972.
- **Socio-economic Environment:** Collection of details of the project affected persons does draw Rehabilitation & Resettlement. Collection of socio-economic status of various villages and amenities exists within an area of 10 km around the project area.

3.5 METEOROLOGY

Meteorology is the important characteristics in assessing the diffusion pattern of air pollutants released into atmosphere. Meteorological characteristic plays a vital role in assessing possible environment impacts and in preparing environmental management plan. Since meteorological factors show wide fluctuations with time, meaningful interpretation can be drawn from long-term reliable data. Such source of data is India Meteorological Department (IMD), which maintains a network of meteorological stations at important locations. The nearest IMD station for this proposed site is located at Coimbatore district.

3.5.1 Regional Meteorology

The Coimbatore district receives rainfall during NE monsoon, SW monsoon, summer and winter. The normal annual rainfall varies from 108.7 mm per year. Coimbatore has a tropical climate. The summers are much rainier than the winters in Coimbatore.

The rest of the district lies in the rain shadow region of the Western Ghats and experiences decent climate throughout the year, except the central and northern parts of the district. However, the eastern part of the district also having a meaningful rainfall and hood climate. The temperature ranges from 21.0°C to 38°C in plains and in hilly terrain of the district experiencing a maximum of 20°C in summer and a minimum of 9°C during winter.

3.5.2 Meteorological Data Recorded at IMD Station, Coimbatore District

The meteorological parameters were recorded on hourly basis during the study period for parameters like rainfall, wind speed, wind direction and temperature. In the present study, in the month of March 2025 to May 202 meteorological data has been taken to find the dispersion of pollutant concentration. Wind-rose diagram for the study period is shown given below in fig 3.1.

Table No 3.1: Summary of the Meteorological data for the study period

S. No	Month	Temperature (°C)		Rainfall (mm)	Humidity (%)	Avg. wind speed (mps)
		Min	Max			
1	March, 2025	21	38	108.7	65.0	2.8
2	April, 2025	21	37		69.4	3.1
3	May, 2025	22	38		55.8	2.6

In the present study, in the month of March 2025 to May 2025 meteorological data has been taken to find the dispersion of pollutant concentration. Wind-rose diagram for the study period is given below in fig 3.1.

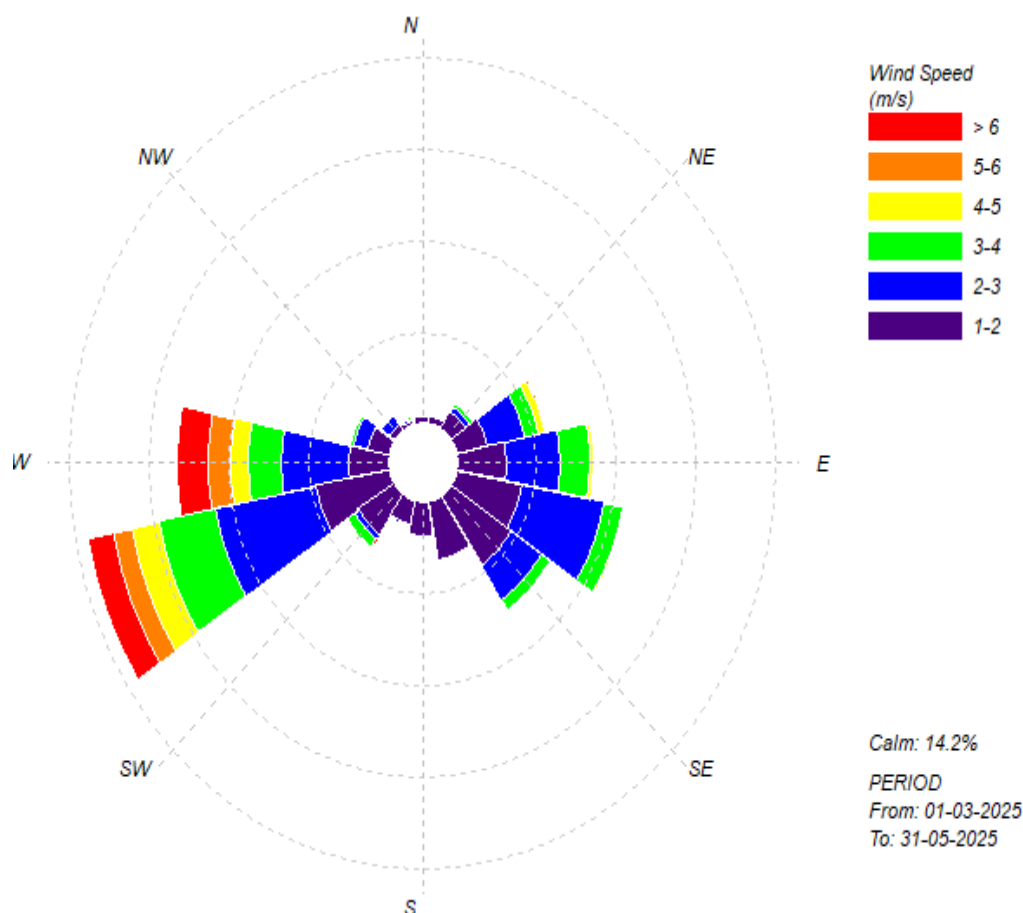


Fig No 3.1 Wind Rose Pattern

Geo-Referenced Toposheet Showing 10km Radius of Environmental Monitoring Station

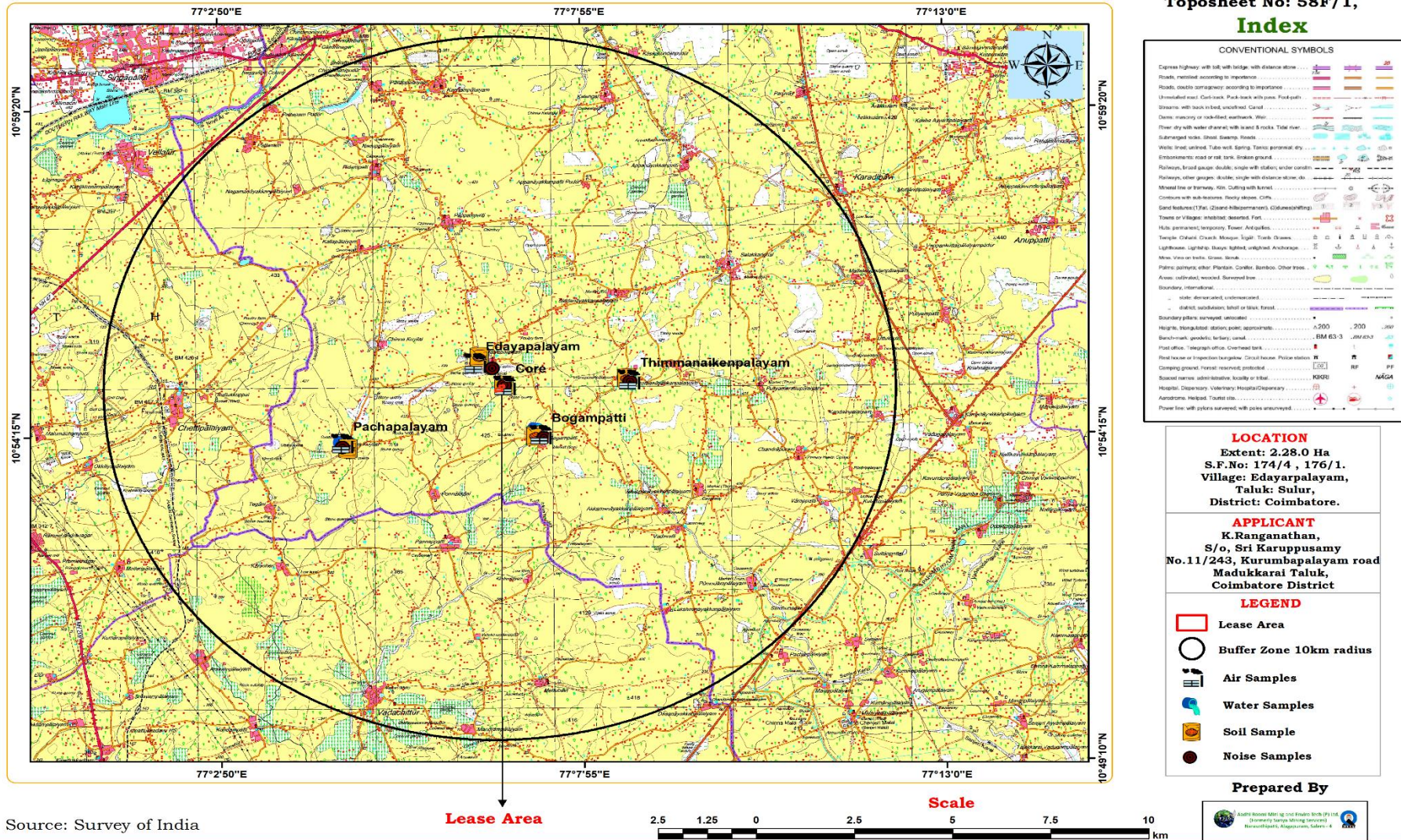


Fig No 3.2 Geo-Referenced Toposheet showing 10km radius of Environmental Monitoring Stations

3.6 AIR ENVIRONMENT

To assess the existing air quality of the study area, the baseline air quality was carried out. This will also be useful for assessing the standards of the ambient air quality of the proposed project after the operation.

3.6.1 Ambient Air Monitoring

3.6.1.1 Selection of sampling location

To assess the ambient air quality, monitoring was carried out on monthly basis in the surrounding areas of the project site. Air quality survey has been conducted for assessing the ambient air quality of the study area at 5 locations over a period of summer season i.e. March 2025 to May 2025. Major air pollutants viz, Particulate matter (PM₁₀ & PM_{2.5}), Sulphur Dioxide (SO_x) and Nitrogen Dioxide (NO_x) represents the basic air pollutants in the region for Ambient Air Quality Monitoring (AAQM). The ambient air quality monitoring stations are given in table 3.2.

Table No 3.2: Ambient Air Quality Monitoring Stations

Sampling Code	Location	Latitude (N)	Longitude (E)	Distance (km)	Direction
AAQ1	Lease area	10°55'1.30"	77° 6'48.46"	--	--
AAQ2	Edayarpalayam	10°55'22.56"	77° 6'24.87"	1.06	N
AAQ3	Thimmanaikenpalayam	10°55'6.28"	77° 8'34.45"	3.27	E
AAQ4	Bogampatti	10°54'15.23"	77° 7'19.72"	1.80	SE
AAQ5	Pachapalayam	10°54'8.16"	77° 4'32.81"	4.26	SW

3.6.1.2 Parameters and Monitoring Methodology

Ambient air quality monitoring was conducted over 3 months i.e. from March 2025 to May 2025 at a frequency of twice a week at each station adopting a 24-hours schedule. The sampling equipment was placed at a height of 3 to 3.5 meters above ground level at each monitoring station, thus negating the effects of wind blow ground dust. Ambient Air quality monitoring was conducted in respect of the following parameters:

- ❑ Particulate Matter (PM₁₀)
- ❑ Particulate Matter (PM_{2.5})
- ❑ Sulphur Dioxide (SO_x)
- ❑ Nitrogen Dioxide (NO_x)



Fig No 3.3: Air Sampling at Core and Buffer Zone

Geo-Referenced Toposheet Showing 10km Radius of Air Sampling

Toposheet No: 58F/1

Index

CONVENTIONAL SYMBOLS		
Express highway: with toll; with bridge; with distance stone		20
Roads, metalled: according to importance		
Roads, double cartway: according to importance		
Unmetalled road: Cart-track: Pack-track with pass: Foot-path		
Streams: with track in bed, undefined: Canal		
Dams: masonry or rock-filled; earthwork: Weir		
River: dry with water channel; with island & rocks: Tidal river		
Submerged rocks: Shrub: Swamp: Reeds		
Wells: lined: unlined: Tube-well: Spring: Tanks: perennial: dry		
Embankments: road or rail: tank: Broken ground		
Railways, broad gauge: double: single with station; under constr.		
Railways, other gauges: double: single with distance stone; do.		
Mineral line or tramway: Kin. Cutting with tunnel		
Contours with sub-features: Rocky slopes: Cliffs		
Sand features: (1) flat: (2) sand-hills(permanent): (3) dunes(sifting)		
Towns or Villages: inhabited: deserted: Fort		
Hills: permanent: temporary: Tower: Antiquities		
Temple: Chattri: Church: Mosque: Idgah: Tomb: Graves		
Lighthouse: Lightship: Buoy: lighted: unlighted: Anchorage		
Mine: Vine on trellis: Grass: Scrub		
Palms: palmyra; other: Plantain: Coffer: Bamboo: Other trees		
Areas: cultivated: wooded: Surveyed tree		
Boundary, international		
state: demarcated: undemarcated		
district: subdivision: tahsil or taluk: forest		
Boundary pillars: surveyed: unlocated		
Heights, triangulated: station: point: approximate		200 200 200
Bench-mark: geodetic: tertiary: canal		BM 63-3 BM 63-2
Post office: Telegraph office: Overhead tank		
Rest house or inspection bungalow: Circuit house: Police station		
Camping ground: Forest: reserved: protected		RF PF
Spaced names: administrative, locality or tribal		KIKRI NAGA
Hospital: Dispensary: Veterinary: Hospital/Dispensary		
Aerodrome: Helipad: Tourist site		
Power line: with pylons surveyed; with poles unsurveyed		

LOCATION

Extent: 2.28.0 Ha
S.F.No: 174/4, 176/1.
Village: Edayarpalayam,
Taluk: Sulur,
District: Coimbatore.

APPLICANT

K.Ranganathan,
S/o, Sri Karuppusamy
No.11/243, Kurumbapalayam road
Madukkarai Taluk,
Coimbatore District

LEGEND

- Lease Area
- Buffer Zone 10km radius
- Air Samples

Prepared By



Source: Survey of India

Lease Area

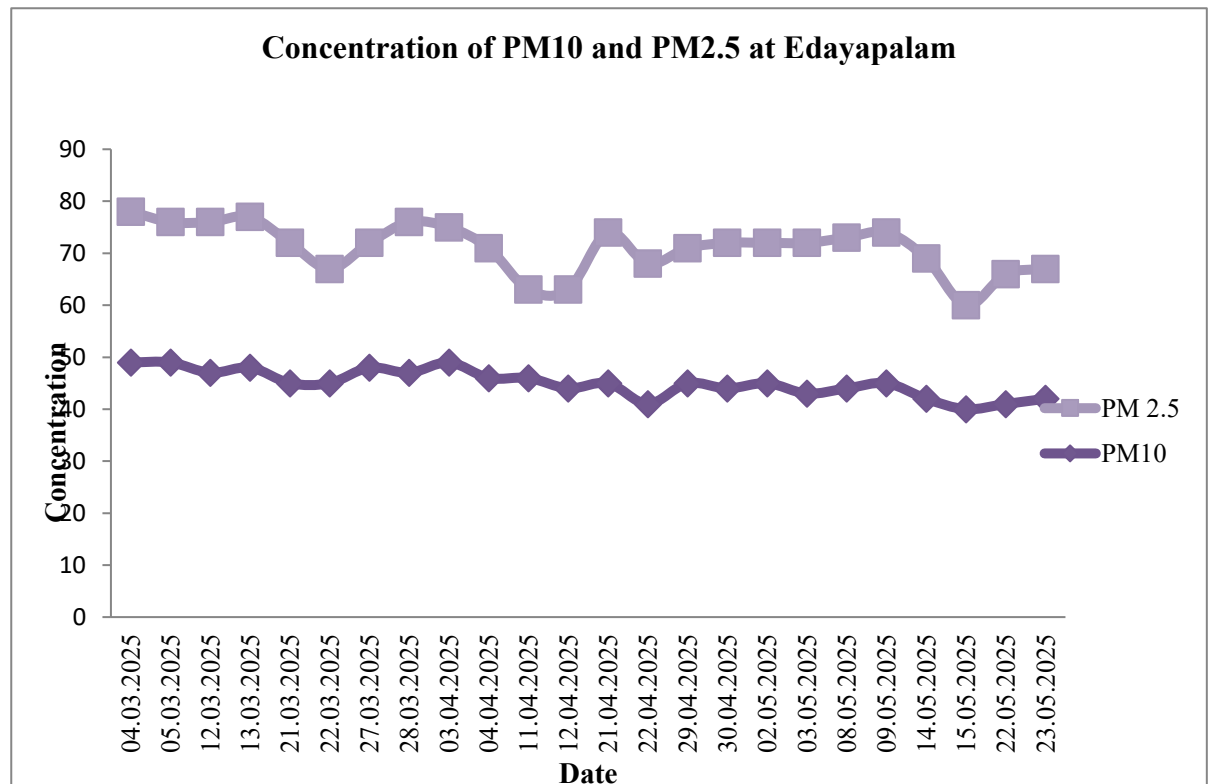
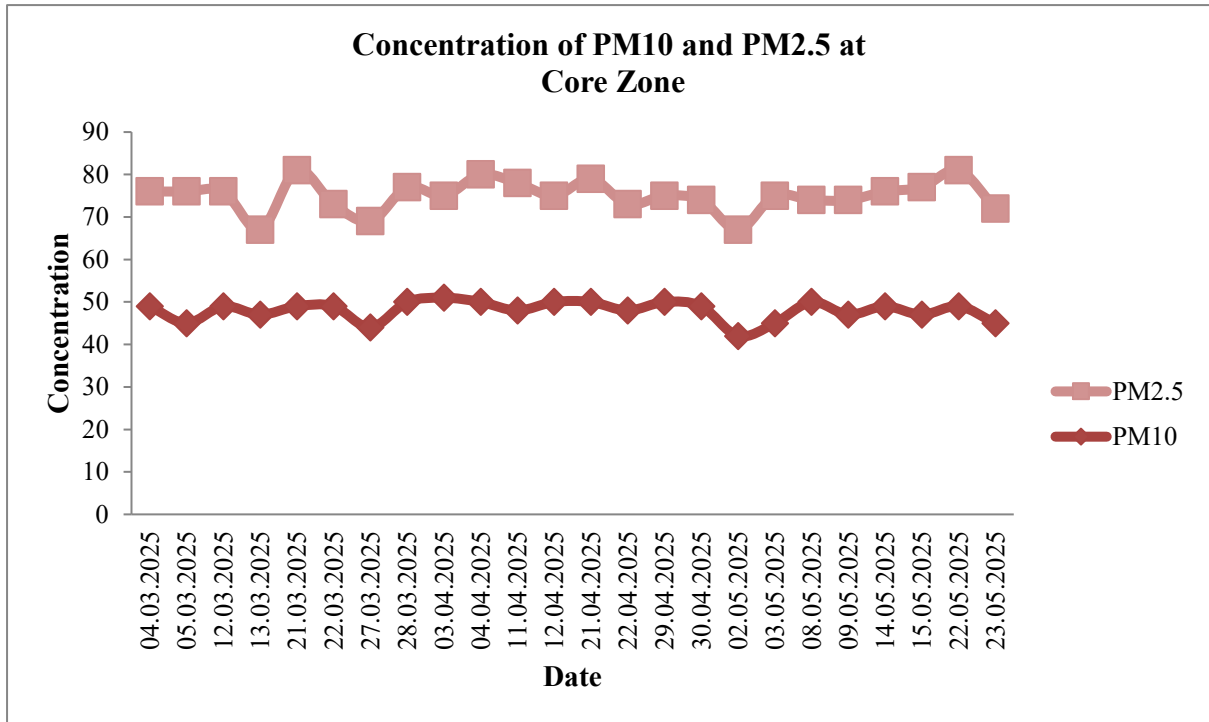


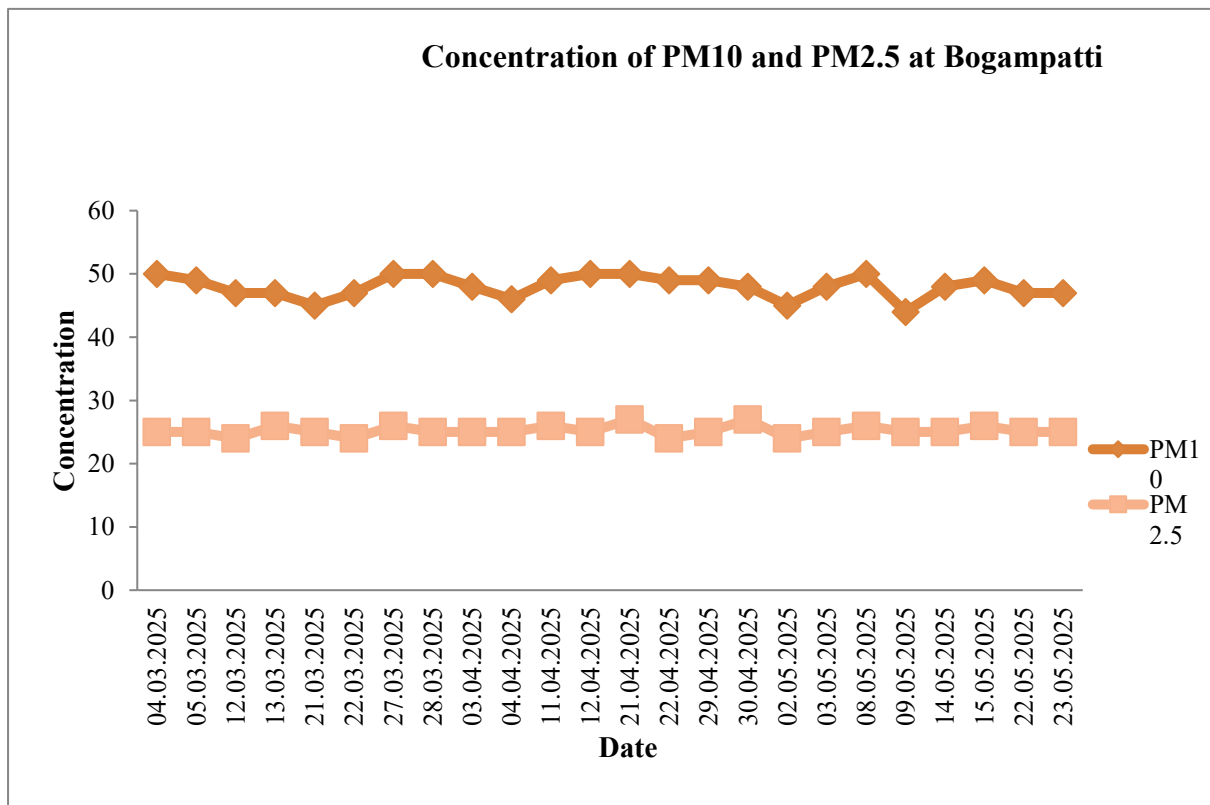
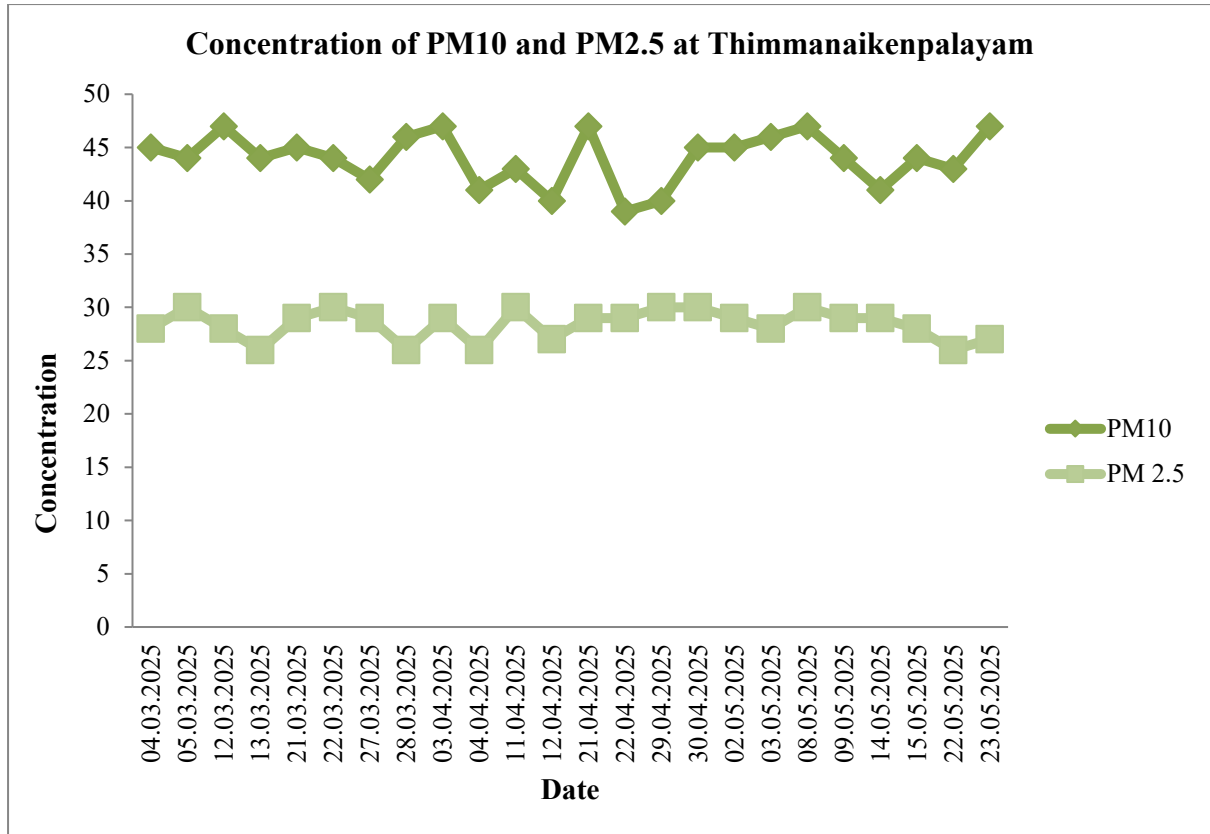
Fig No 3.4: Geo referenced Toposheet showing air sampling location

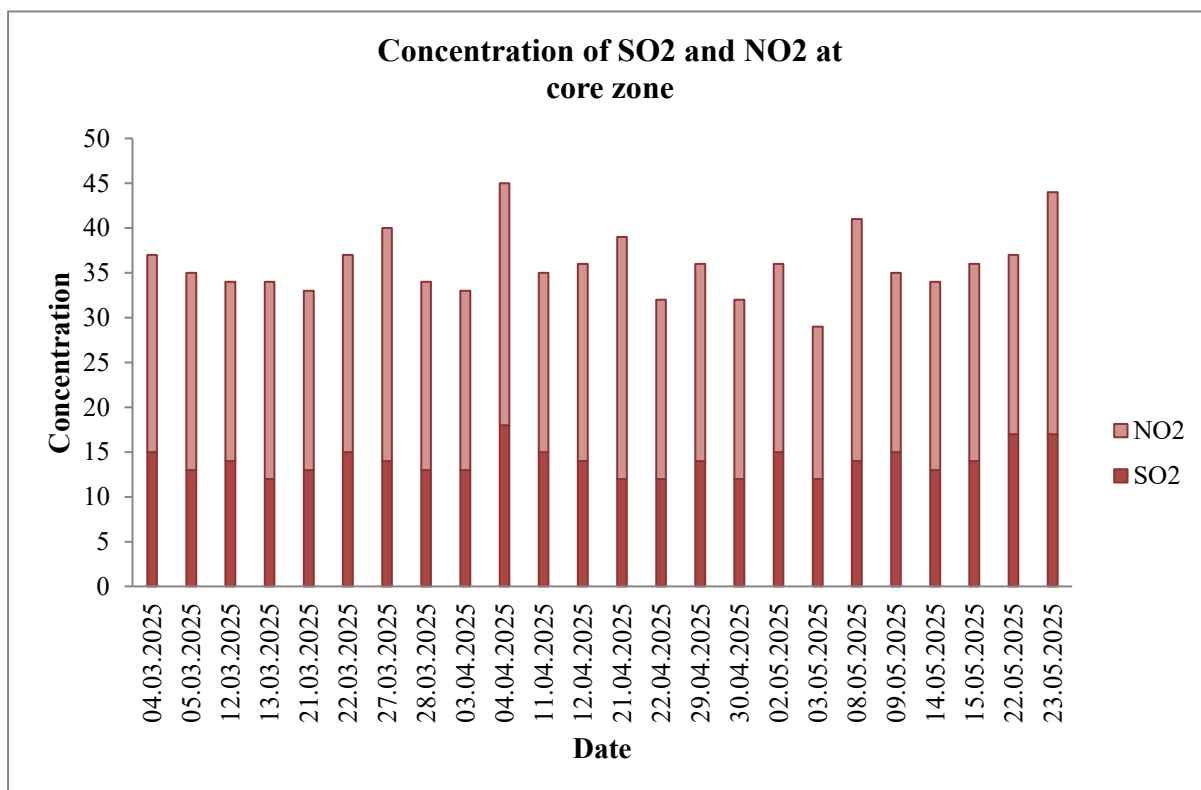
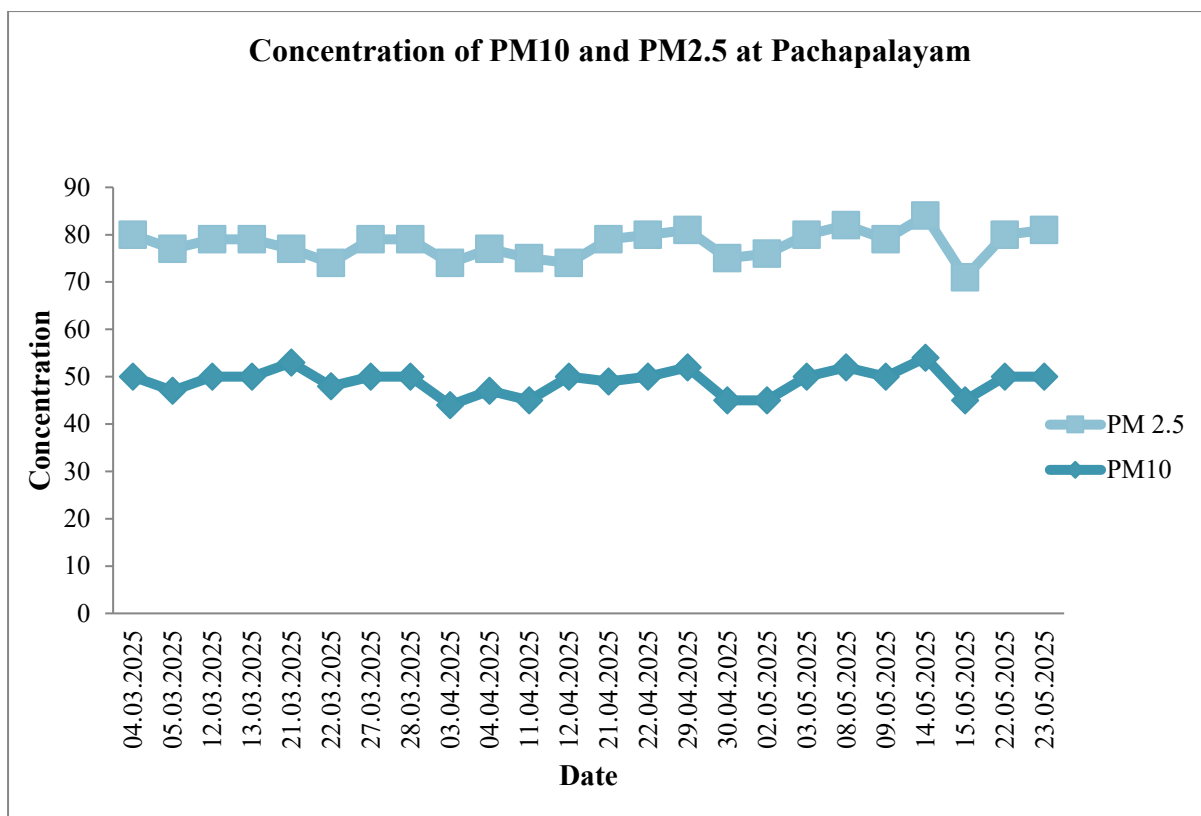
3.6.2 Monitoring Result

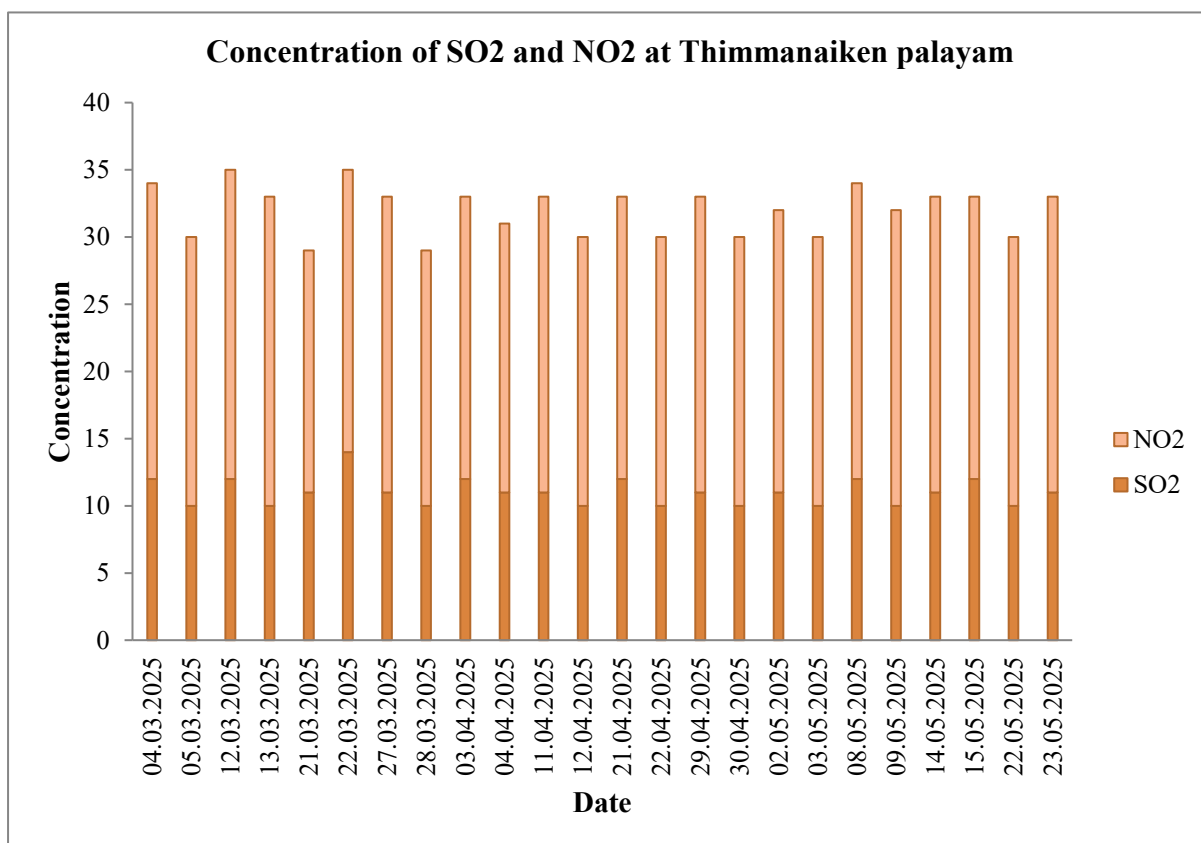
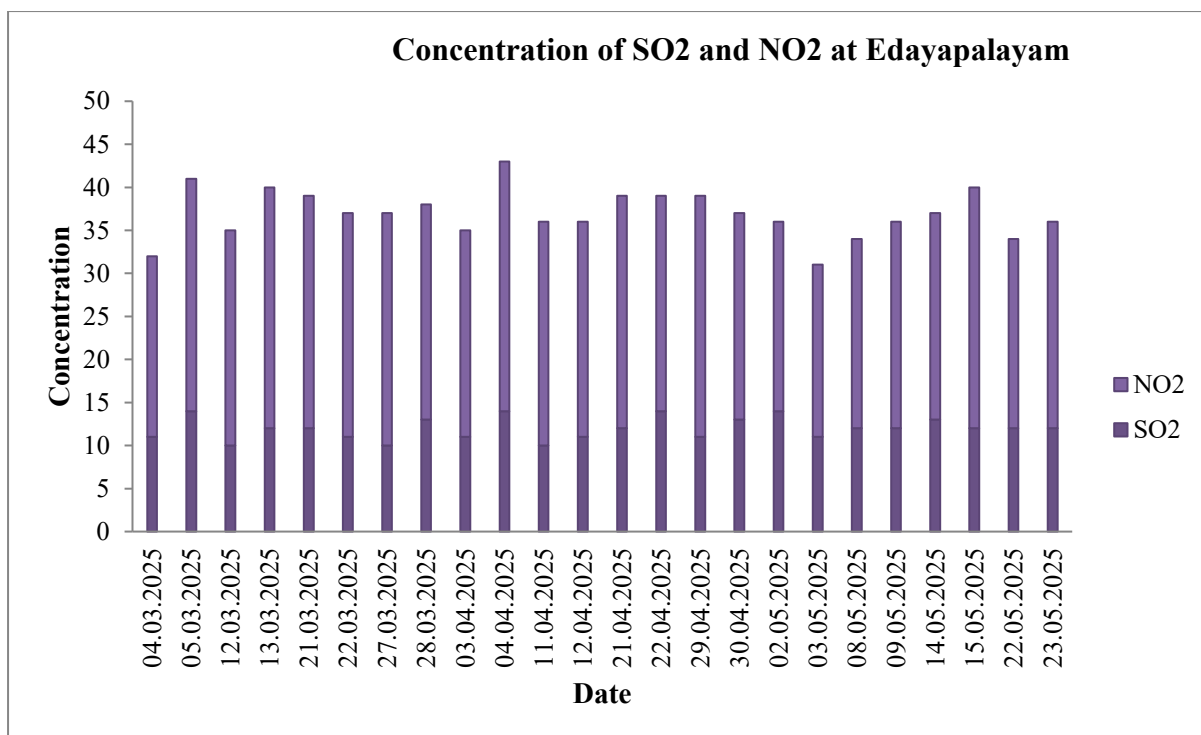
Table No. 3.3: Statistical Analysis of Ambient Air Quality in the study area for the monitoring period are shown parameter wise

SAMPLING SITE		PARAMETERS															
		PM ₁₀ (µg/m ³)				PM _{2.5} (µg/m ³)				SO _x (µg/m ³)				NO _x (µg/m ³)			
		Minimum	Maximum	Average	98%	Minimum	Maximum	Average	98%	Minimum	Maximum	Average	98%	Minimum	Maximum	Average	98%
Lease Area		42	51	48	50.54	19	33	27	32	9	19	14	18	15	28	22	27
Buffer Zone	Edayapalayam	32	50	45	49	15	30	26	29	8	17	12	14	12	30	25	29
	Thimmanaikenpalayam	35	48	44	47	18	30	28	30	7	14	11	13.08	11	25	21	23
	Bogampatti	39	51	48	50	18	27	25	27	9	19	15	18	15	27	23	25
	Pachapalayam	40	54	49	54	19	31	29	31	9	17	13	16	12	25	22	24
	NAAQS	100				60				80				80			









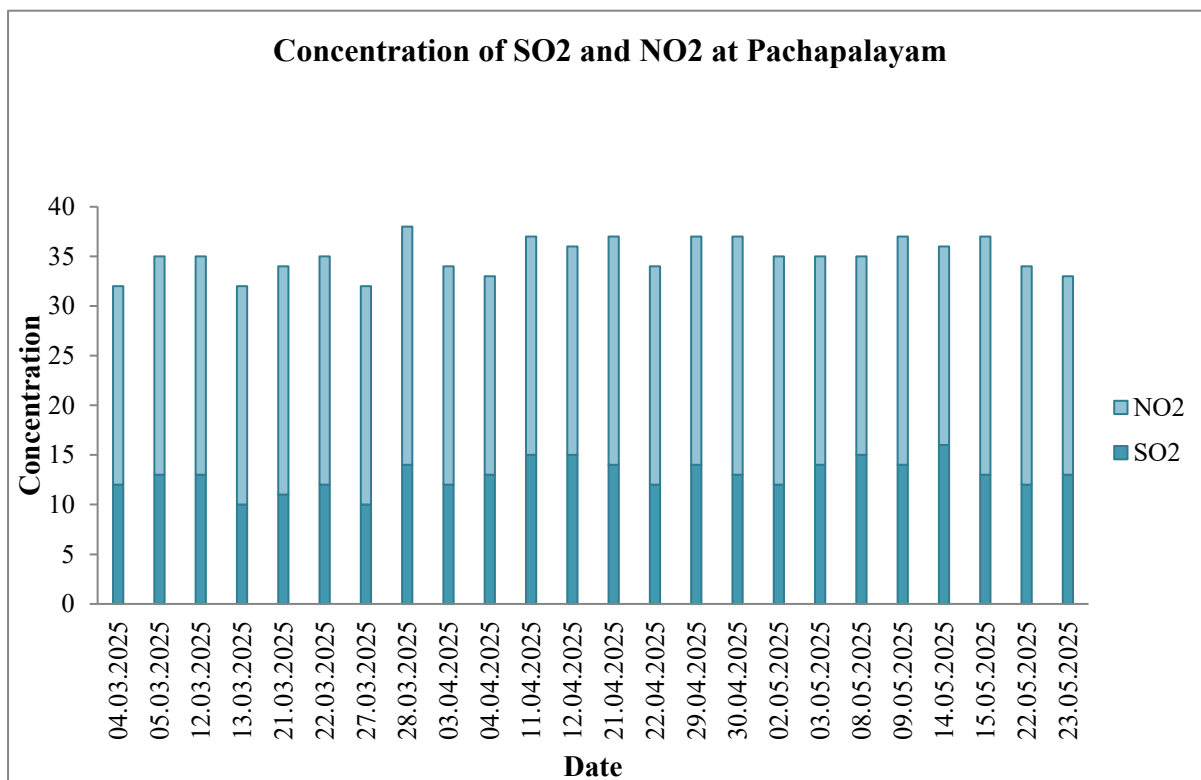
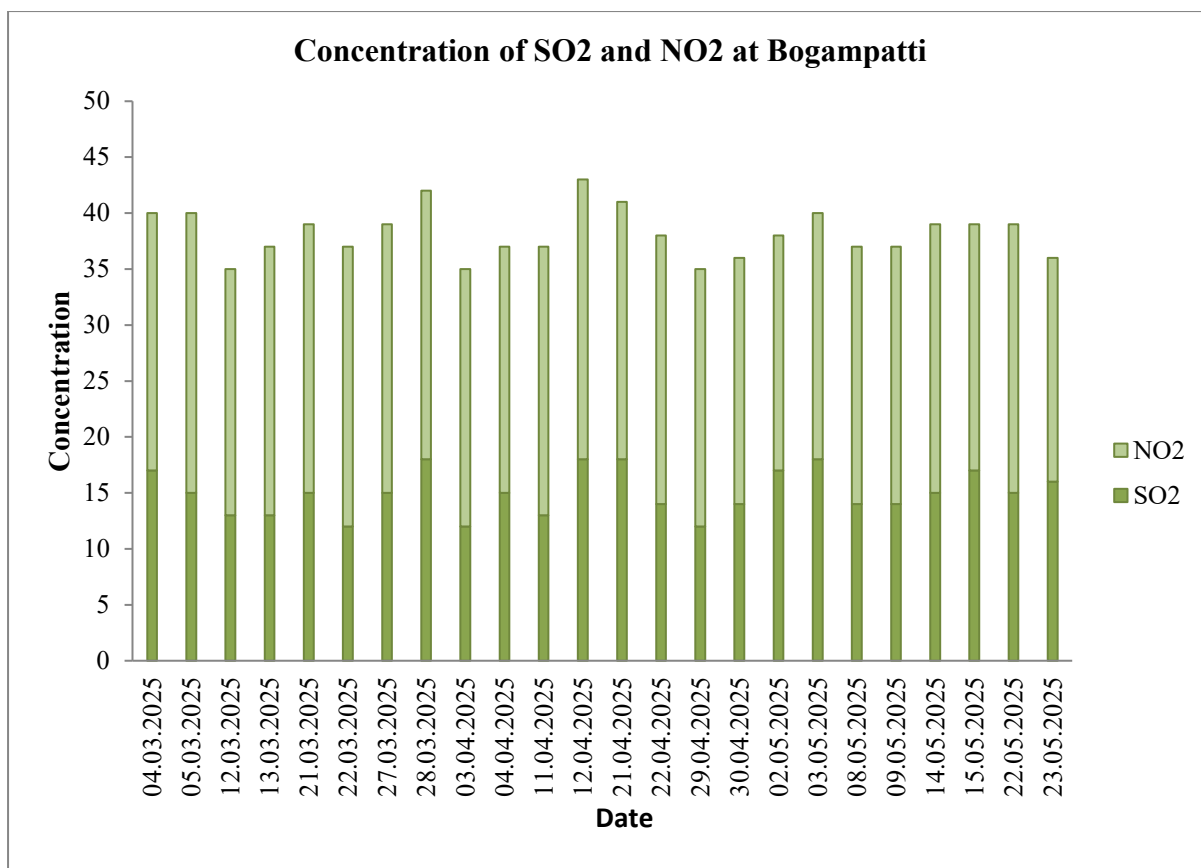


Fig No 3.5: Air quality analysis of Core and Buffer Zone

3.6.3 Observation

Air pollution has a negative impact on environmental quality and global climate change, which requires almost every country to make policies to improve air quality. The primary statistical analysis was performed with respect to the parameter such as PM₁₀, PM_{2.5}, SO_x and NO_x. The study area PM_{2.5} range was about 19 to 33 µg/m³, with an average value of 27 µg/m³ in lease area. Other four station minimum and maximum value on 15 to 31 µg/m³ with an average value of 27 to 29 µg/m³ during the study period. Further discussed PM₁₀ was observed in five station minimum and maximum of 32 to 54 µg/m³, with an average value 48 µg/m³ in lease area and other station maximum concentration was noticed on 54 µg/m³ in Pachapalayam village, minimum was observed in 42 µg/m³ at lease area.

In this study area SO₂ minimum and maximum concentration was 9 to 19 µg/m³, with an average value of 14 µg/m³ at lease area during the study period. Other sampling station minimum and maximum concentration of 7 to 19 µg/m³ at Thimmanaikenpalayam and Bogampatti village, with an average value of 11 to 15 µg/m³ with the same. NO₂ concentration of the during the study period minimum and maximum of 15 to 28 µg/m³ with an average value of 22 µg/m³ was noticed in the lease area. Further four station air sample minimum and maximum concentration was observed in 11 to 30 µg/m³ at Thimmanaikenpalayam and Edayapalayam village, with an average value of 21 to 25 µg/m³ at Thimmanaikenpalayam and Edayapalayam village. Based on comparison study of results with NAAQS for monitored parameters, it is interpreted that ambient air quality of the monitored locations can be considered good as all the results of tested parameters are well within the limits of NAAQS prescribed by CPCB.

3.7 NOISE ENVIRONMENT

A preliminary reconnaissance was undertaken for identification and evaluation of the present noise status on the general population. Therefore, noise level measurement was carried out at each ambient air quality station and also at site. The objectives of Noise environment studies are:

- To assess the ambient noise level in the study area.
- To characterize the noise pollution area.
- To predict the temporal changes in the ambient noise level of the area.

The baseline noise levels were taken to assess the Impact of Noise on the workers in the mine site and on the nearby settlements due to mining machineries, movements of vehicles etc. Ten locations were identified based on the activities in the study area in dB (A)

scale. Georeferenced top map showing location of noise sampling is given in the fig 3.7. The noise recording stations are shown below in table 3.4 and fig 3.6.

Table No 3.4: Noise Monitoring Stations

Sl. No	Location	Station code	Distance (km)	Direction
1	Lease area	N1	--	--
	Lease boundary pillar (North)	N2	0.1	N
	Lease boundary pillar (South)	N3	0.1	S
	Lease boundary pillar (East)	N4	0.1	E
	Lease boundary pillar (West)	N5	0.1	W
2	Edayarpalayam	N6	1.06	N
3	Thimmanaikenpalayam	N7	3.27	E
4	Bogampatti	N8	1.80	SE
5	Pachapalayam	N9	4.26	SW

3.7.1. Method of Monitoring

Sound Pressure Level (SPL) was measured at nine locations; one reading per hour was taken for 24 hours. The day time noise levels were monitored during 6 am to 10 pm and night time levels during 10 pm to 6 am at all the monitoring locations within the study area. Noise monitoring location of core and buffer zone are given in the fig 3.8.





Fig No.3.6: Noise Sampling at Core and Buffer Zone

For each location, day and night time Leq values have then been computed from the hourly Leq values such that comparison could be made with the national ambient noise standards.

Geo-Referenced Toposheet Showing 10km Radius of Noise Monitoring

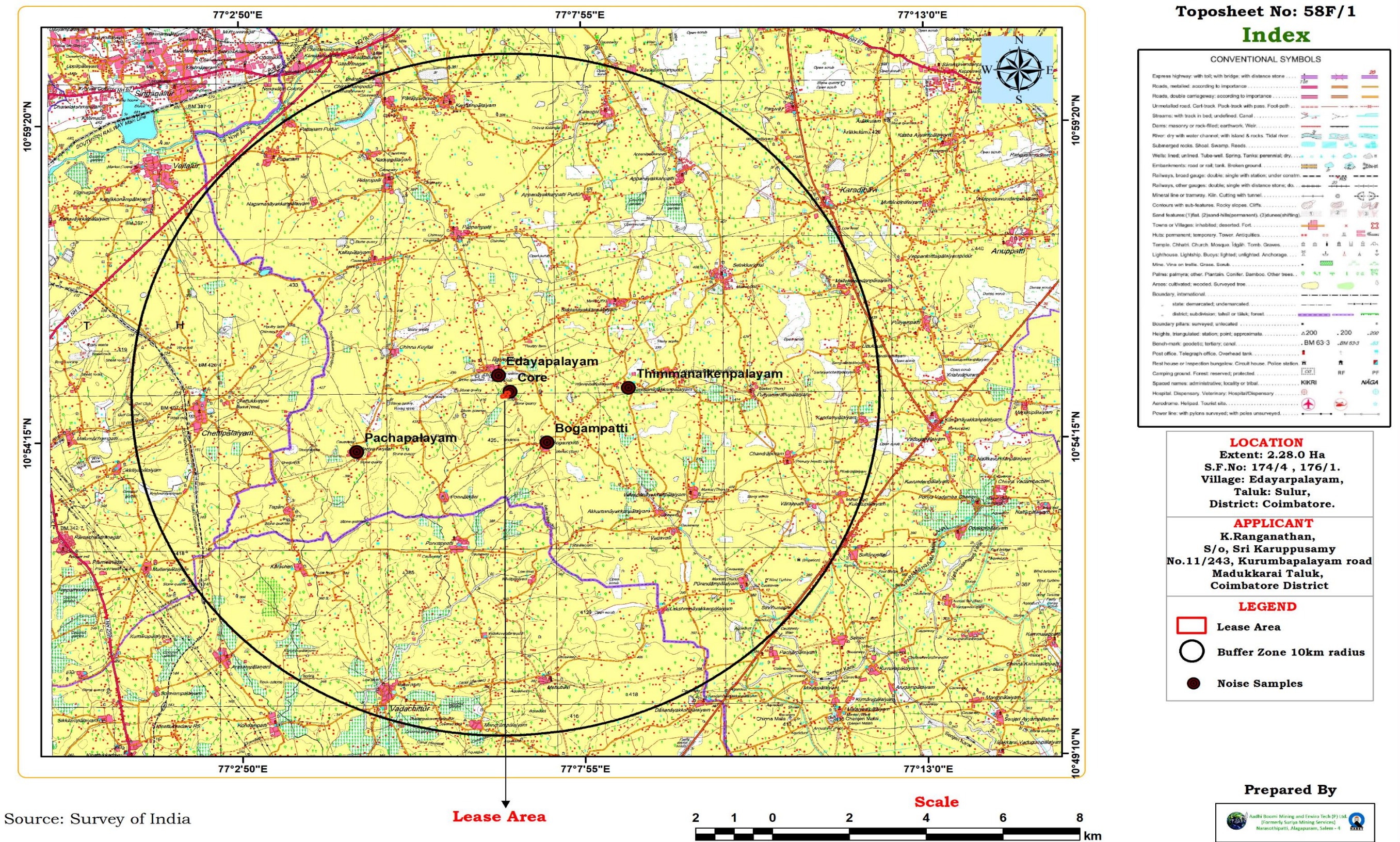


Fig No 3.7: Georeferenced Toposheet showing Noise sampling locations

Table No 3.5: Summary of Ambient Noise Level during study period

Sample code	Location	Decibel dB (A)		TNPCB Standards
		Day Time	Night Time	
N1	Lease area	41.4	37.4	Industrial – 75 dB(A)
N2	Lease boundary pillar (North)	39.4	33.2	
N3	Lease boundary pillar (South)	39.8	33.5	
N4	Lease boundary pillar (East)	40.1	34.7	Residential – 55 dB(A)
N5	Lease boundary pillar (West)	38.6	33.8	
N6	Edayarpalayam	39.3	33.6	
N7	Thimmanaikenpalayam	40.1	36.8	
N8	Bogampatti	38.2	33.6	
N9	Pachapalayam	40.1	34.6	

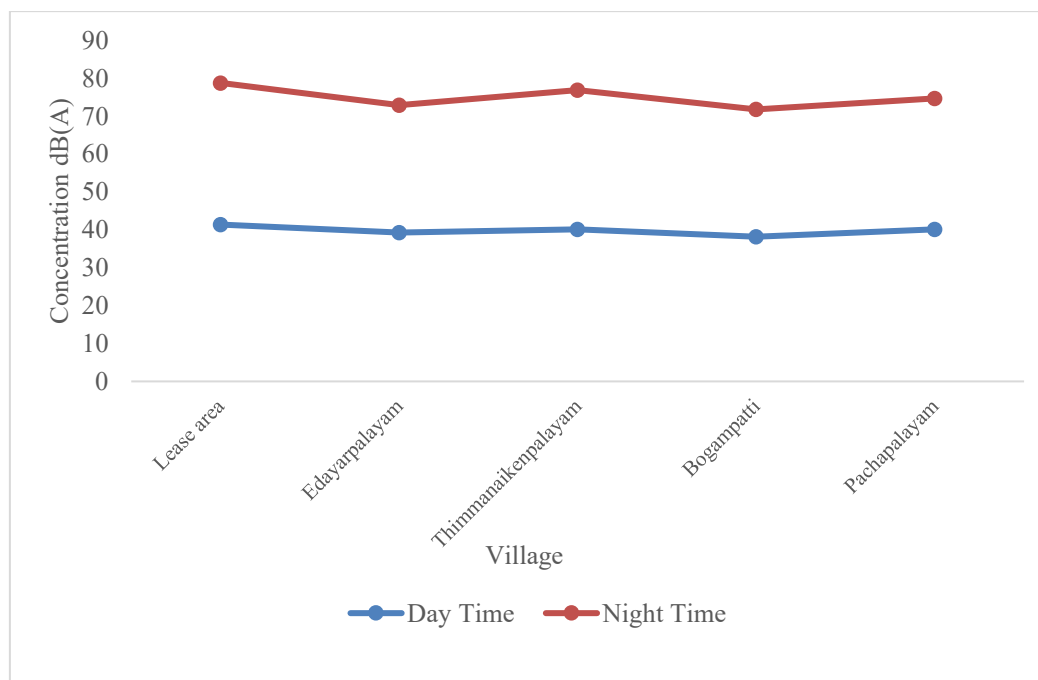


Fig No 3.8: Ambient Baseline Noise Level

3.7.2 INTERPRETATION

Sound begins as the movement of air molecules. A vibrating object sets up alternating bands of compression and expansion in the surrounding air. The human ear is the organ of the body that directly responds to sound and can be damaged if the sounds are too loud. Unwanted, uncontrollable, and unpredictable sounds, whether soft or loud labeled noise can be annoying and very disturbing. The body reacts to the annoyance of these unwanted sounds, or noises, through a complex set of physiological responses that are collectively labeled stress. These physiological responses can include: a rise in blood pressure, excessive

secretion of certain hormones, a change in heart rhythm, or a slowing down of digestion. Should the noise continue to be disturbing and the stress reaction sustained, then permanent ailments may occur in the circulatory, cardiovascular, or gastrointestinal system. Thus, noise mediated by stress can affect many organs of the body indirectly.

The day time noise levels at lease area were observed as 41.4 dB (A) being well within the Industrial area prescribed limit of 75 dB (A) whereas the noise levels at all study area such as Edayarpalayam, Thimmanaikenpalayam, Bogampatti and Pachapalayam were observed to be in the range of 39.3, 40.1, 38.2 and 40.1 dB (A) being well within the Residential area prescribed limit of 55 dB (A) as per CPCB Standard for Industrial Areas.

In this study area night time noise levels at Edayarpalayam, Thimmanaikenpalayam, Bogampatti and Pachapalayam villages were observed to be in the range of 33.6, 36.8, 33.6 and 34.6 dB (A) being well within the residential area prescribed limit of 55 dB (A) whereas the Noise level in the lease area was observed as 37.4 dB (A) which is also within the prescribed limit of 75 dB (A) as per CPCB Standard for Industrial Areas.

