Date: 10.07.2026

From,
M/S.Sri Magaveer Mines,
Prop: T.A.P. Jayakeerthi,
Senalur Village,
Tindivanam Taluk,
Viluppuram District- 604 101,.

To
District Environmental Engineer (Viluppuram District)
TamilNadu Pollution Control Board,
Collectorate multi complex 695 602,
Viluppuram, Tamil Nadu 605403

Sub: Submission of Draft EIA/EMP report and Summary for Roughstone & Gravel Quarry of M/S Sri Magaveer Mines, in S.F.No. S.F.No. 7/1, 7/2, 7/3, 7/4, 7/5, 7/6 & 7/7 over an area of 3.04.00Ha in Senalur Village, Tindivanam Taluk, Viluppuram District , Tamil Nadu – Public Hearing_Reg

Ref: ToR granted by SEIAA, Tamil Nadu vide letter No - TO25B0108TN5160551N dated 30.07.2025

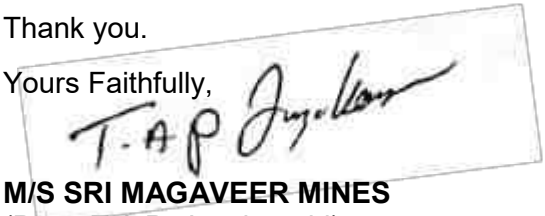
Sir,

With reference to the above mentioned subject, I am herewith submitting the Draft EIA/EMP report and Summary of EIA/EMP report in English and Tamil for Roughstone & Gravel Quarry of M/S Sri Magaveer Mines, in S.F.No. 77/1, 7/2, 7/3, 7/4, 7/5, 7/6 & 7/7 over an area of 3.04.00Ha in Senalur Village, Tindivanam Taluk, Viluppuram District , Tamil Nadu. As per the terms of reference issued by SEIAA, Tamil Nadu referred to as (1) above, point no. 39 stipulates conduction of public hearing. Hence, I request you to consider conducting a public hearing for my project at the earliest.

Here with enclosed D.D No – dated for public hearing.

Thank you.

Yours Faithfully,



M/S SRI MAGAVEER MINES
(Prop: T.A.P. Jayakeerthi)
Encl: as above

DRAFT EIA / EMP REPORT

FOR

ROUGH STONE AND GRAVEL QUARRY

Extent	**3.04.00 Ha**
SF.Nos.	**7/1, 7/2, 7/3, 7/4, 7/5, 7/6 & 7/7**
Location	**Senalur Village, Tindivanam Taluk, Viluppuram District Tamil Nadu**
Land Type	**Patta Land**
Production	**5,84,175m3 of Rough stone and 48,912m3 of gravel up to 52m depth for the five years lease period.**

- **Terms Identification No – TO25B0108TN5160551N dated 30.07.2025**
- **Baseline Monitoring– Summer Season (Mar – May 2026)**

PROJECT PROPONENT

M/S.SRI MAGAVEER MINES

Prop: T.A.P. Jayakeerthi,
Senalur Village,Tindivanam Taluk,
Viluppuram District- 604 101.

CONSULTANT

CREATIVE ENGINEERS & CONSULTANTS

NABET ACCREDITED CONSULTANCY, NABL ACCREDITED TESTING LAB

9B/4, Bharathwajar Street, East Tambaram, Chennai-600059.

Mobile: 09444133619 Email : cecgiri@yahoo.com,

PRO CODE: CEC/EMP/MI-252
S.No 1(a), Category – B1

JULY - 2026

REVISIONS OF EIA/EMP REPORT

Revision number	Report Status	Date of submission
00/JULY/26	Draft EIA /EMP Report	10.07.2026

Environmental Impact Assessment & Environmental Management Plan Report for Roughstone & Gravel Quarry of M/S Sri Magaveer Mines PROP.T.A.P.Jayakeerthi in S.F.No. 77/1, 7/2, 7/3, 7/4, 7/5, 7/6 & 7/7 over an area of 3.04.00Ha in Senalur Village, Tindivanam Taluk, Viluppuram District, Tamil Nadu was prepared by Creative Engineers & Consultants and authorized for submission by Mr.B.Swamynathan, EIA-Coordinator, of Creative Engineers & Consultants on 10.07.2026 after due review by the personnel and consultation with M/S Sri Magaveer Mines PROP.T.A.P.Jayakeerthi. Current Revision number of the EIA/EMP report is 00/JULY/26, signifying as per the revision mentioned in the above table that this is a draft EIA/EMP report.

Signature:



Date: 10.07.2026

PROJECT PROPONENT DECLARATION

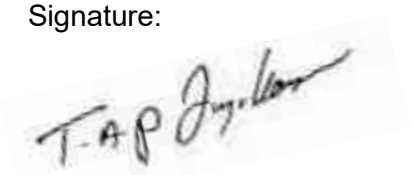
We, M/S Sri Magaveer Mines PROP.T.A.P.Jayakeerthi received Terms of Reference under EIA Notification 2006 from SEIAA, Tamil Nadu vide their letter No - TO25B0108TN5160551N dated 30.07.2025 for Roughstone & Gravel Quarry of M/S Sri Magaveer Mines, in S.F.No. 7/1, 7/2, 7/3, 7/4, 7/5, 7/6 & 7/7 over an area of 3.04.00Ha in Senalur Village, Tindivanam Taluk, Viluppuram District , Tamil Nadu.

We have entrusted the EIA study to M/s. Creative Engineers & Consultants (CEC), Chennai who have been accredited by the National Accreditation Board for Education & Training (NABET), Quality Council of India with their accreditation valid upto 23.12.2026

The Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP) have been prepared as per the generic structure proposed in the EIA notification 2006, ToR issued by SEIAA, Tamil Nadu. The prescribed ToR along with compliance is also incorporated in the EIA/EMP Report.

This report is prepared based on the information and data obtained from the Mining Plan and other records and the field study carried out by various consultant that have been engaged. The data given in the EIA/EMP report are factually correct to the best of my knowledge.

Signature:



For M/S Sri Magaveer Mines
(PROP.T.A.P.Jayakeerthi)
Date: 10.07.2026

EIA Consultant Undertaking

[In compliance with MoEF Office Memorandum No. J-11013/41/2006-IA.II (I) dated 04.08.2009]

Creative Engineers & Consultants (CEC) is an NABL accredited testing Laboratory, and also NABET accredited Category–A environment consultancy organization for preparing EIA/EMP reports for the sectors Mining of minerals, Thermal power plants, Mineral Beneficiation & Cement plants.

CEC has been accredited by the National Accreditation Board for Education & Training (NABET), Quality Council of India for empanelment of EIA Consultants with accreditation valid upto 23.12.2026.

M/s.Sri Magaveer Mines, Prop. T.A.P.Jayakeerthi received Terms of Reference under EIA Notification 2006 from SEIAA, Tamil Nadu vide their letter No - TO25B0108TN5160551N dated 30.07.2025 for Rough Stone and Gravel Quarry in S.F.No- Survey Number: 7/1, 7/2, 7/3, 7/4, 7/5, 7/6 & 7/7 over an area of 3.04.00 Ha in Senalur Village, Tindivanam Taluk, Viluppuram District, Tamil Nadu.

The prescribed TOR is complied with and incorporated in the EIA Report and submitted. This report is based on the information and data obtained from Approved Mining Plan, other records and data from the field study by CEC. The data generated and given in the EIA/EMP Report are factually correct. The sample analyses are carried out through CEC's laboratory.

(P. Giri)
Chief Executive & EIA Coordinator
Creative Engineers & Consultants
Date: **10.07.2026**

9/4b, Bharathwajar Street, East Tambaram, Chennai – 600 059.
Ph : 22395170, 9444133619, fax : 91-44-22396643.
e-mail : cecgiri@yahoo.com, web : www.creativeengineers.co.in

Annexure – VII

Declaration by Experts contributing to the EIA Report for

Roughstone & Gravel Quarry of M/S Sri Magaveer Mines PROP.T.A.P.Jayakeerthi in S.F.No. 77/1, 7/2, 7/3, 7/4, 7/5, 7/6 & 7/7 over an area of 3.04.00Ha in Senalur Village, Tindivanam Taluk, Viluppuram District, Tamil Nadu .

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

EIA coordinator:

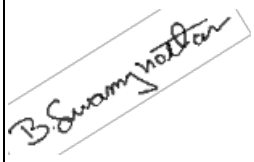
Name: **B.Swamynathan**

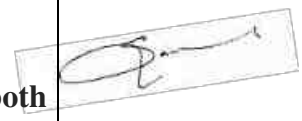
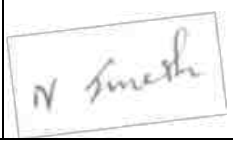
Signature and Date: 

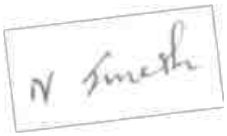
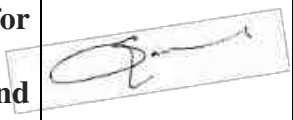
Period of involvement: **Feb 2026 onwards**

Contact information: **09444133619**

Functional area experts:

S. No.	Functional areas	Name of the expert/s	Involvement (period and task**)	Signature and date
1	AP*	**P.Giri**	• **Identification of baseline monitoring stations and study of the monitored data with respect to the applicable standards.** • **Identification of sources of air pollution comprising dust, gaseous emission due to mining & other activities** • **Identification of Impacts & suggestion of mitigation measures** **Period: March 2026 onwards**	
		B.Swamynathan	• **Data interpretation of Micro meteorological data for wind rose.** • **Identification of polluting source and suggestion of suitable mitigation measures.** **Period: Feb 2026 onwards**	

2	WP*	**G.Sandhya**	• **Study of the monitored data with respect to the applicable standards.** • **Identification of Water requirement & Source** • **Preparation of water balance diagram** • **Identification of Water polluting sources** • **Impact of the project on the water quality, both surface and groundwater** • **Suggestion of Mitigation measures to control water pollution** **Period: March 2026 onwards**	
3	SHW*	**P.Giri**	• **Quantification of mineral & waste from mining operation** • **Waste disposal method evaluation** • **Providing dump management plan** • **Providing Surface Runoff Management Structure Requirements.** • **Identification of Hazardous waste and its details of disposal** **Period: March 2026 onwards**	
4	SE*	**R.Baburaj**	• **Identification of villages in the study area and finalization of demographic profile of the villages within the study area.** • **Preparation of sections relevant to SE functional area in the EIA/EMP report** **Period: March 2026 onwards**	
5	EB*	**B.Swamynathan**	• **Perusal of existing data relevant to this project.** • **Studying the details of flora and fauna, separately for core, buffer zone and forest area based on primary field survey.** • **Identification of species , Indicating the Schedule of the fauna present in the study area** • **Assessment of impact on Biological environment and suggestion of mitigative measures** • **Collecting & providing details of existing and proposed Green belt development /plantation in the core zone** **Period: Feb 2026 onwards**	
6	HG*	**N.Suresh**	• **Study of existing surface drainage arrangements in the core and buffer zone, impact due to mining on these drainage courses and suggestion of mitigative measures**	

			• **Perusal of site specific ground water table details for the core zone and the study area.** • **Studied the hydrological aspects of surface and groundwater in study area** • **Study about impact on the hydrology due to mining operation** • **Suggesting mitigative measures like RWH for enhancement of ground water level** **Period: March 2026 onwards**	
7	GEO*	**N.Suresh**	• **Study of geology of the ML area and the surrounding areas.** • **Provide details about Mineral composition** **Period: March 2026 onwards**	
8	SC*	**B.Swamynathan**	• **Study of soil profile** • **Assessment of Impact on soil and suggesting plantation scheme.** **Period: Feb 2026 onwards**	
9	AQ*	**G.Sandhya**	• **Quantification of emission particulars** • **Air quality modelling for post project impact on the air quality prediction of the study area.** **Analysis of the Isopleth generated** • **Arriving at the post project concentration at the AAQ monitoring locations** • **Preparation of meteorological data in suitable form for input into the model** • **Simulation of model for generation of Isopleth and data interpretation.** • **Studying the impact on AAQ monitoring locations due to the generated emissions.** • **Preparation of sections relevant to AQ functional area in the EIA/EMP report.** **Period: March 2026 onwards**	
10	NV*	**P.Giri**	• **Identification of baseline monitoring stations and study of the monitored data with respect to the applicable standards.** • **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 **Period: March 2026 onwards**	
11	LU	**B.Swamynathan**	• **Collection of Remote sensing satellite data to study the land use pattern.** • **Primary field survey and limited field verification** • **Preparation of Land use map using Satellite data of the project area separately for the core zone and the buffer zone and providing the land use pattern.** **Period: March 2026 onwards**	
12	RH*	**K.Shankar &** **G.Sandhya**	• **Identified Major risks involved in the project Mitigation measures suggested to avoid risk.** • **Preparation of onsite and offsite emergency management plan** **Period: March 2026 onwards**	

*One TM against each FAE may be shown
**Please attach additional sheet if required

Declaration by the Head of the accredited consultant organization/ authorized person

I, **P.Giri** hereby,confirm that the above mentioned experts prepared the EIA report for **Roughstone & Gravel Quarry of M/S Sri Magaveer Mines PROP.T.A.P.Jayakeerthi in S.F.No. 7/1(0.36.00), 7/2(0.58.00), 7/3(0.16.00), 7/4(0.36.00), 7/5(0.36.00), 7/6(0.58.00) & 7/7(0.64.00) over an area of 3.04.00Ha in Senalur Village, Tindivanam Taluk, Viluppuram District, Tamil Nadu.**

I also confirm that EIA Coordinator (EC) has gone through the report, and the consultant organization shall be fully accountable for any misleading information. It is certified that no unethical practices, plagiarism involved in carrying out the work and external data / text has not been used without proper acknowledgement while preparing this EIA report.

Signature: 

Name: **P.Giri**

Designation: **Chief Executive**

Name of the EIA consultant organization: **Creative Engineers & Consultants, Chennai – 59**
NABET Certificate No. & Issue Date: **No- NABET/EIA/23-26/RA 0331 & date 23.12.2026**

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NABET

National Accreditation Board for Education and Training

Certificate of Accreditation

Creative Engineers and Consultants, Chennai

9B/4, Bharathwajar street, East Tambaram, Chennai, Tamil Nadu

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

S. No	Sector Description	Sector (as per)		Cat.
		NABET	MoEFCC	
1.	Mining of minerals- opencast mining only	1	1 (a) (i)	A
2.	Thermal power plants	4	1 (d)	A
3.	Mineral beneficiation	7	2 (b)	A
4.	Cement plants	9	3 (b)	A

Note: Names of approved EIA Coordinators and Functional Area Experts are mentioned in RAAC minutes dated May 03, 2024, posted on QCI-NABET website.

The Accreditation shall remain in force subject to continued compliance to the terms and conditions mentioned in QCI-NABET's letter of accreditation bearing no QCI/NABET/ENV/ACO/24/3250 dated May 24, 2024. The accreditation needs to be renewed before the expiry date by Creative Engineers and Consultants, Chennai following due process of assessment.

Issue Date
May 24, 2024

Valid up to
December 23, 2026

Mr. Ajay Kumar Jha
(Sr. Director, NABET)

Certificate No.
NABET/EIA/23-26/RA 0331

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

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

CONTENTS

CONTENTS

S.No	PARTICULARS	PG NO.
TERMS OF REFERENCE & ITS COMPLIANCE		
A.	COPY OF TOR	--
B.	COMPLIANCE TO TOR POINTS	T-1
EIA/ EMP REPORT- CHAPTERS		
I	INTRODUCTION	1-1
II	PROJECT DESCRIPTION	2-1
III	DESCRIPTION OF ENVIRONMENT	3-1
IV	ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES	4-1
V	ANALYSIS OF ALTERNATIVES	5-1
VI	ENVIRONMENTAL MONITORING PROGRAMME	6-1
VII	ADDITIONAL STUDIES	7-1
VIII	PROJECT BENEFITS	8-1
IX	ENVIRONMENTAL COST BENEFIT ANALYSIS	9-1
X	ENVIRONMENTAL MANAGEMENT PLAN	10-1
XI	SUMMARY & CONCLUSION	11-1
XII	DISCLOSURE OF CONSULTANTS ENGAGED	12-1
ADDITIONAL ENCLOSURES WITH EIA/EMP REPORT CHAPTERS		
	ANNEXURES	A-1

CHAPTER-WISE CONTENTS

CHAPTER 1 INTRODUCTION **1-1**

1.1 PURPOSE OF THE REPORT: 1-1

1.2 IDENTIFICATION OF PROJECT &PROJECT PROPONENT: 1-1

1.3 BRIEF DESCRIPTION OF NATURE, SIZE, LOCATION &PROJECT IMPORTANCE 1-3

1.4 SCOPE OF THE STUDY: 1-4

CHAPTER 2 PROJECT DESCRIPTION **2-1**

2.1 TYPE OF PROJECT: 2-1

2.2 NEED & JUSTIFICATION FOR THE PROJECT: 2-1

2.3 LOCATION: 2-1

2.4 LAND CLASSIFICATION: 2-11

2.5 GEOLOGY: 2-11

2.6 SIZE AND MAGNITUDE OF THE OPERATION: 2-13

2.6.2 MINING METHOD: 2-13

2.7 PROPOSED SCHEDULE FOR APPROVAL AND IMPLEMENTATION: 2-13

2.8 TECHNOLOGY AND PROCESS DESCRIPTION: 2-14

2.9 PROJECT DESCRIPTION: 2-14

2.10 DESCRIPTION OF MITIGATION MEASURES: 2-19

2.11 ASSESSMENT OF NEW & UNTESTED TECHNOLOGY: 2-19

2.12 CONCLUSION: 2-20

CHAPTER 3 DESCRIPTION OF ENVIRONMENT **3-1**

3.1 GENERAL: 3-1

3.2 SOCIO-ECONOMIC CONFIGURATIONS OF THE AREA: 3-4

3.3 EXISTING ENVIRONMENTAL QUALITY 3-12

3.4 LAND ENVIRONMENT - LANDUSE & LAND COVER 3-29

3-35

3.5 BIOLOGICAL ENVIRONMENT: 3-36

3.6 HYDROGEOLOGICAL STUDY: 3-45
3.7 Water Level Monitoring 3-54
3.8 Pumping Test and Aquifer Parameters 3-59
3.9 Impact Assessment (Quarrying vs. Water Table) 3-60
3.10 Conclusion and Recommendations 3-60

CHAPTER 4 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES 4-1

4.1 GENERAL 4-1
4.2 AIR ENVIRONMENT: 4-1
4.3 WATER ENVIRONMENT: 4-8
4.4 NOISE AND VIBRATION: 4-13
4.5 LAND ENVIRONMENT: 4-18
4.6 BIOLOGICAL ENVIRONMENT: 4-19
4.7 SOCIO ECONOMIC ENVIRONMENT: 4-23
4.8 OCCUPATIONAL HEALTH AND SAFETY: 4-24
4.9 LOGISTICAL SYSTEM: 4-26
4.10 WASTE MANAGEMENT: 4-27

CHAPTER 5 ANALYSIS OF ALTERNATIVES 5-1

5.1 ALTERNATE TECHNOLOGY: 5-1
5.2 ALTERNATE SITE: 5-1

CHAPTER 6 ENVIRONMENTAL MONITORING PROGRAMME 6-1

6.1 GENERAL 6-1
6.2 MONITORING SCHEDULES FOR VARIOUS PARAMETERS 6-1
6.3 LEGISLATIVE AND REGULATORY FRAME WORK: 6-2
6.4 ENVIRONMENTAL MONITORING COST: 6-8

CHAPTER 7 ADDITIONAL STUDIES 7-1

7.1 GENERAL: 7-1

7.2 PUBLIC CONSULTATION: 7-1
7.3 RISK ASSESSMENT: 7-1
7.4 REHABILITATION AND RESETTLEMENT (R & R) PLAN: 7-4
7.5 MINE CLOSURE PLAN: 7-4
7.6 CUMULATIVE IMPACT STUDY: 7-5
7.7 PIT SLOPE STABILITY PLAN 7-7
7.8 CONCLUSION: 7-8

CHAPTER 8 PROJECT BENEFITS 8-1

CHAPTER 9 ENVIRONMENTAL COST BENEFIT ANALYSIS 9-1

CHAPTER 10 ENVIRONMENTAL MANAGEMENT PLAN 10-1

10.1 INTRODUCTION: 10-1
10.2 COMPONENTS OF THE ENVIRONMENTAL MANAGEMENT PLAN: 10-1
10.3 ENVIRONMENTAL POLLUTION CONTROL COST: 10-9
10.4 CONCLUSION: 10-12

CHAPTER 11 SUMMARY & CONCLUSION 11-1

11.1 INTRODUCTION: 11-1
11.2 SALIENT FEATURES OF THE PROJECT: 11-2
11.3 EXISTING ENVIRONMENTAL SCENARIO: 11-5
11.4 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES: 11-9
11.5 ENVIRONMENTAL MONITORING PROGRAMME: 11-16
11.6 ADDITIONAL STUDIES: 11-17
11.7 CONCLUSION: 11-18

CHAPTER 12 DISCLOSURE OF CONSULTANTS ENGAGED 12-1

LIST OF FIGURES

Figure 2.1: Location Map 2-3
Figure 2.2: Approachability Map 2-4
Figure 2.3: Lease Plan 2-5
Figure 2.4: Satellite Imagery Showing Corner Co-ordinates of the Project Area 2-6
Figure 2.5: Village Map 2-8
Figure 2.6: Details of features within 300m radius 2-9
Figure 2.7: Surface &Geological Plan 2-12
Figure 2.8: Geological Cross Section 2-12
Figure 2.9: Process Flow Diagram 2-14
Figure 2.10: Year wise Plan 2-16
Figure 2.11: Year wise Cross Section 2-16
Figure 2.12: Conceptual Plan 2-17
Figure 2.13: Conceptual Cross Section 2-18
Figure 3.1: Study Area Map 3-2
Figure 3.2: Demographic Structure in Buffer Zone 3-6
Figure 3.3: Cyclone Prone Areas 3-13
Figure 3.4: Seismic Zone Map of India 3-14
Figure 3.5: Average Wind Rose 3-17
Figure 3.6: Ambient Air Quality Study Stations 3-19
Figure 3.7: Ambient Air Quality Data 3-20
Figure 3.8: Location of Water Sampling Stations 3-22
Figure 3.9: Location of Noise Sampling Stations 3-25
Figure 3.10: Noise Level Data 3-26
Figure 3.11: Location of Soil Sampling Stations 3-28
Figure 3.12 : Landsat 8 Satellite Data of the Study Area 3-31
Figure 3.13: Map Showing Land Use Categories around 10km Buffer 3-32
Figure 3.14: Landuse within the Buffer Zone Area 3-35

Figure 3.15: Drainage Map 3-46
Figure 3.16: Geology Map 3-47
Figure 3.17: Geomorphology Map 3-48
Figure 3.18: Lithology Map 3-49
Figure 3.19: Soil Map 3-50
Figure 3.20: Well Inventory Locations 3-51
Figure 4.1: Isopleth of GLC Prediction for PM_{10} 4-5
Figure 4.2: Isopleth of GLC Prediction for $PM_{2.5}$ 4-6
Figure 4.3: Water Balance Diagram 4-8
Figure 4.4: Surface Runoff Management Structures 4-12
Figure 4.5: Mine Closure Plan 4-24
Figure 7.1: Vicinity Map 7-6
Figure 10.1: Organization Chart 10-3
Figure 12.1: Disclosure of consultants engaged 12-1

LIST OF TABLES

Table 1.1Identification of project 1-1
Table 1.2: Identification of Project Proponent 1-2
Table 1.3: Statutory Approvals 1-2
Table 1.4: Brief Description of Nature of project 1-3
Table 1.5: Location of the project 1-3
Table 2.1: Mine site description 2-1
Table 2.2: Features within 300m radius 2-10
Table 2.3: Survey Number wise Area Breakup 2-11
Table 2.4: Geological and Mineable Reserves 2-13
Table 2.5: Details ofEquipments 2-13
Table 2.6: Proposed Schedule of Implementation 2-14
Table 2.7: Production Schedule During Plan Period 2-15
Table 2.8: Ultimate Pit Dimensions 2-17
Table 2.9: Land Use 2-18
Table 2.10: Project Requirements 2-19
Table 3.1: Type of Baseline Data 3-1
Table 3.2: Environmental Setting of the Study Area 3-3
Table 3.3: Social, Economic and Demographic Profile of the Study Area 3-4
Table 3.4: Primary Schools in the Buffer Zone Rural Villages 3-8
Table 3.5: Education Facility Availability 3-8
Table 3.6: Healthcare Amenities Availability 3-9
Table 3.7: Infrastructure Facilities 3-9
Table 3.8: Rainfall Data 3-15
Table 3.9: Meteorological Data 3-16
Table 3.10: Air Quality Monitoring 3-18
Table 3.11: Air Quality Monitoring Locations 3-18
Table 3.12: Ambient Air Quality Data 3-20

Table 3.13: Water Quality Monitoring 3-21
Table 3.14: Summary of Water Quality Data 3-23
Table 3.15: Noise Level Monitoring 3-24
Table 3.16: Ambient Noise Level in dB (A) 3-26
Table 3.17: Soil Quality Monitoring 3-27
Table 3.18: Soil Quality Data 3-29
Table 3.19: RS satellite image used for the present study 3-30
Table 3.20: Major Landuse Units of the Study Area 3-31
Table 3.21: Area Estimation of Landuse Categories in Buffer Zone 3-32
Table 3.22: Land Use Pattern of the Study Area Falling Within 10 Km Area in (Ha) 3-35
Table 3.23: List of Floristic Species in the Core Zone 3-39
Table 3.24: List of Floristic Species in the Buffer Zone 3-40
Table 3.25: List of Fauna in the Buffer Zone 3-45
Table 3.26: Well Inventory Data 3-52
Table 4.1: Impact and Mitigation Measures – Air Environment 4-2
Table 4.2: Emission Sources 4-3
Table 4.3: Emission Factors 4-4
Table 4.4: Emission Rate 4-4
Table 4.5: Peak Incremental Concentration 4-4
Table 4.6: Concentrations Of PM_{10} after Project Implementation 4-7
Table 4.7: Concentrations Of $PM_{2.5}$ after Project Implementation 4-7
Table 4.8: Main Sources of Noise 4-15
Table 4.9: Impact of Noise Levels 4-15
Table 4.10: Post Project Noise Levels 4-16
Table 4.11: Permissible Peak Particle Velocity (PPV) In Mining Areas 4-18
Table 4.12: Land Use Table 4-19
Table 4.13: Land Use During Post Operational Period 4-19
Table 4.14: Impact on Biological Environment 4-20

Table 4.15: Proposed Plantation 4-23
Table 4.16: CER Cost 4-25
Table 4.17: Details of Transportation 4-27
Table 6.1: Environmental Monitoring Schedule 6-2
Table 6.2: Environmental Standards 6-3
Table 6.3: National Ambient Air Quality Standards 6-3
Table 6.4: IS – 10500 :2012 Standards 6-5
Table 6.5: Noise Level Standards 6-7
Table 6.6: Permissible Noise For Industrial Workers As Laid Down By CPCB 6-7
Table 6.7: Permissible Peak Particle Velocity (PPV) In Mining Areas 6-8
Table 7.1: Details of quarries within 500m radius 7-5
Table 11.1: Site Details 11-2
Table 11.2: Environment Setting of The Study Area 11-3
Table 11.3: Technical Description 11-4
Table 11.4: Social, Economic and Demographic Profile of the Study Area 11-5
Table 11.5: Baseline Data 11-6
Table 11.6: Land Use in 10Km Buffer Zone 11-8
Table 11.7: Mitigation Measures – Air Environment 11-10
Table 11.8: Mitigation Measures – Water Pollution 11-11

LIST OF ANNEXURES

Annexure 1:	Precise Area Communication	A-1
Annexure 2:	Mining Plan Approval	A-4
Annexure 3:	Details of quarry within 500m radius	A-6
Annexure 4:	VAO Letter	A-8
Annexure 5:	Population Breakup and Literacy Levels in the Buffer Zone	A-10
Annexure 6:	Occupational Structure in the Buffer Zone	A-13
Annexure 7:	Educational Facilities in the Buffer Zone	A-16
Annexure 8:	Medical Facilities in the Buffer Zone	A-18
Annexure 9:	Infrastructural Facilities in the Buffer Zone	A-20
Annexure 10:	Ambient Air Quality Data	A-22
Annexure 11:	Water Quality Data	A-27
Annexure 12:	Village-wise Land Use Pattern in the Buffer Zone	A-29
Annexure 13:	Letter from WRD department , Villupuram	A-32
Annexure 14:	Mine plan report with Annexres & plates	A-34

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TERMS OF REFERENCE & ITS COMPLIANCE

File No: 12288
Government of India
Ministry of Environment, Forest and Climate Change
(Issued by the State Environment Impact Assessment Authority(SEIAA), TAMIL NADU)
***

Dated **30/07/2025**

To,

T A P Jayakeerthi
M/S Sri Magaveer Mines
S/o, APPACHI, 37E 2nd street, 2nd Cross Street, Tindivanam Taluk, Anna Nagar, Manoor PO, Athur, Villupuram - 604001
srimagaveermines@gmail.com

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

Sir/Madam,

Sub: SEIAA, Tamil Nadu – Proposed Rough stone & Gravel Quarry lease over an extent of 3.04.00Ha at S.F.No. 7/1, 7/2, 7/3, 7/4, 7/5, 7/6 & 7/7 in Senalur Village, Tindivanam Taluk, Viluppuram District, Tamil Nadu, By M/S Sri Magaveer Mines- 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/540309/2025, Dated: 07/06/2025.
2. Your application submitted for Terms of Reference dated: 09.06.2025.
3. Minutes of the 587th SEAC -I Meeting held on 07.07.2025.
4. Minutes of the 859th Authority meeting held on 24.07.2025.

2. The particulars of the proposal are as below :

(i) TOR Identification No.	TO25B0108TN5160551N
(ii) File No.	12288
(iii) Clearance Type	TOR
(iv) Category	B1
(v) Project/Activity Included Schedule No.	1(a) Mining of minerals
(vii) Name of Project	Roughstone & Gravel Quarry of M/S Sri Magaveer Mines
(viii) Name of Company/Organization	T A P Jayakeerthi
(ix) Location of Project (District, State)	VILLUPURAM, TAMIL NADU
(x) Issuing Authority	SEIAA
(xi) Applicability of General Conditions	no
(xii) Applicability of Specific Conditions	no

1.In view of the particulars given in the Para 1 above, the project proposal interalia including Form-1(Part A and B) were submitted to the SEIAA for an appraisal by the SEAC under the provision of EIA notification 2006 and its subsequent amendments.
2.The above-mentioned proposal has been considered by SEIAA in the meeting held on 24.07.2025 The minutes of the meeting and all the Application and documents submitted [(viz. Form-1 Part A, Part B,] are available on PARIVESH portal which can be accessed by scanning the QR Code above.
3.The State Expert Appraisal Committee (SEAC), based on the information & clarifications provided by the project proponent and after detailed deliberations on all technical aspects recommended the proposal for grant of Terms of Reference with public hearing under the provision of EIA Notification, 2006 and as amended thereof subject to the stipulation of specific and general conditions as detailed in Annexure (2).
4.The SEIAA has examined the proposal in accordance with the Environment Impact Assessment (EIA) Notification, 2006 & further amendments thereto and after accepting the recommendations of the SEAC hereby decided to issue the following Terms of Reference with public hearing for instant proposal of M/S Sri Magaveer Mines under the provisions of EIA Notification, 2006 and as amended thereof.
5.The Ministry/SEIAA-TN reserves the right to stipulate additional conditions, if found necessary.
6.The Terms of Reference with public hearing to the aforementioned project is under provisions of EIA Notification, 2006. It does not tantamount to approvals/consent/permissions etc. required to be obtained under any other Act/Rule/regulation. The Project Proponent is under obligation to obtain approvals /clearances under any other Acts/ Regulations or Statutes, as applicable, to the project.
7.This issues with the approval of the Competent Authority.
8.The TORs with public hearing prescribed shall be valid for a period of three years from the date of issue, for submission of the EIA/EMP report as per OMNo.J-11013/41/2006-IA-II(I)(part) dated 29th August, 2017.

Copy To

1. The Secretary, Ministry of Mines, Government of India, Shastri Bhawan, New Delhi.
2. The Additional Chief Secretary to Government, Environment, Climate Change and Forests Department, Secretariat, Chennai, Tamil Nadu 600 009.
3. The Additional Chief Secretary to Government, Natural Resources Department, Tamil Nadu.
4. The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-Cum-Office Complex, East Arjun Nagar, New Delhi-110 032.
5. The Chair Person, TNPC Board,76, Mount Salai, Guindy, Chennai-32
6. The District Collector, Viluppuram District
7. The Commissioner of Geology and Mines, Guindy, Chennai-32
8. The Assistant Director, Department of Geology & Mining, Viluppuram District
9. EI Division, Ministry of Environment & Forests, Paryavaran Bhawan, New Delhi.
10. Integrated Regional office of MoEF&CC, Sasthri Bhawan, Nungambakkam, Chennai
11. File Copy

Annexure 1

Specific Terms of Reference for (Mining Of Minerals)

1. Seiaa Specific Conditions:

S. No	Terms of Reference
1.1	After detailed discussions, the Authority accepts the recommendation of SEAC-I and decided to grant Terms of Reference (ToR) along with Public Hearing **for the quantity of 5,84,175 cu.m of Rough stone and 48,912 cu.m of Gravel upto the depth of 52m** as per the approved mining plan, under cluster for undertaking the combined Environment Impact Assessment Study and preparation of separate Environment Management Plan subject to the conditions as recommended by SEAC-I & normal conditions & the conditions mentioned below:

S. No	Terms of Reference
	1. The Project Proponent shall obtain the consent document between Ms. Jeyakeerthi and M/s Sri Magaveer Mines during the EIA appraisal process.

2. Seac Conditions - Site Specific

S. No	Terms of Reference
2.1	**Major Condition:** 1. Since the Buderi is located adjacent to the proposed project site, the Project Proponent shall either maintain a 50-meter safety distance from the Buderi and submit the modified mine plan accordingly, **or** obtain a No Objection Certificate from the Water Resources Department and comply with the conditions prescribed in the WRD letter. **Site specific conditions:** 1. A Cluster Management Committee (CMC) shall be constituted including all the mines in the cluster as Committee Members for the effective management of the mining operation in the cluster through systematic & scientific approach with appointment of required statutory personnel, appropriate environmental management, system of maintaining the haul roads and village/panchayat roads, authorized blasting operation, Monitoring system of the environmental & other statutory compliances & its reporting status, etc. The PP shall submit the following details in the form of an Affidavit during the EIA appraisal: i. Copy of the agreement forming CMC. ii. The Organisation chart of the Committee with defining the role of the members iii. The 'Standard Operating Procedures' (SoP) executing the planned activities. 2. The PP shall ensure the installation of CCTV at the proposed quarry site and ensure its inclusion during the EIA presentation.

3. Seac Conditions - Standard

S. No	Terms of Reference
3.1	**TERMS OF REFERENCE (ToR) FOR GRANITE / ROUGH STONE QUARRY** 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,

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

S. No	Terms of Reference
	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 & 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

S. No	Terms of Reference
	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. 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.

4. Seiaa Standard Conditions:

S. No	Terms of Reference
4.1	**<u>Cluster Management Committee</u>** 1. Cluster Management Committee shall be framed which must include all the proponents in the cluster as members including the existing as well as proposed quarry. 2. The members must coordinate among themselves for the effective implementation of EMP as committed including Green Belt Development, Water sprinkling, tree plantation, blasting etc., 3. The List of members of the committee formed shall be submitted to AD/Mines before the execution of mining lease and the same shall be updated every year to the AD/Mines. 4. Detailed Operational Plan must be submitted which must include the blasting frequency with respect to the nearby quarry situated in the cluster, the usage of haul roads by the individual quarry

S. No	Terms of Reference
	in the form of route map and network. 5. The committee shall deliberate on risk & emergency management plan, fire safety & evacuation plan and sustainable development goals pertaining to the cluster in a holistic manner especially during natural calamities like intense rain and the mitigation measures considering the inundation of the cluster and evacuation plan. 6. The Cluster Management Committee shall form Environmental Policy to practice sustainable mining in a scientific and systematic manner in accordance with the law. The role played by the committee in implementing the Environmental policy devised shall be given in detail in the EIA Report. 7. The committee shall furnish action plan regarding the restoration strategy with respect to the individual quarry falling under the cluster in a holistic manner. 8. The committee shall deliberate on the health of the workers/staff involved in the mining as well as the health of the public in the vicinity. **Agriculture & Agro-Biodiversity** 9. Impact on surrounding agricultural fields around the proposed mining Area. 10. Impact on soil flora & vegetation around the project site. 11. Details of type of vegetation including no. of trees & shrubs within the proposed mining area and. If so, transplantation of such vegetation all along the boundary of the proposed mining area shall committed mentioned in EMP. 12. The Environmental Impact Assessment should study the agro-biodiversity, agro- forestry, horti-cultural plantations, the natural ecosystem, the soil micro flora, fauna and soil seed banks and suggest measures to maintain the natural Ecosystem. 13. Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services. 14. The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands, Horticulture, Agriculture and livestock. **Forests** 15. The project proponent shall detailed study on impact of mining on Reserve forests and free ranging wildlife. 16. The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna. 17. The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection. 18. The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site. **Water Environment** 19. Hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) so as to assess the impacts on the nearby waterbodies due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided, covering the entire mine lease period. 20. Erosion Control measures. 21. Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area on the nearby Villages, Water-bodies/ Rivers, & any ecological fragile areas. 22. The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir. 23. The project proponent shall study and furnish the details on potential fragmentation impact on natural Environment, by the activities. 24. The project proponent shall study and furnish the impact on aquatic plants and animals in water bodies and possible scars on the landscape, damages to nearby caves, heritage site, and archaeological sites possible land form changes visual and aesthetic impacts.

S. No	Terms of Reference
	25. The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components. 26. The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites. 27. The EIA shall include the impact of mining activity on the following: a) Hydrothermal/Geothermal effect due to destruction in the Environment. b) Bio-geochemical processes and its foot prints including Environmental stress. c) Sediment geochemistry in the surface streams. **Energy** 28. The measures taken to control Noise, Air, Water, Dust Control and steps adopted to efficiently utilise the Energy shall be furnished. **Climate Change** 29. The Environmental Impact Assessment shall study in detail the carbon emission and also suggest the measures to mitigate carbon emission including development of carbon sinks and temperature reduction including control of other emission and climate mitigation activities. 30. The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock, soil health and physical, chemical & biological soil features. 31. Impact of mining on pollution leading to GHGs emissions and the impact of the same on the local livelihood. **Mine Closure Plan** 32. Detailed Mine Closure Plan covering the entire mine lease period as per precise area communication order issued. **EMP** 33. Detailed Environment Management Plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued and the scope for achieving SDGs. 34. The Environmental Impact Assessment should hold detailed study on EMP with budget for Green belt development and mine closure plan including disaster management plan. **Risk Assessment** 35. To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining. **Disaster Management Plan** 36. To furnish disaster management plan and disaster mitigation measures in regard to all aspects to avoid/reduce vulnerability to hazards & to cope with disaster/untoward accidents in & around the proposed mine lease area due to the proposed method of mining activity & its related activities covering the entire mine lease period as per precise area communication order issued. **Others** 37. The project proponent shall furnish VAO certificate with reference to 300m radius regard to approved habitations, schools, Archaeological sites, Structures, railway lines, roads, water bodies such as streams, odai, vaari, canal, channel, river, lake pond, tank etc. 38. As per the MoEF& CC office memorandum F.No.22-65/2017-IA.III dated: 30.09.2020 and 20.10.2020 the proponent shall address the concerns raised during the public consultation and all the activities proposed shall be part of the Environment Management Plan. 39. The project proponent shall study and furnish the possible pollution due to plastic and microplastic on the Environment. The ecological risks and impacts of plastic & microplastics on aquatic Environment and fresh water systems due to activities, contemplated during mining may be investigated and reported.

Standard Terms of Reference for (Mining of minerals)

1.

S. No	Terms of Reference
1.1	Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification 1994 came into force, w.r.t. the highest production achieved prior to 1994
1.2	A copy of the document in support of the fact that the Proponent is the rightful lessee of the mine should be given
1.3	All documents including approved mine plan, EIA and Public Hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and should be in the name of the lessee
1.4	All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/ toposheet, topographic sheet, geomorphology and geology of the areashould be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone)
1.5	Information should be provided in Survey of India Toposheet in 1:50,000 scale indicating geological map of the area, geomorphology of land forms of the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics
1.6	Details about the land proposed for mining activities should be givenwith information as to whether mining conforms to the land use policy of the State; land diversion for mining should have approval from State land use board or the concerned authority
1.7	It should be clearly stated whether the proponent Company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA Report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/ violation of the environmental or forest norms/ conditions? The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large,may also be detailed in the EIA Report
1.8	Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided
1.9	The study rea will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc. should be for the life of the mine / lease period
1.10	Land use of the study rea delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given
1.11	Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land

S. No	Terms of Reference
	area, distance from mine lease, its land use, R&R issues, if any, should be given
1.12	A Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area. In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the State Expert Appraisal Committees
1.13	Status of forestry clearance for the broken up area and virgin forestland involved in the Project including deposition of net present value (NPV) and compensatory afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished
1.14	Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated
1.15	The vegetation in the RF / PF areas in the study area, with necessary details, should be given
1.16	A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted
1.17	Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/ Elephant Reserves/(existing as well as proposed), if any, within 10 km of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlifeand copy furnished
1.18	A detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled- I fauna found in the study area, the necessary plan alongwith budgetary provisions for their conservation should be prepared in consultation with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost
1.19	Proximity to Areas declared as Critically Polluted or the Project areas likely to come under the Aravali Range, (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Dept. Should be secured and furnished to the effect that the proposed mining activities could be considered
1.20	Similarly, for coastal Projects, A CRZ map duly authenticated by one of the authorized agencies demarcating LTL. HTL, CRZ area, location of the mine lease w.r.t CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority)

S. No	Terms of Reference
1.21	R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine lease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspects should be discussed in the Report
1.22	One season (non-monsoon) [i.e. March-May (Summer Season); October-December (post monsoon season) ; December-February (winter season)]primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site- specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given
1.23	Air quality modeling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of vehicles for transportation of mineral. The details of the model used and input parameters used for modeling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map
1.24	The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated
1.25	Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided
1.26	Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided
1.27	Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided
1.28	Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter-alia, shall include details of the aquifers present and impact of mining activities on these aquifers. Necessary permission from state Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished
1.29	Details of any stream, seasonal or otherwise, passing through the lease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be brought out

S. No	Terms of Reference
1.30	Information on site elevation, working depth, groundwater table etc. Should be provided both in AMSL and bgl. A schematic diagram may also be provided for the same
1.31	A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the Project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The details of plantation already done should be given.The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution
1.32	Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines
1.33	Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report
1.34	Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report
1.35	Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed
1.36	Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations
1.37	Measures of socio economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation
1.38	Detailed environmental management plan (EMP) to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project
1.39	Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project
1.40	Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given

S. No	Terms of Reference
1.41	The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out
1.42	A Disaster management Plan shall be prepared and included in the EIA/EMP Report
1.43	Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc
1.44	Besides the above, the below mentioned general points are also to be followed:- a) All documents to be properly referenced with index and continuous page numbering. b) Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated. c) Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise etc. using the MoEF&CC/NABL accredited laboratories. All the original analysis/testing reports should be available during appraisal of the Project. d) Where the documents provided are in a language other than English, an English translation should be provided. e) The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted. f) While preparing the EIA report, the instructions for the Proponents and instructions for the Consultants issued by MoEF vide O.M. No. J-11013/41/2006-IA.II(I) dated 4th August, 2009, which are available on the website of this Ministry, should be followed. g) Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the PFR for securing the TOR) should be brought to the attention of MoEF&CC with reasons for such changes and permission should be sought, as the TOR may also have to be altered. Post Public Hearing changes in structure and content of the draft EIA/EMP (other than modifications arising out of the P.H. process) will entail conducting the PH again with the revised documentation. h) As per the circular no. J-11011/618/2010-IA.II(I) dated 30.5.2012, certified report of the status of compliance of the conditions stipulated in the environment clearance for the existing operations of the project, should be obtained from the Regional Office of Ministry of Environment, Forest and Climate Change, as may be applicable. i) The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and sections and (iii) sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area

STANDARD TERMS OF REFERENCE

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

9) The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc. should be for the life of the mine / lease period.
10) Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.
11) Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.
12) Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area. In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees.
13) Status of forestry clearance for the broken up area and virgin forestland involved in the Project including deposition of Net Present Value (NPV) and Compensatory Afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.
14) Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.
15) The vegetation in the RF / PF areas in the study area, with necessary details, should be given.
16) A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted.
17) Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/ Elephant Reserves/(existing as well as proposed), if any, within 10 km of the mine lease should be clearly indicated, supported by a location map duly

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

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

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

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

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

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

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

23) Air quality modeling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of Vehicles for transportation of mineral. The details of the model used and input parameters used for modeling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map.
24) The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated.
25) Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.
26) Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.
27) Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided.
28) Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter-alia, shall include details of the aquifers present and impact of mining activities on these aquifers. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.
29) Details of any stream, seasonal or otherwise, passing through the lease area and

modification / diversion proposed, if any, and the impact of the same on the hydrology should be brought out.

30) Information on site elevation, working depth, groundwater table etc. Should be provided both in AMSL and bgl. A schematic diagram may also be provided for the same.

31) A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the Project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The details of plantation already done should be given. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution.

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

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

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

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

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

37) Measures of socio-economic significance and influence to the local community

proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.

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

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

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

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

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

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

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

    a) Executive Summary of the EIA/EMP Report
    b) All documents to be properly referenced with index and continuous page numbering.
    c) Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated.
    d) Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise etc. using the MoEF&CC/NABL accredited laboratories. All the original analysis/testing reports should be available during appraisal of the Project.
    e) Where the documents provided are in a language other than English, an English translation should be provided.
    f) The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted.
    g) While preparing the EIA report, the instructions for the Proponents and instructions for the Consultants issued by MoEF&CC vide O.M. No. J-11013/41/2006-IA.II(I) dated 4th August, 2009, which are available on the website of this Ministry, should be followed.

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

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

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

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

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

1. Project name and location (Village, District, State, Industrial Estate (if applicable).
2. Process description in brief, specifically indicating the gaseous emission, liquid effluent and solid and hazardous wastes.
3. Measures for mitigating the impact on the environment and mode of discharge or disposal.
4. Capital cost of the project, estimated time of completion.
5. The proponent shall furnish the contour map of the water table detailing the number of wells located around the site and impacts on the wells due to mining activity.
6. A detailed study of the lithology of the mining lease area shall be furnished.
7. Details of village map, “A” register and FMB sketch shall be furnished.
8. Detailed mining closure plan for the proposed project approved by the Geology of Mining department shall be shall be submitted along with EIA report.
9. Obtain a letter /certificate from the Assistant Director of Geology and Mining standing that there is no other Minerals/resources like sand in the quarrying area within the approved depth of mining and below depth of mining and the same shall be furnished in the EIA report.

10. EIA report should strictly follow the Environmental Impact Assessment Guidance Manual for Mining of Minerals published February 2010.
11. Detail plan on rehabilitation and reclamation carried out for the stabilization and restoration of the mined areas.
12. The EIA study report shall include the surrounding mining activity, if any.
13. Modeling study for Air, Water and noise shall be carried out in this field and incremental increase in the above study shall be substantiated with mitigation measures.
14. A study on the geological resources available shall be carried out and reported.
15. A specific study on agriculture & livelihood shall be carried out and reported.
16. Impact of soil erosion, soil physical chemical and biological property changes may be assumed.
17. Site selected for the project - Nature of land - Agricultural (single/double crop), barren, Govt./ private land, status of is acquisition, nearby (in 2-3 km.) water body, population, with in 10km other industries, forest , eco-sensitive zones, accessibility, (note - in case of industrial estate this information may not be necessary)
18. Baseline environmental data - air quality, surface and ground water quality, soil characteristic, flora and fauna, socio-economic condition of the nearby population
19. Identification of hazards in handling, processing and storage of hazardous material and safety system provided to mitigate the risk.
20. Likely impact of the project on air, water, land, flora-fauna and nearby population
21. Emergency preparedness plan in case of natural or in plant emergencies
22. Issues raised during public hearing (if applicable) and response given
23. CER plan with proposed expenditure.
24. Occupational Health Measures
25. Post project monitoring plan
26. The project proponent shall carry out detailed hydro geological study through intuitions/NABET Accredited agencies.
27. A detailed report on the green belt development already undertaken is to be furnished and also submit the proposal for green belt activities.
28. The proponent shall propose the suitable control measure to control the fugitive emissions during the operations of the mines.
29. A specific study should include impact on flora & fauna, disturbance to migratory pattern of animals.
30. Reserve funds should be earmarked for proper closure plan.

31. A detailed plan on plastic waste management shall be furnished. Further, the proponent should strictly comply with, Tamil Nadu Government Order (Ms) No.84 Environment and forests (EC.2) Department dated 25.06.2018 regarding ban on one time use and throw away plastics irrespective of thickness with effect from 01.01.2019 under Environment (Protection) Act, 1986. In this connection, the project proponent has to furnish the action plan.