3.8 WATER ENVIRONMENT

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

- ❖ Identification and Location of major surface and ground water sources
- ❖ Location of the project site
- ❖ Water samples were collected and analysed for physical, chemical and biological parameters characteristics as per IS 10500:2012

Five water samples were collected one from lease area and four from the buffer area. Samples for chemical analysis were collected in polyethylene bottles. Samples for bacteriological analysis were collected in sterilized glass bottles. Selected physico-chemical and bacteriological parameters have been analyzed for projecting the existing water quality (baseline values) status of ground and surface water in the study area. Photographs of core and buffer zone water sampling locations are given in the fig 3.9. Details of water sampling locations are present in table 3.6. In addition, water quality details are given in the table 3.7. The following image of Georeferenced topo map showing locations of water samples are given in the fig 3.10.

Table No 3.6: Water Sampling Locations

Sampling code	Location	Latitude (N)	Longitude (E)	Distance (km)	Direction
WQ 1	Lease area	10°55'1.30"	77° 6'48.46"	--	--
WQ 2	Edayarpalayam	10°55'25.81"	77° 6'30.30"	1.06	N
WQ 3	Thimmanaikenpalayam	10°55'4.96"	77° 8'32.49"	3.27	E
WQ 4	Bogampatti	10°54'17.63"	77° 7'16.83"	1.80	SE
WQ 5	Pachapalayam	10°54'6.02"	77° 4'33.50"	4.26	SW



Fig No. 3.9: Water Sampling at Core and Buffer Zone

Geo-Referenced Toposheet Showing 10km Radius of Water Sampling

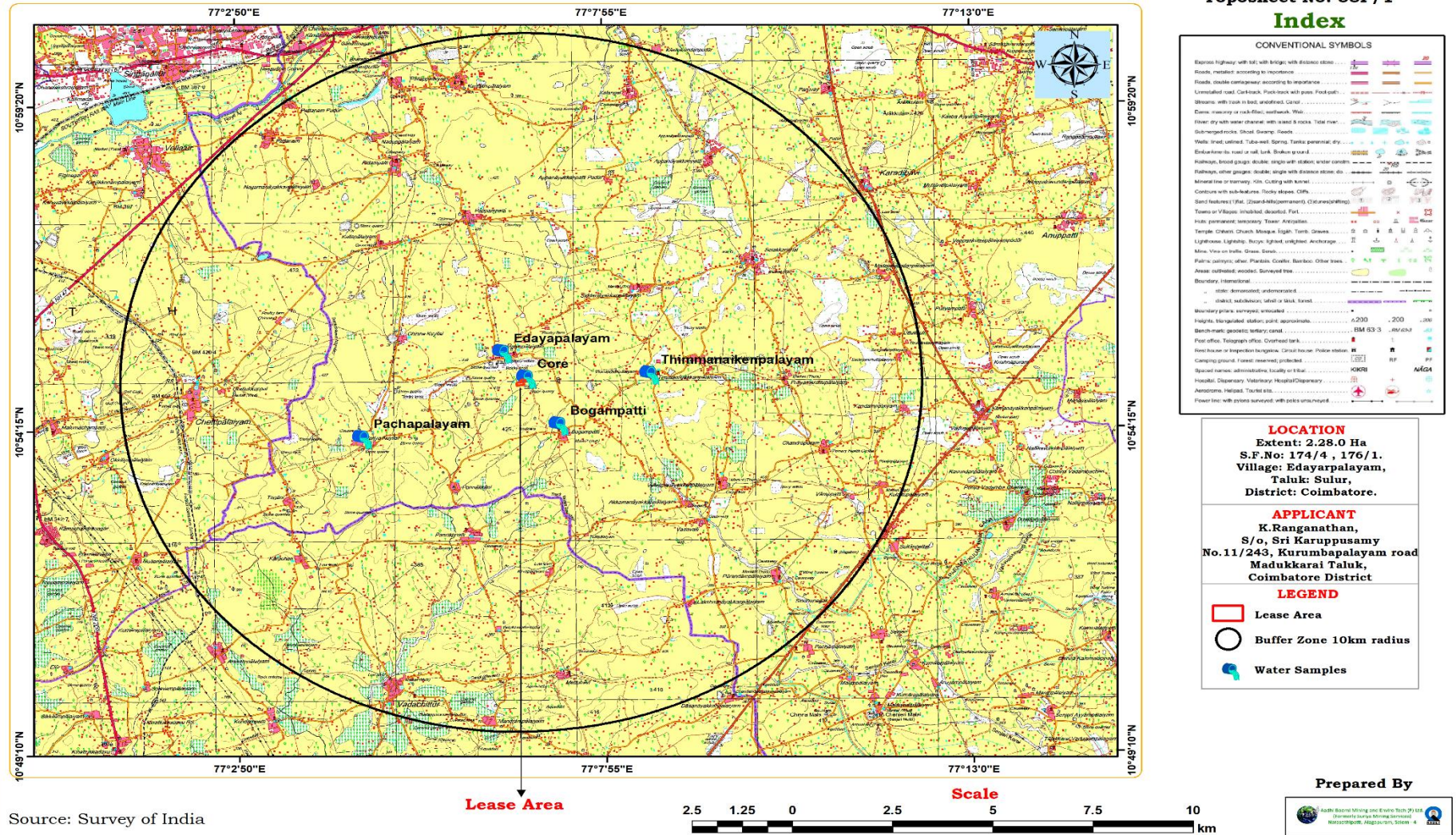


Fig No 3.10: Geo referenced Toposheet showing water sampling location

Table No: 3.7: Summaries of Water Quality Results

Sampling Site		Parameters												
		pH	EC μs/cm	Tur (NTU)	TSS (mg/l)	TDS (mg/l)	TH (mg/l)	Ca (mg/l)	Mg (mg/l)	Cl (mg/l)	TA (mg/l)	HCO ₃ ⁻ (mg/l)	SO ₄ ²⁻ (mg/l)	Fe (mg/l)
Core Zone		7.87	1840	BDL	16	1120	212	64	13	164	112	112	88	1.02
Buffer Zone	Edayarpalayam	8.02	1093	BDL	8	664	180	53	12	88	104	104	58	0.84
	Thimmanaikenpalayam	7.73	1765	BDL	8	1064	188	40	21	148	166	166	72	0.92
	Bogampatti	6.80	750	BDL	4	464	68	17	6	39	89	89	24	0.04
	Pachapalayam	7.47	1960	BDL	16	1216	226	53	23	170	208	208	104	1.04
IS 3025/Ref lab report	AL	6.5-8.5	-	1	-	500	200	75	30	250	200	-	200	0.3
	PL	6.5-8.5	-	5	-	2000	600	200	100	1000	600	-	400	0.3

*Protocol followed by: APHA 23rd Edition 2017

Tur- Turbidity, **TSS**- Total Suspended Solids, **TDS**-Total Dissolved Solids, **TH**- Total Hardness, **Ca²⁺**- Calcium, **Mg²⁺**-Magnesium, **Cl**-Chloride, **TA**-Total Alkalinity, **HCO₃⁻**- Bicarbonate, **SO₄²⁻**- Sulfate and **Fe**-Iron.

AL- Acceptable Limit.

PL-Permissible limit.

3.8.1. Interpretation

The physico-chemical characterization of the collected groundwater samples was performed as per the standard protocol IS 10500:2012.

Natural groundwater quality depends on the geological and geographical structures of the region. Typically, hydrochemical assessment of groundwater flow systems are based on the available information regarding groundwater chemistry. The study area groundwater pH range was about 6.80 to 8.02, all water sample pH is within the acceptable limit.

The range of electrical conductivity (EC) in 750 to 1960 $\mu\text{S}/\text{cm}$ during the study period. The groundwater samples exceeding the permissible limit in the study area. Based on electrical conductivity, groundwater can be graded as Type I if the salt enrichments are low ($\text{EC} < 1500 \mu\text{S}/\text{cm}$); Type II if the salt enrichments are medium ($\text{EC}: 1500 \text{ and } 3000 \mu\text{S}/\text{cm}$); and Type III if the salt enrichments are large ($\text{EC} > 3000 \mu\text{S}/\text{cm}$) (Subba Rao et al. 2012). Therefore, most groundwater samples in this study region falls under category-I. Turbidity from all the water samples was found below detectable limit. Total Dissolved Solids found in the range of 464 to 1216 mg/l in the study area. Bogampatti village TDS value within the permissible limit. Other four water samples higher than the acceptable limit in the study area such as lease area, Pachapalayam, Thimmanaikenpalayam and Edayarpalayam villages.

In the range of total hardness groundwater samples for 68 to 226 mg/l during the study period. Lease area and Pachapalayam village exceeding the acceptable limit. Other three groundwater samples fall under acceptable limit in the study area. In the study area, calcium concentration was observed 17 to 64 mg/L in the study period. For most rocks, calcium is found in groundwater because of its simple solubility and its abundance. Study area magnesium concentration was 6 to 23 mg/L during the study period. Magnesium is an essential activator of many enzymes but it is also cathartic and diuretic. Even the Silicate rocks and dolomitic rock deposits were found to contribute calcium and magnesium ions.

Chloride in the water samples ranged from 39 to 170 mg/l , all water sample chloride is within the acceptable limit. Chloride in drinking water is usually reported to be not toxic in humans except at a higher concentration. High chloride concentration makes the taste of water and beverages salty. High chloride containing water intake causes health problems such as hypertension, ventricular hypertrophy, osteoporosis, renal stones and asthma. Total Alkalinity in the study area water sample within the permissible limit.

The concentration of bicarbonate in the study area 89 to 228 mg/l all water samples under permissible limit. Sulfate ion concentration of 24 to 104 mg/l in the study area and Iron in the study area water samples within the permissible limit.

Overall, the study region's water samples fell into the "Poor" category according to the water quality index, and no concern zones could be found in the lease area and within 10 km of the nearby villages.

3.9 LAND ENVIRONMENT

In order to assess impacts of project activities on existing physical, biological and social environment, it is necessary to collect information of Land Environment

3.9.1 Soil Environment

Coimbatore district is characterized by red brown soil, brown soil and black cotton soil etc., Some part of the area covered with black cotton soil contains Gypsum as lumps. Black cotton soil covers south-western part of the district

3.9.2 Methodology

Soil quality study has been carried out at the site and in the study area of 10km radius around the project site during March 2025 to May 2025 understands the physico-chemical nature of the soil. The frequency and methodology of soil quality sampling process is given in table 3.8. The soil quality sampling monitoring locations are given in table 3.9. The soil analysis results and discussion is given in table 3.10. Locations of the soil sampling villages core and buffer zone are given in fig 3.11 and Georeferenced soil map of around 10km radius is given in fig 3.12. The sampling locations have been identified with the following objects:

1. To determine the baseline soil characteristics of the study area.
2. To determine the impact of the project on soil characteristics and
3. To determine the impact on soil on fertility from agricultural productivity.

Table No: 3.8. Frequency and Methodology for Soil Sampling & Monitoring

S. No	Particulars	Details
1	Frequency	One sample from each station— once during the Study Period
2	Methodology	Soil Sample has been collected as per the CPCB standard and

Table No: 3.9: Soil Sampling Locations

Sampling code	Location	Latitude (N)	Longitude (E)	Distance (km)	Direction
S 1	Lease Area	10°55'1.30"	77° 6'48.46"	--	--
S 2	Edayarpalayam	10°55'28.13"	77° 6'28.85"	1.06	N
S 3	Thimmanaikenpalayam	10°55'7.52"	77° 8'32.67"	3.27	E
S 4	Bogampatti	10°54'14.13"	77° 7'15.73"	1.80	SE
S 5	Pachapalayam	10°54'3.28"	77° 4'37.78"	4.26	SW



Fig No.3.11: Soil Sampling at Core and Buffer Zone

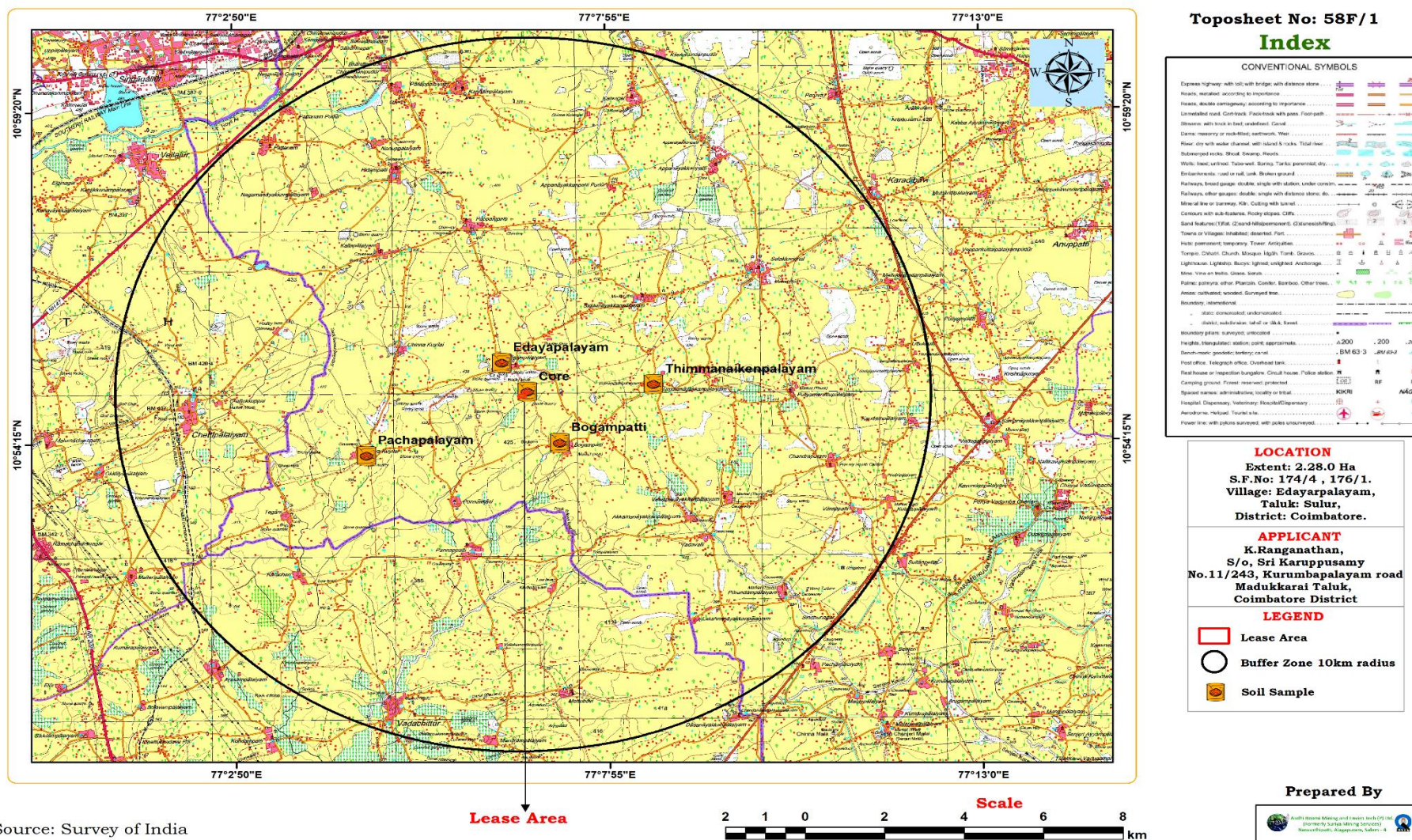


Table No 3.10: Result of Soil Sample Analysis for Core and Buffer Zone

Sample Site		Soil Parameters											
		pH (10%Sol)	EC (10% Sol) µs/cm	M (%)	BD (g/cc)	WHC (%)	*Texture (%)			OM (%)	Ca (meq/l)	Mg (meq/l)	Cl (meq/l)
							Sand	Silt	Clay				
Core Zone		7.82	134	1.22	1.06	44	52	36	12	0.76	1.6	0.8	0.9
							Sandy Loam						
Buffer Zone	Edayarpalayam	7.49	85	1.4	1.17	60	52	28	20	0.45	1.8	1.0	1.2
							Sandy Loam						
	Thimmanaikenpalayam	8.10	146	2.04	1.04	62	48	24	28	0.66	2.4	1.2	1.3
							Sandy Clay Loam						
	Bogampatti	8.34	266	1.5	1.15	58	48	32	20	1.21	2.0	1.0	1.2
							Sandy Loam						
	Pachapalayam	8.24	160	1.25	1.05	48	52	28	20	0.30	2.6	0.8	1.5
							Sandy Loam						

EC-Electrical Conductivity, M- Moisture, BD- Bulk Density, WHC- Water Holding Capacity, OM- Organic Matter, Ca- Calcium, Mg-Magnesium and Cl-Chloride.

BDL = Below the Detectable Limit.

DL = Detection Limit. * Texture Parameter - Without NABL

3.9.3 Observation

Physical characteristics of soil were characterized through specific parameters such as pH, electrical conductivity, moisture, bulk density, water holding capacity, texture, organic carbon, calcium, magnesium and chloride. Soil pH plays an important role in the availability of nutrients. Soil microbial activity as well as solubility of metal ions is also dependent on pH. In the study area, variations in the pH of the soil were found to be 7.49 to 8.34. The soil analysis result shows that, the pH of the soil samples collected was found to be neutral to slightly basic.

Electrical conductivity (EC) is a measure of the soluble salts and ionic activity in the soil and was found to be in the range 85 to 266 micromhos/cm. According to the analysis of soil texture in different site of core and buffer zones the soil texture is mostly sandy loam and sandy clay loam in study area. Total organic matter of the soil varies from 0.30 to 1.21%. From the soil analysis result it can be concluded that the soil of the area is highly fertile and suitable for agricultural purpose.

3.10 LAND USE/LAND COVER STUDY

This section includes the study of natural features like topography, climate, drainage pattern etc. which has been discussed below:

Land Use Studies- Studies on Land use aspects of eco-system play an imperative role in identifying susceptible issues and to take appropriate action to uphold ecological equilibrium in the region. The mining and allied activities involved in river bed mining are creation of temporary haul roads / transportation track and formation of mined pits inside river, etc. The main objective of this section is to provide a baseline status of the study area covering 10km radius around the exiting cluster site so that temporal changes due to the mining activities on the surroundings can be assessed in future.

3.10.1 Objectives

- To determine the present land use pattern;
- To ascertain the temporal changes in land use pattern due to mining.
- To scrutinize the impacts on land use due to existing mining activities in the study area;

Land Use / Land Cover Showing LISS - III Image Around Buffer Zone 10km Radius

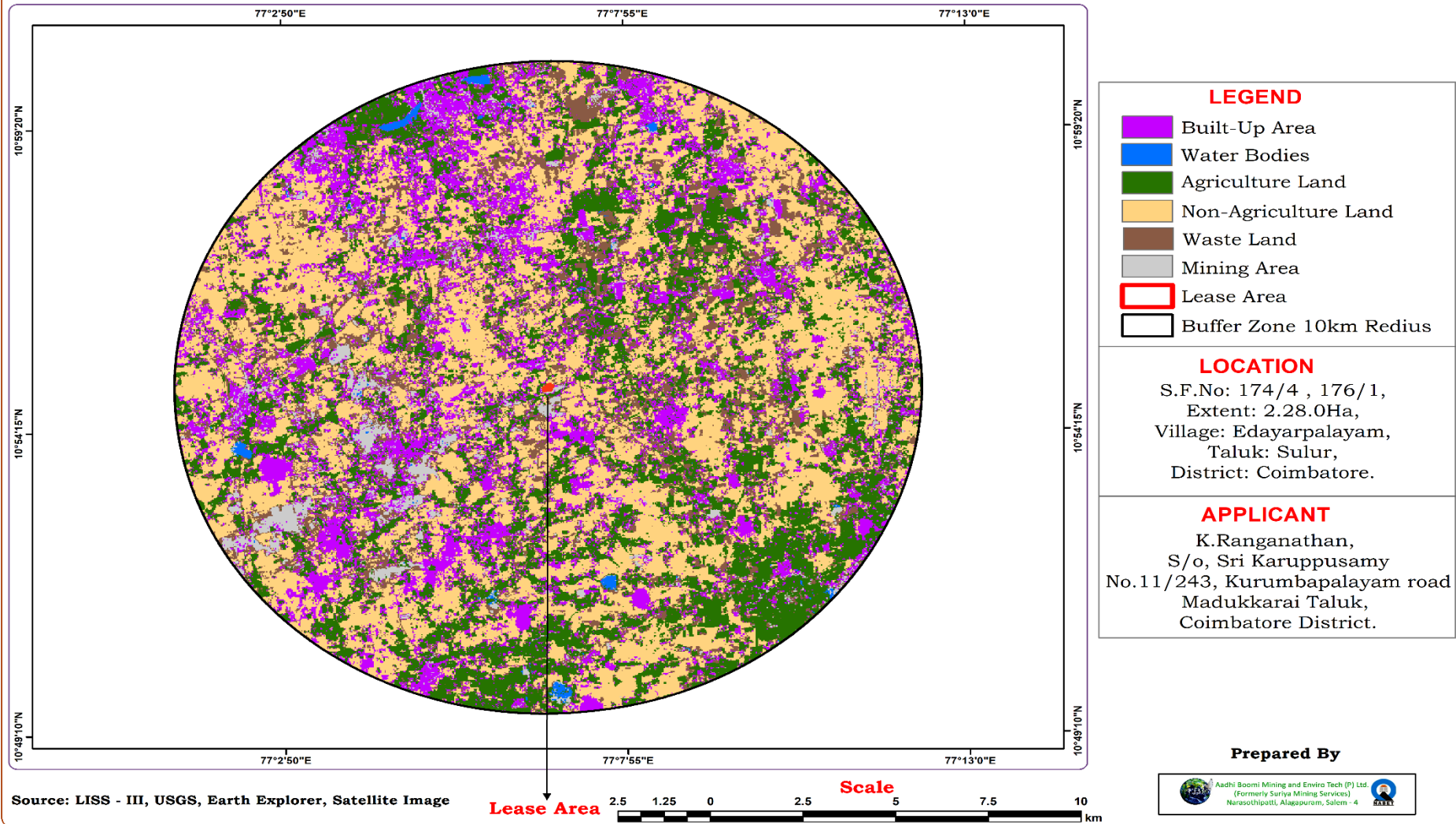


Fig No. 3.13: Land use / Land cover statistics of project study area Land Use cover of 10km radius.

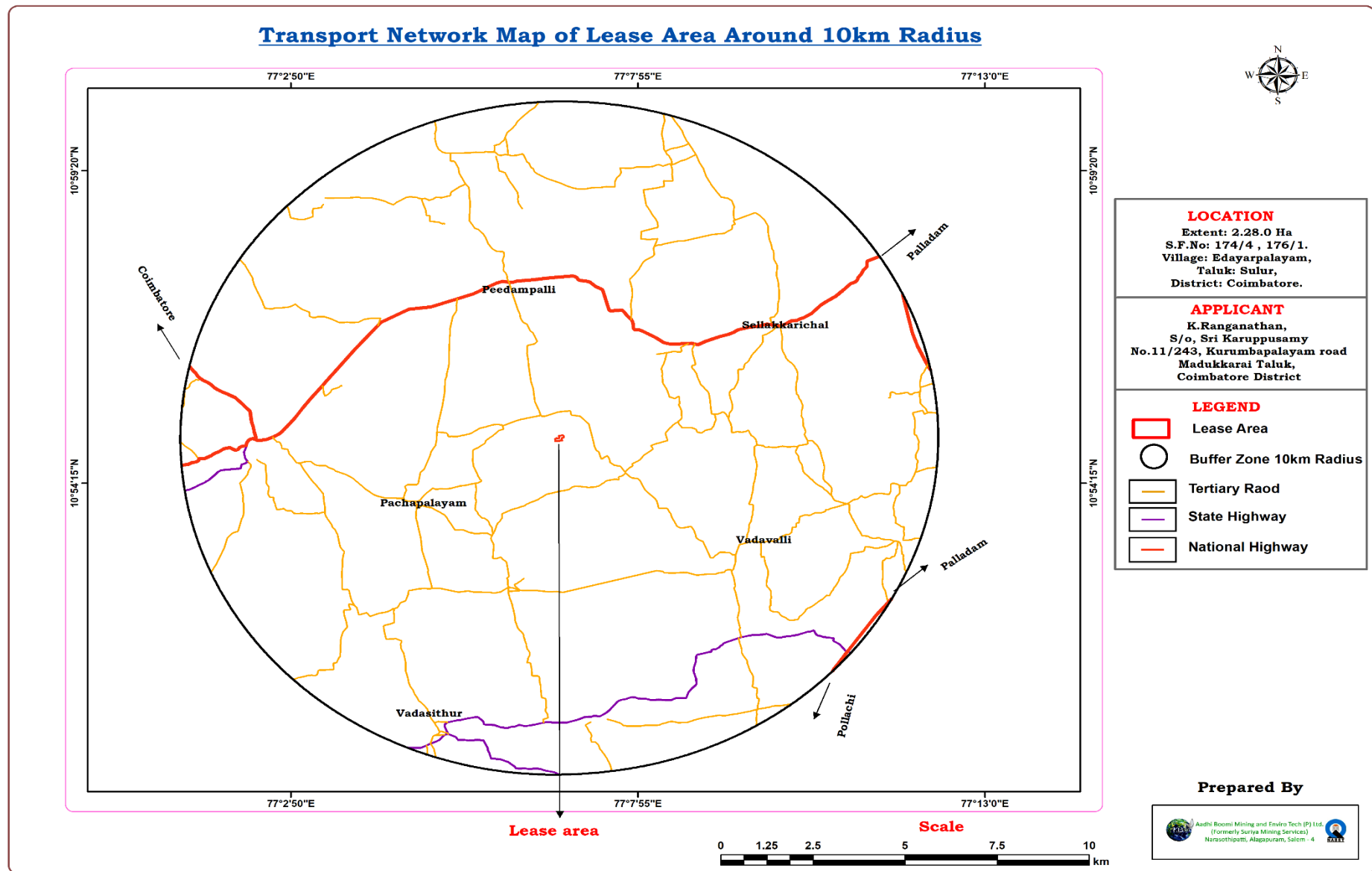


Fig No. 3.14: Toposheet showing Road Accessibility details of 10 Km Radius

3.10.2 Methodology for Baseline Data Generation

Land use/Land cover map preparation, Base map creation; Geometric and Radiometric correction of satellite image have been processed using ERDAS Imagine 9.2 and Arc GIS 10.8 Software. The methodology used for present LU/LC of study area is shown and is detailed below:

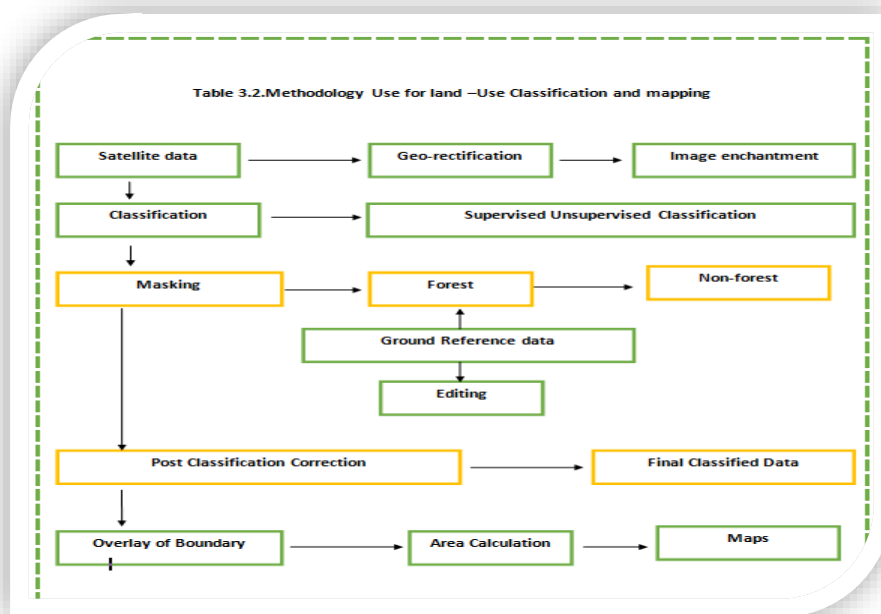


Fig No. 3.15: Methodology use for land- use classification and mapping

3.10.2.1 Methodology Adopted for Thematic Data Extraction from The Satellite Imageries:

ERDAS image processing software and ArcGIS Software were used for the project. Erdas 9.2 Image Processing Software was used for digital processing of the spatial data. Digital image processing techniques were applied for the mapping of the land use/land cover classes of the provided area from the satellite data. The methodology applied comes under following steps:

- a. Image Extraction: Satellite imageries were obtained and a sub set for the Area of Interest was created through ERDAS image processing software. Processing functions primarily done to improve the appearance.
- b. Geo-Rectification: Geometric correction includes correction for geometric distortions due to sensor, earth geometry variations and conversion of the data to real world coordinates (e.g. Latitude and Longitude) on the Earth's surface. The satellite imagery was geometrically rectified with reference to the geo-referenced toposheets and vector data.

- c. **Image Enhancement:** Image enhancement is one of the important images. Imagery to assist in visual interpretation and analysis. Various options of image enhancement techniques were tried out to get the best image for visual interpretation. Histogram equalized stretch enhancement techniques was applied to the imagery of the study area for better interpretation of different features in the satellite imagery.
- d. **Classification:** Satellites images are composed of array of grid; each grid has a numeric value that is known as digital number. Smallest unit of this grid is known as a pixel that captures reflectance of ground features represented in terms of Digital number, which represent a specific land feature. Using image classification technique, the satellite data is converted into thematic information map based on the user's knowledge about the ground area.

Hybrid technique has been used i.e. visual interpretation and digital image processing for identification of different land use and vegetation cover classes based on spectral signature of geographic feature. Spectral signature represents various land use classes. Image interpretation keys are developed based on image characteristics like colour, tone, size, shape, texture, pattern, shadow, association etc which enables interpretation of satellite images for ground feature. Training sites are then assigned based on their spectral signature and interpretation elements.

Land use/Land cover Map has been broadly classified into five classes namely, Built-up Area, Plantation, Agriculture, Water Bodies, Non-agriculture, Barren Land and mining areas have been categorized in others class. Using image classification algorithm land use map is then generated.

3.10.2.2 Topography

Coimbatore's topography is characterized by the city's location in a valley formed by the Western Ghats Mountain range to the west and north, and the Noyyal River, which flows through it. The region features reserve forests and the Nilgiri Biosphere Reserve on its northern side, contributing to its natural landscape. The soil types in the area include black soils in the highlands of Palladam and Avinashi, and alluvial soils found in patches along the Noyyal River.

The base maps of the study area were prepared, with the help of Survey of India Toposheet on 1:50,000 scale. This project site is granted mining lease over an extent of 2.28.0 Hectares in S.F. No: 174/4 and 176/1 patta land of Idrayarpalayam Village, Sullur Taluk, Coimbatore District and Tamil Nadu for quarrying rough stone and gravel.

Table No. 3.11: LU/LC classes and their coverage in sq. Km of 10 km radius

S. No	Name	Area	Ha	Ha (%)
1	Bult-up Land	583754.09	5837.54	18.18
2	Water Bodies	13357.00	133.57	0.42
3	Agriculture Land	804062.93	8040.63	25.04
4	Non-Agriculture Land	1261073.77	12610.74	39.28
5	Waste Land	422375.66	4223.76	13.16
6	Mining	125870.97	1258.71	3.92
Total		3210494.42	32104.94	100.00

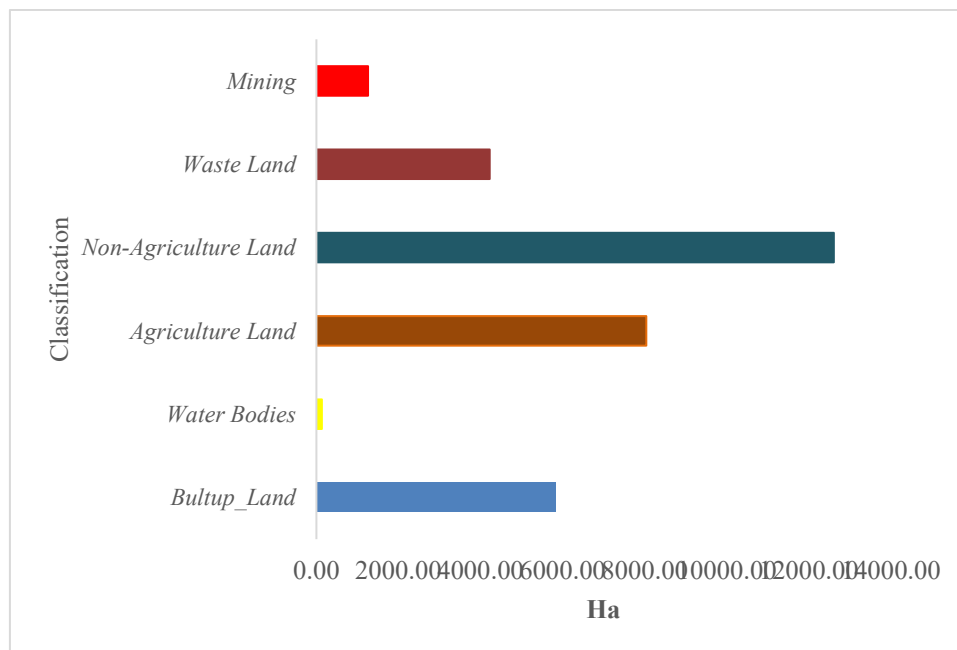


Fig No. 3.16: Chart showing Land use/ Land cover Analysis

3.10.3 Drainage Pattern of the Area

Drainage pattern of the area is dendritic with high stream density due to rugged topography. In the cluster no permanent Nalla/river throwing in the lease area. The rainwater flows down toward the slope of the area and flows into the nearby fields outside the lease area. Ground water occurs under phreatic conditions. The maximum saturated thickness of these aquifers is up to 5m depending upon the topographic conditions. The area lying at the foot hill zones which are seen in the northern parts of the district is underlain by the colluvial material derived from the nearby hill ranges comprising sands and gravels. The maximum saturated thickness of these aquifers is up to 20 m depending upon the topographic conditions. Ground water occurs under phreatic conditions.

Toposheet Showing Location of Lease Boundary Around 10km Radius

Toposheet No: 58F/1

Index

CONVENTIONAL SYMBOLS	
Express highway: with toll; with bridge; with distance stone	75
Roads, metalled: according to importance	75
Roads, double carriageway: according to importance	75
Unmetalled road: Cart-track: Pack-track with pass: Foot-path	75
Streams: with track in bed; undefined: Canal	75
Dams: masonry or rock-filled; earthwork: Weir	75
River: dry with water channel; with island & rocks: Tidal river	75
Submerged rocks: Shoal: Swamp: Reedbed	75
Wells: lined; unlined: Tube-well: Spring: Tank: perennial; dry	75
Embankments: road or rail; bank: Broken ground	75
Railways: broad gauge: double: single with station; under constn.	75
Railways, other gauges: double: single with distance stone; do.	75
Mineral line or tramway: Kite: Cutting with tunnel	75
Contours with sub-features: Rocky slopes: Cliffs	75
Sand features: (1) flat: (2) sand-hills (permanent): (3) dunes (shifting)	75
Towns or Villages: inhabited; deserted: Fort	75
Hubs: permanent; temporary: Tower: Antiquities	75
Temples: Church: Mosque: Idgah: Tomb: Graves	75
Lighthouse: Lightship: Buoy: lighted; unlighted: Anchorage	75
Mine: Veta on trestle: Grass: Scrub	75
Palms: palmyra; other: Plantain: Conifer: Bamboo: Other trees	75
Areas: cultivated; wooded: Surveyed tree	75
Boundary: international	75
state: demarcated; undemarcated	75
district: subdivision: tahsil or iluk: forest	75
Boundary pillars: surveyed; unlocated	75
Heights: triangulated: station: point: approximate	75
Bench-mark: geodetic; tertiary: canal	75
Post office: Telegraph office: Overhead tank	75
Rest house or inspection bungalow: Circuit house: Police station	75
Camping ground: Forest: reserved; protected	75
Spaced names: administrative; locality or tribal	75
Hospital: Dispensary: Veterinary: Hospital/Dispensary	75
Aerodrome: Helipad: Tourist site	75
Power line: with pylons surveyed; with poles unsurveyed	75

LOCATION

Extent: 8.96.6 Ha
S.F.No: 348/1(P), 2(P), 5, etc.
Village: Karapadi
Taluk: Sathyamangalam
District: Erode

APPLICANT

Tvl. Meenakshi Granites,
No.5, Sri Padmalaya Complex,
Madurai Main road, Melur.
Madurai-625106.

LEGEND

- Lease Area
- Buffer Zone 10km radius
- Buffer Zone 5km radius
- Buffer Zone 1km radius

Prepared By

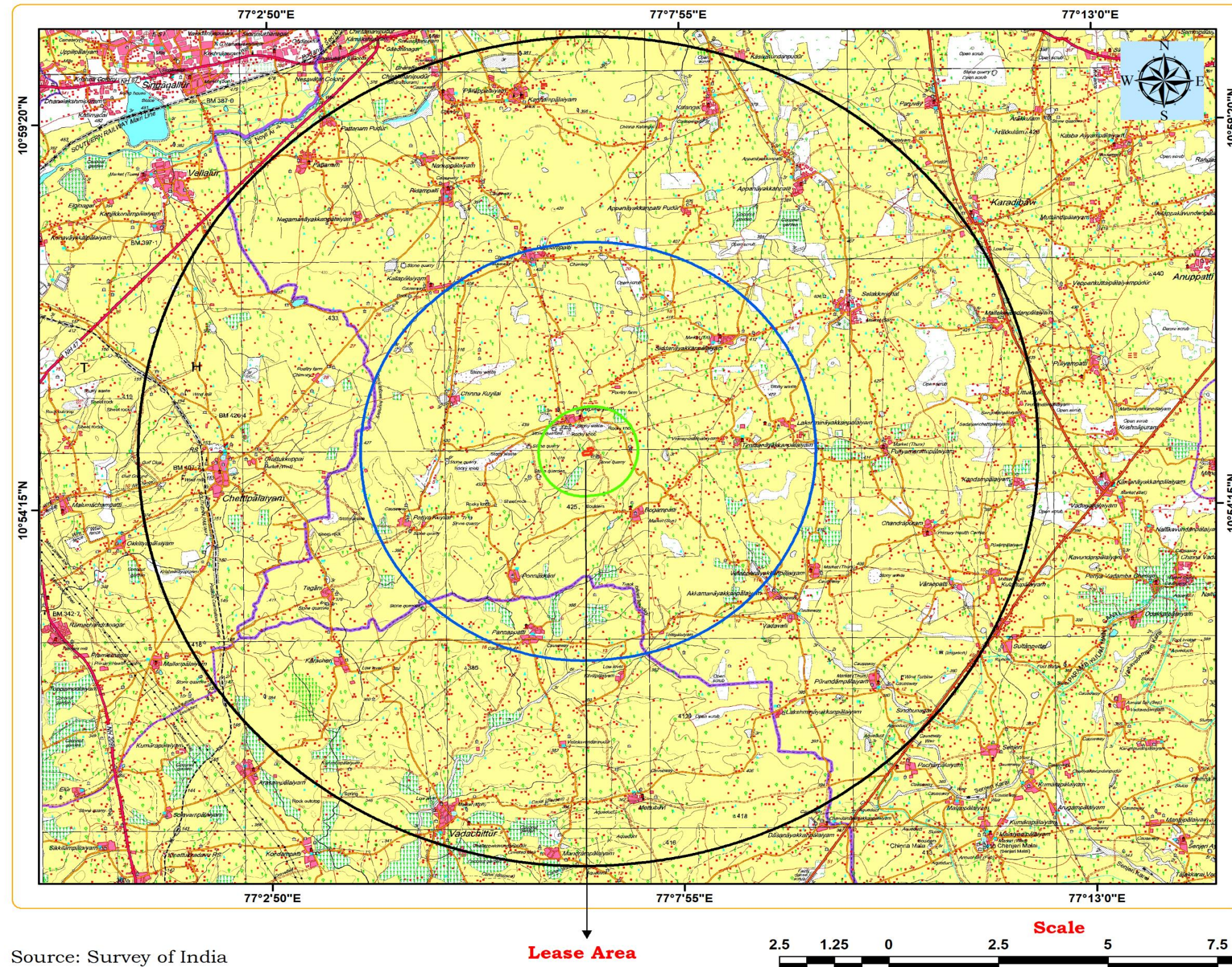


Fig No 3.17: Project Site Located in the Topomap

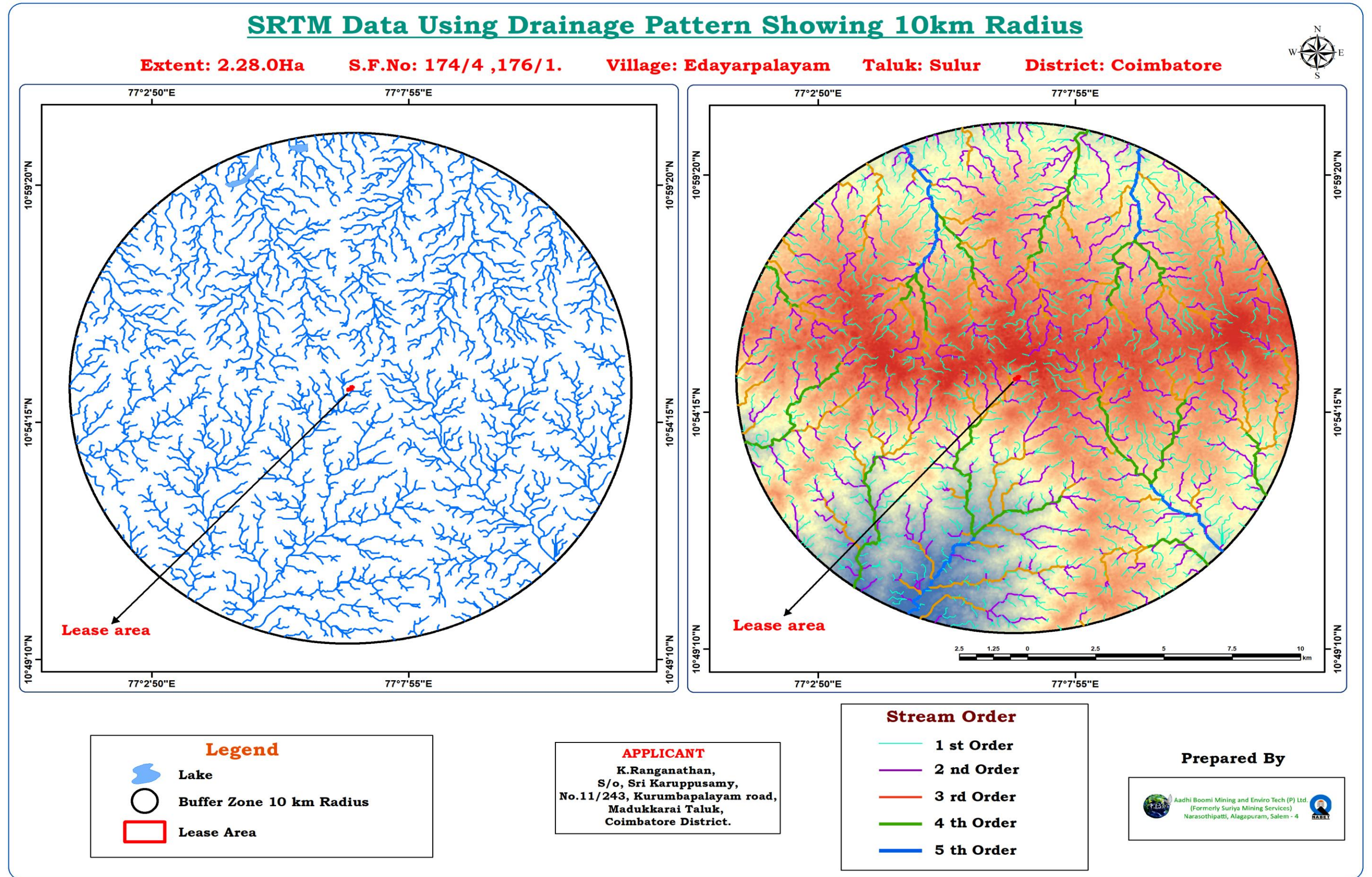


Fig No 3.18: Represents the River/Streams (Drainage) of the study area within 10 km radius from the project site

3.10.4 Contour

Contour lines are the greatest distinguishing feature of a topographic map. Contour lines are lines drawn on a map connecting points of equal elevation, meaning if you physically followed a contour line, elevation would remain constant. Contour lines show elevation and the shape of the terrain in the study area. The contour map was derived from a SRTM data of the study area. Contour interval at 10m, minimum 120m has very plain with fluvial landforms and general terrain is quite elevated at maximum 391m above. To make topographic maps easier to read, because it's impractical to mark the elevation of every contour line on the map, the index contour lines are the only ones labeled fig 3.19.

3.10.5 Slope

The slope map was derived from a SRTM data of the study area. The slope of the study area was classified into five classes, such as less than 10 Percent/degree flat to almost flat no meaningful denudation process. The contour map is prepared in 1:50000 scale from SOI topo sheets. TIN map is created from contour map. Based on the TIN map, slope map is prepared for the study area. The slope map of the study area reveals that the slope is high in hilly 22 terrains which are present in north and east parts. The most part of the study area contains a gentle slope of 0- 1 degree especially landslides that area flat. 30-40° and above 40° very steep, rocks generally begin to unfold a very intensive denudation process have begun to produce rework material Fig.3.19.

3.10.6 Geological structure

Coimbatore District is predominantly occupied by hornblende Biotite gneisses of PGC (II) with enclaves of Magnetite Quartzite, Pyroxene Granulite and Charnockite. The area exposes several bands of Pyroxene Granulite which is medium grained, medium to dark grey in colour and stand out prominently in the gneissic country generally parallel to regional foliation. Charnockite is coarse grained, massive, many places it is foliated, grey coloured and greasy and exposed as bouldery outcrops and small knolls. It is well exposed in Central, Western and Southern parts of the Coimbatore District. Hornblende-Biotite gneiss is well foliated, medium to coarse grained, pale grey and exposed as sheets and small knolls. Pink Granite gneiss occurs as thin bands and lensoidal bodies. It is a medium grained rock composed of alternating bands of mafic (mainly of biotite and hornblende) and felsic (Feldspar and Quartz) minerals. It is well recognized in Sullur area fig. 3.20.

3.10.7 Soil

Soil Environment soil quality of the study area is one of the important components of the land environment. The composite soil samples were collected from the study area and

analysed for different parameters. The locations of the monitoring sites are shown in Table 3.5 and Figure 3.4. The lease area soil characterization in and around 10km radius in four type such as Alfisols, Entisols, Inceptisols, Rockout Crop and Vertisols in fig.3.21.

SRTM Data Using Contour and Slope Map Analysis of Around 10km Radius

Extent: 2.28.0Ha

S.F.No: 174/4 ,176/1.

Village: Edayarpalayam

Taluk: Suler

District: Coimbatore

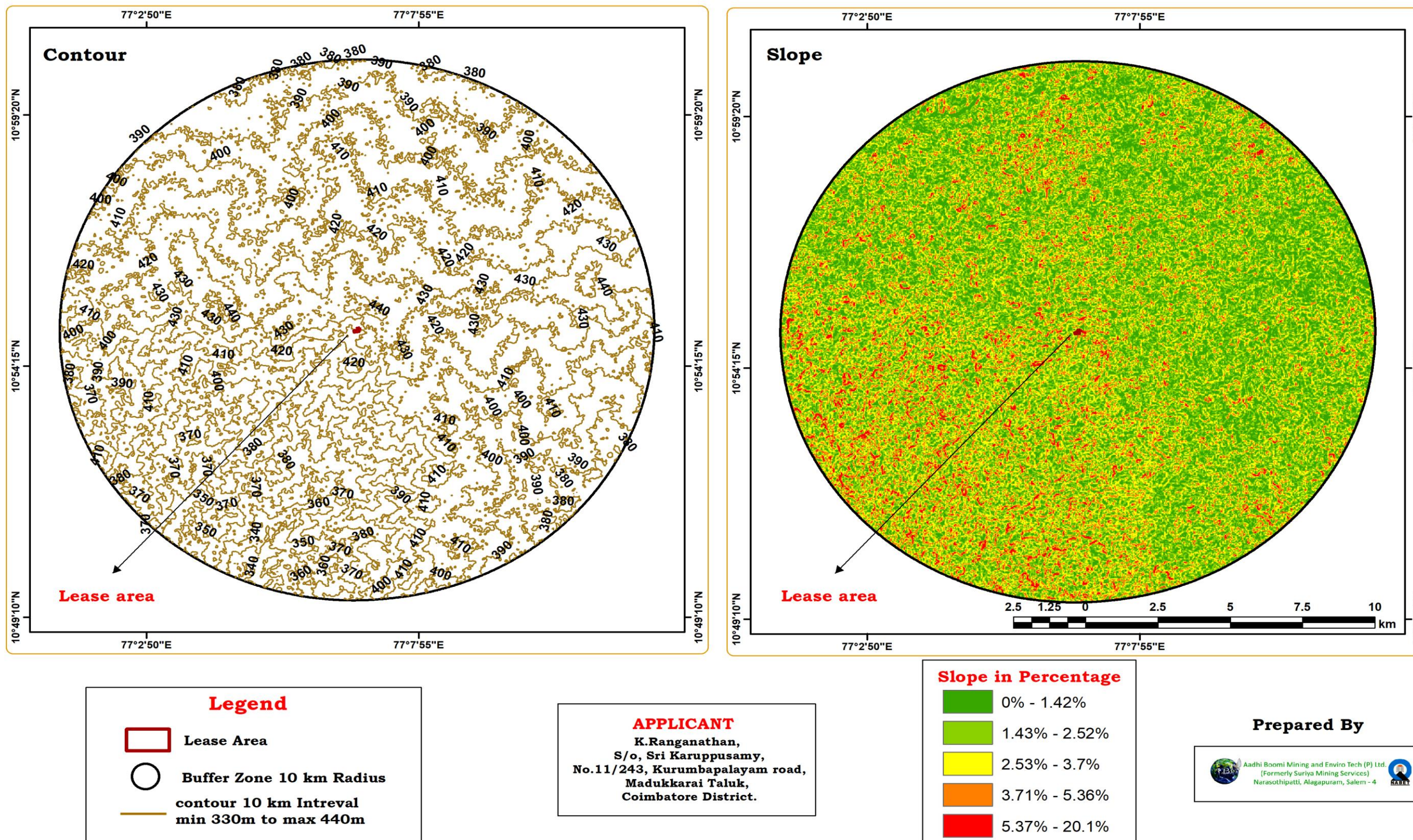


Fig No 3.19: Image Showing Contour and Slope of the lease area around 10km radius

PHYSICAL FEATURES MAP AROUND 10KM RADIUS



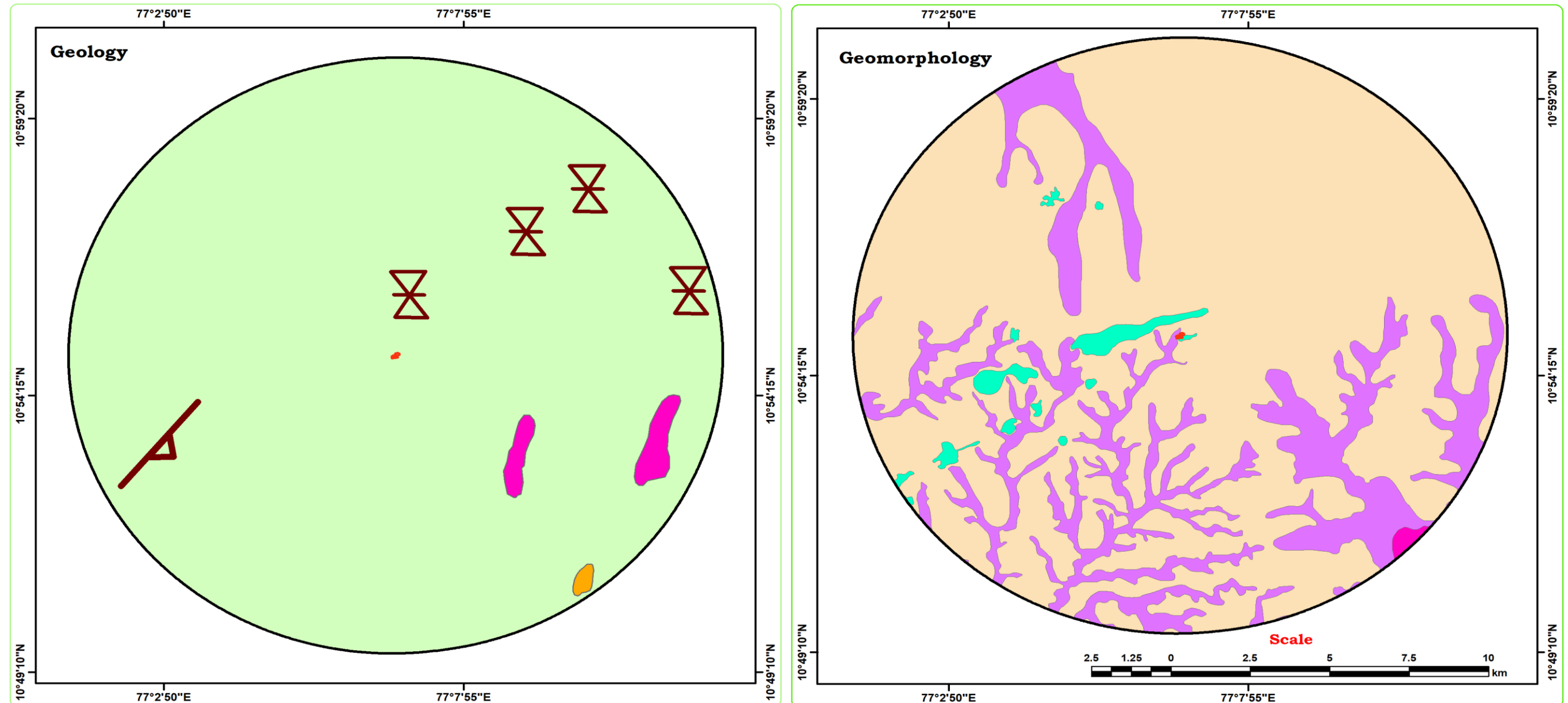
Extent: 2.28.0Ha

S.F.No: 174/4 ,176/1.

Village: Edayarpalayam

Taluk: Sulur

District: Coimbatore



Legend



Hornblende-Biotite Gneiss

Ultramafic Rocks

Charnickite



Lease Area

Buffer Zone 10km radius

Synform

Strike and dip of Foliation

APPLICANT

K.Ranganathan,
S/o, Sri Karuppusamy,
No.11/243, Kurumbapalayam road,
Madukkarai Taluk,
Coimbatore District.



Moderately weathered/moderately buried Pedipla

Pediment/ Valley Floor

Pediplain Canal Command

Shallow weathered/shallow buried Pediplain

Fig No 3.20: Geology and Geomorphology of 10km Radius

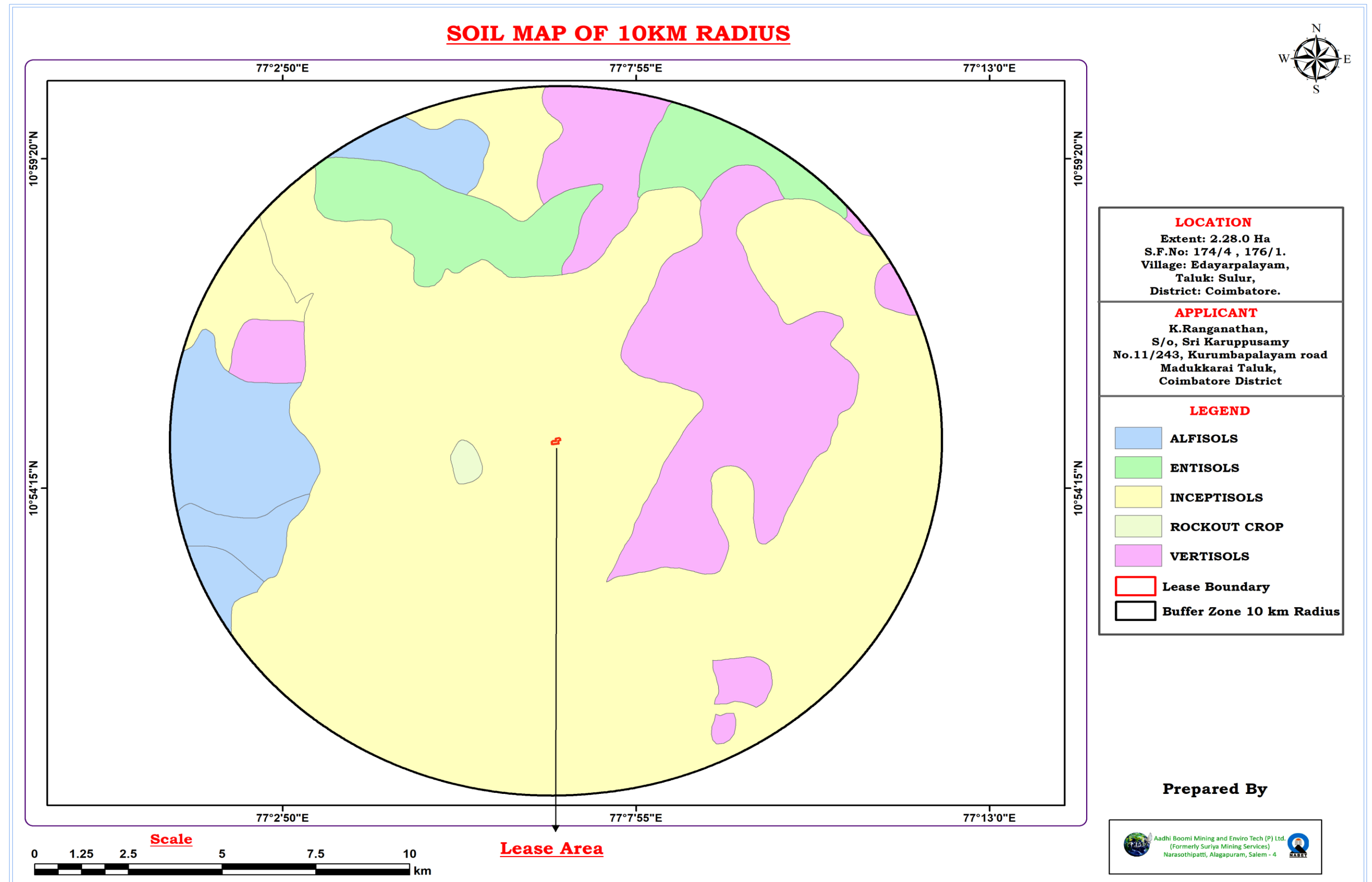


Fig No. 3.21 Image Representing the Soil Characteristics around 10km of the Lease area

3.10.9 CONCLUSION

The most of the land area in the agriculture and non-agriculture land entire quarried land will get replaced every year hence there will be no impact on the land use. It is an eco-friendly mining project land.