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

a. A note confirming compliance of the TOR, with cross referencing of the relevant sections / pages of the EIA report should be provided.
b. All documents may be properly referenced with index, page numbers and continuous page numbering.
c. Where data are presented in the report especially in tables, the period in which the data were collected and the sources should be indicated.
d. While preparing the EIA report, the instructions for the proponents and instructions for the consultants issued by MoEF& CC vide O.M. No. J-11013/41/2006-IA.II (I) dated 4th August, 2009, which are available on the website of this Ministry should also be followed.
e. The consultants involved in the preparation of EIA/EMP report after accreditation with Quality Council of India (QCI)/National Accreditation Board of Education and Training (NABET) would need to include a certificate in this regard in the EIA/EMP reports prepared by them and data provided by other organization/Laboratories including their status of approvals etc. In this regard circular no F. No.J -l1013/77/2004-IA-II(I) dated 2nd December, 2009, 18th March 2010, 28th May 2010, 28th June 2010, 31st December 2010 & 30th September 2011 posted on the Ministry's website http://www.moef.nic.in/ may be referred.
    - After preparing the EIA (as per the generic structure prescribed in Appendix-III of the EIA Notification, 2006) covering the above-mentioned points, the proponent willtake further necessary action for obtaining environmental clearance in accordance with the procedure prescribed under the EIA Notification, 2006.
    - The final EIA report shall be submitted to the SEIAA, Tamil Nadu for obtaining Environmental Clearance.

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

TOR COMPLIANCE

S.No	ToR Points	Reply	Pg.No
A. SEAC CONDITIONS - SITE SPECIFIC			
1	After detailed discussions, the Authority accepts the recommendation of SEAC-I and decided to grant Terms of Reference (ToR) along with Public Hearing for the quantity of 5,84,175 cu.m of Rough stone and 48,912 cu.m of Gravel upto the depth of 52m as per the approved mining plan, under cluster for undertaking the combined Environment Impact Assessment Study and preparation of separate Environment Management Plan subject to the conditions as recommended by SEAC-I & normal conditions & the conditions mentioned below: 1. The Project Proponent shall obtain the consent document between Ms. Jeyakeerthi and M/s Sri Magaveer Mines during the EIA appraisal process.	**Entire lease area is a Patta Land registered in the name of T.A.P. Jayakeerthi Vide Patta No 341 who is the proprietor of the company Refer Annexure – 4 of mine plan Report**	**A-8**
2	**Major Condition:** 1. Since the Buderi is located adjacent to the proposed project site, the Project Proponent shall either maintain a 50-meter safety distance from the Buderi and submit the modified mine plan accordingly, or obtain a No Objection Certificate from the Water Resources Department and comply with the conditions prescribed in the WRD letter. **Site specific conditions:** 1. A Cluster Management Committee (CMC) shall be constituted including all the mines in the cluster as Committee Members for the effective management of the mining operation in the cluster through systematic & scientific approach with appointment of statutory personnel, appropriate environmental monitoring, good maintenance of haul roads and village/panchayat roads, authorized blasting operation etc. The PP shall submit the following details in the form of an Affidavit during the EIA appraisal: a) Copy of the agreement forming CMC. b) The Organisation chart of the Committee with defining the role of the members c) The 'Standard Operating Procedures' (SoP) executing the planned activities. 2. The PP shall ensure the installation of CCTV at the proposed quarry site and ensure its inclusion during the EIA presentation.	**Letter Obtained from WRD Department, Villupuram, Refer Annexure – 13 of EMP Report**	**A-32**
B. SEAC STANDARD CONDITIONS			
TERMS OF REFERENCE (ToR) FOR GRANITE / ROUGH STONE QUARRY			
1	In the case of existing/operating mines, a letter obtained from the concerned AD (Mines) shall be submitted and it	• **Fresh lease. No mining carried out in the lease so far.**	**2-14**

	shall include the following: a) Original pit dimension b) Quantity achieved Vs EC Approved Quantity c) Balance Quantity as per Mineable Reserve calculated. d) Mined out Depth as on date Vs EC Permitted depth e) Details of illegal/illicit mining f) Violation in the quarry during the past working. g) Quantity of material mined out outside the mine lease area h) Condition of Safety zone/benches i) 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.	• **Letter from VAO is obtained and given as Annexure – 4**	**A-8**
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.	• **Details of the features within 500m radius are provided in Figure 2.6, Chapter-II.**	**2-9**
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.	• **Hydrogeological Study is detailed under Section 3.6, Chapter-III.**	**3-46**
5	The Proponent shall carry out Bio diversity study through reputed Institution and the same shall be included in EIA Report.	• **A detailed study of flora and fauna composition in the core and buffer zone of the project has been made through primary field surveys. The details are furnished in para 3.5, Chapter III.**	**3-36**
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.	• **There area no Protected Areas, Sanctuaries, Tiger reserve etc., within 10km Radius.The details are furnished in Table no 3.2, Chapter III.**	**3-3**
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,	• **This is a proposed quarry. No mining activities have been carried out in this lease area.**	**2-14**

	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.	• **Pit slope stability plan has been provided under Section 7.7, Chapter-VII**	**7-7**
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.	• **Will be submitted along with the final report**	**--**
10	The PP shall present a conceptual design for carrying out only controlled blasting operation involving line drilling and muffle blasting in the proposed quarry such that the blast-induced ground vibrations are controlled as well as no fly rock travel beyond 30 m from the blast site.	• **Controlled blasting will be adopted in this project and details of the same has been provided in Section 4.4.2, Chapter-IV**	**4-17**
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.	• **Agreed**	**--**
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 a proposed quarry. No mining activities have been carried out in this lease area.**	**2-14**
13	What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?	• **Replied above in point no.12**	**--**
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.	• **Replied above in point no.12**	**--**
15	All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/Topo sheet, topographic sheet, geomorphology, lithology and geology of the mining lease area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).	• **Project coordinates superimposed in satellite imagery and given as Figure No - 2.4 in Chapter – II.** • **The 10km Radius Index plan showing buffer zone is given in Figure No.3.1 in Chapter – III.** • **Geology Map, Geomorphology, Lithology map are enclosed as Figure No.3.16, 3.17 and**	**2-6 3-2 3-47 & 3-49**

		3.18, Chapter-III.	
16	The PP shall carry out Drone video survey covering the cluster, Green belt, fencing etc.,	• **Agreed**	**--**
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.	• **Site photographs have been provided in Chapter-II.**	**2-7**
18	The Project Proponent shall provide the details of geological reserves and mineable reserves, planned production capacity, proposed working methodology with justifications, the anticipated impacts of the mining operations on the surrounding environment and the proposed mitigation measures for the same.	• **The details of geological and mineable reserves are provided in Table 2.4, Chapter-II.** • **The production schedule is provided in Table 2.7, Chapter-II.** • **The working methodology is detailed under Section 2.8, Chapter-II.** • **Anticipated impacts of mining operations on surrounding environment is provided under Chapter-IV.**	**2-13** **2-15** **2-14** **4-1**
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 organization chart has been provided in Figure No.10.1, Chapter-X.**	**10-3**
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 clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided.	• **Details of hydrogeological scenario of this project is provided under section 3.6, Chapter-III.**	**3-46**
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 on micro- meteorology, ambient air quality, Water quality, noise level, soil and flora & fauna are collected during summar Season (March 2026 to May 2026) and detailed in Section 3.3 to 3.5 of Chapter-III. The details of Traffic Study is provided under Section 4.9, Chapter-IV.**	**3-12 & 3-36** **4-27**
22	The Proponent shall carry out the Cumulative impact study due to mining operations carried out in the quarry specifically with reference to the specific environment in terms of soil health, biodiversity, air pollution, water pollution, climate change and flood control & health impacts. Accordingly, the Environment Management plan should be prepared keeping the concerned quarry and the	• **The details of the quarries located within the 500m radius of the project is given vide Annexure-3.** • **A cumulative impact study has been carried out and furnished in Para 7.6, Chapter-VII.** • **Environmental Management Plan is provided under Chapter-X.**	**A-6** **7-5** **10-1**

	surrounding habitations in the mind.		
23	Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.	• **The rain water falling in the quarries will be harvested in the sump at the lowest level of the respective quarry. This sump will act as a settling pond to prevent solids escaping along with discharge, before outlet. etc.** • **Towards surface runoff management, garland drain will be constructed which will be connected to settling ponds with silt traps.** • **Water requirement for this project is 9.0 KLD. The required water will be procured initially from outside agencies. Later Rain water harvested in the mine sump can also be used.** • **Details of rainwater harvesting are provided under Section 4.3.4.2, Chapter-IV.**	**4-14**
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 of the study area was studied to demarcate various LULC categories and its details are provided under section 3.4, Chapter-III.** • **The land use pattern at present and at the end of the quarrying period has been provided under section 4.5.1, Chapter-IV.** • **The post mining land use has been provided in Table No. 4.13. .The post mining land use plan showing afforestation and water body is shown in Figure No- 4.5.**	**3-29** **4-19** **4-9** **4-24**
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.	• **There is no waste generation anticipated in this quarry. As such there are no OB dumps involved.**	**--**
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.	• **Not Applicable**	**--**
27	Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.	• **The rain water falling in the quarry will be harvested in the sump at the lowest level of the quarry. This sump will act as a settling pond to prevent solids escaping along with discharge, before outlet. etc.** • **Towards surface runoff management, garland drain will be constructed around the quarry and will be connected to a settling pond with silt traps. The supernatant clear water from the settling pond will be flow to the downstream users. The surface runoff**	**4-13** **4-12** **4-14**

		management structures diagram is given in Figure No 4.4, Chapter-IV. • **The methods for reducing water consumption and rainwater harvesting is provided in section 4.3.4, Chapter-IV.**	
28	Impact on local transport infrastructure due to the Project should be indicated.	• **From this proposed quarry the entire output will be transported to the crusher units and other buyers etc. There will be 6 trip per hour of additional truck traffic. The existing road can absorb this traffic due to this project Details are provided under section 4.9, Chapter-IV.**	**4-27**
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.	• **An ecological survey of the study area was conducted with reference to listing of species and assessment of the existing baseline ecological conditions. Details are provided under section 3.5.1, Chapter-III.**	**3-36**
30	A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.	• **Details of Mine Closure Plan is provided under section 7.5, Chapter-VII.**	**7-4**
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.	• **An ecological survey of the study area was conducted with reference to listing of species and assessment of the existing baseline ecological conditions. Details are provided under section 3.5.1, Chapter-III.**	**3-36**
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**	**--**
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.	• **Agreed**	**--**
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 provided under section 7.3.1, Chapter-VII.**	**7-3**
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.	• **Various risks likely to arise due to mining activities are detailed under section 7.3, Chapter-VII.**	**7-1**

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.	• **Details of occupational health and safety aspects are given under the subsections of Para 4.8, Chapter-IV.**	**4-25**
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.	• **Details of the socio-economic survey conducted in the buffer zone has been provided in Para 3.2.4, Chapter-III.** • **Public health facilities will be further aimed to be developed through CER activities wherein periodic health checkups, medical camps for the locals will be conducted.**	**3-10**
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.	• **Nearby villages were visited for conducting study to know about socio-economic conditions, including aspirations and requirements of the people for a better living and collected relevant data. The details are provided under section 3.2.4, Chapter-III.**	**3-10**
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.	• **PP informed that there is no litigation pending against the project.**	**--**
40	Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.	• **The Roughstone and Gravel Quarry will benefit this region in the fields of employment opportunities, improved per capita income for local people, improved social welfare facilities in respect of education, health, infrastructural etc.** • **Direct employment to about 35 people and indirect employment to scores of people.** • **By means of carrying out the socio-economic development activities, local community development is expected. Towards the same, the proponent has planned to allocate Rs.5 Lakhs for various activities under CER for all the three projects together. From the CER activities allocated for various social welfare activities, the villages near the lease area will be benefited.**	**8-1**
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.	• **This is a proposed quarry. As such no mining activities have been carried out in this lease area.**	**2-14**
42	The PP shall prepare the EMP for the entire life of mine	• **EMP is prepared for the entire life of the**	**--**

	and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine.	**mine. Affidavit will be provided along with the final EIA/ EMP 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 attracting penal provisions in the Environment (Protection) Act, 1986.	• **Agreed**	**--**
4. SEIAA STANDARD CONDTIONS :			
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.	• **Details of the cluster management committee is provided under Section 10.2.2, Chapter-X.**	**10-2**
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**	**-**
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**	**-**
4	Detailed Operational Plan must be submitted which must include the blasting frequency with respect to the nearby quarry situated in the cluster, the usage of haul roads by the individual quarry in the form of route map and network.	• **Agreed**	**-**
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.	• **Agreed**	**-**
6	The Cluster Management Committee shall form Environmental Policy to practice sustainable mining in a scientific and systematic manner in accordance with the law. The role played by the committee in implementing the environmental policy' devised shall be given in detail in the EIA Report.	• **Agreed**	**-**
7	The committee shall furnish action plan regarding the restoration strategy with respect to the individual quarry falling under the cluster in a holistic manner.	• **Agreed**	**-**
8	The committee shall deliberate on the health of the workers/staff involved in the mining as well as the health of the public in the vicinity.	• **Agreed**	**-**
Agriculture & Agro-Biodiversity			
9	Impact on surrounding agricultural fields around the proposed mining Area.	• **Since the lease and its nearby area is of rocky type , it remain uncultivated and only**	

		in patches of land away from the lease area, agricultural activities are carried during monsoon rainfall. Due to poor quality of the soil, inconsistent rainfall,high agricultural labor cost, manpower shortage and less yield are reason for very little agricultural activity in this region.By adoption of systematic mining adhering to all the environmental mitigation measures as explained earlier, no adverse impact on the far away agricultural or surrounding environs envisaged.	**4-17**
10	Impact on soil flora & vegetation around the project site.	• **The impact of mining on biological environment is provided under Table 4.14, Chapter-IV.**	**4-20**
11	Details of type of vegetations including no. of trees & shrubs within the proposed mining area and. If so, transplantation of such vegetations all along the boundary of the proposed mining area shall committed mentioned in EMP.	• **The details of flora in the core zone is provided in Table 3.24, Chapter-III. There is no major clearance of vegetation or transplantation involved.**	**3-40**
12	The Environmental Impact Assessment should study the biodiversity, the natural ecosystem, the soil micro flora, fauna and soil seed banks and suggest measures to maintain the natural Ecosystem.	• **An ecological survey of the study area was conducted with reference to listing of species and assessment of the existing baseline ecological conditions. Details are provided under Section 3.5.1, Chapter-III.**	**3-36**
13	Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.	• **The post mining land use has been provided in Table No. 4.14.**	**4-20**
14	The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands, Horticulture, Agriculture and livestock.	• **Replied in sl no 13 above.**	**--**
Forests			
15	The project proponent shall detailed study on impact of mining on Reserve forests and free ranging wildlife.	• **There are no reserve forest within 10km radius and as such no impact on this front envisaged.**	**--**
16	The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.	• **An ecological survey of the study area was conducted with reference to listing of species and assessment of the existing baseline ecological conditions. Details are provided under Section 3.5.1, Chapter-III.**	**3-36**
17	The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection.	• **Replied in point 20. Above**	**--**
18	The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site.	• **There are no national parks or corridors in the 10k radius. There are no reserve forest in the proximity of the lease area**	**3-2**
Water Environment			

19	Hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) so as to assess the impacts on the nearby waterbodies due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided, covering the entire mine lease period.	• **The details of hydrogeological study is provided under Section 3.6, Chapter-III.**	**3-46**
20	Erosion Control measures.	• **Since the entire material from the quarry face will be directly dispatched to the consumers, there will not be any stockpiles. There are no waste dumps in this quarry. As such there will not be any wash out due to stock pile or waste dumps.** • **Towards surface runoff management, a garland drain will be constructed around the quarry and will be connected to a settling pond with silt traps. The supernatant clear water from the settling pond will be flow to the downstream users**	**4-9**
21	Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area on the nearby Villages, Water-bodies/ Rivers, & any ecological fragile areas.	• **There is no proposal to discharge any effluent into this waterbody. No major impact is envisaged on the nearby water bodies due to project operations**	**4-12**
22	The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir.	• **There is no major perennial waterbody in close proximity of the lease area.**	**7-3**
23	The project proponent shall study and furnish the details on potential fragmentation impact on natural environment, by the activities.	• **The post mining land use has been provided in Table No. 4.13. The post mining land use plan showing afforestation and water body is shown in Figure No- 4.5.**	**4-9** **4-24**
24	The project proponent shall study and furnish the impact on aquatic plants and animals in water bodies and possible scars on the landscape, damages to nearby caves, heritage site, and archaeological sites possible land form changes visual and aesthetic impacts.	• **An ecological survey of the study area was conducted with reference to listing of species and assessment of the existing baseline ecological conditions. Details are provided under section 3.5.1, Chapter-III.**	**3-36**
25	The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components.	• **Soil samples were collected in 3 locations in the core and buffer zone to analyse the physiochemical characteristics of the soil in the area. The soil quality data is provided in Table No.3.18, Chapter-III.**	**3-50**
26	The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites.	• **The nearest major water bodies is provided in Table No.3.1, Chapter-III.** • **There are no perineal water courses in lease areas.**	**3-1**

		The mining area consists of hard compact rock, hence no major water seepage within the mine is expected from the periphery. The ground water table in this area is below the ultimate pit level. Hence, ground water intersection in not envisaged and ground water will not be affected appreciably due to the quarrying operation.	
27	The EIA shall include the impact of mining activity on the following: a) Hydrothermal/Geothermal effect due to destruction in the Environment. b) Bio-geochemical processes and its foot prints including environmental stress. c) Sediment geochemistry in the surface streams.	• **No adverse impact on the surrounding environment is envisaged since the number of equipments to be used to achieve this small production is very less and the magnitude of operation is of very small level.** • **Besides, as is it a mining project, no adverse generation of heat is envisaged.** • **Certified vehicles with low carbon emissions will only be used. These equipments will be properly and regularly maintained. Besides, regular vehicular emission tests will be done for the transport vehicles to ensure minimal impact due to carbon emissions. To further mediate the carbon emissions, a good greenbelt and plantation plan has been planned.** • **Geologically the area in and around the lease area contains charnokite type rock formation containing mostly fallow land. As such there no major vegetation or agricultural activities are observed.** • **There are no Protected or Eco-Sensitive Zone or forest land nearby wherein it can have an impact.** • **It will be ensured that mining will be carried out adhering to all the statutory rules and regulations and maintaining the environmental quality within the prescribed standards by effective implementation of varioius mitigative measures.** • **These mitigative measures will be continued for the entire lease period ensuring no impact on the environment.** • **As such release of Greenhouse gases (GHG), rise in temperature, affecting livelihood of the local people ,loss of Agriculture, Forestry and Traditional Practices is not envisaged. Such a limited scope will not induce any climatic change leading to droughts, floods etc.**	**4-21**

Energy			
28	The measures taken to control Noise, Air, Water, Dust Control and steps adopted to efficiently utilise the Energy shall be furnished.	• **The dust control measures are listed under Table 4.1, Water pollution control measures under Section 4.3.2, and noise pollution control measures under Section 4.4.1.2, Chapter-IV. Besides, energy consumption in this project will be optimum and as per requirement.**	**4-2** **4-8** **4-16**
Climate Change			
29	The Environmental Impact Assessment shall study in detail the carbon emission and also suggest the measures to mitigate carbon emission including development of carbon sinks and temperature reduction including control of other emission and climate mitigation activities.	• **Certified vehicles with low carbon emissions will only be used. These equipments will be properly and regularly maintained. Besides, regular vehicular emission tests will be done for the transport vehicles to ensure minimal impact due to carbon emissions. To further mediate the carbon emissions, a good greenbelt and plantation plan has been planned wherein 550 number of plants will be planted in and around the lease area.**	**7-8**
30	The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock, soil health and physical, chemical & biological soil features.	• **Replied in point no.29 above**	**--**
31	Impact of mining on pollution leading to GHGs emissions and the impact of the same on the local livelihood.	• **Replied in point no.29 above**	
Mine Closure Plan			
32	Detailed Mine Closure Plan covering the entire mine lease period as per precise area communication order issued.	• **Details of Mine Closure Plan is provided under section 7.5, Chapter-VII.**	**7-4**
EMP			
33	Detailed Environment Management Plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued and the scope for achieving SDGs	• **Detailed environmental management plan is provided under Chapter-X.**	**10-1**
34	The Environmental Impact Assessment should hold detailed study on EMP with budget for Green belt development and mine closure plan including disaster management plan.	• **Detailed environmental management plan is provided under Chapter-X.**	**10-1**
Risk Assessment			
35	To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining.	• **Various risks likely to arise due to mining activities are detailed under section 7.3, Chapter-VII.**	**7-1**
Disaster Management Plan			
36	To furnish disaster management plan and disaster mitigation measures in regard to all aspects to	• **The disaster management plan has been provided under section 7.3.1, Chapter-VII.**	**7-3**

	avoid/reduce vulnerability to hazards & to cope with disaster/untoward accidents in & around the proposed mine lease area due to the proposed method of mining activity & its related activities covering the entire mine lease period as per precise area communication order issued.		
Others			
37	The project proponent shall furnish VAO certificate with reference to 300m radius regard to approved habitations, schools, Archaeological sites, Structures, railway lines, roads, water bodies such as streams, odai, vaari, canal, channel, river, lake pond, tank etc.	• **Given in Vide Annexure No – 14 of EIA EMP report**	**A-34**
38	As per the MoEF& CC office memorandum F.No.22-65/2017-IA.III dated: 30.09.2020 and 20.10.2020 the proponent shall address the concerns raised during the public consultation and all the activities proposed shall be part of the Environment Management Plan.	**Will be provided in the Final EIA/EMP Report after completion of public hearing.**	**--**
39	The project proponent shall study and furnish the possible pollution due to plastic and microplastic on the environment. The ecological risks and impacts of plastic & microplastics on aquatic environment and fresh water systems due to activities, contemplated during mining may be investigated and reported.	• **Single use plastics/ use and throwaway plastics will be banned in the site as directed by the Tamil Nadu Government vide GO(Ms)No.84 regarding ban on use of plastic products. The employees will be encouraged to use compostable material or reusable material.**	**11-17**
C. Standard ToR			
1	Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification 1994 came into force, w.r.t. the highest production achieved prior to 1994.	• **This is a fresh lease area. No mining has been carried out in this lease area so far by the proponent.**	**2-14**
2	A copy of the document in support of the fact that the Proponent is the rightful lessee of the mine should be given	• **Precise Area Communication letter received from the Assistant Director, Dep. of Geology & Mining, Coimbatore vide R.C.No.B/G&M/277/2024dated 08.04.2025 (Annexure-1)**	**A-1**
3	All documents including approved mine plan, EIA and Public Hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and should be in the name of the lessee.	• **The production capacity, quantity of waste, its management and mining technology in mine plan and EIA, etc., are compatible with one another.**	**--**
4	All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/ toposheet, topographic sheet, geomorphology and geology of the area	• **Project coordinates superimposed in satellite imagery and given as Figure No -**	**2-6**

	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).	**2.4 in Chapter – II.** • **The geology and geomorphology map is provided in Figure No.3.16, 3.17, Chapter-III. The Lithology map and Soil map are provided under Figure No. 3.18, 3.19, Chapter-III.** • **The 10km Radius Index plan showing buffer zone is given in Figure No.3.1 in Chapter – III.**	**3-47 &** **3-50** **3-2**
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.	• **Replied in Standard ToR point no.4**	**--**
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.	• **Not Applicable**	**--**
7	It should be clearly stated whether the proponent Company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA Report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/ violation of the environmental or forest norms/ conditions? The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large, may also be detailed in the EIA Report.	• **The proponent will frame a well-planned environmental policy. Its details are provided under Section 10.2.1, Chapter-X.** • **The Mines Manager will undertake effective monitoring and implementation of various environmental control measures promptly and effectively and to oversee various environmental management schemes for air quality control, water quality status, noise level control, plantation programme, social development schemes, etc in the mine. The organizational chart for the same has been provided in Figure No.10.1, Chapter-X.**	**10-1** **10-3**
8	Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.	• **Various risks likely to arise due to mining activities are detailed under section 7.4, Chapter-VII. This being an opencast mine, subsidence is not applicable. The impact due to ground vibrations due to blasting is given in para 4.3.2, Chapter-IV.**	**7-4** **4-8**
9	The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc. should be for the life of the mine / lease period.	• **The study area chosen for collecting existing environmental status covers 10 km radial distance from the project periphery (Figure No - 3.1). Data given in the report is for the life of the mine.**	**3-2**

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.	• **The land use of the study area was studied to demarcate various LULC categories and its details are provided under section 3.4, Chapter-III.** • **The land use pattern at present and at the end of the quarrying period has been provided under section 4.5, Chapter-IV.** • **In the post mining stage, the mine pit area of 2.37.30 Ha will be left as a water body. Plantation will be carried out over 0.62.70 Ha of safety zone and 0.02.00Ha will be utilized for road and 0.02.00Ha used for infrastructure will be reclaimed**	**3-29** **4-19**
11	Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.	• **There is no waste generation anticipated in this quarry operation since the entire excavated material will be utilized. Hence, there is no external overburden dump involved. Besides, there is no proposal for overburden dump outside the lease area.**	**2-15**
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.	• **There is no forest land in the lease area.**	**--**
13	Status of forestry clearance for the broken up area and virgin forestland involved in the Project including deposition of Net Present Value (NPV) and Compensatory Afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.	• **There is no forest land in the lease area.**	**--**
14	Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.	• **Not Applicable**	**--**
15	The vegetation in the RF / PF areas in the study area, with necessary details, should be given.	• **There is no forest land in the lease area.**	**--**
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,	• **The mining lease area and the 10 km buffer zone from the periphery of the core zone is devoid of declared ecologically sensitive**	**4-20**

	detailed mitigative measures required, should be worked out with cost implications and submitted.	**features like national parks, biospheres, sanctuaries, etc.**	
17	Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/ Elephant Reserves/(existing as well as proposed), if any, within 10 km of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished.	• **Replied in Standard ToR point No.16**	**--**
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.	• **A detailed study of flora and fauna composition in the core and buffer zone of the project has been made through primary field surveys. The details are furnished in para 3.5, Chapter III.**	**3-36**
19	Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravali Range', (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Department should be secured and furnished to the effect that the proposed mining activities could be considered.	• **Not Applicable**	**--**
20	Similarly, for coastal Projects, A CRZ map duly authenticated by one of the authorized agencies demarcating LTL. HTL, CRZ area, location of the mine lease 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**	**--**
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 he undertaken to assess their requirements, and action programmes prepared and submitted accordingly,	• **The mining activities will be carried out within the mine lease area only. The entire mine lease area is a patta land in proponent's possession. There is no population within the ML area. Hence, the question of R& R does not arise.**	**7-4**

	integrating the sectoml 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 shilling of village(s) including their R&R and socio-economic aspects should be discussed in the Report.		
22	One season (non-monsoon) (i.e. March-May (Summer Season); October-December (post monsoon season) ; December-February (winter season) primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality,: noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.	• **The baseline data on micro- meteorology, ambient air quality, Water quality, noise level, soil and flora & fauna are collected during summar Season (March 2026 to may 2026) and detailed in para 3.3 to 3.5 of Chapter-III.** • **Monitoring stations were selected taking into account, wind direction and location of sensitive receptors.** • **Free silica composition in PM10 sample has been done and the values are found to be Below Detectable Limit (DL 0.05mg/m3) which is well within the prescribed limit of 5mg/m3.**	**3-12 & 3-36**
23	Air quality modeling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of Vehicles for transportation of mineral. The details of the model used and input parameters used for modeling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map.	• **Air quality modeling details are furnished in para 4.2.2 and its continuous sub paras in Chapter-IV of EIA report.** • **The impact on air quality due to the proposed project is estimated using AERMOD View Gaussian Plume Air Dispersion Model developed by Lakes Environmental Software which is based on steady state Gaussian plume dispersion.** • **The model simulations are done for the air pollutant arising from the mining operations, namely, PM10, PM2.5. Ground Level Concentration (GLC) have been computed using hourly meteorological data.** • **The Isopleths of PM10, PM2.5 concentrations for with control measures scenario have also been drawn and these are given in Figure No.4.1 and 4.2.** • **It can be seen that the resultant added concentrations with baseline figures even at worst scenario, show that the values of ambient air quality with respect to PM10 are in the range of 53.70μg/m3 to 70.20 μg/m3 and with respect to PM2.5 are in the range of 26.30μg/m3to 32.80μg/m3 which are within the statutory limits in each case.**	**4-3** **4-5 & 4-6**

24	The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated.	• **The total water requirement for this project will be 9.0 KLD comprising 1.0 KLD for drinking water and domestic use, 6.0 KLD for dust suppression and 2.0 KLD for greenbelt. The water will be sourced initially from outside agencies. Later the rainwater collected in the mine pit sump will be used for this purpose. The water balance diagram for the same is shown in Figure No 4.3.**	**4-8**
25	Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.	• **Not Applicable.**	**--**
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 rain water falling in the quarry will be harvested in the sump at the lowest level of the quarry. This sump will act as a settling pond to prevent solids escaping along with discharge, before outlet. etc.** • **Towards surface runoff management, a garland drain of length 500m will be constructed around the quarry and will be connected to a settling pond with silt traps. The supernatant clear water from the settling pond will be flow to the downstream users. The surface runoff management structures diagram is given in Figure No 4.4, Chapter-IV.** • **The methods for reducing water consumption and rainwater harvesting is provided in section 4.3.4, Chapter-IV.**	**4-13** **4-12** **4-14**
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.	• **There will be no generation of effluent or its discharge from the mining operation in this lease area and as such no impact on surface or ground water is expected.** • **The ultimate pit depth of mining is 52m. The ground water table in this area is below this level. Hence, ground water intersection in not envisaged and ground water will not be affected appreciably due to the quarrying operation.**	**2-15** **2-17**
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	• **The occurrence of groundwater mainly in the porous soil are weathered layers, very negligible amount of groundwater percolated through the poorly fractured layer, after that there is no existence of groundwater. Since the mining area consists of hard compact rock, no major water seepage within the mine is expected from the periphery.**	**4-13** **3-47**

	also be obtained and copy furnished.	• **The ultimate pit depth of mining is 52m. The ground water table in this area is below this level. Hence, ground water intersection in not envisaged and ground water will not be affected appreciably due to the quarrying operation.** • **Details of hydro geological study are given in Para 3.6.2 Chapter – III.**	
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 are no streams passing through the lease area.**	**--**
30	Information on site elevation, working depth, groundwater table etc. Should be provided both in AMSL and bgl. A schematic diagram may also be provided for the same.	• **The area applied for mining lease is a gentle plain terrain..** • **The ultimate pit depth of mining is 52m. The ground water table in this area is below this level.**	**2-17**
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. Phasc-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.	• **Greenbelt / Plantation will be carried out to enhance the vegetative growth and aesthetic in the safety zone area. About 550 trees will be planted in and around the lease area. Details of the same is provided under TableNo.4.15, Chapter-IV.**	**4-23**
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.	• **From this proposed quarry the entire output will be transported to the crusher units and other buyers etc. Details of the traffic study is provided under section 4.9, Chapter-IV.**	**4-27**
33	Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.	• **This is a proposed project. Site services like mine office, first aid room, rest shelters, toilets etc. will be provided as semi-permanent structures.**	**2-19**

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.	• **In the post mining stage, the mine pit area of 2.37.30 Ha will be left as a water body. Plantation will be carried out over 0.62.70 Ha of safety zone and 0.02.00Ha will be utilized for road and 0.02.00Ha used for infrastructure will be reclaimed. Entire mined out area will be properly fenced to prevent inadvertent entry of men and animals. In the post mining stage the rainwater harvested in the mined out void shall be utilized in the area.**	**4-19**
35	Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed	• **Details of occupational health and safety aspects are given under the subsections of Para 4.8, Chapter-IV.**	**4-25**
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	• **Details of the socio economic survey conducted in the buffer zone has been provided in Para 3.2.4, Chapter-III.** • **Public health facilities will be further aimed to be developed through CER activities wherein periodic health checkups, medical camps for the locals will be conducted.**	**3-10**
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.	• **Towards the socio economic development of the surrounding area, the proponent has earmarked an amount of Rs 5.0 Lakhs under Corporate Environmental Responsibility. The activities identified under CER will be implemented in a phased manner in the nearby Government schools. In consultation with the locals based on the need & priority it will be implemented.Its details are provided in Para 4.7, Chapter-IV**	**4-24**
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.	• **Detailed Environmental Management plan and its implementation, etc., are furnished in Chapter X.**	**10-1**
39	Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the	• **This draft EIA/EMP report will be exposed to public consultation as per mandatory procedures through the District Collector and State Pollution Control Board officials after giving 30 days advance notice in two**	**7-1**

	final EIA/EMP Report of the Project.	**local newspapers about the scheduled date and time for conduct of the public hearing procedures.** • **The opinions, concerns and objections of stakeholders will be recorded during the public hearing. All the public queries and the replies to the query by the project proponent and officials concerned will be recorded and incorporated in the EIA/EMP report for approval by SEIAA, Tamil Nadu.**	
40	Details of litigation pending against the project, if any, with direction /order paced by any Court of Law against the Project should be given.	• **PP informed that there is no litigation pending against the project.**	**--**
41	The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.	• **The cost of the project is Rs. 77,19,400/-/- Towards EMP measures, Rs.Rs.20.37 Lakhs is allocated under capital cost. Besides, Rs.25.53 lakhs per annum will be spent under recurring cost. All the recurring cost of maintenance of pollution control measures, environmental monitoring etc., will be met from revenue.**	**2-19** **10-12**
42	A Disaster management Plan shall be prepared and included in the EIA/EMP Report.	• **The disastermanagement plan has been provided under section 7.3.1, Chapter-VII.**	**7-3**
43	Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.	• **The proposed Rough Stone Quarry will benefit this region in the fields of employment opportunities, improved per capita income for local people, improved social welfare facilities in respect of education, health, infrastructural etc.** • **Direct employment to 35 people and indirect employment to scores of people.** • **By means of carrying out the socio economic development activities, local community development is expected. Towards the same, the proponent has planned to allocate Rs. 5 Lakhs for various activities under CER. From the CER activities allocated for various social welfare activities, the villages near the lease area will be benefited.**	**8-1**
44	Besides the above, the below mentioned general points are also to be followed:- a) All documents to be properly referenced with index and continuous page numbering. b) Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated. c) Project Proponent shall enclose all the	• **Agreed**	

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

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CHAPTER - I

INTRODUCTION

CHAPTER 1

INTRODUCTION

1.1 PURPOSE OF THE REPORT:

M/s.Sri Magaveer Mines, Prop. T.A.P.Jayakeerthi proposes to operate a **Rough Stone and Gravel Quarry** over an area of **3.04.00** Ha in Senalur Village, Tindivanam Taluk, Viluppuram District, Tamil Nadu and has initiated action towards obtaining environmental clearance. Proposed Production capacity will be 5,84,175m^3 of Rough stone with annual peak production of 1,19,950m^3 (Year 5) and 48,912m^3 of gravel with annual peak production of 16,544m^3 (Year 2) upto the depth of 52m (2m Gravel + 50m Roughstone) for the five years lease period.

Although the individual lease area of this project is less than 5 Ha, the total lease within the 500m radius cluster (Existing + Proposed) works out to be 7.04.00Ha including this proposal which is greater than 5Ha. Hence, this proposal is considered under **Category – B1 (under cluster situation).** Terms of Reference for this proposal issued by SEIAA, Tamil Nadu vide **TOR Identification No – TO25B0108TN5160551N dated 30.07.2025** as per MoEF&CC notification necessitates preparation of EIA/EMP report and public hearing.

This draft EIA/EMP report is prepared based on standard and additional Terms of Reference issued by SEIAA, Tamil Nadu and is in conformance of the generic structure prescribed by MOEF&CC in their notification of September 2006 and the approved mining plan.

1.2 IDENTIFICATION OF PROJECT &PROJECT PROPONENT:

Table 1.1Identification of project

1	**Project Name**	Rough Stone and Gravel Quarry of M/s.Sri Magaveer Mines, Prop. T.A.P.Jayakeerthi
2	**Extent**	3.04.00 Ha
3	**Production**	Production capacity will be 5,84,175m^3 of Rough stone with annual peak production of 1,19,950m^3 (Year 5) and 48,912m^3 of gravel with annual peak production of 16,544m^3 (Year 2) for five year lease period
4	**Ultimate Depth**	52m (2m Gravel + 50m Roughstone) for 5 years
5	**Land Classification**	It is a Patta Land in S.F.No -7/1, 7/2, 7/3, 7/4, 7/5, 7/6 & 7/7. registered in the name of proprietor T.A.P. Jayakeerthi S/o. Appachi Vide Patta No 341.
6	**Location**	Survey Number: 7/1, 7/2, 7/3, 7/4, 7/5, 7/6 & 7/7
		Village: Senalur

		Taluk: Tindivanam
		District: Viluppuram
		State: Tamil Nadu

Table 1.2: Identification of Project Proponent

1	**Proponent Name**	**M/S.Sri Magaveer Mines,**
2	**Address**	Prop: T.A.P. Jayakeerthi, Senalur Village, Tindivanam Taluk, Viluppuram District- 604 101.
3	**Contact Number**	9442134799 & 7010307987
4	**Email-ID**	srimagaveermines@gmail.com

The Proponent can meet the financial requirement of this project and will ensure that the mining activities are carried out as per statutory requirements.

Table 1.3: Statutory Approvals

Name	Issuing Authority	Status	Letter number	Date	Reference
Precise Area Communication	Assistant Director, Department of Geology & Mining	Received	R.C.No.B/G&M/277/2024	08.04.2025	**Annexure-1**
Mining Plan Approval	Assistant Director, Department of Geology &Mining	Approved	R.C.No.B/G&M/277/2024	15.04.2025	**Annexure-2**
Details of other quarries within 500m radius	Assistant Director, Department of Geology & Mining	Obtained	R.C.No.B/G&M/277/2024	15.04.2025	**Annexure-3**
District survey report	Collector, Assistant director, Geology & Mining	Authenticated	As per S.O. 3611(E) dated 25.07.2018	-	
VAO Letter	VAO	Obtained	--	28.04.2025	**Annexure-4**
Wrd Letter	PWD Department, Villupuram	Obtained	-	25.06.2026	**Annexure-13**

Safety distance of 7.5m for patta land and 10m for drainage located in the northern side will be provided as per conditions complied in precise area communication..

1.3 BRIEF DESCRIPTION OF NATURE, SIZE, LOCATION &PROJECT IMPORTANCE

Table 1.4: Brief Description of Nature of project

1.	**Sector**	1(a), Non-Coal Mining
2.	**Type**	Fresh EC
3.	**Category**	B1
4.	**Mineral Mined**	Roughstone& Gravel Quarry
5.	**Major/Minor Mineral**	Minor
6.	**Mining method**	Opencast Semi Mechanized Mining
7.	**End use**	Gravel will be loaded into tipper and marketed to needy customers on payment of necessary Fees to Government. The excavated rough stone will be excavated and loaded into tipper to the buyers for producing crusher aggregates, M Sand.

Table 1.5: Location of the project

S.No	Particulars	Details
1.	**Location**	Senalur Village, Tindivanam Taluk, Viluppuram District,Tamil Nadu
2.	**Corner Coordinates**	**Latitude:** 12°13'47. 6714" N to 12°13'52. 8157" N **Longitude:** 79°45'15. 9136" E to 79° 45'24.0670" E
3.	**Toposheet Number**	57- P/16

Location details are elaborated in Para **2.3, Chapter-II.**

1.3.1 IMPORTANCE TO THE COUNTRY AND REGION:

Rough stone from this quarry will meet the domestic demand. The production and method of mining is planned considering the geological factors, availability of proven technology, demand for the material etc. Safety barriers as per State Government order is left in the planning stage itself. Systematic and scientific mining will be carried out. This project will provide employment opportunities to many people. The proponent will carry out CER activities which will help the surrounding villages to derive socio economic benefits. The activities will be customized based on local needs and prioritized. Hence, livelihood development and employment will arise due to this project.

1.4 SCOPE OF THE STUDY:

Particulars	Details
Proposal no	SIA/TN/MIN/540309/2025, Dated: 07.06.2025
File no	12288
SEAC meeting for issue of TOR	587th meeting of SEAC held on 07.07.2025.

SEIAA meeting for issue of TOR	859th SEIAA meeting held on 35.07.2025.
Terms of Reference	Received from SEIAA, Tamil Nadu vide TOR Identification No – TO25B0108TN5160551N dated 30.07.2025
Baseline Data Collection	Carried out by creative Engineers & Cousultants, Summer season (Mar - May 2026)

Based on the terms of reference, data collection, the Environmental Impact Assessment was carried out for the project area (core zone and the buffer zone (10km radius from the core zone) and the following studies were covered:

- Collection of primary and secondary data relevant to the project.
- One-Season baseline monitoring for environmental parameters such as air, water, noise, soil, flora & fauna, etc. Analysis of parameters in in-house laboratory.
- Documentation of EIA/EMP report with inclusion of relevant studies conducted by other bodies into the EIA/EMP report.
- Identification of significant environmental parameters that are prone to get affected due to pollution. Namely, Air, Water, Noise, Soil, Biological and Land Environment.
- Evaluation and determination of suitable mitigation measures to reduce and control the said pollution.
- Prediction of post project concentration (baseline + incremental) with respect to air environment for core zone and buffer zone)
- Formulation of an Environmental Management plan including administrative aspects for proposed implementation of mitigative measures in time.

This draft EIA/EMP report will be submitted for public consultation, as per rules and procedures in this respect, as per the EIA notification 2006. The opinions, concerns and objections, if any, of the surrounding public and other stake holders connected, will be taken into consideration and compliance report thereon will be submitted to SEIAA, Tamil Nadu in the final EIA/EMP report.

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CHAPTER - II

PROJECT DESCRIPTION

CHAPTER 2

PROJECT DESCRIPTION

2.1 TYPE OF PROJECT:

This proposal involves quarrying of Roughstone and Gravel by M/s.Sri Magaveer Mines, Prop.T.A.P.Jayakeerthi using Opencast Semi Mechanized Mining method for the lease period of 5 years.

2.2 NEED & JUSTIFICATION FOR THE PROJECT:

There is a huge demand for construction material and the entire material produced from this quarry will be used in the local construction/ infrastructure sector. Considering the following favorable factors it is practically possible to achieve the proposal within the planned period and this proposal is fully justified.

- Availability of good quality proved reserves
- Techno economic viability of the scheme
- Better approachability to the project, availability of logistic facility in proximity to the site
- Economic and Socio-Economic Benefits to the region

2.3 LOCATION:

A brief description of the mining area, along with the location, coordinates, accessibility, etc. has been details below in Table No.2.1.

Table 2.1: Mine site description

Location	Senalur Village, Tindivanam Taluk, Viluppuram District, Tamil Nadu
Survey No.	7/1, 7/2, 7/3, 7/4, 7/5, 7/6 & 7/7.
Coordinates	Latitude: N 12°13'47. 6714" to N to 12°13'52. 8157" N Longitude: E 79°45'15. 9136"to E to 79° 45'24.0670" E
Accessibility	There is an existing road from the area leads Kilsevur Village Road about 140m is Western side of the lease applied area which is connected to SH-134 Tindivanam to Marakkanam road about 3km south of the lease area.
Topography& Drainage	The lease applied area is exhibits Plain topography covered massive Charnockite formation. Altitude of the area is 68m MSL. First order streams connected to tanks controls the drainage of the area.

Location map is provided in **Figure No.2.1.**The approachability map is provided in **Figure No.2.2.** Corner co-ordinates of the lease area and satellite imagery are shown in **Figure No. 2.3 & 2.4** respectively. Village map for 500m radius from the lease is shown in **Figure No. 2.5.**

Figure 2.1: Location Map

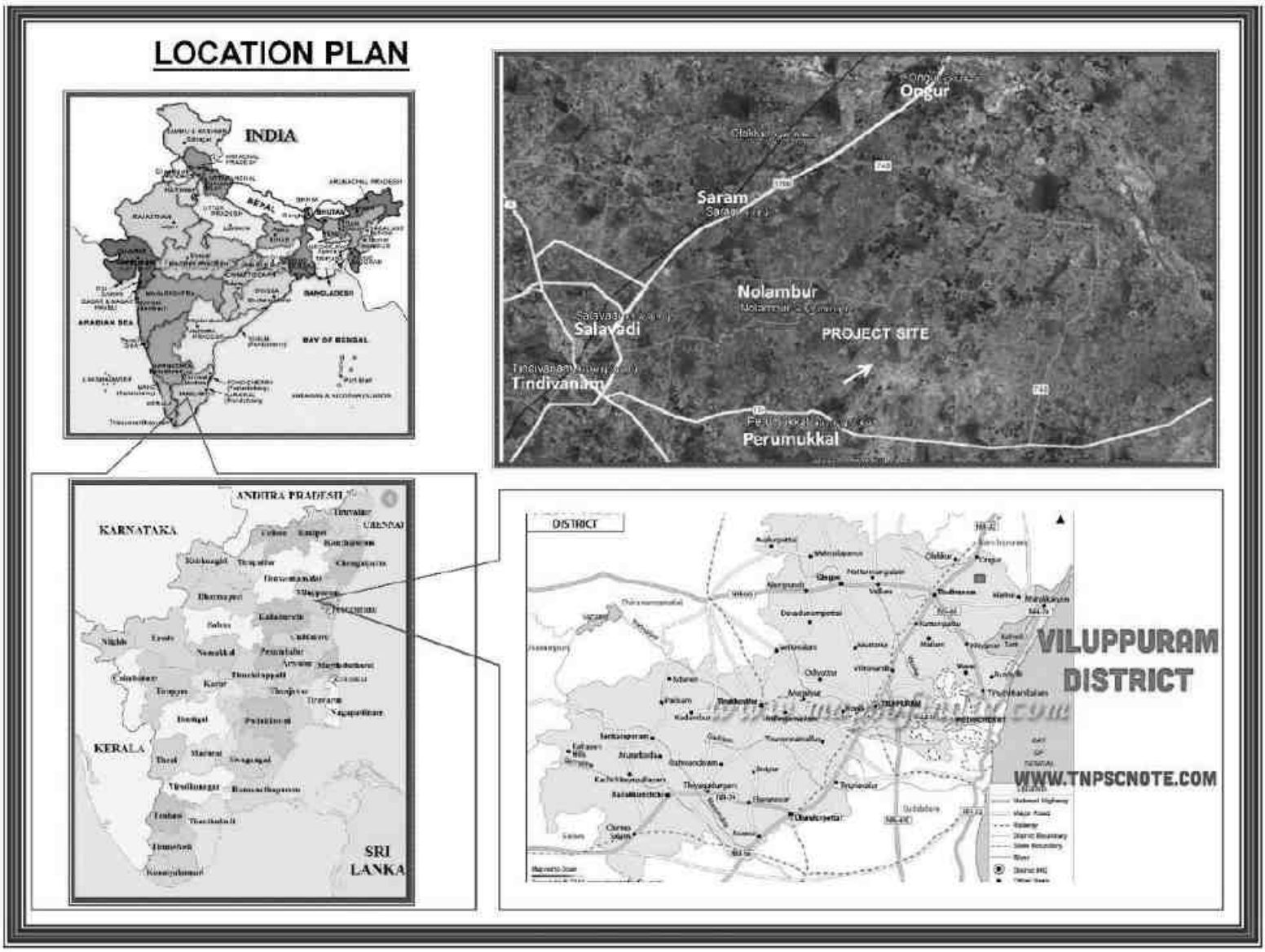
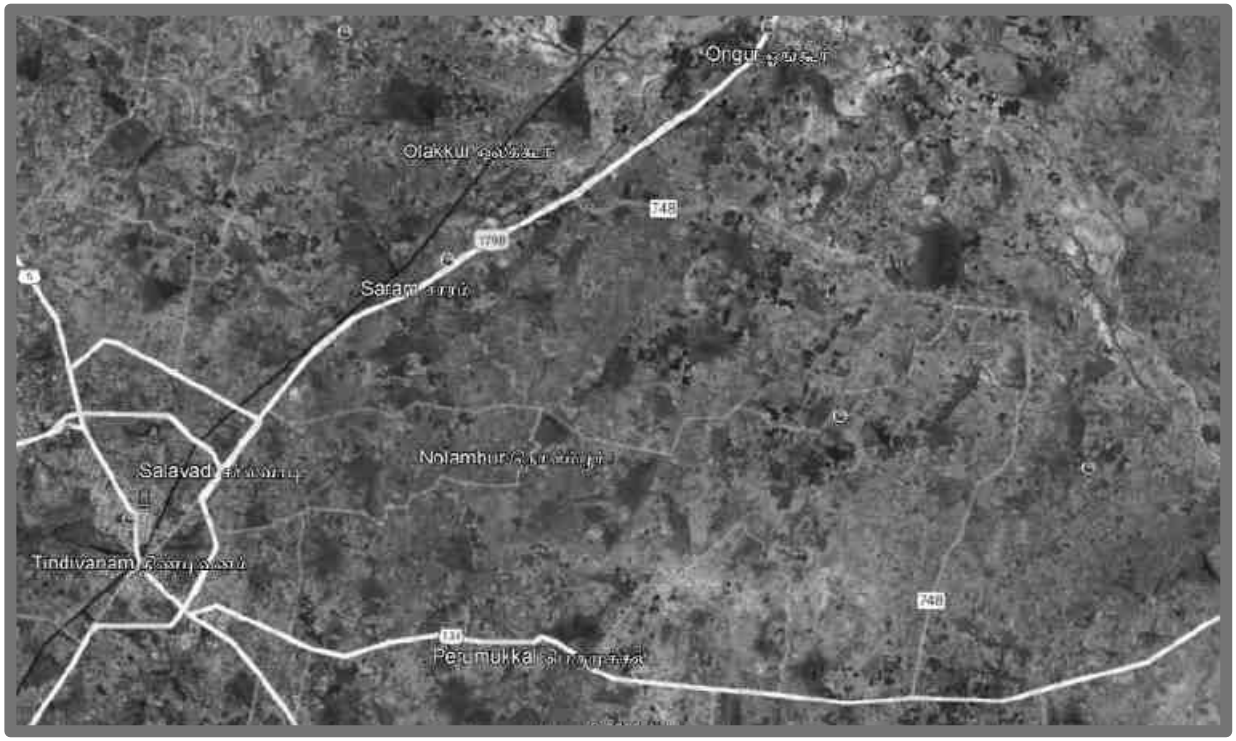
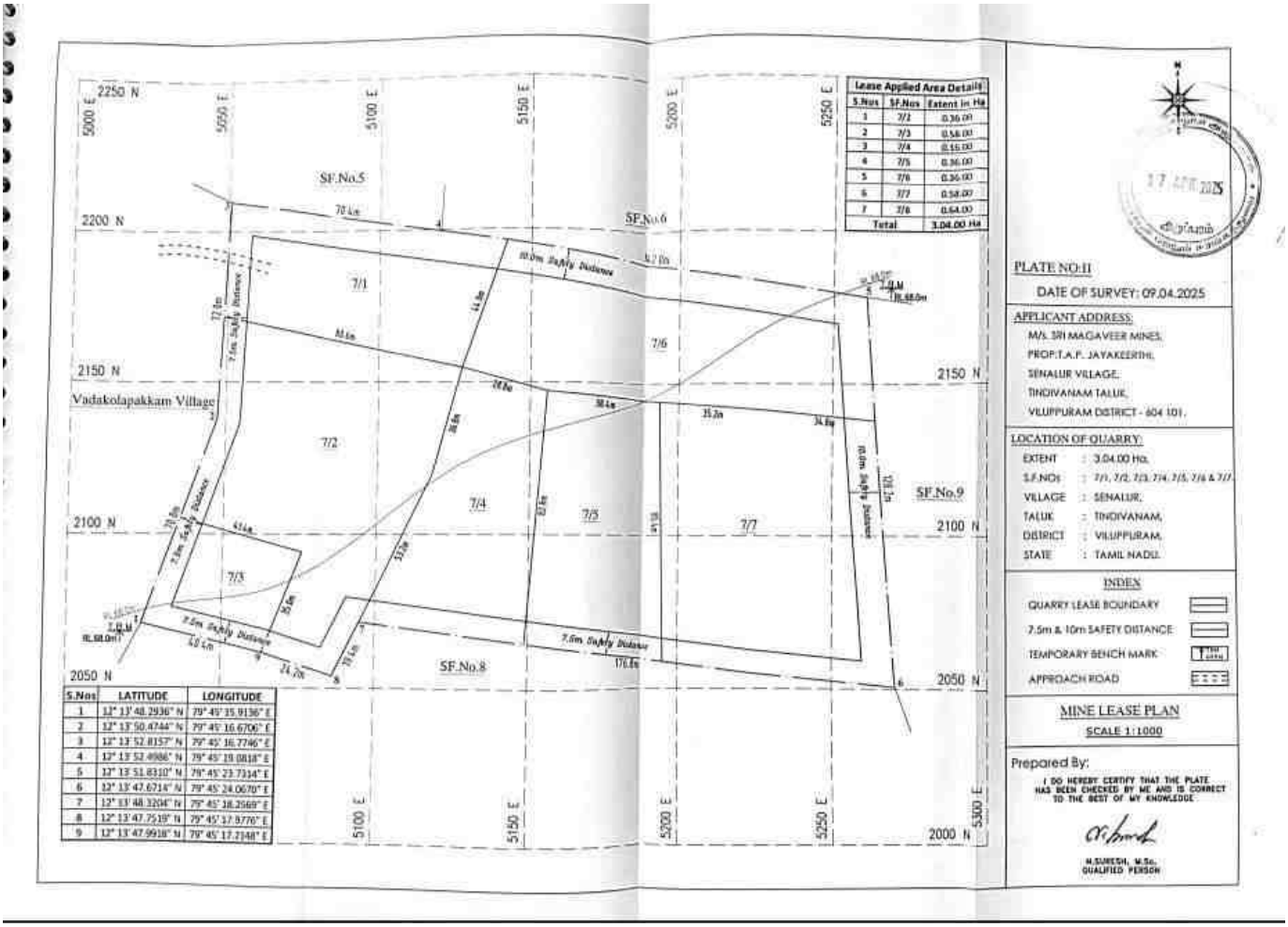


Figure 2.2: Approachability Map



There is an existing road from the area leads Kilsevur Village Road about 160m is Western side of the lease applied area. NH Road Villupuram to Chennai which is about 7.5 Kms on the Western side of the lease applied area. SH-Tindivanam to Marakkanam road is located which is about 3Kms on the Southern side of the lease applied area.

Figure 2.3: Lease Plan



S.Nos	LATITUDE	LONGITUDE
1	12° 13' 48.2936" N	79° 45' 35.9136" E
2	12° 13' 50.4744" N	79° 45' 16.6706" E
3	12° 13' 52.8157" N	79° 45' 16.7746" E
4	12° 13' 52.4986" N	79° 45' 19.0818" E
5	12° 13' 51.8310" N	79° 45' 23.7314" E
6	12° 13' 47.6714" N	79° 45' 24.0670" E
7	12° 13' 48.3204" N	79° 45' 38.2969" E
8	12° 13' 47.7519" N	79° 45' 37.9770" E
9	12° 13' 47.9918" N	79° 45' 17.2148" E

Figure 2.4: Satellite Imagery Showing Corner Co-ordinates of the Project Area



SITE PHOTOGRAPH













Figure 2.5: Village Map

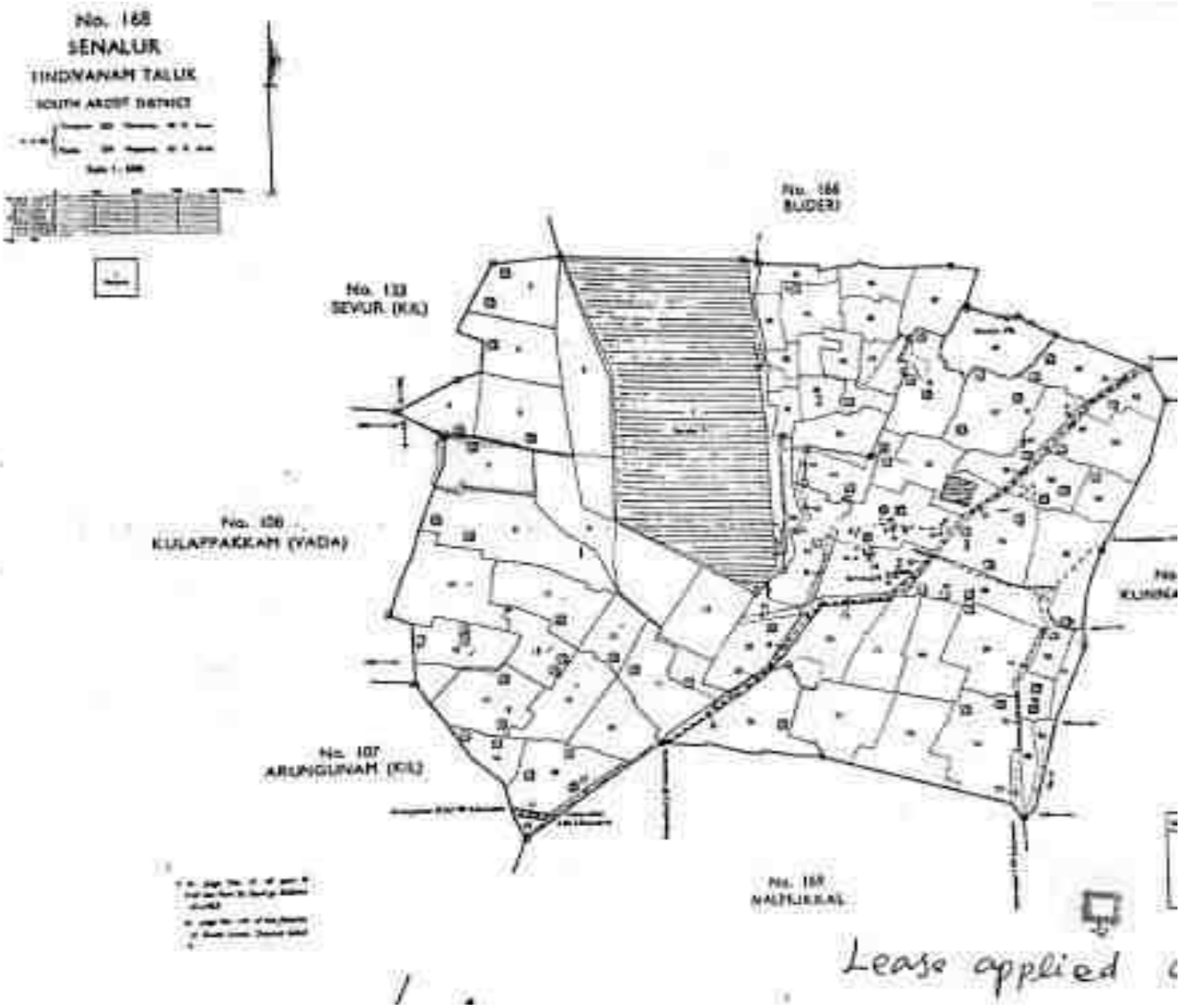


Figure 2.6: Details of features within 300m radius



As per the conditions of the Terms of Reference, the details of structures located within the 300m & 500m, radius are provided below.

Table 2.2: Features within 300m radius

S.No	Features	Distance	Photos
1	Eri	200m, E	
2	Road	140m, W	
3	Drainage	10m ,N, safety distance provided	

2.4 LAND CLASSIFICATION:

The entire lease area is a Patta Land registered in the name of proprietor T.A.P. Jayakeerthi S/o. Appachi Vide Patta No 341. The survey no. wise area breakup has been provided below:

Table 2.3: Survey Number wise Area Breakup

District	Taluk	Village	Survey No	Area in Ha	Ownership
Viluppuram	Tindivanam	Senalur village	7/1, 7/2, 7/3, 7/4, 7/5, 7/6 7/7	0.36.00 0.58.00 0.16.00 0.36.00 0.36.00 0.58.00 0.64.00	It is Patta Land registered in the name of proprietor T.A.P. Jayakeerthi Vide Patta No 341 Refer Annexure – 4 of mine plan Report
Total Area in (Hectares)				**3.04.00**	

2.5 GEOLOGY:

The area is mainly composed of crystalline metamorphic complex. The rock type majorly noticed in the area for lease is Biotite Gneiss. Which is mainly composed Hornblende, biotite mica, Quartz, and Feldspar with some ferromagnesian minerals. The grain size is medium to course. The strike of the Charnockite formation is N35°E-S35°W with dipping towards 60°S.

The Biotite gneiss is part of peninsular gneisses, a high grade metamorphic rock. It is typically brown to black colour and grain size is coarse grained. It is suitable of construction purposes because of its high strength, colour, high density, low porosity etc.

The geological sequence:

Age	Formation
Recent	- Gravel – (2m)
	---------- Unconformity ----------
Archaean	- Migmatite, Charnockite & Khondalite

Figure 2.7: Surface &Geological Plan

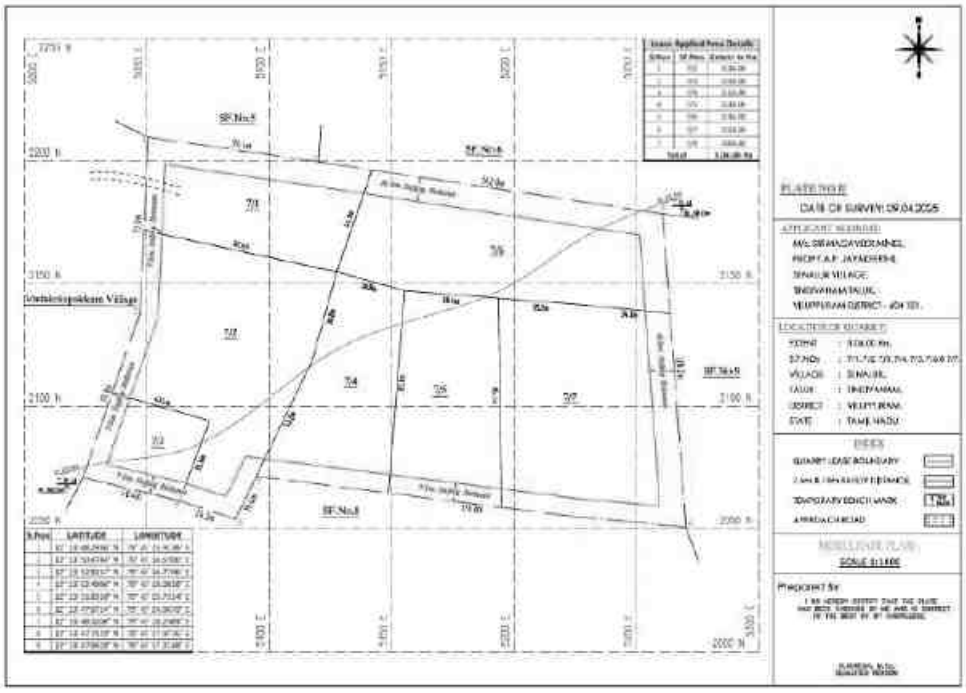
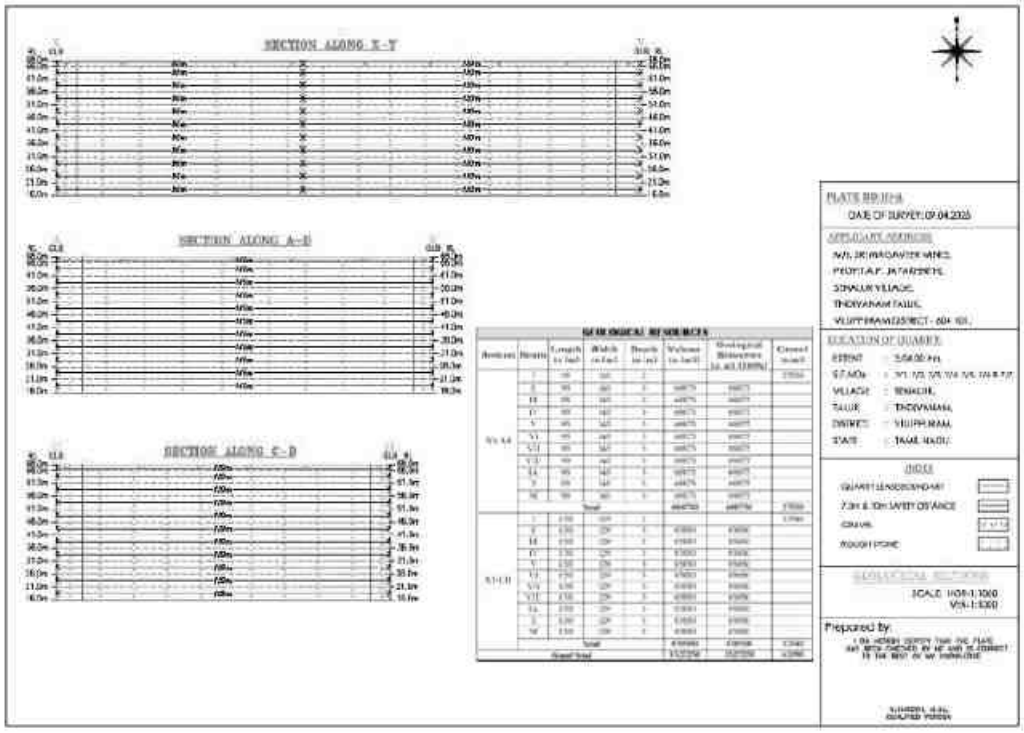


Figure 2.8: Geological Cross Section



2.6 SIZE AND MAGNITUDE OF THE OPERATION:

- The proposed mining will be done by open cast semi mechanized mining method.
- Life of mine will be 5 years.
- Proposed Production capacity will be 5,84,175m3 of Rough stone with annual peak production of 1,19,950m3 (Year 5) and 48,912m3 of gravel with annual peak production of 16,544m3 (Year2) upto the depth of 52m BGL (2m Gravel + 50m Roughstone) for the five years lease period.
- There is no waste generation anticipated in this quarry operation since the entire excavated material will be utilized.

2.6.1 RESERVES:

Table 2.4: Geological and Mineable Reserves

Type of reserves	Rough stone (m^3)	Gravel (m^3)
Geological Resources	15,27,250	61,090
Mineable reserves	5,84,175	48,912

The mineable reserves are arrived after considering the safety distance as per the Precise area letter.

2.6.2 MINING METHOD:

Open cast semi mechanized mining using jackhammer drilling, blasting, and excavation through excavator & mineral transport through tippers will be carried out. The top gravel is soft and can be directly excavated. The rough stone will be blasted and then excavated. Bench height of 5.0m & 5m width is considered.

Table 2.5: Details ofEquipments

SI. NO	NAME OF THE EQIPMENT	CAPACITY	REQUIRED
1	Excavator	0.90m^3	2
2	Tipper	10/20T	4
3	Compressor	400psi	2
	Jack Hammer	33mm dia	6

2.7 PROPOSED SCHEDULE FOR APPROVAL AND IMPLEMENTATION:

The proponent proposes to implement the production immediately after obtaining all the statutory approvals such as CTE, CTO, etc. The proponent will comply with the environmental clearance conditions during mining operations. The schedule of project implementation

envisaged for this project is provided below. This is a tentative schedule subject to various factor, hence unforeseen variations may occur.

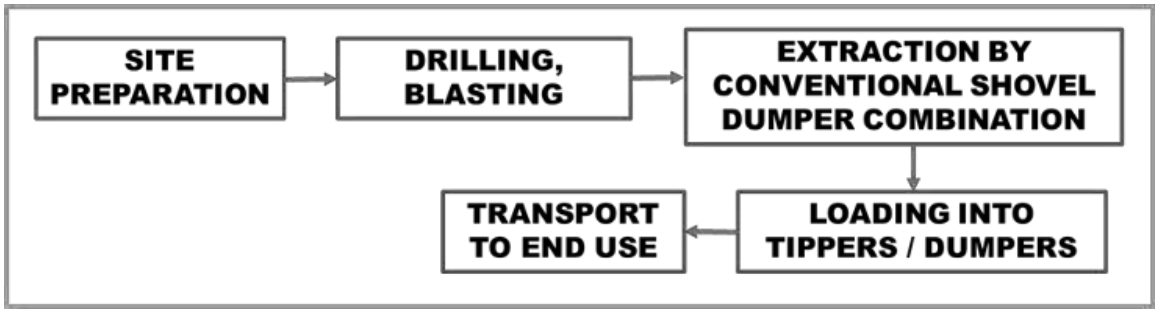
Table 2.6: Proposed Schedule of Implementation

Activities	Months					
	Zero Date	1	2	3	4	5
Obtaining Environmental Clearance						
Obtaining Consent from State Pollution Control Board						
Lease Execution						
Equipment mobilization and Commencement of Mining activity after following all the Statutory Requirements						

2.8 TECHNOLOGY AND PROCESS DESCRIPTION:

The quarry operations involve drilling, blasting, excavation, loading and transportation of Rough stone to buyers. The production of Rough stone in this quarry involves jackhammer drilling and blasting. The primary boulders are removed from the pits by excavators and further made to smaller sizes by rock breakers attached in excavators. It is a conventional opencast mechanized method of mining. The process flow diagram of this project is provided below.

Figure 2.9: Process Flow Diagram



2.9 PROJECT DESCRIPTION:

2.9.1 PAST PRODUCTION:

This is a fresh proposed quarry. As such no mining activities have been carried out in this lease area.

2.9.2 PRODUCTION & WASTE DISPOSAL:

The Proposed Production capacity will be 5,84,175m^3 of Rough stone with annual peak production of 1,19,950m^3 (Year 5) and 48,912m^3 of gravel with annual peak production of 16,544m^3 (Year2) upto the depth of 52m BGL (2m Gravel + 50m Roughstone) for the five years lease period. The year wise production details have been provided below:

Table 2.7: Production Schedule During Plan Period

YEAR	GRAVEL(m3)	ROUGHSTONE (m3)
I	16,384	1,09,000
II	16,544	1,18,040
III	15,984	1,18,400
IV	---	1,18,785
V	---	1,19,950
Year Total	**48,912**	**5,84,175**

Waste Disposal during Plan Period:

There is no waste generation anticipated in this quarry operation since the entire excavated material will be utilized. The top Gravel will be loaded into tipper and marketed to needy customers on payment of necessary fees to Government. The rough stone will be excavated and loaded into tipper to the needy buyers for producing crusher aggregates, M Sand.

Figure 2.10: Year wise Plan

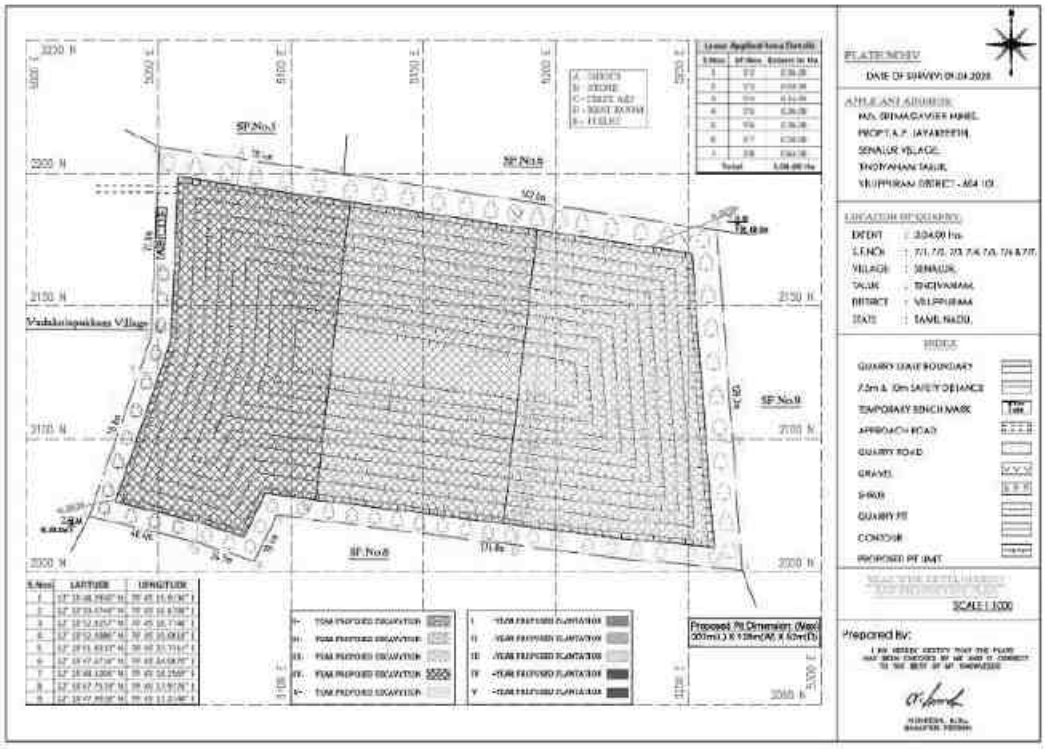
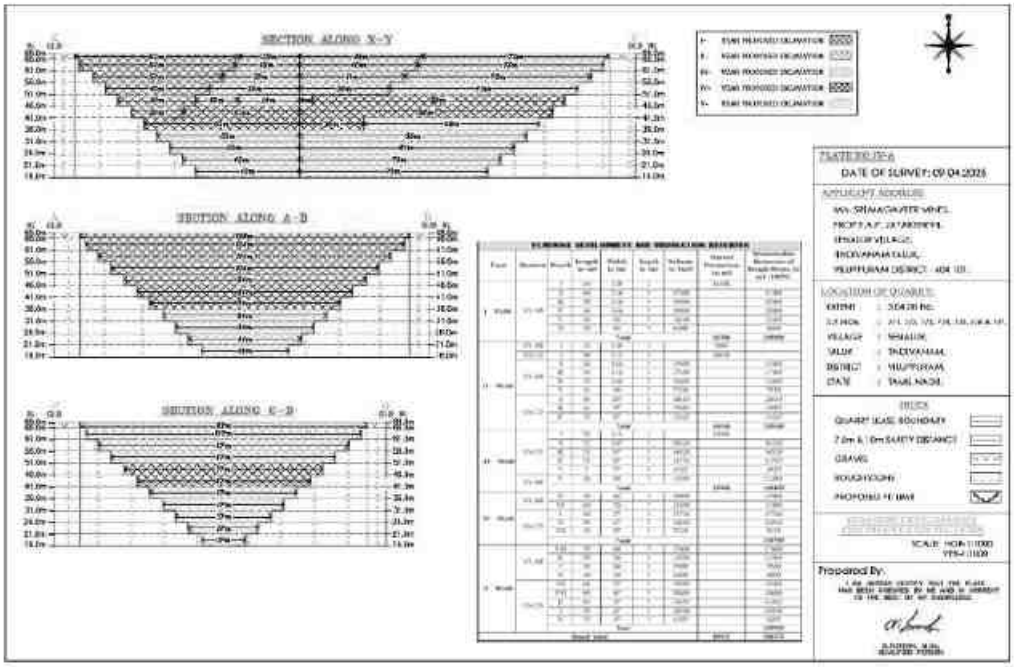


Figure 2.11: Year wise Cross Section



2.9.3 CONCEPTUAL PERIOD

In the post mining stage, the mine pit area of 2.37.30Ha will be left as a water body. Plantation will be carried out over 0.62.70 Ha of safety zone and 0.02.00Ha will be left as road and 0.02.00Ha used as infrastructure. The Ultimate Pit Dimensions details are provided below:

Table 2.8: Ultimate Pit Dimensions

Length in m	Width in m	Depth in (m)
207	128	52m BGL (2m Gravel + 50m Rough stone)

The ground water table in the area is about 60 - 65 m BGL. Since the mining operation will be above this level, the ground water intersection in not envisaged. The Conceptual Plan & Cross section are shown in **Figure No. 2.12& 2.13.**

Figure 2.12: Conceptual Plan

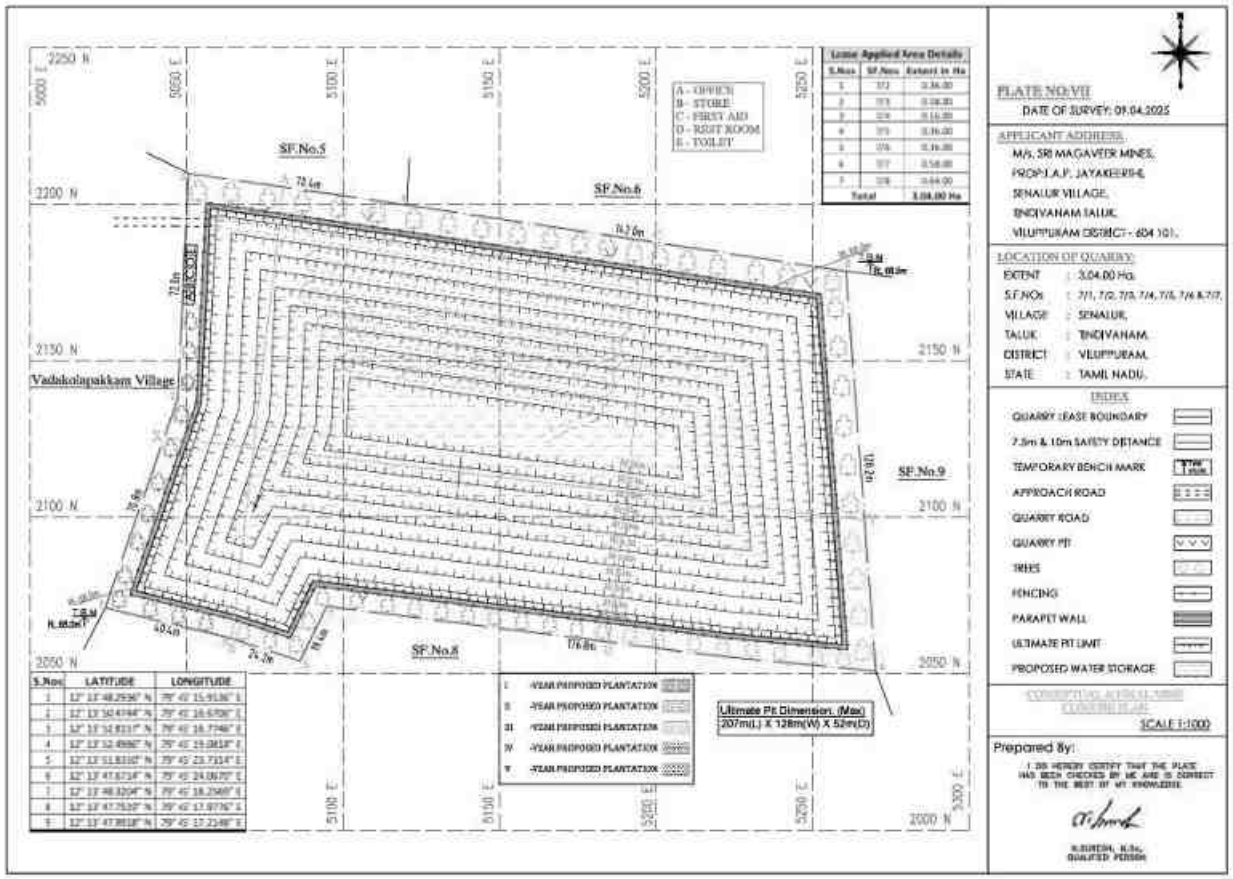
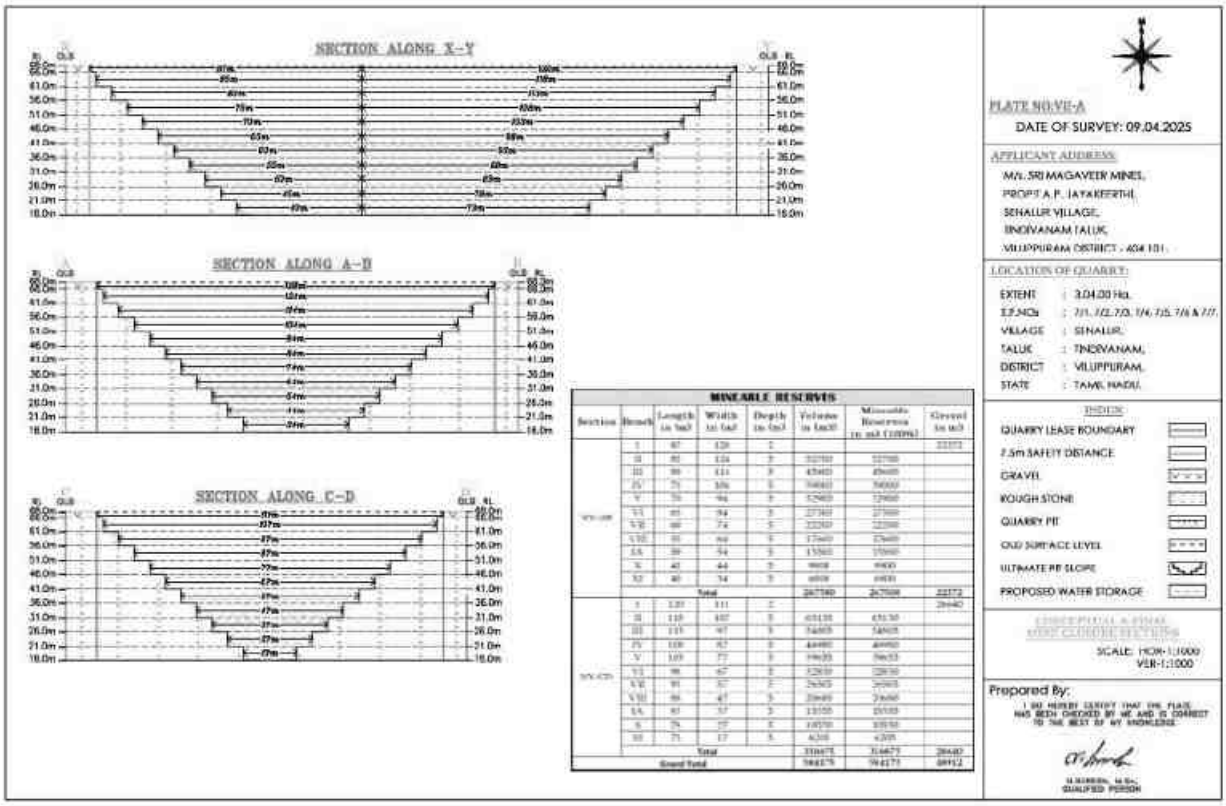


Figure 2.13: Conceptual Cross Section



LAND DEGRADATION/UTILIZATION:

The land use pattern at the end of the 5 years period has been provided below:

Table 2.9: Land Use

Sl. No.	Land Use	Present Area (Ha)	Area in use during plan period (Ha)
1.	Quarrying Pit	Nil	2.37.30
2.	Infrastructure	Nil	0.02.00
3.	Roads	Nil	0.02.00
4.	Green Belt	Nil	0.62.70
5.	Unutilized	3.04.00	Nil
	Total	**3.04.00Ha**	**3.04.00Ha**

In the post mining stage, the mine pit area of 2.37.30Ha will be left as a water body. Plantation will be carried out over 0.62.70 Ha of safety zone and 0.02.00Ha will be left as road and 0.02.00Ha used as infrastructure.

2.9.4 PROJECT REQUIREMENTS:

Table 2.10: Project Requirements

<table>
<tr><td>Manpower</td><td>35 people persons directly and indirectly.</td></tr>
<tr><td>Water Requirement and Source</td><td>Water Requirement:9 KLD
<table>
<tr><th>Details</th><th>Quantity (KLD)</th></tr>
<tr><td>Drinking water and Domestic Use</td><td>1.0 KLD</td></tr>
<tr><td>Dust Suppression</td><td>6.0 KLD</td></tr>
<tr><td>Green belt</td><td>2.0 KLD</td></tr>
<tr><td>Total</td><td>9.0KLD</td></tr>
</table>
Source: Water requirement will be met from the rainwater collected in the mine Pit.</td></tr>
<tr><td>Power Requirement</td><td>All the equipment will be diesel operated. No electricity is needed for mining operation. The minimum power requirement for office, etc are and will be met from state grid.</td></tr>
<tr><td>Site Services</td><td>This is a proposed project. Site services like mine office, first aid room, rest shelters, toilets etc. will be provided as semi-permanent structures.</td></tr>
<tr><td>Project Cost</td><td>Rs. 77,19,400/- (Including operational + Fixed Asset + EMP cost).</td></tr>
<tr><td>Funds allocated for socio-economic development</td><td>Rs.5.0 Lakhs is allocated under CER budget.</td></tr>
</table>

2.10 DESCRIPTION OF MITIGATION MEASURES:

Scientific and systematic development of mines will be carried out by the project authorities for preserving as well as improving the environmental conditions in and around the mining lease area.Elaborate analysis on impacts and mitigation measures to be adopted on implementation of this project and the same has been dealt in Chapter- IV.

2.11 ASSESSMENT OF NEW & UNTESTED TECHNOLOGY:

There is no new technology that is being implemented. Opencast method of mining which is the proposed method of mining is a proven technology which is technologically and economically viable. No major technological failures are anticipated. A disaster management plan shall be put into place to take care of any unforeseen situation.

2.12 CONCLUSION:

As good environmental preservation is one of the prime motive of the project proponent. It is expected that the project activity will not have any major impact on environmental equilibrium in the study area.

* * * * * * * *

CHAPTER - III

DESCRIPTION OF ENVIRONMENT

CHAPTER 3

DESCRIPTION OF ENVIRONMENT

3.1 GENERAL:

The existing environmental baseline data for the various environmental components were collected in the study area for the purpose of assessing the impact on present environment due to the project activities.

Monitoring was carried out systematically and meticulously as per relevant IS codes, CPCB, MoEF&CC guidelines during **Summer Season (March 2026 to May 2026)** The details of the study are given in this chapter. For the purposes of this study, the area has been divided into two zones, namely, core and buffer zones. The entire lease area is considered to be the core zone while the buffer zone encompasses a 10km radius from the periphery of the core zone. The details of villages falling in the study area and other features are given as Index Plan in Figure No- 3.1

The primary data collection was done by means of field monitoring and the secondary data collection was obtained from published sources and Government documents. The details of the baseline data collection which has been elaborated through the course of this chapter has been concised below:

Table 3.1: Type of Baseline Data

S.No	Studies	Parameters / Study	Location
1	Socio Economy	Demographic Data from Census 2011	Core and Buffer Zone
		Sample Survey	Buffer Zone
2	Micro Meteorology	Rainfall Data from IMD, Viluppuram	Viluppuram
		Temperature, Humidity, Wind Speed, Wind Direction	1 Representative Location
3	Ambient Air Quality	PM10, PM2.5, SO2, NOx, CO	1 Core Zone, 5 Buffer Zone
4	Water Quality	Physical and Chemical Parameters	1 Core Zone, 5 Buffer Zone
5	Noise Levels	Ambient Noise	1 Core Zone,5 Buffer Zone
6	Soil Quality	Physical and Chemical Parameters	1 Core Zone, 2 Buffer Zone
7	Land Use and Land Cover	Land use pattern within 10km study area using RS Satellite	Buffer Zone
		Land use based on Census 2011	Core and Buffer Zone
8	Biological Environment	Flora and Fauna	Core Zone and Buffer Zone
9	Hydrology & Hydro Geology	Hydrogeological profile of the area	Core Zone and Buffer Zone

Figure 3.1: Study Area Map



Table 3.2: Environmental Setting of the Study Area

S.No	PARTICULARS	Details
1	Nearest Highway	(SH-134) - Tindivanam– Marakkanam Road - 3.0km - (S) NH-179B - 7.7Km – (NW)
2	Nearest Railway station	Tindivanam – 11.0km – (SW)
3	Nearest Airport	Puducherry – 30.0Km - (SW)
4	Nearest major water bodies	Saram River – 7.9km - (NW)
5	Nearest villages	Senalur – 850m – (SE) Buderi – 1.6km - (NE) Sevur – 1.4km - (N) Vada kolapakkam – 580m - (SW)
6	Hills / valleys	Nil within 10m radius
7	Notified Archaeologically important places, Monuments	Nil within 10m radius
8	Local Places of Historical and Tourism Interest	Nil within 10m radius
9	Environmental sensitive areas, Protected areas as per Wildlife Protection Act, 1972 (Tiger reserve, Elephant reserve, Biospheres, National parks, Wildlife sanctuaries, community reserves and conservation reserves)	Nil within 10Km radius
10	Reserved / Protected Forests	➢ Sevur RF - 720M – NW ➢ Kumalumpattu RF – 7.8KM- SE
11	Defence Installations	Nil within 10 km radius
12	Seismic Zone	Zone – II (Least Active)
13	Other Industries in the study area	Other than crushers, Roughstone quarries, no other major industries are located in the study area.

3.2 SOCIO-ECONOMIC CONFIGURATIONS OF THE AREA:

3.2.1 GENERAL:

The Socio-Economic details of the study area are collected through:

- Identification of villages falling from the study area map with combined Taluk map.
- Collection of primary data through sample survey, village meetings and focused group discussion.
- Collection of the demographic pattern of villages falling in the area through NIC 2011 census data.
- Occupational structure of villages falling in the study area through NIC 2011 census data.
- Details of the amenities available in villages falling in the study area through NIC 2011 census data. The findings of the study are illustrated below:

3.2.2 SECONDARY DATA DESCRIPTION:

The proposed Rough stone and gravel quarry is located in Senalur Village, Tindivanam Taluk, Viluppuram District. Based on 2011 census data, in the 10km radius there are 87 Rural Villages from two Taluks namely Tindivanam and Vanur and one district namely Viluppuram District. The demographic profile of the study area is given below:

Table 3.3: Social, Economic and Demographic Profile of the Study Area

Details	Population	Percentage
A. Gender-wise distribution		
Male Population	62444	50.35
Female Population	61588	49.65
Total	**124032**	**100**
B. Caste-wise population distribution		
Scheduled Caste	49862	40.20
Scheduled Tribes	2156	1.74
Other	72014	58.06
Total	**124032**	**100**
C. Literate and Illiterate population		
Literate Males	44725	**36.06**
Literate Females	34251	**27.61**

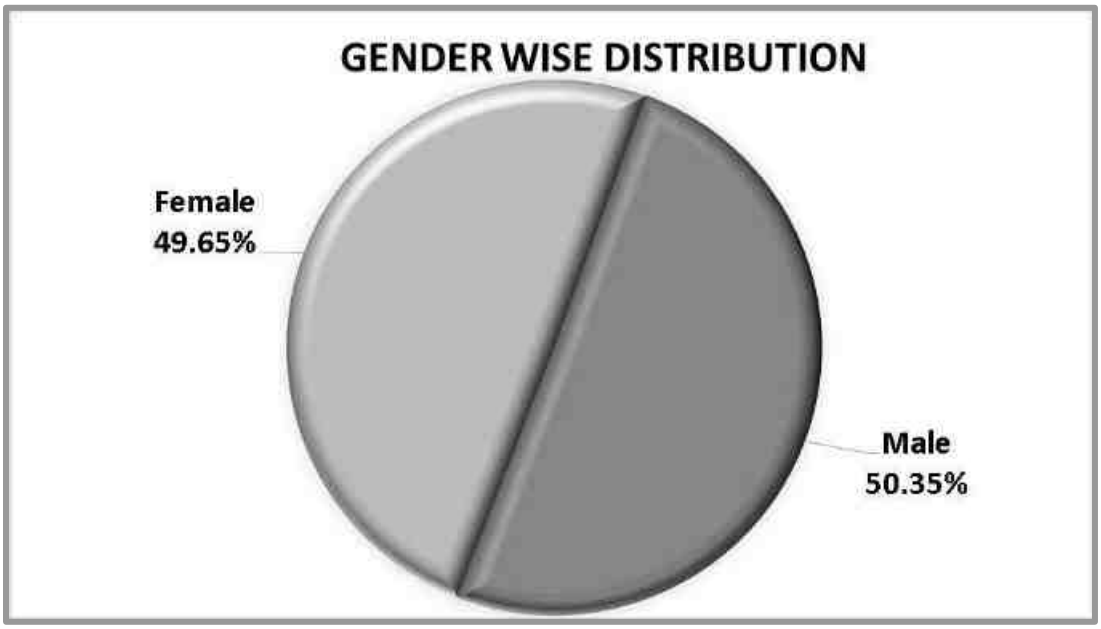
Details	Population	Percentage
Total Literate Population	**124032**	**100**
Others Males	17719	**14.29**
Others Females	27337	**22.04**
Others Population	**45056**	**36.33**
Total	**124032**	**100**
D. Occupational structure		
Main workers	45856	37.00
Marginal workers	15720	12.70
Total Workers	**61576**	**49.70**
Total Non-workers	**62456**	**50.40**
Total	**124032**	**100**

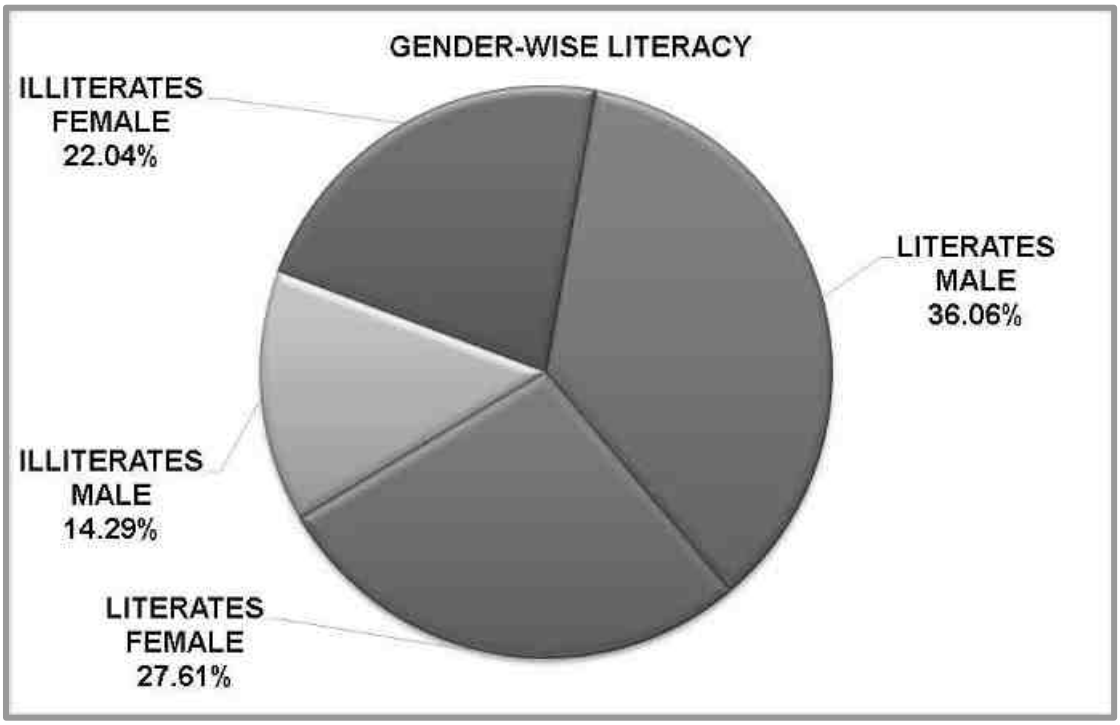
The total population of these 87 rural villages 124032 in which the male population is 62444 (50.35%) and the female population is 61588 (49.65%). This shows that the male and female population ratio is almost equal. Among the total population 1.74% belong to Scheduled Tribes, 40.20% are Scheduled Caste and the remaining 58.06% people belong to other castes. Among the total population, 63.67% of the people are literate.

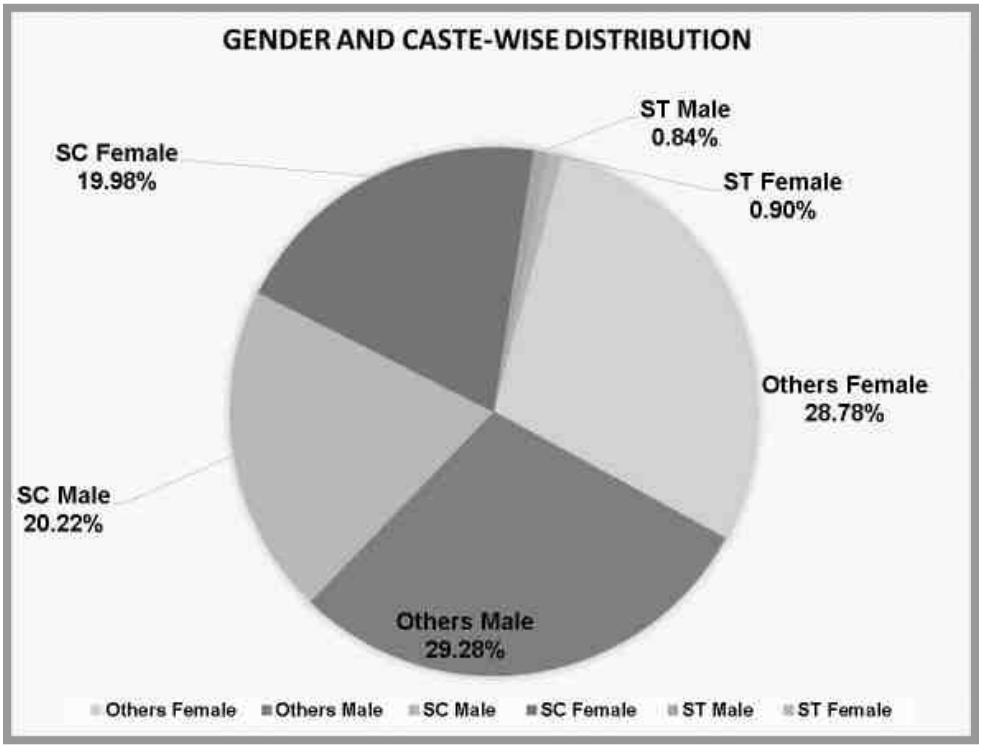
Among the total population, 36.06% are literate males and 27.61% are literate females. This shows that the male literates are slightly more than the female literates. Totally, the illiterate constitutes 36.33% of which the female covers 22.04% and the male 14.29%. Illiteracy in women is more than in the male population.