3.11 Hydrogeology of the District

3.11.1 Major Geological formations:

The district is underlain by both porous and fissured formations. The important aquifer systems in the district are constituted by i) unconsolidated formations and ii) weathered and fractured crystalline rocks.

The porous formations in the district are represented by alluvium and colluvium. The Colluvial formations are occurring in the western boarder of Coimbatore district especially in Chinnathadagam and Chitrachavadi sub-basins of Noyil River basin. Studies carried out in this area indicate that the sand and gravel beds constitute more than 60 to 70 percent of the colluvium in the western part of Chinnathadagam basin. The Colluvial material in Chitrachavadi basin is mostly composed of silt and kantar with admixtures of sands and gravels. Ground water is occurring under phreatic conditions in the colluviums and is developed by means of dug wells and bore wells. The depth range of these shallow aquifers ranges from 34 to 56 m. The saturated thickness of these aquifers ranges from a few meters in Chitrachavadi basin to as much as 56 m at the center of Chinnathadagam sub-basin. The river alluvium is occurring along the major river courses.

The hard consolidated crystalline rocks are represented by weathered and fractured Granite Gneisses, Granites, Charnockites and other associated rocks. Ground water occurs under phreatic conditions in the weathered mantle and under semi-confined conditions in the fractured zones. The shallow aquifers in the major part of the district occur within the depth of 30 m while in the western most part of Coimbatore; they are more than 30 m. The depth of the wells ranged from 7 to 45 m bgl. The yield of large diameter wells in the district, tapping the weathered mantle of crystalline rocks ranges from 50 to 300 lpm and are able to sustain pumping for 2 to 4 hours per day. The Specific capacity of large diameter wells tested in crystalline rocks from 6.28 to 200.00 lpm / m. of drawdown.

The yield of bore wells drilled down to a depth of 50 to 100 m, by various state agencies mainly for domestic purposes ranged from 1 to 5 lps. The yield of successful bore wells drilled down to a depth of 304 m bgl during the ground water exploration programme

of Central Ground Water Board ranged from <1 to 10 lps. The aquifer and well parameters of the wells show wide variation. The depth to water level in the district varied between 1.54 and 39.03 m bgl during pre-monsoon (May 2024) and varied between 0.62 and 36.42 m bgl during post monsoon (Jan 2025). The seasonal fluctuation shows a rise in water level, which ranges from 0.34 to 10.88 m bgl. The piezometric head varied between 1.47 to 50.66m bgl (May 2024) during pre-monsoon and 0.34 to 51.02 m bgl during post monsoon (Jan 2025).

3.11.3 Geophysical Electrical Resistivity Survey

For understanding subsurface hydrogeological conditions geophysical investigation is carried out. The geophysical investigation is especially useful in the areas where there are no adequate exploratory well data about the aquifer conditions. Electric resistivity method is one of the well-known geophysical methods for delineating lateral as well vertical discontinuities in the resistivity's of the earth's subsurface layers. It is mainly applied to locate aquifers in the field of hydrogeology. The present study makes use of vertical electric sounding (VES) to delineate earth's subsurface layers. The electrical resistivity investigation used four electrodes collinear set up where current is sent through outer electrodes into the ground and the inner electrodes measure the potential difference, as shown in Figure 3.22.

3.11.4 Methodology and Data Acquisition

Geophysical Electrical Resistivity survey conducted in schlumberger Configuration (VES) method using IPI2 win Software. The Schlumberger array is an array where four electrodes are placed in line around a common midpoint. The two outer electrodes, A and B, are current electrodes, and the two inner electrodes, M and N, are potential electrodes placed close together. With the Schlumberger array, for each measurement the current electrodes A and B are moved outward to a greater separation throughout the survey, while the potential electrodes M and N stay in the same position until the observed voltage becomes too small to measure (source). At this point, the potential electrodes M and N are moved outward to a new spacing. As a rule of the thumb, the reasonable distance between M and N should be equal or less than one-fifth of the distance between A and B at the beginning. This ratio goes about up to one-tenth or one-fifteenth depending on the signal strength. The Schlumberger array is commonly used for vertical electrical sounding (VES) for groundwater and aggregate minerals. Vertical electrical sounding (VES) using the Schlumberger array provides better resolution.

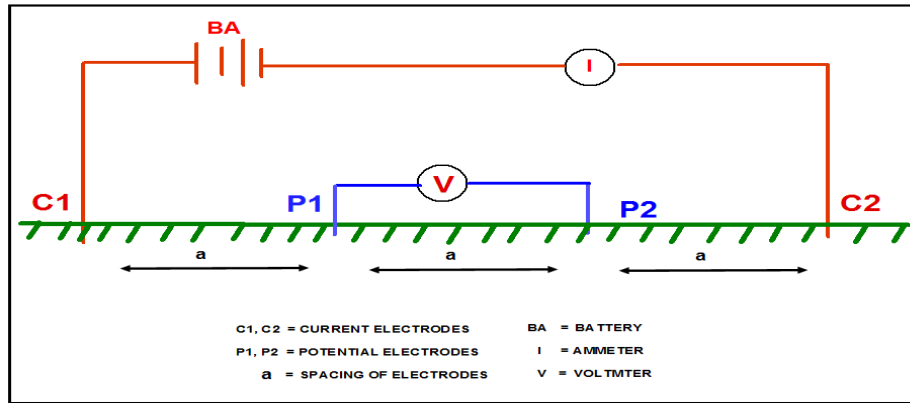


Fig No.3.22: Schlumberger Array



Fig. No. 3.23: DDR-3 Electrical Resistivity Meter

The resistivity surveys were carried by the consultants in the site at selected one point at Tested in the proposed Project site. The vertical electrical sounding (VES) using digital resistivity meter is carried out and the apparent resistivity curves are obtained. Ipi2 win software is used and the data are interpreted. The computer output of geo-electric layers are given in fig 3.24 which gives the Resistivity cross section and Resistivity curve, depth wise resistance and interpreted layers with corresponding resistivity.



Fig. No.3.24: Photos showing Geophysical survey conducted at Lime stone site

The study area of lies in the Northern latitude of 10°54'58.78"N, Eastern longitude 77°6'46.24"E which is represented by Toposheet No. 58 F/1. The applied area is mostly plain, elevation of 438m above mean sea level.

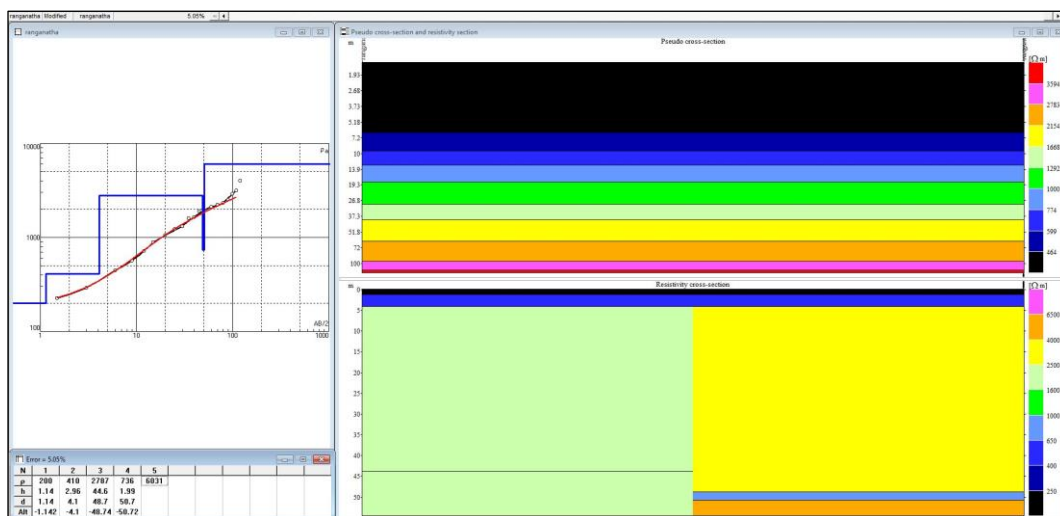


Fig. No. 3.25: Image showing Resistivity cross section and Resistivity curve, depth of data

Table No. 3.12: Geophysical Vertical Electrical Sounding Data

Geo-Coordinates: Latitude 10°54'58.78"N Longitude 77° 6'46.24"E					
S. No.	AB/2 (m)	MN/2 (m)	Geometric factor (K)	Resistance Value (R) ohm	Apparent Resistivity Rho ohm-meter
1	1.5	0.5	6.3	35.9	226.17
2	3	0.5	27.5	10.6	291.5
3	6	0.5	112.3	3.94	442.46
4	9	0.5	253.6	2.23	565.528
5	12	0.5	451.4	1.6	722.24
6	12	2	109.9	8.1	890.19
7	15	2	173.5	6.08	1054.88
8	20	2	310.9	3.93	1221.83
9	25	2	487.5	2.67	1301.62
10	30	2	703.4	2.26	1589.68
11	30	6	226.1	7.27	1643.74
12	35	6	311.1	6.15	1913.26
13	40	6	409.2	4.75	1943.7
14	45	6	520.5	4.07	2118.43
15	50	6	644.7	3.46	2230.66
16	60	6	932.6	2.47	2303.52
17	60	10	549.5	4.56	2505.72
18	70	10	753.6	3.86	2908.89
19	80	10	989.1	3.16	3125.55
20	90	10	1256	3.18	3994.08
21	100	10	1554.3	2.12	3295.11
22	100	20	753.6	2.43	1831.24
23	110	20	918.5	2.54	2332.99
24	120	20	1099	2.03	2230.97

3.11.5 Geophysical Data Interpretation

0-1.14m: Top soil & Gravel with 200 Ohm. Resistivity

1.14-4.1 Weathered rock formation with 410 ohm. Resistivity

4.1-48.7m: Massive Charnockite formation with 2787 ohm. Resistivity

48.7-50.7m –Jointed and fractured rock with about 736 ohm. Resistivity

Above 50.7m: hard massive formation with 6031 Ohm. Resistivity

The presence of top soil and Gravel 0-1.14m followed by 1.14-4.1m with medium resistivity is indicative of the weathered rock. The water table is having curve breaks around 48.7-50.7m depth with possible water bearing aquifer.



Fig. No. 3.26: Photographs showing Open well water level survey around 1kms radius

3.11.6 Groundwater Levels and flow direction

As the groundwater moves from the points of highest static groundwater elevation to the points of lowest static groundwater elevation under the influence of gravity, data regarding depth to groundwater levels are essential to infer the direction of groundwater movement within the study area. Knowledge of groundwater flow direction is must in choosing location for background groundwater quality monitoring well and in locating recharge and discharge areas. Therefore, data regarding groundwater elevations were collected from 7 open wells at various

locations within 1km radius around the proposed project site for the period from October, 2024 to December 2024 (Post monsoon season) and from the period of March 2025 to May 2025. The data thus collected from 7 open wells are provided in Tables 3.13 and 3.14. According to the data, the three months' average depths to the static water level in open wells range from 9.70 to 12.97m BGL in post monsoon and 12.39 to 16.23m BGL in pre monsoon. The depths to static water level and potentiometric surface data were used to calculate static groundwater table and potentiometric surface elevations for open wells, respectively to draw contour lines connecting groundwater elevation (also known as equipotential hydraulic head) to determine the groundwater flow direction perpendicular to the contour lines.

From the maps of groundwater flow direction (Figures 3.27 & 3.28), it is understood that most of the open well groundwater underneath the proposed project site flows towards the open well numbers 2 & 3 located in southwest of the proposed project site. On the basis of the groundwater flow information, the open well number 6 & 7 located in Northeast of the proposed project site can be chosen for water quality monitoring purpose as the wells may get easily affected by the contaminants resulting from the mining activities of the site in future.

Table No. 3.13: Post-Monsoon Water Level of Open Wells within 1 km Radius

Open well	Latitude	Longitude	Depth to Static Water Level BGL (m)			
			Oct 2024	Nov 2024	Dec 2024	Average Water Level
OW-1	10°54'52.79"N	77° 6'54.37"E	9.2	9.87	10.78	9.95
OW-2	10°54'27.47"N	77° 6'29.65"E	8.94	9.67	10.48	9.70
OW-3	10°54'41.88"N	77° 6'26.06"E	9.41	10.18	11.07	10.22
OW-4	10°54'48.46"N	77° 6'18.40"E	9.32	10.03	11.02	10.12
OW-5	10°54'58.62"N	77° 6'25.48"E	10.65	11.21	12.34	11.40
OW-6	10°55'27.00"N	77° 6'56.95"E	11.38	12.06	13.05	12.16
OW-7	10°55'14.55"N	77° 7'12.24"E	12.16	12.89	13.86	12.97

Table No. 3.14: Pre-Monsoon Water Level of Open Wells within 1 km Radius

Open well	Latitude	Longitude	Depth to Static Water Level BGL (m)			
			March 2025	April 2025	May 2025	Average Water Level
OW-1	10°54'52.79"N	77° 6'54.37"E	12.15	13.47	14.95	13.52
OW-2	10°54'27.47"N	77° 6'29.65"E	11.03	12.16	13.97	12.39
OW-3	10°54'41.88"N	77° 6'26.06"E	11.96	13.02	14.86	13.28
OW-4	10°54'48.46"N	77° 6'18.40"E	12.67	13.71	15.34	13.91
OW-5	10°54'58.62"N	77° 6'25.48"E	13.13	14.07	15.63	14.28
OW-6	10°55'27.00"N	77° 6'56.95"E	13.68	14.93	16.58	15.06
OW-7	10°55'14.55"N	77° 7'12.24"E	14.92	16.04	17.72	16.23

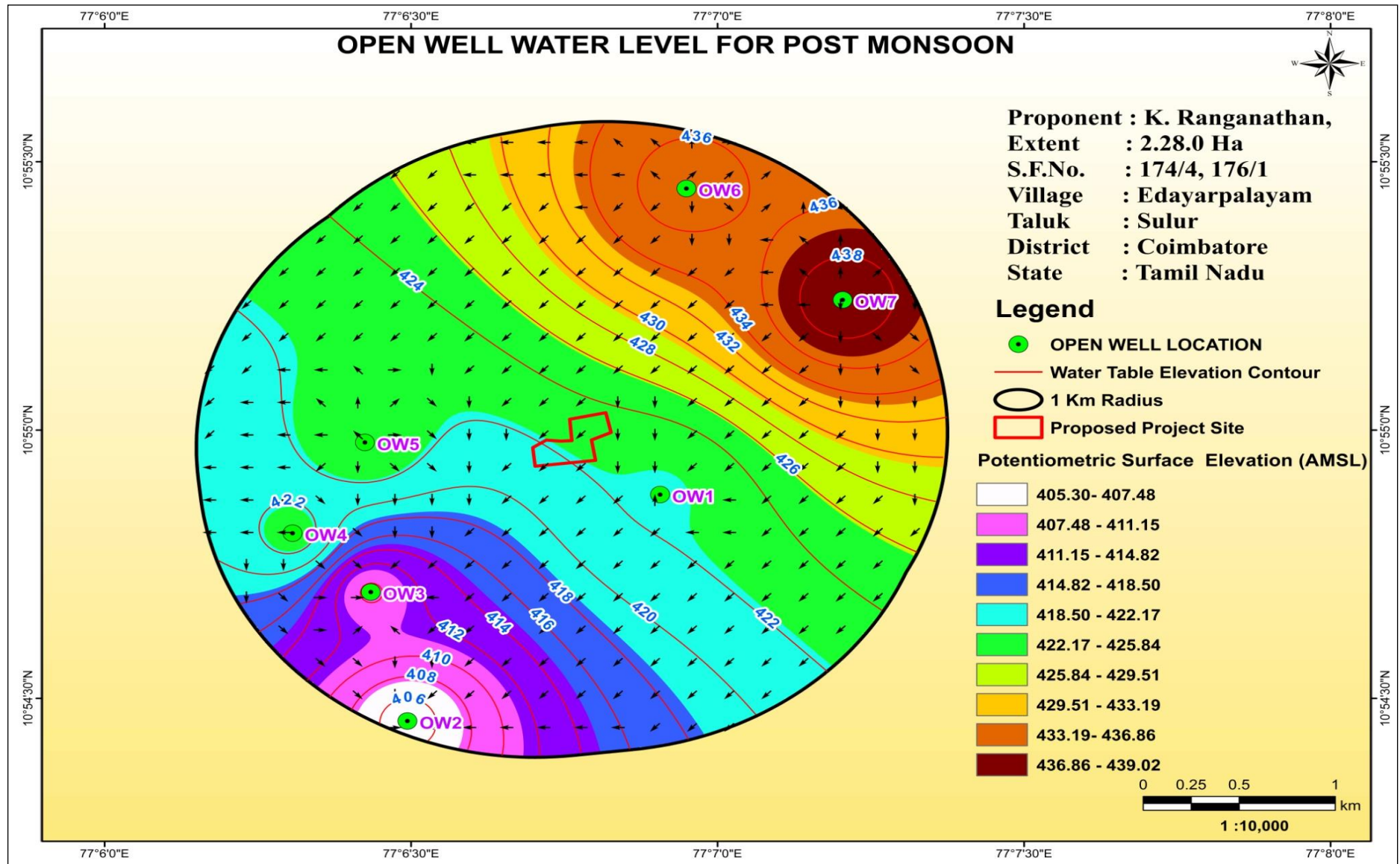


Fig. No. 3.27: Open Well Static Ground Water Elevation Map Showing Direction of Groundwater flow during Post Monsoon (Oct-Dec-2024)

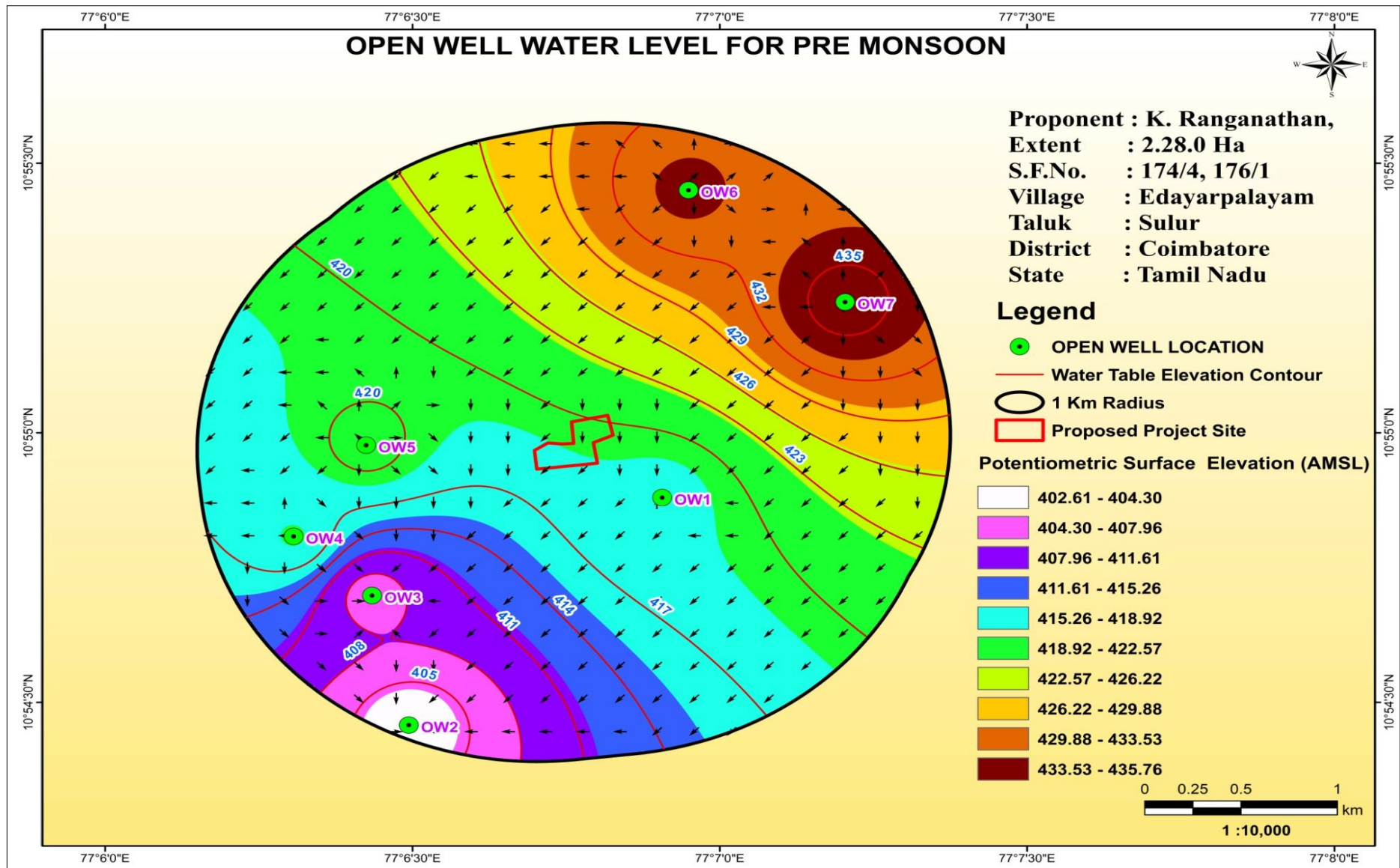


Fig. No. 3.28: Open Well Static Ground Water Elevation Map Showing Direction of Groundwater flow during Pre Monsoon (Mar to May-2025)

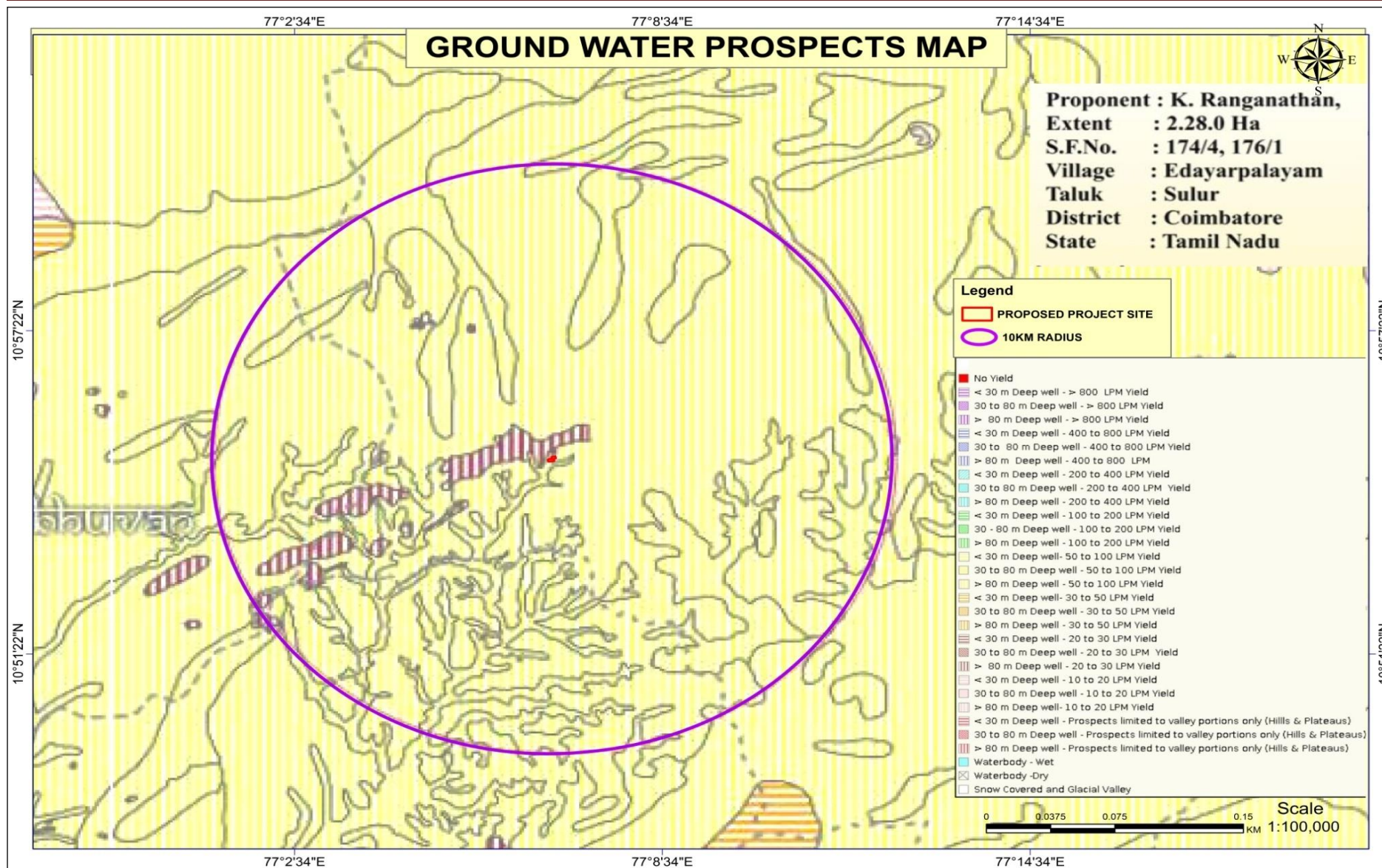


Fig. No. 3.29: Ground Water prospects map proposed project site around 10km Radius

3.11.7 Conclusions

The hydro geological, geophysical studies indicate the water bearing aquifer is located at 48.7-50.7m below ground level (BGL). The maximum depth of mining proposed project for five years 32m below ground level. Therefore, the mining operation will not affect the aquifer throughout the entire mine life period.

3.12 ECOLOGY AND BIOLOGICAL ENVIRONMENT

The present chapter focuses on the ecological and biological assessment of the project site and its surrounding areas within a 10 km radius, pertaining to the proposed Rough Stone and Gravel Quarry project. The ecological study aims to document the existing terrestrial and aquatic biodiversity, assess the presence of ecologically sensitive areas, and evaluate the potential impact of quarrying activities on flora and fauna.

The project site, located at S.F. No. 174/4 and 176/1, Idayarpalayam Village, Sullur Taluk, Coimbatore District, covers an area of 2.28.0 hectares, falling under Toposheet No. 58 E/08. The ecological assessment is conducted as per the guidelines of the Ministry of Environment, Forest and Climate Change (MoEF&CC).

3.12.1 Description of Coimbatore District Environment

Coimbatore District is the Western part of Tamilnadu, bordering the state of Kerala. It is surrounded by the Western Ghats Mountain range on the West and north, with reserve forests and the (Nilgiri Biosphere Reserve) on the northern side. The Noyyal River runs through Coimbatore and forms the Southern Boundary of the old city limits. The city sits amidst Noyyal's basin area and has an extensive tank system fed by the river and rainwater. The eight major tanks / wetland areas of Coimbatore are Singanallur, Valankulam, Ukkadam Periyakulam, Selvampathy, Narasampathi, Krishnampathi, Selvachinthamani, and Kumaraswami tanks. Sangapurpallam, KovilmeduPallam, Vilankurichi – Singanallur Pallam, Karpeyan Koil Pallam, Railway feeder roadside drain, Tiruchy – Singanallu check drain and Ganapathy pallam are some of the streams that drain the city.

The district borders Palakkad district of Kerala in the west, Nilgiris district in the north, Erode district in the northeast and east, Idukki district of Kerala in the south and Tiruppur district in the East. The district has an area of 7,649 square kilometers. The southwestern and northern parts are hilly, part of the Western Ghats, and enjoys pleasant climate all throughout the year. To the west is the Palghat Gap, the only major pass in the longstretch of the ghats abutting Tamil Nadu and Kerala. The Palghat Gap, connecting Coimbatore city and Palakkad city, serves as an important transit link for both the states. The rest of the district lies in the rain shadow region of the Western Ghats and experiences salubrious climate most parts of the year. The mean

maximum and minimum temperatures for Coimbatore city during summer and winter vary between 35 °C to 18 °C.

The average annual rainfall in the plains is around 700 mm with the northeast and the southwest monsoons contributing to 47% and 28% respectively to the total rainfall.

The major rivers flowing through the district are Bhavani, Noyyal, Kousika river and Aliyar. The siruvani dam is the main source of drinking water for Coimbatore city and is known for its tasty water. Waterfalls in Coimbatore District include Chinnakallar Falls, Monkey Falls, Sengupathi Falls, Siruvani Waterfalls, Thirumoorthy Falls and Vaideki Falls.

The district has a total geographical area of 4723 sq.km. It falls between 10°10' North to 11° 30' North latitude and 76° 40' East to 77°30' East longitude. The district head quarter is located in the north central part of the region. The area is bounded by Western Gates on west, Nilgiris hills in North West and Anaimalai and Palani hill in south.

3.12.2 Agriculture activities in Coimbatore District

Deep red soil and black soil are the major soil types of the district. They put together form 35.9% of the area followed by moderately deep black (15.4%) and moderately shallow red (18.6%). The soil is predominantly black soil which is suitable for cotton crop. Medium to deep red calcareous soils are found mainly in Pollachi taluk. The highlands in Coimbatore North and South and Annur taluk are mostly occupied by black soils, which are dark gray to grayish brown in colour. The Alluvial soils are found in small patches along the Noyyal river mainly in the upper reaches. The Alluvial soils are found mainly in Chinnathadagam and Chitrachavadi sub-basins and as scattered patches at the foot of Anaimalai hills. The Forest soils are confined to the reserve forest area and have a surface layer of organic matter. Deep red soil and black soil are the major soil types of the district. They put together form 35.9% of the area followed by moderately deep black (15.4%) and moderately shallow red (18.6%).

Among the major crops cultivated in the district Cholan occupied the primary position, followed by banana and groundnut. Predominant Banana varieties cultivated were Grand Naine, Rasthali, Nendran, Red Banana, Karpooravalli and Ney poovan. In the case of Groundnut, TMV 7 and VRI 2 were the ruling varieties in the district. In coconut, VHC1, VHC2 and VHC3 hybrids were used widely. While VPM3, ALR 1, ALR 2 and West Coast Tall were preferably tall varieties used in coconut, COD, CYD, CGD and MYD were the dwarf varieties used particularly for tender coconut.

The gross cropped area and the net sown area were 1.77 Lakh ha and 1.74 Lakh ha during 2015-16. The major annual crops raised in the district include sorghum, banana, groundnut, paddy, maize and pulses. Out of the net sown area, 68% is irrigated and the balance

is rainfed. The major perennial crops raised in the district are Coconut (49 % of net sown area) and Tea (6.5% of Net Sown Area). Other than these two crops, pulses, fresh fruits, spices and vegetables are the major groups of crops raised in the district.

Jasmine yield is high in Karamadai, Periyanaickenpalyam and Annur blocks. Jasmine processing unit is located in Periyanaickenpalyam block. In medicinal and aromatic plants Aloe vera and thulasi are cultivated.

Table 3.15: Details of Important crops in Coimbatore District

Sl. No	Common name	Scientific name	Family
1.	Paddy	<i>Oryza sativa</i>	Poaceae
2.	Kuthiraivali	<i>Echinochloa frumentacea</i>	Poaceae
3.	Horsegram	<i>Macrotyloma uniflorum</i>	Fabaceae
4.	Cholam	<i>Sorghum bicolor</i>	Poaceae
5.	Kambu	<i>Pennisetum glaucum</i>	Poaceae
6.	Ragi	<i>Eleusine coracana</i>	Poaceae
7.	Groundnut	<i>Arachis hypogaea</i>	Fabaceae
8.	Sugarcane	<i>Saccharum officinarum</i>	Poaceae
9.	Maize	<i>Zea mays</i>	Poaceae
10.	Green gram	<i>Vigna radiata</i>	Fabaceae
11.	Red gram	<i>Cajanus cajan</i>	Fabaceae
12.	Castor	<i>Ricinus communis</i>	Euphorbiaceae
13.	Black gram	<i>Vigna mungo</i>	Fabaceae
14.	Cotton	<i>Gossypium herbaceum</i>	Malvaceae
15.	Vargu	<i>Paspalum crobiculatum</i>	Poaceae
16.	Marigold plant	<i>Tagetes erecta</i>	Asteraceae
17.	Firecracker flower	<i>Crossandra infundibuliformis</i>	Acanthaceae

3.12.3 Forest resources

Coimbatore is perhaps one of the very few districts in the State which is covered with thick forest (> 20 per cent of the total districts' area). The forests here are abundant in commercially significant trees such as Teak, Sandalwood, Rosewood, Bamboo etc. The cinchona

department is raising a cinchona plantation in forests of Pollachi range to jungles of shrubs in Udumalpet. Apart from this, there are one or two tea plantations and coffee plantations.

3.12.4 Water resources

The rivers flowing in the district are Bhavani, Noyyal, Amaravathi and Aliyar. Canals, wells, tanks and reservoirs are the sources of irrigation in this district. Several plans and schemes have been implemented for uninterrupted water supply for domestic and economic activities. According to Groundwater wing PWD six blocks were categorized as critical, four were considered as semi critical and two were safe as far as groundwater status was concerned. The district is part of the composite east and west flowing rivers basins and Cauvery basins. Bhavani, Noyyal, Parambikulam –Aliyar are the important sub basins

Out of the 1.16 lakh ha irrigated, 21103 ha is irrigated by canals and 94561 by ground water. While there is awareness on water use efficiency, all the farmers need to be encouraged to adopt water conservation techniques and to select crops suitable to water availability.

3.12.5 Study Area Ecology

A survey was conducted to study the flora around 10 km radius. Some of the information was gathered from the local habitants. All the collected data were classified to interpret the impact of pollution on the flora and fauna of that region. Survey of the wild plants as well as cultivated crop plants was made and all the available information was recorded. The primary data collected was compared with the Secondary data collected from Forest Department. There are no ecologically sensitive areas such as Biosphere reserves, Wildlife Sanctuaries, national Parks and other protected areas in or around the project site in a radius of 10 km. Generate Baseline Data from field observations.

3.12.6 Methodology of Sampling

A methodology of Sampling Flora and fauna studies were carried out during the winter season to assess the list of terrestrial plant and animal species that occur in the core area and the buffer area up to 10 km radius from the project site. No damage is created to flora and fauna during the sampling. None of the specimens were collected as voucher specimens and for the herbarium. It is basically done through field observations only. The study of flora is conducted as per the guidelines of the Ministry of Environment Forest and Climate Change (MoEF&CC) and Botanical Survey of India (BSI).

The study involved in the collection of primary data by conducting a survey in the field, examination of flora and fauna records in previously published reports and records. Analysis of the information is the view of the possible alteration in the environment of the project site. For the survey of fauna, both direct and indirect observation methods were used

3.12.7 DATA COLLECTION

In order to understand the ecological status of different habitats and the status of biodiversity.

MACRO LEVEL APPROACH

3.12.7.1 Rapid Survey and Secondary data collection

Rapid survey of project area was carried out initially to identify and understand the existing physical and biological environments, which include the core zone and the buffer zone (area of 10 km radius from the mine site).

Interaction and discussion with project proponents were made to understand and get the firsthand information about the project and associated activities.

Collection and compilation of project related information specific to project components (flora, fauna, habitats) from different stakeholders (State and division forest departments, Revenue etc.) and scientific information were collected that were available in the form of published papers, reports, books, State flora and CPCB etc.

3.12.7.2 Field Data Collection

Micro level approach involved mainly the field based primary data collection on different components of the project objectives/scope of works using well established and accepted ecological methods in different habitats identified within the study area. The field data collection mainly included biodiversity status assessment of different life forms (Habit) of floral elements such as Trees, Shrubs, Climbers, Herbs and Grass. Faunal diversity was assessed by inventorying the major taxonomical groups like Herpes to fauna (amphibian and reptiles), birds (both aquatic and terrestrial) and mammal

3.12.7.3. Flora

- Status of floral species was assessed in the representative habitat types (Forest, Agriculture and Wetland habitats) existing in the study area.
- Quantitative data were collected using standard Quadrature methods using circular plots followed by Mueller-Dombois and Ellenberg (1967) and Kershaw (1973).
- Status of tree, shrub and annuals (grass and herb) were quantified using circular plots of different sizes, 15m, 8m radius and 1 x 1m two plots respectively. Other habits like climbers and creepers found within the 8m radius plots were also identified and enumerated.

3.12.7.4 Analytical Aspects

Simpsons Diversity

It is often used to quantify the biodiversity of a habitat. As species richness and evenness increase, so diversity increases.

The range is from 0 to 1, where:

- High scores (close to 1) indicate high diversity
- Low scores (close to 0) indicate low diversity

To understand species variation in community, diversity Index was calculated by using the following formula

$$D=1 - \sum n(n-1) / N(N-1)$$

Where,

D = Simpson's Diversity Index

N = total number of individuals of all species.

n = number of individuals of each species.

d = Shannon Wiener Diversity Index.

Relative Density

Density is the measure of dense in the distribution of an individual species within a given area. Density of a species is defined as the average number of the species per quadrant and calculated as follows:

$$\text{Relative Density} = \text{Total no. of individuals species} / \text{Total no. of individuals of all species} \times 100$$

Relative Frequency:

The frequency of individual species is the number of times the species occurs in the sampling quadrant. It is actually represented as a percentage calculated as follows:

$$\text{Relative frequency} = \text{No. of quadrats in which the species occurred} / \text{Total no. Of quadrats studied} \times 100$$

Relative Value Index:

Relative important value index is nothing but the added value of only Relative Frequency and Relative Density estimated for RVI. This index was used for deriving the dominant status assessment of trees (>20 cm gbh) and woody shrub species.

Relative density and relative frequency and relative value indices were calculated following Curtis and Cottam (1962).

Trees: Trees were studied using the quadrat method as followed during vegetation survey. The size of each quadrat for tree survey was 10 m × 10 m. To study herbaceous and woody vegetation systematically, standard methods of analyzing vegetation were used for determination of vegetation composition and richness. Quadrat numbers depend upon the

requirement in specific cases. Comparative analysis of the outcome of the Quadrat Sampling was done to understand the characteristics of species observed in the study area

Shrubs: Shrubs were studied using the quadrat method as followed during vegetation survey. The size of each quadrat for shrub survey was 5 m x 5 m for shrubs of 3 m height.

Herbs: Herbaceous plants were studied using the quadrat method as followed, during vegetation survey. The size of each quadrat for herb survey was 1 m x 1 m.

3.12.7.5 Flora

The present study on the floral assessment for the existing project activity is based on extensive field survey of the area. The plant species were identified with the help of plant taxonomy manual, literatures and Botanical Survey of India website (efloraindia.nic.in). In addition, besides the collection of plant species, information was also collected with vernacular names of plant species made by local inhabitants.

3.12.7.6 Flora in Core Zone

Taxonomically a total of 51 species distributed in 34 families have been recorded from the core mining lease area. Based on habitat classification of the enumerated plants the majority of species were tree 23 (45%) followed by shrubs 12(24%), herbs 13 (25%) and creeper 3 (6 %) Details of flora with the scientific name were mentioned in Table No. 3.16 and Fig No: 3.30. No ecologically sensitive plant species has been reported from this area.

3.12.7.7. Flora in Buffer Zone

Taxonomically a total of 75 species distributed among 41 families have been recorded from the buffer area. Based on habitat classification of the enumerated plants the majority of species were tree 32 (43%) followed by shrubs 19 (25%), herbs 19(25%) and rest 5 (7%) is a climber. Details of flora with the scientific name were mentioned in Table No. 3.16 and Fig No: 3.30.

Table 3.16: Floral Diversity in Core and Buffer area

S. No.	Common Name	Local Name	Family	Scientific Name	Core	Buffer
TREES						
1.	Egyptian Pea Tree	Sethakathi Maram	Fabaceae	<i>Sesbania sesban</i>	+	+
2.	Pithraj Tree	Pithraj Maram	Meliaceae	<i>Aphanamixis polystachya</i>	+	+
3.	Cat-thorn Tree	Chimati Maram	Rhamnaceae	<i>Scutia buxifolia</i>	+	+
4.	Mesquite Tree	Mullu Maram	Fabaceae	<i>Prosopis juliflora</i>	+	+
5.	Neem Tree	Vempa Maram	Meliaceae	<i>Azadirachta indica</i>	+	+
6.	Khejri Tree	Vanni Maram	Fabaceae	<i>Prosopis spicigera</i>	-	+
7.	Ceylon olive Tree	Ularga karai Maram	Elaeocarpaceae	<i>Elaeocarpus serratus</i>	+	+
8.	Palmyra palm Tree	Panai Maram	Arecaceae	<i>Borassus flabellifer</i>	+	+
9.	Mango Tree	Maa Maram	Anacardiaceae	<i>Mangifera indica</i>	+	+
10.	Papaya Tree	Papali Maram	Caricaceae	<i>Carica Papaya</i>	-	+
11.	Teak Tree	Tekku Maram	Lamiaceae	<i>Tectona grandis</i>	+	+
12.	Sandal wood Tree	Santhana Maram	Santalaceae	<i>Santalum album</i>	-	+
13.	Chebolicmyrobalan	Kudukkai Maram	Combretaceae	<i>Terminalia chebula</i>	+	+
14.	Pungamin Tree	Pungai Maram	Fabaceae	<i>Pongamia pinnata</i>	+	+
15.	Lemon-Scented Gum Tree	Thaila Maram	Myrtaceae	<i>Eucalyptus citriodora</i>	+	+
16.	Black plum Tree	Naval Maram	Myrtaceae	<i>Syzygium cumini Sps.</i>	+	+
17.	Banana Tree	Vaazhai Maram	Musaceae	<i>Musa paradisica</i>	-	+
18.	Thorn mimosa Tree	Karuvelam Maram	Mimosaceae	<i>Acacia nilotica</i>	+	+
19.	Coconut Tree	Tennai Maram	Arecaceae	<i>Coccus nucifera</i>	+	+
20.	Guava Tree	Koiya Maram	Myrtaceae	<i>Psidium guajava</i>	-	+
21.	Indian date Tree	Elandhai Maram	Rhamnaceae	<i>Ziziphus jujuba</i>	+	+
22.	Sweet acacia Tree	Kastuurivel Maram	Fabaceae	<i>Vachellia farnesiana</i>	-	+
23.	Iron wood Tree	Savukku Maram	Casuarinaceae	<i>Casuarina equisetifolia</i>	+	+
24.	Broome rain Tree	Vagai Maram	Fabaceae	<i>Albizia lebbeck</i>	-	+
25.	Custard apple Tree	Seethe pazham Maram	Annonaceae	<i>Annona squamosa</i>	+	+

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT
 Proponent: K. Ranganathan, Rough Stone and Gravel Quarry, Coimbatore District

26.	Cannonbal Tree	Nagalinga Maram	Lecythydaceae	<i>Couroupita guianensis</i>	-	+
27.	Tanner's cassia Tree	Avaram poo Maram	Fabaceae	<i>Senna auriculata</i>	-	+
28.	Blackboard Tree	Aezhilai Paalai Maram	Apocynaceae	<i>Alstonia scholaris</i>	-	+
29.	Drumstick Tree	Murungai Maram	Moringaceae	<i>Moringa oleifera</i>	-	+
30.	Banyan Tree	Ala Maram	Moraceae	<i>Ficus benghalensis</i>	-	+
31.	Tamarind Tree	Puliya Maram	Fabaceae	<i>Tamarindus indica</i>	+	+
SHRUBS						
1.	Rough cocklebur	Marul umattai	Asteraceae	<i>Xanthium strumarium</i>	+	+
2.	yellow lucerne	Kutirai macal	Fabaceae	<i>Medicago falcata</i>	+	+
3.	Gwar patha	Katrazai	Liliaceae	<i>Aloe vera (or) Aloe barbadensis miller</i>	+	+
4.	Spiral cactus	Thirugu kalli	Euphorbiaceae	<i>Euphorbi tortilis</i>	+	+
5.	Indian Abutilon	Thuthi keera	Meliaceae	<i>Abutilon indicum</i>	+	+
6.	Peacock flower	Mayil kontai	Fabaceae	<i>Caesalpinia pulcherrima</i>	+	+
7.	Marigold	Samanthi cheedi	Asteraceae	<i>Tagetes erecta</i>	-	+
8.	Jasmine	Mali cheedi	Oleaceae	<i>Jasminum officinale</i>	-	+
9.	Firecracker flower	Kanakambaram	Acanthaceae	<i>Crossandra infundibuliformis</i>	-	+
10.	Hibiscus	Cembarutti	Malvaceae	<i>Hibiscus rosanaceae</i>	-	+
11.	Crown flower	Erukku cheedi	Apocynaceae	<i>Calotropis gigantea</i>	+	+
12.	Jimson weed	Ummathai cheedi	Solanaceae	<i>Datura stramonium</i>	+	+
13.	Coat buttons	Veddukaiya cheedi	Asteraceae	<i>Tridax procumbens</i>	-	+
14.	Rose	Rosa	Rosaceae	<i>Rosa rubiginosa</i>	-	+
HERBS & GRASS						
1.	Mountain knotgrass	Pulappoo	Amaranthaceae	<i>Aerva lanata</i>	+	+
2.	Weeping alkaligrass	Mara uri	Poaceae	<i>Puccinellia distans</i>	+	+
3.	Hair fescue	Vatra pul	Poaceae	<i>Festuca filiformis</i>	+	+
4.	Indian Copper leaf	Kuppaimeni	Euphorbiaceae	<i>Acalypha indica</i>	-	+
5.	Devil bean	Kilukiluppai	Fabaceae	<i>Crotalaria retusa</i>	+	+
6.	Indian comet grass	Narival	Poaceae	<i>Perotis indica</i>	-	+
7.	Villosa	Kavali	Fabaceae	<i>Tephrosia villosa</i>	-	+
8.	Sickle senna	Thagarai	Fabaceae	<i>Senna tora</i>	+	+

9.	Indian doab	Arugampul	Poaceae	<i>Cynodon dactylon</i>	+	+
10.	Carrot grass	Mookkuthi poo	Asteraceae	<i>Parthenium hysterophorus</i>	+	+
11.	Black nightshade	Manathakkali	Solanaceae	<i>Solanum nigrum</i>	+	+
CREEPERS/CLIMBERS						
1.	Veldt grape	Perandai	Vitaceae	<i>Cissusqua drangularis</i>	+	+
2.	Bitter cucumber	Petikari	Cucurbitaceae	<i>Citrullus colocynthis</i>	-	+
3.	Bitter melon	Pavakkai	Cucurbitaceae	<i>Momordica charantia</i>	-	+
4.	Ivy gourd	Kovakkai	Cucurbitaceae	<i>Coccinia grandis</i>	-	+



Fig a. Datura stramonium



Fig b. Solanum virginianum



Fig c. Physalis minima



Fig d. Azadirachta indica



Fig e. Hyptis pectinata



Fig f. Borassus flabellifer

Fig. No. 3.30: Photos of Flora in Core and Buffer Area

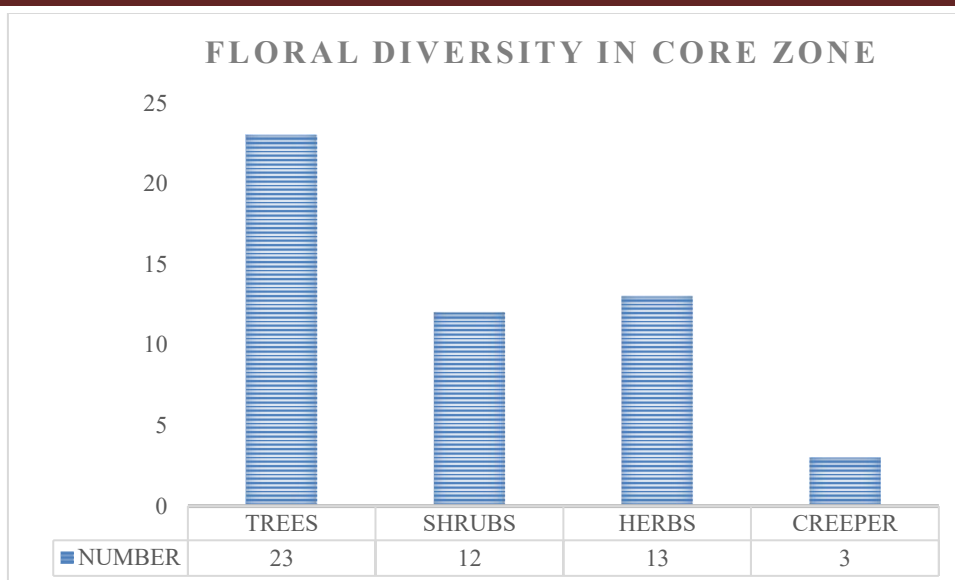


Fig. No. 3.31: Floral diversity in Core Zone

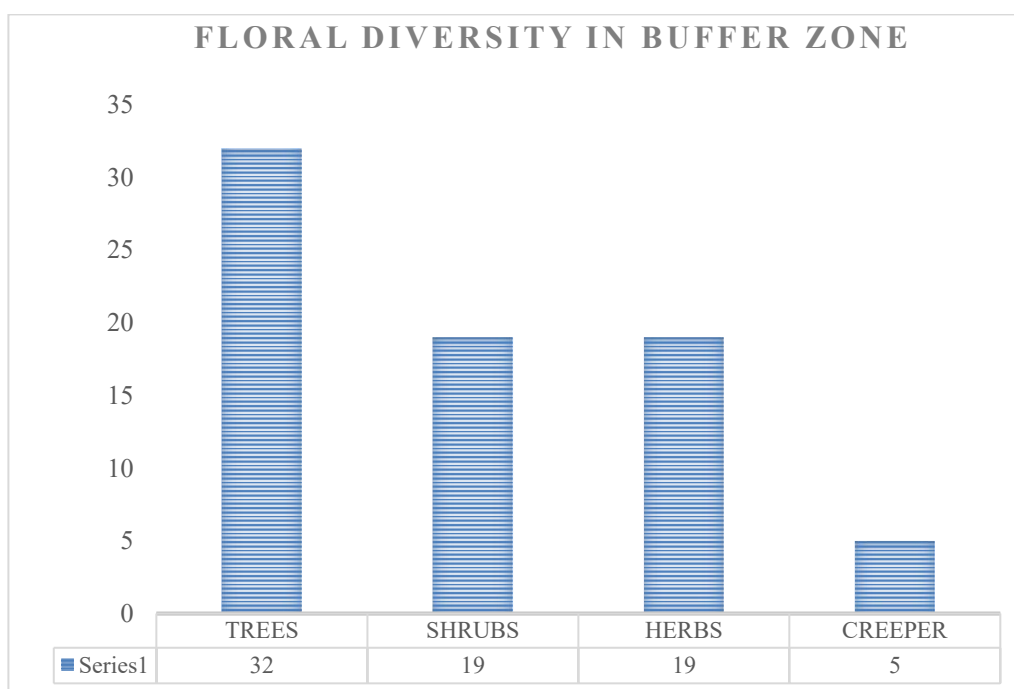


Fig. No. 3.32: Floral diversity in Buffer Zone

3.12.8. Fauna

The fauna survey has been carried out as per the methodology cited and listed out Mammals, birds, Reptiles, Amphibians, and Butterflies. All the listed species were compared with Red Data Book and Indian Wildlife Protection Act, 1972.

The study of fauna takes a substantial amount of time to understand the specific fauna characteristics of the area. The assessment of fauna has been done on the bases of primary data collected from the lease sites. The presence was also confirmed from the local inhabitants depending on the animal sightings and the frequency of their visits in the project area. In addition, officials, local peoples were another source of information for studying the

fauna of the area. Field activities are physical/active search, covering rocks, burrows, hollow inspection and location of nesting sites and habitat assessment etc. Taxonomical identification was done by the field guide book and wildlife envis database (wiienvis.nic.in/Database/Schedule Species Database) and Zoological Survey of India (ZSI).

Table 3.18: Methodology applied during survey of fauna

S. No	Taxa	Method of Sampling	References
1	Insects	Random walk, Opportunistic observations	Pollard (1977); Kunte (2000)
2	Reptiles	Visual encounter survey (Direct Search)	Daniel J.C (2002)
3	Amphibians	Visual encounter survey (Direct Search)	
4	Mammals	Tracks and Signs	Menon V (2014)
5	Avian	Random walk, Opportunistic observations	Ali S (1941); Grimmett R (2011); Collins 2015

3.12.8.1. Fauna in Core Zone

Varieties of species were observed in the core zone (0-2km radius) of the Quarry. Number of species decreases towards the mining area this might be due the lack of vegetation and forest cover in mining lease area. None of these species are threatened or endemic. Taxonomically a total of 25 species belonging to 17 families have been recorded from the core mining lease area. Based on habitat classification the majority of species were birds 10 (40%) followed by insects 9 (36%), reptiles 2 (8%) and mammals 4 (16%). Dominant species were mostly birds and insects no amphibians were observed during the extensive field visit. Details of fauna with the scientific name were mentioned in Table 3.19.

There are no critically endangered, endangered, vulnerable and endemic species were observed.

3.12.8.2. Fauna in Buffer Zone

Taxonomically a total of 39 species belonging to 28 families have been recorded from the buffer mining lease area. Based on habitat classification the majority of species were birds 16 (41%) followed by insects 14 (36%), reptiles 3 (8%) and mammals 6 (15%). There were no critically endangered, endangered, vulnerable and endemic species were observed. Details of fauna with the scientific name were mentioned in Table 3.19.

There were no critically endangered, endangered, vulnerable and endemic species were observed.