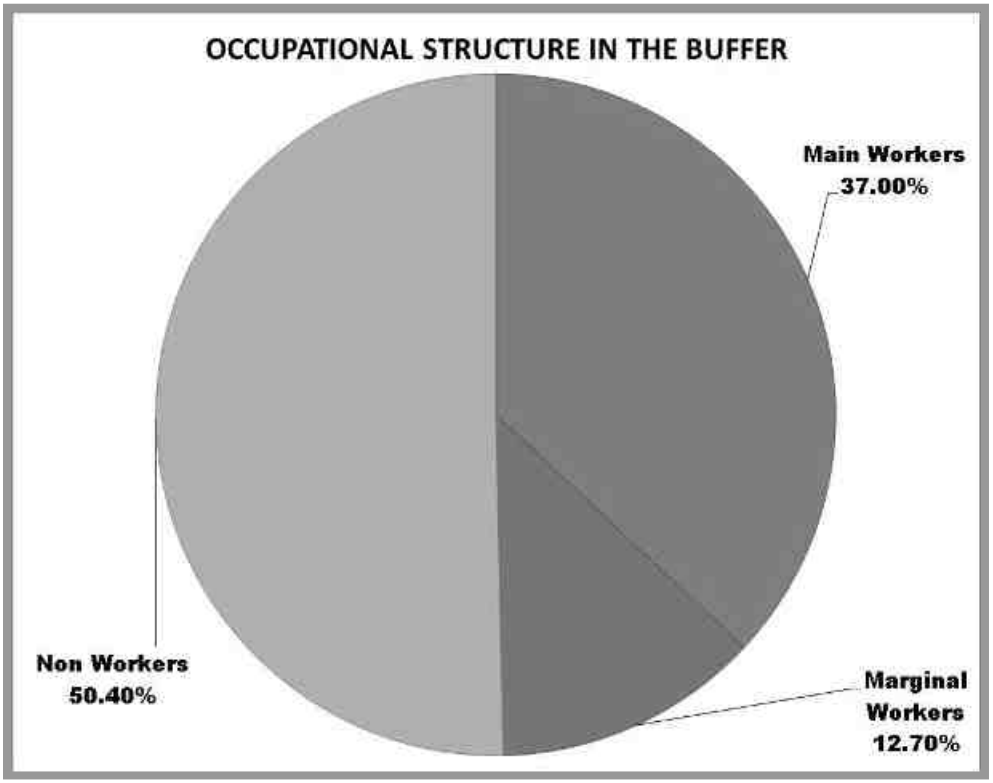
The village wise population, literacy levels and occupational structure details area given in **Annexures 5 and 6.** The demographic structure within the buffer zone is shown diagrammatically in **Figure No – 3.2.**

Figure 3.2: Demographic Structure in Buffer Zone






GENDER AND CASTE-WISE DISTRIBUTION
ST Male
0.84%
ST Female
0.90%
SC Female
19.98%
Others Female
28.78%
SC Male
20.22%
Others Male
29.28%
Others Female
Others Male
SC Male
SC Female
ST Male
ST Female


OCCUPATIONAL STRUCTURE IN THE BUFFER
Main Workers
37.00%
Non Workers
50.40%
Marginal
Workers
12.70%

3.2.3 DETAILS OF AMENITIES:

Based on 2011 census data, regarding the educational facilities, 87 rural villages out of 87 rural villages have educational facilities. There are totally 81 Primary Schools functioning in these 87 rural villages. Among them 65 villages have one primary school, 8 villages have 2 primary schools. With regards to educational facilities, from Primary School level to Senior Secondary School level, there is availability of some schools in the area. However, beyond this, college level education is not available in the buffer zone. Out of 87 villages, 34 villages have primary health sub centers. Better medical facilities are available in the nearby larger towns.

Table 3.4: Primary Schools in the Buffer Zone Rural Villages

S.No	No of Rural Villages	Number of primary schools	Totals
1	14	0	0
2	65	1	65
3	8	2	16
Total	**87**		**81**

Table 3.5: Education Facility Availability

PARTICULARS	Available in village
Govt Primary School	73
Govt Middle School	34
Govt Secondary School	13
Govt Senior Secondary School	6
Govt Arts and Science Degree College	0
Govt Engineering College	0
Govt Medicine College	0
Govt Management Institute	0
Govt Polytechnic	0
Govt Vocational Training School/ITI	0

Table 3.6: Healthcare Amenities Availability

PARTICULARS	Available in village
Community Health Centre	2
Primary Health Centre	6
Primary Heallth Sub Centre	34
Maternity And Child Welfare Centre	7
TB Clinic	6
Hospital Allopathic	0
Hospiltal Alternative Medicine	0
Dispensary	6
Veterinary Hospital	7
Mobile Health Clinic	0
Family Welfare Centre	6

Table 3.7: Infrastructure Facilities

Particulars	Available in village
Tap Water-Treated	37
Covered Well	14
Hand Pump	76
Tube Wells/Borehole	30
Post office	4
Bus services	68
Railway station	1
Commercial Bank	7
Cooperative bank	12

The details of the educational, medical and infrastructural facilities available in the buffer zone as per 2011 census is provided in **Annexures- 7 to 9.**

However, there are lot of improvements are observed now in the amenities in the area.

3.2.4 SAMPLE SURVEY:

3.2.4.1 OBJECTIVE:

The objective of the study is to understand the present socio-economic condition, availability of existing infrastructure facilities in the area & to know the needs of the people in the project peripheral villages, to provide an implementable future CER proposal pertaining to specific needs addressing local requirements.

3.2.4.2 APPROACH:

Nearby villages were visited for conducting study to know about socio-economic conditions, including aspirations and requirements of the people for a better living and collected relevant data. Informal discussions were conducted in the villages to capture the overall scenario of the village including their socio-economic problems and the aspirations, desires of the community in overall terms.

Salient details of the study are given below:

- Study area is dry, barren land. Mining & its allied activities is the major occupation in and around the lease area
- Patches of plantation and agriculture are observed during the monsoon season.
- Majority of the people are small farmers and others are working in the nearby crushers,
- Since agriculture is predominantly rainfed and the water is available only for few months, during the rest of the time they have less employment opportunities. Other occupations include construction workers, vendors, etc.
- Bore well is the main source for agriculture activities during non-monsoon season. There are OHT's, Ground level tanks, public taps are available.
- Education facilities from primary upto higher secondary school are available locally.
- Basic medical facilities are available locally.

3.2.4.3 IDENTIFIED CER ACTIVITIES:

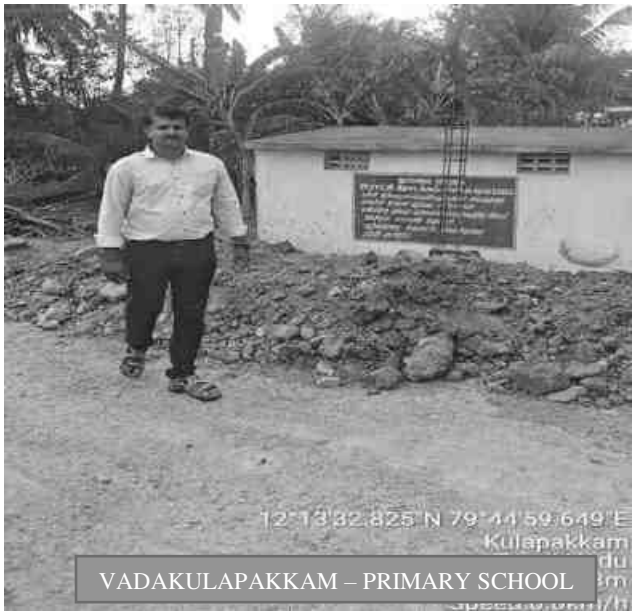
The following activities are identified based on the survey, which will be modified and implemented based on the needs and requirements of the local people:

- Improving the facilities in the nearby school like Provision of RO water facility, compound wall painting, Improvements in sanitation facilities.
- Road improvement work.

SOCIO VISIT PHOTOS



SEVUR – LIBRARY



VADAKULAPAKKAM – PRIMARY SCHOOL



BUDERI- PANCHAYAT OFFICE -



BUDERI- MIDDLE SCHOOL


SEVUR – WATER TANK



BUDERI- ANGANWADI

3.3 EXISTING ENVIRONMENTAL QUALITY

3.3.1 MICRO-METEOROLOGY

3.3.1.1 General:

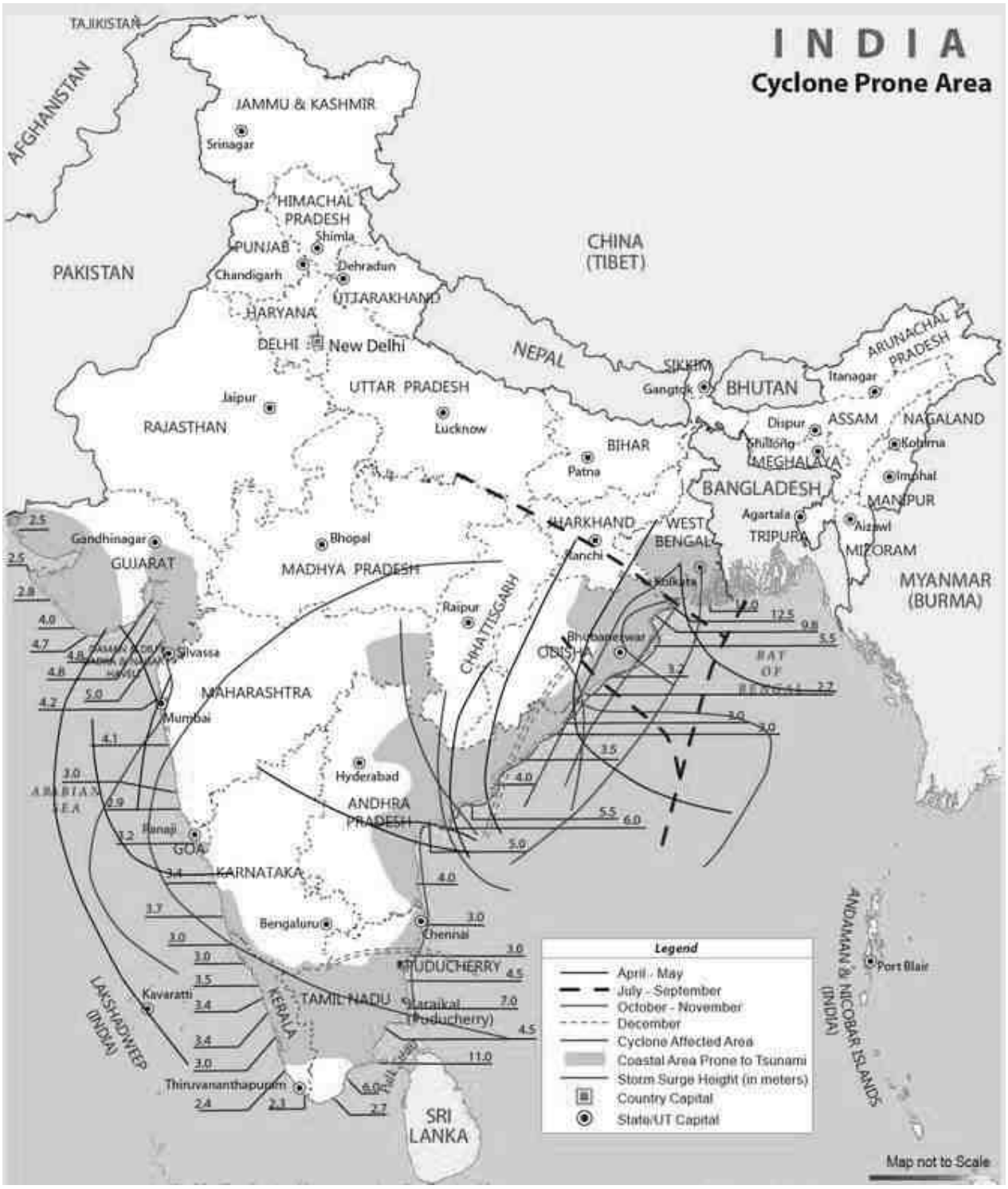
The meteorological conditions in an area regulate the dispersion of air pollutants being released into the atmosphere. The principal variables are horizontal convective transport i.e. wind speed and direction and vertical convective transport, i.e. mixing height, stability class and topography of the area.

3.3.1.2 Historical Meteorological Data:

A. Cyclones And Depressions

Cyclonic storms and depressions in Bay of Bengal affect the East Coast of India. Isolated ones, forming in January to March in the South Bay of Bengal move West-North-westwards and hit Tamil Nadu coast. In April and May, cyclonic storms and depressions form in the South and adjoining Central Bay and move initially to the Northwest, then North and then recurve to the Northeast striking the Arakan coasts in April and Andhra Pradesh (AP)-Orissa-West Bengal (WB) – Bangladesh coasts in May. Most of the monsoon (June – September) storms develop in the central and in the north bay and move west – north - westwards affecting AP – Orissa – WB coasts. Post monsoon (October – December) storms form mostly in the south and central Bay, recurve between 150 and 180 N affecting Tamil Nadu – AP – Orissa – WB – Bangladesh coasts. **Figure No - 3.3** depicts the history of cyclonic storms, which have struck the Indian coast during the months of October, November and December during the last 75 years. (**Source: Vulnerability Atlas of India series, above figure accessed from www.maps of india.com)**. East coast is prone to cyclonic storms round the year but mostly these occur prior to SW i.e., in May and after SW monsoon i.e., in October and November.

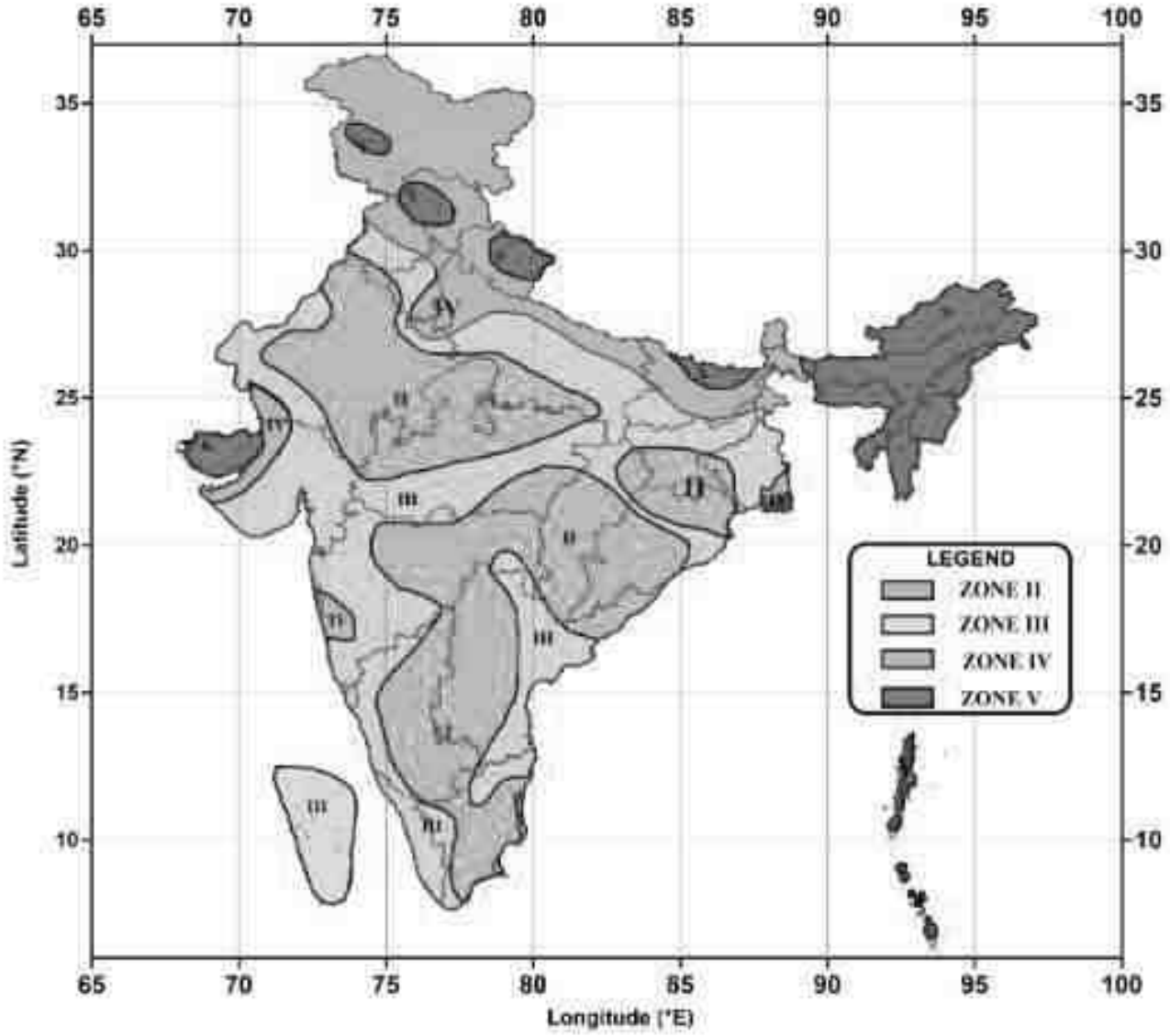
Figure 3.3: Cyclone Prone Areas



B. SEISMIC DATA

From the seismic zone map of India as depicted in the **Figure No - 3.4,** it can be seen that the project site and study area falls in the Zone – II and is described as least active zone.

Figure 3.4: Seismic Zone Map of India



C. Climate and Rainfall Data:

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

CLIMATE AND RAINFALL DATA:

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

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

- . **Rainfall**

Table 3.8: RAINFALL DATA

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

3.3.1.3 SITE SPECIFIC METEOROLOGICAL DATA:

Micrometeorology and microclimatic parameters like wind velocity, wind direction, ambient temperature, relative humidity, were collected throughout the monitoring period.

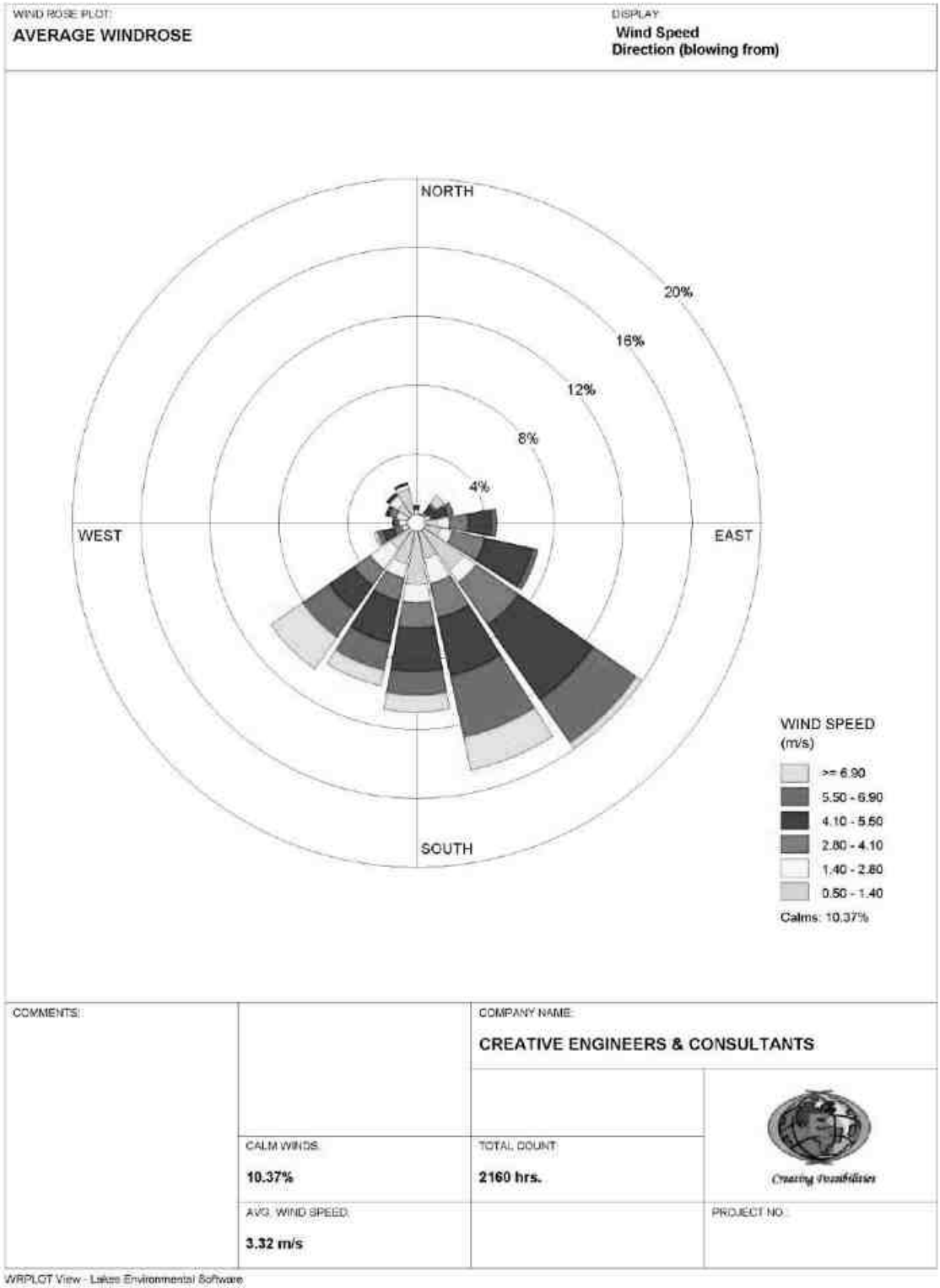
DATA ANALYSIS:

The temperature in the area during the study period ranged from 24.7°C to 42.2°C while the relative humidity varied between 35.0 – 90.0%. The wind speed during the study period ranged from <1.8 to 35.6 Km/hr. The predominant wind direction is from SE. The meteorological data are presented in **Table no – 3.9.** The average wind rose is depicted in **Figure No - 3.5.**

Table 3.9: Meteorological Data

Season: Summer Season, March 2026 to May 2026)			
S.NO	**PARAMETERS**	**MIN**	**MAX**
1	Temperature In ^{0}c	24.7	42.2
2	Humidity in %	35	90
3	Wind speed in km/hr	<1.8	35.6
4	Predominant wind direction from	SE	

Figure 3.5: Average Wind Rose



3.3.2 AMBIENT AIR QUALITY (AAQ):

Ambient Air quality has been assessed through a network of 5 ambient air quality stations. The following methodology has been considered for design of ambient air quality monitoring network in the area. Based on these criteria, 5 numbers of air sampling stations were selected in the area as shown below in Table No.3.10.

- Topography / terrain of study area.
- Populated areas within study area.
- Residential /sensitive areas within study area.
- Magnitude of surrounding industries.0.9
- Representation of regional background levels.
- Representation of cross-sectional distribution in down wind direction.
- Predominant wind direction and wind pattern.

Table 3.10: Air Quality Monitoring

1.	**Monitoring Period**	Summer Season (March 2026 – May 2026)
2.	**Monitoring Location**	The location map showing Ambient Air Quality study stations are shown in **Figure No- 3.6.**
3.	**Methodology**	
	Parameter	**Protocol**
	a. Particulate Matter (PM10)	Gravimetric (IS 5182: Part 23:2017)
	b. Particulate Matter PM2.5	Gravimetric (IS 5182: Part 24:2019)
	c. Sulphur Dioxide	Colorimetric (West & Gaeke Method) (IS 5182: Part 02: 2017)
	d. Nitrogen Dioxide	Colorimetric (Modified Jacob & Hocheiser Method) (IS 5182: Part 06:2017)
	e. Carbon Monoxide	CO Monitor
	f. Silica	Colorimetric (Molybdate Method) NIOSH 7601 -2003
4.	**Monitoring Frequency**	2 days in a week, 4 weeks in a month for 3 months in a season.

Table 3.11: Air Quality Monitoring Locations

S.NO	LOCATION CODE	LOCATION	DISTANCE FROM CORE ZONE (KM)	DIRECTION
1	A1	Near Mine Lease Area	-	-
2	A2	Vada kolapakkam Village	580m	SW
3	A3	Sevur Village	1.4km	N
4	A4	Buderi Village	1.6km	NE
5	A5	Senalur Village	850m	E

Figure 3.6: Ambient Air Quality Study Stations



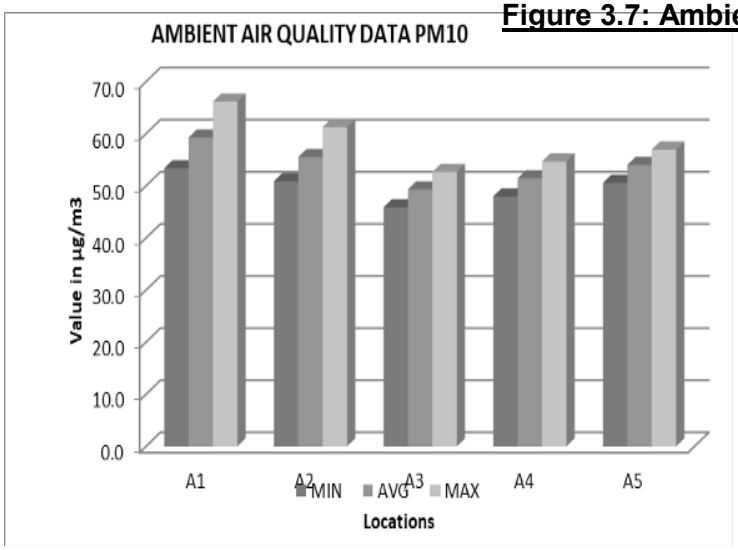
Table 3.12: Ambient Air Quality Data

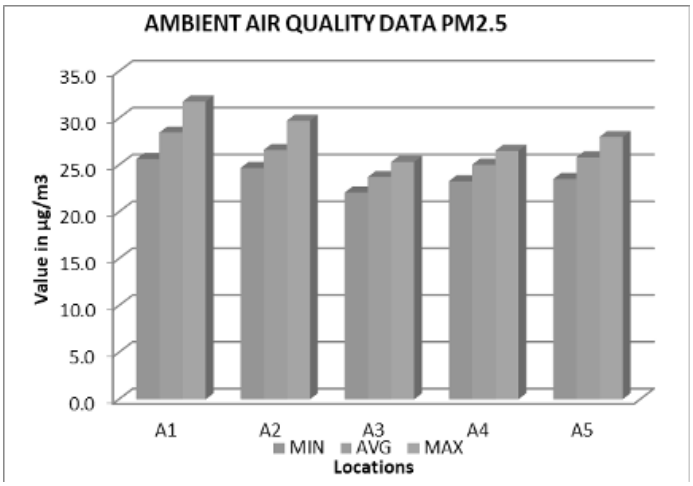
All Value in µg/m³

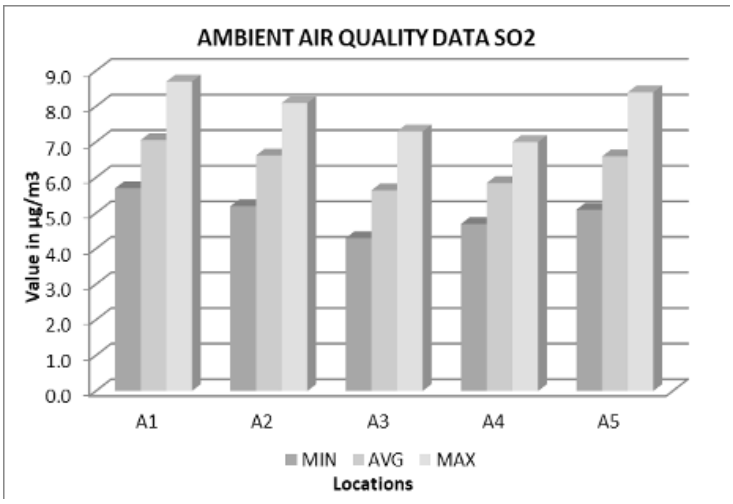
PARAMETERS	Cat.*	PM_{10}			$PM_{2.5}$			SO_2			NO_2		
LOCATIONS		**MIN**	**AVG**	**MAX**	**MIN**	**AVG**	**MAX**	**MIN**	**AVG**	**MAX**	**MIN**	**AVG**	**MAX**
A1-Near Mine Lease Area	I	53.4	59.3	66.2	25.6	28.5	31.8	5.7	7.1	8.7	8.2	10.7	13.8
A2- Vada kolapakkam Village	R	50.9	55.6	61.3	24.7	26.6	29.7	5.2	6.6	8.1	7.6	10.0	12.5
A3- Sevur Village	R	45.9	49.4	52.7	22.1	23.7	25.3	4.3	5.6	7.3	7.2	8.4	10.4
A4- Buderi Village	R	48.0	51.5	54.7	23.3	25.0	26.5	4.7	5.9	7.0	7.4	9.5	11.5
A5- Senalur Village	R	50.6	54.0	57.0	23.5	25.8	28.0	5.1	6.6	8.4	7.6	9.3	12.4
NAAQ Limits		PM_{10}			$PM_{2.5}$			SO_2			NO_2		
	*	**100**			**60**			**80**			**80**		
	**	**100**			**60**			**80**			**80**		

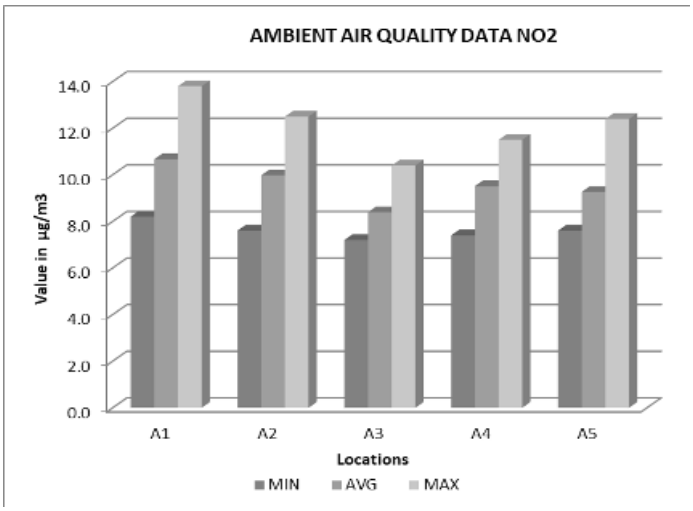
***Note:** Category: * - Industrial, Residential, Rural and other area, ** – Ecologically Sensitive Area (notified by Central Government)*

Figure 3.7: Ambient Air Quality Data









3.3.2.1 Results and Discussion:

The AAQ monitored data for all locations for above parameters are shown in **Table No - 3.12 and** in **Figure No - 3.7.** Ambient Air Quality data during the study period is given in **Annexure-10.** From the table it is seen that, in the ambient air, the PM_{10} values were in the range of 45.9-66.2 µg/m3. PM2.5 values were in the range of 22.1-31.8 µg/m3. SO2 levels were ranging from 4.3– 8.7 µg/m3. NO2 levels were ranging from 7.2-13.8 µg/m3.

The existing Ambient Air Quality levels for PM_{10}, $PM_{2.5}$, SO_2 and NO_2, are within the NAAQ standards prescribed CPCB limits of 100 µg/m^3, 60 µg/m^3, 80 µg/m^3 & 80 µg/m^3. The CO values in all the locations were found to be below detectable limit. Silica values in the study area are found to be below detectable limit. (Detection limit – 0.05 mg/m^3)

3.3.3 WATER ENVIRONMENT:

Assessment of baseline data on water environment includes Identification of water resources, Collection of water samples and Analyzing water samples collected for physico-chemical parameters as per standards. The water sampling was carried out for 5 locations. Details of the same has been provided below:

Table 3.13: Water Quality Monitoring

1.	**Monitoring Period**		Summer Season (March 2026 – May 2026)		
2.	**Monitoring Location**		The location map showing water sampling locations are given in **Figure No.3.8**		
	Code	**Location**	**Sample Type**	**Distance**	**Direction**
	W1	Near Mine Lease Area	Bore well	-	-
	W2	Vada kolapakkam Village	Bore well	580m	SW
	W3	Sevur Village	Bore well	1.4km	N
	W4	Buderi Village	Bore well	1.6km	NE
	W5	Senalur Village	Bore well	850m	E
3.	**Methodology**		Sampling - IS 3025 Part - I		
			Analysis – IS 3025 relevant parts / APHA 23rd Edition		

Figure 3.8: Location of Water Sampling Stations



Table 3.14: Summary of Water Quality Data

Season	Summer Season (March 2026 – May 2026)	
Monitoring Locations	5 locations	
Parameters	**Range of values**	**Limits***
pH at 25 ˚C	7.13 – 7.62	**6.5-8.5**
Total Dissolved Solids, mg/L	252 – 430	**2000**
Chloride as Cl-, mg/L	70.5 – 156	**1000**
Total Hardness (as CaCO3), mg/L	182 – 254	**600**
Total Alkalinity (as CaCO3), mg/L	135– 223	**600**
Sulphates as SO42-, mg/L	20.5 – 44.8	**400**
Iron as Fe, mg/L	0.02 – 0.06	**0.3**
Nitrate as NO3, mg/L	2.31 – 3.26	**45**
Fluoride as F, mg/L	0.32 – 0.46	**1.5**

3.3.3.1 Results and Discussion:

The results of the water sample analysis are shown in **Table No - 3.14.** The pH values of bore well water were ranging in between 7.13 – 7.62, TDS values were in the range of 252 – 430mg/L. Chloride values were ranging from 70.5 – 156mg/L. Iron content was found to be in the range 0.02 – 0.06mg/L. The water quality of ground water is found to be within the prescribed Permissible limits of IS: 10500 Norms in the absence of an alternative source as per Drinking Water Specifications. The water quality data is provided in **Annexure-11.**

3.3.4 NOISE ENVIRONMENT:

Operational phase of this project may lead to increase noise levels from the existing levels at least in and around the project area. As noise level beyond permissible limits will cause adverse impacts on the environment, it has become imperative to assess the noise levels in and around the mine area. Noise level measurements were taken at the 5 locations during the monitoring period. Details of the same are provided below:

Table 3.15: Noise Level Monitoring

1.	**Monitoring Period**	**Summer Season (March 2026 – May 2026)**		
2.	**Monitoring Location**	The location map showing noise monitoring locations are given in **Figure No.3.9.**		
	Code	**Location**	**Distance**	**Direction**
	N1	Near Mine Lease Area	-	-
	N2	Vada kolapakkam Village	580m	SW
	N3	Sevur Village	1.4km	N
	N4	Buderi Village	1.6km	NE
	N5	Senalur Village	850m	E
3.	**Methodology**	Noise levels were measured using sound level meter manufactured by (Model No - SL- 4001, Make - Lutron). Sound Pressure Level (SPL) measurements were measured at all locations where ambient air quality monitored; one reading for every hour was taken for 24 hours.		
4.	**Monitoring Frequency**	Once during monitoring period		

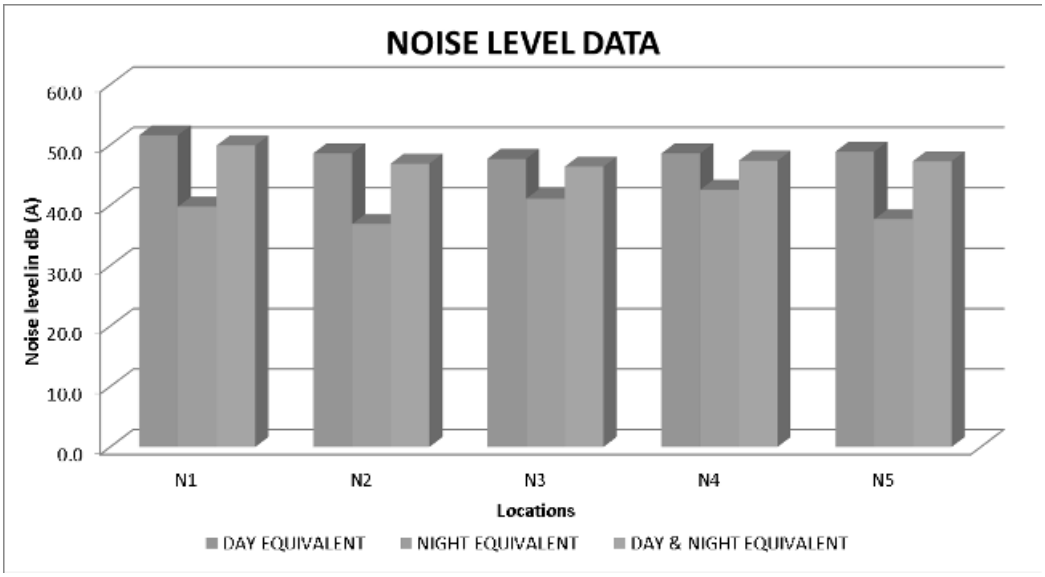
Figure 3.9: Location of Noise Sampling Stations



Table 3.16: Ambient Noise Level in dB (A)

Date and time of monitoring	N1	N2	N3	N4	N5
Day Equivalent	51.6	48.6	47.7	48.6	48.9
Night Equivalent	39.8	36.9	41.1	42.6	37.7
Day & Night Equivalent	49.9	46.9	46.4	47.4	47.3
Limits: As per CPCB: Work zone Exposure in 8 hr - 90 dB(A) As per MoEF&CC: Residential: Day equivalent - 55 dB(A); Night equivalent - 45 dB(A)					

Figure 3.10: Noise Level Data



3.3.4.1 Results and Discussion:

The results of noise levels for all locations are given in **Table No-3.16**.The noise values for all above locations are shown in a comparative chart given in **Figure No - 3.10.** Day Equivalent Noise (Leq-d levels were ranging from 47.7 dB(A) to 51.6 dB(A) and night Equivalent Noise (Leq-d) levels ranged between 36.9 dB(A) to 42.6dB(A). While comparing with the MOEF&CC Norm of 55 dB(A) for day time and 45 dB(A) for night time, the monitored ambient noise levels were within the limit values for Residential areas.

3.3.5 SOIL CHARACTERISTICS:

Soil samples were collected in 3 locations in the core and buffer zone to analyse the physiochemical characteristics of the soil in the area. Elaborate details of the same has been provided below.

Table 3.17: Soil Quality Monitoring

1.	**Monitoring Period**	Summer Season (March 2026 – May 2026)		
2.	**Monitoring Location**	The location map showing soil sampling locations are given in **Figure No.3.11.**		
	Code	**Location**	**Distance**	**Direction**
	S1	Near Mine Lease Area	-	-
	S2	Vada kolapakkam Village	580m	SW
	S3	Sevur Village	1.4km	N
3.	**Methodology**	Composite soil samples using sampling augers and field capacity apparatus.		
4.	**Monitoring Frequency**	Once during monitoring period		

Figure 3.11: Location of Soil Sampling Stations



Table 3.18: Soil Quality Data

S.No	Parameters	Unit	S1	S2	S3
1	pH at 25°C	-	6.69	6.82	7.65
2	Electrical Conductivity	(µmhos /cm)	105.2	98.6	90.7
3	Dry matter content	%	97.45	95.63	97.54
4	Water Content	%	2.55	4.37	2.46
5	Organic Matter	%	2.37	2.24	2.97
6	Soil texture	-	CLAY LOAM	SANDY CLAY LOAM	CLAY LOAM
7	Grain Size Distribution i. Sand	%	38.96	48.22	25.12
8	ii. Silt	%	33.55	17.97	43.46
9	iii. Clay	%	27.49	33.81	31.42
10	Phosphorous	µg/g	1.9	2.5	1.3
11	Sodium	mg/kg	935	668	849
12	Potassium	mg/kg	652	458	564
13	Total Nitrogen	mg/kg	830	556	925
14	Total Sulphur	%	BDL(D.L.0.02)	BDL(D.L.0.02)	BDL(D.L.0.02)
15	WHC	-	44	42	44
16	Porosity	%	18.9	18.5	19.2

3.3.5.1 Results and Discussion:

Results of the soil samples show that the pH values were ranging between 6.69 to 7.65 and Electrical Conductivity values were ranging between 90.7 – 105.2 µmhos/cm. Soils are generally Clay loam type. Organic matter values were ranging between 2.24 – 2.97%.Total Nitrogen values were ranging between 556 - 925 mg/kg. Phosphorus values were ranging between 1.3 – 2.5 µg/g. Potassium values were ranging between 458 -652 mg/kg. Sodium values were ranging between 668- 935 mg/kg. Total Sulphur values were observed to be BDL. The soil quality data for the 3 samples collected and analyzed are provided in**Table No – 3.18.**

3.4 LAND ENVIRONMENT - LANDUSE & LAND COVER

For preparing an impact statement, aspects of the land conditions are covered under land use. An industrial project / mine can cause changes in land use, soil process in different intensities depending upon the size of the project and distance involved between the industries and the area. Here, land use status for a radius of 10 km has been studied.

3.4.1 DATA USED AND METHODOLOGY

For the present study on land use pattern of buffer area around the proposed stone and gravel quarry, an archived historical data of Landsat 8 data shas been used as base data (Figure No.3.12) has been used to generate the require landuse map showing their spatial pattern within the buffer area. The table showing data used for generation of information on landuse and subsequent GIS analysis is given below.

Table 3.19: RS satellite image used for the present study

S.No	Type of Data	Date	Generated Map
1.	Landsat 8	May 2026	Landuse (LU) Map showing 10 Km buffer zone

Interpretation of satellite image requires understanding of relationship between image elements and their respective terrain elements. Since, in the present study, the landuse information is obtained using visual interpretation, an interpretation key is generated. The image elements such as color, tone, texture, size, shape and associated elements have been used to delineate various landuse categories. The landuse categorization and nomenclature used in the present study is based on the national level landuse classification system, which is adopted for the entire country as recommended by NationaL Remote Sensing Centre (NRSC), Department of Space, Government of India.

Figure 3.12 : Landsat 8 Satellite Data of the Study Area

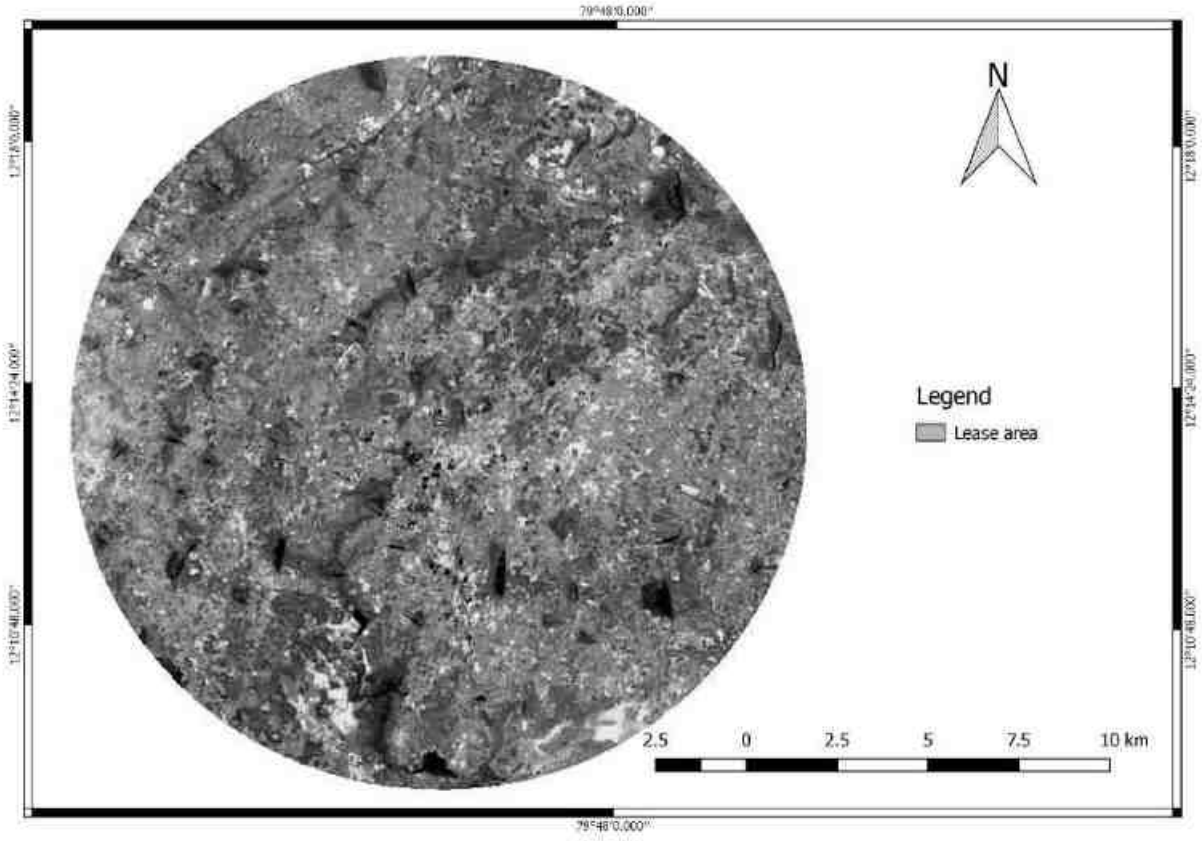


Table 3.20: Major Landuse Units of the Study Area

S.No	Major Category	Landuse unit
1	Built-Up Land	Village, Town, Industrial / Vacant Area
2	Agricultural Land	Crop Land Fallow Land Plantation Farm Land
3	Forest Land	Open Scrub Forest
4	Waste Land Mining Area	Land With Scrub/ Land Without Scrub Barren Rocky/ Stony Waste Quarries / Abandoned Quarries
5	Waterbodies	Tanks/ Rivers / Streams

Such LandUse and Land cover (LULC) categories have been verified using field check and identified sample sites within the buffer area, verified on field and transferred into gis geo-coordinates using observation coordinates received from hand held GPS (global positioning system) instrument. Thus, an interpreted final landuse map has been generated (Figure No. 3.13) using above such elaborate procedure and transformed into GIS environment for its spatial distribution and area estimation. Spatial nature and extent of various landuse categories within the buffer area is discussed is given below:

Figure 3.13: Map Showing Land Use Categories around 10km Buffer

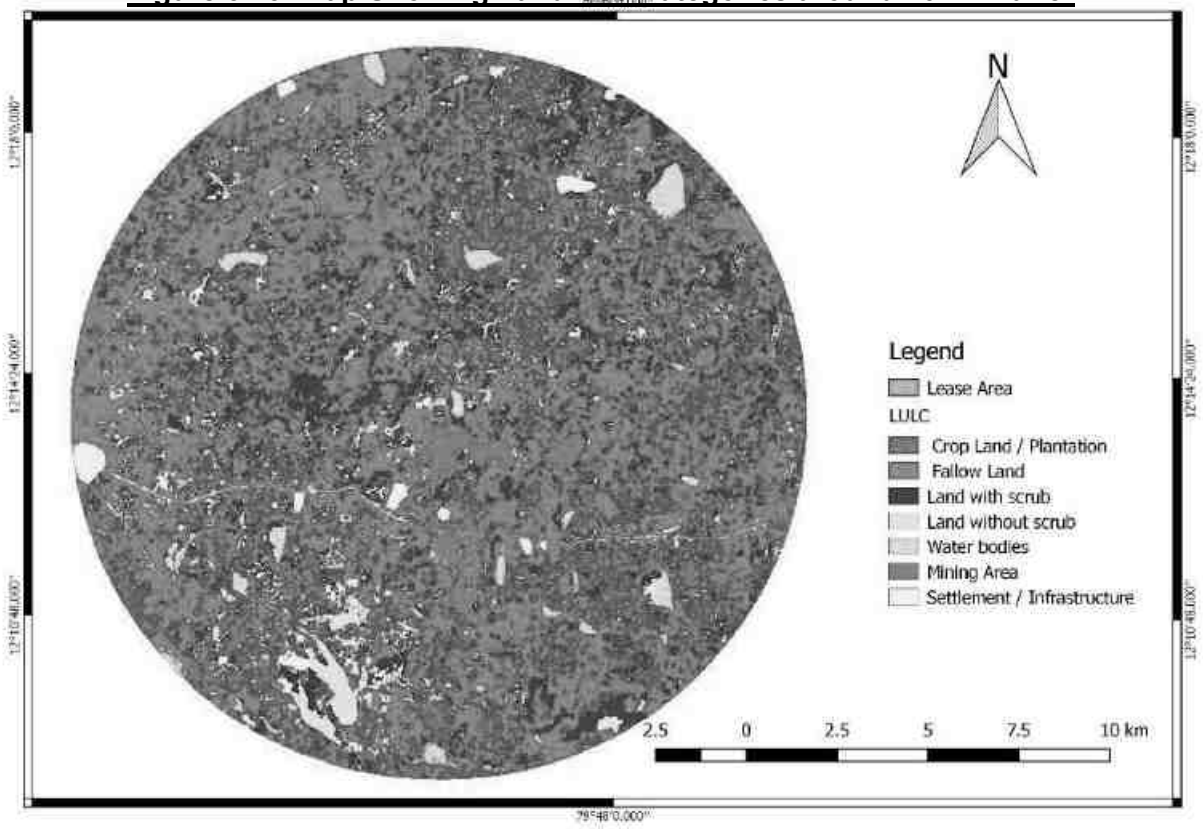


Table 3.21: Area Estimation of Landuse Categories in Buffer Zone

S.No	Landuse Feature	Area (Sq.Km)	Percentage
1	Agriculture/ Plantation	51.81	16.12
2	Fallow Land	187.15	58.24
3	Land With Scrub	47.98	14.93
4	Land Without Scrub	3.12	0.97
5	Water bodies	5.72	1.78
6	Mining	7.06	2.20
7	Settlement	18.50	5.76
	Total	321.35	100

From the above table it is seen that 58.24% of the buffer area is classified under fallow land, 16.12 % of Agriculture/ Plantation land, 14.93 % constitutes land with scrub, 0.97 % constitutes land without scrub and the balance falls under other land use categories.

Photograph showing Land use In Buffer Zone













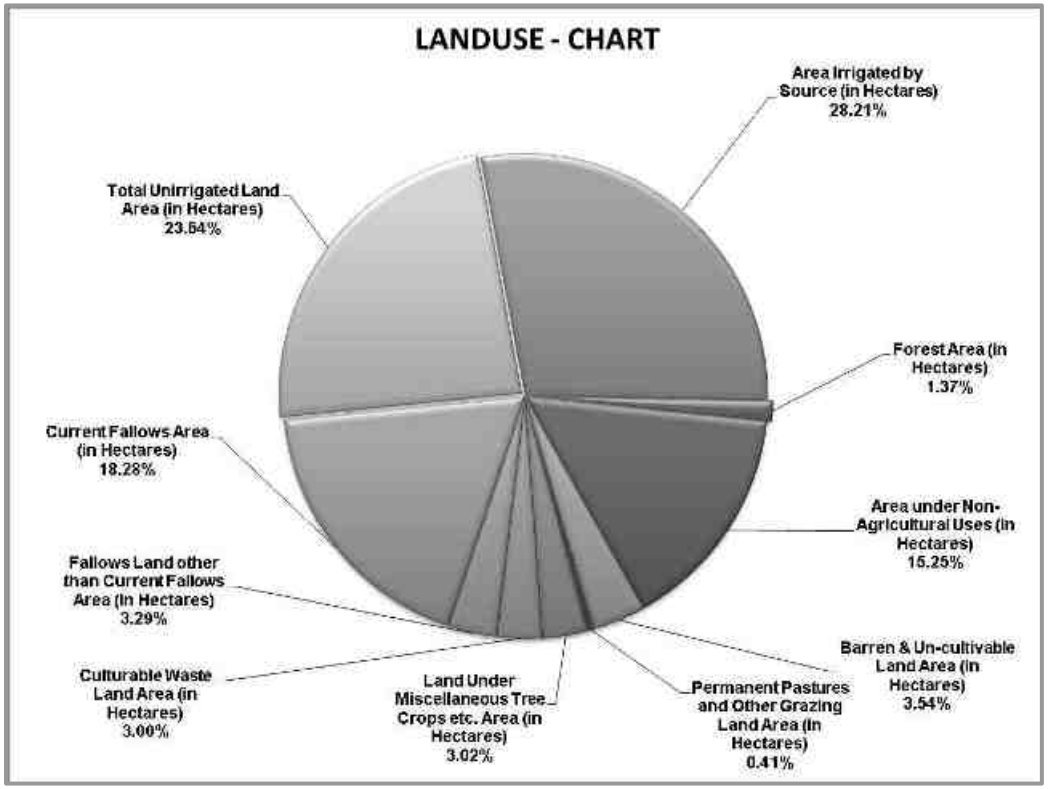
LAND USED BASED ON REVENUE RECORDS:

The lease area falls in Senalur Village, Tindivanam Taluk, Viluppuram District, Tamil Nadu and the study area for the land use pattern (10 km radius) has been divided into four zones viz. Zone-I (0-2 km), Zone-II (2-5 km), Zone-III (5-10 km) and Zone-IV (0-10 km) respectively. The land use pattern of the study area falling within 10 km radius around the proposed project area is presented in Table no - 3.22. Village wise land use pattern is provided in **Annexure-12.**

Table 3.22: Land Use Pattern of the Study Area Falling Within 10 Km Area in (Ha)

VILLAGE NAME	Total Geographical Area	Forest Area	Area under Non-Agricultural Uses	Barren & Un-cultivable Land Area	Permanent Pastures and Other Grazing Land Area	Land Under Miscellaneous Tree Crops etc. Area	Culturable Waste Land Area	Fallows Land other than Current Fallows Area	Current Fallows Area	Total Un irrigated Land Area	Area Irrigated by Source
0- 2 KM	1308.89	0	173.73	110.2	4.11	42.2	11.4	93.68	428.52	134.9	310.15
2 - 5 KM	7939.51	7.33	1125.12	457.36	9.67	20.88	135.12	131.87	1912.78	2189.92	1949.46
5-10 KM	24318.7128	451.6528	3821.3	619.75	123.28	950.08	862.16	877.37	3793.7	5610.37	7209.05
0-10 KM	**33567.1128**	**458.9828**	**5120.15**	**1187.31**	**137.06**	**1013.16**	**1008.68**	**1102.92**	**6135**	**7935.19**	**9468.66**

Figure 3.14: Landuse within the Buffer Zone Area



3.5 BIOLOGICAL ENVIRONMENT:

Study of the biological environment of any area comprises of well-planned ecological survey for the floristic and faunal composition of the areas through various scientifically planned techniques.

3.5.1 FLORA:

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

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

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

3.5.1.1 Sampling Methodology:

In order to provide representative ecological status for the study area, the 10-km radius buffer area has been divided into four quartiles for biodiversity sampling, i.e., NE (Q-1), NW (Q-2) SW (Q-3) and SE (Q-4). Each of the quartiles have been examined for representative flora on randomly sampled quadrats for trees (10x10 m), shrubs (5x5 m) and herbs (1x1 m) depending upon prevailing geographical conditions and bio-diversity aspects of study area.

Phyto-sociological Survey: Phyto-sociological parameters, viz., Abundance (i.e., density), average and minimum stems were measured to determine the distribution and ecological aspects of the species. Abundance is a measure of the density of distribution of an individual species within a given area. It is calculated by summed individuals of a species. Average species number is calculated for all quadrates; similarly, minimum number of individuals represented is recorded at quadrats level. A total of 5 quadrats were laid down in core area and a total of 20 quadrats were laid out in four quartiles (5 each) of buffer area.

Quadrats method for flora : A total of 100 x 100 m Grid was laid for buffer zone of 300m from Core Zone. In that grid 10 × 10m sub-quadrat were laid down randomly within core, PIZ and 10kms buffer area; each quadrat was laid to assess the trees (>5 cm GBH) and 5 × 5 m sub-quadrat nested within the quadrat for shrubs and two plot 1 × 1 m for herbs. The quadrats were laid apart to maximize the sampling efforts and minimize the species homogeneity, such as small stream area, Mining area, Woking pit, Old quarries, agricultural areas, tank bunds, farm forestry plantations, natural forest area, avenue plantations, house backyards, etc. In each sample quadrate, individuals belonging to tree, shrub and herb species were recorded separately, and have been identified on the field. The prevailing land use and habitat quality has been noted down for each location on the field.

Vegetation Analysis using index: Species diversity will be calculated by using Shannon and Wiener (1963) formula as follows:

$$H' = -\sum_{i=1}^{R} p_i \ln p_i$$

Whereas,

H´ is Shannon index of general diversity,

p_i is often the proportion of individuals belonging to the ith species in the dataset of interest.

Evenness index was calculated as: E = H´/Hmax,

Whereas Hmax = log2 (number of species in the plot)

A.CORE ZONE:

The proposed lease area is a non forest, private land. exposed with rock. The lease area is mostly barren with patches of shrubs and thorny bushes of Prosopis juliflora. The detailed list of plants found in the core zone are given in Table no – 3.23.

PHOTOGRAPH SHOWS CORE ZONE





Table 3.23: List of Floristic Species in the Core Zone

Sl.No	Species Name	Family	Common Name
Trees			
1	*Borassus flabelliformis*	Arecaceae	Panna-maram
2	*Prosopis juliflora*	Fabaceae	Cimaikkaruvel
3	*Acacia nilotica*	Fabaceae	Karuvelan
4	*Cocus nucifera*	Arecaceae	Tennai
Shrubs			
1	*Calotropis gigantea*	Apocynaceae	Yerukku
2	*Lantana camara*	Verbenaceae	Unni chedi
3	*Cassia auriculata*	Fabaceae	Avarai
Herbs			
1	*Acalypha indica*	Amaranthaceae	Kupaimeni keeri
2	*Sida acuta*	Malvaceae	Palambasi
3	*Sida cordifolia*	Malvaceae	Kurunthotti

PHOTOGRAPH - BUFFER ZONE









B.BUFFER ZONE:

Study area is dominated with coconut and casurina, coconut & Palm trees (Borassus flabellifer). Besides, other species like Albizia lebbeck, Acacia auriculiformis, Prosopis juliflora, Sygygium cumuni, Azadirachta indica, etc. The detailed list of plants found in the Buffer zone is given in Table no – 3.24.

Table 3.24: List of Floristic Species in the Buffer Zone

Sl.No	Scientific Name	Family Name	Local name
Trees			
1	*Sygygium cumuni*	Myrtaceae	Naval
2	*Mangifera indica*	Anacardiaceae	Maamaram
3	*Delonix elata*	Fabaceae	Perungondrai
4	*Cocus nucifera*	Arecaceae	Tennai
5	*Phyllanthus emblica*	Euphorbiaceae	Nelli
6	*Albizia lebbeck*	Leguminosae	
7	*Cassia fistula*	Fabaceae	Konrai
8	*Pongamia pinnata*	Fabaceae	Pungai
9	*Polyalthia longifolia*	Annonaceae	Nietilingam
10	*Borassus flabelliformis*	Arecaceae	Panna-maram
11	*Citrus limon*	Rutaceae	Lemon
12	*Acacia horrida*	Fabaceae	Karuvelai
13	*Caesalpinia pulcherrima*	Fabaceae	Mayilkondrai
14	*Tectona grandis*	Verbenaceae	Tekku
15	*Ficus religiosa*	Moraceae	Poarasamaram
16	*Morinda tinctoria*	Rubiaceae	Nuna
17	*Moringa oleifera*	Moringaceae	Murungai
18	*Madhuca longifolia*	Sapotaceae	Iluppai
19	*Ziziphus mauritiana*	Rhamanaceae	Elandhai
20	*Manilkara zapota*	Sapotaceae	Sappota
21	*Pithecellobium dulce*	Fabaceae	Kodukkapuli
22	*Aegle marmelos*	Rutaceae	Vilvamaran
23	*Thespesia populnea*	Malvaceae	Puvarasu
24	*Terminalia chebula*	Combretaceae	Kadukkai
25	*Albizia amara*	Fabaceae	Vagai
26	*Annona squamosa*	Annonaceae	Siththa
27	*Terminalia arjuna*	Combretaceae	Marudha Maram

Sl.No	Scientific Name	Family Name	Local name
28	*Peltophorum pterocarpum*	Fabaceae	Kilukiluppai
29	*Bridelia retusa*	Phyllanthaceae	
30	*Eucalyptus grandis*	Myrtaceae	Gum tree
31	*Leucaena leucocephala*	Fabaceae	Subabul
32	*Azadirachta indica*	Meliaceae	Vembu
33	*Atalantia monophylla*	Rutaceae	Kattu Elumeachi
34	*Terminalia catappa*	Combretaceae	Badam Tree
35	*Psidium guava*	Myrtaceae	Koyya
36	*Tamarindus indica*	Fabaceae	Puli
37	*Acacia nilotica*	Fabaceae	Karuvelan
38	*Mimusops elengi*	Sapotaceae	Magizhamboo
39	*Samanea saman*	Fabaceae	Amaivagai
40	*Murraya koenigii*	Rutaceae	Curry leaf
41	*Bambusa vulgaris*	Poaceae	Bamboo
42	*Ficus benghalensis*	Moraceae	Aalamaram
43	*Delonix regia*	Fabaceae	Gulmohar
44	*Acacia auriculiformis*	Fabaceae	Pencile tree
45	*Acacia catechu*	Fabaceae	Karanagalli
46	*Acacia leucophloea*	Fabaceae	Valvelam
47	*Musa paradisiaca*	Musaceae	Valzhlai
48	*Ficus hispida*	Moraceae	Aarasu
49	*Bauhinia racemosa*	Fabaceae	Tataki
50	*Cassia siamea*	Caesalpinaceae	Manjal konrai
51	*Casuarina equisetifolia*	Casuarinaceae	Savukku
52	*Annacordium occidentalae*	Anacordiaceae	Munthiri
53	*Carica papaya*	Caricaceae	Pappali
54	*Prosopis juliflora*	Fabaceae	Seemai karuvel
55	*Albizia odoratissima*	Fabaceae	karu-vakai
Shrubs			
1	*Ziziphus oenoplia*	Rhamnaceae	Elanthai
2	*Lawsonia inermis*	Lythraceae	Maruthani
3	*Euphorbia tirucalli*	Euphorbiaceae	kalli
4	*Carissa carandas*	Apocynaceae	Kalakkai
5	*Nerium oleander*	Apocynaceae	Arali
6	*Carissa spinarum*	Apocynaceae	

Sl.No	Scientific Name	Family Name	Local name
7	*Benkara malabarica*	Rubiaceae	
8	*Glycosmis mauritiana*	Rutaceae	
9	*Strychnos nuxvomica*	Loganiaceae	kagodi
10	*Anisomeles malabarica*	Lamiaceae	
11	*Gmelina asiatica L.*	Verbenaceae	
12	*Tecoma stans*	Bignoniaceae	Yellow trumpetbush
13	*Acacia auriculata*	Leguminosae	
14	*Lantana camara*	Verbenaceae	Unnichedi
15	*Ixora casei*	Rubiaceae	Idlipoo
16	*Eugenia involucrata*	Myrtaceae	
17	*Catunaregam spinosa*	Rubiaceae	
18	*Justicia adhatoda*	Acanthaceae	Adathoda
19	*Aloe vera*	Asphodelaceae	Chotthu kathalai
20	*Ricinus communis*	Euphorbiaceae	Amanakku
21	*Solanum xanthocarpum*	Solanaceae	Kantankattiri
22	*Canthium coromandelicum*	Rubiaceae	
23	*Datura metel*	Solanaceae	Umatai
24	*Jatropha gossypifolia*	Euphorbiaceae	Seemayavanakku
25	*Vitex negundo*	Verbenaceae	Nochchi
26	*Opuntia elatior*	Cactaceae	Cappattukkalli
27	*Opuntia dillenii*	Cactaceae	Cappattukkalli
28	*Cassia auriculata*	Fabaceae	Aavarampoo
29	*Adhatoda vasica*	Acanthaceae	Adhatoda
30	*Calotropis gigantea*	Asclepiadaceae	Erukku
31	*Hibiscus rosa-sinensis*	Malvaceae	Chemparutti
32	*Grewia abutilifolia*	Tiliaceae	Pampukonta
33	*Dichrostachys cinerea*	Leguminosae	
34	*Agave americana*	Asparagaceae	kittanara
35	*Flueggea leucopyrus Willd.*	Phyllanthaceae	
36	*Dodonaea viscosa*	Sapindaceae	viraali
37	*Canthium didymum*	Rutaceae	Nanjul
Herbs			
1	*Parthenium hysterophorus*	Asteraceae	Parthenium
2	*Vinca rosea*	Apocynaceae	Nithiyakalyani
3	*Phyllanthus virgatus*	Phyllanthaceae	

Sl.No	Scientific Name	Family Name	Local name
4	*Hibiscus cannabinus L.*	Malvaceae	
5	*Euphorbia hirta L.*	Euphorbiaceae	
6	*Anisomeles indica*	Lamiaceae	marutti
7	*Sida acuta*	Malvaceae	Palambasi
8	*Cardanthera balsamica*	Acanthaceae	
9	*Boerhavia diffusa L.*	Nyctaginaceae	
10	*Anisomeles malabarica*	Lamiaceae	Peyimarutti
11	*Amaranthus viridis*	Amaranthaceae	Creen amaranth
12	*Bambusa bambos*	Poaceae	
13	*Aeschynomene aspera Willd.*	Leguminosae	
14	*Acalypha indica*	Euphorbiaceae	Kuppaimeni
15	*Sida cordifolia*	Malvaceae	Kurunthotti
16	*Leucas aspera*	Lamiaceae	
17	*Ipomoea coptica*	Convulvaceae	
18	*Argemone mexicana*	Papaveraceae	Mexican poppy
19	*Celosia argentea*	Amaranthaceae	
20	*Oldenlandia stricta*	Rubiaceae	
21	*Ocimum sanctum*	Lamiaceae	Thulasi
22	*Mimosa pudica*	Mimosaceae	Thottaccurungi
23	*Phyllanthus niruri*	Phyllanthaceae	Keelanelli
24	*Ipomoea aquatica*	Convulvaceae	
25	*Boerhavia erecta*	Nyctaginaceae	Erect spiderling
26	*Andrographis echioides*	Acanthaceae	
27	*Cleome tenella*	Cleomaceae	
28	*Cleome viscosa*	Cleomaceae	Kaattu kadugu
29	*Achyranthes aspera*	Amaranthaceae	Nayuruvi
30	*Lepidagathis cristata*	Acanthaceae	Karappanpoondu
31	*Sida rhombifolia*	Malvaceae	Kurundotti
32	*Abutilon indicum*	Malvaceae	
33	*Cassia tora*	Caesalpinaceae	Senavu
34	*Solanum incanum*	Solanaceae	Karimulli
35	*Oldenlandia diffusa*	Rubiaceae	
36	*Andrographis paniculata*	Acanthaceae	Kirayt
37	*Solanum violaceum Ortega*	Solanaceae	
Climber			

Sl.No	Scientific Name	Family Name	Local name
1	*Phyllanthus reticulatus*	Phyllanthaceae	
2	*Cissus quadrangularis*	Vitaceae	Pirandai
3	*Cissus vitiginea*	Vitaceae	
4	*Ichnocarpus frutescens*	Apocynaceae	
5	*Ziziphus oenopolia*	Rhamnaceae	
6	*Reissantia indica*	Hippocrateaceae	
7	*Hemidesmus indicus*	Apocynaceae	
8	*Cardiospermum halicacabum*	Sapindaceae	
9	*Coccinia indica*	Cucurbitaceae	Kovaikkai
10	*Rhynchosia minima*	Leguminosae	
11	*Jasminum angustifolium*	Oleaceae	Uccimalligai
12	*Tylophora indica*	Apocynaceae	
13	*Ipomoea carnea Jacq.*	Convulvaceae	
14	*Rivea hypocrateriformis*	Convulvaceae	
15	*Gloriosa superba*	Colchiaceae	
16	*Abrus precatorius*	Fabaceae	Kundumani
17	*Mallotus repandus*	Euphorbiaceae	
18	*Coccinia grandis*	Cucurbitaceae	
19	*Asparagus racemosus*	Asparagaceae	Tannir-vittan
20	*Capparis rotundifolia*	Capparaceae	Thoratti

3.5.2 FAUNA:

Methodology: Both direct and indirect observation methods were used to survey the fauna. Point Survey Method was used to study the Bird diversity. Besides, discussion with local villagers Collection secondary data from Government records, published reports as well as through discussion with Forest officials, knowledgeable public were used for the study.

Observation: There is no Wild Life Sanctuary or National Park within the study area of 10 km. Domesticated animals like Cows, Buffalos, Dogs, Cats etc., are commonly found. The lease and 10 Km buffer zone does not fall in the Western Ghats ESA boundary. No wild mammalian species was directly sighted during the field survey. The list of fauna within the study area is given in Table No – 3.25.

Table 3.25: List of Fauna in the Buffer Zone

S.No	Common Name	Scientific name	IWPA, Schedule
Mammals			
1	Common Indian Hare	Lepus ruficaudatus	IV
2	Bonnet macaque	Macaca radiata	II
3	Indian Grey Mongoose	Herpestes edwardsii	II
4	Indian Palm squirrel	Funambuus palmarum	IV
Birds			
1	House Sparrow	Passer domesticus	IV
2	Red-vented Bulbul	Pycnonotus cafer	IV
3	Cattle Egret	Bubulcus ibis	IV
4	Common Myna	Acridotheres tristis	IV
5	Indian Cuckoo	Cuculus micropterus	IV
6	Rose-ringed Parakeet	Psittacula krameri	IV
7	Common Babbler	Turdoides caudatus	IV
8	Little Cormorant	Phalacrocorax niger	IV
9	Common Crow	Corvus splendens	V
10	Little Egret	Egretta garzetta	IV
11	Purple-rumped Sunbird	Nectarinia zeylonica	IV
12	Black Drongo	Dicrurus macrocercus	IV
13	Spotted Dove	Streptopelia chinensis	IV
14	Common Quail	Coturnix coturnix	IV
15	Common Kingfisher	Alcedo atthis	IV
Reptiles			
1	Garden Lizard	Calotes versicolar	IV
2	Common Indian krait	Bungarus caeruleus	II
3	Rat Snake	Ptyas mucosa	II
Amphibians			
1	Common Indian toad	Bufo melanostictus	IV
Butterfly			
1	Stripped or common tiger	Danaus genutia	IV
2	Lemon pansy	Junonia lemonias	IV
3	Small grass yellow	Eurema brigitta	IV
4	Lime butterfly	Papilio demoleus	IV
5	Common crow	Euploea core	IV

3.6 HYDROGEOLOGICAL STUDY:

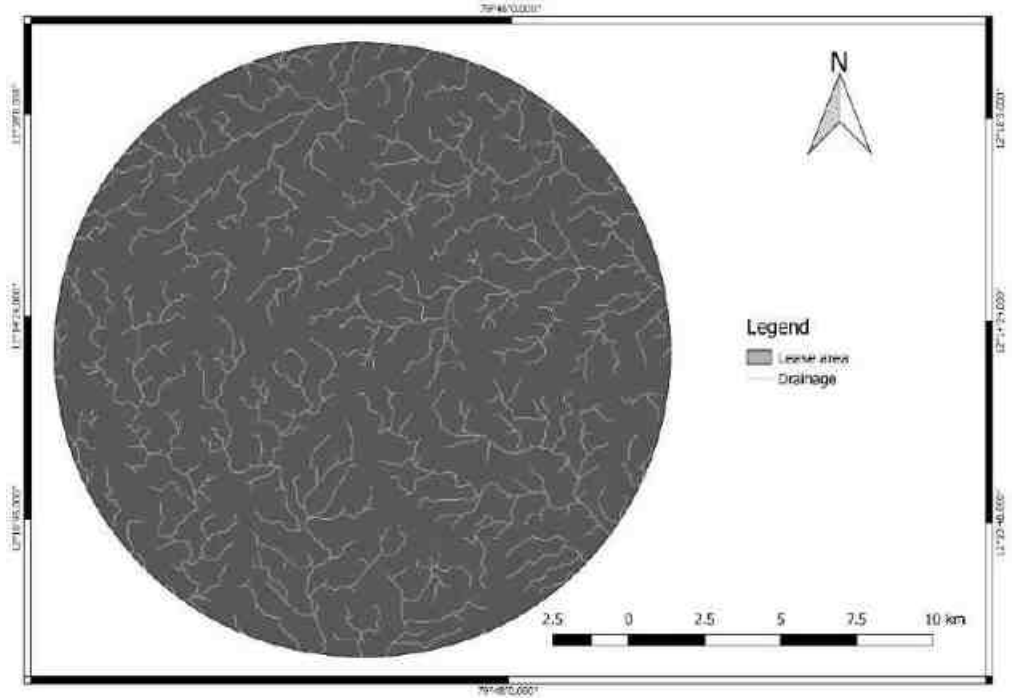
This section delves into the study of the hydrogeological scenario of the study area to evaluate the impact of mining activities on the nearby areas. The study area is considered to understand the nature of the general hydrogeological conditions of the area.

3.6.1 PHYSIOGRAPHY AND DRAINAGE:

Physiography: The area applied for mining lease is a gentle plain terrain.

Drainage: Drainage of the area is controlled by first & second order streams connected to tanks There are no streams, canals or water bodies in the lease area. A Seasonal drainage is located north of the lease area for which a Safety distance of 10m is left. It is first order stream and more of a rainwater carrying channel. The channel on the western side of the lease area drains water from the north western hilly terrain. These streams are ephemeral in nature & It remains dry for most of the season. During monsoon season the rainwater drains through these drainage channel confluences in the eri more than 200m east of the lease area. There are no perennial water course or river in the study area. The drainage map prepared from the survey of India topographic maps shows the presence of few streams running in a dendritic pattern. These are mostly rainwater drains and It remains dry for most of the year.

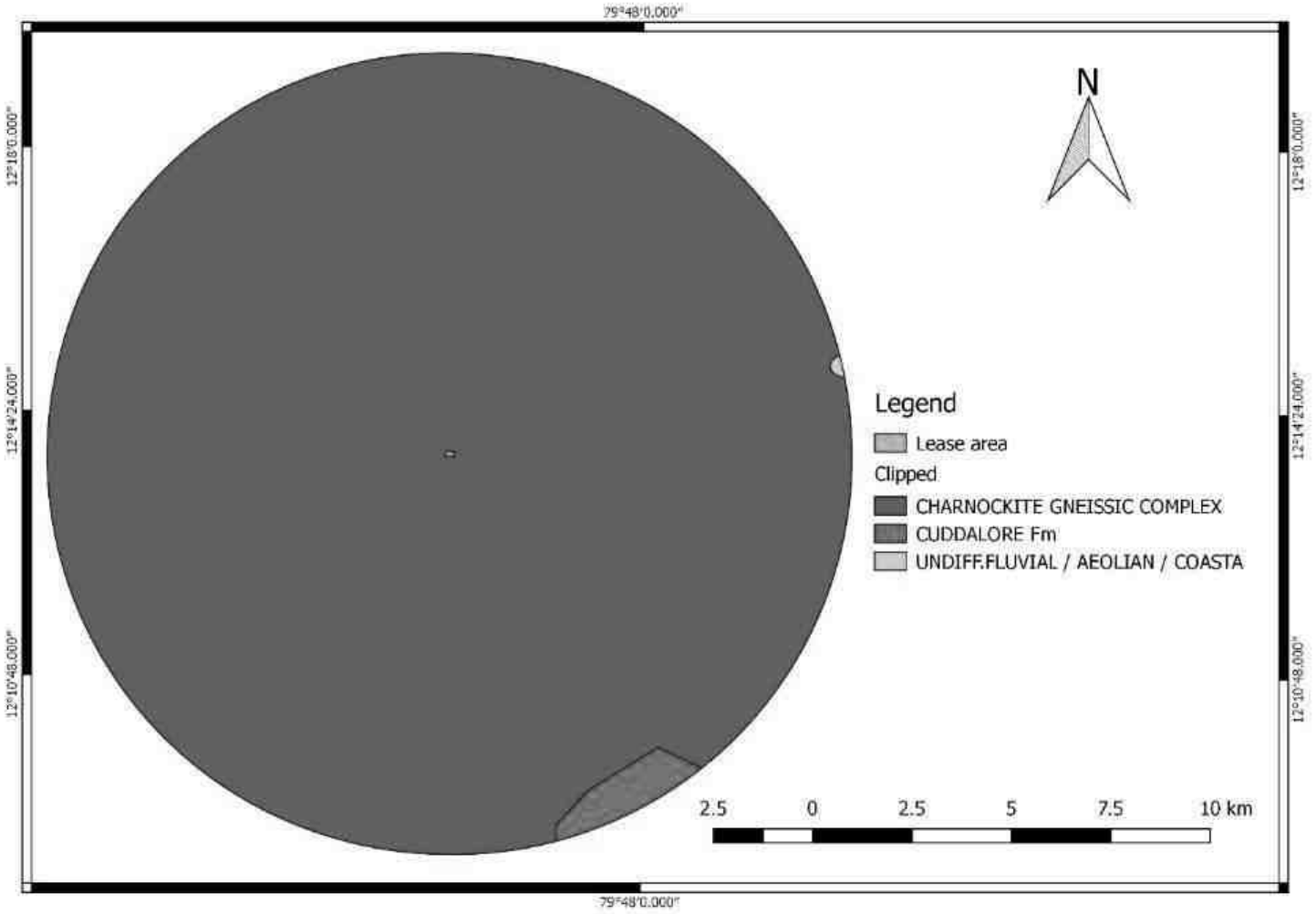
Figure 3.15: Drainage Map



3.6.2 GEOLOGY AND GEOMORPHOLOGY

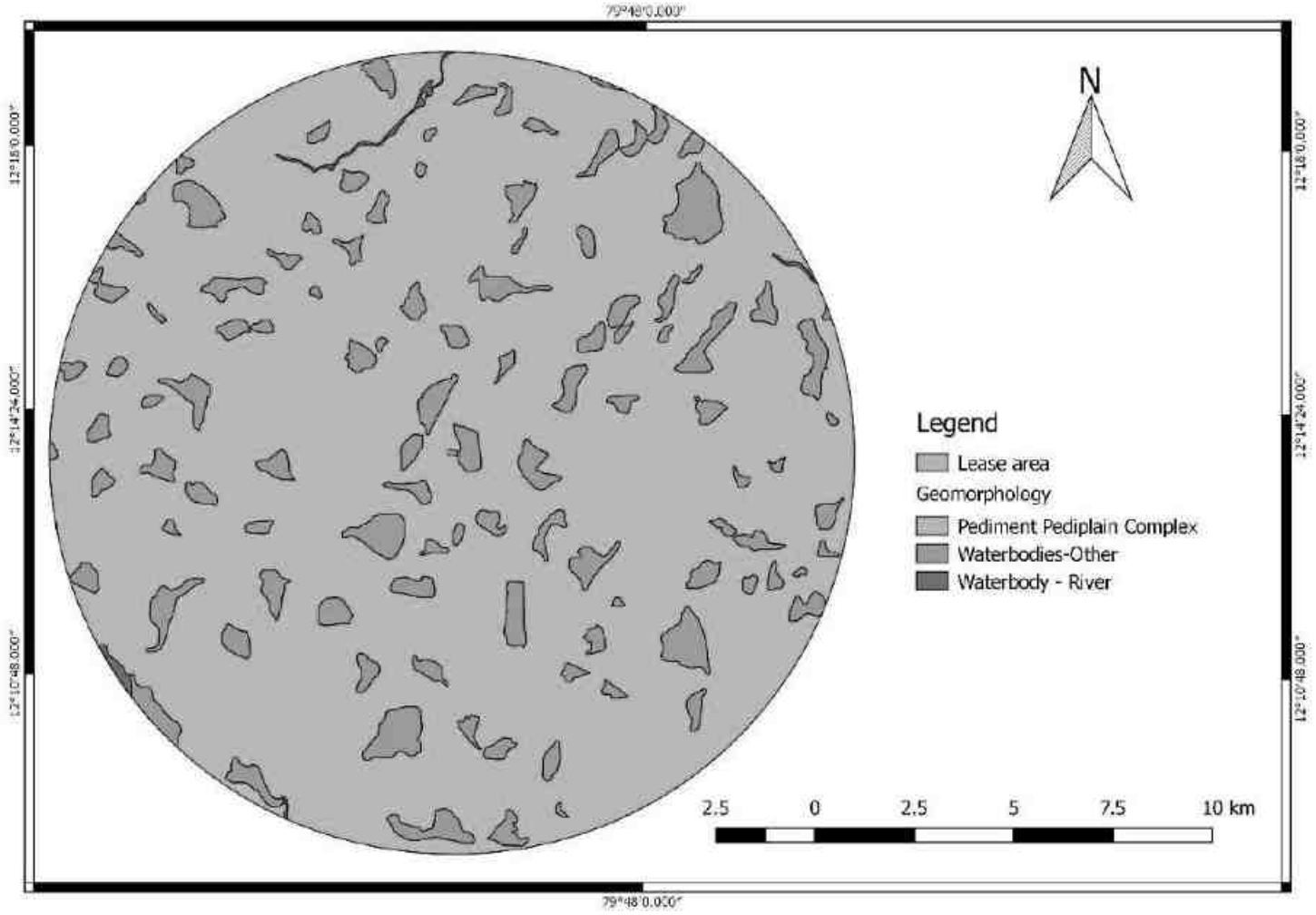
Geology: The type of rock formation in the study area is composed of Charnockite Gneissic complex and Cuddalore Fm. The lease area falls under Charnockite Gneissic complex category.The geological map is provided below in Figure No.3.16.

Figure 3.16: Geology Map



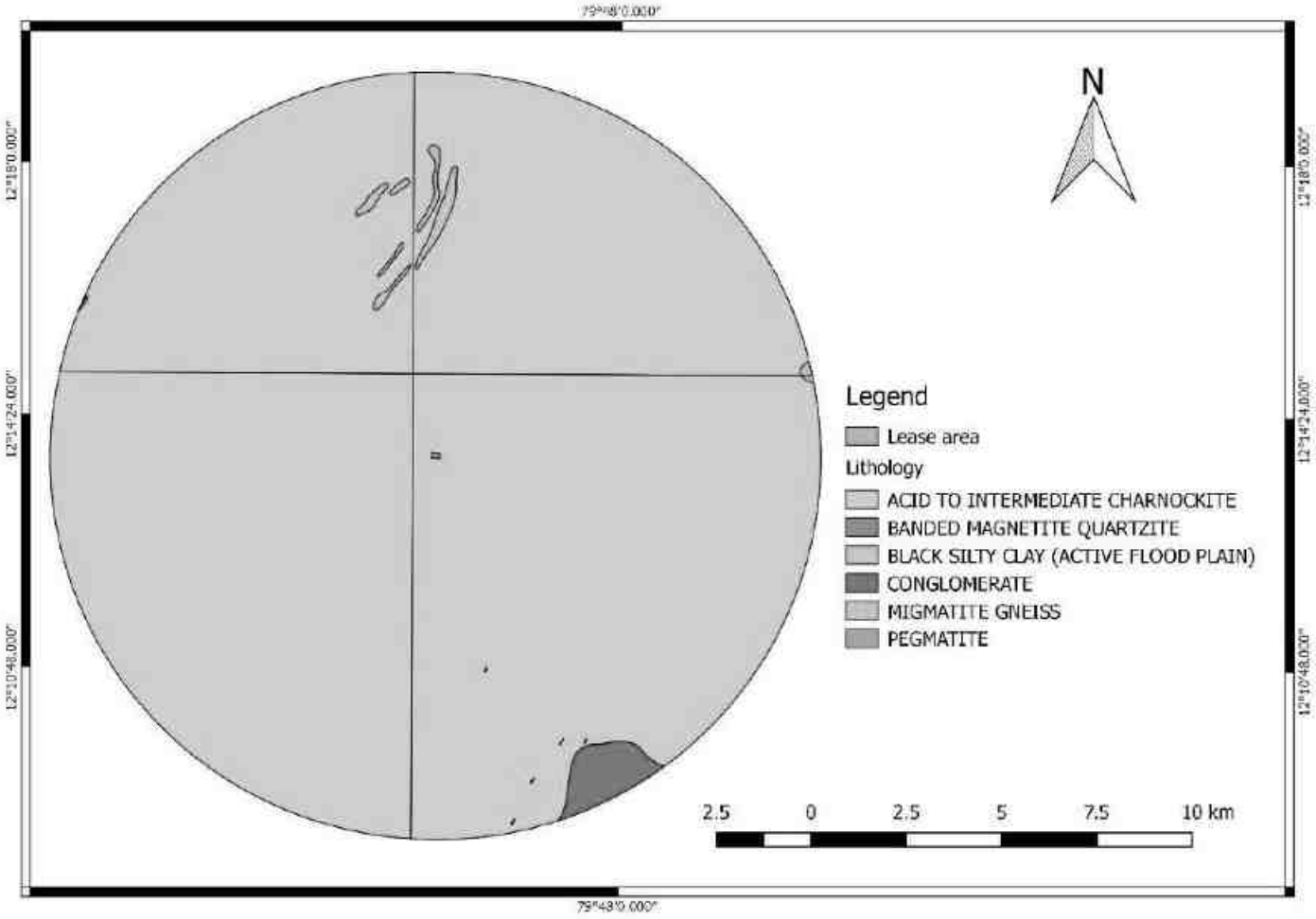
Geomorphology: The geomorphology map of the study derived from the satellite imagery using remote sensing and GIS technique. Predominantly the buffer zone is dominated by Pediment Pediplain complex, and it is the same catergory that the lease area also falls under.

Figure 3.17: Geomorphology Map



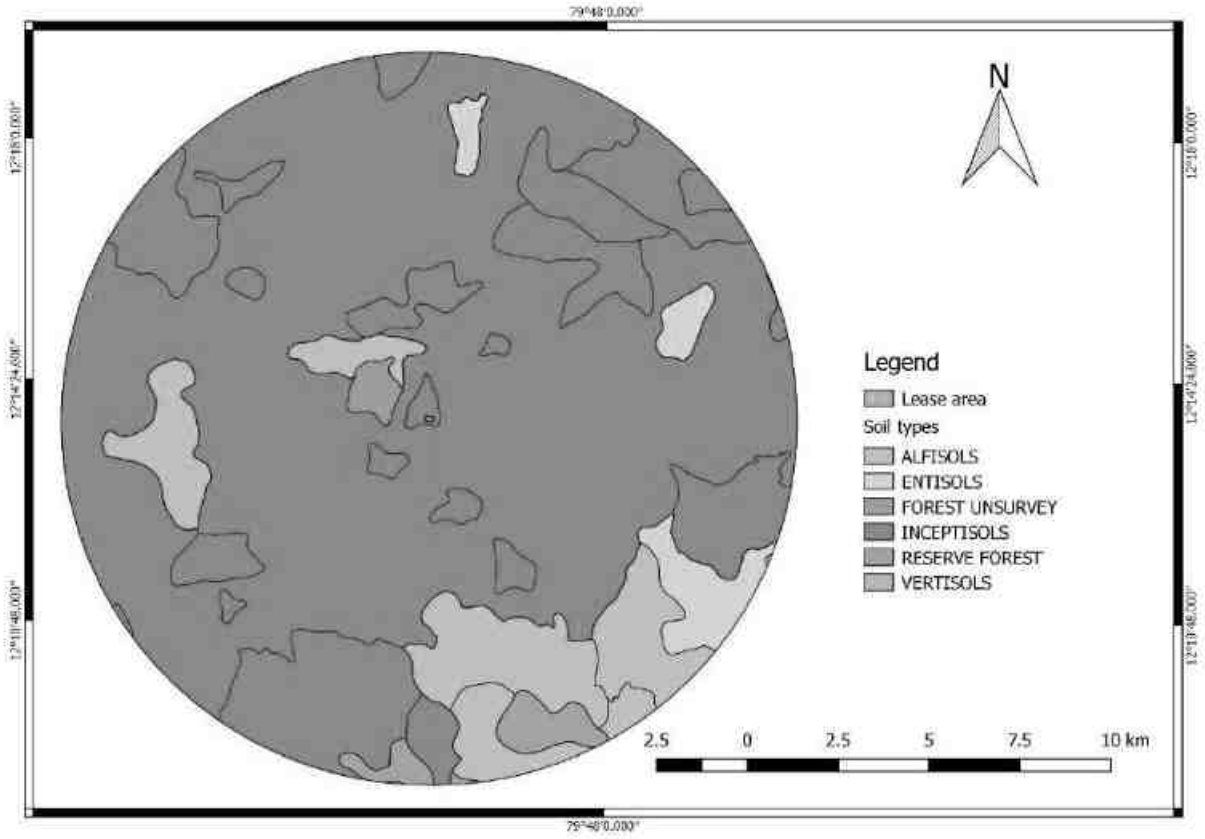
Lithology: The lithological map of the buffer zone has been provided in Figure No.3.18. From this, it is seen that the study area is mainly dominated by Acid to Intermediate Charnockite. The lease area falls under by Acid to Intermediate Charnockite with regards to lithology.

Figure 3.18: Lithology Map



Soil: The study area is characterized by Inceptisol, Alfisols, Vertisols,.The lease are falls under the category of Inceptisol. The soil map is provided in Figure No.3.19.

Figure 3.19: Soil Map



3.6.3 HYDROLOGICAL PROFILE OF THE AREA:

3.7 Water Level Monitoring

"Groundwater level monitoring constitutes an essential component of the hydrogeological study carried out for the rough stone and gravel quarry. In order to establish the baseline groundwater conditions and to assess the potential impact of quarrying activities, systematic water level measurements were carried out in selected wells & Borewells around the lease area.

The monitoring provides a representative understanding of the local hydrogeological regime, including aquifer characteristics, seasonal variations, and recharge behavior. The collected data serves as baseline information for evaluating the sustainability of groundwater

resources and ensures that the quarrying operations will not cause any significant adverse impact on the surrounding groundwater environment."

Well Inventory Data:

The water levels were studied in a total of 12 wells and 4 borewells. The map showing the location of these 16 study locations near the lease area has been depicted below in Figure No.3.20. The details of the depth of these wells and borewells, has been provided below in Table No.3.26.

Figure 3.20: Well Inventory Locations

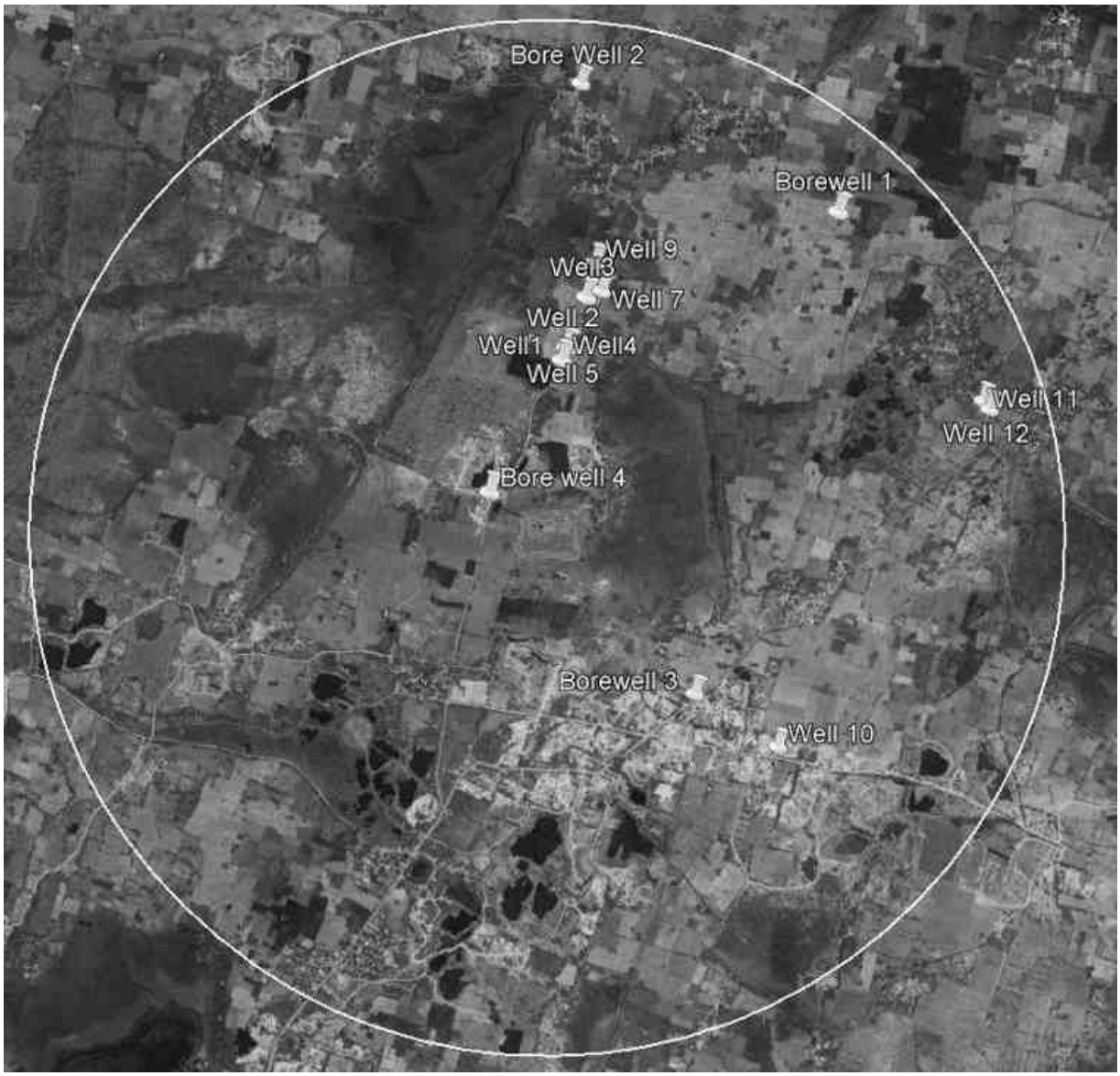
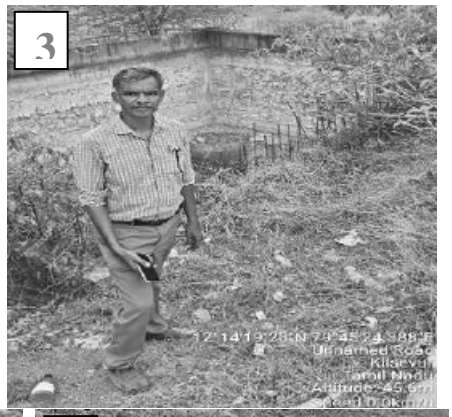


Table 3.26: Well Inventory Data

ID No.	Well / Bore well	Coordinates	
		Latitude	Longitude
1	Well	12°14'11.11"N	79°45'21.15"E
2	Well	12°14'12.71"N	79°45'21.75"E
3	Well	12°14'19.28"N	79°45'24.39"E
4	Well	12°14'11.10"N	79°45'21.15"E
5	Well	12°14'12.71"N	79°45'21.75"E
6	Well	12°14'19.28"N	79°45'24.39"E
7	Well	12°14'20.30"N	79°45'26.50"E
8	Well	12°14'24.07"N	79°45'25.79"E
9	Well	12°14'24.07"N	79°45'25.70"E
10	Well	12°13'21.11"N	79°45'49.93"E
11	Well	12°14'06.04"N	79°46'17.33"E
12	Well	12°14'04.97"N	79°46'18.17"E
1	Bore well	12°14'30.41"N	79°45'57.95"E
2	Bore well	12°14'47.26"N	79°45'23.73"E
3	Bore well	12°13'27.98"N	79°45'38.91"E
4	Bore well	12°13'53.94"N	79°45'11.55"E


1

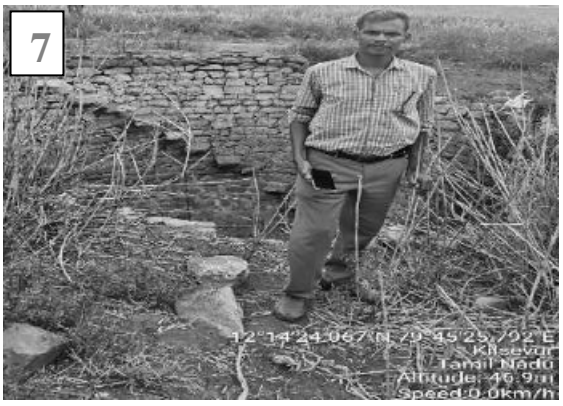

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From the study and discussion with locals it is observed that post monsoon the phreatic water level occurs at 8 to 15ft from the GL. During summer , it reaches to bottom of the well or dry in case of some wells. Occurrence of wells are primarily observed in the northern side of the lease area where as in the southern side only deep bore wells are found. This may be due to dominance of geologically harder rocky charnokite type of rock formation in the southern side. The observed borewell are of 500 to 800 ft depth. The study indicates only few are productive with moderate yield, while the remaining bore wells are dry to poor yield. The groundwater occurrence is discontinuous and controlled by fractures at deeper levels. Water levels ranging from 65 m to 70 m suggest deeper aquifer conditions. The overall hydrogeological condition indicates moderate groundwater potential with localized dry zones."

3.8 Conclusion

The Electrical Resistivity Survey carried out using Schlumberger configuration indicates that the subsurface formation in the study area is predominantly composed of massive hard rock (charnockite), with limited weathered and fractured zones. The interpreted VES curve suggests that the main groundwater-bearing fractured zone occurs at depths of about 65 to 70 m below ground level indicating moderate groundwater potential restricted to deeper fractures.

The proposed quarrying operation is planned up to an ultimate depth of 52 m, which is above the identified groundwater-bearing zone. Therefore, the quarry excavation will not intersect the major aquifer system.

Hence, it is concluded that the proposed quarrying activity will not have any significant adverse impact on the groundwater regime, as the excavation depth remains above the productive aquifer zone. Groundwater occurrence in the area is limited and confined to deeper fractured formations within the hard rock terrain.

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CHAPTER - IV

ANTICIPATED ENVIRONMENTAL IMPACTS & MITIGATION MEASURES

CHAPTER 4
ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

4.1 GENERAL

In this project Open Cast semi-mechanized mining will be carried out to quarry Rough Stone & Gravel. The identified impacts due to this mine during mining and associated activities have been studied in relation to various environmental components like Air, water, noise, vibration, land, transport etc., and the details of the same are elaborated in this chapter.

4.2 AIR ENVIRONMENT:

4.2.1 IMPACTS DUE TO PROJECT OPERATION:

The existing ambient air quality in the area has been described in Chapter-III. The proposed mining and allied operations may cause deterioration of air quality due to pollution arising from the project operation if prompt care is not taken. The principal sources of air pollution in general due to mining and allied activities will be:

- Excavation of material.
- Movement of HEMM such as Excavators, tippers etc.
- Loading and unloading operation
- Transportation

Besides, Gas emission will occur as a result of operation of diesel driven mining equipment, compressors, transporting vehicles, etc.

Particulate matter smaller than 10 microns, referred to as PM_{10}, can settle in the bronchi and lungs and cause health problems like Bronchitis, Emphysema, Bronchial Asthma, Irritation of mucus membranes of eyes, etc. Particles smaller than 2.5 micrometers ($PM_{2.5}$), tend to penetrate into the lungs and very small particles (<100 nanometers) may pass through the lungs to affect other organs.