Table 3.19: Faunal in Core and Buffer area

Sl. No	Common Name	Family Name	Scientific Name	Core Area	Buffer Area	Schedule list wildlife protection act 1972	IUCN Red list data
MAMMALS							
1.	House mouse	Muridae	<i>Musmus culus</i>	+	+	NL	LC
2.	Common mongoose	Herpestidae	<i>Herestes edwardsii</i>	-	+	NL	NL
3.	Bat	Pteropodidae	<i>Pteropus medius</i>	+	+	NL	NL
4.	Palm squirrel	Sciuridae	<i>Funambulus pennantii</i>	-	+	NL	NL
INSECTS							
1.	Eight-spotted forester	Noctuidae	<i>Alypia octomaculata</i>	+	+	Schedule IV	LC
2.	Mottled emigrant	Pieridae	<i>Catopsilia pyranthe</i>	+	+	Schedule IV	LC
3.	Yellow Albatross	Pieridae	<i>Appias paulina</i>	+	+	Schedule IV	LC
4.	Jezebel butterfly	Pieridae	<i>Delias aestiva</i>	+	+	Schedule IV	LC
5.	Common grass yellow	Pieridae	<i>Eurema brigitta</i>	-	+	Schedule IV	LC
6.	Marbled white	Nymphalidae	<i>Melanargia galathea</i>	-	+	Schedule IV	LC
7.	Banded hairstreak	Lycaenidae	<i>Satyrium calanus</i>	+	+	Schedule IV	NE
8.	Blue basher	Libellulidae	<i>Pachydiplax longipennis</i>	+	+	NL	LC
9.	Slaty skimmer	Libellulidae	<i>Libellula incesta</i>	-	+	NL	LC
10.	White butterfly	Pieridae	<i>Pieris rapae</i>	-	+	Schedule IV	LC
11.	Baronet	Nymphalidae	<i>Euthalia nais</i>	+	+	Schedule IV	NE
12.	Milkweed butterfly	Nymphalidae	<i>Danaus plexippus</i>	+	+	NL	LC
13.	Red-veined darter	Libellulidae	<i>Sympetrum fonscolombii</i>	+	+	NL	LC
14.	Common Tiger	Nymphalidae	<i>Dananus genutia</i>	+	+	NL	NE

15.	Plain Tiger	Nymphalidae	<i>Dananeus chrysippus</i>	+	+	NL	NE
REPTILES							
1.	House gecko	Gekkonidae	<i>Hemidactylus platyurus</i>	+	+	NL	NL
2.	Peninsular rock agama	Agamidae	<i>Psammophilus dorsalis</i>	+	+	NL	NL
3.	Common house gecko	Gekkonidae	<i>Hemidactylus frenatus</i>	-	+	NL	NL
4.	Fan-Throated Lizard	Agamidae	<i>Sitana ponticeriana</i>	+	+	NL	LC
BIRDS							
1.	Fan tailed cuckoo	Cuculidae	<i>Cacomantis flabelliformis</i>	-	+	NL	LC
2.	Yellow billed cuckoo	Cuculidae	<i>Coccyzus americanus</i>	-	+	NL	LC
3.	White browed coucal	Cuculidae	<i>Centropus superciliosus</i>	-	+	NL	LC
4.	Common cuckoo	Cuculidae	<i>Cuculus canorus</i>	+	+	NL	LC
5.	Cattle egret	Ardeidae	<i>Bubulcus ibis</i>	-	+	NL	LC
6.	Japanese quail	Phasianidae	<i>Coturnix japonica</i>	-	+	NL	LC
7.	House crow	Corvidae	<i>Corvus splendens</i>	+	+	NL	LC
8.	White-breasted waterhen	Rallidae	<i>Amaurornis phoenicurus</i>	+	+	NL	LC
9.	Rose-ringed parakeet	Psittacidae	<i>Psittacula krameri</i>	+	+	NL	LC
10.	Common myna	Sturnidae	<i>Acridotheres tristis</i>	+	+	NL	LC
11.	Black drongo	Dicruridae	<i>Dicrurus macrocercus</i>	+	+	NL	LC
12.	Crow Pheasant	Cuculidae	<i>Centropus sinensis</i>	+	+	Schedule IV	LC
13.	Koel	Cuculidae	<i>Eudynamis scolopacea</i>	+	+	Schedule IV	LC
14.	House sparrow	Passeridae	<i>Passer domesticus</i>	+	+	Schedule IV	LC
15.	White throated king fisher	Alcedinidae	<i>Halcyon smyrnensis</i>	+	+	Schedule IV	LC

((+)) Symbol indicate presence of Species, (-) Symbol indicate absence of Species, *NL- Not listed, NE- Not evaluated, LC- Least concern



Fig. a Pycnonotus cafer



Fig. b Petrochelidon fluvicola



Fig. c. Pachydiplax longipennis



Fig.d. Chamaeleon zeylanicus



Fig. e. Melanargia galathea



Fig.f. Calotes verticolor



Fig.g. Passer domesticus



Fig.h. Junonia almanac

Fig. No. 3.33: Photos of Fauna in Core Area

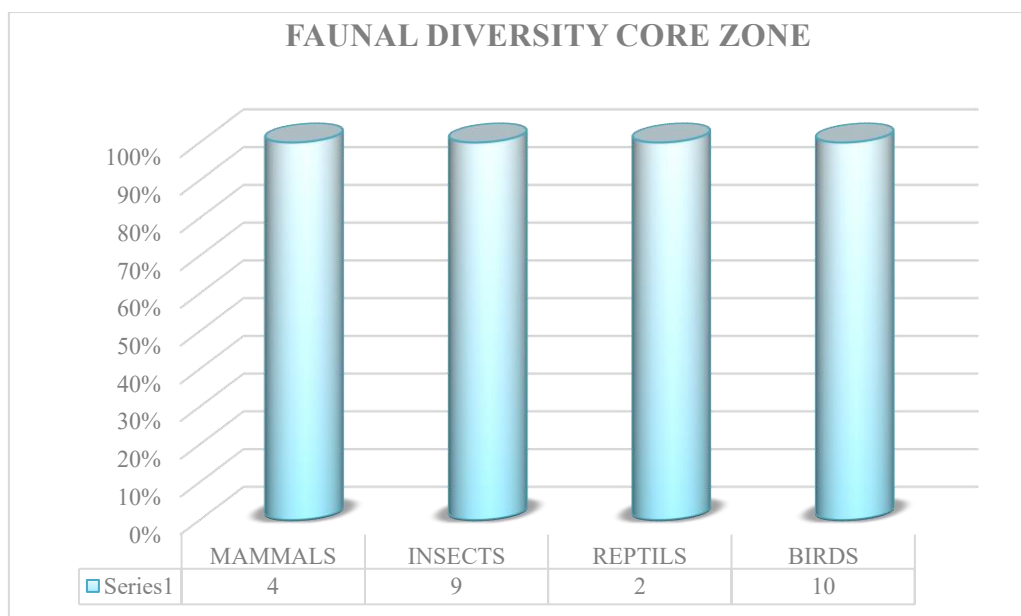


Fig. No. 3.34: Faunal diversity in Core Zone

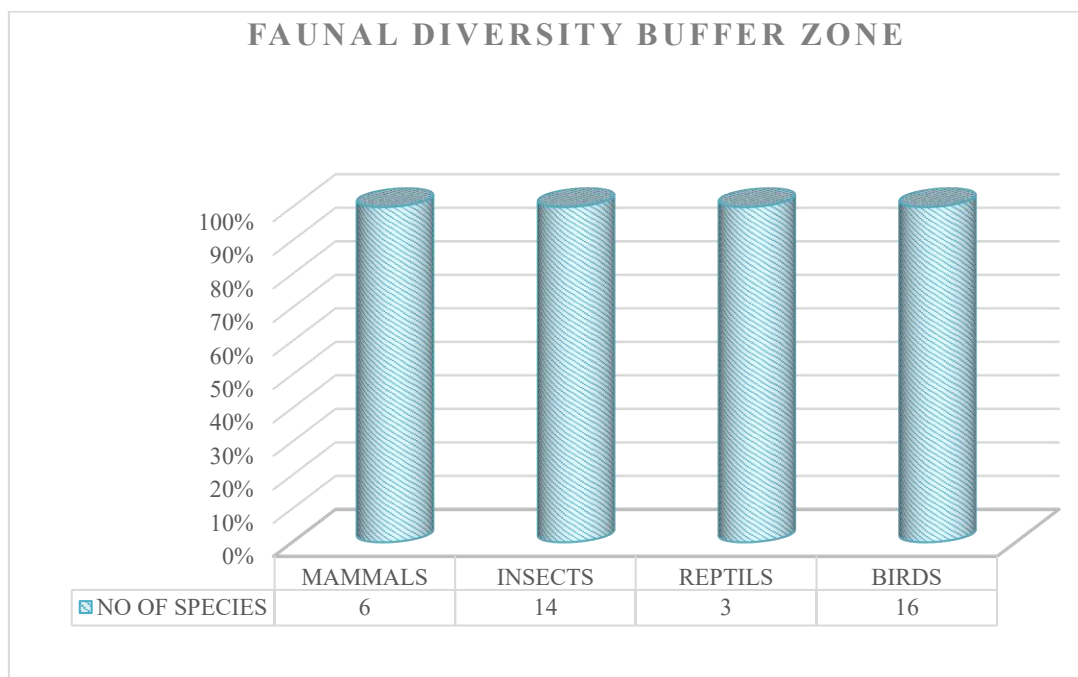


Fig. No. 3.35: Faunal diversity in buffer Zone

3.13 SOCIO-ECONOMIC ENVIRONMENT

3.13.1 Introduction

The study area for the socio-economic environment assessment has been defined as a 10 km radial buffer zone surrounding the proposed Rough Stone and Gravel Quarry Project located at S.F. No. 174/4, 176/1, Edayarpalayam Village, Sulur Taluk, Coimbatore District, Tamil Nadu. The delineation of this buffer zone follows the guidelines of the Ministry of Environment, Forest and Climate Change (MoEF&CC) for B1 category projects.

The study area encompasses a diverse mix of settlements of varying sizes, including rural villages, agricultural lands, minor industrial units, and associated infrastructure. This zone effectively represents both the direct and indirect impact areas in terms of resource utilization, transportation, employment generation, and potential environmental influences.

In total, the study area comprises 23 revenue villages and census towns located within Sulur Taluk and Coimbatore South Taluk of Coimbatore District. The socio-economic setting reflects a combination of rural and semi-urban characteristics, particularly in terms of infrastructure availability, access to education, healthcare, communication, lifestyle, and livelihood options.

For analytical purposes, the study area has been divided into three concentric zones:

Core Zone – 0 to 2 km radius from the project site

Buffer Zone – 2 to 5 km radius from the project site

Outer Zone – 5 to 10 km radius from the project site

A two-fold methodology was adopted for data collection:

Secondary Data: Drawn from the 2011 Census of India and other published government sources, covering demographic profile, occupational structure, literacy levels, and social composition.

Primary Data: Collected through structured field surveys, including transect walks, household questionnaires, focus group discussions, direct observations, and stakeholder consultations. A 5% sample of households in the core zone villages was covered to capture baseline socio-economic conditions.

The salient demographic and socio-economic features of the core and buffer zones (collectively referred to as the study area) are presented in the following sections, supplemented with village-wise data compiled from Census 2011.

Table No.3.20. Infra structure of the Edayarpalayam village, Sulur TK, Coimbatore – DT, TN.

Parameter	Details
Buffer Zone Radius	10 km from the project boundary
Total Villages Covered	23 villages
Core Zone (Project Site)	Edayarpalayam Village (core mining zone)
Taluk	Sulur Taluk
District	Coimbatore District, Tamil Nadu

Parameter	Details
Land Use	Predominantly agricultural, with fallow land and minor rural industries
Nearest Habitation	Edayarpalayam Village
Nearest Major Town	Sulur
Nearest Highway	State Highway SH-163 (~4.6 km)

Land Use and Settlement Pattern

The land use and settlement pattern in the study area is characterized by:

- **Predominantly agriculture-based rural settlements**, supported by paddy, coconut, groundnut, and other cash crops.
- **Moderate population density**, with clustered village settlements surrounded by agricultural fields.
- **Basic civic amenities** available in most villages, including schools, primary health centres (PHCs), anganwadis, and local bus connectivity.
- **Employment structure** dominated by agriculture, stone quarrying, and construction labour, and textile-related activities, reflecting the regional livelihood mix.

Edayarpalayam Village, where the proposed quarry is located, falls within a developing rural–industrial transition zone, typical of the socio-economic fabric of western Tamil Nadu. The settlement reflects a gradual shift from purely agrarian livelihoods towards diversification into stone-based industries and allied services.

Table No.3.21. Details of Revenue villages within 10km radius

0.2 km Radius	2-5km Radius	5-10km Radius
1.Edayarpalayam (Project village)	2.Bogampatti	9.Kannampalayam
	3.Pappampatti	10.Pallapalayam
	4.Kallapalayam	11.Kalangal
	5.Sellakkarichal	12. Paruvai.
	6.Vadavalli	13Peedampalli
	7.Pachapalayam	14.Pattanam
	8.Appanaickenpatti	15.Karadibavi
		16.Mettubavi
		17.Vellalur

		18.Mallegoundenpalayam
		19.Chettipalayam
		20.Varapatti
		21.Poorandampalayam
		22.Arasampalayam
		23.Vadasithur

Socio-Economic Impact Zone

These villages collectively form the **core socio-economic impact zone** for the project. The following aspects should be systematically assessed:

- **Demographics** – population distribution, literacy levels, and representation of SC/ST communities.
- **Occupational Pattern** – agriculture, agricultural laborers, industrial workers, and tertiary sector activities.
- **Infrastructure Audit** – availability and accessibility of schools, healthcare facilities, drinking water, transport, and road connectivity.
- **Stakeholder Consultations** – engagement with local communities to identify expectations, concerns, and potential socio-cultural impacts.
- **CSR Targeting** – prioritizing villages for corporate social responsibility initiatives such as skill development, educational support, health camps, and livelihood enhancement.

3.13.2 Edayarpalayam Village – Census 2011 (Sulur Taluk, Coimbatore District)

Table No.3.22: Edayarpalayam Village – Census 2011 (Sulur Taluk, Coimbatore District)

S. No.	Particulars	Total	Male	Female
1	Number of Households	667	–	–
2	Total Population	2251	1130	1121
3	Children (0–6 years)	193	98	95
4	Sex Ratio (females per 1,000 males)	992	-	-
5	Literacy Rate (overall)	73.70	56.05%	43.94%
6	Scheduled Caste (SC) Population	269	128	141
7	Scheduled Tribe (ST) Population	4	3	1
8	Total Working Population	1150	748	402

9	Main Workers	977	676	301
10	Marginal Workers	173	72	101
11	Cultivators	200	153	47
12	Agricultural Labourers	178	54	124
13	Non Workers	1101	382	719

Sources: Census of India 2011, Coimbatore District, Primary Census Abstract (village-level).

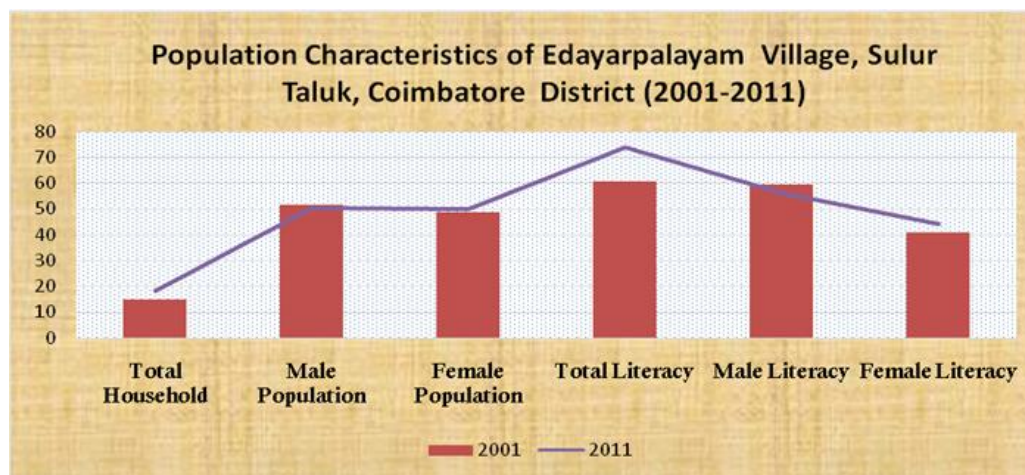


Fig. No. 3.36: Edayarpalayam Village Population Facts

The demographic structure of Edayarpalayam village indicates a moderate-sized rural settlement with 2,251 inhabitants across 667 households. The sex ratio of 992 females per 1,000 males shows a balanced gender distribution, which is in line with the overall Tamil Nadu average (996 in 2011) and reflects a socially stable community profile. The child population (0–6 years) accounts for 8.6% of the total, signifying a relatively young demographic base.

The overall literacy rate of 73.7% suggests that the village is moderately literate, with a considerable gender gap: male literacy (56.05%) is significantly higher than female literacy (43.94%), pointing towards the need for further educational interventions, particularly for women.

The working population constitutes about 51% of the total population, with 977 main workers and 173 marginal workers. A closer look at the workforce reveals that male participation dominates in main work (676 males vs. 301 females), while female participation is stronger in marginal and agricultural labour. Of the 200 cultivators, 153 are men and only 47 are women, whereas among the 178 agricultural labourers, women (124) significantly outnumber men (54). This reflects the traditional rural economic structure of Tamil Nadu, where men often take up primary agricultural or non-farm occupations, while women supplement household income through seasonal or casual agricultural labour.

The presence of a sizeable non-working population (1,101 persons, ~49% of the total), particularly among females (719), indicates dependency on the working population, and also highlights the role of women in unpaid household work and caregiving, which is not captured in census “worker” categories.

Overall, the socio-economic profile of Edayarpalayam presents a typical agriculture-linked rural economy undergoing a gradual shift towards diversified occupations. The balanced sex ratio, moderate literacy, and dependence on agriculture together indicate a community that is socio-culturally stable but economically vulnerable, and hence, any project intervention should address education, women’s empowerment, and livelihood diversification as key areas of CSR and mitigation planning.

3.13.3 Population Characteristics – Edayarpalayam Village (2001–2011)

Table No. 3.23 Population Characteristics – Edayarpalayam Village (2001–2011)

S. No.	Demographic Parameter	2001	2011	Decadal Change (%)
1	Total Population	2095	2251	+7.45%
2	Male Population	1077	1130	+4.92%
3	Female Population	1018	1121	+14.2%
4	Number of Households	~562 (est.)	667	+18.68%
5	Children (0–6 years)	399	369	–7.52%
6	Sex Ratio (Females per 1,000 Males)	945	992	+4.97%
7	Child Sex Ratio	916	996	+8.73%
8	Literacy Rate (Total)	60.72%	73.70%	+21.38%
9	Male Literacy	56.05%	59.36%	+9.58%
10	Female Literacy	40.64%	43.94%	+7.66%
11	Scheduled Caste (SC) Population	200	269	+34.5%
12	Scheduled Tribe (ST) Population	1	4	+300.0%
13	Working Population	~1,115 (est.)	1,150	+3.14%

Table No.3.24: Socio-Economic Profile of Thimmanaikenpalayam Village (Census 2011)

Particulars	Details
Total Population	3,012
Male Population	1,511
Female Population	1,501

Particulars	Details
Sex Ratio (♀ per 1000 ♂)	995
Child Population (0–6 yrs)	276 (9.1%)
Number of Households	852
Literacy Rate (%)	71.2%
Male Literacy (%)	80.5%
Female Literacy (%)	65.1%
Total Workers	1,520 (50.4%)
Main Workers	1,280
Marginal Workers	240
Cultivators	410
Agricultural Labourers	670
Household Industry Workers	58
Other Workers	382
Non-Workers	1,492 (49.6%)

Table No. 3.25: Socio-Economic Profile of Bogampatti Village (Census 2011)

Particulars	Details
Total Population	2,826
Male Population	1,427
Female Population	1,399
Sex Ratio (♀ per 1000 ♂)	980
Child Population (0–6 yrs)	250 (8.8%)
Number of Households	741
Literacy Rate (%)	74.3%
Male Literacy (%)	82.6%
Female Literacy (%)	66.5%
Total Workers	1,470 (52.0%)
Main Workers	1,225
Marginal Workers	245
Cultivators	395
Agricultural Labourers	605
Household Industry Workers	61
Other Workers	409
Non-Workers	1,356 (48.0%)

Table. No:3.26 Socio-Economic Profile of Pachapalayam Village (Census 2011)

Particulars	Details
Total Population	2,298
Male Population	1,154

Particulars	Details
Female Population	1,144
Sex Ratio (♀ per 1000 ♂)	991
Child Population (0–6 yrs)	205 (8.9%)
Number of Households	612
Literacy Rate (%)	72.1%
Male Literacy (%)	80.4%
Female Literacy (%)	63.5%
Total Workers	1,145 (49.8%)
Main Workers	920
Marginal Workers	225
Cultivators	310
Agricultural Labourers	525
Household Industry Workers	43
Other Workers	267
Non-Workers	1,153 (50.2%)

3.13.4 Occupational profile of Edayarpalayam Village

Edayarpalayam Village, located in Sulur Taluk of Coimbatore District, Tamil Nadu, represents a typical semi-rural settlement transitioning from an agriculture-based economy to one increasingly influenced by industrial and service sectors. Its proximity to Coimbatore city—renowned for textile exports—has significantly shaped the occupational structure of the local population. Understanding the village’s occupational profile is crucial for assessing local economic patterns, standard of living, and the degree of reliance on primary, secondary, and tertiary sectors.

This analysis compares Census 2011 data with field-based estimates from 2021 to provide insights into how livelihood patterns have evolved over the past decade, particularly in the context of land use changes, urban influence, and proposed industrial or quarry developments.

According to the 2011 Census, Edayarpalayam had a total population of 2,251, of which 1,150 individuals (51.0%) were classified as workers, and 1,101 (49.0%) as non-workers. A gender-wise breakdown indicates that among the 382 male workers, most were engaged in non-agricultural activities such as textile work, driving, masonry, and other tertiary services. Among female workers (703), a substantial proportion were involved in agriculture and household-based industries.

Occupational Distribution in 2011:

- **Cultivators (22.8%):** Families owning small agricultural plots engaged in subsistence or part-time cultivation, often supplemented by wage labor.
- **Agricultural Labourers (8.9%):** Hired on a daily wage, typically from small or marginal households.
- **Household Industry Workers (16%):** Predominantly women engaged in tailoring, beedi-making, weaving, and home-based textile work.
- **Other Workers (48.6%):** The largest category, including transport workers, textile laborers, shop owners, quarry laborers, and construction workers.

Occupational Trends by 2021:

By 2021, the occupational structure had visibly shifted due to several factors:

- Urbanization and peri-urban expansion of Sulur and Coimbatore.
- Decline in smallholder agriculture due to water scarcity and land sales.
- Increased reliance on non-farm employment, particularly in textile and transport sectors.
- Migration of rural youth to nearby industrial hubs and cities.
- Agricultural activities declined by 20–30%, as more land was sold or left fallow due to groundwater depletion.
- Tertiary sector employment increased, especially in warehousing, logistics, textile dyeing units, and construction.
- Female workforce participation rose slightly in self-help group (SHG)-based microenterprises and small tailoring units.
- The share of household industry workers remained stable or slightly increased, supported by government skill initiatives and SHG programs.

Dependency on daily wage labor and contractual jobs increased, reflecting a rise in informal employment and reduced job security. In 2011, women were predominantly engaged in agriculture and home-based industries. By 2021, male participation in driving, construction, and industrial work had grown, while women increasingly contributed to garment finishing units and small tailoring hubs. However, overall female participation in formal employment remained lower than males due to traditional gender roles, household responsibilities, and limited access to safe transport and childcare facilities.

Implications for the Proposed Rough Stone and Gravel Quarry Project:

Positive Impacts:

- Short-term employment opportunities for youth in loading, transporting, and material handling.
- Indirect benefits for local food vendors, small shops, and vehicle owners.

Potential Adverse Impacts:

- Loss of cultivable land if leased or sold.
- Air and dust pollution affecting agriculture and micro-enterprises.
- Disruption to female-led home industries located near haul roads.

Therefore, the project's Environmental Management Plan (EMP) should incorporate local skill mapping, provide training, and prioritize employment for displaced or underemployed residents. CSR initiatives could focus on SHG support, irrigation revival, and road safety measures. Aligning the quarry project with these occupational trends will help ensure inclusive growth, minimize disruption, and maximize local benefits.

Table No. 3.27 Occupational Characteristics of Edayarpalayam Village Coimbatore Dt. (2001-2011)

S. No	Characteristics	2001	%	2011	%
1	Total Household	562		667	
2	Total population	2095		2251	
3	Male Population	1077	51.41	1130	50.200
4	Female Population	1018	48.59	1121	49.800
5	Total Literacy	1272	60.72	1659	73.701
6	Male Literacy	755	59.36	930	56.058
7	Female Literacy	517	40.64	729	43.942
8	Sex Ratio		945.22		992.035

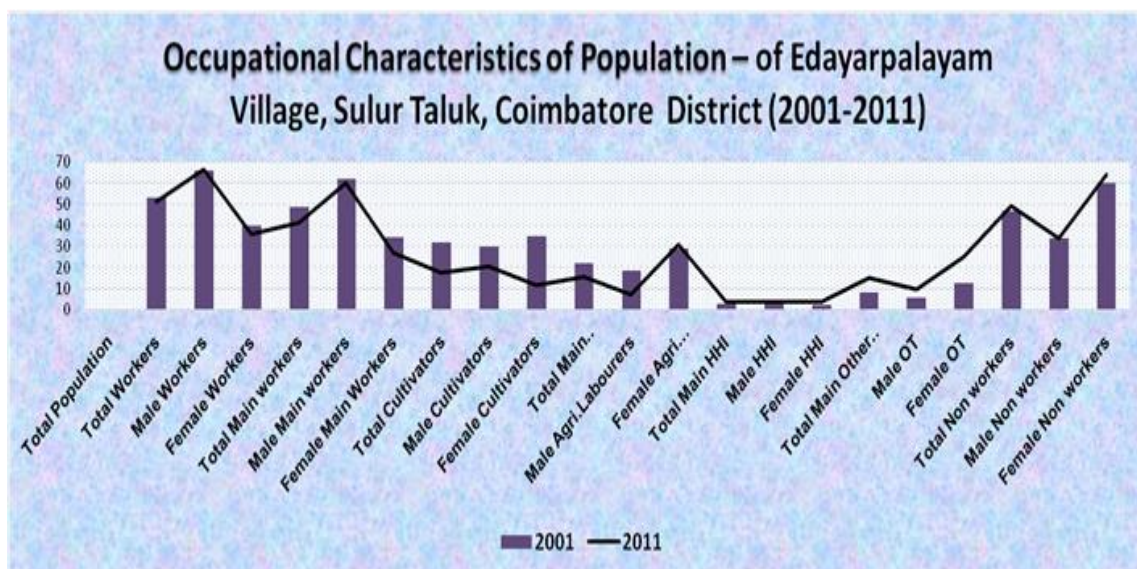


Fig. No. 3.37: Occupational Characteristics of Edayarpalayam Village

- “Other Workers” include transport workers, textile laborers, shopkeepers, construction laborers, and quarry workers.
- Percentages are calculated relative to total workers.

Positive Changes:

1. Increase in Workers: The total number of workers rose from 1,030 (2001) to 1,150 (2011), reflecting improved employment opportunities.
2. Growth in Household Industry: Female participation in tailoring, weaving, and home-based industries increased (14.6% → 16%), showing empowerment through self-employment.
3. Diversification into Non-Farm Sectors: Expansion of “Other Workers” indicates rising engagement in transport, construction, textiles, and service activities, reducing reliance on agriculture.
4. Balanced Gender Participation: More women engaged in household industries and micro-enterprises, contributing to local income and skill development.

Negative Changes:

1. Decline in Agriculture: Cultivators and agricultural laborers decreased slightly (Cultivators: 24.3% → 22.8%; Agricultural Labourers: 10.7% → 8.9%), indicating reduced dependence on farming due to water scarcity, land sale, and urban pressure.
2. Informal Employment: Many new opportunities in tertiary sectors are informal, daily-wage, or contractual, reducing job security.

3. **Limited Female Formal Employment:** Despite growth in home-based industries, women's participation in formal industrial work remained low due to traditional roles and lack of transport and childcare facilities.
4. **Vulnerability of Small Landholders:** Decline in cultivable land and smallholder agriculture threatens long-term livelihood sustainability.

Overall Trend:

Shift from Agriculture to Non-Farm Occupations: The village is gradually transitioning toward industrial and service sector employment.

Slight Increase in Female Participation: Women's involvement in micro-enterprises and home-based industries is rising, but formal employment remains limited.

Emerging Challenges: Job security, land loss, and environmental pressures (e.g., dust, water scarcity) are concerns, especially with proposed industrial/quarry projects.

3.13.5 Socio economic studies in buffer area

The socio-economic study of the 10 km buffer area surrounding the proposed Rough Stone and Gravel Quarry Project in Edayarpalayam Village, Suler Taluk, Coimbatore District, has been conducted in alignment with MoEF&CC guidelines for Category "B1" projects. The buffer zone encompasses both rural and peri-urban revenue villages, where livelihoods are predominantly shaped by agriculture, textile-based industries, and informal sector employment. Understanding the socio-economic characteristics of the buffer area is essential for assessing potential project impacts on local communities, livelihoods, and development patterns.

1. Geographic and Administrative Coverage

The buffer area includes 22 revenue villages, categorized based on distance from the proposed project site:

Within 2–5 km radius (Core Impact Zone – 8 villages):

Bogampatti, Pappampatti, Kallapalayam, Sellakkarichal, Vadavalli, Pachapalayam, Appanaickenpatti, Kondangipalayam, Semmandampalayam, Kunnathur, Karadivavi, Thekkalur.

Within 5–10 km radius (Peripheral Impact Zone – 14 villages):

Kannampalayam, Pallapalayam, Kalangal, Paruvai, Peedampalli, Pattanam, Karadibavi, Mettubavi, Vellalur, Mallegoundenpalayam, Chettipalayam, Varapatti, Poorandampalayam, Arasampalayam, Vadasithur.

These villages exhibit diverse demographic and occupational structures, ranging from small-scale farmers and landowners to skilled and semi-skilled workers in textiles, construction, and logistics.

Table. No: 3.28 Distribution of Population in the study area

Particulars	0-2km	2-5km	5-10km	Total
Number of household	667	7499	27728	35894
Male Population	1130	13049	49110	63289
Female Population	1121	12880	47993	61994
Total population	2251	25929	97103	125283
SC population	269	5752	19582	25603
ST population	4	4	79	87
% of Males to total population	50.19	50.32	50.57	50.51
% of Females to total population	49.8	49.67	49.42	49.49
Sex Ratio # of females per 1000 males	992.03	987.04	977.25	979.53
Total population 0-6 years	193	2118	8211	10522
Source: District Primary Census statistics of Tamil Nadu 2011				

2. Population and Demographics

The total population of the 10 km buffer area is 217,072, comprising 112,179 males (51.68%) and 104,893 females (48.32%), reflecting a slightly higher male population. The population density indicates a predominantly rural to semi-urban character of the area.

Scheduled Castes (SC) and Scheduled Tribes (ST):

SC Population: 37,705 (17.37% of total population), with 19,367 males and 18,338 females.

ST Population: 5,239 (2.41% of total population), with 2,741 males and 2,498 females.

The sex ratio in the buffer area is balanced but slightly skewed in favor of males. These demographic characteristics are significant in understanding vulnerability, livelihood patterns, and social equity, particularly when assessing project impacts.

3. Occupational and Livelihood Patterns

Occupations in the buffer area are diverse, reflecting the transition from agrarian livelihoods to industrial and informal sector employment:

Agriculture: Still contributes substantially to local livelihoods, particularly in villages with fertile land and water availability. However, smallholder agriculture faces challenges due to water scarcity, fragmentation of land, and urbanization pressure.

Textile and Cottage Industries: Villages closer to Coimbatore, such as Vadavalli and Kallapalayam, show high participation in textile manufacturing, weaving, tailoring, and garment finishing units.

Construction and Transport: The peri-urban influence has generated employment in construction labor, transportation, logistics, and quarry-related jobs.

Informal Sector & SHGs: A growing number of women participate in Self-Help Groups (SHGs), home-based micro-enterprises, and small-scale tailoring, contributing to household income.

Observation: Over the last decade, there has been a gradual shift from agriculture to tertiary and informal sector employment, influenced by proximity to Coimbatore and infrastructural development in Suler Taluk.

5. Implications for the Quarry Project

Understanding the socio-economic profile is critical for evaluating potential impacts of the proposed quarry:

Positive Opportunities:

Employment for local youth in quarry operations, transportation, and ancillary services.

Indirect benefits for small businesses, shops, and SHG-based micro-enterprises.

Potential Risks:

Loss of cultivable land and reduction in agricultural income.

Dust and air pollution impacting agriculture, household industries, and health.

Disruption of female-led SHG activities near haul roads or project operations.

The Environmental Management Plan (EMP) should include skill development programs, employment preference for local residents, SHG support, and community welfare measures, ensuring that the quarry project aligns with the socio-economic dynamics of the buffer area.

3.13.6 Social structure

In study area 21.12% of people belong to scheduled category, of which 0.69% belongs to Scheduled Tribes (ST) and 20.43% to Scheduled Castes (SC). Distribution of population by social structure is given in Table 3.26.

Table. No: 3.29 Distribution of population by social structure

Particulars	0–2 km	2–5 km	5–10 km	Total
Number of Households	667	7,499	27,728	35,894
Male Population	1,130	13,049	49,110	63,289
Female Population	1,121	12,880	47,993	61,994
Total Population	2,251	25,929	97,103	125,283
SC Population	269	5,752	19,582	25,603
ST Population	4	4	79	87

Particulars	0–2 km	2–5 km	5–10 km	Total
% Males to Total Population	50.19	50.32	50.57	50.51
% Females to Total Population	49.81	49.68	49.43	49.49
Sex Ratio (Females per 1,000 Males)	992	987	977	980
Population 0–6 Years	193	2,118	8,211	10,522

Gender Composition: The study area exhibits a nearly balanced gender distribution, with males constituting 50.51% and females 49.49% of the total population.

Sex Ratio: The overall sex ratio is 980 females per 1,000 males, slightly lower than the natural parity but consistent with district trends.

SC/ST Population: Scheduled Castes form 20.44% of the total population, while Scheduled Tribes are only 0.07%, indicating limited tribal presence in the buffer area.

Population of Young Children: There are 10,522 children aged 0–6 years, representing 8.4% of the total population, highlighting the need for early childhood care and educational facilities.

Population Density: The average population density in the study area is 367 persons per sq. km, reflecting a rural to semi-urban settlement pattern.

Decadal Growth: The decadal population growth rate for Coimbatore district between 2001–2011 was 19.10%, suggesting moderate population increase and urban influence in peri-urban villages.

Social Structure of the Study Area

The social composition of the 10 km buffer area around the proposed Rough Stone and Gravel Quarry Project highlights the presence of Scheduled Castes (SC) and Scheduled Tribes (ST). Overall, 21.12% of the population belongs to the scheduled category, with 20.43% SC and 0.69% ST.

Table No 3.30: Distribution of Population by Social Structure (2011 Census)

Particulars	0–2 km	2–5 km	5–10 km	Total
SC Population	269	5,752	19,582	25,603
ST Population	4	4	79	87
Total SC & ST Population	273	5,756	19,661	25,690
Total Population	2,251	25,929	97,103	125,283
% SC Population	11.95	22.18	20.16	20.43
% ST Population	0.17	0.015	0.08	0.69
% SC + ST Population	12.12	22.19	20.24	21.12

Predominance of Scheduled Castes: SCs form a significant proportion of the population across the buffer area, especially in the 2–5 km zone (22.18%).

Minimal ST Presence: Scheduled Tribes are very few, constituting only 0.69% of the total population, concentrated mainly in the peripheral villages.

Spatial Variation: The SC/ST proportion is slightly higher in the mid-zone (2–5 km) than in the core (0–2 km) or peripheral (5–10 km) zones, reflecting settlement patterns and historical demographics.

Implication for Project Planning: The presence of socially vulnerable groups highlights the need for inclusive measures, such as preferential employment, skill development programs, and CSR initiatives targeting SC communities.

3.13.7 Literacy levels

An analysis of literacy levels in the selected villages of the study area indicates an average literacy rate of 71.63% as per the 2011 Census. Male literacy is higher at 77.79%, whereas female literacy stands at 65.46%, which is slightly above the national average of 65.5% for women. Female literacy, being an important indicator of social change and development, highlights the need for continued emphasis on education among women in the region.

Table No 3.31: Distribution of Literates and Literacy Rates (2011 Census)

Particulars	0-2km	2-5km	5-10km	Total
Male Population	1130	13049	49110	63289
Female Population	1121	12880	47993	61994
Total population	2251	25929	97103	125283
Male literates	930	9678	38629	49237
female literates	729	7849	32009	40587
Total literates	1659	17527	70638	89824
Male literacy rate	82.3	74.16	78.5	77.79
Female literacy rate	65.03	60.93	66.69	65.46
Total literacy rate	73.7	67.59	72.74	71.63

Source: District Primary Census statistics of Tamil Nadu 2011

Gender Gap in Literacy: There is a noticeable gap between male and female literacy, with women lagging behind by approximately 12 percentage points.

Spatial Variation: Literacy is relatively higher in the core and peripheral zones (0–2 km and 5–10 km) compared to the mid-zone (2–5 km), possibly due to better access to educational facilities in core villages and urban influence near Coimbatore.

Overall Literacy: The total literacy rate of 71.63% reflects moderate educational attainment in the study area and underscores the importance of improving female literacy for social development.

3.13.8 Occupational structure

The occupational structure of the project area has been analyzed based on three main categories: main workers, marginal workers, and non-workers, as defined by the Census of India.

Main Workers: Individuals engaged in economic activities on a regular basis, including four subcategories:

Cultivators – engaged in farming on owned or leased land.

Agricultural Laborers – working on others' land for wages.

Household Industry Workers – engaged in manufacturing, processing, or repairs within household industries.

Other Workers – including those in construction, trade, transport, communication, and all other services.

Marginal Workers: Individuals engaged in economic activities for less than six months in a year.

Non-Workers: Individuals not engaged in any economic activity, including students, homemakers, elderly, and dependents.

Table 3.32: Occupational Structure of the Study Area (2011 Census)

Particulars	0–2 km	2–5 km	5–10 km	Total
Main Workers	977	12,260	43,717	56,954
Marginal Workers	173	1,349	5,231	6,753
Total Workers	1,150	13,609	48,948	63,707
Non-Workers	1,101	12,320	48,155	61,576
Total Population	2,251	25,929	97,103	1,25,283
% Main Workers	43.4	47.28	45.02	45.46
% Marginal Workers	7.68	5.2	5.38	5.39
Work Participation Rate (%)	51.08	52.48	50.4	50.85
% Non-Workers to Total Population	48.91	47.51	49.59	49.14
Dependency Ratio	0.95	0.9	0.98	0.97

Source: District Primary Census statistics of Tamil Nadu 2011

Predominance of Non-Workers: Non-workers constitute 49.14% of the total population, slightly higher than workers, indicating a high dependency on the working population.

Main Workers: Approximately 45.46% of the population are engaged in main work, primarily in agriculture, household industries, and other service-related sectors.

Marginal Workers: Marginal workers account for 5.39%, mostly engaged in seasonal or informal activities.

Work Participation Rate (WPR): The overall WPR is 50.85%, suggesting that nearly half of the population, including educated youth, are non-working.

Dependency Ratio: The dependency ratio of 0.97 indicates nearly 1 dependent per worker, reflecting economic pressure on working households.

Livelihood Implications: The study highlights the need for income-generating activities, skill development, and employment opportunities to strengthen local livelihoods and reduce dependency.

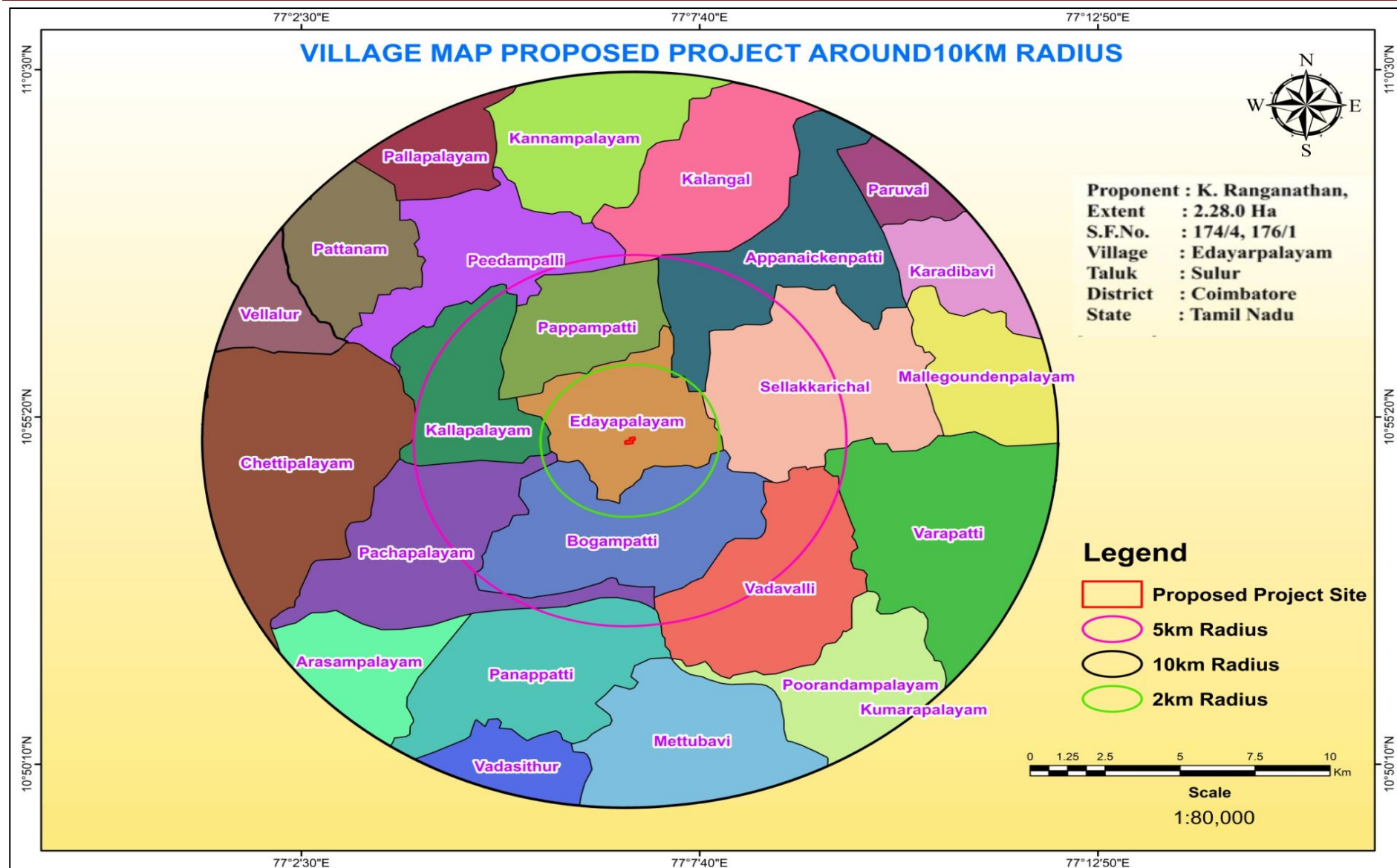


Fig. No. 3.38: Village Map Proposed Project around 10km Radius

Toposheet Showing Socio Economic Survey Map Around 10km Radius

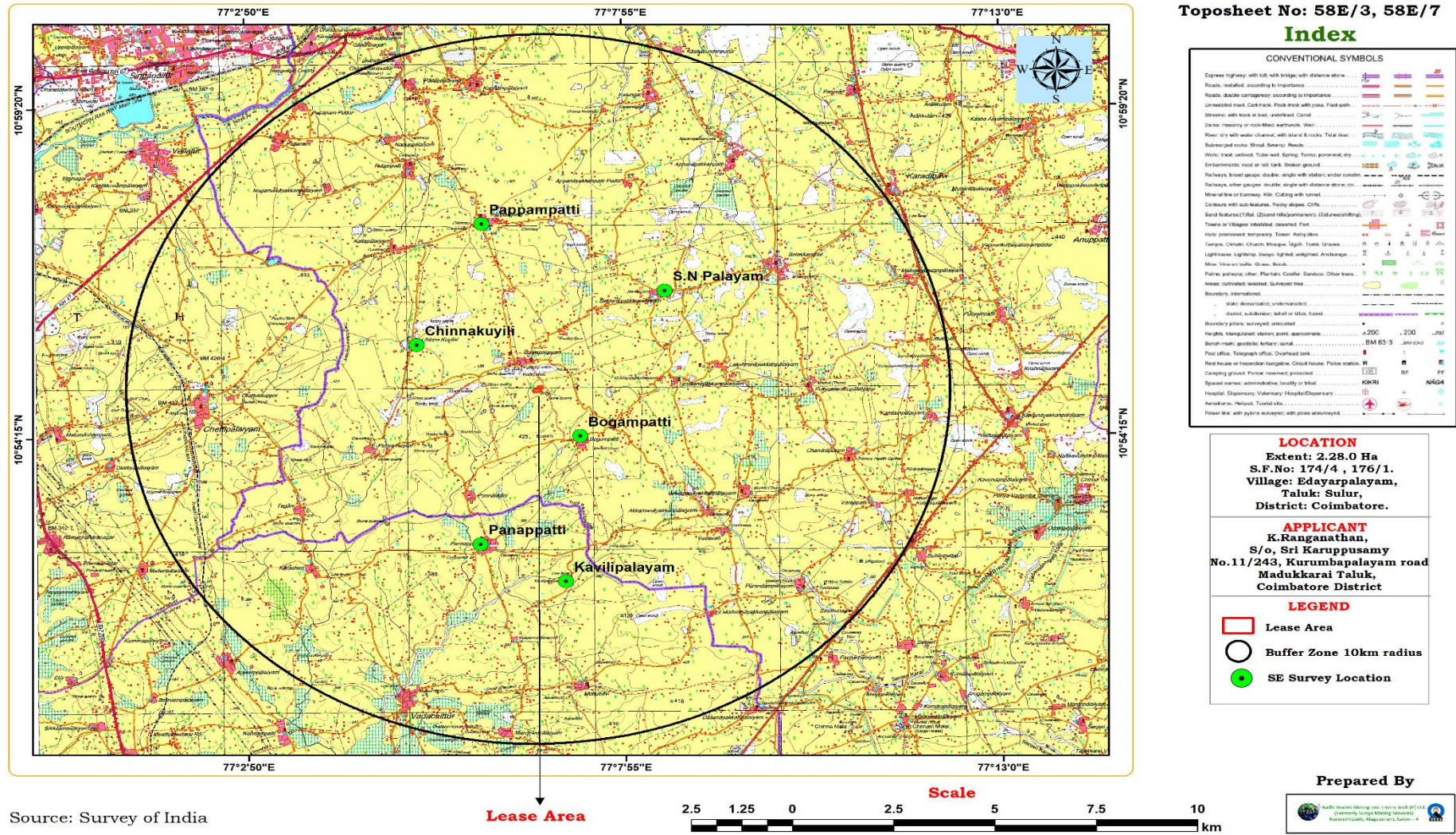


Fig. No.3.39: Toposheet showing socio Economic survey around Buffer 10 km Radius

Dependency Ratio

Based on occupational structure in study area the dependency rate of non-workers to workers category has been estimated at 1:1 ratio. The study also noted that overall work participation rate is as low as 50.85% in the project area. It is observed that many educated youths is part of the non-working population. Therefore, there is a need for income generation activities to strengthen the livelihoods of local population.

3.13.9 Primary observations in study area

The primary observations in the study area provide a comprehensive understanding of the current socio-economic and infrastructural characteristics of the villages surrounding the proposed Rough Stone and Gravel Quarry Project in Edayarpalayam Village, Suler Taluk, and Coimbatore District. This section is based on field surveys, village visits, and Focus Group Discussions (FGDs) conducted with local stakeholders, including village elders, school teachers, SHG members, and working youth.

The fieldwork was carried out from 18 March 2025 to 24 March 2025, covering eight villages in Suler Taluk. These villages represent a mix of rural and semi-urban settlements, reflecting diverse occupational and social structures. The study focused on several key aspects, including demographics, education, occupational profile, housing typology, and social composition.

1. Demographic Aspects

The sex ratio in the study area was observed to be approximately 980 females per 1,000 males, slightly below the state average. While this indicates a relatively balanced gender distribution, it also reflects underlying gender disparities in areas such as access to education, health, and economic participation.

About 21.12% of the total population belongs to socially disadvantaged groups, including Scheduled Castes (20.43%) and Scheduled Tribes (0.69%). This highlights the presence of vulnerable communities whose socio-economic well-being needs careful consideration during project planning and implementation.

Population distribution indicates a moderate population density, consistent with the semi-urban and rural nature of the villages. A significant portion of the population comprises children (0–6 years) and the elderly, pointing to potential dependency on working-age adults.

2. Educational Infrastructure

The survey identified the presence of primary and secondary schools, anganwadis, and a few higher secondary institutions in the buffer villages. Literacy rates, as per the 2011 Census, average 71.63%, with male literacy at 77.79% and female literacy at 65.46%. Field

observations noted that female education, while improving, still lags behind male literacy, especially in peripheral villages where access to secondary schools is limited.

3. Occupational and Economic Profile

The occupational structure is dominated by agriculture, household-based industries, and informal sector activities. Main workers constitute 45.46% of the population, while marginal workers account for 5.39%, and non-workers make up 49.14%. The work participation rate of 50.85% suggests a significant portion of the population, including educated youth, remains unemployed or under-employed, highlighting the need for skill development and livelihood interventions.

4. Housing and Infrastructure

Housing typology ranges from kutcha houses in remote villages to semi-pucca and pucca houses in semi-urban settlements.

Basic amenities such as electricity, potable water, and road connectivity are generally available, though some villages face intermittent supply and accessibility issues, particularly during monsoon seasons.

5. Social Composition and Community Dynamics

Communities exhibit a strong sense of local cohesion and social networks, often facilitated through Self-Help Groups (SHGs) and cooperative activities.

Vulnerable populations, especially women and Scheduled Caste households, rely on home-based industries and small-scale agriculture for income.

FGDs indicated that migration of youth to nearby industrial hubs is common due to limited local employment opportunities, influencing household income and social structure.

6. Implications for Project Planning

The demographic and socio-economic observations suggest that any industrial or quarry-related activity must consider:

Gender-sensitive employment opportunities to improve female participation in formal and informal sectors. Skill development and livelihood enhancement programs for non-working youth and marginal workers. Protection of vulnerable communities, including SC and ST households, from displacement or livelihood disruption. Infrastructure improvement, particularly in water supply, road access, and safe transport to support both residential and occupational needs.

Table 3.33: Summary of Socio-Economic Profile of Villages in the Study Area (2011 Census)

Parameters	0–2 km	2–5 km	5–10 km	Total / Average
Number of Households	667	7,499	27,728	35,894
Total Population	2,251	25,929	97,103	1,25,283
Male Population	1,130	13,049	49,110	63,289
Female Population	1,121	12,880	47,993	61,994
Sex Ratio (F per 1000 M)	992	987	977	980
SC Population	269	5,752	19,582	25,603
ST Population	4	4	79	87
SC + ST Population (%)	12.12	22.19	20.24	21.12
Population 0–6 years	193	2,118	8,211	10,522
Total Literates	1,659	17,527	70,638	89,824
Male Literacy Rate (%)	82.3	74.16	78.5	77.79
Female Literacy Rate (%)	65.03	60.93	66.69	65.46
Total Literacy Rate (%)	73.7	67.59	72.74	71.63
Main Workers	977	12,260	43,717	56,954
Marginal Workers	173	1,349	5,231	6,753
Total Workers	1,150	13,609	48,948	63,707
Non-Workers	1,101	12,320	48,155	61,576
Work Participation Rate (%)	51.08	52.48	50.4	50.85
Dependency Ratio (Non-Workers / Workers)	0.95	0.90	0.98	0.97

Balanced Gender Ratio: The sex ratio averages around 980 females per 1,000 males, showing relative gender parity but still below ideal.

Social Composition: SCs dominate the scheduled category (20.43%), while STs are minimal (0.69%).

Literacy Patterns: Male literacy is significantly higher than female literacy, reflecting gender disparity in education.

Occupational Structure: Nearly half of the population is engaged in main work (45.46%), while non-workers account for 49.14%, indicating high dependency.

Child Population: About 8.4% of the population is aged 0–6, suggesting the need for child care and educational facilities.

Detailed socio-economic, infrastructure, and accessibility data for the project area villages.

Parameter	Observations / Findings
Health Care Facilities & Accessibility	- 78% villages have access to government hospitals (PHC, SHC, village dispensaries). - Prevalent health issues: seasonal diseases (summer, rainy seasons), hereditary diseases (hypertension, diabetes, asthma), vector-borne diseases (malaria, chikungunya, dengue), and communicable diseases (typhoid, skin allergy). - PHC & area hospital data: low cancer cases; high incidence of acute diarrhoea, TB, acute respiratory illness, pneumonia, malaria, amebiasis, accidental injuries.
Educational Facilities & Accessibility	- All villages have Anganwadis, primary, middle, and senior secondary schools. - Villages are well-connected to urban areas in Suler & Coimbatore for higher education (graduate and post-graduate courses).
Water Facilities	- Main source: OHTs (12,000 L), tap supply, bore wells. - Adequate drinking water coverage.
Sanitation Facilities	- Majority of households have individual toilets. - Overall sanitation condition is fair.
Infrastructure Facilities	- 78% villages have sub-post offices; 52% have community centers. - 100% villages have power supply for domestic and agricultural use.
Transport Facilities	- Good road connectivity in core zone villages. - Most villages have bus services, metalled roads connecting to major towns and state highways. - Almost all villages have all-weather roads.
Occupational Profile	- Shift from agriculture to tertiary activities: textile manufacturing, transport, quarry loading, warehousing. - Women engaged in household industries, tailoring, and SHG-based microenterprises. - Youth moving to semi-skilled industrial jobs; seasonal urban migration observed.
Landholding Patterns	- Prevalence of small and marginal farmers.
Public Consultation & Stakeholder Feedback	- Concerns: dust pollution, traffic increase, groundwater stress. - Opportunities: local job creation, CSR-linked infrastructure benefits.
Implications for EMP	- Baseline socio-economic data essential for designing mitigation, compensation, and livelihood enhancement strategies under the Environmental Management Plan.

Visual version showing access levels and major occupational



The socio-economic and infrastructural assessment of the project area villages reveals a generally adequate level of basic facilities and services, alongside evolving occupational patterns. While health care accessibility is satisfactory in 78% of villages, there remains a prevalence of seasonal, hereditary, and vector-borne diseases, emphasizing the need for continuous public health interventions. Educational infrastructure is robust, with schools at all levels and access to higher education in nearby urban centers, supporting skill development among the youth.

Water and sanitation facilities are largely adequate, with most households having access to drinking water and individual toilets, indicating fair sanitation conditions.

Infrastructure and connectivity are well-established, with reliable power supply, road networks, and transport services, facilitating mobility and economic activities.

The occupational profile is undergoing a transition from traditional agriculture to tertiary and industrial activities, including textile manufacturing, transport, quarry operations, and microenterprises led by women, highlighting both employment opportunities and urban migration trends. The dominance of small and marginal landholdings further underscores the socio-economic vulnerability of the farming community.

Public consultation identified key concerns such as dust pollution, increased traffic, and groundwater stress, alongside opportunities for local employment and CSR-driven infrastructure improvements. These findings provide a critical baseline for designing effective mitigation, compensation, and livelihood enhancement strategies under the Environmental Management Plan, ensuring sustainable development and community well-being.

The socio-economic and infrastructural assessment of the project area villages indicates that most villages have adequate access to health care, education, water, sanitation, and power facilities, along with good road connectivity. Occupational patterns are shifting from traditional agriculture to industrial, tertiary, and microenterprise activities, with women actively engaged in household industries and SHG-based enterprises. Public consultations highlighted concerns such as dust pollution, traffic increase, and groundwater stress, while also recognizing opportunities for local employment and CSR-driven development. These baseline observations are crucial for formulating effective Environmental Management Plan strategies, ensuring sustainable development, improved livelihoods, and community well-being in the project area.

CHAPTER – 4: ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Open cast mining is carried out by using excavators and dumpers combination. Scientific mining with proper benches with width and slope will be enabled as per MMR, 1961. Jackhammers with compressors will be deployed for drilling. Manual labors will be engaged for jack hammer drilling, sorting of waste and excavator will be used for loading the rough stone into trucks. Primary Blasting will be carried out Nonel blasting techniques with minimum vibration or detonating cord with electric detonator initiation system. Sizing of materials shall be done by rock breakers or muffle blasting or pop shooting to the required size for better loading into trucks.

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

4.1 Air Environment

The air borne particulate matter is the main air pollutant by opencast mining. The mining operation will be carried out by jack hammer drilling, blasting, excavation, loading and transportation.

4.1.1. Anticipated Impact

The air borne particulate matter generated by handling, operations and transportation of rough stone are the main air pollutant. The emissions of Sulphur dioxide (SO₂), Oxides of Nitrogen (NO_x) contributed by diesel operated excavation/loading equipment and vehicles plying on haul roads are marginal. Prediction of impacts on air environment has been carried out taking into consideration of proposed volume of rough stone 1,51,899m³ for five years on air environment and net increase in emissions on air environment.

4.1.2 Emissions Details

Drilling, Blasting, Loading, unloading and transportation of rough stone and wind erosion of the exposed area and movement of light vehicles will be the main polluting source in the mining activities that releasing Particulate Matter (PM₁₀) affecting Ambient Air of the area. Emission during Blasting, Loading and unloading was calculated as the area sources. Transportation of the rough stone by 2 nos of trucks operated on the haul road was calculated as the line sources. It was assumed that truck will carry 20 T of rough stone. Details of

emission during loading/unloading and transportation on the haul road, wind erosion of the exposed area and road maintenance were discussed and combined impact was predicted in the worst-case scenario under worst meteorological condition given as follows:

4.1.2.1 Drilling

Drilling is the process of making holes in rough stone to carry out smooth blasting. The drilling is most representative for point source. The rate of emission from the drilling process will be very high when compared to loading, unloading, transporting and blasting. So wet drilling will be proposed for the rough stone quarry which completely suppresses the dust emitted during drilling process. Also, dust extractor will be used over the wet drilling for the effective emission control system.

4.1.2.2. Loading of Rough stone

Chakraborty et al. (2002) was used to calculate emission of particulate matter released into the atmosphere during loading of Mineral.

$$E = [(100 - m) (m)^{-1}]^{0.1} [(s) (100 - S)^{-1}]^{0.3} h^{0.2} [(u) (0.2 + 1.05)^{-1}] [(xl) (15.4 + 0.87xl)^{-1}]$$

Table 4.1: Source Parameters (Loading of Rough stone)

S. No	Description	Symbol	Quantity
1	Moisture content (%)	m	0.9%
2	Silt content (%)	s	0.1(approx)
3	Wind speed (m s ⁻¹)	u	3.1
4	Drop height (m)	h	1m above the tipper body
5	Size of loader (m ³)	l	1.20
6	Frequency of loading(no.h ⁻¹)	x	11 times
7	Quarry area (m ²)	a	14400
8	Uncontrolled emission rate (g s ⁻¹)	ue	0.61
9	Control efficiency (%)	c	90
10	Controlled emission rate (g s ⁻¹)	ce	0.093

Totally 2 tippers and 1 hydraulic excavator will be proposed for proposed rough stone quarry. The maximum rate of production per hour is estimated at 12.6 m³. The loading capacity of excavator is 1.20 m³.

x = frequency of loading (no. h⁻¹) = 12.6/1.20 = 11 times.