Besides, as the above mentioned fugitive dust emissions, atmospheric pollution can also occur as a result of emission of SO_2, NO_x, CO etc., from diesel driven mining equipment, generator sets, etc. Larger suspended particles are generally filtered in the nose and throat and do not cause problems. Higher concentration of SO2, NOx, CO may cause some health effect on the human

beings exposed to it. In case of this mine, the following measures will be adopted to control impact on the air quality due to mining operations in the lease area:

Table 4.1: Impact and Mitigation Measures – Air Environment

S.No	Activity	Consequence	Mitigation Measures
1	Drilling	Dust Emanation	Usage of Drill bits in good condition
			Covering of drill holes with wet cloth
			Usage of sharp drill bits for drilling of holes.
			Provision of dust filters / mask to workers working at highly dust prone and affected areas.
2	Blasting	Instantaneous dust emanation	Well-designed blasting parameter, effective stemming to achieve optimum breakage occurs without generating fines.
			Use of appropriate explosives for blasting and avoiding overcharging of blast holes.
			Avoiding blasting during high wind periods where the fine dust is carried out away easily affecting the ambient air quality.
			Use of controlled blasting techniques with Nonel to keep the dust generation, noise as well as vibration level within the prescribed limits.
3	Excavation and Loading	Dust emanation, Gaseous Emission	HEMM will be operated as per the manufacturer's guidelines
			Enclosures for operator cabin.
			Imparting sufficient training to operators on safety and environmental parameters.
			Proper maintenance of hauling equipments.
			Avoiding overloading of dumpers.
4	Transportation	Dust emanation, Gaseous Emission	Regular wetting of transport road using mobile water tanker.
			Proper maintenance of haul road and other roads
			Setting up of tyre wash facility in the transport road.
			Avoiding overloading of tippers
			Covering of loaded tippers with tarpaulins during transportation
			Vehicular emissions will be controlled through regular and proper preventive maintenance schedules and emissions tests are done with diesel smoke meter equipment to ensure emission values.
5	Others	Dust emanation, Gaseous Emission	Development of greenbelt / barriers around mine in the safety zone and carrying out plantation within the lease area.

Due to adoption of all these measures, no major impact on air quality is envisaged due to this proposed opencast mining operation.

Considering that the quantum of production, only 2 excavator, 4 tippers will be engaged. These equipment's will be properly and regularly maintained. Besides, as mentioned earlier, regular vehicular emission tests will be done for the transport vehicles to ensure minimal impact due to carbon emissions. To further mediate the carbon emissions, a good greenbelt will be planted in and around the lease area.

The impact on air quality due to the proposed project is estimated using AERMOD View Gaussian Plume Air Dispersion Model developed by Lakes Environmental Software which is based on steady state Gaussian plume dispersion. Details of the modeling study / estimation including the modeling technique and post project air quality values are elaborated in the following paras.

4.2.2 AIR QUALITY IMPACT PREDICTION:

The model simulations are done for the air pollutant arising from the mining operations, namely, PM_{10}, $PM_{2.5}$. **Ground Level Concentration** (GLC) have been computed using hourly meteorological data.

Table 4.2: Emission Sources

ACTIVITY	SOURCE TYPE
A. Mining operations	Open pit
B. Transportation	Line

4.2.2.1 Emission Factors

Quantification of particulate emissions has been carried out by the emission factor technique. Emission factor is a statistical average of the rate at which a pollutant is released during an activity. This factor when multiplied by the level of that activity in a given situation will give the overall effect. Fugitive emissions have been predicted by using standard equations given and suggested by AP-42, USEPA(1998), Coal S&T Project and for mining & allied activities and other factors. The modeling is done for the peak production to know the worst-case scenario. The details of the emission factors used for the same is provided below:

Table 4.3: Emission Factors

S.No	Activity	PM10	PM2.5	Unit
1	Ore Loading	1.5×10^{-3}	2.1×10^{-4}	Kg/T
2	OB Loading	1.4×10^{-4}	1.5×10^{-5}	Kg/T
3	Hauling inside lease area	0.19	0.019	g/VKT
4	Drilling	0.1	0.04	Kg/hole

4.2.2.2 Emission Rates:

Based on the emission factors, after adopting necessary control measures like dust suppression, Proper maintenance of HEMM, using better quality diesel, using latest equipment, proper maintenance of roads, etc. the expected emission rate due to various operations in this project is calculated and is given below:

Table 4.4: Emission Rate

ACTIVITIES/POLLUTANTS	PM_{10} (g/sec)	$PM_{2.5}$(g/sec)
Ore Loading	0.05	0.01
Drilling	0.26	0.10
Hauling inside lease area	0.26	0.04
Total	**0.57**	**0.15**

A. ***Emission Source Coordinates:*** The center of mine was assumed (0, 0) in the mathematical modeling.

B. ***Meteorological Conditions Used In Predictions:*** The hourly meteorological data has been generated for the monitoring period and the same has been used in the predictions.

4.2.2.3 Results and Discussions

Table 4.5: Peak Incremental Concentration

S.No	Parameters	Peak incremental concentration µg/m^3
1	PM_{10}	4.05
2	$PM_{2.5}$	1.48

It is observed that the peak incremental concentration for PM_{10}, $PM_{2.5}$ occurring very near the source. At away from the source the values are getting reduced due to dispersion effects. The Isopleths of PM_{10}, $PM_{2.5}$ concentrations with control measures scenario have also been drawn and these are given in **Figure No.4.1 and 4.2.** The incremental and predicted concentrations at the locations of ambient air quality have been discussed in the following section.

Figure 4.1: Isopleth of GLC Prediction for PM_{10}

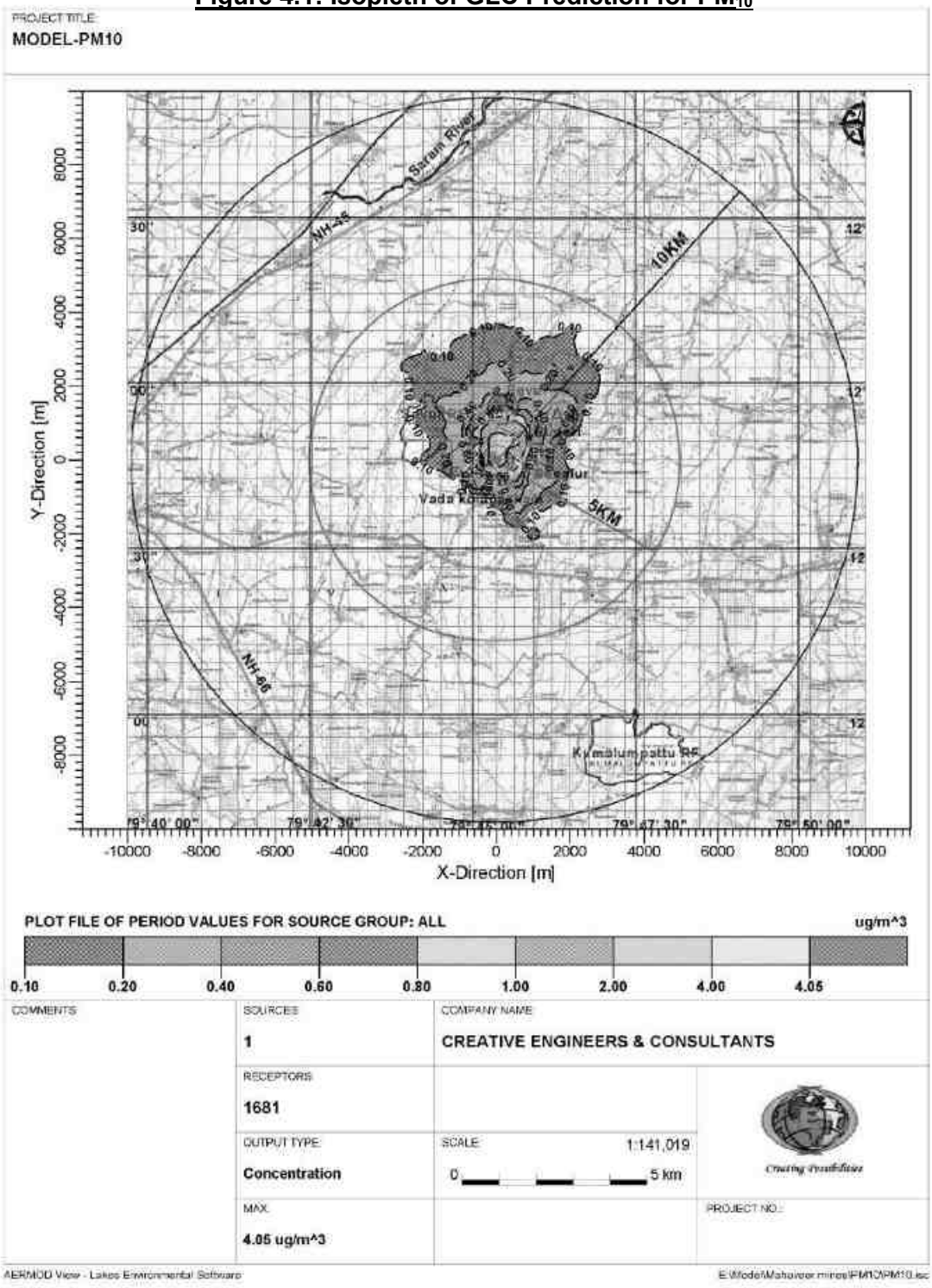
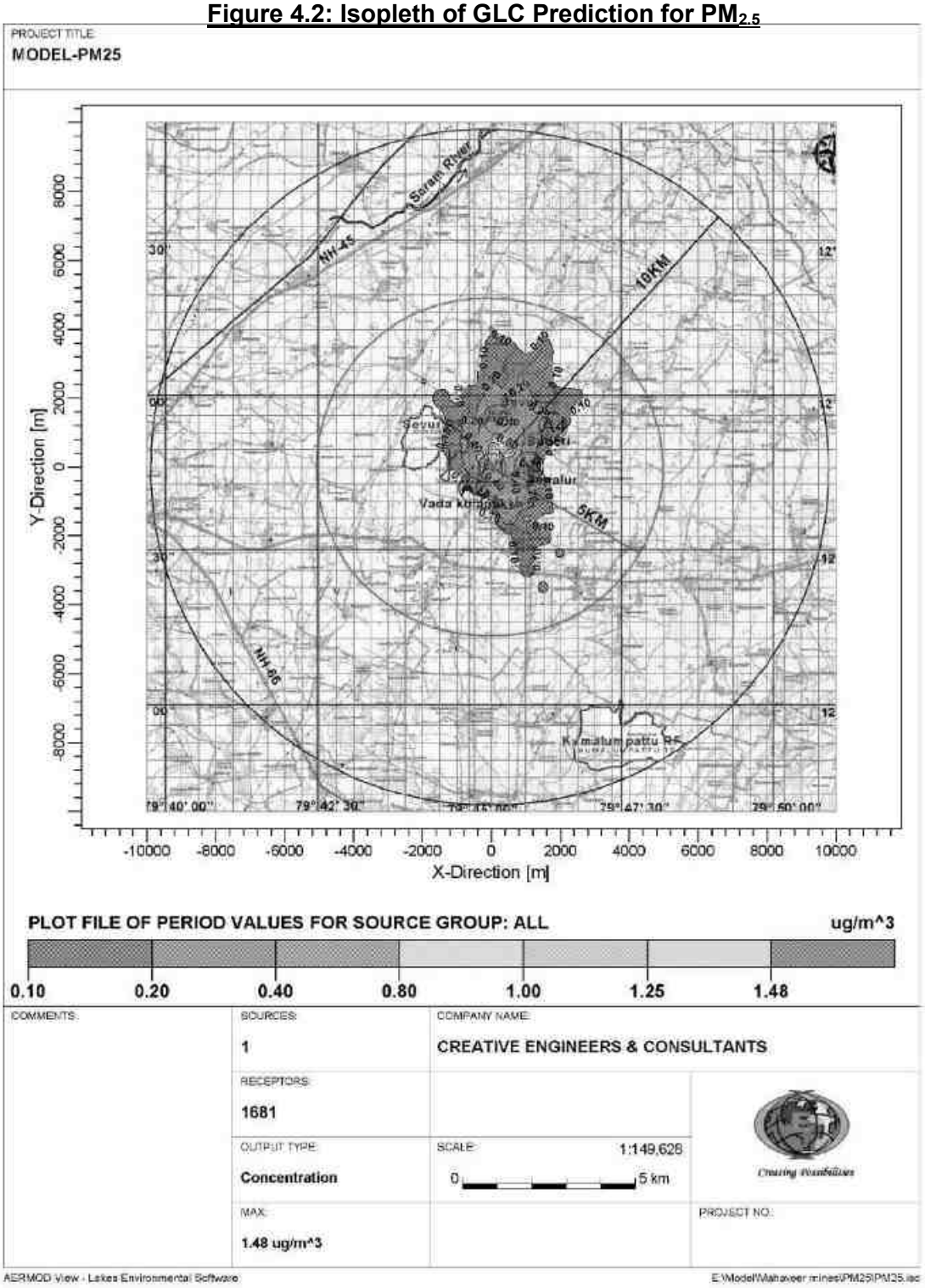


Figure 4.2: Isopleth of GLC Prediction for $PM_{2.5}$



Predicted Ambient Air Quality:

The post project Concentrations of PM10, PM2.5, (GLC) (base line + incremental) after adopting necessary control measures is given in Table No - 4.6 to 4.7.

Table 4.6: Concentrations Of PM_{10} after Project Implementation

Values in μg/m³

S. No	Location	Background Concentration	Predicted Incremental Concentration	Post Project Concentration	Statutory Limits
1	A1-Near Mine Lease Area	66.2	4.0	70.2	-
2	A2- Vada kolapakkam Village	61.3	<1.0	62.3	100
3	A3- Sevur Village	52.7	<1.0	53.7	
4	A4- Buderi Village	54.7	<1.0	54.7	
5	A5- Senalur Village	57.0	<1.0	58.0	

Table 4.7: Concentrations Of $PM_{2.5}$ after Project Implementation

Values in μg/m³

S. No	Location	Background Concentration	Predicted Incremental Concentration	Post Project Concentration	Statutory Limits
1	A1-Near Mine Lease Area	31.8	1.0	32.8	-
2	A2- Vada kolapakkam Village	29.7	<1.0	30.7	60
3	A3- Sevur Village	25.3	<1.0	26.3	
4	A4- Buderi Village	26.5	<1.0	27.5	
5	A5- Senalur Village	28.0	<1.0	29.0	

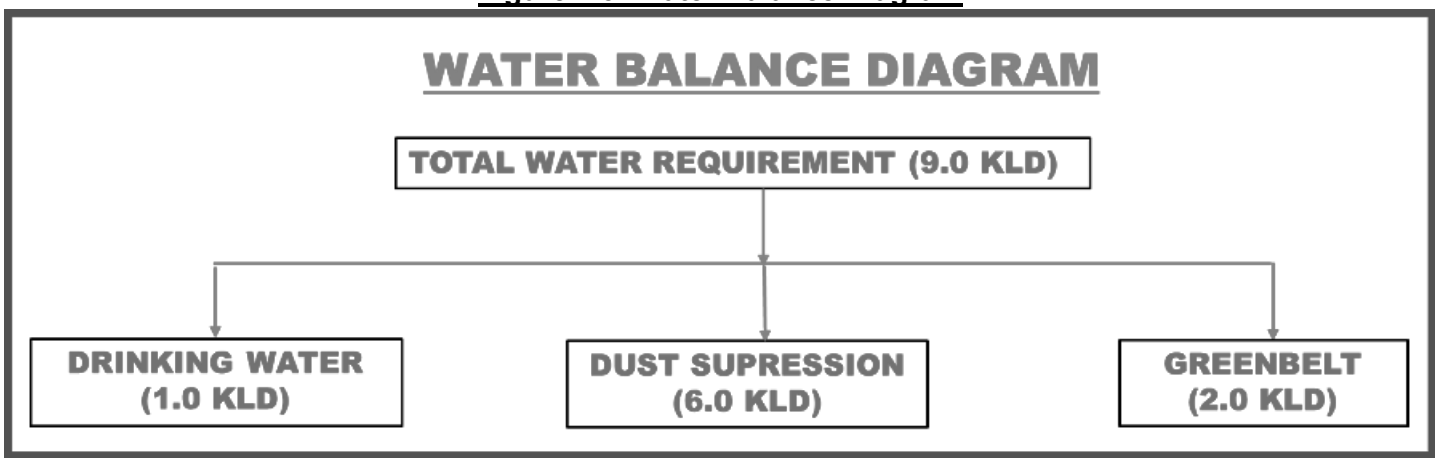
It can be seen that the resultant added concentrations with baseline figures even at worst scenario, show that the values of ambient air quality with respect to PM_{10} are in the range of 53.7 μg/m3 to 70.2 μg/m3 and with respect to PM2.5 are in the range of 26.3 μg/m3 to 32.8 μg/m3 which are within the statutory limits in each case. For preservation of environment in this mine strict enforcement of management schemes and regular air quality monitoring will be undertaken for taking corrective actions, as needed. By adopting the effective implementation of all the mitigative measures, no adverse impact on Air quality due to the mining operation in this lease area is expected.

4.3 WATER ENVIRONMENT:

4.3.1 WATER REQUIREMENT:

The total water requirement for this project will be 9.0 KLD comprising 1.0 KLD for drinking water and domestic use, 6.0 KLD for dust suppression and 2.0 KLD for greenbelt. The water will be sourced initially from outside agencies. Later the rainwater collected in the mine pit sump will be used for this purpose. The water balance diagram for the same is shown in **Figure No 4.3.**

Figure 4.3: Water Balance Diagram



4.3.2 SOURCES OF WATER POLLUTION:

The existing water environment showing water quality at different sampling stations in the area has been described in Chapter-III.

Direct impact on human beings due to poor water quality consequent to mining operation can lead to various water borne diseases like diarrhea, jaundice, dysentery, typhoid, etc. Besides, the polluted water may not be useful for animal or human consumption, vegetation and may affect aquatic life, if effluents are not properly treated to remove the harmful pollutants.

The major sources of water pollution normally associated due to mining and allied operations are:

a. Domestic effluent.
b. Washouts from stockpile if any.
c. Disturbance to drainage course in the project area
d. Generation of mine pit water pumped out from deeper workings if any.

4.3.3 TREATMENT SCHEME:

A. Generation of domestic effluent:

The domestic sewage to be generated from the project will be collected in septic tank with soak pits.

B. Washouts from overburden, ore stockpile, etc.

Since the entire material from the quarry face will be directly dispatched to the consumers, there will not be any stockpiles. There are no waste dumps in this quarry. As such there will not be any wash out due to stock pile or waste dumps.

The rain water falling in the quarry will be harvested in the sump at the lowest level of the quarry. This sump will act as a settling pond to prevent solids escaping along with discharge, before outlet. etc. Towards surface runoff management, a garland drain of length 650m will be constructed around the quarry and will be connected to settling pond on the NW corner with silt traps. The supernatant clear water from the settling ponds will be flow to the downstream users.

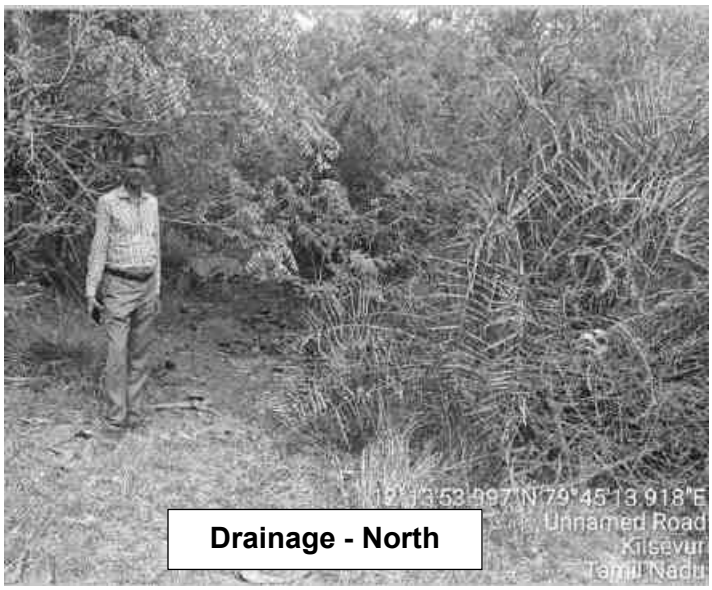
C. Disturbance to drainage courses

There are no streams, canals or water bodies in the lease area. A Seasonal drainage is located north of the lease area for which a Safety distance of 10m is left. It is first order stream and more of a rainwater carrying channel. The channel on the western side of the lease area drains water from the north western hilly terrain. These streams are ephemeral in nature & It remains dry for most of the season. During monsoon season the rainwater drains through these drainage channel confluences in the eri more than 200m east of the lease area. Details of the eri are as follows:

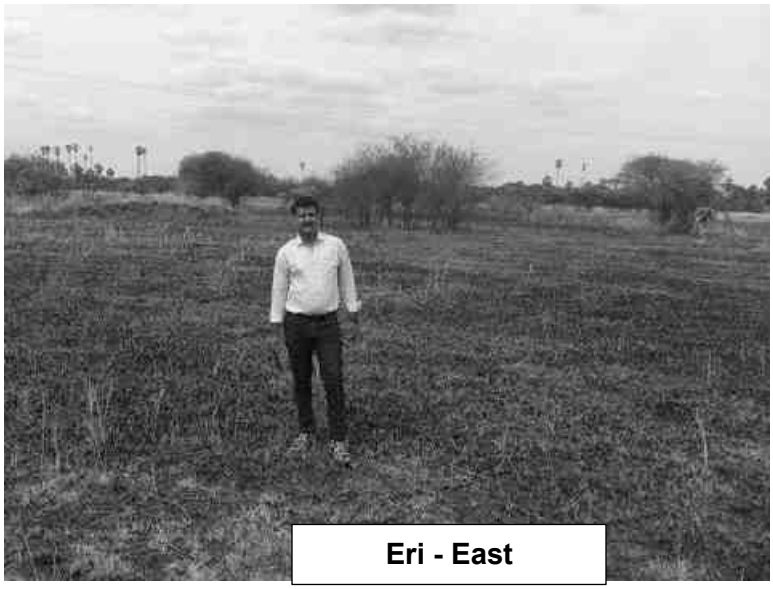
- The senalur eir (SF NO 1) is of 35..24ha size. Due to scanty rainfall it remains dry for throughout the year.
- Water spread area of the tank for the last 10 years is studied from satellite imagery.
- From the study it is observed that, even after very good monsoon precipitation, water holding is observed in the tank in the deeper Eastern side of the lease area which is more than 400m from the lease area. Google map for the different period shown in Figure below validates the same.
- As such even in the village map, water spread is shown away from the lease area on the

easternside only.

- Aiyacut of the tank is only on the North eastern side of the tank which is more than 500m away from the proposed mining activity area.
- By proper surface runoff management, the rainwater from the lease periphery will be channelized through the peripheral garland drain all around the lease area and then through settling pond to be located in the northern side of the lease area. Supernatant clear water will be discharged to the drainage on the northern side ensuring proper flow of rainwater to the connecting eri.
- The lease periphery will be fenced and protective earthen embankment of at least 2m height will be created in the safety zone on the northern & eastern side so that the drainage in the north and the Government land in the east of the lease area is not disturbed.
- Photographs of Drainage in the north and eri is shown below:

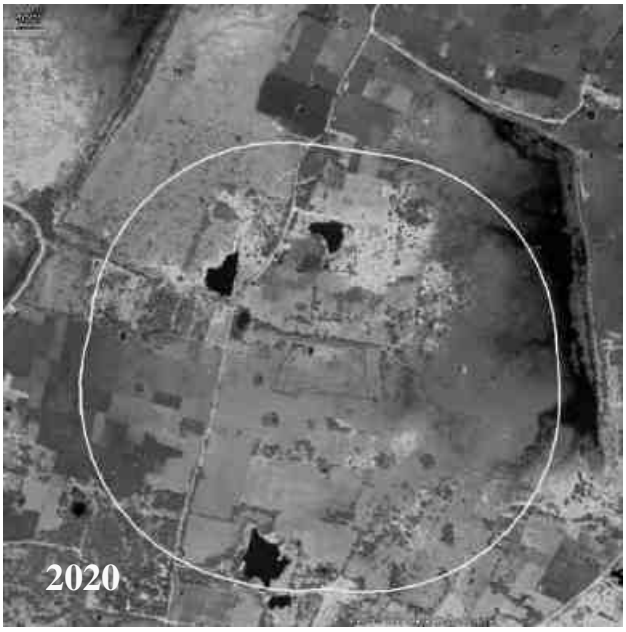


Drainage - North



Eri - East

GOOGLE IMAGE OF DIFFERENT PERIOD



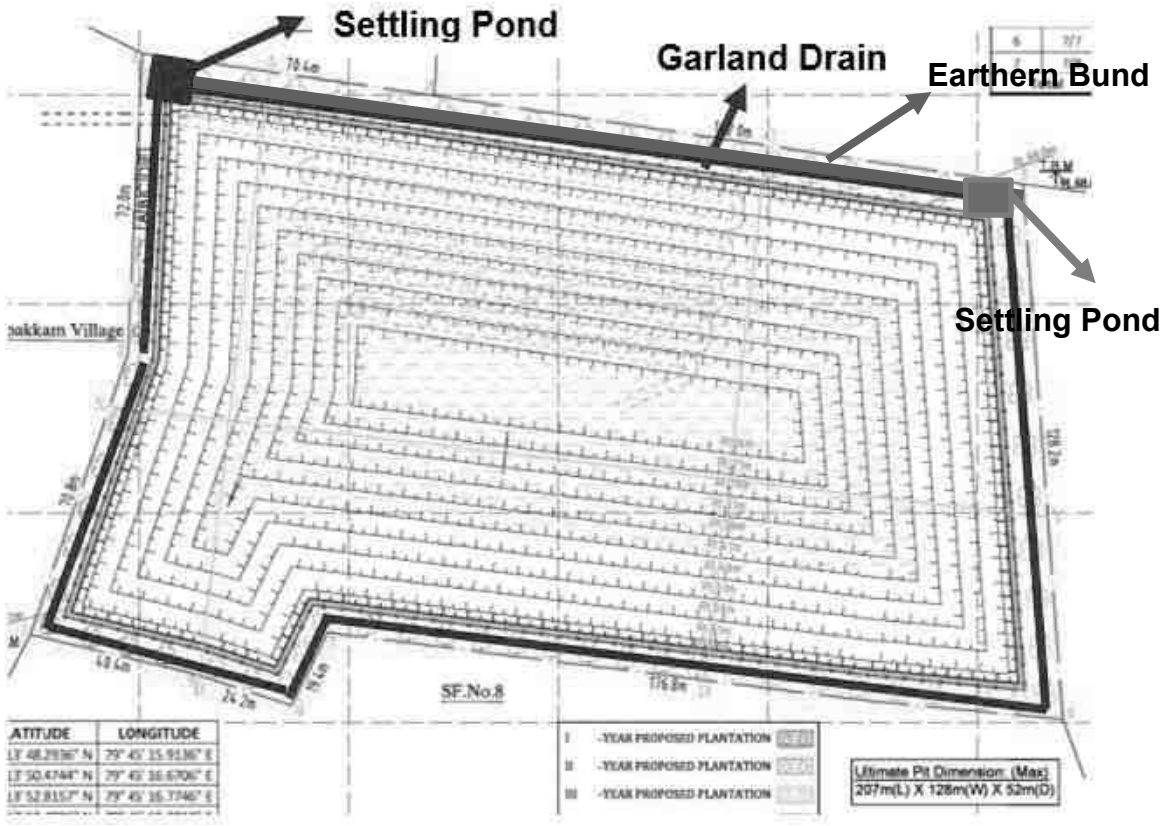






Surface runoff management arrangements & drainage protection measures are shown in **Figure No 4.4.**

Figure 4.4: Surface Runoff Management Structures



This being a mining project, there will not be any generation of process effluent or discharge any effluent into the water bodies. No major impact is envisaged on the nearby water bodies due to project operations. There is no proposal to discharge any effluent into these water bodies. No major impact is envisaged on the nearby water bodies due to project operations.

Geologically the lease area and its immediate surrounding contains hard rocky formation and as such there is less possibility of any water ingression from lease periphery.

Rainwater falling in the water will be collected in the lower level of the mine pit, advantageously used to meet the mining dust suppression and plantation requirement. Clear surplus water collected if any in the mine pit sump will be discharged outside for down stream users.

From the above it can be concluded that there will be no adverse impact due to mining on the surface water body near the lease area.

D. Generation of mine pit water pumped out from deeper workings if any.

The occurrence and movement of groundwater in hard rock formations are restricted to the porous zones of weathered formations and the open systems of fractures, fissures and joints. Generally, in hard rock regions, occurrence of weathered thickness is discontinuous both in space and depth. Hence recharge of groundwater in hard rock formations is influenced by the intensity and depth of weathering.

Study of the area shows that the sub-surface formations are compact with less intergranular porosity and fractures leading to less permeability and transmissivity values and as such the ground water level in this area is deep from surface. Subsequently hard and massive formations of rock are found. Based on the available information and the geophysical investigations it is observed that the study area is of poor to moderate groundwater potential. Besides, the mining area consists of hard compact rock, no major water seepage within the mine is expected. The ultimate pit depth of mining will be 52m BGL. The ground water table in the area is about 65 - 70m BGL. Since the mining operation will be above this level, the ground water intersection in not envisaged and ground water will not be affected appreciably due to the quarrying operation. There is no water seepage noticed in to the already quarried deeper pits situated nearby the proposed quarry area. Hence, the quarrying rough stone up to the proposed depth may not have any adverse impact in the area over ground water conditions.

As mentioned earlier, the rainfall will be collected in the mine floor sump and advantageously used. Excess water if any in the sump will be pumped to settling pond for downstream users.

4.3.4 REDUCING WATER CONSUMPTION OVER THE YEARS:

4.3.4.1 GENERAL METHODS:

Use of water will be monitored and used to the minimum required. Awareness will be spread to the employees about the importance of water conservation. Tap and showers will be turned off immediately after use and any leaks will be monitored and immediately controlled. Water requirement for greenbelt and dust suppression can be reduced by choosing the native plants/trees species with low water requirement and which can sustain in such conditions for greenbelt/ plantation and also optimum usage to the required minimum. While the dust suppression itself is an important method of pollution control for air pollution due to dust, the water consumption will be monitored strictly. The water tanker will be examined for any sources of leaks and if found will be immediately sealed so that water can be utilized for dust suppression effectively without loss.

4.3.4.2 RAINWATER HARVESTING PLAN

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

a) Development of garland drain around the quarry connected to settling tank.
b) Cleaning of drain periodically to prevent siltation
c) The supernatant clear water from the settling pond will drain into the nearby drainage.
d) Utilizing the rainwater harvested in the mine pit to meet the water requirement of the project.
e) Excess water, if any in consultation with local villagers and in line with government practices shall be provided to the downstream users.

4.4 NOISE AND VIBRATION:

4.4.1 NOISE ENVIRONMENT:

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

4.4.1.1 IMPACT PREDICTION DUE TO NOISE:

Noise is one of the inevitable causes of pollution in mining operations, largely due to the extensive mechanization adopted. Besides, other operations such as drilling, blasting, movement of vehicles, etc., also produce noise of considerable magnitude in mining operations. The main sources of noise and expected levels are given below in **Table no – 4.8.**

Table 4.8: Main Sources of Noise

Sl. No.	Source	Inside Cabin	Noise level at dB(A) 10 m. from source
1	Shovel	84-91	59-68
2.	Dumpers/Tippers	87-96	75-85
3.	Drill	88- 95	75-83

Prolonged exposure to a high noise level is harmful to the human auditory system and can create mental fatigue, rebellious attitude, annoyance and carelessness, which may lead to neglect of work and also result in accidents. The impact of noise level as per World Health Organization's 1986 notification is given below in **Table No - 4.9**.

Table 4.9: Impact of Noise Levels

NOISE LEVELS	ADVERSE EFFECTS
90-115 dB	Partial deafness and nervous irritability
> 115 dB	Permanent deafness
Impulsive noise (>90dB)	Frightens livestock grazing in the nearby areas

OSHA (Occupational Safety and Health Administration), USA and other similar organisations stipulate that noise level up to 90 dB(A) is acceptable for eight hours exposure Leq (Equivalent sound level) (8hrs) per day. The Directorate General of Mines Safety, in circular No. DG (Tech)/18 of 1975, has prescribed the noise level in mining occupations (TLV) for workers, in an 8 hour shift period with unprotected ear as 90 dB(A) or less.

The noise will be felt only near the active sources. There will be considerable reduction in the noise level due to the absorption factor, environmental surroundings and other attenuation factors.

As far as absorption factor is concerned, If the ground cover is vegetated or has a soft texture, sound will decrease at the rate of 4.5 dB(A) every time the distance between the source and the observer is doubled. Besides, there will be shielding factor, which takes into account the environmental surroundings. With every 30m of dense land scape vegetation, 5 dB(A) of additional attenuation can be obtained up to a maximum of 10 dB(A). As such at away places the effect of noise will not be felt.

Anticipated noise levels resulting from operation of the various machineries like excavator, tippers, drill have been computed using point source model. Computation of cumulative noise levels at the nearby villages is made based on the assumption that there are no attenuation paths between the source and the boundary.

Noise modeling is carried out using the following formula:

Lp2 = Lp1 – 20 log R2/R1, Where, Lp1 and Lp2 are sound pressure levels at points located at distances R1 and R2 respectively from the source. The study results are as follows:

Table 4.10: Post Project Noise Levels

Sl.No	Location	Baseline Day Eq.in dB(A)	Post project noise Eq in dB(A)	Limit dB(A) as per MoEF&CC
1.	Near Mine Lease Area	51.6	52.8	90
2.	Vada kolapakkam Village	48.9	49.0	90
3	Sevur Village	47.7	47.9	90
4	Buderi Village	48.6	48.7	90
5	Senalur Village	48.6	48.8	55

From the studies, it is found that the predicted Noise Levels due to mining operations at the periphery of the mine lease itself will be less even without considering any attenuation factor. However, practically there will be attenuation due to vegetation etc., and as such there will not be any adverse noise propagation outside the lease boundary. Since the habitations are also away the effect of noise due to mining operations will not be felt at all in the surrounding villages.

4.4.1.2 CONTROL MEASURES FOR NOISE ENVIRONMENT:

Hence, by following mitigative measures for noise control, the impact on noise levels will be insignificant:

- Planting rows of native trees along roads, around mine area and other noise generating centers to act as acoustic barriers.
- Sound proof operator's cabin for equipments like shovel, tippers, etc.
- Proper and regular maintenance of equipments may lead to less noise generation.
- Providing in-built mechanism for reducing sound emissions.
- Providing earplugs to workers exposed to higher noise level.
- Conducting regular health check-up of workers including Audiometry test for the workers engaged in noise prone area.
- Displaying the noise level status of operational machinery on the machines to know the extent of noise level and to control the time to which the worker is exposed to higher noise levels.
- Provision of tin net on the southern side and green net along the lease periphery on the other sides.

Further green belt and afforestation will be planned and executed to abate noise and dust propagation in the area.

4.4.2 GROUND VIBRATIONAL DUE TO BLASTING EFFECTS:

Vibrations due to blasting may cause damage to nearby structures, if appropriate control measures are not adopted. Flyrock is another possible damage causing outcome of blasting. There are many factors, which influence these, like long explosive column with little stemming column, improper burden, loose material or pebbles near holes and long water columns in the holes.

The following control measures will be planned to reduce ground vibratory conditions to sustainable statutory limits:

1) Carrying out controlled blasting using Nonel delay detonator.
2) Optimum design for burden and spacing.
3) Reducing explosive charge per delay to minimum.

4) The peak particle velocity (PPV) of ground vibration will be kept very low through optimally controlled blasting techniques, after necessary field trials.

5) To contain fly rocks, stemming column to be less than burden of the hole. Blasting area will also be muffled, if necessary, to stop fly rocks propagation.

6) Blasting will not be carried out when strong winds are. Blasting will be done during midday time.

7) Controlled blasting to avoid tension cracks which may endanger the stability of bench slopes in the mine.

8) Proper care and supervision during blasting by a competent and experienced person to be carried out.

9) Having different blasting time for the leases in the cluster.

By adoption of above measures, it will be ensured that the ground level vibration due to blasting are maintained within the limits prescribed by DGMS, Dhanbad at the mining areas vide Circular No. 7 dated 29 -08-1997 as given below

Table 4.11: Permissible Peak Particle Velocity (PPV) In Mining Areas

In mm/sec

Type of structure	Dominant excitation frequency Hz		
	<8 Hz	8-25 Hz	>25 Hz
A. Buildings/structures not belonging to owner			
Domestic houses /structures (Kuchha brick and cement)	5	10	15
Industrial buildings (RCC and framed structures)	10	20	25
Objects of historical importance and sensitive structures.	2	5	10
B. Building belonging to owner with limited span of life			
Domestic houses/structures (Kuchha brick and cement)	10	15	25
Industrial buildings (RCC and framed structures)	15	25	50

Besides, different blasting time for the projects in the vicinity is suggested and the timing is to be mentioned in the display board in the respective mines entrance.

4.5 LAND ENVIRONMENT:

The lease area of 3.04.00Ha in S.F.No S.F.Nos. 7/1, 7/2, 7/3, 7/4, 7/5, 7/6 & 7/7 is a own patta land. The present land use pattern, and the post mining land use pattern is shown below:

Table 4.12: Land Use Table

Sl. No.	Land Use	Present Area (Hect)	Area in use during the 5 year period (Ha)
1.	Quarrying Pit	Nil	2.37.30
2.	Infrastructure	Nil	0.02.00
3.	Roads	Nil	0.02.00
4.	Green Belt	Nil	0.62.70
5.	Unutilized	3.04.00	Nil
	Total	**3.04.00Ha**	**3.04.00Ha**

4.5.1 LAND RECLAMATION:

There is no waste generation anticipated in this quarry operation since the entire excavated material will be utilized. Hence, there is no external overburden dump involved. At the end of the period, In the post mining stage, the mine pit area of 2.37.30Ha will be left as a water body. Plantation will be carried out over 0.62.70Ha of safety zone and 0.02Ha will be utilised for road and 0.02Ha of land used for infrastructure will be reclaimed.

Table 4.13: Land Use During Post Operational Period

S.No	Description	Land use (Ha.)			
		Plantation	Water body	Others	Total
1	Quarrying Pit	-	2.37.30	-	2.37.30
2	Infrastructure	-	-	0.02.00	0.02.00
3	Road	-	-	0.02.00	0.02.00
4	Green Belt	0.62.70	-	-	0.62.70
5	Unutilized	-		-	Nil
	TOTAL	**0.62.70**	**2.37.30**	**0.04.00**	3.04.00

Entire mined out area will be properly fenced to prevent inadvertent entry of men and animals. In the post mining stage, the entire mined pit area shall be used as a rainwater harvesting pond.

4.6 BIOLOGICAL ENVIRONMENT:

4.6.1 EXISTING FLORA AND FAUNA:

The core zone area is barren with grasses and bushes. Details of flora/fauna pattern in core and buffer zones have been described in chapter - III.

4.6.2 IMPACT OF MINING ON BIOLOGICAL ENVIRONMENT:

The significance of impact on biological environment due to mining and allied activities on various fronts is described below:

Table 4.14: Impact on Biological Environment

S.No	ISSUES	OBSERVATIONS
1	Clearance of vegetation due to mining and allied activities	No clearance of major vegetation is involved.
2	Retardation of tree growth, tip burning, etc, due to deposition of dust and the Particulate matter generated from the mining operation.	Necessary mitigative measures like dust suppression, proper maintenance of equipment's, roads will be carried out to prevent dust generation.
3	Proximity to national park/ wildlife sanctuary/reserve forest/mangroves/Coastline/estuary/ sea	The mining lease area and the 10 km buffer zone from the periphery of the core zone is devoid of declared ecologically sensitive features like national parks, biospheres, sanctuaries, etc.
4	Release of effluents into water body that also supplies water to wildlife	There is no proposal to discharge any effluent into nearby water bodies.
5	Proposed project could increase siltation that would affect nearby biodiversity area	Surface runoff management structures like garland drain, settling pond etc. as explained above will be constructed and as such there will not be any appreciable impact on surface water quality which in turn can affect the bio diversity of the area.
6	Activities of the project affects the breeding/nesting sites of birds and animals	In the present ML area, there is no wetland. A migratory bird needs sufficient wetlands with sufficient food, shelter, roosting places and nesting places which is not possible here.
7	Located near an area populated by rare or endangered species	There are no rare or endangered species in the nearby area
8	Risk of fall/slip or cause death to wild animals due to project activities	In the post mining stage, barbed wire fencing is proposed all around the mined-out void to prevent falling of animals in the mine pits.
9	Project affects the forest-based livelihood/any specific forest product on which local livelihood depends	Not applicable

10	Project likely to affect migration routes	No migration routes are in the area.
11	Project likely to affect flora of an area, which have medicinal value	No such significantly important medicinal value species within the ML area and its nearby region.
12	The project likely to affect wetlands, fish breeding grounds, marine ecology	There are no any wetlands, fish breeding grounds, marine ecology nearby the ML area which will be affected due to this project.
13	Project affects the Agriculture, Forestry and Traditional Practices	Due to rocky land formation, undependable rainfall, poor soil condition, absence of dependable irrigational source or water bodies, deep ground water occurrence, little seasonal agricultural activities are carried out in the area. Only patches of coconut cultivation is observed
14	Impact on soil health and biodiversity	The lease area is Plain topography land only (Photograph of the site attached in Chapter-II). Besides, there is no waste generation, disposal or stacking involved in this project. As such no loss of soil health and Bio-diversity is expected.
15	Climate change leading to droughts, floods,etc.	• As such the production from this lease is very low to cause any appreciable impact. • No adverse impact on the surrounding environment is envisaged since the number of equipment's to be used to achieve this small production is very less and the magnitude of operation is of very small level. • Besides, as is it a mining project, no adverse generation of heat is envisaged. • Certified vehicles with low carbon emissions will only be used. These equipment's will be properly and regularly maintained. Besides, regular vehicular emission tests will be done for the transport vehicles to ensure minimal impact due to carbon emissions. To further mediate the carbon emissions, a good greenbelt and plantation plan has been in and around the lease area. • Geologically the area in and around the lease area contains charnokite type rock formation containing mostly fallow land. As such there no major vegetation or agricultural activities are observed. • There are no Protected or Eco-Sensitive Zone or forest land nearby wherein it can have an impact. • It will be ensured that mining will be carried out adhering to all the statutory rules and regulations and maintaining the environmental quality within the prescribed standards by effective implementation of varioius mitigative measures. • These mitigative measures will be continued for the entire lease period ensuring no impact on the environment. • As such release of Greenhouse gases (GHG), rise in temperature, affecting livelihood of the local people ,loss of
16	Pollution leading to release of greenhouse gases (GHG) rise in temperature (Hydrothermal/Geothermal effect due to destruction in environment, Bio-geochemical processes and its foot prints including environmental stress) and livelihood of local people.	

		Agriculture, Forestry and Traditional Practices is not envisaged. Such a limited scope will not induce any climatic change leading to droughts, floods etc.
17	Possibilities of water contamination and impact on aquatic ecosystem health and impact on Sediment geochemistry in the surface streams	• This being a mining project no process effluent will be generated. • Water generation is expected to be due to ✓ Direct rainfall falling within the pit ✓ Rain water draining near the lease area. • Direct rain fall will be collected in the mine floor sump. Water from sump will be pumped to settling pond for downstream users. • Rainwater from the mine periphery will be collected through peripheral garland drain. Garland drain will be connected to a settling pond. Supernatant clear water from settling pond confirming to applicable limits will be let out to downstream users for agricultural or other purposes. • Due to above mentioned reasons and absence of perinnial water bodies nearby where in any marine ecosystem is observed, no effect on this front is expected.

There are no migratory corridors, migratory avian-fauna, rare endemic and endangered species. Therefore there shall be no impacts due to mining activity on them. Even though there are no adverse impact on bio diversity and flora/fauna status due to project operations, positive impacts will arise due to well-planned reclamation measures for restoration of land status in the area ultimately to productive land category with elaborately planned green belt development activities.

4.6.3 CONTROL MEASURES FOR BIOLOGICAL ASPECTS:

To reduce the adverse effects on flora/fauna status of the area due to deposition of dust generated from mining operations, mobile water tanker systems will be ensured in all dust prone areas to arrest dust generation. Methodical and well-planned plantation scheme will be carried out depending upon the immediate need, priority and availability of land. The plantation will be done along the lease boundary in a phased manner.

4.6.4 GREEN BELT & PLANTATION:

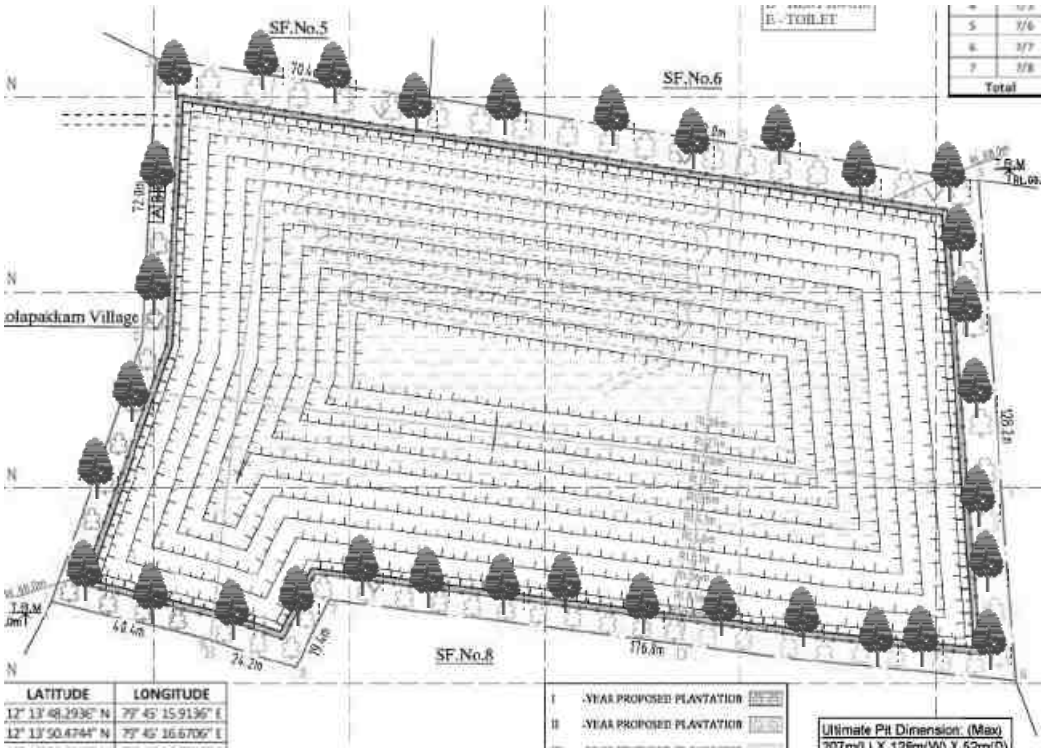
In the safety zone within the lease area and in the nearby areas including mineral transport road plantation of local trees will be carried out about 550 trees will be planted in and around the lease area.

Table 4.15: Proposed Plantation

Year	Species	No Of Trees
1	Pungai, vagai, Vembu etc	110
2		110
3		110
4		110
5		110
	Total	**550**

In the post mining stage, the mine pit area of 2.37.30Ha will be left as a water body. Plantation will be carried out over 0.62.70Ha of safety zone area and 0.02Ha will be utilised for road and 0.02Ha used for infrastructure will be reclaimed. The post mining land use plan showing afforestation and water body is shown in **Figure No- 4.5.**

Figure 4.5: Mine Closure Plan



4.7 SOCIO ECONOMIC ENVIRONMENT:

The entire lease area is in the proponent's possession. There are no habitations or hutments in the core zone area and no rehabilitation or resettlement is involved.

The mining operations in the proposed mine will employ about 35 persons directly and about 50 persons on indirect basis through allied opportunities in logistics, trading, repairing works etc. good employment potential will arise in this area, which will provide raising income levels and standards of living in the area through various service related activities connected with the project operations as shown under.

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

- Casual labor needs for various activities.

Besides, there will be improvement in the following aspects due to project operation:

- ❖ Improvement in infrastructural facilities, providing education aids etc. in nearby schools
- ❖ Betterment of drinking water facilities.
- ❖ Benefit to the State and the Central governments through financial revenues by way of royalty, tax, duties, etc from this project directly and also indirectly.

From above details, it is clear that the project operations will have highly beneficial positive impact in the area.

Table 4.16: CER Cost

Project Cost (Rs.)	Rs. 77,19,400/-
CER Cost Requirement (2% of the Project Cost) (Rs.)	Rs. 1,54,388/-
Revised CER cost allocated (Rs.)	Rs. 5,00,000/-

However, towards the socio economic development of the surrounding area, the proponent has earmarked an amount of Rs.5 Lakhs under Corporate Environmental Responsibility. The activities identified under CER will be implemented in a phased manner in provision of facilities in nearby Government School.

4.8 OCCUPATIONAL HEALTH AND SAFETY:

4.8.1 BASELINE STATUS:

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

4.8.2 IMPACTS ON OCCUPATIONAL HEALTH DUE TO PROJECT OPERATIONS:

Anticipated occupational illness sequel to mining activities can be as follows:

- Dust related pneumonia

- Tuberculosis
- Rheumatic arthritis
- Segmental vibration
- Miner's Nystagamus

4.8.3 MITIGATIVE MEASURES FOR OCCUPATIONAL HEALTH:

To reduce pollution emanation from the project, following measures are being and will be taken:

- Water sprinkling on haul roads etc.
- Green belt creation to arrest dust and reduce noise propagation.
- Acceptance of good control measures for reducing air pollution, as mentioned earlier in the chapter.
- Control of noise levels through good preventive maintenance of machineries, green belt creation, provision of ear plug to workers, etc.
- In addition to above measures, the following remedial steps are being and will be enforced to ensure minimization of occupational health and safety problems.
- Medical examination of workers by qualified doctors, as per DGMS circulars.
- Regular awareness campaigns amongst staff and workers
- Staff will be provided with PPE to guard against excess noise levels, Dust generation and inhalation, etc., as per standards prescribed by DGMS.