Emission of PM₁₀ during Roughs stone loading was calculated and found to be 0.093 g/s based on moisture content 0.9% and average wind speed was 3.1 m/s as observed with site data.

4.1.2.3 Haul Road

Chaulya (2006) was used to calculate emission of particulate matter released into the atmosphere during transportation of rough stone by truck operated per hour on haul road.

$$E = [\{ (100-m) (m)^{-1} \}^{0.35} \{ (us) (100-s)^{-1} \}^{0.7} \{ 0.5 + 0.1(f + 0.42v) \}] 10^{-3}$$

Table 4.2: Source Parameters (During Vehicle Movement on Haul Road)

S. No	Description	Symbol	Quantity
1	Moisture content (%)	m	70
2	Silt content (%)	s	12
3	Wind speed (ms ⁻¹)	u	3.1
4	Frequency of transporting (no. h ⁻¹)	f	22 times (maximum)
5	Average vehicle speed(ms ⁻¹)	v	4.1
6	Haul road area (m ²)	a	550
7	Uncontrolled emission rate (g s ⁻¹)	UE	0.006
8	Control efficiency (%)	c	90
9	Controlled emission rate (g s ⁻¹)	CE	0.0004

Emission of PM₁₀ due to transportation of Rough Stone on haul road was 0.0004 g/s based on assumption that silt content spread on road surface was 12% and average wind speed of 3.1 m/s as observed with site data. Based on the above consideration there was low emission of PM₁₀ during transportation of Rough Stone and Gravel.

4.1.2.5 Blasting

In another scenario when controlled blasting is carried out at the mine site and all the other activities are brought to halt. Significant amount of PM₁₀ is released during blasting at mining site for very short-term.

$$E = E_f \times Q$$

Table 4.3: Source Parameters (During Blasting)

S. No	Description	Symbol	Quantity
1	Uncontrolled Particulate matter emissions rate in pounds per year	UE	54
2	Emission factor in unit of pounds of particulate per ton shifted by blasting	E _f	TSP E _f = 0.0001 pounds/ton PM ₁₀ E _f = 0.0008 pounds/ton PM _{2.5} E _f = 0.0008 pounds/ton
3	Amount of material of all types shifted by blasting during the year in tons	Q	83,545

(Reference: Mojave Desert Air Quality Management District, 1403 Park Avenue, Victoria, CA 92392 -2310).

Loading and unloading of Rough Stone, overburden, movement of trucks on haul roads and open pit source were considered as combined action. So, the emission during

loading, unloading and transportation were taken combined and US EPA based Dispersion AERMOD model was used for prediction of impact with 1-h meteorological data of the study period for the assessment of incremental GLC. Then blasting was considered as separate action and US EPA based Dispersion AERMOD model was used for prediction of impact separately.

4.1.2.6 Summary of calculated Emission Rates

Table 4.4: Emissions Rates of PM₁₀

Source type	Controlled Emission Rate (g/s/m ²)
Rough stone loading	3.4×10^{-8}
Haul Road	3.6×10^{-6}
Blasting	2.3×10^{-6}

Table 4.5: Emissions Rates of SO₂

Source type	Average Emission rate for HDDV as per EPA	Emission rate (Proposed Project)
Tippers	0.012 g/mile	1.9×10^{-7} g/s/m ²
Excavators	0.012 g/mile	3.8×10^{-8} g/s/m ²

Table 4.6: Emissions Rates of NO₂

Source type	Average Emission rate for HDDV as per EPA	Emission rate (Proposed Project)
Tippers	0.725 g/mile	5.4×10^{-8} g/s/m ²
Excavators	0.725 g/mile	4.4×10^{-7} g/s/m ²

4.1.3 Frame work of Computation & Model details

By using the above-mentioned inputs, ground level concentrations due to the mining activities have been estimated to know the incremental rise in ambient air quality and impact in the study area. The effect of air pollutants upon receptors are influenced by concentration of pollutants and their dispersion in the atmosphere. Air quality modeling is an important tool for prediction, planning and evaluation of air pollution control activities besides identifying the requirements for emission control to meet the regulatory standards and to apply mitigation measures to reduce impact caused by mining activities.

4.1.3.1 Model Input data

The air pollution modeling carried out represents the normal operating scenarios. As the proposed activity is mining the major source of pollution is particulate matter and gaseous emission. The following data has required as input data for dispersion pattern.

- 1) Baseline data of PM_{2.5}, PM₁₀, SO_x and NO₂ is needed along with meteorological data. Meteorological data preprocessor (AERMET) needs meteorological data which calculates atmospheric turbulence characteristics, mixing heights, surface heat flux for finding the atmospheric dispersion. Site specific data recorded during summer season (December 2022 to February 2023) at project site for executing modeling studies.
- 2) The emission rates of PM_{2.5}, PM₁₀, SO_x and NO_x from the various sources was taken.
- 3) Location of the project.

4.1.3.2 Model Results

The Air Quality Impact Prediction has been done by using AERMOD of USEPA". The main sources of air pollution with regard to the proposed project for the purpose of estimation of increase in PM₁₀, SO_x and NO₂ are identified due to

1. Scenario 1 – PM₁₀

- (i) Loading/unloading of rough stone and overburden
- (ii) Transportation of Rough stone, overburden by trucks on the Haul roads from mining benches.

2. Scenario 2 - PM₁₀

- (i) Due to blasting

3. Scenario 3 – SO_x and NO₂

- i. From Operation of Excavator and movement of transporting vehicle

Scenario1:

Table 4.8: Total predicted GLC of PM₁₀ in core and buffer zone due to combined action of loading, unloading and Transportation of Rough stone by trucks on the haul road, of the mining lease area.

Location	Location Code	Background value in $\mu\text{g}/\text{m}^3$	Incremental GLC in $\mu\text{g}/\text{m}^3$	Total Predicted GLC in $\mu\text{g}/\text{m}^3$
Mine site	AQ1 - Centre	48	29.11	77.11
Receptor 01	AQ2 - 860m - E	48	1.03	49.03
Receptor 02	AQ3- 940m – NW	48	0.64	48.64
National Ambient Air Quality Standards (NAAQS)				100

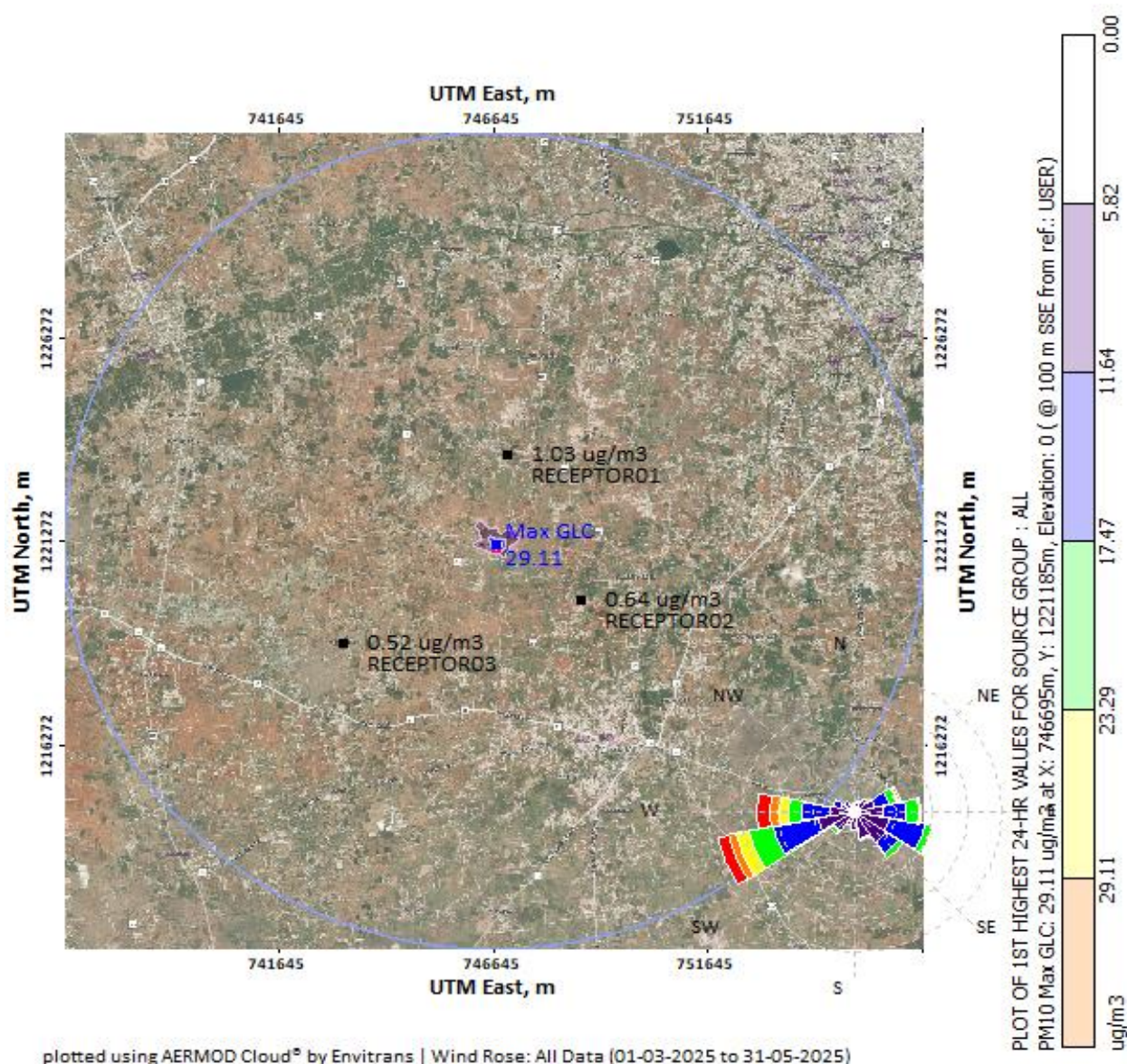


Fig 4.1: Isopleths of PM₁₀ is 29.11 $\mu\text{g}/\text{m}^3$ (Core) occurred at the project site during i) loading and unloading and ii) transportation of rough stone over the haul road

Table 4.10: Impact of SO_x due to Operation of Excavator and Movement of Vehicle in the mining lease area

Location	Location Code	Background value in $\mu\text{g}/\text{m}^3$	Incremental GLC in $\mu\text{g}/\text{m}^3$	Total Predicted GLC in $\mu\text{g}/\text{m}^3$
Mine site	AQ1 - Centre	14	BDL	14
National Ambient Air Quality Standards (NAAQS)				80

Table 4.11: Impact of NO_x due to Operation of Excavator and Movement of Vehicle in the mining lease area

Location	Location Code	Background value in $\mu\text{g}/\text{m}^3$	Incremental GLC in $\mu\text{g}/\text{m}^3$	Total Predicted GLC in $\mu\text{g}/\text{m}^3$
Mine site	AQ1 - Centre	22	BDL	20
National Ambient Air Quality Standards (NAAQS)				80

Total predicted 24-h maximum GLC of PM₁₀ at project site for scenario 1 i.e. loading-unloading, transportation and scenario 2 i.e. Blasting was 84.71 $\mu\text{g}/\text{m}^3$ and 77.11 $\mu\text{g}/\text{m}^3$ respectively after superposition of base-line value 48 $\mu\text{g}/\text{m}^3$ over the incremental GLC 29.11 $\mu\text{g}/\text{m}^3$, 1.03 $\mu\text{g}/\text{m}^3$ scenario 1 and 36.71 $\mu\text{g}/\text{m}^3$ for scenario 2 respectively due to combined impact of loading, unloading, open pit and transportation over the haul road and due to blasting.

The predicted incremental GLC of SO_x and NO_x for under below the desirable limit. Maximum Impact of PM₁₀ was observed close to the source within the lease area due to moderate wind speeds.

4.1.4 Combined Impact on Air Environment due to proposed quarry and adjacent quarry within 500m radius.

There is one existing quarry namely N.Chithradevi. There are four proposed quarries namely Mr.K.Ranganathan, Mr.N. Kathires, Ultra Redaymin Concrete (P) Ltd., and Mr. Saravanan located within the 500m radius of Proposed Thiru. Mr.K.Ranganathan, Rough stone and gravel quarry. The predicted incremental GLC of PM₁₀, PM_{2.5}, SO_x and NO_x due to the proposed mining activity is given in below table.

Table 4.12: Incremental GLC of PM₁₀, PM_{2.5}, SO_x and NO_x due to the proposed mining activity

S. No	Air Pollutants	Incremental GLC due to proposed quarry (Controlled) µg/m ³
1.	PM ₁₀	29.11
2	SO _x	0
3.	NO _x	0

Assume that emission rate from the various mining activity in adjacent 5 quarries are same as the proposed quarry. So, the incremental GLC will also be same as proposed quarry. Therefore, the when the proposed quarry and four adjacent quarries are working together, the incremental GLC and total predicted GLC are given below table.

Table No.4.13 Total predicted GLC of PM₁₀, PM_{2.5}, SO_x and NO_x due to the combined activity in the cluster

S. No	Air Pollutants	Baseline Value	Incremental GLC due to proposed quarry and five quarries µg/m ³	Total Predicted GLC due to proposed quarry and three adjacent quarry µg/m ³
1.	PM ₁₀	48	84.71	132.71
2.	SO _x	14	0	0
3.	NO _x	20	0	0

From the above table it is found that, when the four quarries are working together the Total predicted GLC of PM₁₀ is slightly beyond the limits which shall be controlled by installation of a greater number of sprinklers and a greater number of greenbelt development in the lease area.

4.1.5. Air Quality Index

An air quality index is defined as an overall scheme that transforms the weighed values of individual air pollution related parameters (for example, pollutant concentrations) into a single number or set of numbers (Ott, 1978). Air quality standards are the basic foundation that provides a legal framework for air pollution control. The basis of development of standards is to provide a rational for protecting public health from adverse effects of air pollutants, to eliminate or reduce exposure to hazardous air pollutants, and to guide national/ local authorities for pollution control decisions.

The objective of an AQI is to quickly disseminate air quality information (almost in real-time) that entails the system to account for pollutants which have short-term impacts. To present status of the air quality and its effects on human health, the following description categories have been adopted for IND-AQI.

AQI breakpoints for eight pollutant parameters considered for AQI and these are summarized below in Table with color scheme to represent the AQI bands.

Table 4.14: AQI and its associated Health Impacts

AQI	Associated Health Impacts
Good	Minimal Impact
Satisfactory	May cause minor breathing discomfort to sensitive people
Moderate	May cause breathing discomfort to the people with lung disease such as asthma and discomfort to people with heart disease, children and older adults
Poor	May cause breathing discomfort to the people on prolonged exposure and discomfort to people with heart disease with short exposure
Very Poor	May cause respiratory illness to the people on prolonged exposure. Effect may be more pronounced in people with lung and heart diseases
Severe	May cause respiratory effects even on healthy people and serious health impacts on people with lung/heart diseases. The health impacts may be experienced even during light physical activity

Table 4.15: Proposed Breakpoints for AQI Scale 0-500
 (Units: $\mu\text{g}/\text{m}^3$ unless mentioned otherwise)

AQI Category (Range)	PM ₁₀ 24-hr	PM _{2.5} 24-hr	NO ₂ 24-hr	O ₃ 8-hr	CO 8-hr (mg/m ³)	SO ₂ 24-hr	NH ₃ 24-hr	Pb 24-hr
Good (0-50)	0-50	0-30	0-40	0-50	0-1.0	0-40	0-200	0-0.5
Satisfactory (51-100)	51-100	31-60	41-80	51-100	1.1-2.0	41-80	201-400	0.5-1.0
Moderately polluted (101-200)	101-250	61-90	81-180	101-168	2.1-10	81-380	401-800	1.1-2.0
Poor (201-300)	251-350	91-120	181-280	169-208	10-17	381-800	801-1200	2.1-3.0
Very poor (301-400)	351-430	121-250	281-400	209-748*	17-34	801-1600	1200-1800	3.1-3.5
Severe (401-500)	430+	250+	400+	748+*	34+	1600+	1800+	3.5+

*One hourly monitoring (for mathematical calculation only)

4.1.5.1. Interpretation of Air quality using IND-AQI:

Table 4.16: Computation of AQI with Baseline data

Air pollutants	Total Predicted GLC due to proposed quarry $\mu\text{g}/\text{m}^3$	AQI	Associated Health Impacts
PM ₁₀	133.33	Moderately Polluted (101-200)	May cause minor breathing discomfort to sensitive people
SO _x	-	Good (0-50)	Minimal Impact
NO _x	-	Good (0-50)	Minimal Impact

The above table shows the AQI quality due to total predicted GLC of quarry in core area. PM₁₀ is between 101-200 of AQI which is satisfactory and may cause minor breathing discomfort to sensitive people. It is found that the value of PM₁₀ high which will be controlled by installing a greater number of sprinklers to combat the increase and to maintain the parameters within the limits of NAAQS.

4.1.6. Mitigation Measures

The pollutants from nearby ongoing mining activities, residential and commercial activities are the primary sources of air pollution. However, in the study area adequate control measures will be implemented in future at the time of mining operation. Mitigate measures suggested for air pollution controls are based on the baseline ambient air quality of the area. From the point of view of maintenance of an acceptable ambient air quality in the region, it is desirable that air quality is monitored on a regular basis to check compliance of standards as prescribed by regulatory authorities. However, to further minimize the pollutant concentration especially PM₁₀, the following control measure should be adopted by the project proponent.

- ❖ Regular water sprinkling on haul roads, blasted heaps, service roads and overburden dumps at regular intervals will help in reducing considerable dust pollution
- ❖ 0.5 KLD will be used for dust suppression.
- ❖ Use of Sharp drill bits for drilling holes and charging the holes by using optimum charge and using time delay detonator.
- ❖ Conventional low explosives are being used.
- ❖ The scale of blasting is however very less considering the rate of production.
- ❖ Covering of material when transport through trucks/dumper
- ❖ The drilling and blasting are being carried out as per the proposals laid down in the approved plan.
- ❖ Proposed to follow up muffle blasting so as to prevent fly rock fragments

- ❖ Avoiding blasting during high windy periods and temperature inversion periods
- ❖ Delay blasting under unfavorable wind and atmospheric conditions
- ❖ Use of appropriate explosives for blasting and avoiding overcharging of blast holes
- ❖ The vehicles and machinery will be kept in well maintained condition so that emissions will minimize
- ❖ Provision of green belt all along the periphery of the lease area for control of dust
- ❖ Information on wind direction and meteorology will be considered while planning, so that pollutants, which cannot be fully suppressed by engineering technique, will be prevented from reaching the residential areas
- ❖ Cabins for shovel and dumpers and dust masks to workmen will be provided
- ❖ The dust respirators should be provided to all workers working in dusty environment
- ❖ Regular health check-up of workers and nearby villagers in the impacted area should be carried out and also regular occupational health assessment of employees should be carried out as per the Factories Act
- ❖ Ambient Air Quality Monitoring will be conducted on regular basis to assess the quality of ambient air.

As discussed above under each activity, there will be increase in terms of dust load and gaseous emissions. However, it can be stated that these incremental contributions will remain within the prescribed limits/norms. Further, the mitigation measures will further bring down these concentrations making the mining activities more eco-friendly.

4.2 Carbon emission and carbon sinks due to proposed mining activity

4.2.1 Carbon emissions

There are both natural and human sources of carbon dioxide emissions. Natural sources include decomposition, ocean release and respiration. Human sources come from industrial activities such as cement production, deforestation as well as the burning of fossil fuels like coal, oil and natural gas.

4.2.1.1 Carbon emission due to natural activity in project site and carbon sinks

a) Carbon from decomposition

As the proposed mining activity is carried out in existing mining pit, there will be no need of cutting of any trees or plants. So, the process of decomposition will not take place which emits carbon dioxide into the atmosphere.

b) Carbon from ocean release

The project site is located 186km away from the Arabian Sea. Hence the carbon release by ocean to the project site is not possible

c) Carbon from respiration

The carbon dioxide we exhale does not contribute to global warming for the simple reason. Since all the carbon dioxide we exhale captured by plants during photosynthesis, we are not disturbing the carbon dioxide content of the atmosphere by breathing.

4.2.1.2 Carbon emission due to human activity in project site and carbon sinks

a) Carbon from Vehicles

The proposed method of mining is semi mechanized which involves activity of excavator and tippers. The burning of fossil fuels used for the tippers and excavators' releases carbon monoxide, carbon dioxide and nitrogen oxide into the atmosphere. When those gases are emitted into the atmosphere it affects the amount of greenhouse gases, which are linked to climate change and global warming. In average based on the production per day, two tippers can travel 25 miles within the lease area for transporting the rough stone. Plants not only absorb carbon dioxide but also absorb other gases and remove the impurities from it.

Table 4.17: Emission of carbon monoxide from vehicle

Source type	Average Emission rate of CO for HDDV as per EPA	Emission rate of CO
Tippers	2.311 g/mile	0.05084 kg/day
Excavators	2.311 g/mile	0.574 kg day
Total Emission Rate		0.6248 kg/day

Average emission rate – 2.311 g/mile or 1.436 g/km or 1.436 g/200ml of diesel

For one liter of diesel consumption by HDDV, ER – 7.18g

Tippers

Travel distance – 4 mile/day

Emission rate by tipper per day – 6 x 2.311 – 50.84g/day or 0.05084kg/day

Excavators

Diesel requirement per day – 80 liters

Emission rate by excavators per day – 80 x 7.18 – 574g/day or 0.574kg/day

Remediation

The project proponent proposed to plant 100 numbers of one-year taller tree sapling along the safety zone of mining lease area to overcome the emission of carbon gases and other gases by vehicles in the quarry. Moreover, they will plant trees along the village road and government schools under CER and CSR schemes. BS–VI model of tippers are proposed to use in the quarry for the controlled emission of gases.

4.3 Soil Carbon stock

Soil carbon sequestration is a process in which CO₂ is removed from the atmosphere and stored in the soil carbon pool. This process is primarily mediated by plants through photosynthesis, with carbon stored in the form of SOC. Carbon is the main component of soil organic matter and helps give soil its water-retention capacity, its structure, and its fertility. The dense carbon stocks below and above the soil are mostly seen in dense forest where more process of photosynthesis takes place and tons of leaves, branches get decomposed. The agricultural activity in field can degrade and deplete the SOC levels during the process of tillage in paddy, sugarcane turmeric crop field.

There is no reserve forest located within 10km radius. Hence the proposed project does not have any impact on soil carbon stock.

4.4 Noise Environment

Noise survey has been conducted in the study area to assess the background noise levels in different zones. In order to assess the baseline noise levels, impact of noise assessment around the mine site due to mining machineries on its workers and on the nearby settlements and movements of vehicles during transportation have been carried out exclusively and objectively in the core and buffer zone covering 10km radius in 5 locations. Following sources of noise in the proposed open cast rough stone quarry project are being observed:

- Drilling;
- Blasting;
- Vehicular Movement.

The drilling operation is being carried out by Jack hammer operated by compressor mounted with tractor. The noise levels in the working environment are being and will be maintained within the standards prescribed by Occupational Safety and Health Administration (OSHA). These standards were established with the emphasis on reducing the hearing loss. The permissible limits, as laid down by CPCB, are presented in below table 4.18.

Noise generated from blasting is always instantaneous. The noise produced by blasting is for extremely short duration of around 0.5 seconds, though with a high intensity. Blasting time is generally fixed at lunch interval or after the working shift taking. Noise of blast is site specific and depends on type, quantity of explosives, dimensions of drill holes, degree of compaction of explosive in the hole and rock. Blasting, in addition to easing the hard strata, generates ground vibrations and instantaneous noise. The noise levels in many

situations will be above Threshold Limit Value. Exposure to noise levels, above Threshold Limit Value may have detrimental effect on the workers' health. The adverse effects of high noise levels on exposed workers may result in Annoyance, Fatigue, Temporary shift of threshold limit of hearing, Permanent loss of hearing and Hypertension and high blood cholesterol, etc.

Noise pollution poses a major health risk to the mine workers. When noise in the form of waves impinges the eardrum, it begins to vibrate, stimulating other delicate tissues and organs in the ear. If the magnitude of noise exceeds the tolerance limits, it is manifested in the form of discomfort leading to annoyance and in extreme cases to loss of hearing. Detrimental effects of noise pollution are not only related to sound pressure level and frequency, but also on the total duration of exposure and the age of the person.

Table 4.18: Permissible Exposures in Cases of Continuous Noise (CPCB)

Sound Level (dB A)	Continuous Duration (Hours)
85	8
88	4
91	2
94	1
97	0.5
100	0.25

Table 4.19: Noise Exposure Levels & Its Effects

Noise Levels dB(A)	Exposure Time	Effects
85	Continuous	Safe
85-90	Continuous	Annoyance and Irritation
90-100	Short term	Temporary shift in hearing threshold, generally with complete recovery
Above 100	Continuous	Permanent loss of hearing
100-110	Several years	Permanent deafness
110-120	Few months	Permanent deafness
120	Short term	Extreme discomfort
140	Short term	Discomfort with actual pain
150 and above	Single exposure	Mechanical damage to the ear

Source: Hand Book of EIA, Rao & Wooten

4.4.1 Anticipated Impacts due to Noise in Core Zone

During the operation phase of mining, movement of HEMM also add some noise level whose impact is being minimized by continuous maintenance of vehicle. The likely generations of noise levels due to operation of HEMM are given in Table 4.20.

Table 4.20: Expected Noise Levels

Equipment's	Expected Noise Levels dB(A)
Mining	
Drilling	90-100
Shovel	75-80
Tipper	75-80
Dozers	85-90
Crusher	85-95

The mine site where heavy earth moving machinery will operate, noise level will be within the stipulated 90 dB (A) norm of DGMS. The protection measures for the operators of this equipment will reduce the impact/exposure.

Predicted noise levels due to mining operations using Mathematical Equations

$L_2 = L_1 - 20 \log_{10} (R_2/R_1)$ Where L_1 dB (A) = Noise level at a distance R_1 (m)

L_2 dB (A) = Noise level at a distance R_2 (m) &

$L = 10 \log_{10} (10^{L_1/10} + 10^{L_2/10} + \dots + 10^{L_n/10})$

Where L_1 , L_2 and L_n are noise level dB (A)

Table 4.21: Predicted Noise levels in Core zone and buffer zone

Location Code	Distance, km	Source Noise Level, dB(A)	L(Day) dB(A)	L(Night) dB(A)	Noise level at Receptor from Mining sources, dB(A)	Resultant noise level, dB(A) day time	Resultant noise level, dB(A) Night time
Core Zone	--	100	41.4	37.4	100	100	37.4
Pillar -1	0.1	100	39.4	33.2	70	70	33.2
Pillar -2	0.1	100	39.8	33.5	70	70	33.5
Pillar -3	0.1	100	40.1	34.7	70	70	34.7
Pillar - 4	0.1	100	38.6	33.8	70	70	33.8
Edayarpalayam -N	1.06	100	39.3	33.6	48.5	48.5	33.6
Thimmanaikenpalayam -E	3.27	100	40.1	36.8	49.7	49.7	36.8
Bogampatti -SE	1.80	100	38.2	33.6	47.3	47.3	33.6
Pachapalayam -SW	4.26	100	40.1	34.6	48.2	48.2	34.6

Green colour- Baseline Value, **Red Colour** – Noise level due to mining,

Blue colour- Baseline + Noise level due to mining

Although the noise level due to the operation of various mining machineries is 100 dB(A), the noise level at different receptors is lower due to the distance involved and other topographical features adding to the noise attenuation. The calculated values at the receptors and resultant noise level are based on the mathematical formula as mentioned above. From the above table, it can be seen that the ambient noise levels at all the locations will remain within permissible limits even when the project will be in operation phase after getting EC.

Within a 500-meter radius of the proposed lease area, there are one quarry that are currently operational and three quarry that are proposed. When all four quarries are operating together, the noise level slightly exceeds the permissible limits. Thus, add a greater number of greenbelt developments to the lease area as mitigation measures to lower the noise level.

4.4.2 Mitigation measures for Control of Noise

The following noise mitigation measures are proposed for control of Noise.

- ❖ Use of personal protective devices i.e., earmuffs and earplugs by workers, who are working in high noise generating areas.
- ❖ Limiting time exposure of workers to excessive noise.
- ❖ Proper and regular maintenance of vehicles, machinery and other equipments.
- ❖ The noise generated by the machinery will be reduced by proper lubrication of the machinery and other equipments.
- ❖ Speed of trucks entering or leaving the mine will be limited to moderate speed to prevent undue noise from empty vehicles.
- ❖ Carrying out blasting only during day time and not on cloudy days.
- ❖ Noise levels will be controlled by using optimum explosive charge, proper delay detonators and proper stemming to prevent blow out of holes.
- ❖ Providing proper noise proof enclosure for the workers separated from the noise source and noise prone equipment
- ❖ Provision of Quiet areas, where employees can get relief from workplace noise.
- ❖ The development of green belts around the periphery of the mine to attenuate noise.
- ❖ Regular medical check-up and proper training to personnel to create awareness about adverse noise level effects.

4.5 Ground Vibrations

Ground vibration due to mining activities in the area are anticipated due to operation of mining machines like excavators, wheel loaders, drilling and blasting, transportation vehicles, etc. However, the major source of ground vibration from this mine is blasting. Another impact due to blasting activities is fly rocks. These may fall on the houses or agriculture fields nearby the mining lease area and may cause injury to persons or damage to the structures. Nearest habitation from the mine lease area is located in northeast side and nearest village is located on southwest side. The study area does not involve any mining activity so anticipated impact has been assessed using the empirical equation. The empirical equation used for assessment of peak particle velocity (PPV) is:

$$V = 417.8 \{D / (Q^{0.5})\}^{-1.265}$$

Where,

V= Peak particle velocity in mm/s

D= Distance between location of blast and gauge point in m

Q=Quantity of explosive per blasting in kg.

The standards for safe limit of PPV are established by Directorate General of Mines Safety for safe level criteria through Circular No. 7 dated 29/8/1997. Permissible standards of Ground vibration due to blasting as per guidelines of Director General of Mines Safety (DGMS), Dhanbad are given in table 4.24.

Table 4.23: Estimated Peak Particle velocities for different Explosive Charges

Nearest Habitation	Quantity of Explosive/Blast, Kg	PPV, mm/s
95m -N	38	13.13
80m - NE		16.32
130m -W		8.83

Note: The empirical formula does not take into account the delay factor in blasting due to use of Delay Detonators.

Quantity of broken rock per hole	=	0.45 x 2.6 = 1.17m ³
Blasting efficiency @ 90%	=	1.17 x 90% = 1.05 m ³ / hole
Charge per hole	=	140gm of 25 mm dia. Cartridge
Quantity of rock broken per day (ROM)	=	101m ³ or 263MT
Requirement of explosives per day	=	38kg @ 7 MT per kg of exp.
No. of holes to be drilled per day	=	250 holes

Table 4.22: Permissible Peak Particle Velocities (mm/s)

S. No	Type of Structure	Dominant excitation Frequency		
		< 8 Hz	8 – 25 Hz	> 25 Hz
A)	Buildings/structures not belonging to the owner			
1	Domestic houses/structures (Kuchcha brick and cement)	5	10	15
2	Industrial Buildings (RCC and framed structures)	10	20	25
3	Objects of historical importance and sensitive structure	2	5	10
B)	Buildings belonging to the owner with limited life span			
1	Domestic houses/structures (Kuchcha brick and cement)	10	15	25
2	Industrial buildings (RCC & framed structures)	15	25	50

Source: DGMS Circular No. 7 dated 29/08/1997

From the above results (Table 4.22), it can be seen that the charge per blast of 38 kg is well exceeding the Peak Particle Velocity of 5mm/s. But the proponent proposes to use only 38 kg of explosives per day. In this project site only industrial Shead 80m, 95m and 130m distance north, north east and west direction. According to the DGMS circular, blasting the ground vibration has no effect within the Peak Particle Velocity of 5mm/s and 20mm/s. However, as per statutory requirement additional control measures needs to be adopted to avoid the impacts due to ground vibrations and fly rocks due to blasting. Thus, ground vibrations due to blasting activities will not cause any impact to the nearest habitations.

4.5.1 Mitigation measures for Control of Vibration

Blasting is the major source of vibration and fly rocks. The following mitigation measures are proposed for control of vibration and fly rocks.

- ❖ Specific charge pattern has to be designed by proper trial vibration studies with varying charge ratios.
- ❖ Milli second detonators shall be used preferably 25–50ms per delay to control vibrations.
- ❖ Inclined holes shall minimize back brake and intensive shocks.
- ❖ In case of development work if any, cushion blasting and Deck loading system shall be adopted to minimize throw of fragments and ground vibration.
- ❖ Air blast due to usage of Detonating Cord with 10gm/m shall be reduced to 5gms/m to minimize air reverberation.

- ❖ If the vibration still exceeds the limit a long Trench to a depth of 6m may cut in the direction of wave's movement to break longitudinal waves which travel close to surface, preferably near mine buffer zone.
- ❖ No deep hole blasting shall be practiced.
- ❖ Heavy machineries with high ground pressure shall not be used in the mines.
- ❖ Proper warning signals should be used.
- ❖ In spite of all measures periodical testing of vibration and noise using approved seismograph by DGMS has to be followed as a part of Environmental monitoring.

Though all mitigation measures are pointed out, as such no adverse effects on human life, wild life and other biotic system.

4.6 Water Environment

Mining operations can affect groundwater quality in several ways. The most obvious occurs in mining below the water table, either in underground workings or open pits. This provides a direct conduit to aquifers. Groundwater quality is also affected when waters (natural or process waters or wastewater) infiltrate through surface materials (including overlying waste or other material) into ground water.

Whereas Impacts on surface water include the build-up of sediments or other toxic products, short and long-term reductions in pH levels (particularly for lakes and reservoirs), destruction or degradation of aquatic habitat, and contamination of drinking water supplies and other human health issues. The water balance for the project is presented in fig 4.5.

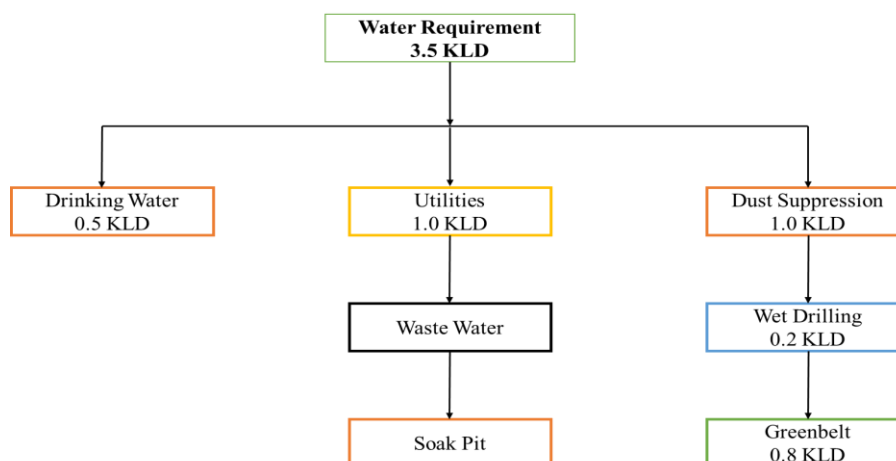


Fig. No. 4.4: Water Balance Chart

Drinking & Utilities	= 1.5 KLD
Water required for Dust Suppression, Green Belt	= 1.8 KLD
Wet drilling	= 0.2 KLD
Total Water Requirement	= 3.5 KLD

4.6.1. Anticipated Impact on Surface Water body due to proposed project

There are no major river or water bodies, odai track, nallah and ponds found within 500m radius. From the proposed mining project, rejects will be generated which is planned to dump within the mining lease area. Even though the streams order not connecting with the nearest dam, there will be chance of siltation of river bed during raining season due to mining activity. To over such siltation in the river the following mitigation measure will be followed.

4.6.1.1 Mitigation Measures:

- i. The garland drainage will be provided around the dump (Top soil and rejects) to prevent the escape of runoff from the dump.
- ii. The repair works of the machineries are strictly prohibited within the lease area to prevent the spillage of grease, oil etc.

4.6.2 Anticipated Impact on Ground water due to proposed project

The water table in this region is about 45 m bgl. The proposed depth of mining is 32m bgl for five years. Thus, the mining activity will not intersect ground water table. No chemical having toxic elements will be used for carrying out mining activity. Also, Rough stone does not contain any kind of toxic element which can contaminate the water. So, the rain water or water used for drilling purposes which infiltrates into the ground in the lease area does not affect the quality of ground water. The schematic representation of depth of mining and water table is given in fig 4.5. The lease area is deposited with rough stone and safety distance of 7.5m is planned to left on north, east and west side of the lease area and safety distance of 10m is planned to left on the southern side. The minerals locked under the safety zone will act as barrier to prevent the seepage of aquifer into the quarry pit if any.

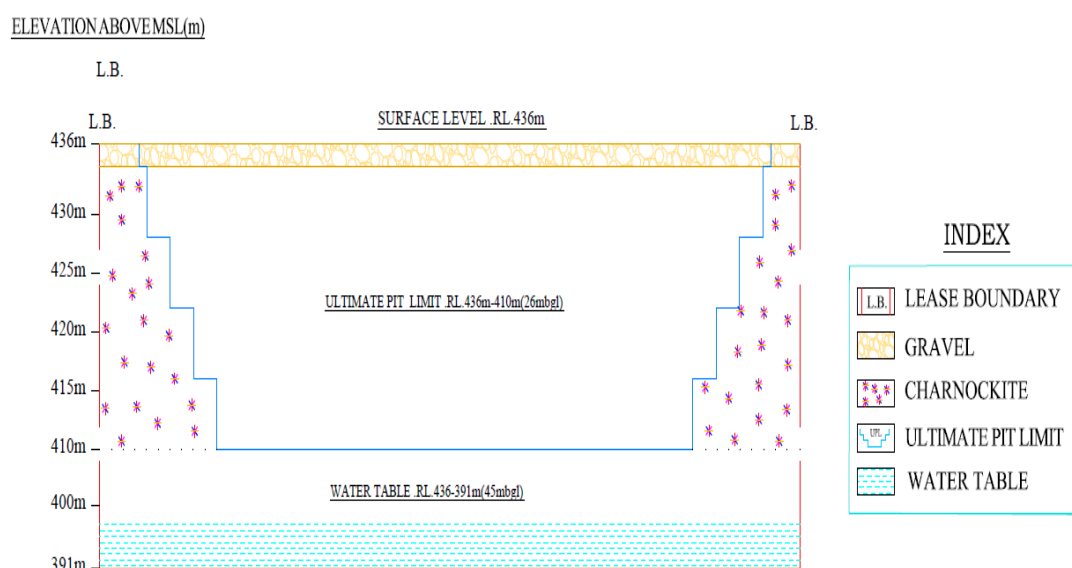


Fig. No. 4.5: Schematic representation of depth of mining and water level

4.6.3 Management of rain water in the pit during Monsoon Season

During monsoon season, the rain water gets stored in the quarried-out pit. For the working purpose, rain water will be pumped and allowed to store in the surface setting tank constructed outside the lease area to remove suspended solids if any. After the sedimentation process, the water from the settling tank will be used for dust suppression, and green belt development within the lease area.

4.6.4 Water Quality Index

Water Quality Index value has been calculated for the observed values and compared with drinking water specification as per IS 10500:2012 and results were discussed. The WQI has been calculated by using the standards of drinking water quality recommended by the World Health Organization (WHO), Bureau of Indian Standards (BIS) and Indian Council for Medical Research (ICMR). The weighted arithmetic index method (Brown et. al.,) has been used for the calculation of WQI of the water body.

$$\text{Water Quality Index} = \Sigma q_n W_n / \Sigma W_n$$

Further quality rating or sub-index (q_n) was calculated using the following expression.

$$q_n = 100 * [V_n - V_{io}] / [S_n - V_{io}] \text{ Where,}$$

q_n = Quality rating for the n th water quality parameter.

V_n = Estimated value of the n th parameter at a given sampling station.

S_n = Standard permissible value of the n th parameter.

V_{io} = Ideal value of n th parameter in a pure water.

Ideal value in most cases $V_{io} = 0$ except in certain parameters like PH and dissolved oxygen. V_{io} for PH = 7 and V_{io} for DO = 14.6

W_n = Unit weight for the n th parameter.

The overall Water Quality Index (W.Q.I.) was calculated by aggregating the quality rating with the unit weight linearly.

Table 4.23. Unit weight of the water quality parameters

Parameters	Water quality standard (WHO/BIS)	Assigned weight (AW)	Unit weight (UW)
pH	6.5-8.5 (8)	3.66	0.1628
EC ($\mu\text{S}/\text{cm}$)	250	2.50	0.1112
TDS (mg/l)	500	3.33	0.1481
TH (mg/l)	200	3.33	0.1481
Ca ²⁺ (mg/l)	75	3.0	0.1334

Mg²⁺ (mg/l)	30	2.66	0.1183
Cl⁻ (mg/l)	250	4.0	0.1779
Total	-	22.48	1.0

Table 4.24: Water quality index of water samples

Sampling Site Name	Water Quality Index Value	Water Quality Index Status
Core Zone	23.0 mg/l	Excellent
Edayarpalayam	46.13 mg/l	Good
Thimmanaickenpalayam	62.28 mg/l	Poor
Bogampatti	16.58 mg/l	Good
Pachapalayam	46.30 mg/l	

Note: Water Quality is calculated only for Physical and Chemical Parameters

Table 4.25: Water quality scale

Water quality	WQI Yadav et al 2016	WQI Ramakrishnaiah 2004	WQI Mohanty 2001
Excellent	0–25	<50	<50
Good	26–50	50–100	50–100
Poor	51–75	100–200	100–200
Very Poor	76–100	100–200	200–300
Unsuitable	Above 100	<300	<300

The WQI of the samples collected from the study area are given in tables 4.24 and 4.25. It can be seen that the study area has water quality index value ranging from 16.58 to 62.28 mg/l which reflects the excellent to poor for drinking status of the groundwater quality. The findings demonstrate the varying consistency of groundwater at different locations. All the groundwater samples under excellent to drinking category; it may be due to the absorption of fertilisers, geological condition, channel water, solid waste, sewer drainage, septic tanks, and agricultural waste. The water should be treated by reverse osmosis to reduce dissolved solids and total hardness to the required rate.

4.6.5 Impact on Hydrogeology

Generally, the ground water occurs Unconsolidated & Semi-consolidated formations and weathered and fractured Archaean crystalline rocks and interconnected shallow fractures

and under semi confined to confined condition the major aquifer systems in this district. The occurrence and movement of ground water are controlled by various factors such as physiography, Rainfall, climate, geology and structural features.

Geophysical Investigation by VES (Vertical electrical sounding) method:

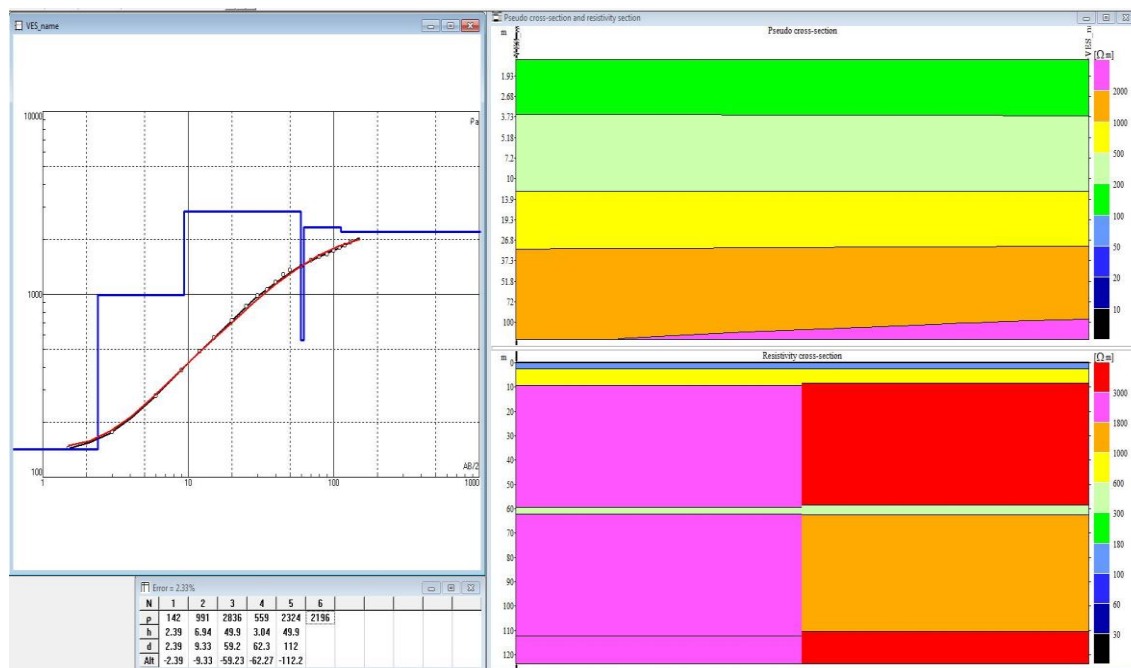
Geophysical methods are the irreplaceable tools to explore subsurface with an economical expense of energy, money and man power. A variety of methods are available to assist in the assessment of ground water table, aquifer geometry and sub-surface geological conditions. The main emphasis of the fieldwork undertaken was to determine the thickness and composition of the sub-surface formations and to identify water-bearing zones. This information was principally obtained in the field using vertical electrical soundings (VES), this method is described below.

If a material having a resistant of R , cross-sectional area of A , and length of L , then resistivity is given,

$$R = \frac{V}{I}$$

In resistivity method three quantities are to be measured at each observation point. One is mutual separation between the electrodes that is “geometric configuration”. The other two are the current (I) passed into the ground through the current electrodes and potential difference (V) developed between the potential electrodes. Thus, two pairs of electrodes are used, one pair for sending the current and the other for recording the voltage.

In the present study, to know the subsurface Lithology and layer thickness of groundwater potential zone were carried out vertical electrical soundings (VES). The resistivity signal dimensions were collected by using DDR-3 model resistivity meter. AB/2 electrode spacing of 100m is used by Schlumberger configuration. The data were analyzed by curve matching



techniques. From the apparent resistivity data, the interpreted resistivity curve obtained using the software it is observed that 3-layer curves shown in the fig.4.6. Interpreted Resistivity and layer thickness of various layers shown in table 4.26.

Fig.4.6: Interpreted resistivity curve matching technique

Table 4.26: Resistivity Survey

0-1.14m: Top soil & Gravel with 200 Ohm. Resistivity
1.14-4.1 Weathered rock formation with 410 ohm. Resistivity
4.1-48.7m: Massive Charnockite formation with 2787 ohm. Resistivity
48.7-50.7m –Jointed and fractured rock with about 736 ohm. Resistivity
Above 50.7m: hard massive formation with 6031 Ohm. Resistivity

From the results of Resistivity Survey, it is understood that the study area is composed of rough stone deposit, with little geological disturbances by folding. There is no any seepage in this lease area.

4.6.6 Rainwater Harvesting Potential in Core Zone at the end of project

- | | |
|---|---------------------------|
| 1) Total Pit Area | = 14400m ² |
| 2) Annual rainfall of the area | = 0.725m |
| 3) Total rainwater available to store in pit area | = 10728 m ³ |
| 4) Total volume of Quarried Pit | = 4,60,800 m ³ |

4.7 Soil Environment

4.7.1 Impact on Soil Environment

The limited quantity of top soil generated will be dumped along 7.5m inner boundary of the lease area. The top soil will be used to develop greenbelt within the lease area. Part of top soil will be spread over the non-active dumps along the slope and edges to plant tree saplings to form vegetal cover over the dumps. No chemical or toxic elements will be used during mining activity. So, the health of soil in and around the quarry will not be affected.

4.7.2 Mitigation measures for Soil Conservation

- ❖ Garland drains will be provided around the dumps to arrest any soil carried away by the rain water. This will protect the adjacent agricultural land and surface water body from the deposition of soil.
- ❖ Toe drains with low height retaining wall will be provided all along the toe of dumps to arrest any soil from the dump slopes being carried away by the rain water
- ❖ Top soil should not be mixed with other waste or reject materials. It should be conserved by judicious utilization in the mine premises.

4.8 Waste Dump Management

4.8.1 Anticipated Impact

The proposed rate of production of rough stone for five years is about 151899m³ at the rate of 95% recovery up to permissible depth. The 5% rejection 7995m³ dump with in the lease boundary.

4.8.2 Mitigation measures

The mineral rejects and waste shall be dumped systematically with proper repose angle and stabilization as given below,

- ❖ The rejects\ waste dump shall be properly terraced in to 1.5m benches with proper repose angle and then the top soil shall be spread over the dumps and slope to make them humus for some time, after the soil suitable for water retention trees will be planted at the top, slope and toe of the stabilized dumps to form vegetation.

- ❖ Gradation of dump shall be done automatically as coarser materials go to the bottom and finer at the top and therefore drain of rain water flow freely to the bottom without endangering the stability of dump,
- ❖ More over the dump height shall be less than 6m with natural repose angle and hence dump will be more stable.
- ❖ Garland drainage around dump shall prevent under wash of dump by hydrostatic pressure to be developed by surface water and control wash outs and collapse.

4.9 Municipal solid waste management

The human waste shall be treated by temporarily built septic tank and soak pit within the mine lease area. The municipal solid waste generated by workers will be properly segregated into biodegradable and non-biodegradable and disposed through garbage collector of Madurai Corporation.

4.10 Ecology and Biodiversity

4.10.1 Impact on Ecology and Biodiversity

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 table 4.27 and 4.28.

Table 4.27: Ecological Impact Assessments and Its Mitigations -Part 1

Sl. No	Issues	Assessment	Mitigations
1	Proximity to national park/ wildlife sanctuary / reserve forest / mangroves / coastline/estuary/sea	No forests are situated within 10km radius. The proposed project does not attract Forest Conservation Act, 1980. There are no wildlife sanctuaries found around 10km radius. Quarry area is 136km (SE) away from the Arabian Sea. Hence the area does not attract Wildlife Protection Act, 1972 and C.R.Z. Notification, 1991.	-

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 developing green belt all along the lease boundary, regular maintenance of tippers, excavators, transporting the empty tipper within the speed the 20 km/hr.
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 Wildlife 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.	Nil
6	Proposed mining project increase siltation that would affect nearby Biodiversity area.	Yes, the runoff from the dump which carries the solid materials may get silt in the adjacent agricultural land and affect the cropping pattern. Also, it may get silt in the adjacent river bed and reduce its water carrying capacity	Garland drainage will be excavated around the dump to arrest the runoff from dump. The drainage will be desilted after every precipitation.
7	Risk of fall/slip or cause death to wild animals due to project activities	'NO'. No Wild life sanctuary within 10km radius.	Nil
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	There is no any reserve forest are located within 10km of	-

	livelihood/ any specific forest production which local livelihood depended	lease area. Hence the proposed mining activity will not affect the nearest forest.	
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 flora having medicinal value found within the lease area	The flora such as neem having medicinal value found in the study area of buffer zone. Those floras will not be affected by the proposed mining activity at it will be carried out only within the lease area.
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 4.28: Ecological Impact Assessments – Part 2

Ecological Criteria	Identified Impacts	Ecological significance of Impact	Magnitude	Duration /Timing/ Frequency	Reversibility	Mitigation	Cumulative Impact
Zone of Influence	Project site Habitat due to Site Clearance.	The proposed mining lease is located in Idayarpalayam Village. Since it is an newly proposed area, some shrubs will be cleared before the commencement of the project. The fauna which depends on the shrubs for habitat will be disturbed. No clearance of vegetation in the buffer zone	Low Impact	-	Irreversible in quarry area	During the clearance, it will find the alternate habitat in the buffer zone. During the operation of quarry, the proponent will develop the green belt along the lease boundary. This afforestation will provide the habitat for the migrated fauna.	No Cumulative Impact
Zone of Influence	Ecological Impact 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	Temporary Impact	During the mining plan period	Reversible	Before loading the rough stone & gravel will be moisturized to minimize the emission. The sprinkling of water over the haul road	No Cumulative Impact

		and crop field in the buffer zone which affects growth and its productivity.				will be done. Then completely wet drilling will be take place. The transportation vehicles will be maintained and serviced Properly.	
Accessibilit y	Ecological Impact due to road construction	No Road construction is required to assess the project site. The existing village road connects the project site to the existing MDR road.	No Impact		-	-	No Impact
Zone of Influence	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. Human waste and municipal solid waste will be generated due to the workers.	No Impact	-	-	Human waste will be properly treated by septic tank and soak pit in the lease area and dispose periodically. The municipal solid waste generated by workers will be properly segregated into biodegradable and non-biodegradable	No Impact

						and disposed through garbage collector of Coimbatore Corporation.	
Zone of Influence	Ecological Impact on Surrounding / Eco sensitive habitat due to Noise generated from the project activity.	During drilling or blasting, transportation of rough stone noise will be generated and it may slightly affect the movement of fauna around the lease area.	Temporary impact	Only during drilling, blasting operation and transportation period. (5 years)	No	Avenue trees will be planted along the lease area to minimize the noise level. Milli second detonators shall be used preferably 25–50ms per delay to control vibrations. Regular maintenance of vehicles and driving the empty tipper within 20km/hr speed also control the noise generations.	No Impact

Zone of Influence	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. Before loading the rough stone will be moisturized to minimize the emission. The sprinkling of water over the haul road will be done. Then completely wet drilling will be taking place.	No Impact
Zone of Influence	Ecological Impact on Natural ecosystem, the soil micro flora and fauna and soil seed banks.	During raining season, the runoff from the lease may affect the habitants.	Temporary Impact	Nil	--	The garland drainage will be around the quarry pit and dump to prevent the escape of runoff from the lease area to the river. The maintenance of	No Impact

						vehicle will be strictly prohibited in the lease area to prevent the spillages of oil, grease.	
Zone of Influence	Fish habitats and the Food web/food chain in the water body and Reservoir	-	No Impact	Nil	--	The garland drainage will be around the quarry pit and dump. The maintenance of vehicle will be strictly prohibited in the lease area	No Impact

Table 4.29: Afforestation Plan of the Proposed Rough stone and gravel Quarry for the next five years

Year	Place	Type of Trees	Number	Spacing	Rate of survival
I	Lease Boundary & Dump	Pungai, Vagai, Vanni	50	5m X 5m	80%
II	Lease Boundary & Dump	Karungali, Puvarasu,	50	5m X 5m	80%
III	Lease Boundary & Dump	Pungai, Vagai, Vanni	50	5m X 5m	80%
IV	Lease Boundary & Dump	Karungali, Puvarasu	50	5m X 5m	80%
V	Lease Boundary & Dump	Pungai, Vagai, Vanni	50	5m X 5m	80%

Nearly 6430 Sq.m area is proposed to use under afforestation by planting 50 No's of Neem sampling etc., every year in the spacing interval of (5m x 5m) with an anticipated survival rate of 80%.

4.11 Socio Economic

4.11.1 Anticipated Impact

Employment generation (Direct and Indirect) due to the project has generated direct and indirect employment for more than 50 persons. Preference will be given to the local population for employment in all categories including semi-skilled and unskilled. The villages and their inhabitants in the buffer zone will not be disturbed from their settlements due to the mining operations.

It is obvious to assume that the activities of the mining operations will improve the socio-economic levels in the study area. The anticipated impact of this project on various aspects is described in the following sections

- **Impact on human settlement:** Overall, due to employment generation and economic progress, there will be positive changes in the socio-economic condition of the people residing in the vicinity of the project site. The local population will have preference to get an employment. No resettlement occurred due to mining activity. Built up land has been increased marginally.
- **Impact on Population Growth:** Population rate grows annually and demand of primary needs and employment will increase due to population growth. It will provide some direct and indirect employment to the people in and around the villages.

- **Impact on Vegetation:** No decline in agricultural land. It has been increased over a period of time by utilizing the water stored in the working pits. No deforestation will be happened.

Therefore, due to mining, per capita income of local people will be improved. The local people have been provided with either direct employments or indirect employment such as business, contract works and development work like roads, etc. and other welfare amenities such as Sanitary facilities, Solar Lighting to Govt school, Health Care to the villages in buffer zone, Maintenance of village road or Providing funds to local body or Prime minister's fund on Socio economic Development and relief measures. The job/business opportunities will improve the economic condition of the persons. They are in a position to utilize this money for purchase of tractors, trucks, etc. which may be put into use for business purposes. Many **positive impacts** can be resulted from a long-term mine unit. In this context, provision of job opportunities, business, transport and communication, laborer etc., are the major ones. Thus, this unit is highly favorable to poor and landless people.

4.11.2 Mitigation Measures

- Good maintenance practices will be adopted for plant machinery and equipment, which will help to avert potential noise problems.
- Green belt will be developed in and around the project site as per Central Pollution Control Board (CPCB) guidelines.
- Drilling, blasting etc., at specified location will be followed with proper schedule.
- Appropriate air pollution control measure will be taken so as to minimize the environmental impact within the core zone.
- For the safety of workers, personal protective appliances like hand gloves, helmets, safety shoes, goggles, aprons, nose masks and ear protecting devices has been provided which meet 'BIS' (Bureau of Indian Standards).

Thus, no significant impact on health and safety will be occurred due to this project.

4.12 Land Environment

4.12.1 Anticipated Impact on Land Use / Land Cover

Rough stone and gravel quarry project will result in disturbance of the land use pattern of the mine lease area. The impact on the topography in the form of changed landscape is unavoidable during mining activities like excavation, overburden dumping, soil extraction etc. Land requirement for the project has been assessed considering functional needs. So, reclamation of mined out land will be given due importance as a step for sound land resource management. No release of toxic elements into the ground. No adverse impact

is anticipated on land use of buffer zone associated due to the mining activity, as all the activities will be confined within the project site. The mining operations will impact the land usage and land aesthetics of mine lease area.

The land use analyses show that the area is predominantly Agriculture followed by buffer zones of the study area, which clearly indicates that the development of agriculture land increases over a period of time. At the end of the project, the quarried pit will be act as water storage pond. The stored water will be used for developing agricultural activity around the mining lease area. It will improve the livelihood of village people. The evaporation rate of the water in the pit is given detail in the report.

4.12.2 Mitigation measures

- ❖ The restoration of the degraded land would cover backfilling and terracing with the overburden / wastes and surfacing the same with top soil.
- ❖ Provision of Garland drainage around the dumps
- ❖ Fast growing trees and other native shrubs would be planted to stabilize the reclaimed land
- ❖ Appropriate measures will be taken for green belt development.
- ❖ The rain water will be stored in the pit which will recharge the ground water as a part of rain water harvesting scheme for irrigating the nearby agricultural lands.

4.13 Occupational Health Risks

4.13.1 Anticipated Impact

- Occupational health and safety hazards occur during the operational phase of mining.
- Excessive dust, Noise and vibration are the chief health hazards.
- Exposure to fine particulates is associated with work in most of the dust generating stages of mining.
- Workers with long term exposure to fine particulate dust are at risk of pneumoconiosis, emphysema, bronchitis, silicosis and fibrosis.
- Physical injuries during project operation are related to near slips and falls: contact with falling/ moving objects and lifting/ over-exertion.
- Other injuries may be due to contact with or capture in, moving machinery like dump trucks, loaders etc.

4.13.2 Anticipated occupational and safety hazards

- ❖ Health Impact due to Physical activity, Extremes of age, poor physical condition, fatigue, Cardiovascular disease, Skin disorders
- ❖ Noise
- ❖ Burns and shocks due to electricity
- ❖ Respiratory hazards due to Dust exposure
- ❖ Physical hazards
- ❖ Explosives and Fire

4.13.3 Anticipated health impacts on people in nearby villages

- The quarry workers and nearby village people health affected the mining activity.
- The fugitive emission during the heavy wind period travel along the predominant wind direction and people in village located along predominant wind direction gets affected.

4.13.4 Mitigation measures

For the safety of workers at site, the following mitigation measures are proposed

- ❖ Excavators, dumpers, drills other automated equipment's will be enclosed
- ❖ Use of personal breathing protection will be made compulsory
- ❖ Spraying with water on all working faces & haul roads, by water-sprinkler
- ❖ Regular health monitoring of workers once in 6months for silicosis
- ❖ Random health checkup village people around the lease area for identify diseases if any due to mining activity
- ❖ No employee will be exposed to a noise level greater than 75 dB(A) for a duration of more than 8 hours per day without hearing protection
- ❖ Ear muffs provided will be capable of reducing sound levels at the ear to at least 75 dB(A).
- ❖ During mining operations, all the statutory provisions of the Indian Electricity Rules 1956, and Indian Standards for installation and maintenance of electrical equipment etc. will be observed.
- ❖ Care will be taken to evacuate the mining area completely at the time of blasting operations.
- ❖ A blasting SIREN will be used at the time of blasting for audio signal
- ❖ Before Blasting and after blasting, red and green flags will be displayed as visual signals.

- ❖ Warning notice boards indicating the time of blasting and NOT TO TRESSPASS are displayed prominently.
- ❖ First-aid facilities as per provisions under Rule (44) of Mines Rules 1955
- ❖ Initial and Periodical medical examination shall be conducted for the employees under Rule 29B & 45 (A).
- ❖ Insurance will be taken in the name of the labors working in the mines.

4.14 Agricultural Environment

4.14.1 General

The general impacts on agricultural lands will be dust pollution, as volume of dust is discharged into the air during the process of quarrying. Dust gets deposited on the leaves of plants, flowers and soil. This affects the photosynthetic and fruiting ability of the crops.

Silt from the excavation, screening process and reject during monsoon season gets washed and chokes the agricultural fields, rendering them useless for the growth of crops. Due to blasting, fly rocks may fall on agricultural fields making it difficult for the farmer to cultivate.

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

The pumping of water from the ground for the mining activity will reduce the availability of water for the agricultural purposes.

4.14.2 Anticipated Impacts of Proposed project on Agriculture, Horticulture and livestock

The land use analyst sighted that the agricultural land is surrounded around the project site. The principal cereals crop of this district are Paddy, Millet, Pulses, and Cotton are the major crops and ragi. Among oil, seeds, groundnut, castor, and gingelly (sesame) occupy important places. Of the commercial crop, Sugarcane, cotton and tapioca are some of the important plants were cultivated in the study area.

As the villages are located around the project site, the people in the villages are farming animals like goat, cow, and sheep for their livelihood. The above-mentioned impact may be observed on the nearest agricultural farm during the quarrying activity. So, the following mitigation measures will be suggested to protect the nearest farm. The requirement of water for the proposed project will be getting from water vendors. The ground water from the 2km radius of the project site will not be extracted for the proposed mining activity.

4.14.3 Mitigation Measures

- Spraying of water on the haul roads will be done to suppress the dust in the source itself. Interval of sprinkling depends on the environmental factors such as temperature, rainfall and humidity of the proposed site.
- The trees having tolerance to different air pollutants will be planted along the boundary to prevent the escape of dust to the surroundings.
- Provision of Garland drainage will be provided around the lease area to prevent the leach of silt into the farm.
- Regular check and proper maintenance of Vehicles will be carried out to minimize the emission of pollutants.
- Adequate Blast shield or blast mats will be provided wherever necessary for fly rock protection during blasting, thus to prevent the accident on the nearest farms.
- During monsoon season the dust deposited on the surface of plant body is washed out naturally.
- Making two bore holes which have direct conduit with the water table in the lease area will help ground water recharge during monsoon seasons. It helps the agricultural activity in the buffer area of project site.

4.15 Post COVID Health Management Plan

- The vaccinated persons only will be given employment.
- The labors and other skilled, semi-skilled employees will be given a new mask daily.
- The body temperature of the labors will be checked using the temperature monitoring gun while getting into the quarry and getting out from the quarry.
- The labors will be advised to maintain the social distance of at least 10m and also advised to sanitize the hand.
- The general awareness program will be conducted about the handling of COVID-19 in two weeks once.
- The board referring the “Wear mask” and “Maintain social distance” will be placed in two sides of entrance of the quarry in local language.

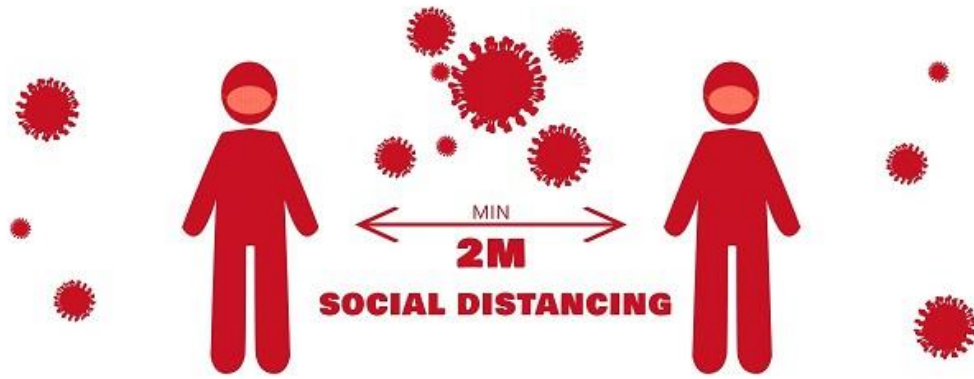


Fig 4.7: Maintain social distance of 2m in work place



Fig 4.8: Sanitizing Hand Frequently



Fig 4.9: Wear Mask at the work place

CHAPTER – 5: ANALYSIS OF ALTERNATIVES (TECHNOLOGY AND SITE)

Consideration of alternatives to a project proposal is a requirement of the EIA process. During the scoping process, alternatives to a proposal can be considered or refined, either directly or by reference to the key issues identified. A comparison of alternatives helps to determine the best method of achieving the project objectives with minimum environmental impacts or indicates the most environment friendly and cost-effective options. Analysis of alternatives should be similar to the content of the approved mining plan.

The selection of the site is based on the following considerations which are feasible in terms of location, deposit characteristics, availability of reserves, percentage recovery, road facilities, labor availability, requirement of health and safety and environmental concerns, production scheduling, scope of mechanization/automation, land reclamation, and operating and capital cost estimates.

Geologically, Coimbatore district of Tamil Nadu forms a part of southern Granulitic terrain and is predominantly occupied by crystalline rocks of Archaean to late Proterozoic age. Regionally, the rocks can be grouped under five categories namely i. Charnockite Group represented by Charnockite, Pyroxene Granulite and Magnetite Quartzite, ii. Peninsular Gneissic Complex (II) comprising hornblende-biotite gneiss, iii. Basic intrusive include Pyroxinite/Dunite iv. Younger intrusive comprising, Nepheline-Syenite, Pink Granite, Pegmatite and Quartz veins and v. Quaternary sediments of Kankar and soil. Coimbatore District is predominantly occupied by hornblende Biotite gneisses of PGC (II) with enclaves of Magnetite Quartzite, Pyroxene Granulite and Charnockite. The area exposes several bands of Pyroxene Granulite which is medium grained, medium to dark grey in colour and stand out prominently in the gneissic country generally parallel to regional foliation. Charnockite is coarse grained, massive, many places it is foliated, grey coloured and greasy and exposed as bouldery outcrops and small knolls. It is well exposed in Central, Western and Southern parts of the Coimbatore District.

Hornblende-Biotite gneiss is well foliated, medium to coarse grained, pale grey and exposed as sheets and small knolls. Pink Granite gneiss occurs as thin bands and lensoidal bodies. It is a medium grained rock composed of alternating bands of mafic (mainly of biotite and hornblende) and felsic (Feldspar and Quartz) minerals. It is well recognized in Avinashi area.

CHAPTER – 6: ENVIRONMENTAL MONITORING PROGRAMME

Environmental Monitoring program is mandatory to check the impact of the mining activity in the core and buffer zone. Hence regular monitoring of various environmental parameters helps in maintaining sound operating practices of the mining in line with mining and environmental regulations. 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.

6.1 Measurement methodologies

The following instruments will be used for environment monitoring for various environmental parameters.

Table No: 6.1 Instruments used for Monitoring

S. No	Instruments	Purpose of Monitoring
1	Respirable Dust Sampler	Air Pollution
2	Fine Particulate Sampler	Air Pollution
3	Sound level meter	Noise level
4	Digital Seismograph	Vibration monitoring
5	Water level indicator	Water level
6	Geophysical Instruments (DDR3)	Water table
7	Camera, Binocular & Lens	Flora, Fauna
8	GPS & DGPS	For fixing the coordinates of sampling location
9.	Electronic Total station	Reduced level & topography monitoring

In addition to the above, Primary data on land use, socio economics will be collected by visiting the field and secondary data will be collected from Government Department and other sources.

6.2 Monitoring Schedule and Frequency

The sampling and analysis of the environmental attributes will be as per the guidelines of Central Pollution Control Board (CPCB). Monitoring program will be followed till the mining operation ceases as per the schedule below.

Table 6.2: Monitoring Schedule

S. No.	Environment Attributes	Location	Monitoring		Remarks
			Duration	Frequency	
1	Meteorology and Air Quality	Continuous monitoring weather station in core zone/ nearest IMD station	24 hours	Monthly Once	Wind speed, direction, Temperature, Relative humidity and Rainfall.
2	Air Pollution Monitoring – PM _{2.5} , PM ₁₀ , SO ₂ and NO _x	5 locations (One station in the core zone and at least one in nearby residential area, one in the upwind, two station on the downwind direction and one in cross wind direction).	8 hours	Six months once	Fine Dust Sampler and Respirable Dust Sampler
3	Water Pollution Monitoring	Mine effluents, Set of grab samples during pre and post monsoon for ground and surface water in the vicinity.	–	Six months once	Physico-chemical and Biological characteristics
4	Hydrogeology	Water level in open wells in buffer zone around 1km at specific wells	-	Six months once	Water level monitoring devices may be used.
5	Noise	Mine boundary, high noise generating areas within the lease and at the nearest residential area	24 hours	Monthly Once	Sound level meter
6	Vibration	At the nearest habitation (in case of reporting)	–	During blasting operation	Digital Seismograph
7	Soil	Core zone and Buffer zone (Grab samples)	–	Six months once	Physical and Chemical characteristics

6.3 Data Analysis

Data analysis will be done by MoEF&CC/NABL approved laboratory as per CPCB guidelines & compliance reports shall be submitted to concerned authority (specified in Environment Clearance Letter issued by SEIAA, Tamil Nadu and Consent issued by TNPCB, Coimbatore) on regular basis.

6.4 Emergency procedures

The mines manager monitors the emergencies that may occur in opencast mining operations and prepares an emergency plan to deal with emergency situations during the operation of the mine. Preparation of a preventive maintenance schedule program based on recommendations given and maintenance schedules for all equipment's and instruments as per recommendations of the manufacturer's user manuals.

6.5 Detailed Budget

Detailed budgetary provisions for monitoring program are detailed in the following table 6.3.

Table No 6.3 Environment monitoring budget

S. No	Environmental Monitoring Program	No. of samples per year	Cost per sample	Cost
1	Ambient Air Quality monitoring	8	Rs 5000	Rs 40,000
2	Water quality	2	Rs 7000	Rs 14,000
3	Soil quality	2	Rs 4200	Rs 8,400
4	Noise monitoring	2	Rs 3800	Rs 7,600
	Total			Rs 70,000

CHAPTER – 7: ADDITIONAL STUDIES

7.1. Public Consultation

The present draft EIA report is for public consultation only. The proceedings of the public consultation will be included in the final Environmental impact assessment report.

7.2 Risk assessment and Disaster Management Plan

Risk Assessment is all about prevention of accidents and to take necessary steps to prevent it from happening. The mining operation is carried out under the management control and direction of a qualified mines manager. The DGMS have been issuing a number of standing orders, model standing orders and circulars to be followed by the mine management in case of disaster, if any.

To overcome such risks, help/aid would be sought from emergency services providers like Police station, Fire station, Hospital, Ambulance services in the vicinity of the mine site. Their telephone numbers and communication facilities are to be provided and displayed on the board at the mine office as well as mine site. Responsibility of coordinating rescue activities is entrusted to quarry-in-charge at the quarry site in addition to quarry-in-charge is also looking after statutory obligatory under Mines Act, 1952. Name and Address of Contact Person coordinating in case of Eventuality is stated below:

Name and Address of the Proponent	Thiru. K.Ranganathan No. 11/243, Kurumbapalayam Road Madukkarai Taluk Coimbatore District Tamil Nadu
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However, the following natural/industrial hazards may occur during normal operations.

- i. Operational Phase,
- ii. Inundation of mine pit due to flood/excessive rains,
- iii. Accident due to transport & other equipment's, Safety and Environmental aspects.

Table 7.1 Risk Assessment and Disaster Management Plan

S. No	Hazards	Mitigation measures
1	Surface Fire	➤ Fire Extinguishers ➤ Sand Buckets
2	Explosives/Blasting	➤ The applicant is directly purchasing explosives from an authorized dealer and they are blasting with help of certified blaster. Agreement is made with License holder in Form-22 for store, use and sale of explosives. ➤ Shot holes blasting using compressor and Jack Hammers combination are adopted to release the mineral.

3	Flooding of Rain water	➤ Escape Routes will be provided to prevent inundation of storm water ➤ Garland drains will be provided at the toe of dump
4	Radioactive hazard	➤ Not Anticipated
5	Failure of Mine Benches and Pit Slope	➤ Ultimate or over all pit slope shall be 45° and each bench height shall be 6m height equal to the boom height of excavator and vertical. ➤ During working normally 3-6m will be maintained as per the plan.
6	Failure of Waste Dumps	➤ Stabilization of dump with top soil and tree plantation shall make the dump more stable. ➤ Garland drainage around dump shall prevent under wash of dump by hydrostatic pressure to be developed by surface water and control wash outs and collapse.
7	Dust	➤ Periodical wetting of land by spraying solutions. ➤ Regular water sprinkling on haulage roads ➤ Provision of Dust mask to workers ➤ Green Belt shall be carried out within the mine premises by planting trees, to improve the aesthetics of the area and also to reduce the pollution outside the activity area
8	Noise	➤ Rotation of workers to minimize exposure time of noise ➤ The equipment's and machineries shall be maintained properly ➤ Provision of earmuffs to workers
9	Transportation	➤ Convex mirrors should be kept at all corners ➤ All vehicles should be fitted with reverse horn with one spotter at every tipping point ➤ Loading according to the vehicle capacity ➤ Regular checking of brakes to avoid failures ➤ Periodical maintenance of vehicles
10	General measures	➤ No entry for any unauthorized persons ➤ S1 type fencing as per DGMS circulars ➤ Quarrying as per Approved Plans only ➤ Provision of Personal Protective Equipment's ➤ In case of any closure of mine the compensation under Industrial Dispute Act will be paid as per law

7.2.1 Care and Maintenance during temporary discontinuance

Watch and ward are provided permanently in the mine premises to monitor the mine openings to prevent inadvertent entry. Top soil bund is made partly and Stone fencing is proposed all around lease boundary to safe guard the mine and the adjacent livings.

Temporary discontinuance will be minimal as there is good demand for this material in construction work.

7.2.2 Economic repercussions of closure of mine and manpower retrenchments

7.2.2.1 Number of local residents employed in the mine, status of continuation of family occupation and scope of joining occupation back

There are 21 people employed in the quarry. Most of labors are Agriculturist. In case of closure of mine, they may continue their own work.

7.2.2.2 Compensation given or to be given to the employees connecting with sustenance of himself and their family members

In case of any closure of mine the compensation under Industrial Dispute Act will be paid as per law. All workers shall get retrenchment benefits as per labour laws under enforcement.

7.2.2.3 Satellite occupations connected to the mining industry – number of persons engaged therein – continuance of such business after mine closes

The quarrying activity shall lead to development of several ancillary units and business, which are explained below:

- i. Other than mine employment, workshops, spare parts, hotels, tea shop and related several self-employment opportunities.
- ii. Several shops and service providers shall grow in the public adjacent to mines.
- iii. Schools and city development shall also be possible owing to the fact of economic growth in the village.

7.2.2.4 Continued engagement of employees in the rehabilitate status of mining lease area and any other remnant activities.

In the event of closure of mine, the mine worker shall get alternate work or business-like agriculture etc. No serious repercussions envisaged in the event of cessation of mining activity, as they will be provided employment in other mines belong to the company.

7.2.2.5 Envisaged repercussions on the expectation of the society around due to closure of mine

Persons on roll at the time of closure will get benefit as per State Govt. guidelines as applicable at the time of retrenchment

7.2.3 Time Scheduling for abandonment

The following works are scheduled before abandoning the mine,

- i. Parapet wall of 2m height will be constructed around the pit,
- ii. Planting and monitoring of Afforestation program.

There is no proposal for closure of mine for the next 5 years. The parapet and plantations will be done during operation of mine. In case of any abandonment the following time is required,

Activities	Days for schedule
Time schedule for fencing	6 months
Time schedule for reclamation of mined out area	1 year

7.3 Social Impact Assessment, R&R Action Plans

The Rough Stone quarry project of Thiru. K. Ranganathan does not involve any kind of displacement of the population since the mining will be concentrated only in the mining area only. Not much disturbance in respect of fauna, flora and human settlement of the villages. The impact of mining activity on the population will be insignificant. Hence, Rehabilitation of settlements is not anticipated under this project as it will not be required. Thus R&R Action Plans not proposed.

The project proponent will help in uplifting the poor section of the society as part of CSR activity by undertaking social welfare programs. The Project proponent contributes 2.5% of profit towards CSR activities. This project will have a positive impact on the socio economic as it will provide considerable employment to the families in the nearby villages. Improved health care facilities are expected to come-up in the area for catering to the health needs of the miners. The impact of mining on the civic amenities will be substantial after the commencement of mining activities. The local people who are currently depending on forest and agriculture will have new avenue from the mine.

7.4 Detail study of Rainwater harvesting after the completion of project.

- I. Total Pit Area = 14400m²
- II. Annual rainfall of the area = 0.725 m
- III. Total rainwater available to store in pit area = 10728m³
- IV. Total volume of quarried pit = 4,60,800 m³

Since the rainwater directly getting stored in the quarried pit, the runoff will not take place. The Quarried Pit will be acting as Artificial Ground Water Recharge Pond. After the rainwater getting stored in quarried pit, the water slowly infiltrates into the ground and reaches the ground water table. This will greatly increase the ground water table around the lease area.

By electrical resistivity survey it is found that there is massive rock formation at 20m bgl. So, the infiltration rate of rain water is very less. If the rain water stored in pit for long period the evaporation loss will take place.

Meyer's Formula (1915) is used to find the loss of water in pit due to natural evaporation process.

Meyer's Formula (1915)

$$E_L = K_M (e_w - e_a) (1 + u_9/16)$$

Where

- E_L = Evaporation Rate (mm/day)
- e_w = the saturation vapor pressure at the water temperature in mm of mercury
- e_a = the actual vapor pressure in the air in mm of mercury
- u_9 = monthly mean wind velocity in km/h at about 9 m above ground
- K_M = coefficient accounting for various other factors with a value of 0.36 for large deep and 0.50 for small shallow waters.

Here,

$e_w = 38.0$ mm of Hg (considered average temperature in Coimbatore district during May month of 2025)

$e_a = 0.59 \times 38.0 = 22.42$ mm of Hg.

$u_1 = 15.12$ km/hr

$u_9 = 20.69$ km/hr

Substitute the above parameters in Meyer's equation,

$$E_L = 0.36 (38.0 - 22.42) (1 + 20.69/16)$$

$$E_L = 4.15 \text{ mm/day}$$

$$\text{Evaporated Volume per day} = 14400 \times 0.00415 = 4.15 \text{ m}^3/\text{day or } 4.15 \text{ KLD}$$

The total quantity of rain water to be stored in quarried pit is 10728 m^3 . The evaporation rate of water per day is 4.15 m^3 based on the maximum temperature in Coimbatore district. It takes nearly 5 months for the complete evaporation of water. Before that the stored water will be used to irrigate the crop around the quarry area.

Thereby the proposed quarry benefits the daily needs of water to so many families around the quarry area for every year. This is very important positive impact of the proposed rough stone and gravel quarry of K. Ranganathan.

7.5 Plastic waste Management Plan

This is proposed rough stone and gravel quarry. So, the project does not need any plastic related material for quarry operations. The plastic materials will be used by the employee and labours in the form of carry bags, water bottles, etc. To avoid such situations the employees and labours will be strictly instructed to avoid the plastic materials in the lease area. Moreover, they will be advised to use cloth bags, jute bags and bring the food by Steel tiffin box.

Water will be provided by the project proponent for both drinking and domestic purposes. So, the dustbins will not be needed in the quarry. To manage the unavoidable situations, Dustbins will be placed in the quarry for both decompose and non-decompose waste separately of Municipal solid waste. The collected waste will be disposed periodically as instructed by TNPCB. The board with the instruction “**Avoid plastics**” is placed in the two sides of quarry and awareness program will be conducted to the labours monthly once.



CHAPTER – 8: PROJECT BENEFITS

Mining activity will help in improving the socio-economic benefits in areas like employment, communication and infrastructure development etc.

8.1 Physical Infrastructure

The rough stone and gravel project located in Idayarpalayam Village of Coimbatore District has well established roads, communications and other facilities. The impact on the civic amenities will be substantial after increasing the mining capacity.

The following physical infrastructure facilities will further improve due to mine.

- ❖ Afforestation
- ❖ Road Transport facilities
- ❖ Communications
- ❖ Housing facilities
- ❖ Water supply and sanitation
- ❖ Medical, Educational and social benefits will be made available to the nearby Civilian population in addition to the workmen employed in the mine.

Under plantation program, it is suggested to develop green belt further all along the boundary of mining lease area. The species to be grown in the areas will be dust tolerant and fast-growing species so that a permanent green belt is created. Apart from the green belts and aesthetic plantation for eliminating fugitive emission and noise control, all other massive plantation efforts will be executed with the assistance of experts and cooperation of the local community.

8.2. Social Infrastructure

The mining activity will create rural employment. It has been observed that local people mainly depend upon agricultural, where the income is irregular and low. The mining activity in the region will have positive impact on the social economic condition of the area by way of providing employment to the local in-habitants; wages paid to them will increase the per capita income, housing, education, medical and transportation facilities, economic status, health and agriculture by improving the life style of the people. A major part of the labour force will be mainly from local villagers who are expected to engage themselves both in agriculture and mining activities. Part of the royalty is given to local bodies by the State Govt. for the welfare and development of the village. District Mineral Fund @ 30% of the Royalty shall be given to the Dept. of Geology and Mining, Coimbatore District. The State Government will also benefit directly from the mine, through increased revenue from royalties, excise duty and etc.,

8.3 Employment Potential

The proponent employed about 21 persons for carrying out the mining operations of which 1 are skilled, 10 semi-skilled, 10 unskilled worker personnel. In addition, there will be indirect employment to many more people in the form of contractual jobs like construction of infrastructural facilities, transportation of rough stone to destinations, sanitation, supply of goods and services to the mine and other community services, etc., The local population will have preference to get an employment. The economic status of the local people will be enhanced due to mining project.

8.4 Other tangible benefits

8.4.1 Corporate Social Responsibility

Corporate Social Responsibility (CSR) refers to voluntary actions undertaken by the project proponent either to improve the living conditions (economic, social, environmental) of local communities or to reduce the negative impacts of mining activity. By definition, voluntary actions are those that go beyond legal obligations, contracts, and license agreements.

CSR programs usually invest in infrastructure (potable water, electricity, schools, roads, hospitals, hospital equipment, drainage repairs, etc.), building social capital (providing high-school and university education, providing information on HIV prevention, workshops on gender issues, information on family planning, improving hygiene, etc.), and building human capital (training local people to be employed by the mining enterprise or to provide outsourced services, promote and provide skills on micro business, aquaculture, crop cultivation, animal rearing, textile production, etc.)

8.4.2 CSR activities

The following activities which may be included by companies in their Corporate Social Responsibility Policies are notified as CSR activities under Schedule VII ((See section 135) of the Companies Act 2013:

- i. Eradicating extreme hunger and poverty;
- ii. Promotion of education;
- iii. Promoting gender equality and empowering women;
- iv. Reducing child mortality and improving maternal health;
- v. Combating human immunodeficiency virus, acquired immune deficiency Syndrome, malaria and other diseases;
- vi. Ensuring environmental sustainability;
- vii. Employment enhancing vocational skills;

- viii. Social business projects;
- ix. Contribution to the Prime Minister's National Relief Fund or any other fund set up by the Central Government or the State Governments for socio-economic development and relief and funds for the welfare of the Scheduled Castes, the Scheduled Tribes, other backward classes, minorities and women; and
- x. Such other matters as may be prescribed.

The Board of every company referred to in sub-section (1), shall ensure that the company spends, in every financial year, at least 2% of the average net profits of the company made during the three immediately preceding financial years, in pursuance of its Corporate Social Responsibility Policy. Provided that the company shall give preference to local area and areas around it, where it operates for spending the amount earmarked for Corporate Social Responsibility activities. Provided further that if the company fails to spend such amount, the Board shall report under clause (o) of sub-section (3) of section 134, specify the reasons for not spending the amount.

Explanation: For the purposes of this section “average net profit” shall be calculated in accordance with the provisions of section 198.

8.4.2.1 CSR Cost Estimation

CSR activities will be taken up in the nearby villages mainly contributing to education, health, training of women self-help groups and contribution to infrastructure etc., CSR budget is allocated as 2.5% of the profit. Under this programme, the project proponents will take-up following activities for social and economic development of villages through local panchayat.

-  Employment to eligible persons during operational phase of the mine
-  Conducting Medical Camps
-  Infrastructure Development like repair of roads, renovation of ponds, rainwater harvesting schemes, etc.,
-  Financial grant to the existing educational institutions for development of physical infrastructures
-  Training for Self-Employment
-  Plantation in villages and all along roads.
-  Providing solar lamps to nearby schools and villages by going eco-friendly.

8. 4.3 Corporate Environment Responsibility (CER)

CER Activity	Project Cost (Rs. In Lakhs)	CER Cost @ 2% of Project Cost (Rs. In Lakhs)
1. Developing Library Facilities to nearest Government School	81.0	1.70
Total Cost Allocation	81.0 L	1.70 L

CHAPTER – 9: ENVIRONMENTAL COST BENEFIT ANALYSIS

9.0 PROJECT COST

After making exhaustive study, it is considered that the mining project may be implemented.

Project cost for the proposed rough stone and gravel quarry namely “Rough Stone and Gravel Quarry of Thiru. K. Ranganathan” over an area of 2.28.0 Ha falling in Village Idayarpalayam, District Coimbatore is Rs. 81,00,000 /- and EMP Cost is Rs. 6,75,000/- per year

- This project provides direct employment to 21 people and indirect employment to nearly 20 people. In a family 5 persons, totally 105 persons will get benefit because of the project.
- Surrounding people will get benefit as they get aggregate (Rough Stone) for construction purposes with less transportation cost.
- The Management will ensure good production and in turn there will be good revenue to the Government of Tamil Nadu and Government of India through taxes. The industry is an asset to the nation.
- At the end of the project the pit will act as rain water harvesting tank which is useful for agricultural purpose. Thereby it will increase the survival of people around the quarry.

CHAPTER - 10: ENVIRONMENTAL MANAGEMENT PLAN

The **Environment Management Plan (EMP)** is required to ensure sustainable development in the study area. Hence it needs to be a comprehensive plan for which the industry, Government, regulating agencies like Pollution Control Board working in the region and more importantly the population of the area need to extend their co-operation and contribution.

It has been evaluated that the project area will not be affected significantly due to mining activity. Mitigation measures at the source level and an overall Management Plan at the site level are elicited so as to improve the surrounding environment.

Table 10.1 Environmental Management Plan

S. No	Parameters	Mining Activity	Mitigation measures
1	Air Environment	Drilling	○ Dust extractor or wet drilling to be followed to control dust at source of emission ○ Use of Sharp drill bits for drilling holes and charging the holes by using optimum charge and using time delay detonator
		Blasting	○ Regular water sprinkling on blasted heaps at regular intervals will help in reducing considerable dust pollution
		Loading	○ Water sprinkling be done before loading by making it moist
		Transportation	○ Water sprinklers along the sides of haul road shall be fixed to control fly of dust while transporting minerals and waste ○ Overloading will be prevented ○ Trucks/Dumpers covered by tarpaulin covers
		DG Sets	○ DG sets will be used only during power failure ○ Adequate stack height for DG sets will be provided as per CPCB norms
		General measures	○ Avenue trees along roads around ML boundary shall be planted as per the norms of MoEF to control fly of dust. ○ Labours engaged in such dust prone areas should be provided with safety devices like ear muff, mask, goggles as per the MMR, 1961 amendments and circulars of DGMS. ○ Regular health check-up of workers and nearby villagers in the impacted area should be carried out and also regular occupational health assessment of employees should be carried out as per the Factories Act ○ Ambient Air Quality Monitoring will be conducted on regular basis to assess the quality of ambient air.
2	Water Environment	Surface water	○ Wastewater discharge from mine if any will be treated in settling tanks before using for dust suppression and tree plantation purposes.

		Ground water	○ The mining activity will not intersect the ground water table ○ De silting will be carried out before and immediately after the monsoon season
		Storm water	○ Pit will be used for Storage of rainwater ○ Rain water will be collected in sump in the mining pit and will be allowed to store and pumped out to surface setting tank of 15 m x 10m x 3m to remove suspended solids if any. This collected water will be judiciously used for dust suppression onwards and such sites where dust likely to be generated and for developing green belt. ○ The proponent will collect and judiciously utilize the rainwater as part of rain water harvesting
		General measures	○ Regular monitoring and analyzing the quality of water
3	Noise Environment	Drilling	○ Limiting time exposure of workers to excessive noise
		Blasting	○ Carrying out blasting only during day time and not on cloudy days ○ Noise levels will be controlled by using optimum explosive charge, proper delay detonators and proper stemming to prevent blow out of holes. ○ Providing proper noise proof enclosure for the workers separated from the noise source and noise prone equipment
		Transportation	○ Proper and regular maintenance of vehicles, machinery and other equipments. ○ The noise generated by the machinery will be reduced by proper lubrication of the machinery and other equipments. ○ Speed of trucks entering or leaving the mine will be limited to moderate speed to prevent undue noise from empty vehicles. ○ Adequate silencers will be provided in all the diesel engines of vehicles. ○ Minimum use of horns and speed limit of 10 km/hr in the village area. ○ It will be ensured that all transportation vehicles carry a valid PUC Certificates

		General measures	○ Use of personal protective devices i.e., earmuffs and earplugs by workers, who are working in high noise generating areas ○ Provision of Quiet areas, where employees can get relief from workplace noise. ○ The development of green belts around the periphery of the mine to attenuate noise. ○ Regular medical check-up and proper training to personnel to create awareness about adverse noise level effects.
4	Vibration	Blasting	○ No deep hole blasting envisaged. ○ Small dia shot holes are used for breaking boulders. ○ Specific charge pattern has to be designed by proper trial vibration studies with varying charge ratios. ○ If the vibration still exceeds the limit a long Trench to a depth of 6m may cut in the direction of wave's movement to break longitudinal waves which travel close to surface, preferably near mine buffer zone ○ In spite of all measures periodical testing of vibration and noise using approved seismograph by DGMS has to be followed as a part of Environmental monitoring
5	Soil Environment	Topsoil	○ Humus top soil shall be preserved for reuse in afforestation and agriculture ○ Top soil should not be mixed with other waste or reject materials. It should be conserved by judicious utilization in the mine premises ○ Garland drains will be provided around the mine and dumps to arrest any soil from the mine area being carried away by the rain water. This will also avoid the soil erosion and siltation in the mining pits and maintaining the stability of the benches
6	Waste Dump	Stabilization of Dumps	○ The rejects\ waste dump shall be properly terraced in to 1.5m benches with proper repose angle and then the top soil shall be spread over the dumps and slope to make them humus for some time, after the soil suitable for

			water retention trees will be planted at the top, slope and toe of the stabilized dumps to form vegetation. ○ Garland drainage around dump shall prevent under wash of dump by hydrostatic pressure to be developed by surface water and control wash outs and collapse ○ Dump should be terraced for every 5m height and stabilized
7	Plantation	Mine lease boundary and waste dump	○ Provision of green belt all along the periphery of the lease area for control of dust and to attenuate noise ○ Stabilization of Dump with plantation ○ It is strongly recommended that the loss of plant in each year will be counted and again planted in subsequent plantation. ○ The plant should be planted taken from nursery, where the survival rate is high.
8	Land Environment		○ The restoration of the degraded land would cover backfilling and terracing with the overburden / wastes and surfacing the same with top soil. ○ Provision of Garland drainage around the dumps ○ Fast growing trees and other native shrubs would be planted to stabilize the reclaimed land ○ Appropriate measures will be taken for Green belt development. ○ The rain water will be stored in the pit which will recharge the ground water as a part of rain water harvesting scheme for irrigating the nearby agricultural lands.
9	Socio Economic		○ Good maintenance practices will be adopted for machinery and equipment, which will help to avert potential noise problems. ○ Green belt will be developed in and around the project site as per Central Pollution Control Board (CPCB) guidelines. ○ Drilling, blasting etc at specified location will be followed with proper schedule.

		○ Appropriate air pollution control measure will be taken so as to minimize the environmental impact within the core zone. ○ An emergency preparedness plan will be prepared in advance, to deal with firefighting, evacuation and local communication. ○ For the safety of workers, personal protective appliances like hand gloves, helmets, safety shoes, goggles, aprons, nose masks and ear protecting devices has been provided which meet 'BIS' (Bureau of Indian Standards). ○ As a part of CSR activities, community welfare activities will be undertaken by the proponent which leads to socio economic development
10	Occupational Health	○ First-aid facilities as per provisions under Rule (44) of Mines Rules 1955 ○ Initial and Periodical medical examination shall be conducted for the employees under Rule 29B & 45 (A). ○ Insurance will be taken in the name of the labourers working in the mines ○ Workers involved in mining work shall be provided protective equipments such as Thick Gloves, Goggles, ear plugs, safety boot wears, etc...

10.1 Description of the administrative aspects of ensuring that mitigative measures are implemented and their effectiveness monitored, after approval of the EIA

In order to maintain the environmental quality within the standards, regular monitoring network to maintain environmental quality will be implemented.

Table 10.2 EMP Budget for Plan period

S. No	Description	Budget (Rs.)
1.	Personal Protective Kit	75,000
2.	Environmental Monitoring	1,50,000
3.	Occupation Health	1,00,000
4.	Afforestation and Dust control	3,50,000
	Total (Rs.)	6,75,000

Table 10.3 Budget Allocation for Mine Closure Plan as per ToR

S. No	Description	Budget (Rs.)
1.	Garland Drainage around Mines	1,00,000
2.	Earth Bund with Fencing around mines	1,00,000
3.	Making Pit for pond after the activity of mines	50,000
	Total (Rs.)	2,50,000 L

CHAPTER – 11: SUMMARY AND CONCLUSIONS

INTRODUCTION

The applicant, Thiru. K.Ranganathan, S/o Sri. Karuppusamy, residing at No. 11/243, Kurumbapalayam Road, Madukkarai Taluk, Coimbatore District, Tamil Nadu. The State Government has granted mining lease over an extent of 2.28.0 Hectares in S.F. No: 174/4 and 176/1 Patta land of Idayarpalayam Village, Sullur Taluk, Coimbatore District, Tamil Nadu for quarrying rough stone and gravel. The validity of lease period is 10 years (From the date of execution)

The Deputy Director, Department of Geology and Mining, Coimbatore has directed the applicant, Thiru. K. Ranganathan, vide his precise area communication letter Roc. No. 165/Kanimam/2022 dated 20.06.2023 obtain Environmental clearance from the State Environment Impact Assessment Authority (SEIAA) as per the EIA Notification, 2006 and its amendments for grant of quarrying lease to rough stone and gravel quarry in Idayarpalayam Village, Sullur Taluk, Coimbatore District, Tamil Nadu for the period of 10 years (From the date of execution).

The mining plan is prepared as per the Precise area communication letter, 165/Kanimam/2022 dated 20.06.2023 under Rule 41& 42 of Tamil Nadu Minor Minerals Concession Rules, 1959 for quarrying rough stone and gravel it is approved by Deputy Director, Department of Geology and Mining, Coimbatore vide letter Rc. No. 165/Mines/2022 dated 06.07.2023. The project proponent has applied for Environmental Clearance to SEIAA-TN vide online proposal No. SIA/TN/MIN/436694/2023 Dated. 14.07.2023. The proposal was placed in 409th SEAC meeting on 21.09.2023 during the meeting the SEAC recommend the Terms of Reference (ToR) with condition to prepare the Modified Mining Plan and get approval from competent authority leaving a distance of 150 m from the Windmill structure. In continuation, the file was placed 660th SEIAA meeting dated 06.10.2023 and grant the ToR vide Lr. No: SEIAA-TN/F.No: 10293/SEAC/ToR-1570/2023 dated: 06.10.2023. Later the project proponent has filed the case in Hon'ble High Court of Madras (Writ Jurisdiction), W.P. No: 14936 of 2024 Dated: 22.05.2024 as against the ToR for reducing the safety distance of 150 m to 50 m as per the TNMMCR, 1959.

In this connection the SEAC called the project proponent for personal hearing on 06.04.2025 (548th SEAC meeting). During the meeting the proponent request the SEAC committee to reduce the safety distance of 150m to 50m from the windmill. Finally, the

SEAC committee accept to reduce the safety distance 150m to 70m from the Windmill structure.

As per the direction of SEAC committee the project proponent prepared the Modified Mining Plan (MMP) with provide the safety distance of 70m from the windmill. In continuation modified mining plan and approved from Deputy Director, Department of Geology and Mining, Coimbatore vide letter Rc. No. 165/Mines/2022 dated 08.07.2025. The project proponent has again applied for Environmental Clearance to SEIAA-TN vide online proposal No. SIA/TN/MIN/537484/2025 Dated. 19.08.2025. The proposal was placed in 594th SEAC meeting on 18.07.2025 and 866th SEIAA meeting on 06.08.2025 during the meeting the SEAC/SEIAA grand the amendment Terms of Reference (ToR) Identification No. TO25B0108TN5650668A Dated. 06.08.2025 with condition to prepare the Environmental Impact Assessment and Environmental Management Plan with Public Hearing.

As per the cluster letter issued by Deputy Director, Department of Geology and Mining, Coimbatore vide Rc.No.165/Mines/2022, dated 06.07.2023 for Thiru. K. Ranganathan (2.28.0 Ha) the lease area of above said 6 applicants comes in cluster of 500m radius. The total area of cluster is 14.49.32 Ha.

11.1 SCOPE OF THE PROJECT

The EIA report for Environmental Clearance of Rough stone and gravel quarry Thiru. K. Ranganathan has been prepared based on the recommended Standard ToR and Specific ToR issued by SEIAA vide ToR vide Lr. No: SEIAA-TN/F. No: 10293/SEAC/ToR-1570/2023 dated: 06.10.2023 and amendment Terms of Reference (ToR) Identification No. TO25B0108TN5650668A dated 06.08.2025.

11.2 PROJECT DESCRIPTION

Table No 11. 1 Project Details

Project Details	
Proponent	Thiru. K. Ranganathan
Total Mine Lease Area	2.28.0 Ha
Survey No.	174/4 and 176/1 (Patta land)
Site Location	Idayarpalayam Village, Sullur Taluk, Coimbatore District, Tamil Nadu
Geographical Co-ordinates	Latitude: 10° 54' 55.96"N to 10°55'1.97"N Longitude: 77°6' 41.92"E to 77°6'49.57"E

Toposheet No.	58 F/01			
Elevation	Elevation of the area is 436-404 m above MSL and Toposheet No. 58F/01.			
Accessibility				
Nearest Habitation	Wind Mill – NW Adjacent (Safety distance of 70m left) Local Amman Temple – 123m – NW Shed – 57m - NW			
Nearest Village	Edayarpalayam – 0.53km - N			
Nearest Settlement	Name of Village	Direction	Distance from Mines (Approx.)	Population
	Pappampatti	N	3.32 km	4143
	Bogampatti	SE	1.50 km	2415
	Chinnakuyili	NW	3.30 km	1178
	Panappatti	SW	5.0 km	2635
Nearest Town	Pappampatti – 5.0 km -N			
Nearest Roadway	SH -163- Chettipalayam to Palladam -6.5 km- W NH-544- Salem to Kochi - 12.0 km- W			
Nearest Railway station	Chettipalayam –8.5km - W			
Nearest Airport	Coimbatore – 15 km -NW			
Environmental Sensitiveness				
Interstate Boundary	Tamil Nadu – Kerala interstate boundary is located at the distance of 26 km in west side.			
Coastal Zone	Arabian Sea – 127km - W			
Reserve Forest	Boluvampatti R.F – 19.6km – W. There is no Reserve Forest up to 25 km in lease area. The proposed project site is not a forest land. Hence it does not attract Forest Conservation Act, 1980			
Wildlife sanctuary	Indira Gandhi Wildlife Sanctuary – 44.8km – SW. Nil within 10km radius. There is no wild life sanctuary found within 10 Km radius from the proposed area and this project doesn't fall under the Wildlife (Protection) Act, 1972.			
Water bodies	Edayarpalayam Lake –1.05km– NW A Lake – 1.5km - E There is no major water bodies located around the project site.			

Defense Installations	Sullur Air Force Runway – 10 km - NE
Critically Polluted area	Nil within 10km radius
Quarries around 500m radius	One existing quarry, four present proposed quarries and one abandoned quarry located within the 500m radius from the lease boundary of the proposed project site. Total Cluster area: 14.49.32 Ha AD Cluster Letter: Rc. No: 165/Mines/2022 dated: 06.07.2023
Seismic zone	Zone-III, Low damage risk zone as per BMTPC, Vulnerability atlas Seismic zone of India IS: 1893-2002

11.3 Description of the environment

11.3.1 Base line environmental study

Collection of base line data is an integral part of the preparation of environmental impact assessment reports. The baseline monitoring study has been carried out during March, 2025 – May, 2025 to assess the existing environmental scenario in the area. For the purpose of EIA studies, mine lease area was considered as the core zone and area outside the mine lease boundary up to 10km radius from the lease boundary was considered as buffer zone.

Table No 11.2 Baseline Data

Particulars	Details	Standards
Meteorology (March, 2025 – May, 2025)		
Rainfall (Avg.)	108.7 mm	--
Temperature (Avg.)	21-38°C	--
Wind speed	3.1 m/s	--
Wind Direction	Predominantly from West to South West	
Ambient Air Quality (NAAQS)		
PM ₁₀	44-49 µg/m ³	100 µg/m ³
PM _{2.5}	25-29 µg/m ³	60 µg/m ³
SO ₂	11-15 µg/m ³	80 µg/m ³
NO _x	21-25 µg /m ³	80 µg/m ³
Noise Level (CPCB Standards)		
Day time (6:00 am - 10:00 pm)	Core zone – 41.4 dB (A) Buffer zone –38.2 – 40.1 dB (A)	Industrial Area Day Time - 75 dB (A) Residential Area Day Time – 55 dB (A)
Night time (10:00 pm - 06:00 am)	Core zone – 37.4 dB (A) Buffer zone – 33.6 – 36.8 dB(A)	Industrial Area Night Time – 70 dB(A) Residential Area Night Time – 45 dB (A)

Water Quality IS 10500:2012 (Desirable limits)		
pH	6.80-8.02	6.5 to 8.5
TDS	464-1216 mg/l	500 mg/l
Electrical conductivity at 25°C	750-1960 micromhos/cm	-
Total Hardness as CaCO ₃	68-226 mg/l	200 mg/l
Total suspended solids	4-16 mg/l	IS:3025:P.16:1984: R.2012
Chlorides Cl	39-170mg/l	250 mg/l
Total iron Fe	0.04-1.04mg/l	0.3mg/l
Sulfates SO ₄	24-104mg/l	200 mg/l
Soil Quality		
pH	7.49 – 8.34	Neutral to slightly alkaline
Bulk density	1.05 - 1.17 g/cc	Favorable physical condition for plant growth.
Hydro Geology		
Depth of Mining	32m bgl	
Water Table	45 m bgl	

11.4 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

11.4.1 Air Environment

The air borne particulate matter is the main air pollutant by opencast mining. The mining operation will be carried out by adopting mechanized methods which involves Jack Hammer drilling and blasting, excavation, loading and transportation.

Total predicted 24-h maximum GLC of PM₁₀ at project site for scenario 1 i.e. loading-unloading, transportation and scenario 2 i.e. Blasting was 84.71 µg/m³ and 77.11 µg/m³ respectively after superposition of base-line value 48µg/m³ over the incremental GLC 29.11 µg/m³, 1.03 µg/m³ scenario 1 and 36.71 µg/m³ for scenario 2 respectively due to combined impact of loading, unloading, open pit and transportation over the haul road and due to blasting.

The predicted incremental GLC of SO_x and NO_x for under below the desirable limit. Maximum Impact of PM₁₀ was observed close to the source within the lease area due to moderate wind speeds.

11.4.2 Noise Environment

Noise pollution poses a major health risk to the mine workers. Following are the sources of noise in the existing open cast mine project are being observed such as Drilling, Blasting. Loading and during movement of vehicles.

The noise generated by the mining activity is dissipated within the core zone. This is because of distance involved and other topographical features adding to the noise attenuation. From the results, it can be seen that the ambient noise levels (day time and night time) at all the locations will remain within permissible limits prescribed by CPCB and 90dB (A) norms of DGMS. At present there is no mining activity carried out. However, the expected noise levels are not likely to have any effect. Precaution will be made to keep down the noise exposure level of 85 dB (A) to the operating personnel for 8 hrs duration. the charge per blast of 38 kg is well exceeding the Peak Particle Velocity of 5mm/s. But the proponent proposes to use only 38 kg of explosives per day. In this project site only industrial Shead 80m, 95m and 130m distance north, north east and west direction. According to the DGMS circular, blasting the ground vibration has no effect within the Peak Particle Velocity of 5mm/s and 20mm/s. However, as per statutory requirement additional control measures needs to be adopted to avoid the impacts due to ground vibrations and fly rocks due to blasting. Thus, ground vibrations due to blasting activities will not cause any impact to the nearest habitations.

11.4.3 Water Environment

Mining operations can affect groundwater quality in several ways. The most obvious occurs in the mining below the water table, either in underground workings or open pits. This provides a direct conduit to aquifers. Groundwater quality is also affected when waters (natural or process waters or wastewater) infiltrate through surface materials (including overlying waste or other material) into ground water. But this Rough stone mine is devoid of any such impacts.

The impact due to mining on the water quality is expected to be insignificant because of no use of chemicals or hazardous substances during mining process. The WQI of the samples collected from the study area are given in tables 4.24 and 4.25. It can be seen that the study area has water quality index value ranging from 16.58 to 62.28 mg/l which reflects the excellent to poor for drinking status of the groundwater quality. The findings demonstrate the varying consistency of groundwater at different locations. All the groundwater samples under excellent to unfit for drinking category; it may be due to the absorption of fertilisers, geological condition, channel water, solid waste, sewer drainage, septic tanks, and

agricultural waste. The water should be treated by reverse osmosis to reduce dissolved solids and total hardness to the required rate

11.4.4 Soil Environment

The limited quantity of top soil generated will be dumped along 7.5m inner boundary of the lease area. The top soil will be used to develop greenbelt within the lease area. Part of top soil will be spread over the non-active dumps along the slope and edges to plant tree saplings to form vegetal cover over the dumps. No chemical or toxic elements will be used during mining activity. So, the health of soil in and around the quarry will not be affected.

11.4.5 Waste Dump

The proposed rate of production of rough stone for five years is about 151899m³ at the rate of 95% of recovery up to permissible depth.

11.4.6 Biological Environment

There are no notified endangered species in the area, which may be affected due to the mining activities; therefore, the biological environment will not have significant impact due to mining activity. The impact on the biological environment due to amount of dust generation is minimized by well-developed green belt in and around mining lease area.

11.4.7 Land Environment

The Rough stone quarry will result in disturbance of the land use pattern of the mine lease area. The land degradation is unavoidable during mining activities like excavation, overburden dumping, soil extraction etc. So, reclamation of mined out land and proper formation of benches will be given due importance. The land use analyses show that the area is of predominantly Agriculture followed by buffer zones of the study area, which clearly indicates that the development of agriculture land increases over a period of time. At the end of the project, the quarried pit will be act as water storage pond. The stored water will be used for developing agricultural activity around the mining lease area. It is generally agreed that as the total volume of production from year to year may increases. Some fallow land also increases due to seasonal crop production, which shows a positive impact due to mining activity.

11.4.8 Socio Economic Environment

The mining activity will definitely increase the employment opportunity (directly as well as indirectly) in the project area. Some of these impacts would be beneficial. The expectation of the people of the area is concerned towards employment, education, and health facilities.

Table 11.3 Environmental Management Plan

S. No	Parameters	Mining Activity	Mitigation measures
1	Air Environment	Drilling	○ Dust extractor or wet drilling to be followed to control dust at source of emission ○ Use of Sharp drill bits for drilling holes and charging the holes by using optimum charge and using time delay detonator
		Blasting	○ Regular water sprinkling on blasted heaps at regular intervals will help in reducing considerable dust pollution
		Loading	○ Water sprinkling be done before loading by making it moist
		Transportation	○ Water sprinklers along the sides of haul road shall be fixed to control fly of dust while transporting minerals and waste ○ Overloading will be prevented ○ Trucks/Dumpers covered by tarpaulin covers
		DG Sets	○ DG sets will be used only during power failure ○ Adequate stack height for DG sets will be provided as per CPCB norms
		General measures	○ Avenue trees along roads around ML boundary shall be planted as per the norms of MoEF to control fly of dust. ○ Labours engaged in such dust prone areas should be provided with safety devices like ear muff, mask, goggles as per the MMR, 1961 amendments and circulars of DGMS. ○ Regular health check-up of workers and nearby villagers in the impacted area should be carried out and also regular occupational health assessment of employees should be carried out as per the Factories Act ○ Ambient Air Quality Monitoring will be conducted on regular basis to assess the quality of ambient air.
2	Water Environment	Surface water	○ Wastewater discharge from mine will be treated in settling tanks before using for dust suppression and tree plantation purposes.
		Ground water	○ The mining activity will not intersect the ground water table ○ Desilting will be carried out before and immediately after the monsoon season

3	Noise Environment	Storm water	○ Pit will be used for Storage of rainwater ○ Rain water will be collected in sump in the mining pit and will be allowed to store and pumped out to surface setting tank of 15 m x 10m x 3m to remove suspended solids if any. This collected water will be judiciously used for dust suppression onwards and such sites where dust likely to be generated and for developing green belt. ○ The proponent will collect and judiciously utilize the rainwater as part of rain water harvesting
		General measures	○ Regular monitoring and analyzing the quality of water
		Drilling	○ Limiting time exposure of workers to excessive noise
		Blasting	○ Carrying out blasting only during day time and not on cloudy days ○ Noise levels will be controlled by using optimum explosive charge, proper delay detonators and proper stemming to prevent blow out of holes. ○ Providing proper noise proof enclosure for the workers separated from the noise source and noise prone equipment
		Transportation	○ Proper and regular maintenance of vehicles, machinery and other equipments. ○ The noise generated by the machinery will be reduced by proper lubrication of the machinery and other equipments. ○ Speed of trucks entering or leaving the mine will be limited to moderate speed to prevent undue noise from empty vehicles. ○ Adequate silencers will be provided in all the diesel engines of vehicles. ○ Minimum use of horns and speed limit of 10 km/hr in the village area. ○ It will be ensured that all transportation vehicles carry a valid PUC Certificates
		General measures	○ Use of personal protective devices i.e., earmuffs and earplugs by workers, who are working in high noise generating areas ○ Provision of Quiet areas, where employees can get relief from workplace noise. ○ The development of green belts around the periphery of the mine to attenuate noise. ○ Regular medical check-up and proper training to personnel to create awareness about adverse noise level effects.

4	Vibration	Blasting	○ Specific charge pattern has to be designed by proper trial vibration studies with varying charge ratios. ○ Milli second detonators shall be used preferably 25–50ms per delay to control vibrations ○ If the vibration still exceeds the limit a long Trench to a depth of 6m may cut in the direction of wave's movement to break longitudinal waves which travel close to surface, preferably near mine buffer zone ○ In spite of all measures periodical testing of vibration and noise using approved seismograph by DGMS has to be followed as a part of Environmental monitoring
5	Soil Environment	Topsoil	○ Humus top soil shall be preserved for reuse in afforestation and agriculture ○ Top soil should not be mixed with other waste or reject materials. It should be conserved by judicious utilization in the mine premises ○ Garland drains will be provided around the mine and dumps to arrest any soil from the mine area being carried away by the rain water. This will also avoid the soil erosion and siltation in the mining pits and maintaining the stability of the benches
6	Waste Dump	Stabilization of Dumps	○ The rejects\ waste dump shall be properly terraced in to 1.5m benches with proper repose angle and then the top soil shall be spread over the dumps and slope to make them humus for some time, after the soil suitable for water retention trees will be planted at the top, slope and toe of the stabilized dumps to form vegetation ○ Garland drainage around dump shall prevent under wash of dump by hydrostatic pressure to be developed by surface water and control wash outs and collapse
7	Plantation	Mine lease boundary and waste dump	○ Provision of green belt all along the periphery of the lease area for control of dust and to attenuate noise ○ Stabilization of Dump with plantation ○ It is strongly recommended that the loss of plant in each year will be counted and again planted in subsequent plantation. ○ The plant should be planted taken from nursery, where the survival rate is high.
8	Land		○ The restoration of the degraded land would cover backfilling and terracing with the

	Environment		overburden / wastes and surfacing the same with top soil. ○ Provision of Garland drainage around the dumps ○ Fast growing trees and other native shrubs would be planted to stabilize the reclaimed land ○ Appropriate measures will be taken for Green belt development. ○ The rain water will be stored in the pit which will recharge the ground water as a part of rain water harvesting scheme for irrigating the nearby agricultural lands.
9	Socio Economic		○ Good maintenance practices will be adopted for machinery and equipment, which will help to avert potential noise problems. ○ Green belt will be developed in and around the project site as per Central Pollution Control Board (CPCB) guidelines. ○ Drilling, blasting etc at specified location will be followed with proper schedule. ○ Appropriate air pollution control measure will be taken so as to minimize the environmental impact within the core zone. ○ An emergency preparedness plan will be prepared in advance, to deal with firefighting, evacuation and local communication. ○ For the safety of workers, personal protective appliances like hand gloves, helmets, safety shoes, goggles, aprons, nose masks and ear protecting devices has been provided which meet 'BIS' (Bureau of Indian Standards). ○ As a part of CSR activities community welfare measures will be taken by Proponent through local Panchayat
10	Occupational Health		○ First-aid facilities as per provisions under Rule (44) of Mines Rules 1955 ○ Initial and Periodical medical examination shall be conducted for the employees under Rule 29B & 45 (A). ○ Insurance will be taken in the name of the labourers working in the mines ○ Workers involved in mining work shall be provided protective equipments such as Thick Gloves, Goggles, ear plugs, safety boot wears, etc...