4.8.4 MITIGATIVE MEASURES FOR SAFETY ASPECTS:

The following safety gadgets will be provided to the staff and workers based on their area of operation and work & requirement:

Sl No	Safety Equipments
1.	Helmets
2.	Shoes
3.	Goggles
4.	Dust Mask
5.	Hand Gloves

Sl No	Safety Equipments
6.	Reflective Jackets
7.	Ear Muffs
8.	Signal Lights/Flags

4.9 LOGISTICAL SYSTEM:

From this proposed quarry the entire output will be transported to the crusher units for producing stone aggregates of different sizes or construction of roads, bridges, buildings and other buyers etc. The expected peak transport will be as follows:

Table 4.17: Details of Transportation

Sl.no	Particulars of activity	Quantity
A	Maximum RoughstoneTransported (m3/year)	1,19,950
B	No of days in a year	300
C	Transport hours per day	8
D	Truck capacity in T	25
	Trips per hour	6 Trip/hr

From the above table it is seen that there will be about 6 trip per hour additional truck traffic. The existing road can absorb this traffic due to this project. However, the following mitigative measures are suggested:

- Water sprinkling on material in the transport vehicles before transporting, so that no dust nuisance during transport will arise.
- Plantation on either side of the transport road in consultation with the concerned department.
- Proper maintenance of transport roads
- Proper maintenance of transport vehicles.
- Avoiding overloading of material
- Covering of loaded vehicles with tarpaulins sheet.
- Limiting of speed
- Provision of tyre washing facility at the mine outlet

4.10 WASTE MANAGEMENT:

Solid Waste: Since the entire mined out material will be used there will not be any solid waste generation from this project.

Liquid waste: There is no process effluent generation from this mine. Hence no liquid waste is generated.

Hazardous waste management: In this project the following management practices will be followed:

- Ensuring availability of different colour bins for collection of different types of waste.
- Storing of Hazardous waste material in a separate storage area with impervious containers for waste oil, oil contaminated clothes, used lead acid batteries, scraps, tyre storage etc.
- Ensure that there are no leakages/spillages of hazardous wastes.
- Ensuring that the fire extinguisher system is available at hazardous material storage area.

The hazardous waste if any will be disposed through authorized recyclers or re-processors periodically. The hazardous wastes will be transported in accordance with the provisions of rules. By effective implementation of above said mitigation measures no major impact due to Hazardous waste is expected.

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

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CHAPTER - V

ANALYSIS OF ALTERNATIVES (TECHNOLOGY & SITE)

CHAPTER 5

ANALYSIS OF ALTERNATIVES

5.1 ALTERNATE TECHNOLOGY:

This is a proposed Rough Stone and Gravel Quarry in which Open Cast Semi-Mechanized mining will be carried out. It involves jack hammer drilling, blasting, excavation, loading and transportation of Rough stone to the crushing units. As this method is techno economically proven, consideration of an alternate technology is not warranted.

5.2 ALTERNATE SITE:

The mineral deposits are site specific in nature; hence question of seeking alternate site does not arise.

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CHAPTER - VI

ENVIRONMENTAL MONITORING PROGRAMME

CHAPTER 6

ENVIRONMENTAL MONITORING PROGRAMME

6.1 GENERAL

In this project, appropriate environmental monitoring programme are framed. Regular, systematic and sustained programme schedules for implementation and monitoring of various control measures are devised with clear cut guidelines of various concerned plans for keeping a continuous surveillance on the various environmental quality parameters in the area.

The monitoring schedules are planned to aim at regular and systematic study of various pollution levels with respect to air and water quality, noise levels etc., to ensure that they conform to the standards laid down by the Environment Protection Act, 1986 and various Central and State Pollution Control Board Limits.

The various methodologies and frequency of studies of all environmental quality parameters will be as per prescribed norms laid down by MOEF&CC and State Pollution Control Board. This being a small quarry operation, the Mines in-charge will take care of all the environmental related works also.

Environmental control measures include components like air, water and soil quality, noise levels, afforestation measures, etc. For monitoring of environment over the life of the mine, a set of stations for study of quality parameters are fixed as per the actual requirements and prevailing conditions of environmental factors, as dictated from time to time, depending on the prevailing pollution levels.

6.2 MONITORING SCHEDULES FOR VARIOUS PARAMETERS

The monitoring schedules are planned for systematic study of various pollution levels with respect to air and water qualities, noise levels, etc. to ensure that they conform to the standards laid down by Environmental Protection Act and various statutory Limits. However, based on the need and priority it may be suitably modified / improved in consultation with local authorities. The monitoring schedules to be adopted in this quarry are given below.

Table 6.1: Environmental Monitoring Schedule

S.No	Environmental Parameters	Parameters to be monitored	Monitoring area coverage /locations	Frequency of monitoring
1	Air Quality	Sulphur dioxide (SO_2), Oxides of Nitrogen (NO_2), Respirable Particulate Matter ($PM_{2.5}$ and PM_{10}).	2 locations in the buffer zone and 1 work zone locations.	Once in a year in each location.
2	Water Quality	General, Physical, and chemical parameters	Ground Water samples (around the project area) and Mine Pit water samples	Once in a year
3	Water Table Fluctuations	Water Levels	Nearby wells and Borewells	On yearly basis pre and post monsoon level
4	Noise	Leq. Lmax Lmin, Leq Day & Leq Night dB(A)	Work zone locations and buffer zone villages	Once in a year
5	Vibration	Peak Particle Velocity	Mine periphery	Once to arrive at optimum blasting parameters
6	Socio Economic Environment	Socio Economic Survey, Review of implementation of CER activities proposed	Buffer Zone	Yearly basis
7	Occupational Health	Occupational health survey to detect early incidence of diseases, Audiometry Test for workers in noise prone area and review of safety matters.	Staff and Workers involved in the project	Once in a year
8	Greenbelt	Maintenance	Within the lease area	Regularly

6.3 LEGISLATIVE AND REGULATORY FRAME WORK:

The project will have environmental policy declaring its responsibility and commitment to protect the environment and to ensure public safety. The existing policy will be available with all concerned officials of the plant. The following environmental standards as per methodologies prescribed, by MOEF&CC/CPCB/TNPCB will be enforced in this project:

Table 6.2: Environmental Standards

Standards	Issued By	Reference
National Ambient Air Quality Standards	Central Pollution Control Board	Table No. 6.3
Water quality standards per IS 10500:2012	Bureau of Indian Standards	Table No.6.4
Noise Standards	CPCB / MoEF&CC	Table No.6.5
Permissible Peak Particle Velocity	DGMS, Dhanbad	Table No.6.6

Table 6.3: National Ambient Air Quality Standards

[भाग III—खण्ड 4] भारत का राजपत्र : असाधारण 3

NATIONAL AMBIENT AIR QUALITY STANDARDS
CENTRAL POLLUTION CONTROL BOARD
NOTIFICATION
New Delhi, the 18th November, 2009

No. B-29016/20/90/PCI-I.—In exercise of the powers conferred by Sub-section (2) (h) of section 16 of the Air (Prevention and Control of Pollution) Act, 1981 (Act No.14 of 1981), and in supersession of the Notification No(s). S.O. 384(E), dated 11th April, 1994 and S.O. 935(E), dated 14th October, 1998, the Central Pollution Control Board hereby notify the National Ambient Air Quality Standards with immediate effect, namely:-

NATIONAL AMBIENT AIR QUALITY STANDARDS

S. No.	Pollutant	Time Weighted Average	Concentration in Ambient Air		
			Industrial, Residential, Rural and Other Area	Ecologically Sensitive Area (notified by Central Government)	Methods of Measurement
(1)	(2)	(3)	(4)	(5)	(6)
1	Sulphur Dioxide (SO_2), µg/m³	Annual*	50	20	- Improved West and Gaeke
		24 hours**	80	80	-Ultraviolet fluorescence
2	Nitrogen Dioxide (NO_2), µg/m³	Annual*	40	30	- Modified Jacob & Hochheiser (Na-Arsenite)
		24 hours**	80	80	- Chemiluminescence
3	Particulate Matter (size less than 10µm) or PM_{10} µg/m³	Annual*	60	60	- Gravimetric - TOEM
		24 hours**	100	100	- Beta attenuation
4	Particulate Matter (size less than 2.5µm) or $PM_{2.5}$ µg/m³	Annual*	40	40	- Gravimetric - TOEM
		24 hours**	60	60	- Beta attenuation
5	Ozone (O_3) µg/m³	8 hours**	100	100	- UV photometric - Chemiluminescence
		1 hour**	180	180	- Chemical Method
6	Lead (Pb) µg/m³	Annual*	0.50	0.50	- AAS/ICP method after sampling on EPM 2000 or equivalent filter paper - ED-XRF using Teflon filter
		24 hours**	1.0	1.0	
7	Carbon Monoxide (CO) mg/m³	8 hours**	02	02	- Non Dispersive Infra Red (NDIR) spectroscopy
		1 hour**	04	04	
8	Ammonia (NH_3) µg/m³	Annual*	100	100	-Chemiluminescence -Indophenol blue method
		24 hours**	400	400	

(1)	(2)	(3)	(4)	(5)	(6)
9	Benzene (C_6H_6) $\mu g/m^3$	Annual*	05	05	- Gas chromatography based continuous analyzer - Adsorption and Desorption followed by GC analysis
10	Benzo(o)Pyrene (BaP) - particulate phase only, ng/m^3	Annual*	01	01	- Solvent extraction followed by HPLC/GC analysis
11	Arsenic (As), ng/m^3	Annual*	06	06	- AAS /ICP method after sampling on EPM 2000 or equivalent filter paper
12	Nickel (Ni), ng/m^3	Annual*	20	20	- AAS /ICP method after sampling on EPM 2000 or equivalent filter paper

* Annual arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals.

** 24 hourly or 08 hourly or 01 hourly monitored values, as applicable, shall be complied with 98% of the time in a year. 2% of the time, they may exceed the limits but not on two consecutive days of monitoring.

Note. — Whenever and wherever monitoring results on two consecutive days of monitoring exceed the limits specified above for the respective category, it shall be considered adequate reason to institute regular or continuous monitoring and further investigation.

SANT PRASAD GAUTAM, Chairman
[ADVT-III/4/184/09/Extv.]

Note: The notifications on National Ambient Air Quality Standards were published by the Central Pollution Control Board in the Gazette of India, Extraordinary vide notification No(s). S.O. 384(E), dated 11th April, 1994 and S.O. 935(E), dated 14th October, 1998.

Table 6.4: IS – 10500 :2012 Standards

Table 1 Organoleptic and Physical Parameters
(*Foreword* and *Clause* 4)

Sl No.	Characteristic	Requirement (Acceptable Limit)	Permissible Limit in the Absence of Alternate Source	Method of Test, Ref to Part of IS 3025	Remarks
(1)	(2)	(3)	(4)	(5)	(6)
i)	Colour, Hazen units, *Max*	5	15	Part 4	Extended to 15 only, if toxic substances are not suspected in absence of alternate sources
ii)	Odour	Agreeable	Agreeable	Part 5	a) Test cold and when heated b) Test at several dilutions
iii)	*p*H value	6.5-8.5	No relaxation	Part 11	—
iv)	Taste	Agreeable	Agreeable	Parts 7 and 8	Test to be conducted only after safety has been established
v)	Turbidity, NTU, *Max*	1	5	Part 10	—
vi)	Total dissolved solids, mg/l, *Max*	500	2 000	Part 16	—

NOTE — It is recommended that the acceptable limit is to be implemented. Values in excess of those mentioned under 'acceptable' render the water not suitable, but still may be tolerated in the absence of an alternative source but up to the limits indicated under 'permissible limit in the absence of alternate source' in col 4, above which the sources will have to be rejected.

Table 2 General Parameters Concerning Substances Undesirable in Excessive Amounts
(*Foreword* and *Clause* 4)

Sl No.	Characteristic	Requirement (Acceptable Limit)	Permissible Limit in the Absence of Alternate Source	Method of Test, Ref to	Remarks
(1)	(2)	(3)	(4)	(5)	(6)
i)	Aluminium (as Al), mg/l, *Max*	0.03	0.2	IS 3025 (Part 55)	—
ii)	Ammonia (as total ammonia-N), mg/l, *Max*	0.5	No relaxation	IS 3025 (Part 34)	—
iii)	Anionic detergents (as MBAS) mg/l, *Max*	0.2	1.0	Annex K of IS 13428	—
iv)	Barium (as Ba), mg/l, *Max*	0.7	No relaxation	Annex F of IS 13428* or IS 15302	—
v)	Boron (as B), mg/l, *Max*	0.5	1.0	IS 3025 (Part 57)	—
vi)	Calcium (as Ca), mg/l, *Max*	75	200	IS 3025 (Part 40)	—
vii)	Chloramines (as Cl_2), mg/l, *Max*	4.0	No relaxation	IS 3025 (Part 26)* or APHA 4500-Cl G	—
viii)	Chloride (as Cl), mg/l, *Max*	250	1 000	IS 3025 (Part 32)	—
ix)	Copper (as Cu), mg/l, *Max*	0.05	1.5	IS 3025 (Part 42)	—
x)	Fluoride (as F) mg/l, *Max*	1.0	1.5	IS 3025 (Part 60)	—
xi)	Free residual chlorine, mg/l, *Min*	0.2	1	IS 3025 (Part 26)	To be applicable only when water is chlorinated. Tested at consumer end. When protection against viral infection is required, it should be minimum 0.5 mg/l
xii)	Iron (as Fe), mg/l, *Max*	0.3	No relaxation	IS 3025 (Part 53)	Total concentration of manganese (as Mn) and iron (as Fe) shall not exceed 0.3 mg/l
xiii)	Magnesium (as Mg), mg/l, *Max*	30	100	IS 3025 (Part 46)	—
xiv)	Manganese (as Mn), mg/l, *Max*	0.1	0.3	IS 3025 (Part 59)	Total concentration of manganese (as Mn) and iron (as Fe) shall not exceed 0.3 mg/l
xv)	Mineral oil, mg/l, *Max*	0.5	No relaxation	Clause **6** of IS 3025 (Part 39) Infrared partition method	—
xvi)	Nitrate (as NO_3), mg/l, *Max*	45	No relaxation	IS 3025 (Part 34)	—
xvii)	Phenolic compounds (as C_6H_5OH), mg/l, *Max*	0.001	0.002	IS 3025 (Part 43)	—
xviii)	Selenium (as Se), mg/l, *Max*	0.01	No relaxation	IS 3025 (Part 56) or IS 15303*	—
xix)	Silver (as Ag), mg/l, *Max*	0.1	No relaxation	Annex J of IS 13428	—
xx)	Sulphate (as SO_4) mg/l, *Max*	200	400	IS 3025 (Part 24)	May be extended to 400 provided that Magnesium does not exceed 30
xxi)	Sulphide (as H_2S), mg/l, *Max*	0.05	No relaxation	IS 3025 (Part 29)	—
xxii)	Total alkalinity as calcium carbonate, mg/l, *Max*	200	600	IS 3025 (Part 23)	—
xxiii)	Total hardness (as $CaCO_3$), mg/l, *Max*	200	600	IS 3025 (Part 21)	—
xxiv)	Zinc (as Zn), mg/l, *Max*	5	15	IS 3025 (Part 49)	—

NOTES

1 In case of dispute, the method indicated by '*' shall be the referee method.

2 It is recommended that the acceptable limit is to be implemented. Values in excess of those mentioned under 'acceptable' render the water not suitable, but still may be tolerated in the absence of an alternative source but up to the limits indicated under 'permissible limit in the absence of alternate source' in col 4, above which the sources will have to be rejected.

Table 6.5: Noise Level Standards

Area Code	Category of Area	Limits in dB(A) Leq	
		Day Time	Night Time
(A)	Industrial area	75	70
(B)	Commercial area	65	55
(C)	Residential area	55	45
(D)	Silence Zone	50	40

Note :

1. Day time shall mean from 6 a.m. and 10.0 p.m.
2. Night time shall mean from 10.0 p.m. and 6 a.m.
3. Silence zone is an area comprising not less than 100 meters around hospitals, educational institutions, courts, religious places or any other area which is declared as such by the competent authority.
4. Mixed categories of areas may be average as one of the four above mentioned categories by the competent authority.

* dB(A) Leq denotes the time weighted average of the level of sound in decibels on scale A which is relatable to human hearing.

A “decibel” is a unit in which noise is measured.

“A”, in dB(A) Leq, denotes the frequency weighting in the measurement of noise and corresponds to frequency response characteristics of the human ear.

Leq: It is energy mean of the noise level over a specified period.

Table 6.6: Permissible Noise For Industrial Workers As Laid Down By CPCB

Exposure time (in hr. per day)	Limit in dB(A)
8	**90**
4	**93**
2	**96**
1	**99**
½	**102**
¼	**105**
1/8	**108**
1/16	**111**
1/32	**114**

Table 6.7: Permissible Peak Particle Velocity (PPV) In Mining Areas

In mm/sec.

Type of structure	Dominant excitation frequency Hz		
	<8 Hz	I 8-25 Hz	I >25 Hz
A. Buildings/structures not belonging to owner			
Domestic houses /structures (Kuchha brick and cement)	5	10	15
Industrial buildings (RCC and framed structures)	10	20	25
Objects of historical importance and sensitive structures.	2	5	10
B. Building belonging to owner with limited span of life			
Domestic houses/structures (Kuchha brick and cement)	10	15	25
Industrial buildings (RCC and framed structures)	15	25	50

The above said monitoring location and the frequency of monitoring shall be suitably modified in consultation with the nodal agency as per the actual requirements and prevailing conditions of the mine and environmental factors, as dictated from time to time, depending on the prevailing pollution levels, if required.

6.4 ENVIRONMENTAL MONITORING COST:

Towards environmental monitoring it is proposed to allocate a budget of Rs. 50,000 per annum for this project. Further details of the capital and recurring cost of environmental management have been provided in in Table No. 10.2, Chapter-X.

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CHAPTER - VII

ADDITIONAL STUDIES

CHAPTER 7
ADDITIONAL STUDIES

7.1 GENERAL:

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

1. Public consultation of the project as per MoEF&CC mandates.
2. Risk Assessment
3. Cumulative Impact Study
4. R&R Plan
5. Mine closure planning

7.2 PUBLIC CONSULTATION:

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

7.3 RISK ASSESSMENT:

For the various risks, likely to arise, detailed analysis of causes and control measures is given in below:

S.No	Factors	Causes of risks	Control measures
1.	Removal of material	a) Bench may slide due to its unconsolidated nature. b) Vibration due to movement of vehicles in the benches.	Overall bench slope angle will be maintained optimally as per DGMS requirement. Working bench width will be more than bench height.
2.	Drilling	a)Due to high pressure of compressed air hoses may	• Periodical preventative maintenance and

S.No	Factors	Causes of risks	Control measures
		burst. b) Down the hole drill rod may break due to improper maintenance of rod.	replacement of worn out accessories in the compressor and drill equipment. • As per manufacturers recommendation rod to be replaced and bits will be changed.
3.	Blasting	a)Fly rock, ground vibration, noise etc. b) Improper charging of explosives	• Burden and spacing will be kept optimum on trial basis. • Explosive charge per delay will be minimized. • Controlled blasting with Nonel will be used.
4.	Excavation	a)Hauling and loading equipment are in such proximity while excavation b)Swinging of bucket over the body of tipper c) Driving of unauthorized person	• Operator shall not operate the machine when person & vehicles are in such proximity. • Shall not swing the bucket over the cab and operator leaves the machine after ensuring the bucket is on ground. • Shall not allow any unauthorized person to operate the machine by effective supervision.
5.	Transportation	a)Operating the vehicle “nose to tail” b) Overloading of material c) While reversal & overtaking of vehicle d) Operator of truck leaving his cabin when it is loaded	• It will be ensured that all these causes will be nullified by giving training to the operators. • No over loading will be done. • Audio visual reverse horn will be provided. • Proper training will be given.
6.	Fire due to electricity and Oil	a)Due to the short circuit of cables & other electrical parts b) Due to the leakage of inflammable liquid like diesel, oil etc.	• Electrical parts shall be cleaned frequently with the help of dry air blower • All fastening parts and places will be tightening. Suitable fire suppression equipment shall be provided.
7.	Natural calamities	Unexpected happenings	The mine management is capable to deal with the situation.

This being a small rough stone project that too working in a safe area, no major disaster is expected.

7.3.1. DISASTER MANAGEMENT PLAN:

In General, following natural/industrial hazards may occur during normal operation.

- Inundation of mine pit due to flood/excessive rains :
- Slope failure of the pit and waste dumps
- Accident due to heavy mining equipment and
- Blasting and use of Explosives

Mining operation in this lease will be carried out under the management control and direction of a qualified mine 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. All these orders statutory rules and regulations will be followed. Seismically project site and study area falls in the Zone – II and is described as least active zone. There are no perennial water body near the lease area to cause any flooding. As such no disaster due to this project is envisaged.

In order to take care of above hazard / disasters the following control measures have been adopted.

- Checking and regular maintenance of garland drains and earthen bunds to avoid any inflow of surface water in the mine pit.
- Avoiding mining during heavy monsoon period and marching of all the HEMM to the top benches during rainy period.
- Provision of high-capacity standby pumps with generator sets with sufficient quantity of diesel for emergency pumping especially during monsoon.
- All safety precautions and provisions of regulations will be strictly followed during all mining operations
- Prohibiting entry of unauthorized persons.

- Provision of Fire fighting and first-aid provisions in the mines.
- Provisions of all the safety appliances such as safety boot, helmets, goggles, dust masks, ear plugs and ear muffs etc. are made available to the employees for their use.
- Training and refresher courses for all the employees working in hazardous premises
- Observance of all safety precautions for blasting and storage of explosives as per MMR 1961.
- Working of mine, as per approved plans and regularly updating the mine plans
- Cleaning of mine faces regularly
- Proper storage, usage of explosives through competent persons.
- Regular maintenance and testing of all mining equipment as per manufacturers guidelines
- Suppression of dust on the haulage roads with frequent water sprinkling, etc.
- Increasing the awareness of safety and disaster through competitions, posters and annual safety weeks and environmental weeks, encouraged through suitable rewards and other similar drives.

The management and the EMC will be able to deal with the situations efficiently keeping in view of the likely sources of dangers in the mine.

7.4 REHABILITATION AND RESETTLEMENT (R & R) PLAN:

The mining activities will be carried out within the mine lease area only. The entire mine lease area is a Patta land. There is no population within the ML area. Hence, the question of R&R does not arise.

7.5 MINE CLOSURE PLAN:

In the mine closure stage all necessary measures will be taken as per Act & Rules. There is no proposal for back filling, reclamation and rehabilitation. The quarried pits after the end of life of mine will be properly fenced all around to prevent inherent entry of public and cattle and all the statutory requirements will be fulfilled. As already explained, in the post mining stage the

rainwater harvested in the mined-out void shall be utilized for irrigation and domestic needs locally. The mine closure plan is provided in Figure 4.5 in chapter – IV of the EIA/EMP Report.

7.6 CUMULATIVE IMPACT STUDY:

The lease area is located in Senalur Village, Tindivanam Taluk, Viluppuram District, TamilNadu. The details of the other quarries located within the 500m radius of the project considered for cumulative impact study now **(Annexure-3)** has been provided below:

Table 7.1: Details of quarries within 500m radius

I. Existing Quarries :

Sl.No	Name of the lessee/permit holder	Name of the Mineral	Taluk & Village	S.F.Nos	Extent (in Hects)	Lease period	Remarks
1.	M/s. Karpaga Vinayagaa Mines, No.5, NH2, Kamabar Street, Maraimalai Nagar, Chenagalpattu-603209	Rough Stone & Gravel	Tindivanam Taluk & Keelsevur Village	15/(P) 76/1 (P)	3.03.00 0.97.00 **4.00.00**	26.12.24 To 25.12.34	-

II. Proposed Area :

Sl.No	Name of the lessee/permit holder	Name of the Mineral	Taluk & Village	S.F.Nos	Extent (in Hects)	Remarks
1.	**M/S.Sri Magaveer Mines,** Prop: T.A.P. Jayakeerthi, Senalur Village, Tindivanam Taluk, Viluppuram District- 604 101.	Rough Stone & Gravel	Tindivanam & Senalur	7/1 7/2 7/3 7/4 7/5 7/6 7/7	0.36.00 0.58.00 0.16.00 0.36.00 0.36.00 0.58.00 0.64.00 **3.04.00**	**-**

III. Abandoned quarries :

Sl.No	Name of the lessee/permit holder	Name of the Mineral	Taluk & Village	S.F.Nos	Extent (in Hects)	Lease period	Remarks
1	TMT.A.Kamatchi, W/o. Arivoli, No-64, Appasamy nagar, Tindivanam	Rough Stone & Gravel	Tindivanam & Senalur	76/2	0.89.00	23.04.2007 To 22.04.2012	**-**
2		Rough Stone	Tindivanam	4/1A	0.82.00	13.11.2015	**-**

		& Gravel	& Senalur	4/2A1 4/2B1(P)	0.59.50 0.20.00 0.20.50 **1.61.50**	To 12.11.2020	

From that above it is seen that, although this proposed lease area is <5Ha, the total lease within the 500m radius (Existing + Proposed) works out to be 7.04.00Ha including this proposal is >5Ha. Hence, this proposal is considered under Category – B1 (under cluster situation) and this EMP is prepared.

The baseline monitoring carried out for this project reflects the cumulative impact of the existing quarries. This proposed quarry will ensure that present Roughstone demands are met.

Figure 7.1: Vicinity Map



7.7 PIT SLOPE STABILITY PLAN

- Factors affecting slope stability of the mine are
  - Geological structure comprising dip, intervening shear zone formation, clay intrusion, joints / discontinuities, faults etc.,
  - Lithology of formation
  - slope geometry
  - Ground water availability which may cause increased thrust on the faces
- Site specific analysis
  - Since the formation is of homogeneous rock type probability of slope failure is low and can be avoided if proper measures are adopted.
  - There will be a 7.5m wide barrier zone which will form a ridge which can also take care of the top section and as such no risk is envisaged on this front.
  - During future workings the following measures will be ensured:
    - Regular inspection of the mine faces to be carried out by mines manager for ensuring absence of any structural features like faults, joints, dyke, intrusive material in the rock strata which may affect the slope stability and cleared.
    - No loose material or boulders is to be stacked on the mine top or pit benches.
    - Height of the benches should be 5m. Working bench width should be at least 2.5 times the bench height. Ultimate pit bench width will be 5m & slope is kept at 45° to ensure slope stability.
    - Haul road formation will be at 1 in 16 slopes with adequate road width.
    - There will be no ground water table intersection. No seepage is expected due to formation. Adequate drainage management system comprising peripheral garland drain, settling pond to regulate monsoon water will be created to prevent saturation of compact layers, apparent drainage over the bench slope to avert damages to quarry face and manage the water flow.

The above will ensure safe and stable mine prospects.

7.8 CONCLUSION:

The proposed lease may act as a substitute for the recently expired or to be expired leases in the region. No adverse impact on the surrounding environment is envisaged from this project due to enforcing all the mitigative measures during mining.

Certified vehicles with low carbon emissions will only be used. These equipment's will be properly and regularly maintained. Besides, regular vehicular emission tests will be done for the transport vehicles to ensure minimal impact due to carbon emissions. To further mediate the carbon emissions, a good greenbelt and plantation plan has been planned

Geologically the area in and around the lease area contains charnokite type rock formation containing mostly fallow land. As such there no major vegetation or agricultural activities are observed. There are no Protected or Eco-Sensitive Zone or forest land nearby wherein it can have an impact.

It will be ensured that mining will be carried out adhering to all the statutory rules and regulations, appointing statutory personnel's like qualified mines manager, blaster, informing DGMS before commencement of mining operations and maintaining the environmental quality within the prescribed standards by effective implementation of various mitigative measures.

As such release of Greenhouse gases (GHG), rise in temperature, affecting livelihood of the local people, loss of Agriculture, Forestry and Traditional Practices is not envisaged. Such a limited scope will not induce any climatic change leading to droughts, floods etc.

Mine closure plan is prepared for the lease period and already included in the approved mine plan.

Due to absence of perennial water bodies nearby where in any marine ecosystem is observed, no effect on this front is also expected. Hydrological investigation carried out and as given in Para 3.6 of Chapter III & para 4.3 Chapter – IV shows that the all-time ground water table in this area is much below the mining level. Hence, ground water intersection in not envisaged for the entire life of the mine and ground water will not be affected due to the quarrying operation. As

such there will not be any adverse impact on the ground water regime. Besides, this being a mining project, there will be not be any process effluent. As mentioned earlier, the rainfall will be collected in the mine floor sump and gainfully used as per CGWA requirement. Excess water if any in the sump will be pumped to settling pond and supernatant clear water let out for downstream users.

It will be ensured that mining will be carried out adhering to all the statutory rules and regulations, appointing statutory personnel's like qualified mines manager, blaster, informing DGMS before commencement of mining operations and maintaining the environmental quality within the prescribed standards by effective implementation of various mitigative measures for the entire lease period.

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CHAPTER - VIII

PROJECT BENEFITS

CHAPTER 8
PROJECT BENEFITS

The proposed Rough stone and Gravel Quarry of **M/s. Sri Magaveer Mines, Prop. T.A.P.Jayakeerthi** will improve physical and social infrastructures in the area like:

- Direct & indirect employment to 35 people.
- Indirect employment to scores of people.
- Financial gains for the governments, through collection of various taxes like royalty, GST, etc.,
- Increase in General Awareness of the People.
- Continual improvements of the local amenities for the local society
- Improvement of the General Living Standard of the People in the Vicinity
- Overall Improvement in HDI (Human Development Index)
- Growth of Allied Industries in the Area.
- Improvement in Per Capita Income.
- Providing certain facilties for the local schools and panchyats

In short, the proposed Rough Stone & Gravel Quarry will benefit this region in the fields of employment opportunities, improved per capita income for local people, and improved social welfare facilities in respect of education, medical systems, infrastructural build-up, etc in its own way.

By means of carrying out the socio-economic development activities, local community development is expected. Towards the same, the proponent has planned to allocate Rs.5.0 Lakhs for various activities under CER. From the CER activities allocated for various social welfare activities, the villages near the lease area will be benefited.

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CHAPTER - IX

ENVIRONMENTAL COST BENEFIT ANALYSIS

CHAPTER 9

ENVIRONMENTAL COST BENEFIT ANALYSIS

Appendix-III of the MoEF&CC notification S.O. 1533 dated 14.09.2006, which describes the generic structure of Environmental Impact Assessment document, states that the chapter 'Environmental cost benefit analysis' is applicable if it is recommended during scoping stage.

ToR for this project has been received from SEIAA, Tamil Nadu vide their letter No. TO25B0108TN5160551N dated 30.07.2025. Environmental cost benefit analysis is not prescribed in the terms of reference. Hence, it is not applicable for this project.

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CHAPTER - X

ENVIRONMENTAL MANAGEMENT PLAN

CHAPTER 10

ENVIRONMENTAL MANAGEMENT PLAN

10.1 INTRODUCTION:

This chapter describes the implementation strategies of the environmental management measures described through the course of this EIA/EMP report for the purpose of mitigating significant impacts due to the proposed mining operations.

10.2 COMPONENTS OF THE ENVIRONMENTAL MANAGEMENT PLAN:

The environmental management plan comprises identification of the major impacts due to project operations and their suitable mitigative measures. (Provided in an elaborate manner in Chapter-IV). Based on the environmental policy of the company, the environmental management cell will oversee the implementation of these mitigative measures. The details of the proponent's environmental policy, environmental management cell and also the budgetary allocation towards various environmental management measures has been elaborated in this chapter.

10.2.1 ENVIRONMENTAL POLICY:

The proponent will frame a well-planned environmental policy. The salient features of this policy will be.

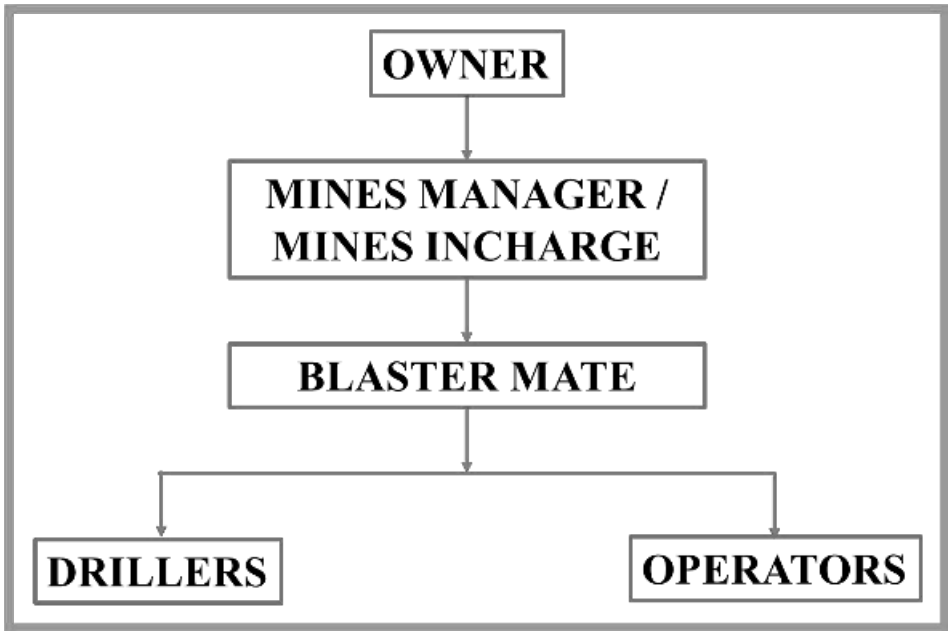
- Ensuring risk-free and safe mining operations by following all rules and conditions prescribed in the Indian mines Act, metalliferrous mining regulation, mineral conservation and development rules, etc,.
- Ensuring environmental preservation by adoption of remedial measures for control of air, water quality, noise status, biological improvements, green belt creation, etc,.
- Extending CER activities to cater to the needs of local community for various benefits like improvement of physical and social infrastructures for the welfare of local community.

- Ensuring that all mining operations such as deployment of HEMM, conduct of drilling and blasting operations, etc are strictly conducted keeping with regulatory standards & maintaining safe working environment in the area.
- Providing periodical training on safety, Health, & Environment to all employers.
- Any infringement / violation of any rule or unsafe mining operations should be reported mines manager, should be reported by the foremen/ blaster mate etc, who will take immediate corrective measures for avoiding major disasters. The report will ultimately reach the owner through upwardly hierarchical communicative channels from the lowest level to superior levels in a quick time bound duration.
- The mines manager will exercise overall control over entire mining and connected operations and all infringements / violations on any count pertaining to unsafe operations, environmental degradation, etc, should be brought to the notice of the owner of the quarry. Remedial measures for such violations and deviations should be taken care by the mines manager to avoid any hazards or disasters in the mine and nearby areas. The persons responsible for such violations will be punished through appropriate disciplinarily penal actions.
- The EC conditions and stipulations will be strictly observed by Mines manager of the mine in various issues like prescribed environmental monitoring schedules conducting of vibratory studies due to blasting, creation of green belt, management of mined area, occupational health review, etc.
- Penalty actions will be taken by the proponent in cases of continuous negligence resulting in violations deviations in this respect.
- A time schedule of once in 90 days for review of all operational factors as mentioned above is to be enforced, for proper and quick corrective actions needed in the matter.

10.2.2 ENVIRONMNTAL MANAGEMENT CELL:

The Mines Manager/Mine Incharge will undertake effective monitoring and implementation of various environmental control measures promptly and effectively and to oversee various environmental management schemes for air quality control, water quality status, noise level control, plantation programme, social development schemes, etc in the mine. The organizational chart for the same has been provided below:

Figure 10.1: Organization Chart



The Mines Manager/Mines In charge in the mine project site will be directly responsible for various environmental activities in the mine. The owner will correlate and oversee the environmental activities and their effective implementation in consonance with the guidelines in the EMP. The Mines Manager/Mines In charge will oversee the environmental administration at the mine and he will directly supervise all activities of environmental administration on environmental issues. Necessary assistance from sub ordinates, external consultants and laboratories shall be taken.

Environmental control measures will span various factors like land degradation, air, water and soil quality, noise levels, effective land reclamation for excavated areas, afforestation measures, etc. The administrative functions are given below.

- To observe the implementation of environmental control measures.
- To study the effects of project activities on the environment.
- To ensure implementation of Plantation Programme. Regular monitoring of survival rate of plants is carried out to achieve the desired result.
- To keep records of monitoring etc., in a systematic way, so as to facilitate easy access, when needed by statutory agencies, etc. Also send prescribed returns to statutory authorities.
- To ensure that adequate fencing and plantation is carried out in the safety zones.
- Conducting environmental studies and reporting to SPCB.
- To interact and liaise with Government Departments.
- To evaluate the performance of existing pollution control equipment and systems periodically and take timely action to keep the equipment at its optimum performance condition.
- To take immediate preventive action in case of some unforeseen environmental pollution attributable to the project.
- Conducting safety audits and programmes to create safety awareness in workers/ staff.
- Conducting annual health audits to detect any health problems promptly in the workers/staff. This will reduce occupational health problems.
- Imparting training on safety and conduct safety drills to educate employees. Firefighting equipment and system has to be kept in ‘ready-to-fight’ condition.

- ❖ Carrying out socio economic study in the surrounding areas to find out the benefits derived by the society due to the project and also to fulfill the deficiency, if any, immediately.
- ❖ Ensuring proper mine closure arrangements

Considering the other mines in the cluster, the Environmental Management Cell of this project will also act as a Cluster Management Committee. The various activities undertaken to be undertaken by this committee are detailed below:

- Effective implementation of the environmental management measures in a holistic manner
- Devising an operation plan for mining and transportation activities.
- Various natural calamities like rain, flooding, evacuation plans etc. will also be deliberated by this committee to form risk management and emergency management plan pertaining to the cluster.
- The environmental policy of the company will be implemented and proper sustainable mining in accordance with statutory regulations will be enforced for the quarries in the cluster.
- Furnishing action plan regarding restoration strategy
- Deliberate on the health of the workers involved in the mining and also the health of the public
- Carrying out detailed study on the impact of mining on:
    - Soil health & biodiversity
    - Climate change leading to droughts, floods, etc.
    - Pollution leading to release of greenhouse gases (GHG) rise in temperature and livelihood of local people
    - Possibilities of water contamination and impact on acquatic ecosystem health.

- Agriculture, Forestry & Traditional practices.
- Hydro geothermal /Geothermal effect due to destruction in the Environment.
- Bio-geochemical process and its footprints including environmental stress.
- Sediment geochemistry

- Furnishing action plan to achieve sustainable development gals with regards to water, sanitation and safety.
- Furnishing fire safety and evacuation plans in case of fire accidents.
- Implementation of steps to effectively utilize energy.

10.2.3 ENVIRONMENTAL MANAGEMENT PLAN:

10.2.3.1 General:

Systematic monitoring systems and well-conceived and efficient Environment Management Plan will ensure that during the project operations, the various environmental parameters, are well within the statutorily sustainable limits. The environmental control measures proposed to keep various environmental parameters of the project in terms of air, water, noise, land, biological environment, etc. has been described below.

10.2.3.2 Air Quality:

With regards to air quality, to mitigate the fugitive and gaseous emission resulting from mining and allied activities, the following control measures are proposed to be undertaken:

- Regular water sprinkling in the transport roads using mobile tankers for dust suppression.
- Controlled blasting techniques with NONEL.
- Provision of dust filters / mask to workers working at highly dust prone and affected areas.
- Covering of drill holes with wet cloth, using sharp drill bits

- Avoiding blasting during high wind periods where the fine dust is carried out away easily affecting the ambient air quality.
- Proper maintenance of haul roads, HEMM and dumpers.
- Covering of loaded tippers with tarpaulins during transportation
- Vehicular emissions will be controlled through regular and proper preventive maintenance schedules and emissions tests are done with diesel smoke meter equipment to ensure emission values.
- Besides, there will be good green belt cover will be developed around mine periphery and in safety zone.

10.2.3.3 Water Environment:

There will be no process effluent generated from this project. The domestic sewage to be generated will be collected in septic tank with soak pit arrangements. Besides, there will be no waste dumps or stockpiles within the lease area as the entire material will be directly dispatched to the consumers.

Surface runoff management structures such as garland drain connected to a settling pond will be constructed around the quarry to collect the rain water. The supernatant clear water from the settling pond will be provided to nearby downstream users. Towards rainwater harvesting, the rainwater harvested in the mine pit will be used to meet the water requirements during mining and excess water in consultation with villagers and in line with government practices will be out in to the nearby stream or shall be distributed to the nearby villages as per their need.

10.2.3.4 Noise Environment:

During the project operations, various control measures as listed below will be carried out to mitigate adverse impact due to the noise generated due to mining and allied activities:

- Good plantation will be carried out in the safety zone areas
- Noise protectors, insulation of operator cabins, installation of silencers in machineries, etc.

- Proper and regular maintenance of equipment's
- Providing earplugs to workers exposed to higher noise level.
- Providing in-built mechanism for reducing sound emissions.
- Conducting regular health check-up of workers including Audiometry test for the workers engaged in noise prone area.
- Displaying the noise level status of operational machinery on the machines to know the extent of noise level and to control the time to which the worker is exposed to higher noise levels.

10.2.3.5 Ground Vibration

During the project operations, various control measures as listed below will be carried out to mitigate adverse impact due to the ground vibration caused due to blasting activities:

- Controlled blasting techniques to maintain the peak particle velocity (PPV) below DGMS prescribed levels.
- Ideally formulating drilling and charging pattern and ensuring using less charge per delay.
- To contain fly rocks, stemming column will not be less than burden of the hole. Blasting area will also be muffled, if necessary, to stop fly rocks propagation.
- Blasting will not be carried out when strong winds are blowing towards the inhabited areas. Blasting will be done during midday time and never at night.
- Proper care and supervision during blasting by a competent and experienced person.
- Besides, different blasting time for the projects in the vicinity is suggested and the timing is to be mentioned in the display board in the respective mines entrance.

Further details regarding the same has been provided under section 4.4.2, Chapter-IV.

10.2.2.6 Biological Environment:

The mining lease area and 10km buffer zone are devoid of declared ecologically sensitive features such as national parks, sanctuaries etc. Besides, no endangered or endemic species are observed in the buffer zone. There will be no major clearance of vegetation involved in this project. However, good greenbelt and plantation programmes are planned in and around the lease area. Greenbelt / Plantation will be carried out to enhance the vegetative growth and aesthetic in the safety zone area. This will boost the biological, visual and aesthetic outlook of the area. Elaborate details regarding the same is provided under section 4.6.4, Chapter-IV.

10.2.2.7 Socio-Economic Environment:

The proposed project operation will provide positive impacts in the region on the employment area as well as on physical and social infrastructural status. Many other tangible benefits will be gained by the local people in the surrounding areas due to ancillary units, trading operations, contractual needs, casual labor, green belt development, etc. Towards the socio- economic development of the surrounding area, the proponent has earmarked an amount of Rs.5.0 Lakhs under Corporate Environmental Responsibility. The activities identified under CER will be implemented in a phased manner.

10.3 ENVIRONMENTAL POLLUTION CONTROL COST:

In this proposed quarry Implementation of environmental control measures as stated above involves capital as well as recurring expenses. The probable capital and recurring environmental control cost are calculated and given below **Table No – 10.2**

Table 10.2: Environmental Control Cost

Rs. In lakhs

Activities	Mitigation Measure	Provision for Implementation	Capital	Recurring
Air Environment	Compaction, gradation and drainage on both sides for Haulage Road	Rental Dozer & drainage construction on haul road @ Rs. 10,000/- per hectare; and yearly maintenance @ Rs. 10,000/- per hectare	0.30	0.30
	Fixed Water Sprinkling Arrangements + Water sprinkling by own water tankers	Fixed Sprinkler Installation and New Water Tanker Cost for Capital; and Water Sprinkling (thrice a day) Cost for recurring	8.00	0.50
	Muffle blasting – To control fly rocks during blasting	Blasting face will be covered with sand bags / steel mesh / old tyres / used conveyor belts	0.00	0.05
	Wet drilling procedure / latest eco-	Dust extractor @ Rs. 25,000/- per unit	1.00	0.10

Activities	Mitigation Measure	Provision for Implementation	Capital	Recurring
	friendly drill machine with separate dust extractor unit	deployed as capital & @ Rs. 2500 per unit recurring cost for maintenance		
	No overloading of trucks/tippers/tractors	Manual Monitoring through Security guard	0.00	0.05
	Stone carrying trucks will be covered by tarpaulin	Monitoring if trucks will be covered by tarpaulin	0.00	0.10
	Enforcing speed limits of 20 km/hr within ML area	Installation of Speed Governers @ Rs. 5000/- per Tipper/Dumper deployed - 2 Units	0.10	0.00
	Regular monitoring of exhaust fumes as per RTO norms	Monitoring of Exhaust Fumes by Manual Labour	0.00	0.05
	Regular sweeping and maintenance of approach roads for at least about 200 m from ML Area	Provision for 2 labours @ Rs.10,000/labour (Contractual) per Hectare	-	0.61
	Installing wheel wash system near gate of quarry	Installation + Maintenance + Supervision	0.50	0.20
Sub-Total			**9.90**	**1.96**
Noise Environment	Source of noise will be during operation of transportation vehicles, HEMM for this proper maintenance will be done at regular intervals.	Provision made in Operating Cost	-	-
	Oiling & greasing of Transport vehicles and HEMM at regular interval will be done	Provision made in Operating Cost	-	-
	Adequate silencers will be provided in all the diesel engines of vehicles.	Provision made in Operating Cost	-	-
	It will be ensured that all transportation vehicles carry a fitness certificate.	Provision made in Operating Cost	-	-
	Safety tools and implements that are required will be kept adequately near blasting site at the time of charging.	Provision made in OHS part	-	-
	Line Drilling all along the boundary to reduce the PPV from blasting activity and implementing controlled blasting.	Provision made in Operating Cost	-	-
	Proper warning system before blasting will be adopted and clearance of the area before blasting will be ensured.	Blowing Whistle by Mining Mate / Blaster / Competent Person	-	-
	Provision for Portable blaster shed	Installation of Portable blasting shelter	0.50	0.02
	NONEL Blasting will be practiced to control Ground vibration and fly rocks	Rs. 30/- per 6 Tonnes of Blasted Material	-	14.60
		Sub-Total	**0.50**	**14.62**
Waste Management	Waste management (Spent Oil, Grease etc.,)	Provision for domestic waste collection and disposal through authorized agency	0.25	0.20

Activities	Mitigation Measure	Provision for Implementation	Capital	Recurring
		Installation of dust bins	0.05	0.02
	Bio toilets will be made available outside mine lease on the land of owner itself	Provision made in Operating Cost		
		Sub-Total	**0.30**	**0.22**
Mine Closure	1. Progressive Closure Activity - Surface Runoff managent	Provision for garland drain @ Rs. 10,000/- per Hectare with maintenance of Rs. 5,000/- per annum	0.30	0.05
	2. Progressive Closure Activity Barbed Wire Fencing to quarry area will be provisioned.	Per Hectare fencing Cost @ Rs. 2,00,000/- with Maintenance of Rs 10,000/- per annum	6.08	0.10
	3. Progressive Closure Activity Green belt development - 500 trees per one hectare - Proposal for 550 Trees - (200 Inside Lease Area & 350 Outside Lease Area)	Site clearance, preparation of land, digging of pits / trenches, soil amendments, transplantation of saplings @ 100 per plant (capital) for plantation inside the lease area and @ 30 per plant maintenance (recurring)	0.20	0.06
		Avenue Plantation @ 150 per plant (capital) for plantation outside the lease area and @ 30 per plant maintenance (recurring)	0.53	0.11
	4. Implementation of Final Mine Closure Actity as per Approved Mining Plan on Last Year	Few activities already covered as progressive closure activities as greenbelt development, wire fencing, garland drain. *For Final Closure Activities 15% of the proposed closure cost will be spent during the final mine closure stage - Last Year	1.07	-
	5. Contribution towards Green Fund. As per TNMMCR 1959, Rule 35 A	The Contribution towards Green Funds @ 10% of peak production Seigniorage fee are indicated as part of EMP Budge and not necessarily implemented in the Project Site	10.80	-
		Sub-Total	**7.11**	**0.32**
Implementation of EC, Mining Plan & DGMS Condition	Size 6' X 5' with blue background and white letters as mentioned in MoM Appendix II by the SEAC TN	Fixed Display Board at the Quarry Entrance as permanent structure mentioning Environmental Conditions	0.10	0.01
	Air, Water, Noise and Soil Quality Sampling every 6 Months for Compliance Report of EC Conditions	Submission of 2 Half Yearly Compliance - Lab Monitoring Report as per CPCB norms	0.00	0.50
	Workers will be provided with Personal Protective Equipment's	Provision of PPE @ Rs. 4000/- per employee with recurring based on wear and tear (say, @ Rs. 1000/- per employee)	0.64	0.16
	Slope stability action plan	Slope stability action plan in the end of fourth year plan period	0.00	0.00
	Health check up for workers will be provisioned	IME & PME Health check up @ Rs. 1000/- per employee	0.00	0.16
	First aid facility will be provided	Provision of 2 Kits per Hectare @ Rs. 2000/-	0.00	0.12
	Mine will have safety precaution	Provision for signages and boards made	0.10	0.02

Activities	Mitigation Measure	Provision for Implementation	Capital	Recurring
	signages, boards.			
	No parking will be provided on the transport routes. Separate provision on the south side of the hill will be made for vehicles /HEMMs. Flaggers will be deployed for traffic management	Parking area with shelter and flags @ Rs. 50,000/- per hectare project and Rs. 10,000/- as maintenance cost	1.52	0.10
	Installation of CCTV cameras in the mines and mine entrance	Camera 4 Nos, DVR, Monitor with internet facility	0.30	0.05
	Implementation as per Mining Plan and ensure safe quarry working	Mines Manager (1st Class / 2nd Class / Mine Foreman) under regulation 34 / 34 (6) of MMR, 1961 and Mining Mate under regulation 116 of MMR,1961 @ 40,000/- for Manager & @ 25,000/- for Foreman / Mate	0.00	7.80
Conservation Measures			NA	NA
		Sub-Total	**2.56**	**8.41**
		TOTAL	**20.37**	**25.53**

Towards EMP measures, **Rs.20.37 Lakhs** is allocated under **capital cost**. Besides, **Rs.25.53 Lakhs per annum** will be spent under **recurring cost**. All the recurring cost of maintenance of pollution control measures, environmental monitoring etc., will be met from revenue and will be spent for the entire lease period.