11.5 Analysis of Alternatives

The mining site is dependent on the geology and mineral deposition of the area. Hence, this project is mineral and site specific and no alternative site considered for this project.

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.

Table No: 11.4 Post Project Environmental Monitoring Program

S. No.	Environment Attributes	Location	Monitoring		Remarks
			Duration	Frequency	
1	Meteorology and Air Quality	Continuous monitoring weather station in core zone/ nearest IMD station	24 hours	Monthly Once	Wind speed, direction, Temperature, Relative humidity and Rainfall.
2	Air Pollution Monitoring – PM _{2.5} , PM ₁₀ , SO ₂ and NO _x	5 locations (One station in the core zone and at least one in nearby residential, area, one in the upwind, two station on the downwind direction and one in cross wind direction).	8 hours	Once in six months	Fine Dust Sampler and Respirable Dust Sampler
3	Water Pollution Monitoring	Mine effluents, Set of grab samples during pre and post monsoon for ground and surface water in the vicinity.	–	Once in six months	Phyiso–chemical, microbiological characteristics
4	Hydrogeology	Water level in open wells in buffer zone around 1km at specific wells	-	Once in six months	Water level monitoring devices may be used.
5	Noise	Mine Boundary, high noise generating areas within the lease and at the	24 hours	Monthly Once	Sound level meter

		nearest residential area			
6	Vibration	At the nearest habitation (in case of reporting)	–	During blasting operation	Digital Seismograph
7	Soil	Core zone and Buffer zone (Grab samples)	–	Once in six months	Physical and Chemical characteristics

11.7 Project Benefits

The proponent is very much conscious of their obligations to society at large. Under plantation program, it is suggested to develop green belt further all along the boundary of mining lease area. Apart from the green belts and aesthetic plantation for eliminating fugitive emission and noise control, all other massive plantation efforts will be executed with the assistance of experts and cooperation of the local community.

The mining activity will create rural employment. In addition, there will be indirect employment to many more people in the form of contractual jobs like construction of infrastructural facilities, transportation to destinations, sanitation, supply of goods and services to the mine and other community services, etc., The local population will have preference to get an employment. Part of the royalty is given to local bodies by the State Govt. for the welfare and development of the village. The proponent helps in socio economic development of the village by providing education facilities to children's, procuring sports equipments, welfare amenities like drinking water to school, road facilities to villages and employment opportunities to nearby villagers. CSR budget is allocated as 2.5% of the profit.

11.8 Conclusion

As discussed, it is safe to say that the project is not likely to cause significant impact on the ecology and environment of the area, as adequate preventive measures will be adopted to contain the pollutants within permissible limits. The total operation shall be carried out with ease & minimum risk of the workers. The proposed Environmental Management Plan will keep the area in a safe environment with negligible impact on the environment. Plantation will substantiate the impact due to the mining activity. Mining activity will help in improving the socio-economic benefits in areas like employment, communication and infrastructure development etc.

CHAPTER - 12: DISCLOSURE OF CONSULTANTS ENGAGED

AADHI BOOMI MINING AND ENVIRO TECH (P) LTD, a QCI/NABET Accredited EIA Consultant Organization having its Registered Office at Salem and Branch at Porur, Chennai was promoted by a team of professional Geologists\ Mining\ Environment\ Civil\ Mechanical\ Chemical Engineers\ Scientists. The company has vast experience in various disciplines including Exploration and mining of minerals and was incorporated in 2002 in the name of Suriya Mining Services providing expert advice and solutions for clients' requirement in the field of Mineral prospecting, Exploration, Mining, Geo-technical, Techno economic Feasibility reports\evaluation, Mineral Engineering, Environment Impact Assessment (EIA), Environment Management Plan (EMP), Environment Monitoring and related liaison jobs like Environment Clearance, Wild life and Forest clearance from EAC/SEIAA/NBWL/CRZ, MoEF & CC etc., of all accredited sectors.

12.1 SCOPE

- EIA & EMP for all accredited sectors and monitoring as per SPCB/CPCB/MoEF & CC
- Environment/ Wild life/ CRZ/ Forest Clearance
- Social Impact Analysis (SIA) and Eco-Biodiversity studies for Mine Closure Plan
- Remote Sensing & GIS including Satellite data processing, ASTER, DEM etc for application in Forest, Agriculture, Disaster, Mineral Exploration, Environment Modelling, Town planning etc.,
- Geological Surveying, Mapping, Exploration and Project Management
- Geophysical, Geochemical & Geotechnical studies to locate concealed deposit\ formation including structural studies
- Noise and Vibration studies as per DGMS\MoEF & CC to design controlled blasting where inhabitations are located within 300m
- Mine Design and costing, selection of Machineries and Project Evaluation
- Statutory Mine Plans & Sections, Mining Plan and other mandatory projects
- Design and development of Mineral Beneficiation Plant including mineral separation studies.

12.2 INFRASTRUCTURE

- Our Human resources are well expertise in all functional areas as per Ver. 3 of NABET\QCI. Our Hi-Tech ISO certified Office and Lab are accredited by NABL and MoEF&CC.
- And have latest field Investigation devices like Respirable and Fine Dust Samplers, Digital Seismograph, DDR3 Resistivity Meter, Echo sounder, DGPS, Total Station, Water level monitoring meters, GPS 62S, Sound Level Meter etc.

12.3 DISCLOSURE OF CONSULTANT FOR EIA STUDY

Thiru. K. Ranganathan, appointed Aadhi Boomi Mining and Enviro Tech Private Ltd, having its office at 3/216, K.S.V Nagar, Narasothipatti, Alagapuram, Salem – 636 004, Tamil Nadu, for preparation of EIA/EMP report for obtaining Environment Clearance from SEIAA/SEAC, Tamil Nadu.

Aadhi Boomi Mining and Enviro Tech Private Ltd has MoU with Ekdant Enviro Services (P) Ltd laboratory at Chennai and has own Laboratory named ABM Enviro Lab, accredited by NABL for sampling and testing of air, water, noise and soil samples. Ekdant Enviro Services are recognized by the Ministry of Environment and Forests, Government of India under the relevant provision of Environment (Protection) Act 1986 and Accredited by NABL and NABET, Quality Council of India, New Delhi.

S. No.	Study	Consultants/LAB
1	Generation of Base Line Data	Aadhi Boomi Mining & Enviro Tech P Ltd, Salem and ABM Enviro Lab, Salem
2	Remote Sensing and Land use/Land cover Studies	Aadhi Boomi Mining & Enviro Tech P Ltd, Salem, Salem
3	Preparation of EIA and EMP Report	Aadhi Boomi Mining & Enviro Tech P Ltd, Salem

12.4 DECLARATION OF EXPERTS INVOLVED IN THE EIA REPORT PREPARATION

Names of the EIA coordinator, Functional Area Experts and other Team Members engaged and nature of consultancy rendered is provided in NABET Annexure –VII of EIA report. The multidisciplinary team comprises of Environmental Engineers, Geologists and Geographers who involved in preparation of Environmental Impact Assessment Report and Environment Management Plan for various functions like Air quality, Water quality, Noise levels, Soil Conservation, Hydro geology, Ecology and bio-diversity, Land use and Socio–Economics.

Declaration by Experts Contributing to the EIA/EMP

Declaration by experts contributing to the EIA/EMP for Rough Stone and Gravel Quarry of K. Ranganathan over an Extent of 2.28.0 Ha in Idayarpalayam Village, Sullur Taluk, Coimbatore District of Tamil Nadu. It is also certified that information furnished in the above EIA study are true and correct to the best of our knowledge. I, hereby, certify that I was a part of the EIA team in the following capacity that developed the EIA/EMP Report.

Name : Dr. S. Suriyakumar

Designation : EIA Coordinator

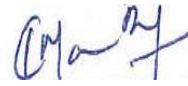
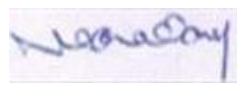
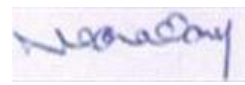
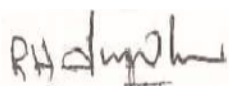
Signature : 
For Aadhi Boomi Mining And Enviro Tech (P) Ltd.,
Director



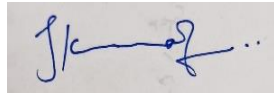
Period of Involvement : December, 2024 to till date

Functional Area Experts Engaged in this Project

S. No	Name of the Expert	Cat.	Functional Areas	Involvement	Signature
1	Dr.S.Suriyakumar	A	SC	- Study of soil profile. - Assessing the impact on soil environment and proposed mitigation measures for soil conservation.	
			SHW	- Waste disposal method evaluation - Providing dump management plan	
			RH	Management plan for safety	
2	Mrs. S. Santhi	B	LU	- Collection of Remote sensing satellite data to study the land use pattern. - Construction of Land use Map. - Impact of project on surrounding land use.	
			SE	- Identification of villages in the study area and finalization of demographic profile of the villages within the study area - Revision in secondary data as per Census of India, 2011.	

3	R.R Prakash Babu	B	AP	• Identification of different sources of air pollution due to the proposed mine activity. • Identification of Impacts & suggestion of mitigation measures.	
4	Mrs. A. Nagadevi	B	WP	• Study of the monitored data with respect to the applicable standards. • Identification of Water requirement & Source. • Preparation of water balance diagram. • Impact of the project on the water quality, both surface and groundwater. • Suggestion of Mitigation measures to control water pollution.	
5	S. Sagath Srikrishnan	B	AQ	• Identifying different source of emissions and propose predictions of incremental GLC using AERMOD. • Recommending mitigations measures for EMP.	
6	Dr.S.Suriyakumar	B	NV	• Predict the noise level and vibration level due to proposed mining operation based on scientific evaluation. • Suggesting the Mitigation measures to control noise pollution, Suggesting the Mitigation measures to control ground vibration.	
	R.R Prakash Babu				
7	Mr. K. Manuraj	A	HG	• Interpretation of ground water table and predict impact and propose mitigation measures. • Analysis and description of aquifer Characteristics. • Study about impact on the hydrology due to mining operation	
	Dr. Nallathambi Varadarajan				
8	Mr. K. Velmurugan	B	Geo	• Field Survey for assessing the regional and local geology of the area. • Study of geology of the ML area and the surrounding areas. • Provide details about Mineral composition	
	Dr. Nallathambi Varadarajan				
9	Sudha Vijayanand	B	EB	• Collection the primary data from project site and compare the secondary data from local DFO office.	

List of FAA/Team Members Engaged in this Project

S. No	Name of the Expert	Cat.	Functional Areas	Involvement	Signature
1	Mrs.S. Sri Vidhya	B	WP, AQ	• Site Visit with FAE. • Analyse & provide inputs and assist FAE with meteorological data, emission estimation, AERMOD modelling and suggesting control measures	
2	Dr.M.Selvakumar	B	AP, AQ	• Site Visit with FAE. • Assisting FAE on sources of Air pollution, its impacts and suggest control measures.	
3	Mrs.V.Kalaivani	B	WP	• Site Visit with FAE. • Assisting FAE on sources of water pollution, its impacts and suggest control measures	
4	Mr.A. Jagadeesh Kumar	B	AQ, NV	• Site Visit with FAE. • Assist FAE with prediction modelling. • Assist FAE and provide inputs on impacts due to proposed mine activity and suggest mitigation measures.	



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

**STATE LEVEL ENVIRONMENT IMPACT
ASSESSMENT AUTHORITY-TAMILNADU**

3rd Floor, Panagal Maaligai,
No.1, Jeenis Road, Saidapet,
Chennai - 600 015.

Phone No. 044-24359973

Fax No. 044-24359975

TERMS OF REFERENCE (ToR)

Lr No.SEIAA-TN/F.No.10293/SEAC/ToR-1570/2023 Dated:06.10.2023.

To

Thiru. K.Ranganathan,
S/o. Karuppasamy,
11/243, kurumbapalayam road,
Madukkarai Taluk,
Coimbatore District-641 105

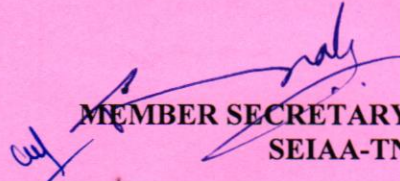
Sir / Madam,

Sub: SEIAA, Tamil Nadu – Terms of Reference with public Hearing (ToR) for the Proposed Ordinary stone & Gravel Quarry over an extent of 2.28.0Ha at SF.No. 174/4 & 176/1 of Edayarpalayam Village, Sulur Taluk, Coimbatore District, Tamil Nadu by Thiru.K.Ranganathan - 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/436694/2023, dated:14.07.2023.
2. Your application submitted for Terms of Reference dated:08.08.2023.
4. Minutes of the 409th SEAC meeting held on 21.09.2023.
5.Minutes of the 660th SEIAA meeting held on 06.10.2023.

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

The proponent, Thiru.K.Ranganathan has submitted application for Terms of Reference (ToR) in Form-I, Pre- Feasibility report for Proposed Ordinary stone & Gravel Quarry over an extent of 2.28.0Ha at SF.No. 174/4 & 176/1 of Edayarpalayam Village, Sulur Taluk, Coimbatore District, Tamil Nadu.


MEMBER SECRETARY
SEIAA-TN

Discussion by SEAC and the Remarks:-

Proposed Ordinary stone & Gravel Quarry over an extent of 2.28.0Ha at SF.No. 174/4 & 176/1 of Edayarpalayam Village, Sulur Taluk, Coimbatore District, Tamil Nadu by Thiru.K.Ranganathan - For Terms of Reference.

(SIA/TN/MIN/436694/2023, Dated:14.07.2023)

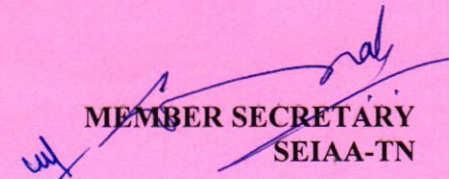
The proposal was placed in the 409th SEAC Meeting held on 21.09.2023. The details of the project furnished by the proponent are given on the website (parivesh.nic.in).

The SEAC noted the following:

1. The Project Proponent, Thiru.K.Ranganathan has applied for Terms of Reference for the Proposed Ordinary stone & Gravel Quarry over an extent of 2.28.0Ha at SF.No. 174/4 & 176/1 of Edayarpalayam Village, Sulur Taluk, Coimbatore District, Tamil Nadu.
2. The project/activity is covered under Category "B1" of Item 1(a) " Mining of mineral of the Schedule to the EIA Notification, 2006.
3. The lease period is for 10 years. The mining plan is for the period of five years & the production should not exceed 1,54,977m³ of Ordinary stone & 33,330m³ of Gravel with an ultimate depth of mining is 20m BGL. The annual peak production is 31,190m³ of Ordinary stone & 12,134m³ of Gravel.

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

1. The PP shall furnish ownership details of all survey numbers in EIA report.
2. As wind mill is located nearby, the PP shall submit **Modified Mining Plan** approved by competent authority leaving a distance of 150m from the wind mill structure.
3. The PP shall submit the 'Action Plan' on the issues raised during the Public Hearing with budgetary provisions for the same.
4. The PP shall submit the controlled blasting measures for reducing the impacts due to the blasting operation in the proposed quarries within 1 km of the proposed quarry based on a blast simulation model.
5. The PP shall submit a 'Conceptual Mining Plan' indicating the accessible ramp from the surface to the pit bottom keeping the benches intact for the dimension as stipulated in the

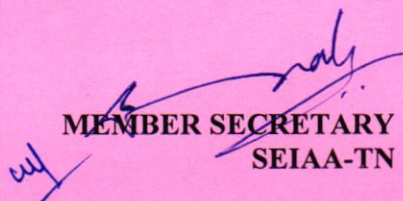

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Approved Mining Plan.

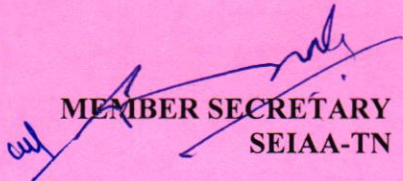
6. The PP shall submit the nature of buildings/structures, occupants and their profession, etc located within 500 m radius of the proposed quarry.

Annexure I

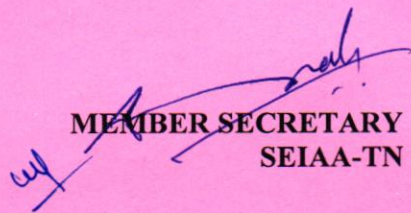
1. In the case of existing/operating mines, a letter obtained from the concerned AD (Mines) shall be submitted and it shall include the following:
 - (i) Original pit dimension
 - (ii) Quantity achieved Vs EC Approved Quantity
 - (iii) Balance Quantity as per Mineable Reserve calculated.
 - (iv) Mined out Depth as on date Vs EC Permitted depth
 - (v) Details of illegal/illicit mining
 - (vi) Violation in the quarry during the past working.
 - (vii) Quantity of material mined out outside the mine lease area
 - (viii) Condition of Safety zone/benches
 - (ix) Revised/Modified Mining Plan showing the benches of not exceeding 6 m height and ultimate depth of not exceeding 50m.
2. Details of habitations around the proposed mining area and latest VAO certificate regarding the location of habitations within 300m radius from the periphery of the site.
3. The proponent is requested to carry out a survey and enumerate on the structures located within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m (v) 500m shall be enumerated with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places of worship, industries, factories, sheds, etc with indicating the owner of the building, nature of construction, age of the building, number of residents, their profession and income, etc.
4. The PP shall submit a detailed hydrological report indicating the impact of proposed quarrying operations on the waterbodies like lake, water tanks, etc are located within 1 km of the proposed quarry.
5. The Proponent shall carry out Bio diversity study through reputed Institution and the same shall be included in EIA Report.
6. The DFO letter stating that the proximity distance of Reserve Forests, Protected Areas, Sanctuaries, Tiger reserve etc., up to a radius of 25 km from the proposed site.


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7. In the case of proposed lease in an existing (or old) quarry where the benches are not formed (or) partially formed as per the approved Mining Plan, the Project Proponent (PP) shall the PP shall carry out the scientific studies to assess the slope stability of the working benches to be constructed and existing quarry wall, by involving any one of the reputed Research and Academic Institutions - CSIR-Central Institute of Mining & Fuel Research / Dhanbad, NIRM/Bangalore, Division of Geotechnical Engineering-IIT-Madras, NIT-Dept of Mining Engg, Surathkal, and Anna University Chennai-CEG Campus. The PP shall submit a copy of the aforesaid report indicating the stability status of the quarry wall and possible mitigation measures during the time of appraisal for obtaining the EC.
8. However, in case of the fresh/virgin quarries, the Proponent shall submit a conceptual 'Slope Stability Plan' for the proposed quarry during the appraisal while obtaining the EC, when the depth of the working is extended beyond 30 m below ground level.
9. The PP shall furnish the affidavit stating that the blasting operation in the proposed quarry is carried out by the statutory competent person as per the MMR 1961 such as blaster, mining mate, mine foreman, II/I Class mines manager appointed by the proponent.
10. The PP shall present a conceptual design for carrying out only controlled blasting operation involving line drilling and muffle blasting in the proposed quarry such that the blast-induced ground vibrations are controlled as well as no fly rock travel beyond 30 m from the blast site.
11. The EIA Coordinators shall obtain and furnish the details of quarry/quarries operated by the proponent in the past, either in the same location or elsewhere in the State with video and photographic evidences.
12. If the proponent has already carried out the mining activity in the proposed mining lease area after 15.01.2016, then the proponent shall furnish the following details from AD/DD, mines,
13. What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?
14. Quantity of minerals mined out.
 - Highest production achieved in any one year
 - Detail of approved depth of mining.
 - Actual depth of the mining achieved earlier.
 - Name of the person already mined in that leases area.

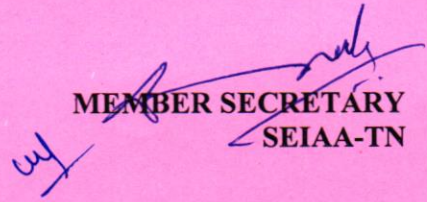

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- If EC and CTO already obtained, the copy of the same shall be submitted.
 - Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.
15. All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/Topo sheet, topographic sheet, geomorphology, lithology and geology of the mining lease area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).
 16. The PP shall carry out Drone video survey covering the cluster, green belt, fencing, etc.,
 17. The proponent shall furnish photographs of adequate fencing, green belt along the periphery including replantation of existing trees & safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan.
 18. The Project Proponent shall provide the details of mineral reserves and mineable reserves, planned production capacity, proposed working methodology with justifications, the anticipated impacts of the mining operations on the surrounding environment, and the remedial measures for the same.
 19. The Project Proponent shall provide the Organization chart indicating the appointment of various statutory officials and other competent persons to be appointed as per the provisions of the Mines Act'1952 and the MMR, 1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment.
 20. The Project Proponent shall conduct the hydro-geological study considering the contour map of the water table detailing the number of groundwater pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds, etc. within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD / TWAD so as to assess the impacts on the wells due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided.
 21. The proponent shall furnish the baseline data for the environmental and ecological parameters with regard to surface water/ground water quality, air quality, soil quality & flora/fauna including traffic/vehicular movement study.
 22. The Proponent shall carry out the Cumulative impact study due to mining operations carried out in the quarry specifically with reference to the specific environment in terms of soil health, biodiversity, air pollution, water pollution, climate change and flood control &


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- health impacts. Accordingly, the Environment Management plan should be prepared keeping the concerned quarry and the surrounding habitations in the mind.
23. Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.
 24. Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.
 25. Details of the land for storage of Overburden/Waste Dumps (or) Rejects outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be provided.
 26. Proximity to Areas declared as 'Critically Polluted' (or) the Project areas which attracts the court restrictions for mining operations, should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the TNPCB (or) Dept. of Geology and Mining should be secured and furnished to the effect that the proposed mining activities could be considered.
 27. Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.
 28. Impact on local transport infrastructure due to the Project should be indicated.
 29. A tree survey study shall be carried out (nos., name of the species, age, diameter etc.,) both within the mining lease applied area & 300m buffer zone and its management during mining activity.
 30. A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.
 31. As a part of the study of flora and fauna around the vicinity of the proposed site, the EIA coordinator shall strive to educate the local students on the importance of preserving local flora and fauna by involving them in the study, wherever possible.
 32. The purpose of Green belt around the project is to capture the fugitive emissions, carbon sequestration and to attenuate the noise generated, in addition to improving the aesthetics. A wide range of indigenous plant species should be planted as given in the appendix-I in consultation with the DFO, State Agriculture University. The plant species with

- dense/moderate canopy of native origin should be chosen. Species of small/medium/tall trees alternating with shrubs should be planted in a mixed manner.
33. Taller/one year old Saplings raised in appropriate size of bags, preferably ecofriendly bags should be planted as per the advice of local forest authorities/botanist/Horticulturist with regard to site specific choices. The proponent shall earmark the greenbelt area with GPS coordinates all along the boundary of the project site with at least 3 meters wide and in between blocks in an organized manner
 34. A Disaster management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.
 35. A Risk Assessment and management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.
 36. Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.
 37. Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.
 38. The Socio-economic studies should be carried out within a 5 km buffer zone from the mining activity. Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.
 39. Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.
 40. Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.
 41. If any quarrying operations were carried out in the proposed quarrying site for which now the EC is sought, the Project Proponent shall furnish the detailed compliance to EC conditions given in the previous EC with the site photographs which shall duly be certified by MoEF&CC, Regional Office, Chennai (or) the concerned DEE/TNPCB.


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42. The PP shall prepare the EMP for the entire life of mine and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine.
43. Concealing any factual information or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this Terms of Conditions besides attracting penal provisions in the Environment (Protection) Act, 1986.

Appendix -I
List of Native Trees Suggested for Planting

No	Scientific Name	Tamil Name	Tamil Name
1	<i>Aegle marmelos</i>	Vilvam	வில்வம்
2	<i>Adenanthura pavonina</i>	Manjadi	மஞ்சாடி, ஆனைக்குன்றிமணி
3	<i>Albizia lebbek</i>	Vaagai	வாகை
4	<i>Albizia amara</i>	Usil	உசில்
5	<i>Bauhinia purpurea</i>	Mantharai	மந்தாரை
6	<i>Bauhinia racemosa</i>	Aathi	ஆத்தி
7	<i>Bauhinia tomentosa</i>	Iruvathi	இருவாத்தி
8	<i>Buchanania axillaris</i>	Kattuma	காட்டுமா
9	<i>Borassus flabellifer</i>	Panai	பனை
10	<i>Butea monosperma</i>	Murukkamaram	முருக்கமரம்
11	<i>Bobax ceiba</i>	Ilavu, Sevvilavu	இலவு
12	<i>Calophyllum inophyllum</i>	Punnai	புன்னை
13	<i>Cassia fistula</i>	Sarakondrai	சரக்கொன்றை
14	<i>Cassia roxburghii</i>	Sengondrai	செங்கொன்றை
15	<i>Chloroxylon swietenia</i>	Purasamaram	பரசு மரம்
16	<i>Cochlospermum religiosum</i>	Kongu, Manjallavu	கோங்கு, மஞ்சள் இலவு
17	<i>Cordia dichotoma</i>	Naruvuli	நருவுளி
18	<i>Creteva adansonii</i>	Mavalingum	மாவிலங்கம்
19	<i>Dillenia indica</i>	Uva, Uzha	உசா
20	<i>Dillenia pentagyna</i>	SiruUva, Sitruzha	சிறு உசா
21	<i>Diospyro sebenum</i>	Karungali	கருங்காலி
22	<i>Diospyro schloroxylon</i>	Vaganai	வாகனை
23	<i>Ficus amplissima</i>	Kalltchi	கல் இச்சி
24	<i>Hibiscus tiliaceou</i>	Aatrupoovarasu	ஆற்றுப்புவரசு
25	<i>Hardwickia binata</i>	Aacha	ஆச்சா
26	<i>Holoptelia integrifolia</i>	Aayili	ஆயா மரம், ஆயிலி
27	<i>Lannea coromandelica</i>	Odhiyam	ஒதியம்
28	<i>Lagerstroemia speciosa</i>	Poo Marudhu	பூ மருது
29	<i>Lepisanthus tetraphylla</i>	Neikottaimaram	நெய் கொட்டை மரம்
30	<i>Limonia acidissima</i>	Vila maram	விலா மரம்
31	<i>Litsea glutinos</i>	Pisinpattai	அரம்பா, பிசின்பட்டை
32	<i>Madhuca longifolia</i>	Illuppai	இலுப்பை
33	<i>Manilkara hexandra</i>	UlakkaiPaalai	உலக்கை பாலை
34	<i>Mimusops elengi</i>	Magizhamaram	மகிழ்மரம்
35	<i>Mitragyna parvifolia</i>	Kadambu	கடம்பு
36	<i>Morinda pubescens</i>	Nuna	நுணா
37	<i>Morinda citrifolia</i>	Vellai Nuna	வெள்ளை நுணா
38	<i>Phoenix sylvestre</i>	Eachai	ஈச்சமரம்
39	<i>Pongamia pinnat</i>	Pungam	புங்கம்

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40	<i>Premna mollissima</i>	Munnai	முன்னை
41	<i>Premna serratifolia</i>	Narununnai	நறு முன்னை
42	<i>Premna tomentosa</i>	Malaipoovarasu	மலை பூவரசு
43	<i>Prosopis cinerea</i>	Varui maram	வன்னி மரம்
44	<i>Pterocarpus marsupium</i>	Vengai	வேங்கை
45	<i>Pterospermum canescens</i>	Vennangu, Tada	வெண்ணாங்கு
46	<i>Pterospermum xylocarpum</i>	Polavu	புலவு
47	<i>Puthranjiva roxburghii</i>	Karipala	கறிபாலா
48	<i>Salvadora persica</i>	Ugaa Maram	ஊகா மரம்
49	<i>Sapindus emarginatus</i>	Marupungan, Soapukai	மணிப்புங்கன் சோப்புக்காய்
50	<i>Saraca asoca</i>	Asoca	சுசோகா
51	<i>Streblus asper</i>	Piray maram	பிராய் மரம்
52	<i>Strychnos nuxvomica</i>	Yetti	எட்டி
53	<i>Strychnos potatorum</i>	Therthang Kottai	தேத்தான் கொட்டை
54	<i>Syzygium cumini</i>	Naval	நாவல்
55	<i>Terminalia bellerica</i>	Thandri	தாண்டரி
56	<i>Terminalia arjuna</i>	Ven marudhu	வெண் மருது
57	<i>Toona ciliata</i>	Sandhana vembu	சந்தன வேம்பு
58	<i>Thespesia populnea</i>	Puvarasu	பூவரசு
59	<i>Walsuratrifoliata</i>	valsura	வால்குரா
60	<i>Wrightia tinctoria</i>	Veppalai	வெப்பாலை
61	<i>Pithecellobium dulce</i>	Kodukkapuli	கொடுக்காப்பூளி

Discussion by SEIAA and the Remarks:-

The proposal was placed in the 660th Authority meeting held on 06.10.2023. The authority noted that this proposal was placed for appraisal in 409th meeting of SEAC held on 21.09.2023, the committee has furnished its recommendations for granting ToR with Public hearing subject to the conditions stated therein. After detailed discussions, the Authority accepts the recommendation of SEAC and decided to grant **Terms of Reference (ToR) along with Public Hearing** under cluster for undertaking the combined Environment Impact Assessment Study and preparation of separate Environment Management Plan subject to the conditions as recommended by SEAC & normal conditions in addition to the conditions in 'Annexure B' of this minute.

Annexure 'B'

Cluster Management Committee

1. Cluster Management Committee shall be framed which must include all the proponents in the cluster as members including the existing as well as proposed quarry.
2. The members must coordinate among themselves for the effective implementation of EMP as committed including Green Belt Development, Water sprinkling, tree plantation, blasting etc.,
3. The List of members of the committee formed shall be submitted to AD/Mines before the execution of mining lease and the same shall be updated every year to the AD/Mines.
4. Detailed Operational Plan must be submitted which must include the blasting frequency with respect to the nearby quarry situated in the cluster, the usage of haul roads by the individual quarry in the form of route map and network.

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SEIAA-TN

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

Impact study of mining

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

Agriculture & Agro-Biodiversity

13. Impact on surrounding agricultural fields around the proposed mining Area.
14. Impact on soil flora & vegetation around the project site.

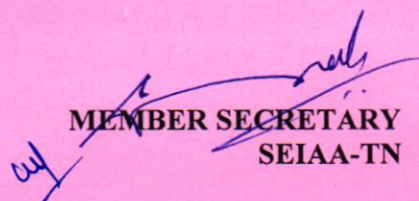
15. Details of type of vegetations including no. of trees & shrubs within the proposed mining area and. If so, transplantation of such vegetations all along the boundary of the proposed mining area shall committed mentioned in EMP.
16. The Environmental Impact Assessment should study the biodiversity,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

Forests

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

Water Environment

23. Hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) so as to assess the impacts on the nearby waterbodies due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided, covering the entire mine lease period.
24. Erosion Control measures.
25. Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area on the nearby Villages, Water-bodies/ Rivers, & any ecological fragile areas.
26. The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir.


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SEIAA-TN

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

Energy

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

Climate Change

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

Mine Closure Plan

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

EMP

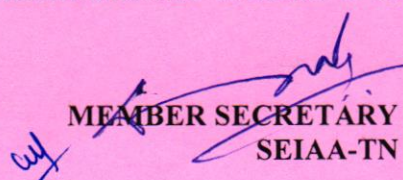
35. Detailed Environment Management Plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued.
36. The Environmental Impact Assessment should hold detailed study on EMP with budget for Green belt development and mine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

Risk Assessment

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

Disaster Management Plan

38. To furnish disaster management plan and disaster mitigation measures in regard to all aspects to avoid/reduce vulnerability to hazards & to cope with disaster/unfavorable accidents in &


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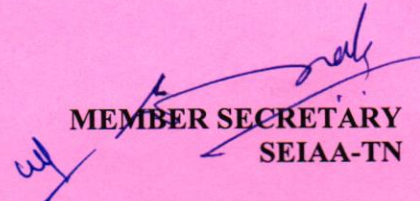
around the proposed mine lease area due to the proposed method of mining activity & its related activities covering the entire mine lease period as per precise area communication order issued.

Others

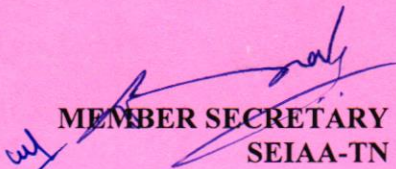
39. The project proponent shall furnish VAO certificate with reference to 300m radius regard to approved habitations, schools, Archaeological sites, Structures, railway lines, roads, water bodies such as streams, odai, vaari, canal, channel, river, lake pond, tank etc.
40. As per the MoEF& CC office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

A. STANDARD TERMS OF REFERENCE

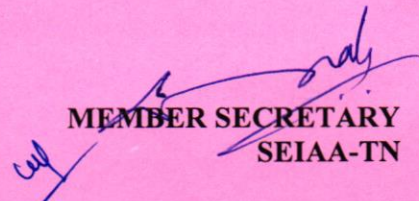
- 1) Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification 1994 came into force, w.r.t. the highest production achieved prior to 1994.
- 2) A copy of the document in support of the fact that the Proponent is the rightful lessee of the mine should be given.
- 3) All documents including approved mine plan, EIA and Public Hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and should be in the name of the lessee.
- 4) All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/ topo sheet, topographic sheet, geomorphology and geology of the area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).
- 5) Information should be provided in Survey of India Topo sheet in 1:50,000 scale indicating geological map of the area, geomorphology of land forms of the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics.


MEMBER SECRETARY
SEIAA-TN

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

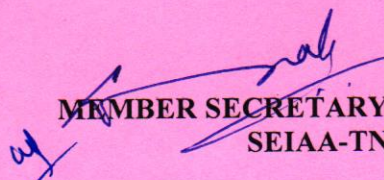

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- 13) Status of forestry clearance for the broken up area and virgin forestland involved in the Project including deposition of Net Present Value (NPV) and Compensatory Afforestation (CA) should be indicated. A copy of the forestry clearance should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

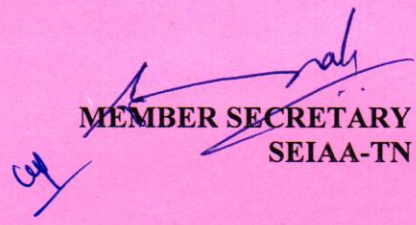

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under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).

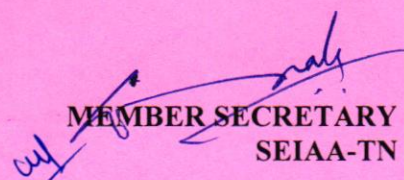
- 21) R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need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


MEMBER SECRETARY
SEIAA-TN

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


MEMBER SECRETARY
SEIAA-TN

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

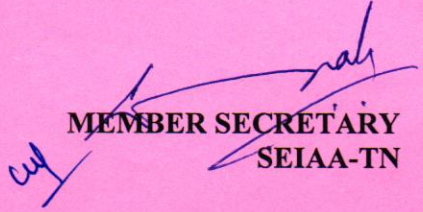

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SEIAA-TN

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

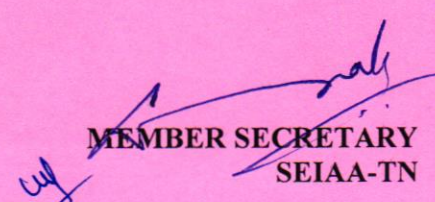
In addition to the above, the following shall be furnished:-

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

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


MEMBER SECRETARY
SEIAA-TN

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


MEMBER SECRETARY
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.

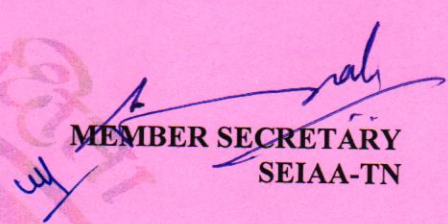
Besides the above, the below mentioned general points should also be followed:-

- 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 willtake

MEMBER SECRETARY
SEIAA-TN

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

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


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Copy to:

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



File No.: 12220
Government of India
Ministry of Environment, Forest and Climate Change
(Issued by the State Environment Impact Assessment Authority(SEIAA),
TAMIL NADU)



Dated 19/08/2025



To,

Thiru. K.Ranganathan
S/o.Karuppisamy,Np.11/243, Kurumbapalauam Road,Madukkarai,Coimbatore District,TAMIL NADU-
641105
ranganathansps@gmail.com

Subject: Amendment in prior Terms of Reference (ToR) granted to the project under the provision of the EIA Notification 2006 and as amended thereof regarding.

Sir/Madam,

Sub: SEIAA-TN – Amendment to Terms of Reference for the Proposed Rough stone and Gravel Quarry over an Extent of 2.28.0 Ha at S.F.Nos. 174/4 & 176/1, Edayarpalayam Village, Sulur Taluk, Coimbatore District, Tamil Nadu by Thiru. K.Ranganathan – under Category “B1” and Schedule Sl. No. 1(a) “Mining of Minerals Projects” under the EIA Notification, 2006 as amended – Amendment to Terms of Reference– Issued – Regarding.

Ref: 1. Earlier, ToR issued vide Lr No.SEIAA-TN/F.No. 10293/SEAC/ToR-1570/2023, Dated :06.10.2023.

2. Online proposal No. SIA/TN/MIN/537484/2025 dated 26.05.2025.

3. Minutes of the 594th meeting of SEAC held on 18.07.2025.

4. Minutes of the 866th SEIAA meeting held on 06.08.2025.

2. The particulars of the proposal are as below :

(i) TOR Identification No.	TO25B0108TN5650668A
(ii) File No.	12220
(iii) Clearance Type	Amendment in TOR
(iv) Category	B1
(v) Schedule No./ Project Activity	1(a) Mining of minerals
(vi) Name of Project	Edayarpalayam Village Ordinary Stone and Gravel Quarry
(vii) Location of Project (District, State)	COIMBATORE, TAMIL NADU
(viii) Issuing Authority	SEIAA
(ix) Applicability of General Conditions	No

Terms of Reference was issued vide Lr No.SEIAA-TN/F.No. 10293/SEAC/ToR-1570/2023, Dated :06.10.2023. to Thiru. K. Ranganathan for the Proposed Rough stone and Gravel Quarry over an Extent of 2.28.0 Ha at S.F.Nos. 174/4 & 176/1, Edayarpalayam Village, Suler Taluk, Coimbatore District, Tamil Nadu.

Now, the Proponent has again applied Amendment to Terms of Reference vide Online proposal No. SIA/TN/MIN/522153/2025, Dated: 05.02.2025.

Discussion of SEAC:

Proposed Rough stone and Gravel Quarry over an Extent of 2.28.0 Ha at S.F.Nos. 174/4 & 176/1, Edayarpalayam Village, Suler Taluk, Coimbatore District, Tamil Nadu by Thiru. K.Ranganathan – For Amendment to Terms of Reference with public hearing. (SIA/TN/MIN/537484/2025 dated 26.05.2025)

The proposal was placed in this 594th meeting of SEAC held on 18.07.2025. The details of the project furnished by the proponent are available on the PARIVESH web portal (parivesh.nic.in).

The SEAC noted the following:

1. The Project Proponent, **Thiru. K. Ranganathan** has applied for Amendment to Terms of Reference for Proposed Rough stone and Gravel Quarry over an Extent of 2.28.0 Ha at S.F.Nos. 174/4 & 176/1, Edayarpalayam Village, Suler Taluk, Coimbatore District, Tamil Nadu.

2. The project/activity is covered under Category “B1” of Item 1(a) “Mining of Minerals” of the Schedule to the EIA Notification, 2006 as amended.

3. As per the precise area communication, the lease period is 10 years and as per approved modified mining plan, mining plan period is for 5 years & production should not exceed 1,59,894 m³ of Rough Stone & 30,646 m³ of Gravel. As per the approved modified mining plan, the annual peak production shall not exceed 32,832m³ of rough stone & 12,200m³ of Gravel for an ultimate depth of 32.0m BGL.

4. Earlier the proposal was placed in this 578th meeting of SEAC-II held on 13.06.2025. SEAC-II noted that Earlier ToR issued vide Lr No.SEIAA-TN/F.No. 10293/SEAC/ToR-1570/2023, Dated :06.10.2023 pertaining to file no.10293/2023. The PP had applied for the amendment of ToR dated 06.10.2023 requesting to reduce the safety distance 150m to 70m from wind mill. Based on the presentation and details furnished by the project proponent, SEAC-II decided to defer the proposal and call for additional particulars as follows.

1. The PP shall submit the modified mining plan incorporating the safety distance of 70m from windmill and the same shall be approved by the competent authority.

5. Now, the proponent in his reply letter dated 13.05.2025 has submitted the approved modified mining plan by incorporating the safety distance of 70m to the windmill and requested to consider the proposal.

Based on the proponent’s reply, the proposal was placed in this **594th meeting of SEAC held on 18.07.2025.**

Based on the presentation and documents furnished by the project proponent, SEAC-II decided to recommend the Amendment in the Terms of Reference (TOR) along with Public Hearing subject to the following additional TORs & ToRs in Annexure of this minutes, in addition to the standard terms of reference for EIA study for non-coal mining projects and details issued by the MOEF & CC to be included in EIA/EMP Report:

1. The PP is requested to carry out the EIA study for the revised quantities and to prepare the EMP accordingly.

2. **A Cluster Management Committee (CMC) shall be constituted including all the mines in the cluster as Committee Members for the effective management of the mining operation in the cluster through systematic & scientific approach with appointment of required statutory personnel, appropriate environmental management, system of maintaining the haul roads and village/panchayat roads, authorized blasting operation, Monitoring system of the environmental & other statutory compliances & its reporting methodology, etc. The PP shall submit the following details in the form of an Affidavit during the EIA appraisal:**

(i) Copy of the agreement forming CMC.

(ii) The Organisation chart of the Committee with defining the role of the members

(iii) The ‘Standard Operating Procedures’ (SoP) executing the planned activities.

3. The PP shall ensure the installation of CCTV at the proposed quarry site and ensure its inclusion during the EIA presentation.

4. The proponent shall furnish photographs of adequate fencing, garland drainage built with siltation tank & green belt along the periphery; maintaining the safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan.

5. All other conditions mentioned in the ToR dated 06.10.2023 will remain unchanged and unaltered.

Discussion of SEIAA:

The subject was placed in the 866th Authority meeting held on 06.08.2025. The authority noted that the proposal was placed in the 594th SEAC meeting held on 18.07.2025. Based on the presentation and documents furnished by the project

proponent, SEAC-II decided to recommend the Amendment in the Terms of Reference (TOR) along with Public Hearing along with conditions stated therein.

After detailed discussions, the Authority accepts the recommendations of SEAC-II and decided to grant an amendment to the Terms of Reference issued earlier vide letter dated.06.10.2023, by reducing the safety distance to windmill from 150m to 70m, subject to the following conditions:

1. The additional ToRs proposed by SEAC should be studied and included in the EIA Report.
2. All other conditions and validity mentioned in the ToR dated.06.10.2023 shall remain unchanged and unaltered

Copy
To

1. The Secretary, Ministry of Mines, Government of India, Shastri Bhawan, New Delhi.
2. The Additional Chief Secretary to Government, Environment and Forests Department, Tamil Nadu.
3. The Additional Chief Secretary to Government, Natural Resources Department, Tamil Nadu.
4. The Additional Principal Chief Conservator of Forests, Regional Office (SZ), 34, HEPC Building, 1st& 2nd Floor, Cathedral Garden Road, Nungambakkam, Chennai – 34.
5. The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-Cum-Office Complex, East Arjun Nagar, New Delhi-110 032.
6. The Chair Person, TNPC Board,76, Mount Salai, Guindy, Chennai-32
7. The District Collector, Coimbatore District
8. The Commissioner of Geology and Mines, Guindy, Chennai-32
9. Assistant Director, Department of Geology & Mining, Coimbatore District
10. EI Division, Ministry of Environment & Forests, Paryavaran Bhawan, New Delhi.
11. File Copy.



உதவி இயக்குநர் அலுவலகம்,
புவியியல் மற்றும் சுரங்கத்துறை,
மாவட்ட ஆட்சியர் அலுவலக வளாகம்,
கோயம்புத்தூர் - 18.

ந.க.எண்.165/கனிமம்/2022

நாள்: 20.06.2023

குறிப்பாணை

பொருள்: கனிமங்களும் குவாரிகளும் - கோயம்புத்தூர் மாவட்டம் - துலூர் வட்டம் - இடையர்பாளையம் கிராமம் - புல எண்கள். புல எண்கள். 174/4-ல் 0.90.0 ஹெக்டேர் மற்றும் 176/1-ல் 1.38.0 ஹெக்டேர் ஆக மொத்தம் 2.28.0 ஹெக்டேர் பரப்பளவுள்ள பட்டா பூமியில் சாதாரணகற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க திரு.க.ரங்கநாதன் என்பவருக்கு - குவாரி குத்தகை அனுமதி வழங்குவது - தொடர்பாக.

- பார்வை: 1. திரு.க.ரங்கநாதன், த/பெ. திரு.கருப்புசாமி, 11/243, குரும்பாளையம் ரோடு, மதுக்கரை, கோயம்புத்தூர் மாவட்டம் என்பவரது விண்ணப்பம் நாள்: 17.02.2022.
2. இவ்வலுவலக கடிதம் இதே எண். நாள்: 21.02.2022.
3. வருவாய் கோட்டாட்சியர், கோயம்புத்தூர் தெற்கு அவர்களின் கடிதம் மூ.மு.எண். 1275/2022/அ2 நாள்: 06.09.2022.
4. உதவி புவியியலாளர், புவியியல் மற்றும் சுரங்கத்துறை, கோயம்புத்தூர் தணிக்கை அறிக்கை நாள்: 13.04.2023.
5. அரசாணை எண். 169, தொழில் (எம்எம்சி.1) துறை, நாள்: 04.08.2020.

பார்வை 1-ல் கோயம்புத்தூர் மாவட்டம், 11/243, குரும்பாளையம் ரோடு, மதுக்கரை என்ற முகவரியில் வசிக்கும் திரு.கருப்புசாமி என்பவரின் மகன் திரு.க.ரங்கநாதன் என்பவர் கோயம்புத்தூர் மாவட்டம், துலூர் வட்டம், இடையர்பாளையம் கிராமம், புல எண்கள். 174/4-ல் 0.90.0 ஹெக்டேர் மற்றும் 176/1-ல் 1.38.0 ஹெக்டேர் ஆக மொத்தம் 2.28.0 ஹெக்டேர் பரப்பளவுள்ள பட்டா பூமியில் சாதாரணகற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க குவாரி குத்தகை உரிமம் கோரி உரிய ஆவணங்களுடன் விண்ணப்பித்துள்ளனர்.

மேற்படி மனு தொடர்பாக, வருவாய் கோட்டாட்சியர், கோயம்புத்தூர் தெற்கு மற்றும் கோயம்புத்தூர் புவியியல் மற்றும் சுரங்கத்துறை உதவி புவியியலாளர் ஆகியோர் புலத்தணிக்கை மேற்கொண்டு கோயம்புத்தூர் மாவட்டம், 11/243, குரும்பாளையம் ரோடு, மதுக்கரை என்ற முகவரியில் வசிக்கும் திரு.கருப்புசாமி என்பவரின் மகன் திரு.க.ரங்கநாதன் என்பவருக்கு கோயம்புத்தூர் மாவட்டம், துலூர் வட்டம்,

இடையர்ப்பாளையம் கிராமம், புல எண்கள். 174/4-ல் 0.90.0 ஹெக்டேர் மற்றும் 176/1-ல் 1.38.0 ஹெக்டேர் ஆக மொத்தம் 2.28.0 ஹெக்டேர் பரப்பளவுள்ள பட்டா பூமியில் சாதாரணகற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க சில நிபந்தனைகளுடன் பரிந்துரை செய்துள்ளார்கள்.

அனுமதி கோரும் புல எண்கள். 174/4 மற்றும் 176/1 ஆகியவை பட்டா எண்: 788-ன் படி மனுதாரர் திரு.ரங்கநாதன் என்பவர் பெயரில் தனிப்பட்டவாக கிராம கணக்கில் தாக்கலாகியுள்ளது. எனவே மேற்படி பூமியில் மனுதாரர் குவாரி குத்தகை உரிமம் பெற தகுதியுடையவர் ஆவார்.

எனவே, வருவாய் கோட்டாட்சியர், கோயம்புத்தூர் தெற்கு மற்றும் உதவி புவியியலாளர், புவியியல் மற்றும் சுரங்கத்துறை, கோயம்புத்தூர் ஆகியோரின் பரிந்துரைகளின் அடிப்படையில் கோயம்புத்தூர் மாவட்டம், 11/243, குரும்பாளையம் ரோடு, மதுக்கரை என்ற முகவரியில் வசிக்கும் திரு.கருப்புசாமி என்பவரின் மகன் திரு.க.ரங்கநாதன் என்பவருக்கு கோயம்புத்தூர் மாவட்டம், சூலூர் வட்டம், இடையர்ப்பாளையம் கிராமம், புல எண்கள். 174/4-ல் 0.90.0 ஹெக்டேர் மற்றும் 176/1-ல் 1.38.0 ஹெக்டேர் ஆக மொத்தம் 2.28.0 ஹெக்டேர் பரப்பளவுள்ள பட்டா பூமியில் 1959-ஆம் ஆண்டு தமிழ்நாடு சிறுகனிம சலுகை விதிகளில் விதி 19(1) மற்றும் 22-ன் படி குத்தகை ஒப்பந்த பத்திரம் நிறைவேற்றும் நாளிலிருந்து 10 (பத்து) ஆண்டுகளுக்கு சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க கீழ்க்கண்ட நிபந்தனைகளுக்குட்பட்டு குவாரி குத்தகை வழங்குவதற்குரிய நிலப்பரப்பாக (Precise Area Communication) கருதப்படுகிறது.

நிபந்தனைகள்

1. அருகிலுள்ள பட்டா நிலங்களுக்கும் மற்றும் பொது மக்களுக்கும், எவ்வித இடையூறும் இன்றி சாதாரண கல் மற்றும் கிராவல் குவாரி பணி மேற்கொள்ள வேண்டும்.
2. அருகில் உள்ள பட்டா நிலத்திற்கு 7.5 மீட்டர் பாதுகாப்பு இடைவெளி விட்டு குவாரிப்பணி மேற்கொள்ள வேண்டும்.
3. அனுமதி கோரும் புலங்களின் கிழக்கு பகுதியில் செல்லும் மின்கம்பி பாதையை குத்தகை உரிமம் பெறுவதற்கு முன்னர் மாற்றியமைத்துக் கொள்ளவேண்டும்.
4. அனுமதி கோரும் புலத்தினை அரசு அங்கீகாரம் பெற்ற நிறுவனத்தினரால் DGPS (Differential Global Positioning System)-ன் படி ஆய்வு செய்யப்பட்டு ஒவ்வொரு எல்லைத் தூண்களும் நடப்படவேண்டும்.
5. குழந்தை தொழிலாளர்களை வேலைக்கு அமர்த்தல் கூடாது.

- 6 JUL 2023

மேலும், தமிழ்நாடு சிறுகனிம சலுகை விதிகள்-1959 விதி எண். 41 மற்றும் 42-ன் படி குவாரிப்பணி மேற்கொள்வது தொடர்பாக வரைவு சுரங்க திட்டத்தினை 90 தினங்களுக்குள் சமர்ப்பிக்குமாறும், மாநில சுற்றுச்சூழல் தாக்க மதிப்பீட்டு அதிகார அமைப்பின் அனுமதியினை பெற்று சமர்ப்பிக்கவும் மனுதாரரை கேட்டுக் கொள்ளப்படுகிறது.

உதவி இயக்குநர்,
புவியியல் மற்றும் சுரங்கத்துறை
கோயம்புத்தூர்.

பெறுநர்:
திரு. K. ரங்கநாதன்,
த/பெ. திரு. கருப்புசாமி,
11/243, குரும்பாளையம் ரோடு,
மதுக்கரை,
கோயம்புத்தூர் மாவட்டம்

S. Suriyakumar
S. SURIYAKUMAR
M.Sc., M. Phil (Geo), F.C.C (Mining)
Qualified Person

From
Thiru.V.Sasikumar, M.Sc.,
Assistant Director,
Dept. of Geology and Mining,
Coimbatore.

To
Thiru.K.Ranganathan,
S/o. Karuppusamy,
11/243, Kurumbapalayam Road,
Madukkarai,
Coimbatore District.

Rc.No. 165/Mines/2022 **Dated: 06.07.2023**

Sir,

Sub: Mines & Minerals – Minor Mineral – Coimbatore District –
Sulur Taluk – Edayarpalayam Village - Survey No.174/4
- 0.90.0 Hectare and 176/1 - 1.38.0 Hectare over an
extent of 2.28.0 hectares of patta land - Application
preferred by Thiru.K.Ranganathan for quarrying Rough
stone and gravel – Submission of mining plan for
approval – approved – regarding.

- Ref: 1. Quarry lease application dated 17.02.2022 preferred
by Thiru.K.Ranganathan, Coimbatore.
2. Assistant Director, Dept. of Geology and Mining,
Coimbatore Letter Rc.No.165/Mines/2022, Dated:
20.06.2023
3. Mining Plan submitted by Thiru.K.Ranganathan
dated: 27.06.2023.

In response to the precise area communicated by the Assistant
Director of Geology and Mining, Coimbatore the applicant Thiru.
K. Ranganathan has submitted three copies of mining plan vide
reference 3rd cited for the grant of Rough stone and gravel quarry
lease over an extent of 2.28.0 hectares of patta land in Survey
No.174/4 (0.90.0 Hectare) and 176/1 (1.38.0 Hectare) of
Edayarpalayam Village, Sulur Taluk, Coimbatore District.

2. The mining plan submitted for the grant of Rough stone and
gravel quarry lease over an extent of 2.28.0 hectares of patta land in
Survey No.174/4 (0.90.0 Hectare) and 176/2 (1.38.0 hectares) of
Edayarpalayam Village, Sulur Taluk, Coimbatore District has been
verified in detail.

3. As per the guidelines/instructions issued by the
Commissioner of Geology and Mining, Chennai vide letter
Rc.No.3868/LC/2012, dated 19.11.2012, the mining plan is hereby
approved, subject to the following conditions:

- (i) The mining plan is approved without prejudice to any other Law applicable to the quarry lease from time to time whether such laws are made by the Central Government, State Government or any other authority.
- (ii) This approval of the mining plan does not in any way imply the approval of the Government in terms or any other provisions of the Mines and Minerals (Development and Regulation) Amended Act, 2015, or any other connected laws including Forest (Conservation) Act, 1980, Forest Conservation Rules, 1981, Environment Protection Act, 1980, Explosives Act, 1884 (Central Act IV of 1884) and the Rules made there under and the Tamil Nadu Minor Mineral Concession Rules, 1959.
- (iii) The mining plan is approved without prejudice to any other order or direction from any court of competent jurisdiction.
- (iv) As per the Assistant Director, Dept. of Geology and Mining, Coimbatore letter Rc.No.165/Mines/2022, Dated: 20.06.2022 the following conditions have been incorporated in the Mining Plan.
 - a) No hindrance should be caused to the adjacent pattadars and public.
 - b) A safety distance of 7.5 meters should be provided for the adjacent patta lands from the lease applied area.
 - c) A safety distance of 50 meters should be provided for an EB Line passing on the Eastern side of the applied area and also wind mill situated on the North Western side of S.F.No.176/1.
 - d) DGPS survey should be done by the Government recognized agency and boundary stones should be erected along the entire boundary of the leased out area.
 - e) Quarrying should be done in are seeking permission along after leaving proper safety distance.
 - v) Quarrying shall be done as per the approved Mining Plan and that the mining plan is approved without prejudice to any other law applicable to the quarry lease from time to time whether such laws are made by the Central Government, State Government or any other authority.

Encl: Two copies of Approved Mining Plan.

Asst Dir
Assistant Director,
Dept. of Geology and Mining,
Coimbatore.

20/6/22
Copy submitted to the Director of Geology and Mining, Chennai-32.

From
Dr.G.Panneer Selvam,
Deputy Director,
Dept. of Geology and Mining,
Coimbatore

To
Thiru.K.Ranganathan,
S/o. Karuppusamy,
11/243, Kurumbapalayam Road,
Madukkarai,
Coimbatore District.

Rc.No. 165/Mines/2022 Dated: 08.07.2025

Sub: Mines and Minerals- Minor Mineral – Rough stone and gravel
– Coimbatore district – Precise area granted for quarrying
rough stone and gravel over an extent of 2.28.0 hectares in
S.F.Nos.174/4 & 176/1 of Edayarpalayam Village – Sulur
Taluk – Coimbatore District – Mining plan approved – Revised
Mining Plan submitted – approved - Reg.

Ref: 1. Precise area communication letter in
Rc.No.165/Mines/2022 dated 20.06.2023.
2. Assistant Director of Geology and Mining, Coimbatore letter
in Rc.No.165/Mines/2022 dated 06.07.2023.
3. Thiru.K.Ranganathan, S/o.Karuppusamy letter dated
27.06.2025.
4. Other connected records.

Kind attention to the reference cited.

In the ref 1st cited in an extent of 2.28.0 hectares of Edayarpalayam Village, Sulur Taluk had been considered as precise area for quarrying rough stone and gravel for a period of 10 years under Rule 19(1) of TNMMCR 1959 with certain conditions. The same has been communicated to the applicant Thiru.Ranganathan, S/o.Karuppusamy with a direction to submit the approved mining plan and the Environmental Clearances obtained from appropriate authorities concerned for grant of lease, in accordance with Rules 41 and 42 of said Rules.

In accordance with the above the mining plan has been prepared by providing 50 mts safety distance to the wind mill located on the western side of the applied area and the same was approved by the Assistant Director of Geology and Mining, Coimbatore.

On after, the applicant has approached the State Level Environment Impact Assessment Authority for obtaining Environmental clearance vide proposal no.SIA/TN/MIN/537484/2025, F.No.10293 dated 16.06.2025.

In this circumstances, the applicant has prepared the Modified (Revised) Mining plan by providing 70 mts safety distance to the wind mill as directed by the SEIAA and submitted the same and requested for approval by enclosing the agenda copy of SEIAA vide Agenda no.10.

On perusal, it is learnt that, the SEIAA has directed the PP shall submit the modified mining plan incorporating the safety distance of 70 mts from the wind mill and the same shall be approved by the competent authority.

Accordingly, the applicant has prepared the Revised / Modified Mining plan and submitted for approval.

In this connection, the subject area was inspected by the Deputy Director of Geology and Mining on 07.07.2025 and reported that, the subject wind mill is located about 25 mts on the western side of the boundary of the applied area. Hence, a distance of 45 mts in the applied area has to be provided to the wind mill (a total of 70 mts). Further, he has reported that, the plan of mining prepared is tallied with the ground realities and recommended for approval.

Hence, the Revised/Modified Mining Plan is hereby approved subject to the following conditions.

- (i) The mining plan is approved without prejudice to any other Law applicable to the quarry lease from time to time whether such laws are made by the Central Government, State Government or any other authority.
- (ii) This approval of the mining plan does not in any way imply the approval of the Government in terms or any other provisions of the Mines and Minerals (Development and Regulation) Amended Act, 2015, or any other connected laws including Forest (Conservation) Act, 1980, Forest Conservation Rules, 1981, Environment Protection Act, 1980, Explosives Act, 1884 (Central Act IV of 1884) and the Rules made there under and the Tamil Nadu Minor Mineral Concession Rules, 1959.
- (iii) The mining plan is approved without prejudice to any other order or direction from any court of competent jurisdiction

Deputy Director,
Dept. of Geology and Mining,
Coimbatore

From

Thiru.V.Sasikumar, M.Sc.,
Assistant Director,
Dept. of Geology and Mining,
Coimbatore.

To

Thiru.K.Ranganathan,
S/o. Karuppusamy,
11/243, Kurumbapalayam Road,
Madukkarai,
Coimbatore District

Rc.No.165/Mines/2022

Dated: 06.07.2023

Sir,

Sub: Mines & Minerals – Minor Mineral – Coimbatore District – Sulur Taluk – Edayarpalayam Village - Survey No.174/4 (0.90.0 Hectare) and 176/1 (1.38.0 Hectare) - over an extent of 2.28.0 hectares of patta land - Application preferred by Thiru. K.Ranganathan for quarrying Rough stone and gravel – Precise area communicated - Details of quarries situated within 500 meter radial distance - Requested – furnished - reg.

- Ref. 1. Assistant Director, Dept. of Geology and Mining, Coimbatore Letter Rc.No.165/Mines/2022, Dated: 20.06.2023.
2. Thiru.K.Ranganathan, Coimbatore letter dated: 27.06.2023.

I invite kind attention to the reference cited wherein Thiru. K.Ranganathan has been issued precise area for the grant of Rough Stone and gravel quarry lease over an extent of 2.28.0 hectares of patta land in Survey No.174/4 (0.90.0 Hectare) and 176/1 (1.38.0) of Edayarpalayam Village, Sulur Taluk, Coimbatore District.

In the reference 2nd cited of Thiru.K.Ranganathan has requested to furnish the details of quarries situated within 500 meter radial distance from the proposed area.

In this connection the details of abandoned, expired, existing and proposed quarries situated within 500 meter radial distance from the proposed area are furnished below.

i) Existing Quarries

Sl. No.	Name of the Owner	Village & S.F.Nos.	Extent in Hect.	Lease period	Remarks
1.	N.Chithradevi	Edayarpalayam 179/2	3.64.5	14.07.2021 to 13.07.2026	

ii) Expired Quarries

Sl. No.	Name of the Owner	Village & S.F.Nos.	Extent in Hect.	Lease period	Remarks
1	B.Sakthivel	Edayarpalayam 164/6A, 164/7	1.19.5	07.10.2017 to 06.10.2022	

iii) Abandoned quarries

Sl. No.	Name of the Owner	Village & S.F.Nos.	Extent in Hect.	Lease period	Remarks
1.	Government	Edayarpalayam 164/1	3.13.5		
2.	Tmt.Ponnammal	Edayarpalayam 178/2	2.34.5		

iv) Proposed quarries

Sl. No.	Name of the Owner	Village & S.F.Nos.	Extent in Hect.	Remarks
1.	K.Ranganathan	Edayarpalayam 174/4, 176/1	2.28.0	Subject area Precise area communicated
2.	N.Kathires	Edayarpalayam 172/1B, 172/2, 173/2A2	1.42.82	Pending with SEIAA
3.	Ultra Redaymix Concrete (P) Ltd.,	Edayarpalayam 168/2A, 168/2B, 169/1C, 169/2A	4.10.50	Pending with SEIAA
4.	V. Saravanan	Edayarpalayam 171/2part, 176/2	1.84.0	Precise area communicated

v) Future Proposed quarries

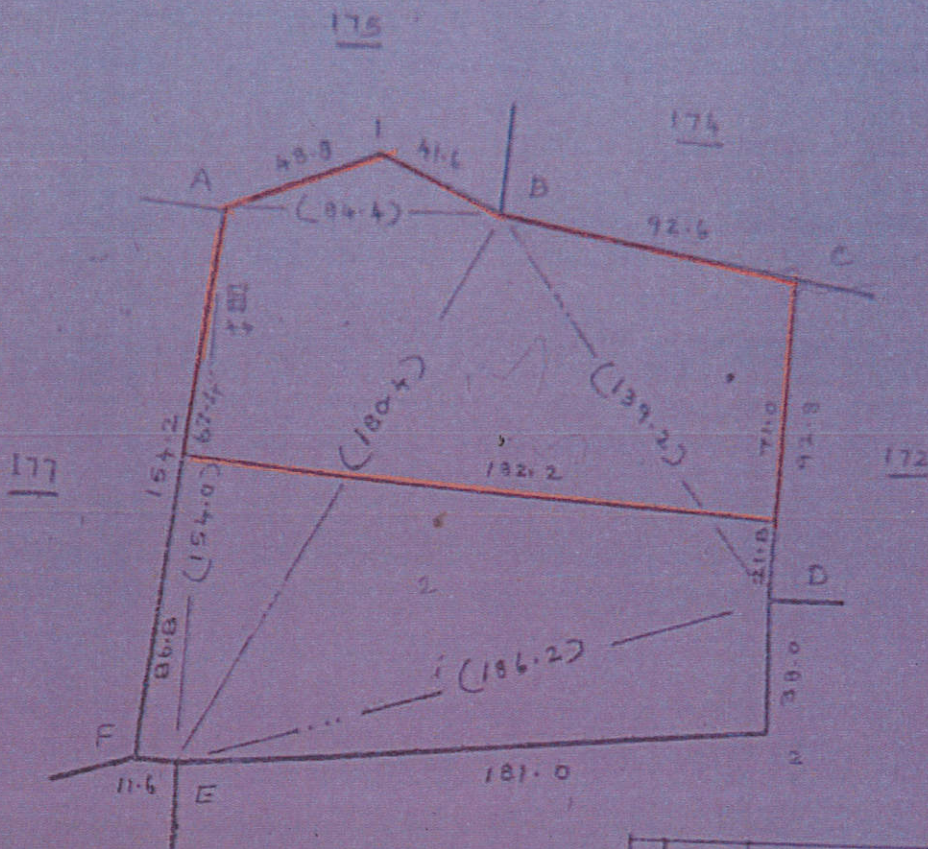
Sl. No.	Name of the Owner	Village & S.F.Nos.	Extent in Hect.	Remarks
---NIL---				

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

பகுதி 176

பகுதி 176

2 of 76-5 6 JUL 2023



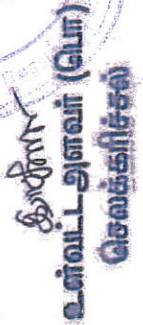
	E		
	(154.2)		
3.6	26.2		
3.2	20.8		
	A		
	(134.0)		
F	11.6	0.2	
	E		
	(186.2)		
2	37.0	8.2	
	D		
	A		
	(84.4)		
	38.2	16.0	1
	B		

K. P. [Signature]
28/06/2022

மாபடம் 1:2000

மாபடம் 1:2000

K. [Signature]
28/06/2022



பெயர் : இடையர்பாளையம்





தமிழ்நாடு அரசு

வருவாய்த் துறை

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

மாவட்டம் : கோயம்புத்தூர்

வட்டம் : சூலூர்

வருவாய் கிராமம் : இடையபாளையம்

பட்டா எண் : 788

உரிமையாளர்கள் பெயர்

1. கருப்புசாமி

மகன்

ரங்கநாதன்



புல எண்	உட்பிரிவு	புன்செய்		நன்செய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	
173	1	0 - 45.50	0.92	--	--	--	--	2018/0103/12/087786- -- -- 06-02-2018
174	4	0 - 90.00	1.82	--	--	--	--	2018/0103/12/087786- -- -- 06-02-2018
176	1	1 - 38.00	2.75	--	--	--	--	2018/0103/12/087786- -- -- 06-02-2018
		2 - 73.50	5.49					

குறிப்பு2 :



1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் **12/10/027/00788/90783** என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 15-09-2023 அன்று 02:39:08 PM நேரத்தில் அச்சடிக்கப்பட்டது.
3. கைப்பேசி கேமராவின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

அ-பதிவேடு விவரங்கள்

மாவட்டம் : கோயம்புத்தூர்

வட்டம் : சூலூர்

கிராமம் : இடையபாளையம்

1. புல எண்	174	9. மண் வயனமும் ரகமும்	8 - 3
2. உட்பிரிவு எண்	4	10. மண் தரம்	5
3. பழைய புல உட்பிரிவு எண்	-P	11. தீர்வை (ரூ - ஹெ)	2.00
4. பகுதி	-	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 90.00
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	1.82
6. நிலத்தின் வகை	பஞ்சை	14. பட்டா எண்	788
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	-	16. பெயர்	1.ரங்கநாதன்

குறிப்பு 1:



1.

மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் **30783** என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

அ-பதிவேடு விவரங்கள்

மாவட்டம் : கோயம்புத்தூர்

வட்டம் : சூலூர்

கிராமம் : இடையபாளையம்

1. புல எண்	176	9. மண் வயனமும் ரகமும்	8 - 3
2. உட்பிரிவு எண்	1	10. மண் தரம்	5
3. பழைய புல உட்பிரிவு எண்	176-1	11. தீர்வை (ரூ - ஹெ)	2.00
4. பகுதி	-	12. பரப்பு (ஹெக்டேர் - ஏர்)	1 - 38.00
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	2.75
6. நிலத்தின் வகை	பஞ்சை	14. பட்டா எண்	788
7. பாசன ஆதாரம்	-	15. குறிப்பு	கிணறு-1
8. இரு போகமா	-	16. பெயர்	1.ரங்கநாதன்

குறிப்பு 1:



1.

மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் **30783** என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

ABM ENVIRO LAB

(A Unit of Aadhi Boomi Mining and Enviro Tech (P) Ltd.)



NIPBASS PLAZA
4/77-L, Indrani Nagar, Santhal Road
Narasothipatti, Salem - 636004, Tamil Nadu
Mob: 9842729655, 9443290855



suriyakumarsemban@gmail.com / abmenvirotech@gmail.com

TEST REPORT

Sample ID:ABMEL/2025-TR-15(A)		Report Date:13.05.2025	
Customer Name	K. Ranganathan,		
Address	Edayarpalayam Village, Sulur (Tk), Coimbatore (Dt).		
Sample Mark	Core Zone	Sample Code	ABMEL/W/15(a)
Date of Sampling	06.05.2025	Sample Description	Colourless liquid
Sample Received on	07.05.2025	Sampling Method	ABMEL/QSP/20
Test Commenced on	07.05.2025	Sample BY	Customer
Test Completed on	11.05.2025	Sample Quantity	1Liter

Discipline		Chemical Testing		
Product Name		Water		
S.no	Parameters	Protocol	Unit	Result
1	pH	IS 3025 (Part 11): 2022	-	7.87
2	Electrical Conductivity (EC)	IS 3025(Part 14):2013	µs/cm	1840
3	Turbidity	IS 3025 (Part 10): 2023	NTU	BDL(DL:0.1)
4	Temperature	IS3025(Part9): 2023	°C	24.8
5	Total Suspended Solids (TSS)	IS 3025 (Part17):2022	mg/l	16
6	Total Dissolved Solids (TDS)	IS 3025 (Part16): 2023	mg/l	1120
7	Total Hardness as CaCO ₃	IS 3025 (Part21): 2009	mg/l	212
8	Calcium as Ca	IS 3025 (Part 40): 2024	mg/l	64
9	Magnesium as Mg	IS 3025 (Part 46):2023	mg/l	13
10	Chloride as Cl ⁻	IS 3025 (Part 32): 1988	mg/l	164
11	Total Alkalinity as CaCO ₃	IS 3025 (Part 23):2023	mg/l	112
12	Carbonate	IS 3025 (Part 51): 2023	mg/l	BDL(DL:1.0)
13	Bicarbonate	IS 3025 (Part 51): 2023	mg/l	112
14	Sulphate	IS 3025 (Part 24): 1986	mg/l	88
15	Iron	IS 3025 (Part 53): 2024	mg/l	1.028

BDL = Below Detectable Limit; DL = Detection Limit

Verified BY

A. Nagadevi

TECHNICAL MANAGER
ABM ENVIRO LAB



----- End of the Report -----

Page 1 of 1

For ABM ENVIRO LAB

Authorized Signatory
Reviewed & Authorized by
Mr. S. SURIYA KUMAR
Quality Manager
Authorized Signatory

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ABM ENVIRO LAB

(A Unit of Aadhi Boom Mining and Enviro Tech (P) Ltd.)



NIPBASS PLAZA
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Narasothipatti, Salem - 636004, Tamil Nadu
Mob: 9842729655, 9443290855

suriyakumarsenban@gmail.com / abmenvirotech@gmail.com



TEST REPORT

Sample ID:ABMEL/2025-TR-15(A)		Report Date:13.05.2025	
Customer Name	K. Ranganathan,		
Address	Edayarpalayam Village, Suler (Tk), Coimbatore (Dt).		
Sample Mark	Buffer Zone-I	Sample Code	ABMEL/W/15(a)
Date of Sampling	06.05.2025	Sample Description	Colourless liquid
Sample Received on	07.05.2025	Sampling Method	ABMEL/QSP/20
Test Commenced on	07.05.2025	Sample BY	Customer
Test Completed on	11.05.2025	Sample Quantity	1Liter

Discipline		Chemical Testing		
Product Name		Water		
S.no	Parameters	Protocol	Unit	Result
1	pH	IS 3025 (Part 11): 2022	-	8.02
2	Electrical Conductivity (EC)	IS 3025 (Part 14): 2013	µs/cm	1093
3	Turbidity	IS 3025 (Part 10): 2023	NTU	BDL (DL: 0.1)
4	Temperature	IS 3025 (Part 9): 2023	°C	25.1
5	Total Suspended Solids (TSS)	IS 3025 (Part 17): 2022	mg/l	8
6	Total Dissolved Solids (TDS)	IS 3025 (Part 16): 2023	mg/l	664
7	Total Hardness as CaCO ₃	IS 3025 (Part 21): 2009	mg/l	180
8	Calcium as Ca	IS 3025 (Part 40): 2024	mg/l	53
9	Magnesium as Mg	IS 3025 (Part 46): 2023	mg/l	12
10	Chloride as Cl ⁻	IS 3025 (Part 32): 1988	mg/l	88
11	Total Alkalinity as CaCO ₃	IS 3025 (Part 23): 2023	mg/l	104
12	Carbonate	IS 3025 (Part 51): 2023	mg/l	16
13	Bicarbonate	IS 3025 (Part 51): 2023	mg/l	88
14	Sulphate	IS 3025 (Part 24): 1986	mg/l	58
15	Iron	IS 3025 (Part 53): 2024	mg/l	0.846

BDL = Below Detectable Limit; DL = Detection Limit

For ABM ENVIRO LAB

Verified BY

A. Nagadevi

TECHNICAL MANAGER
ABM ENVIRO LAB



End of the Report

Page 1 of 1

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Reviewed & Authorized by
Mr. S. SURIYA KUMAR
Quality Manager
Authorized Signatory

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Mob: 9842729655, 9443290855

suriyakumarsamban@gmail.com / abmenvirotech@gmail.com



TEST REPORT

Sample ID:ABMEL/2025-TR-15(A)		Report Date:13.05.2025	
Customer Name	K.Ranganathan,		
Address	Thimmanaikenpalayam Village, Sulur (Tk), Coimbatore (Dt).		
Sample Mark	Buffer Zone-II	Sample Code	ABMEL/W/15(a)
Date of Sampling	06.05.2025	Sample Description	Colourless liquid
Sample Received on	07.05.2025	Sampling Method	ABMEL/QSP/20
Test Commenced on	07.05.2025	Sample BY	Customer
Test Completed on	11.05.2025	Sample Quantity	1Liter

Discipline		Chemical Testing		
Product Name		Water		
S.no	Parameters	Protocol	Unit	Result
1	pH	IS 3025 (Part 11): 2022	-	7.73
2	Electrical Conductivity (EC)	IS 3025 (Part 14): 2013	µs/cm	1765
3	Turbidity	IS 3025 (Part 10): 2023	NTU	BDL(DL:0.1)
4	Temperature	IS 3025 (Part 9): 2023	°C	24.8
5	Total Suspended Solids (TSS)	IS 3025 (Part 17): 2022	mg/l	8
6	Total Dissolved Solids (TDS)	IS 3025 (Part 16): 2023	mg/l	1064
7	Total Hardness as CaCO ₃	IS 3025 (Part 21): 2009	mg/l	188
8	Calcium as Ca	IS 3025 (Part 40): 2024	mg/l	40
9	Magnesium as Mg	IS 3025 (Part 46): 2023	mg/l	21
10	Chloride as Cl ⁻	IS 3025 (Part 32): 1988	mg/l	148
11	Total Alkalinity as CaCO ₃	IS 3025 (Part 23): 2023	mg/l	166
12	Carbonate	IS 3025 (Part 51): 2023	mg/l	BDL(DL:1.0)
13	Bicarbonate	IS 3025 (Part 51): 2023	mg/l	166
14	Sulphate	IS 3025 (Part 24): 1986	mg/l	72
15	Iron	IS 3025 (Part 53): 2024	mg/l	0.924

BDL = Below Detectable Limit; DL = Detection Limit

Verified BY

A. Nagadevi
TECHNICAL MANAGER
ABM ENVIRO LAB



End of the Report

For ABM ENVIRO LAB

Authorized Signatory
Reviewed & Approved
Mr. S. SURIYA KUMAR
Quality Manager
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Page 1 of 1

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Mob: 9842729655, 9443290855



suriyakumarsemban@gmail.com / abmenvirotech@gmail.com

TEST REPORT

Sample ID:ABMEL/2025-TR-15(A)		Report Date:13.05.2025	
Customer Name	K. Ranganathan,		
Address	Bogampatti Village, Sulur (Tk), Coimbatore (Dt).		
Sample Mark	Buffer Zone-III	Sample Code	ABMEL/W/15(a)
Date of Sampling	06.05.2025	Sample Description	Colourless liquid
Sample Received on	07.05.2025	Sampling Method	ABMEL/QSP/20
Test Commenced on	07.05.2025	Sample BY	Customer
Test Completed on	11.05.2025	Sample Quantity	1Liter

Discipline		Chemical Testing		
Product Name		Water		
S.no	Parameters	Protocol	Unit	Result
1	pH	IS 3025 (Part 11): 2022	-	6.8
2	Electrical Conductivity (EC)	IS 3025(Part 14):2013	µs/cm	750
3	Turbidity	IS 3025 (Part 10): 2023	NTU	BDL(DL:0.1)
4	Temperature	IS3025(Part9): 2023	°C	24.8
5	Total Suspended Solids (TSS)	IS 3025 (Part17):2022	mg/l	4
6	Total Dissolved Solids (TDS)	IS 3025 (Part16): 2023	mg/l	464
7	Total Hardness as CaCO ₃	IS 3025 (Part21): 2009	mg/l	68
8	Calcium as Ca	IS 3025 (Part 40): 2024	mg/l	17
9	Magnesium as Mg	IS 3025 (Part 46):2023	mg/l	6
10	Chloride as Cl ⁻	IS 3025 (Part 32): 1988	mg/l	39
11	Total Alkalinity as CaCO ₃	IS 3025 (Part 23):2023	mg/l	89
12	Carbonate	IS 3025 (Part 51): 2023	mg/l	BDL(DL:1.0)
13	Bicarbonate	IS 3025 (Part 51): 2023	mg/l	89
14	Sulphate	IS 3025 (Part 24): 1986	mg/l	24
15	Iron	IS 3025 (Part 53): 2024	mg/l	0.044

BDL = Below Detectable Limit; DL = Detection Limit

For ABM ENVIRO LAB

Verified BY

A. Nagadevi

**TECHNICAL MANAGER
ABM ENVIRO LAB**



----- End of the Report -----

Page 1 of 1

Authorized Signatory
**Reviewed & Authorized by
Mr. S. SURIYA KUMAR
Quality Manager
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suriyakumarsemban@gmail.com / abmenvirotech@gmail.com



TEST REPORT

Sample ID:ABMEL/2025-TR-15(A)		Report Date:13.05.2025	
Customer Name	K.Ranganathan,		
Address	Bogampatti Village, Suler (Tk), Coimbatore (Dt).		
Sample Mark	Buffer Zone-IV	Sample Code	ABMEL/W/15(a)
Date of Sampling	06.05.2025	Sample Description	Colourless liquid
Sample Received on	07.05.2025	Sampling Method	ABMEL/QSP/20
Test Commenced on	07.05.2025	Sample BY	Customer
Test Completed on	11.05.2025	Sample Quantity	1Liter

Discipline		Chemical Testing		
Product Name		Water		
S.no	Parameters	Protocol	Unit	Result
1	pH	IS 3025 (Part 11): 2022	-	7.47
2	Electrical Conductivity (EC)	IS 3025 (Part 14): 2013	µs/cm	1960
3	Turbidity	IS 3025 (Part 10): 2023	NTU	BDL (DL: 0.1)
4	Temperature	IS 3025 (Part 9): 2023	°C	25.1
5	Total Suspended Solids (TSS)	IS 3025 (Part 17): 2022	mg/l	16
6	Total Dissolved Solids (TDS)	IS 3025 (Part 16): 2023	mg/l	1216
7	Total Hardness as CaCO ₃	IS 3025 (Part 21): 2009	mg/l	226
8	Calcium as Ca	IS 3025 (Part 40): 2024	mg/l	53
9	Magnesium as Mg	IS 3025 (Part 46): 2023	mg/l	23
10	Chloride as Cl ⁻	IS 3025 (Part 32): 1988	mg/l	170
11	Total Alkalinity as CaCO ₃	IS 3025 (Part 23): 2023	mg/l	208
12	Carbonate	IS 3025 (Part 51): 2023	mg/l	BDL (DL: 1.0)
13	Bicarbonate	IS 3025 (Part 51): 2023	mg/l	208
14	Sulphate	IS 3025 (Part 24): 1986	mg/l	104
15	Iron	IS 3025 (Part 53): 2024	mg/l	1.042

BDL = Below Detectable Limit; DL = Detection Limit

For ABM ENVIRO LAB

Verified By

A. Nagadevi

TECHNICAL MANAGER
ABM ENVIRO LAB



End of the Report

Page 1 of 1

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Authorized Signatory
Reviewed & Authorized by
Mr. S. SURIYA KUMAR
Quality Manager
Authorized Signatory

TEST REPORT

Sample ID:ABMEL/2025/TR-15(A)		Report Date: 13.05.2025	
Customer Name	K.Ranganathan,		
Address	Edayarpalayam Village,Sulur (Tk),Coimbatore (Dt).		
Sample Mark	Core Zone	Sample Code	ABMEL/S/15(b)
Date of Sampling	06.05.2025	Sample Description	Brown
Sample Received on	07.05.2025	Sampling Method	ABMEL/QSP/20
Test Commenced on	07.05.2025	Sample BY	Customer
Test Completed on	11.05.2025	Sample Quantity	1Kg

DISCIPLINE		CHEMICAL TESTING		
PRODUCT NAME		SOIL		
S.NO	PARAMETERS	PROTOCOL	UNIT	RESULT
1	Water Content (Moisture)	IS 2720 (Part 2): 1973	%	1.22
2	pH	IS 2720 (Part 26): 1987	----	7.82
3	Electrical Conductivity	IS 14767: 2000	µmho/cm	134
4	Bulk Density	ABMEL/CH/S/SOP/04: (Issue No: 01, Issue Date: 03.06.2024)	g/cc	1.06
5	Water Holding capacity	ABMEL/CH/S/SOP/05: (Issue No: 01, Issue Date: 03.06.2024)	%	44
6	Water Soluble Calcium (as Ca) in saturation extract	ABMEL/CH/S/SOP/07: (Issue No: 01, Issue Date: 03.06.2024)	meq/l	1.6
7	Water Soluble Magnesium (Mg) in saturation extract	ABMEL/CH/S/SOP/08: (Issue No: 01, Issue Date: 03.06.2024)	meq/l	0.8
8	Water Soluble Chlorides (as Cl-) in saturation extract	ABMEL/CH/S/SOP/09: (Issue No: 01, Issue Date: 03.06.2024)	meq/l	0.9
9	Organic Matter	IS 2720 (Part 22): 1972	%	0.76

BDL = Below Detectable Limit ; DL = Detection Limit

S. Santhi

Verified BY

**TECHNICAL MANAGER
ABM ENVIRO LAB**

[S. SANTHI]



----- End of the Report -----

Page 1 of 1

For ABM ENVIRO LAB

S. Suriya Kumar
Authorized Signatory

**Reviewed & Authorized by
Mr. S. SURIYA KUMAR
Quality Manager
Authorized Signatory**

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ABM ENVIRO LAB

(A Unit of Aadhi Boomi Mining and Enviro Tech (P) Ltd.)



NIPBASS PLAZA
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Narasothipatti, Salem - 636004, Tamil Nadu
Mob: 9842729655, 9443290855

suriyakumarsemban@gmail.com / abmenvirotech@gmail.com



TEST REPORT

Sample ID:ABMEL/2025/TR-15(A)		Report Date: 13.05.2025	
Customer Name	K.Ranganathan,		
Address	Edayarpalayam Village,Sulur (Tk),Coimbatore (Dt).		
Sample Mark	Buffer Zone-I	Sample Code	ABMEL/S/15(b)
Date of Sampling	06.05.2025	Sample Description	Brown
Sample Received on	07.05.2025	Sampling Method	ABMEL/QSP/20
Test Commenced on	07.05.2025	Sample BY	Customer
Test Completed on	11.05.2025	Sample Quantity	1Kg

DISCIPLINE		CHEMICAL TESTING		
PRODUCT NAME		SOIL		
S.NO	PARAMETERS	PROTOCOL	UNIT	RESULT
1	Water Content (Moisture)	IS 2720 (Part 2): 1973	%	1.4
2	pH	IS 2720 (Part 26): 1987	----	7.49
3	Electrical Conductivity	IS 14767: 2000	µmho/cm	85
4	Bulk Density	ABMEL/CH/S/SOP/04: (Issue No: 01, Issue Date: 03.06.2024)	g/cc	1.17
5	Water Holding capacity	ABMEL/CH/S/SOP/05: (Issue No: 01, Issue Date: 03.06.2024)	%	60
6	Water Soluble Calcium (as Ca) in saturation extract	ABMEL/CH/S/SOP/07: (Issue No: 01, Issue Date: 03.06.2024)	meq/l	1.8
7	Water Soluble Magnesium (Mg) in saturation extract	ABMEL/CH/S/SOP/08: (Issue No: 01, Issue Date: 03.06.2024)	meq/l	1.0
8	Water Soluble Chlorides (as Cl-) in saturation extract	ABMEL/CH/S/SOP/09: (Issue No: 01, Issue Date: 03.06.2024)	meq/l	1.2
9	Organic Matter	IS 2720 (Part 22): 1972	%	0.45

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TECHNICAL MANAGER
ABM ENVIRO LAB

[S.SANTH]



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Page 1 of 1

For ABM ENVIRO LAB

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TEST REPORT

Sample ID:ABMEL/2025/TR-15(A)		Report Date: 13.05.2025	
Customer Name	K.Ranganathan,		
Address	Thimmanaikenpalayam Village,Sulur (Tk),Coimbatore (Dt).		
Sample Mark	Buffer Zone-II	Sample Code	ABMEL/S/15(b)
Date of Sampling	06.05.2025	Sample Description	Brown
Sample Received on	07.05.2025	Sampling Method	ABMEL/QSP/20
Test Commenced on	07.05.2025	Sample BY	Customer
Test Completed on	11.05.2025	Sample Quantity	1Kg

DISCIPLINE		CHEMICAL TESTING		
PRODUCT NAME		SOIL		
S.NO	PARAMETERS	PROTOCOL	UNIT	RESULT
1	Water Content (Moisture)	IS 2720 (Part 2): 1973	%	2.04
2	pH	IS 2720 (Part 26): 1987	----	8.10
3	Electrical Conductivity	IS 14767: 2000	µmho/cm	146
4	Bulk Density	ABMEL/CH/S/SOP/04: (Issue No: 01, Issue Date: 03.06.2024)	g/cc	1.04
5	Water Holding capacity	ABMEL/CH/S/SOP/05: (Issue No: 01, Issue Date: 03.06.2024)	%	62
6	Water Soluble Calcium (as Ca) in saturation extract	ABMEL/CH/S/SOP/07: (Issue No: 01, Issue Date: 03.06.2024)	meq/l	2.4
7	Water Soluble Magnesium (Mg) in saturation extract	ABMEL/CH/S/SOP/08: (Issue No: 01, Issue Date: 03.06.2024)	meq/l	1.2
8	Water Soluble Chlorides (as Cl-) in saturation extract	ABMEL/CH/S/SOP/09: (Issue No: 01, Issue Date: 03.06.2024)	meq/l	1.3
9	Organic Matter	IS 2720 (Part 22): 1972	%	0.66

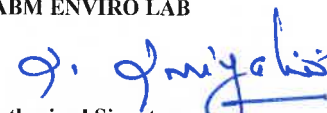
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ABM ENVIRO LAB

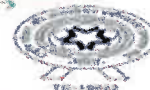



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Page 1 of 1

For ABM ENVIRO LAB

 Authorized Signatory
Reviewed & Authorized by
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Quality Manager
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TEST REPORT

Sample ID:ABMEL/2025/TR-15(A)		Report Date: 13.05.2025	
Customer Name	K.Ranganathan,		
Address	Bogampatti Village,Sulur (Tk),Coimbatore (Dt).		
Sample Mark	Buffer Zone-III	Sample Code	ABMEL/S/15(b)
Date of Sampling	06.05.2025	Sample Description	Brown
Sample Received on	07.05.2025	Sampling Method	ABMEL/QSP/20
Test Commenced on	07.05.2025	Sample BY	Customer
Test Completed on	11.05.2025	Sample Quantity	1Kg

DISCIPLINE		CHEMICAL TESTING		
PRODUCT NAME		SOIL		
S.NO	PARAMETERS	PROTOCOL	UNIT	RESULT
1	Water Content (Moisture)	IS 2720 (Part 2): 1973	%	1.5
2	pH	IS 2720 (Part 26): 1987	----	8.34
3	Electrical Conductivity	IS 14767: 2000	µmho/cm	266
4	Bulk Density	ABMEL/CH/S/SOP/04: (Issue No: 01, Issue Date: 03.06.2024)	g/cc	1.15
5	Water Holding capacity	ABMEL/CH/S/SOP/05: (Issue No: 01, Issue Date: 03.06.2024)	%	58
6	Water Soluble Calcium (as Ca) in saturation extract	ABMEL/CH/S/SOP/07: (Issue No: 01, Issue Date: 03.06.2024)	meq/l	2.0
7	Water Soluble Magnesium (Mg) in saturation extract	ABMEL/CH/S/SOP/08: (Issue No: 01, Issue Date: 03.06.2024)	meq/l	1.0
8	Water Soluble Chlorides (as Cl-) in saturation extract	ABMEL/CH/S/SOP/09: (Issue No: 01, Issue Date: 03.06.2024)	meq/l	1.2
9	Organic Matter	IS 2720 (Part 22): 1972	%	1.21

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S. Santhi

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**TECHNICAL MANAGER
ABM ENVIRO LAB**

[S. SANTHI]



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Page 1 of 1

For ABM ENVIRO LAB

S. Suriya Kumar
Authorized Signatory

**Reviewed & Authorized by
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Quality Manager
Authorized Signatory**

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TEST REPORT

Sample ID:ABMEL/2025/TR-15(A)		Report Date: 13.05.2025	
Customer Name	K.Ranganathan,		
Address	Pachapalayam Village,Sulur (Tk),Coimbatore (Dt).		
Sample Mark	Buffer Zone-IV	Sample Code	ABMEL/S/15(b)
Date of Sampling	06.05.2025	Sample Description	Brown
Sample Received on	07.05.2025	Sampling Method	ABMEL/QSP/20
Test Commenced on	07.05.2025	Sample BY	Customer
Test Completed on	11.05.2025	Sample Quantity	1Kg

DISCIPLINE		CHEMICAL TESTING		
PRODUCT NAME		SOIL		
S.NO	PARAMETERS	PROTOCOL	UNIT	RESULT
1	Water Content (Moisture)	IS 2720 (Part 2): 1973	%	1.25
2	pH	IS 2720 (Part 26): 1987	----	8.24
3	Electrical Conductivity	IS14767: 2000	µmho/cm	160
4	Bulk Density	ABMEL/CH/S/SOP/04: (Issue No: 01, Issue Date: 03.06.2024)	g/cc	1.05
5	Water Holding capacity	ABMEL/CH/S/SOP/05:(Issue No: 01, Issue Date: 03.06.2024)	%	48
6	Water Soluble Calcium (as Ca) in saturation extract	ABMEL/CH/S/SOP/07: (Issue No: 01, Issue Date: 03.06.2024)	meq/l	2.6
7	Water Soluble Magnesium (Mg) in saturation extract	ABMEL/CH/S/SOP/08: (Issue No: 01, Issue Date: 03.06.2024)	meq/l	0.8
8	Water Soluble Chlorides (as Cl-) in saturation extract	ABMEL/CH/S/SOP/09: (Issue No: 01, Issue Date: 03.06.2024)	meq/l	1.5
9	Organic Matter	IS 2720 (Part 22): 1972	%	0.30

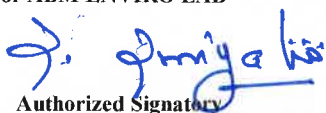
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Reviewed & Authorized by
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ABM ENVIRO LAB

CA Unit for Accredited Services, Self-Inspection and Enforcement, South Zone, India

NIPBASS PLAZA

477-1, Indrani Nagar, Santhel Road

Narasimhapett, Salem - 636004, Tamil Nadu

Mob: 9842729655, 9443290855

suriyakumaresonbun@gmail.com / abmenvirolab@gmail.com



TEST REPORT

Sample ID:ABMEL/2025/TR-15(A)		Report Date: 13.05.2025	
Customer Name	K.Ranganathan,		
Address	Edayarpalayam Village,Sulur (Tk),Coimbatore (Dt).		
Sample Mark	Core Zone	Sample Code	ABMEL/S/15(b)
Date of Sampling	06.05.2025	Sample Description	Brown
Sample Received on	07.05.2025	Sampling Method	ABMEL/QSP/20
Test Commenced on	07.05.2025	Sample BY	Customer
Test Completed on	11.05.2025	Sample Quantity	1Kg

DISCIPLINE			CHEMICAL TESTING		
PRODUCT NAME			SOIL		
S.NO	PARAMETERS		PROTOCOL	UNIT	RESULT
1	Texture	Sand	IS 10317: 2024	%	52
		Silt		%	36
		Clay		%	12
		Sandy Loam			
BDL = Below Detectable Limit ; DL = Detection Limit					



S. Santhi

Verified BY

**TECHNICAL MANAGER
ABM ENVIRO LAB**

[S. SANTHI]

For ABM ENVIRO LAB

S. Suriya Kumar

Authorized Signatory

**Reviewed & Authorized by
Mr. S. SURIYA KUMAR
Quality Manager
Authorized Signatory**

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ABM ENVIRO LAB

ANALYSIS OF WATER, SOIL, AIR, WASTE AND ENVIRONMENTAL SAMPLES (CIVIL, ENV.)

NIPBASS PLAZA

477-1, Indrani Nagar, Santhal Road

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Mob: 9442729655, 9443290855

Email: suriyakumarsenbana@gmail.com / abmenvironetech@gmail.com



TEST REPORT

Sample ID:ABMEL/2025/TR-15(A)		Report Date: 13.05.2025	
Customer Name	K.Ranganathan,		
Address	Edayarpalayam Village,Sulur (Tk),Coimbatore (Dt).		
Sample Mark	Buffer Zone-I	Sample Code	ABMEL/S/15(b)
Date of Sampling	06.05.2025	Sample Description	Brown
Sample Received on	07.05.2025	Sampling Method	ABMEL/QSP/20
Test Commenced on	07.05.2025	Sample BY	Customer
Test Completed on	11.05.2025	Sample Quantity	1Kg

DISCIPLINE			CHEMICAL TESTING		
PRODUCT NAME			SOIL		
S.NO	PARAMETERS		PROTOCOL	UNIT	RESULT
1	Texture	Sand	IS 10317: 2024	%	52
		Silt		%	28
		Clay		%	20
				Sandy Loam	
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A. Santhi

Verified BY

TECHNICAL MANAGER
ABM ENVIRO LAB

[S. SANTHI]



For ABM ENVIRO LAB

S. Suriya Kumar

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TEST REPORT

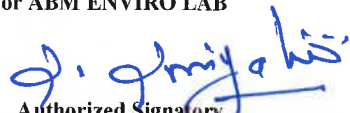
Sample ID:ABMEL/2025/TR-15(A)		Report Date: 13.05.2025	
Customer Name	K.Ranganathan,		
Address	Thimmanaikenpalayam Village,Sulur (Tk),Coimbatore (Dt).		
Sample Mark	Buffer Zone-II	Sample Code	ABMEL/S/15(b)
Date of Sampling	06.05.2025	Sample Description	Brown
Sample Received on	07.05.2025	Sampling Method	ABMEL/QSP/20
Test Commenced on	07.05.2025	Sample BY	Customer
Test Completed on	11.05.2025	Sample Quantity	1Kg

DISCIPLINE		CHEMICAL TESTING		
PRODUCT NAME		SOIL		
S.NO	PARAMETERS	PROTOCOL	UNIT	RESULT
1	Sand	IS 10317: 2024	%	48
	Silt		%	24
	Clay		%	28
		Sandy Clay Loam		

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TECHNICAL MANAGER
ABM ENVIRO LAB


For ABM ENVIRO LAB

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Reviewed & Authorized by
Mr. S. SURIYA KUMAR
Quality Manager
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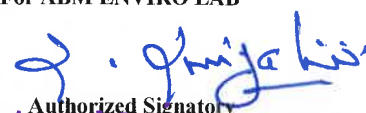
TEST REPORT

Sample ID:ABMEL/2025/TR-15(A)		Report Date: 13.05.2025	
Customer Name	K.Ranganathan,		
Address	Bogampatti Village,Sulur (Tk),Coimbatore (Dt).		
Sample Mark	Buffer Zone-III	Sample Code	ABMEL/S/15(b)
Date of Sampling	06.05.2025	Sample Description	Brown
Sample Received on	07.05.2025	Sampling Method	ABMEL/QSP/20
Test Commenced on	07.05.2025	Sample BY	Customer
Test Completed on	11.05.2025	Sample Quantity	1Kg

DISCIPLINE			CHEMICAL TESTING		
PRODUCT NAME			SOIL		
S.NO	PARAMETERS		PROTOCOL	UNIT	RESULT
1	Texture	Sand	IS 10317: 2024	%	48
		Silt		%	32
		Clay		%	20
				Sandy Loam	
BDL = Below Detectable Limit ; DL = Detection Limit					




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ABM ENVIRO LAB


For ABM ENVIRO LAB

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TEST REPORT

Sample ID:ABMEL/2025/TR-15(A)		Report Date: 13.05.2025	
Customer Name	K.Ranganathan,		
Address	Pachapalayam Village,Sulur (Tk),Coimbatore (Dt).		
Sample Mark	Buffer Zone-IV	Sample Code	ABMEL/S/15(b)
Date of Sampling	06.05.2025	Sample Description	Brown
Sample Received on	07.05.2025	Sampling Method	ABMEL/QSP/20
Test Commenced on	07.05.2025	Sample BY	Customer
Test Completed on	11.05.2025	Sample Quantity	1Kg

DISCIPLINE			CHEMICAL TESTING		
PRODUCT NAME			SOIL		
S.NO	PARAMETERS		PROTOCOL	UNIT	RESULT
1	Texture	Sand	IS 10317: 2024	%	52
		Silt		%	28
		Clay		%	20
		Sandy Loam			
BDL = Below Detectable Limit ; DL = Detection Limit					

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S. Santhi

Verified BY

ABM ENVIRO LAB

(S. SANTHI)

For ABM ENVIRO LAB

S. Suriya Kumar

Authorized Signatory

Reviewed & Authorized by
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Quality Manager
Authorized Signatory

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suriyakumarsemban@gmail.com / abmenvirotech@gmail.com



TEST REPORT

Sample ID:ABMEL/2025/TR-15(A)		Report Date: 13.05.2025	
Customer Name	K.Ranganathan,		
Address	Edayarpalayam Village,Sulur (Tk),Coimbatore (Dt).		
Sample Mark	Core Zone	Sample Code	ABMEL/A/15(c)
Date of Sampling	06.05.2025	Sample Description	Ambient Air
Sample Received on	07.05.2025	Sampling Method	ABMEL/QSP/20
Test Commenced on	07.05.2025	Sample BY	Customer
Test Completed on	11.05.2025	Sample Quantity	Filter Paper, 25ml Absorbing Solution

Discipline		Chemical Testing		
Product Name		Atmospheric Pollution		
S.no	Parameters	Protocol	Unit	Result
1	Particulate Matter (less than 2.5-micron size particles as PM _{2.5})	IS 5182 (Part 24): 2019	µg/m ³	27
2	Respirable Particulate Matter (less than 10-micron size particles as PM ₁₀)	IS 5182 (Part 23): 2006	µg/m ³	48
3	Sulphur dioxide (SO ₂)	IS 5182 (Part 2): 2001	µg/m ³	14
4	Oxides of Nitrogen (NO ₂)	IS 5182 Part 6: 2006	µg/m ³	22
5	Ozone (O ₃)	IS 5182 (Part 9): 1974	µg/m ³	29
6	Ammonia (NH ₃)	IS 5182 (Part 25): 2018	µg/m ³	24
7	Lead	IS 5182 (Part 22): 2004	µg/m ³	BDL (DL: 0.1)
8	Nickel	IS 5182 (Part -26): 2020	ng/m ³	BDL (DL: 0.1)

BDL = Below Detectable Limit; DL = Detection Limit

V. V. V.
Verified BY

(U. Kalai Vani)



For ABM ENVIRO LAB

S. Suriya Kumar
Authorized Signatory

Reviewed & Authorized by
Mr. S. SURIYA KUMAR
Quality Manager
Authorized Signatory

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(A Unit of Aadhi Boomi Mining and Enviro Tech (P) Ltd.)

NIPBASS PLAZA
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Narasothipatti, Salem - 636004, Tamil Nadu
Mob: 9842729655, 9443290855
suryakumarsemban@gmail.com / abmenvirotech@gmail.com



TEST REPORT

Sample ID:ABMEL/2025/TR-15(A)		Report Date: 13.05.2025	
Customer Name		K.Ranganathan,	
Address		Edayarpalayam Village,Sular (Tk),Coimbatore (Dt).	
Sample Mark	Buffer Zone-I	Sample Code	ABMEL/A/15(c)
Date of Sampling	06.05.2025	Sample Description	Ambient Air
Sample Received on	07.05.2025	Sampling Method	ABMEL/QSP/20
Test Commenced on	07.05.2025	Sample BY	Customer
Test Completed on	11.05.2025	Sample Quantity	Filter Paper, 25ml Absorbing Solution

Discipline		Chemical Testing	
Product Name		Atmospheric Pollution	
S.no	Parameters	Protocol	Unit
1	Particulate Matter (less than 2.5-micron size particles as PM _{2.5})	IS 5182 (Part 24): 2019	µg/m ³
2	Respirable Particulate Matter (less than 10-micron size particles as PM ₁₀)	IS 5182 (Part 23): 2006	µg/m ³
3	Sulphur dioxide (SO ₂)	IS 5182 (Part 2): 2001	µg/m ³
4	Oxides of Nitrogen (NO ₂)	IS 5182 Part 6: 2006	µg/m ³
5	Ozone (O ₃)	IS 5182 (Part 9): 1974	µg/m ³
6	Ammonia (NH ₃)	IS 5182 (Part 25): 2018	µg/m ³
7	Lead	IS 5182 (Part 22): 2004	µg/m ³
8	Nickel	IS 5182 (Part -26): 2020	ng/m ³
		BDL (DL:0.1)	



For ABM ENVIRO LAB
Authorized Signatory
Reviewed & Authorized by
Mr. S. SURIYA KUMAR
Quality Manager
Authorized Signatory

Page 1 of 1

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Verified By
(V. Kalavathi)

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suriyakumarsemban@gmail.com / abmenvirotech@gmail.com



TEST REPORT

Sample ID:ABMEL/2025/TR-15(A)		Report Date: 13.05.2025	
Customer Name	K.Ranganathan,		
Address	Thimmanaikenpalayam Village,Sulur (Tk),Coimbatore (Dt).		
Sample Mark	Buffer Zone-II	Sample Code	ABMEL/A/15(c)
Date of Sampling	06.05.2025	Sample Description	Ambient Air
Sample Received on	07.05.2025	Sampling Method	ABMEL/QSP/20
Test Commenced on	07.05.2025	Sample BY	Customer
Test Completed on	11.05.2025	Sample Quantity	Filter Paper, 25ml Absorbing Solution

Discipline		Chemical Testing		
Product Name		Atmospheric Pollution		
S.no	Parameters	Protocol	Unit	Result
1	Particulate Matter (less than 2.5-micron size particles as PM _{2.5})	IS 5182 (Part 24): 2019	µg/m ³	28
2	Respirable Particulate Matter (less than 10-micron size particles as PM ₁₀)	IS 5182 (Part 23): 2006	µg/m ³	44
3	Sulphur dioxide (SO ₂)	IS 5182 (Part 2): 2001	µg/m ³	11
4	Oxides of Nitrogen (NO ₂)	IS 5182 Part 6: 2006	µg/m ³	21
5	Ozone (O ₃)	IS 5182 (Part 9): 1974	µg/m ³	25
6	Ammonia (NH ₃)	IS 5182 (Part 25): 2018	µg/m ³	23
7	Lead	IS 5182 (Part 22): 2004	µg/m ³	BDL (DL: 0.1)
8	Nickel	IS 5182 (Part -26): 2020	ng/m ³	BDL (DL: 0.1)

BDL = Below Detectable Limit; DL = Detection Limit

V. Rangaraj
Verified BY

(C. K. S. K. Vani)



For ABM ENVIRO LAB

[Signature]
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Mr. S. SURIYA KUMAR
Quality Manager
Authorized Signatory

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TEST REPORT

Sample ID:ABMEL/2025/TR-15(A)		Report Date: 13.05.2025	
Customer Name	K.Ranganathan,		
Address	Bogampatti Village,Sulur (Tk),Coimbatore (Dt).		
Sample Mark	Buffer Zone-III	Sample Code	ABMEL/A/15(c)
Date of Sampling	06.05.2025	Sample Description	Ambient Air
Sample Received on	07.05.2025	Sampling Method	ABMEL/QSP/20
Test Commenced on	07.05.2025	Sample BY	Customer
Test Completed on	11.05.2025	Sample Quantity	Filter Paper, 25ml Absorbing Solution

Discipline		Chemical Testing		
Product Name		Atmospheric Pollution		
S.no	Parameters	Protocol	Unit	Result
1	Particulate Matter (less than 2.5-micron size particles as PM _{2.5})	IS 5182 (Part 24): 2019	µg/m ³	25
2	Respirable Particulate Matter (less than 10-micron size particles as PM ₁₀)	IS 5182 (Part 23): 2006	µg/m ³	48
3	Sulphur dioxide (SO ₂)	IS 5182 (Part 2): 2001	µg/m ³	15
4	Oxides of Nitrogen (NO ₂)	IS 5182 Part 6: 2006	µg/m ³	23
5	Ozone (O ₃)	IS 5182 (Part 9): 1974	µg/m ³	29
6	Ammonia (NH ₃)	IS 5182 (Part 25): 2018	µg/m ³	25
7	Lead	IS 5182 (Part 22): 2004	µg/m ³	BDL (DL: 0.1)
8	Nickel	IS 5182 (Part -26): 2020	ng/m ³	BDL (DL: 0.1)

BDL = Below Detectable Limit; DL = Detection Limit

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(C. Kalaivani)



For ABM ENVIRO LAB

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Quality Manager
Authorized Signatory

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TEST REPORT

Sample ID:ABMEL/2025/TR-15(A)		Report Date: 13.05.2025	
Customer Name	K.Ranganathan,		
Address	Pachapalayam Village,Sulur (Tk),Coimbatore (Dt).		
Sample Mark	Buffer Zone-IV	Sample Code	ABMEL/A/15(c)
Date of Sampling	06.05.2025	Sample Description	Ambient Air
Sample Received on	07.05.2025	Sampling Method	ABMEL/QSP/20
Test Commenced on	07.05.2025	Sample BY	Customer
Test Completed on	11.05.2025	Sample Quantity	Filter Paper, 25ml Absorbing Solution

Discipline		Chemical Testing		
Product Name		Atmospheric Pollution		
S.no	Parameters	Protocol	Unit	Result
1	Particulate Matter (less than 2.5-micron size particles as PM _{2.5})	IS 5182 (Part 24): 2019	µg/m ³	29
2	Respirable Particulate Matter (less than 10-micron size particles as PM ₁₀)	IS 5182 (Part 23): 2006	µg/m ³	49
3	Sulphur dioxide (SO ₂)	IS 5182 (Part 2): 2001	µg/m ³	13
4	Oxides of Nitrogen (NO ₂)	IS 5182 Part 6: 2006	µg/m ³	22
5	Ozone (O ₃)	IS 5182 (Part 9): 1974	µg/m ³	32
6	Ammonia (NH ₃)	IS 5182 (Part 25): 2018	µg/m ³	27
7	Lead	IS 5182 (Part 22): 2004	µg/m ³	BDL (DL: 0.1)
8	Nickel	IS 5182 (Part -26): 2020	ng/m ³	BDL (DL: 0.1)

BDL = Below Detectable Limit; DL = Detection Limit

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(V. Kalavathi)



For ABM ENVIRO LAB

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Mr. S. SURIYA KUMAR
Quality Manager
Authorized Signatory

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TEST REPORT

Sample ID:ABMEL/2025/TR-15(A)		Report Date: 13.05.2025	
Customer Name	K.Ranganathan,		
Address	Edayarpalayam Village,Sulur (Tk),Coimbatore (Dt).		
Sample Mark	Core Zone	Sample Code	ABMEL/N/15(d)
Date of Sampling	06.05.2025	Sample Description	Sound Level
Data Received on	07.05.2025	Sampling Method	ABMEL/QSP/20

DISCIPLINE		CHEMICAL TESTING			
PRODUCT NAME		NOISE			
S.NO	PARAMETERS	PROTOCOL	UNIT	LOCATION	RESULT
1	Sound Level	IS 9989: 2023	dB(A)	N	39.4
2				W	38.6
3				E	40.1
4				S	39.8
5				Core Zone	41.4
BDL = Below Detectable Limit; DL = Detection Limit					

V. Ing
Verified By

CV. Palani Rani



For ABM ENVIRO LAB

Authorized Signatory

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Mr. S. SURIYA KUMAR
Quality Manager
Authorized Signatory

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TC-15822

TEST REPORT

Sample ID:ABMEL/2025/TR-15(A)		Report Date: 13.05.2025	
Customer Name	K.Ranganathan,		
Address	Edayarpalayam Village,Sulur (Tk),Coimbatore (Dt).		
Sample Mark	Buffer Zone-I	Sample Code	ABMEL/N/15(d)
Date of Sampling	06.05.2025	Sample Description	Sound Level
Data Received on	07.05.2025	Sampling Method	ABMEL/QSP/20

DISCIPLINE		CHEMICAL TESTING			
PRODUCT NAME		NOISE			
S.NO	PARAMETERS	PROTOCOL	UNIT	LOCATION	RESULT
1	Sound Level	IS 9989: 2023	dB(A)	Buffer Zone-I	39.3
BDL = Below Detectable Limit; DL = Detection Limit					

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(S. Karthikeyan)



For ABM ENVIRO LAB

Authorized Signatory

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Mr. S. SURIYA KUMAR
Quality Manager
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TC-15822

TEST REPORT

Sample ID:ABMEL/2025/TR-15(A)		Report Date: 13.05.2025	
Customer Name	K.Ranganathan,		
Address	Thimmanaikenpalayam Village,Sulur (Tk),Coimbatore (Dt).		
Sample Mark	Buffer Zone-II	Sample Code	ABMEL/N/15(d)
Date of Sampling	06.05.2025	Sample Description	Sound Level
Data Received on	07.05.2025	Sampling Method	ABMEL/OSP/20

DISCIPLINE		CHEMICAL TESTING			
PRODUCT NAME		NOISE			
S.NO	PARAMETERS	PROTOCOL	UNIT	LOCATION	RESULT
1	Sound Level	IS 9989: 2023	dB(A)	Buffer Zone-II	39.3
BDL = Below Detectable Limit; DL = Detection Limit					

Verified By

(v. kanairani)



For ABM ENVIRO LAB

Authorized Signatory

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Mr. S. SURIYA KUMAR
Quality Manager
Authorized Signatory

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TEST REPORT

Sample ID:ABMEL/2025/TR-15(A)		Report Date: 13.05.2025	
Customer Name	K.Ranganathan,		
Address	Bogampatti Village,Sulur (Tk),Coimbatore (Dt).		
Sample Mark	Buffer Zone-III	Sample Code	ABMEL/N/15(d)
Date of Sampling	06.05.2025	Sample Description	Sound Level
Data Received on	07.05.2025	Sampling Method	ABMEL/OSP/20

DISCIPLINE		CHEMICAL TESTING			
PRODUCT NAME		NOISE			
S.NO	PARAMETERS	PROTOCOL	UNIT	LOCATION	RESULT
1	Sound Level	IS 9989: 2023	dB(A)	N Buffer Zone-III	38.2
BDL = Below Detectable Limit; DL = Detection Limit					



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(V. Kalapathi)

For ABM ENVIRO LAB

S. Suriya Kumar
Authorized Signatory

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Quality Manager
Authorized Signatory

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TC-16822

TEST REPORT

Sample ID:ABMEL/2025/TR-15(A)		Report Date: 13.05.2025	
Customer Name	K.Ranganathan,		
Address	Pachapalayam Village,Sulur (Tk),Coimbatore (Dt).		
Sample Mark	Buffer Zone-IV	Sample Code	ABMEL/N/15(d)
Date of Sampling	06.05.2025	Sample Description	Sound Level
Data Received on	07.05.2025	Sampling Method	ABMEL/OSP/20

DISCIPLINE		CHEMICAL TESTING			
PRODUCT NAME		NOISE			
S.NO	PARAMETERS	PROTOCOL	UNIT	LOCATION	RESULT
1	Sound Level	IS 9989: 2023	dB(A)	Buffer Zone-IV	40.1
BDL = Below Detectable Limit; DL = Detection Limit					



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CV. Kalavani

For ABM ENVIRO LAB

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Quality Manager
Authorized Signatory

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