10.4 CONCLUSION:

A meticulously well planned Environmental Management Plan, with various programme schedules and timely execution objectives, as above, will ensure that the future environmental quality in the area will be maintained within statutory limits. The environmental management strategy as explained above will prove that industrial growth, if properly planned with all environmental concerns and appropriate remedial measures can go a long way to improve life pattern and living conditions of the local community around the project.

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CHAPTER-XI

SUMMARY AND CONCLUSION

CHAPTER 11

SUMMARY & CONCLUSION

11.1 INTRODUCTION:

M/s. Sri Magaveer Mines, Prop. T.A.P.Jayakeerthi proposes to operate a **Rough Stone and Gravel Quarry** over an area of **3.04.00**Ha in Senalur Village, Tindivanam Taluk, Viluppuram District, Tamil Nadu and has initiated action towards obtaining environmental clearance. Proposed Production capacity will be 5,84,175m^3 of Rough stone with annual peak production of 1,19,950m^3 (Year 5) and 48,912m^3 of gravel with annual peak production of 16,544m^3 (Year2) upto the depth of 52m BGL (2m Gravel + 50m Roughstone) for the five years lease period.

Although the individual lease area of this project is less than 5 Ha, the total lease within the 500m radius (Existing + Proposed) works out to be 7.04.00Ha including this proposal is > 5Ha. Hence, this proposal is considered under **Category – B1 (under cluster situation)**. Terms of Reference for this proposal issued by SEIAA, Tamil Nadu vide **TOR Identification No – TO25B0108TN5160551N dated 30.07.2025** as per MoEF&CC notification necessitates preparation of EIA/EMP report and public hearing.

This draft EIA/EMP report is prepared based on standard and additional Terms of Reference issued by SEIAA, Tamil Nadu and is in conformance of the generic structure prescribed by MOEF&CC in their notification of September 2006 and the approved mining plan.

11.1.1 STATUTORY APPROVALS:

Name	Issuing Authority	Status	Letter number	Date	Reference
Precise Area Communication	Assistant Director, Department of Geology & Mining	Received	R.C.No.B/G&M/277/2024	08.04.2025	**Annexure-1**
Mining Plan Approval	Assistant Director, Department of Geology &Mining	Approved	R.C.No.B/G&M/277/2024	15.04.2025	**Annexure-2**
Details of other quarries within 500m radius	Assistant Director, Department of Geology & Mining	Obtained	R.C.No.B/G&M/277/2024	15.04.2025	**Annexure-3**
VAO Letter	VAO	Obtained	--	28.04.2025	**Annexure-4**
Wrd Letter	PWD Department, Villupuram	Obtained	-	25.06.2026	**Annexure-13**

11.1.2 ENVIRONMENTAL CLEARANCE APPLICATION:

Particulars	Details
Terms of Reference	Received from SEIAA, Tamil Nadu vide TOR Identification No – TO25B0108TN5160551N dated 30.07.2025
Baseline Data Collection	Carried out by creative Engineers & Cousultants, **Summer season (Mar - May 2026)**

11.2 SALIENT FEATURES OF THE PROJECT:

Table 11.1: Site Details

Location	Senalur Village, Tindivanam Taluk, Viluppuram District,Tamil Nadu
Survey Nos with Extent	S.F.Nos – Extent: 7/1 – 0.36.00; 7/2 – 0.58.00; 7/3 – 0.16.00; 7/4 – 0.36.00; 7/5 – 0.36.00; 7/6 – 0.58.00; 7/7 – 0.64.00; **Total – 3.04.00** The entire lease area is a Patta Land registered in the name of proprietor T.A.P. Jayakeerthi S/o. Appachi Vide Patta No 341.
Coordinates	**Latitude:**12°13'47.6714" N to12°13'52. 8157" N **Longitude:**79°45'15.9136" E to 79°45'24.0670" E
Toposheet Number	57- P/16
Accessibility	There is an existing road from the lease area leads to Kilsevur Village Road at 140m in Western side of the lease area which is connected to SH-134 (Tindivanam to Marakkanam) road about 3km south of the lease area.
Topography & Drainage	The lease applied area is exhibits Plain topography and the altitude of the area is 68m MSL. First order streams connected to tanks controls the drainage of the area.

Table 11.2: Environment Setting of The Study Area

S.No	PARTICULARS	DETAILS
1	Nearest highway	(SH-134) - Tindivanam– Marakkanam Road - 3.0km - (S) NH-179B - 7.7Km – (NW)
2	Nearest Railway station	Tindivanam – 11.0km – (SW)
3	Nearest Airport	Puducherry – 30.0Km - (SW)
4	Nearest major water bodies	Saram River – 7.9km - (NW)
5	Nearest town/City	Tindivanam – 10.7km - (SW)
6	Nearest villages	Senalur – 850m – (SE) Buderi – 1.6km - (NE) Sevur – 1.4km - (N) Vada kolapakkam – 580m - (SW)
7	Notified Archaeologically important places, Monuments	Nil within 10km radius
8	Environmental sensitive areas, Protected areas as per Wildlife Protection Act, 1972 (Tiger reserve, Elephant reserve, Biospheres, National parks, Wildlife sanctuaries, community reserves and conservation reserves)	Nil within 10km radius
9	Reserved / Protected Forests	Sevur RF – 720m – NW, Kumalumpattu RF – 7.8Km- SE
10	Defence Installations	Nil within 10m radius
11	Seismic Zone	Zone – II (Least Active)
12	Other Industries in the study area	Other than crushers, Roughstone quarries, no other major industries are located in the study area.

Table 11.3: Technical Description

<table>
<tr><th>PARTICULARS</th><th>DETAILS</th></tr>
<tr><td>Geological reserve</td><td>15,27,250 m^3 Roughstone & 61,090 m^3 Gravel</td></tr>
<tr><td>Mineable reserve</td><td>5,84,175m^3 Roughstone & 48,912 m^3Gravel</td></tr>
<tr><td>Method of Mining</td><td>Open cast semi mechanized mining</td></tr>
<tr><td>Year wise Production</td><td>
<table>
<tr><th>Year</th><th>Roughstone (m^3)</th><th>Gravel(m^3)</th></tr>
<tr><td>I</td><td>1,09,000</td><td>16,384</td></tr>
<tr><td>II</td><td>1,18,040</td><td>16,544</td></tr>
<tr><td>III</td><td>1,18,400</td><td>15,984</td></tr>
<tr><td>IV</td><td>1,18,785</td><td>---</td></tr>
<tr><td>V</td><td>1,19,950</td><td>---</td></tr>
<tr><td>Total</td><td>5,84,175</td><td>48,912</td></tr>
</table>
</td></tr>
<tr><td>Waste Generation and Management</td><td>There is no waste generation anticipated in this quarry operation since the entire excavated material will be utilized.</td></tr>
<tr><td>Ultimate Depth</td><td>52 m BGL (2m Gravel + 50m Roughstone) for five years of lease period</td></tr>
<tr><td>Man power</td><td>35 people persons directly and indirectly.</td></tr>
<tr><td>Mode of transport</td><td>By Road</td></tr>
<tr><td>Water requirement and Source</td><td>Water Requirement:9 KLD
<table>
<tr><th>Details</th><th>Quantity (KLD)</th></tr>
<tr><td>Drinking water and Domestic Use</td><td>1.0 KLD</td></tr>
<tr><td>Dust Suppression</td><td>6.0 KLD</td></tr>
<tr><td>Green belt</td><td>2.0 KLD</td></tr>
<tr><td>Total</td><td>9.0KLD</td></tr>
</table>
Source: The required water will be procured from outside agencies initially. Later, water collected in the mine pit will be used to meet the needs.</td></tr>
<tr><td>Power requirement</td><td>All the equipment will be diesel operated. No electricity is needed for mining operation. The minimum power requirement for office, etc will be met from state grid.</td></tr>
<tr><td>Life of the mine</td><td>5 Years</td></tr>
<tr><td>Project cost</td><td>Rs. 77,19,400/- (Including operational + Fixed Asset + EMP cost).</td></tr>
<tr><td>CER</td><td>Rs.3,00,000/-</td></tr>
<tr><td>End Use</td><td>The Gravel will be loaded into tipper and marketed to needy customers on payment of necessary Fees to Government. The roughstone will be excavated and loaded into tipper to the needy buyers for producing crusher aggregates, M Sand.</td></tr>
</table>

11.3 EXISTING ENVIRONMENTAL SCENARIO:

11.3.1 GENERAL:

The studies and data collection have been carried out systematically and meticulously as per relevant IS codes, CPCB and MoEF&CC guidelines and as per approved ToR during **Summer Season (Mar 2026 – May 2026).** For the purpose of this study, the area has been divided into two zones, namely, core and buffer zones. Core zone is considered as the total lease area, while buffer zone encompasses an area of 10 km radius distance from the periphery of core zone.

11.3.2 SOCIO-ECONOMIC STATUS:

The proposed Roughstone and gravel quarry is located in Senalur Village, Tindivanam Taluk, Vilupuram District, Tamil Nadu. Based on 2011 census data, in the 10km radius there are 87 Rural Villages from two Taluks namely Tindivanam and Vanur and one district namely Viluppuram District. The demographic profile of the study area has been provided below:

Table 11.4: Social, Economic and Demographic Profile of the Study Area

Details	Population	Percentage
A. Gender-wise distribution		
Male Population	62444	50.35
Female Population	61588	49.65
Total	**124032**	**100**
B. Caste-wise population distribution		
Scheduled Caste	49862	40.20
Scheduled Tribes	2156	1.74
Other	72014	58.06
Total	**124032**	**100**
C. Literate and Illiterate population		
Literate Males	44725	**36.06**
Literate Females	34251	**27.61**
Total Literate Population	**124032**	**100**
Others Males	17719	**14.29**
Others Females	27337	**22.04**

Details	Population	Percentage
Others Population	**45056**	**36.33**
Total	**124032**	**100**
D. Occupational structure		
Main workers	45856	37.00
Marginal workers	15720	12.70
Total Workers	**61576**	**49.70**
Total Non-workers	**62456**	**50.40**
Total	**124032**	**100**

Further developments in this area with respect to these various facilities has occurred over the years.

11.3.2.1 SAMPLE SURVEY:

Nearby villages were visited for conducting sample Village survey on all socio-economic aspects and requirements of the people. The existing socio-economic scenario is studied and CER activities are also suggested to the proponent. The study details are given in **Para 3.2.4, Chapter – III**.

11.3.3 EXISTING ENVIRONMENTAL QUALITY:

Table 11.5: Baseline Data

A) METEOROLOGICAL DATA			
Season: Summar Season (Mar 2026 to May 2026)			
PARAMETERS	**MINIMUM**	**MAXIMUM**	
Temperature in °C	24.7	42.2	
Humidity in %	35	90	
Wind speed Km/Hr	<1.8	35.6	
Predominant wind direction (From)	SE		
B) AMBIENT AIR QUALITY	**Monitoring Location – 5 locations**		
PARAMETER	**RESULT (µg/m3)**		***LIMIT (µg/m^3)**
Location	**Core Zone**	**Buffer Zone**	
Particulate Matter (Size <10 µm)	53.4 – 66.2	45.9 – 61.3	100
Particulate Matter (Size <2.5 µm)	25.6 – 31.8	22.1 – 29.7	60
Sulphur Dioxide (as SO_2)	5.7 – 8.7	4.3 – 8.4	80
Nitrogen Dioxide (as NO_2)	8.2 – 13.8	7.2 – 12.5	80
Conclusion: The existing Ambient Air Quality levels for PM10, PM2.5, SO2 and NO2, are within the NAAQ standards prescribed CPCB limits of 100 µg/m3, 60 µg/m3, 80 µg/m3 & 80 µg/m3. The CO values in all the locations were found to be below detectable limit. Silica values in the study area are found to be			

below detectable limit. (Detection limit – 0.05 mg/m3)

C) WATER QUALITY	**Monitoring Location – 5 locations**	
PARAMETER	**Result**	***LIMIT (µg/m3)**
pH at 25 ˚C	7.13 – 7.62	**6.5-8.5**
Total Dissolved Solids, mg/L	252 – 430	**2000**
Chloride as Cl-, mg/L	70.5 – 156	**1000**
Total Hardness (as CaCO3), mg/L	182 – 254	**600**
Total Alkalinity (as CaCO3), mg/L	135– 223	**600**
Sulphates as SO42-, mg/L	20.5 – 44.8	**400**
Iron as Fe, mg/L	0.02 – 0.06	**0.3**
Nitrate as NO3, mg/L	2.31 – 3.26	**45**
Fluoride as F, mg/L	0.32 – 0.46	**1.5**

Conclusion: The water quality of ground water is found to be within the prescribed Permissible limits of IS: 10500 Norms in the absence of an alternative source as per Drinking Water Specifications.

D) NOISE LEVELS	**Monitoring Location - 5 locations**		
PARAMETER	**RESULT dB(A)**		***LIMIT (µg/m3)**
	Day Equivalent	**Night Equivalent**	
Core Zone	51.6	39.8	**90**
Buffer Zone	47.7 – 48.9	36.9 – 42.6	**Day Equivalent - 55dB(A), Night Equivalent - 45dB(A)**

*Permissible noise for industrial workers as laid down by CPCB (at 8 hrs Exposure Time). While comparing with the MoEF&CC Norms, the monitored ambient noise levels are generally within the limit values.

E) SOIL QUALITY	**Monitoring Location – 5 locations**
PARAMETER	**Range of values**
pH	6.69 – 7.65
Electrical Conductivity (µmho/cm)	90.7-105.2
Organic matter (%)	2.24-2.97
Total Nitrogen (mg/kg)	556-925
Phosphorus (µg/kg)	1.3-2.5
Sodium (mg/kg)	668-935
Potassium (mg/kg)	458-652
Soil is of Clay Loam type.	

F) LAND EVIRONMENT:

For the present study on land use pattern in the study area, remote sensing satellite data have been used. The area estimated of land use categories around the 10km buffer zone is provided below:

Table 11.6: Land Use in 10Km Buffer Zone

S.No	Landuse Feature	Area (Sq.Km)	Percentage
1	Agriculture / Plantation	51.81	16.12
2	Fallow Land	187.15	58.24
3	Land With Scrub	47.98	14.93
4	Land Without Scrub	3.12	0.97
5	Water bodies	5.72	1.78
6	Mining Area	7.06	2.20
7	Settlement	18.50	5.76
	Total	321.35	100

From the above table it is seen that 58.24% of the buffer area is classified under fallow land, 16.12 % of Agriculture/ Plantation land, 14.93 % constitutes land with scrub, 0.97 % constitutes land without scrub and the balance falls under other land use categories.

G) BIOLOGICAL ENVIRONMENT:

Flora: The proposed lease area is a non forest, private land. exposed with rock. The lease area is mostly barren with patches of shrubs and thorny bushes of Prosopis juliflora. The detailed list of plants found in the core zone are given in Table no – 3.23.

Study area is dominated with coconut and casurina, coco nut & Palm trees (Borassus flabellifer), . Besides, other species like Albizia lebbeck, Acacia auriculiformis, Prosopis juliflora, Sygygium cumuni, Azadirachta indica, etc. The detailed list of plants found in the Buffer zone is given in Table no – 3.24.

Fauna: There is no Wild Life Sanctuary or National Park within the study area of 10 km. Domesticated animals are commonly found. No wild mammalian species was directly sighted during the field survey. The list of fauna within the study area is given in Table No – 3.25 **.**

H) HYDROLOGICAL STUDY:

Drainage of the area is controlled by first & second order streams connected to tanks There are no streams, canals or water bodies in the lease area. A Seasonal drainage is located north of the lease area for which a Safety distance of 10m is left. It is first order stream and more of a rainwater carrying channel. The channel on the western side of the lease area drains water from the north western hilly terrain. These streams are ephemeral in nature & It remains dry for most of the season. During monsoon season the rainwater drains through these drainage channel

confluences in the eri more than 200m east of the lease area. There are no perennial water course or river in the study area. The drainage map prepared from the survey of India topographic maps shows the presence of few streams running in a dendritic pattern. These are mostly rainwater drains and It remains dry for most of the year.

In the study area, the shallow aquifer is developed through dug wells and deeper aquifer through tube wells. Based on the well inventory of the nearby wells & borewells, it is observed that post monsoon rains water level in wells are observed at shallow level where as in summer it reaches to bottom of the well or dry in case of some wells. Occurrence of wells are primarily observed in the northern side of the lease area where as in the southern side, only deep bore wells are found. This may be due to dominance of geologically harder rocky charnokite type of rock formation in the southern side. The observed borewell are of 500 to 800 ft depth. The study indicates only few are productive with moderate yield, while the remaining bore wells are dry to poor yield. The groundwater occurrence is discontinuous and controlled by fractures at deeper levels. Water levels ranging from 65 m to 70 m suggest deeper aquifer conditions. The overall hydrogeological condition indicates moderate groundwater potential with localized dry zones."

.Direct rainfall falling into the mine pit during monsoon season and intermittent seepage from phreatic top layer if any will be collected in the bottom of the mine pit and gainfully used for Greenbelt development, Dust suppression etc..

11.4 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES:

11.4.1 GENERAL:

In this project Open Cast semi-mechanized mining will be carried out to quarry Rough Stone & Gravel. The identified impacts due to this mine during mining and associated activities have been studied in relation to various environmental components like Air, water, noise, vibration, land, transport etc.

11.4.2 AIR ENVIRONMENT:

The principal sources of air pollution due to mining and allied activities in the area will be dust generation in the mine due to various activities such as excavation of material, movement of

HEMM, loading, unloading and transportation operations.. Besides, Gas emission also occurs as a result of emission of SO2, NOx, CO etc., from diesel driven mining equipment, compressors, generator sets, etc. The following measures will be adopted to control impact on the air quality due to mining operations in the lease area:

Table 11.7: Mitigation Measures – Air Environment

S.No	Activity	Mitigation Measures
1	Drilling	Usage of Drill bits in good condition
		Covering of drill holes with wet cloth
		Usage of sharp drill bits for drilling of holes.
		Provision of dust filters / mask to workers working at highly dust prone and affected areas.
2	Blasting	Well-designed blasting parameter, effective stemming to achieve optimum breakage occurs without generating fines.
		Use of appropriate explosives for blasting and avoiding overcharging of blast holes.
		Avoiding blasting during high wind periods where the fine dust is carried out away easily affecting the ambient air quality.
		Use of controlled blasting techniques with Nonel to keep the dust generation, noise as well as vibration level within the prescribed limits.
3	Excavation and Loading	Proper maintenance of HEMM
		Enclosures for operator cabin.
		Imparting sufficient training to operators on safety and environmental parameters.
		Proper maintenance of hauling equipment.
		Avoiding overloading of dumpers.
4	Transportation	Regular wetting of transport road using mobile water tanker.
		Proper maintenance of haul road and other roads
		Setting up of tyre wash facility in the transport road.
		Avoiding overloading of tippers
		Covering of loaded tippers with tarpaulins during transportation
		Vehicular emissions will be controlled through regular and proper preventive maintenance schedules and emissions tests are done with diesel smoke meter equipment to ensure emission values.
5	Others	Development of greenbelt / barriers around mine in the safety zone and carrying out plantation within the lease area.

Due to adoption of all these measures, no major impact on air quality is envisaged due to this proposed opencast mining operation.

The impact on air quality due to the proposed project is estimated using AERMOD View Gaussian Plume Air Dispersion Model developed by Lakes Environmental Software which is based on steady state Gaussian plume dispersion. Ground Level Concentration (GLC) have been computed using hourly meteorological data for particulate matter PM10 and PM2.5.

The resultant added concentrations with baseline figures even at worst scenario, show that the values of ambient air quality with respect to PM10 are in the range of 53.7 μg/m3 to 70.2 μg/m3 and with respect to PM2.5 are in the range of 26.3 μg/m3 to 32.8 μg/m3 which are within the statutory limits in each case.

For preservation of environment in this mine strict enforcement of management schemes will be undertaken for taking corrective actions, as needed. By adopting the effective implementation of all the mitigative measures, no adverse impact on Air quality due to the mining operation in this lease area is expected.

11.4.3 WATER ENVIRONMENT:

Water Requirement: The total water requirement for this project will be 9.0 KLD comprising 1.0 KLD for drinking water and domestic use, 6.0 KLD for dust suppression and 2.0 KLD for greenbelt. The water will be sourced initially from outside agencies. Later the rainwater collected in the mine pit sump will be used.

The activity / source of pollution, its impact / c0onsequence, proposed control measures are explained below:

Table 11.8: Mitigation Measures – Water Pollution

S.No	Source	Consequence	Mitigation Measures
A	Domestic use	Generation of waste water	The domestic sewage to be generated from the project will be collected in septic tank with soak pits.
B	Rainfall	Runoff from waste dump and stack	Towards surface runoff management, a garland drain of length 650m will be constructed around the quarry and will be connected to settling pond on the NW corner with silt traps. The supernatant clear water from the settling pond will be flow to the downstream users.
		Rainwater Harvesting	The rain water falling in the quarry will be harvested in the sump at the lowest level of the quarry. This sump will act as a settling pond to prevent solids escaping along with discharge, before outlet. etc.

C	Drainage Course	Disturbance to drainage course	There are no streams, canals or water bodies in the lease area. A Seasonal drainage is located north of the lease area for which a Safety distance of 10m is left. It is first order stream and more of a rainwater carrying channel. The channel on the western side of the lease area drains water from the north western hilly terrain. These streams are ephemeral in nature & It remains dry for most of the season. During monsoon season the rainwater drains through these drainage channel confluences in the eri more than 200m east of the lease area. By proper surface runoff management, the rainwater from the lease periphery will be channelized through the peripheral garland drain all around the lease area and then through settling pond to be located in the northern side of the lease area. Supernatant clear water will be discharged to the drainage on the northern side ensuring proper flow of rainwater to the connecting eri. The lease periphery will be fenced and protective earthen embankment of at least 2m height will be created in the safety zone on the northern & eastern side so that the drainage in the north and the Government land in the east of the lease area is not disturbed This being a mining project, there will not be any generation of process effluent or discharge any effluent into the water bodies. No major impact is envisaged on the nearby water bodies due to project operations

Generation of mine pit water: Study of the area shows that the sub-surface formations are compact with less intergranular porosity and fractures leading to less permeability and transmissivity values and as such the ground water level in this area is deep from surface. Subsequently hard and massive formations of rock are found. Based on the available information and the geophysical investigations it is observed that the study area is of poor to moderate groundwater potential. Besides, the mining area consists of hard compact rock, no major water seepage within the mine is expected. The ultimate pit depth of mining will be 52m BGL. The ground water table in the area is about 65 - 70 m BGL. Since the mining operation will be above this level, the ground water intersection in not envisaged and ground water will not be affected appreciably due to the quarrying operation. There is no water seepage noticed in to the already quarried deeper pits situated nearby the proposed quarry area. Hence, the quarrying rough stone up to the proposed depth may not have any adverse impact in the area over ground water conditions.

As mentioned earlier, the rainfall will be collected in the mine floor sump and advantageously used. Excess water if any in the sump will be pumped to settling pond for downstream users.

11.4.4 NOISE ENVIRONMENT:

Anticipated noise levels resulting from operation of the various machineries like excavator, tippers, drill have been computed using point source model. Computation of cumulative noise levels at the nearby villages is made based on the assumption that there are no attenuation paths between the source and the boundary. From the studies, it is found that the predicted Noise Levels due to mining operations at the periphery of the mine lease itself will be less even without considering any attenuation factor. However, practically there will be attenuation due to vegetation etc., and as such there will not be any adverse noise propagation outside the lease boundary. Since the habitations are also away the effect of noise due to mining operations will not be felt at all in the surrounding village. Hence, by implementing the following mitigative measures for noise control, the impact on noise levels will continue to be insignificant:

- Planting rows of native trees along roads, around mine area and other noise generating centres to act as acoustic barriers.
- Sound proof operator's cabin for equipments like shovel, tippers, etc.
- Proper and regular maintenance of equipments may lead to less noise generation.
- Providing in-built mechanism for reducing sound emissions.
- Providing earplugs to workers exposed to higher noise level.
- Conducting regular health check-up of workers including Audiometry test for the workers engaged in noise prone area.
- Displaying the noise level status of operational machinery on the machines to know the extent of noise level and to control the time to which the worker is exposed to higher noise levels.
- Provision of green net in lease periphery

Further green belt and afforestation will be planned and executed to abate noise and dust propagation in the area.

11.4.5. VIBRATION:

Vibrations due to blasting may cause damage to nearby structures, if appropriate control measures are not adopted. Since the production from this lease is very low, the no of holes and the quantum of explosives to be used for blasting will be negligible.

The following control measures will be planned to reduce ground vibratory conditions to sustainable statutory limits:

1) Carrying out controlled blasting using Nonel delay detonator.
2) Optimum design for burden and spacing.
3) Reducing explosive charge per delay to minimum.
4) The peak particle velocity (PPV) of ground vibration will be kept very low through optimally controlled blasting techniques, after necessary field trials.
5) To contain fly rocks, stemming column to be less than burden of the hole. Blasting area will also be muffled, if necessary, to stop fly rocks propagation.
6) Blasting will not be carried out when strong winds are. Blasting will be done during midday time.
7) Controlled blasting to avoid tension cracks which may endanger the stability of bench slopes in the mine.
8) Proper care and supervision during blasting by a competent and experienced person to be carried out.
9) Having different blasting time for the leases in the cluster.

By adoption of above measures, it will be ensured that the ground level vibration due to blasting are maintained within the limits prescribed by DGMS, Dhanbad. Elaborate details regarding the same are provided under section 4.4.2, Chapter-IV.

11.4.6 IMPACT ON LAND ENVIRONMENT:

The entire lease area of 3.04.00Ha is patta land owned by Proponent. There is no waste generation anticipated in this quarry operation since the entire excavated material will be

utilized. Hence, there is no external overburden dump involved. Plantation will be carried out in this safety zone area. In the post mining stage, the mine pit area of 2.37.30 Ha will be left as a water body. Plantation will be carried out over 0.62.70 Ha of safety zone and 0.02.00Ha will be utilized for road and 0.02.00Ha used for infrastructure will be reclaimed. Entire mined out area will be properly fenced to prevent inadvertent entry of men and animals. In the post mining stage, the rainwater harvested in the mined-out void shall be utilized.

11.4.7 BIOLOGICAL ENVIRONMENT:

The lease area is mostly barren with patches of shrubs and thorny bushes of Prosopis juliflora. Mining operation will be carried out ensuring necessary mitigative measures like dust suppression, proper maintenance of equipment's, greenbelt and plantation etc., to prevent dust generation & any further impact on the vegetation. In the safety zone within the lease area and in the nearby areas including mineral transport road, plantation of local trees will be carried out about 550 trees will be planted in and around the lease area.

11.4.8 SOCIO ECONOMIC ENVIRONMENT:

The entire lease area is a private patta land. There are no habitations or hutments in the core zone area and as such no rehabilitation or resettlement is involved. The mining operations in the proposed quarry will employ about 35 people. Besides through allied opportunities in logistics, trading, repairing works etc. good employment potential will arise in this area, which will provide raising income levels and standards of living in the area through various service-related activities connected with the project operations.

Towards the socio-economic development of the surrounding area, the proponent has earmarked an amount of Rs.5.0 Lakhs under Corporate Environmental Responsibility. The activities identified under CER will be implemented in the nearby Government school. In consultation with the locals based on the need & priority it will be implemented.

11.4.9 OCCUPATIONAL HEALTH AND SAFETY ASPECTS:

In order to ensure minimisation of occupational health and safety problems in the project operation, the following preventive remedial measures will be effectively exercised in the project operations, so as to comply with applicable standards.

- Medical examination of workers at pre-entry level stage of workers, etc., by qualified doctors, with periodical examination of all workers/staff at least once a year, as per DGMS circulars.
- Regular awareness campaigns amongst staff and workers
- Staff will be provided with PPE to guard against excess noise levels, Dust generation and inhalation, etc., as per standards prescribed by DGMS.

11.4.10 IMPACT ON LOCAL LOGISTICAL SYSTEM DUE TO PROJECT:

From this proposed quarry the entire output will be transported to the consumers. There will be just 6 trip per hour of additional truck traffic. The transport route can absorb this traffic due to this project. The following mitigative measures are suggested for mitigation of adverse impacts on the logistical aspect of the project:

- ❖ Water sprinkling on Rough stone in the transport vehicles before transporting, so that no dust nuisance during transport will arise.
- ❖ Proper maintenance of transport roads
- ❖ Proper maintenance of transport vehicles.
- ❖ Avoiding overloading of material
- ❖ Covering of loaded vehicles with tarpaulins sheet if warranted.

11.4.11 WASTE MANAGEMENT:

Since the entire mined out material will be used there will not be any solid waste generation from this project. There is no process effluent generation from this mine. Hence no liquid waste is generated.

The hazardous waste generated in this mine will be stored in a separate storage area with impervious containers for waste oil, oil contaminated clothes, used lead acid batteries, scraps, tyre storage etc. It will be disposed through authorized recyclers or re-processors periodically. The hazardous wastes will be transported in accordance with the provisions of rules. By effective implementation of above said mitigation measures no major impact due to Hazardous waste is expected.

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

11.5 ENVIRONMENTAL MONITORING PROGRAMME:

The monitoring schedules are planned for systematic study of various pollution levels with respect to air and water qualities, noise levels, etc. to ensure that they conform to the standards laid down by Environmental Protection Act and various statutory Limits.

Monitoring location and the frequency of monitoring shall be suitably modified in consultation with the nodal agency as per the actual requirements and prevailing conditions of the mine and environmental factors, as dictated from time to time, depending on the prevailing pollution levels, if required.

Towards EMP measures, Rs.20.37 Lakhs is allocated under capital cost. Besides, Rs.25.53 Lakhs per annum will be spent under recurring cost. All the recurring cost of maintenance of pollution control measures, environmental monitoring etc., will be met from revenue and will be spent for the entire lease period. Further details of the capital and recurring cost of environmental management has been provided in in Table No. 10.2, Chapter-X.

11.6 ADDITIONAL STUDIES:

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

1. Public consultation of the project as per MoEF&CC mandates.
2. Risk Assessment
3. R&R Plan
4. Mine closure plan

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

project proponent and officials concerned will be recorded and incorporated in the EIA/EMP report for approval by SEIAA, Tamil Nadu.

Elaborate description in respect of Risk Assessment and Mine closure plan are given in **Chapter - VII**.

Although the individual lease area of this project is less than 5 Ha, the other existing and proposed quarries within the 500m radius along with this subject project works out to 7.04.0Ha which is >5 Ha. As such cluster situation applicable and this EMP is prepared. The baseline monitoring carried out for this project reflects the cumulative impact of the existing quarry. For the proposed quarries, a cumulative impact study has been carried out.

Baseline data given in Chapter – III reflects the existing operations in the area. Cumulative impact on various environmental attributes due to the present proposed project and other proposed projects are studied. For this purpose, the impact of the present proposal as given in Chapter – IV of this report and for other proposals from their respective report are correlated and given in para 7.6 of Chapter – VII. From the study it is observed that due to adoption of various mitigative measures there will not be adverse impact on cumulative basis also.

11.7 CONCLUSION:

Systematic mining and ensuring adoption of various mitigative measures given in the report will ensure that the future environmental quality in the area will be maintained within statutory limits. The environmental management strategy as explained above will prove that industrial growth, if properly planned with all environmental concerns and appropriate remedial measures can benefit this region in the fields of potential employment opportunities, improved per capita income for local people, improved social welfare facilities etc. in its own way and also revenue to Government through royalty, taxes etc. Besides, it will meet the raw material requirement of the construction industry also.

* * * * * * * * *

CHAPTER - XII

DISCLOSURE OF CONSULTANTS ENGAGED

CHAPTER 12

DISCLOSURE OF CONSULTANTS ENGAGED

Creative Engineers & Consultants, Chennai is an **NABL** accredited testing laboratory and **NABET** accredited EIA consultancy. Established over 25 years ago, this company has steadily made good strides in the environmental impact assessment fields, and is also one of the first companies to get accredited by NABET as an Accredited Consultant Organization as early as 2011. Creative Engineers & Consultants has to its credit, successful completion of numerous EIA/EMP reports, grant of environmental clearances and periodic environmental monitoring works. Presently, the company has been accredited by NABET as a 'Category-A' organization for the sectors of Mining of Minerals (opencast only), Thermal Power Plants, Mineral Beneficiation and Cement Plants with the accreditation valid upto 23.12.2026. The team of experienced professionals that are a part of this organization has been detailed below.

Figure 12.1: Disclosure of consultants engaged

EXPERT NAME	QUALIFICATION	POSITION	EXPERIENCE
Mr. P. Giri	AMIE (Mining)	EIA Coordinator & Functional area Expert (AP,NV,HW),	Over 30 years of experience in EIA/EMP report, mine plan preparation, including modeling
Mr. K. Shankar	M.Sc (Geology). PGMEMG	Functional area Expert (GEO, HG, SHW, RH) & IBM approved RQP.	Over 25 years of experience in EIA/EMP report, Mine plan, hydrological report preparation
Mr.S.S.Rajendran	M.Sc. (Pharmaceutical Chemistry)	Lab head	More than 9 years of experience in Environmental laboratory.
Mr. R. Babu raj	M.A (Sociology), B.Com(Y.L&Cost), ITI, Advance Diploma in Computer application	Functional Area Expert (Socio Economy)	Over 15 years of experience in dispersion modeling, computer applications. Specialized in CAD and computer software, applications. 6years experience in the field of socio economy and its allied report preparation.
Mr. B. Govindaraman	B.Sc.	Field technician	Over 20 years of field monitoring & data collection experience
Dr.B.Swamynathan	M.Sc (Ecology & Environmental Sciences), M.Phill (Botany), Ph.D (Ecology &	EIA Coordinator & Functional Area Expert (EB,SC,LU&AP)	More than 12 years of experience in Environment and allied fields.

EXPERT NAME	QUALIFICATION	POSITION	EXPERIENCE
	Environmental Sciences)		
Ms. G. Sandhya	B. Tech Chemical Engineering M.Tech Environmental Engineering	EIA Coordinator & Functional Area Expert (AQ&WP)	Over 6 years experience in preparation of EIA/EMP reports
Mr. N.Suresh	M.Sc (Geology).	Functional area Expert (GEO, HG,).	Over 10 years of experience in Mine plan, hydrological report preparation.

TM- EC					
S. No	**Name of TM (EC)**	**Sector(s) proposed**	**Approved (to work under)**	**Period of involvement**	**Type of work Signature**
1.	Baburaj R	1	P.GIRI	Period:From Mar 26.	Associated with EIA Coordinator in overall preparation of EIA/EMP report.

TM- FAE:					
S. No	Name of TM (FAE)	Functional Area	Approved FAE (to work under)	Period of involvement	Type of work
1	P Giri	RH	Shankar	Period: From Mar 26	Associated with Experts in Identified Major risks involved in the project Mitigation measures suggested to avoid risk. Preparation of onsite and offsite emergency management plan

* * * * * * * *

ANNEXURES

Annexure - 1

Rc.No.B/G&M/277/2024
Dated:08.04.2025

O/o. Assistant Director
Geology and Mining,
Viluppuram.

17 APR 2025
விழுப்புரம்

Precise Area Communication Notice

Sub: Mines and Minerals – Minor Mineral – Rough Stone & Gravel - Viluppuram District – Tindivanam Taluk - Senalur Village – Patta land in S.F.Nos. 7/1 - 0.36.0, 7/2 - 0.58.0, 7/3 - 0.16.0, 7/4 - 0.36.0, 7/5 - 0.36.0, 7/6 - 0.58.0 & 7/7 - 0.64.0 hectares over an extent of 3.04.0 Hectares - quarry lease application preferred by applicant M/s. Sri Magaveer Mines Prop. T.A.P. Jayakeerthi - Precise Area Communication – direct to submit Mining Plan for approval and Clearance from SEIAA - Directed – reg.

Ref:
1. Application dated 27.11.2024 from M/s. Sri Magaveer Mines Prop. T.A.P. Jayakeerthi, Senalur Village, Tindivanam Taluk, Viluppuram District.
2. This office letter in Rc.No.B/G&M/277/2024, dated 03.12.2024 addressed to the Sub Collector, Tindivanam
3. The Sub Collector, Tindivanam letter Rc.No. A3/266/2025, Dated: 20.03.2025
4. The Assistant Geologist, Special Deputy Tahsildar & Spl. Revenue Inspector, O/o The Assistant Director, Geology and Mining, Viluppuram Joint Inspection Dated: 25.03.2025
5. The Commissioner of Geology and Mining Chennai Lr.No. 3868/LC/2012, dated: 19.11.2012.
6. The Chairman, State Environment Impact Assessment Authority, Chennai Lr No SEIAA-TN-/ Minor minerals/2012 dated 17.09.2012.
7. Representation by M/s. Sri Magaveer Mines Pro. T.A.P. Jayakeerthi, Senalur Village, Tindivanam Taluk, Viluppuram District dated: 08.04.2025

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Kind attention is invited to the reference cited above.

17 APR 2025

2) One M/s. Sri Magaveer Mines Prop. T.A.P. Jayakeerthi, Tindivanam has preferred an application to grant of quarry lease for mineral Rough Stone & Gravel comprised in S.F.Nos. 7/1 - 0.36.0, 7/2 - 0.58.0, 7/3 - 0.16.0, 7/4 - 0.36.0, 7/5 - 0.36.0, 7/6 - 0.58.0 & 7/7 - 0.64.0 hectares over an extent of 3.04.0 Hectares in Senalur Village, Tindivanam Taluk, Viluppuram District for a period of 10 years under the provisions of Rule 19 (1) of Tamil Nadu Minor Mineral Concession Rules 1959.

3) The Sub Collector, Tindivanam and the Assistant Geologist, Office of the Assistant Director, Geology and Mining Viluppuram have inspected the lease applied area and recommended for the grant of quarry lease subject to the terms and conditions prescribed in Act and Rules in force, in addition to the following conditions.

i. The applicant should leave a safety distance of 7.5 mts to the surrounding patta lands.
ii. Quarrying should be restricted to the lease granted area only.
iii. The applicant should not cause any hindrance to the surrounding Patta lands and barbed wire fencing should be erected all along the boundary of the lease granted area before the commencement of quarrying operation.
iv. The applicant should not cause any hindrance to the Northern side of water channel (odai) and water catchment area.
v. The applicant has to obtain Environmental Clearance from State Level Environmental Impact Assessment Authority, Chennai, Tamil Nadu before grant of quarry lease.
vi. The applicant should strictly adhere to the existing Act and Rules.

In the reference 7th cited, Applicant M/s. Sri Magaveer Mines Pro. T.A.P. Jayakeerthi, Tindivanam has requested to reduce the mining lease period in 05 years for personal reasons.

Based on the recommendations of the Sub Collector, Tindivanam, Assistant Geologist, Geology and Mining, Viluppuram and Applicant requisition deeply analyzed it may be considered for the grant

of quarry lease application of the applicant M/s. Sri Magaveer Mines Prop. T.A.P. Jayakeerthi, Tindivanam to quarry the mineral Rough Stone & Gravel over an extent of 3.04.0 Hects of patta lands in S.F.Nos. 7/1 - 0.36.0, 7/2 - 0.58.0, 7/3 - 0.16.0, 7/4 - 0.36.0, 7/5 - 0.36.0, 7/6 - 0.58.0 & 7/7 - 0.64.0 over an extent of 3.04.0 Hects in Senaur Village, Tindivanam Taluk, Viluppuram District for a period of 05 years subject to the submission of Mining Plan prepared by RQP and Environmental Clearance from the State Level Environment Impact Assessment Authority as ordered under Rule 41 & 42 of Tamil Nadu Minor Mineral Concession Rule 1959, amended vide G.O. (Ms).No.79, Industries (MMC1) Department dated 06.04.2015.

Hence, the applicant M/s. Sri Magaveer Mines Prop. T.A.P. Jayakeerthi, Tindivanam is hereby directed to submit the Mining Plan prepared by the Recognised Qualified person (R.Q.P), for approval of Assistant Director (Mines) and Environmental Clearance from the State Level Environment Impact Assessment Authority for the grant of lease as stipulated in the MoEF memorandum.

8/4/25

Assistant Director (i/c)
Geology and Mining,
Viluppuram.

08.04.25

To
M/s. Sri Magaveer Mines
Prop. T.A.P. Jayakeerthi,
Senalur Village,
Tindivanam Taluk,
Viluppuram District - 604 101.

Annexure - 2

From

Thiru.S.Ramesh kumar, M.Sc.,
Assistant Director (I/C),
Geology and Mining,
Villupuram.

To

M/s.Sri Magaveer Mines,
Prop.T.A.P.Jayakeerthi,
Semalur Village,
Tindivanam Taluk,
Villupuram District – 604 101.

Rc.No: B/GeM/277/2024 Dated 15.04.2025

Sub: Mines and Minerals – Minor Mineral – Rough Stone & Gravel - Villupuram District – Tindivanam Taluk – Semalur Village – Patta land in S.F.Nos. 7/1 – 0.36.0, 7/2 – 0.58.0, 7/3 – 0.16.0, 7/4 – 0.36.0, 7/5 – 0.36.0, 7/6 – 0.58.0 & 7/7 – 0.64.0 over an extent of 3.04.0 Hectares – Quarry lease application preferred by M/s. Sri magaveer Mines Prop.T.A.P.Jayakeerthi – Precise area communicated – Submission of mining plan for approval – Approved – Regarding.

Ref: 1. Application dated 27.11.2024 from M/s.Sri Magaveer Mines, Prop.T.A.P.Jayakeerthi, Semalur Village, Tindivanam Taluk, Villupuram District – 604 101.
2. Assistant Director, Geology and Mining, Villupuram Letter Rc.No.B/GeM/277/2024 Dated 08.04.2025.
3. Mining Plan submitted by M/s. Sri Magaveer Mines,Prop.T.A.P.Jayakeerthi Dated .04.2025.

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In the reference 2nd cited, it has been communicated that over an extent of 3.04.0 hectares of patta lands in S.F.Nos. 7/1 – 0.36.0, 7/2 – 0.58.0, 7/3 – 0.16.0, 7/4 – 0.36.0, 7/5 – 0.36.0, 7/6 – 0.58.0 & 7/7 – 0.64.0 of Semalur Village, Tindivanam Taluk, Villupuram District as precise area for grant of quarry lease for quarrying rough stone and gravel for a period of 5 years to M/s. Sri Magaveer Mines,Prop.T.A.P.Jayakeerthi with a direction to produce an Mining Plan for approval and to obtain Environment Clearance in respect of the precise area as per Rule 41 of Tamil Nadu Minor Mineral Concession Rules, 1959.

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

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

A4

i) The Boundary Co-Ordinates (GPS readings) for the entire boundary pillars (9 Nos.) of the area have been incorporated and shown in the mining plan.

ii) All the conditions stipulated in the Assistant Director (I/c), Geology and Mining, Viluppuram letter Rc.No.II/OAM/277/2024 dated 08.04.2025.

iii) The available geological and minable reserves as follows.

Depth in Mts.	Geological reserves in Cu.m.	Minable Reserves in Cu.m.
52 m. (2 m. Gravel and 50 m. Rough stone)	Rough stone : 1527250 Gravel : 67090	Rough stone : 384375 Gravel : 43912

4. In the light of the above, in exercise of the powers conferred under Rule 41 (7) of Tamil Nadu Minor Mineral Concession Rules, 1959 the mining plan in respect of Rough stone and gravel quarry in M/s. Sri Magaveer Mines, Pwp T.A.P.Jayakeerthi is approved subject to the following conditions.

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

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

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

Encl: Two copies of Approved Mining Plan.

Assistant Director (I/c),
Dept. of Geology and Mining
Viluppuram

Copy to:

The Commissioner of Geology and Mining, Chennai-32.

A5

Annexure - 3

From

Thiru.S.Ramasivakumar, M.Sc.,
Assistant Director (i/c),
Geology and Mining,
Villupuram.

To

M/s.Sri Muppuni Mines,
Prop.T.A.P.Jayaseerthi,
Semakur Village,
Tindivanam Taluk,
Villupuram District – 604 102.

Rc.No. 8/0488/377/2024 Dated 15.04.2025

Sub: Mines and Minerals – Minor Mineral – Rough Stone & Gravel – Villupuram District – Tindivanam Taluk – Semakur Village – Patta land in S.F Nos. 7/1 – 0.36.0, 7/2 – 0.58.0, 7/3 – 0.18.0, 7/4 – 0.36.0, 7/5 – 0.36.0, 7/6 – 0.58.0 & 7/7 – 0.04.0 over an extent of 3.04.0 Hectares over an extent of 3.04.0 Hectares – Quarry lease application preferred by M/s.Sri Muppuni Mines, Prop.T.A.P.Jayaseerthi – Details of quarries situated within 500 metres radial distance – furnished – Regarding.

Ref: 1. Application dated 27.11.2024 from M/s.Sri Muppuni Mines, Prop.T.A.P.Jayaseerthi, Semakur Village, Tindivanam Taluk, Villupuram District – 604 102.
2. Representation received from M/s.Sri Muppuni Mines, Prop.T.A.P.Jayaseerthi Dated: 04.2025

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With reference to your letter in the reference 2nd cited, the details of existing, proposed and abandoned quarries located within 500 mts radial distance from the periphery of the proposed Rough stone and Gravel quarry over an extent of 3.04.0 hectares of patta lands in S.F Nos. 7/1 – 0.36.0, 7/2 – 0.58.0, 7/3 – 0.18.0, 7/4 – 0.36.0, 7/5 – 0.36.0, 7/6 – 0.58.0 & 7/7 – 0.04.0 of Semakur Village, Tindivanam Taluk – Villupuram District are as follows.

1. Existing quarries:

Sl. No.	Name of the lessee / permit holder	Name of the Mineral	Taluk & Village	S.F. Nos.	Extent (in hects)	Lease period	Remark
1.	M/s.Karpaga Vinayagaa Mines, No.5A, 8312, Kumbar Street, Mayanallai Nagar, Chinnasalem – 606 202.	Rough stone & Gravel	Tindivanam Taluk & Kezhsevur Village	7/1, 7/2, 7/3, 7/4, 7/5, 7/6 & 7/7	3.03.0 0.97.0 **4.00.0**	26.12.2024 to 25.12.2034	

A6

II. Proposed Area :

Sl. No.	Name of the lessee / permit holder	Name of the Mineral	Taluk & Village	S.F. Nos.	Extent (in hectai	Remarks
1.	M/s Sri Maguveer Mines, Prop.T.A.P.Jayaleerthi, Seralliar Village, Tindivanam Taluk, Villupuram District - 604 102.	Rough stone & Gravel	Tindivanam & Seralliar	7/1 7/2 7/3 7/4 7/5 7/6 7/7 **3,04.0**	0.36.0 0.58.0. 0.16.0. 0.36.0. 0.36.0. 0.58.0 0.64.0	-

III. Abandoned quarries :

Sl. No.	Name of the lessee / permit holder	Name of the Mineral	Taluk & Village	S.F. Nos.	Extent (in hectai)	Lease period	Remarks
1.	Tmt. A.Kasturi W/o.Arivu, 64, Appasamy Nagar, Tindivanam.	Rough stone	Tindivanam & Kachesur	76/2	0.99.0	23.04.2007 to 22.04.2012	-
2.	F.Srinivasan, S/o. Pattabi Reddiyar, No.142, Mosque Street, C.Pallavaram, Chennai.	Rough stone	Tindivanam & Seralur	9/1A 4/2A1 9/2B1 (P) **1,61.5**	0.82.0 0.99.5 0.29.0 0.20.5	13.11.2015 to 12.11.2020	-

Assistant Director (I/c),
Dept. of Geology and Mining,
Villupuram.

A7

விருப்பம் மனுதாரர் நிலம் வடக்கு திருவேங்கி (கி)
கிராம நிர்வாக அலுவலர் மூலம் கொண்டு வரவில்லை.

நிலம் வடக்கு அரசு கொடுத்தின் புல எண் 7/1, 7/2, 7/3, 7/4, 7/5, 7/6, (ப) 7/7. 3.88.00 ஏரியில் பட்டா எண்-341 மனுதாரர் 5/10 அனுபவித்து வருகிறார் என்பதை சான்று வழங்கி உள்ளது. சாதாரண மனுவில் மனுதாரர் கோரிக்கை மனுவை அனுப்பி வைத்தார் விருப்பம் மனுதாரர் வடக்கு No. 37 E அண்ணாமலை என்பவர் மனுவில் நிலம் எங்கள் மனு வைத்துள்ளார் எனவே மனுவை மீண்டும் உரிய மேல் நடவடிக்கை மேற்கொள்ள அனுப்பி வைத்தார் விருப்பம் மனுதாரர் மனுவில் மனுதாரர் நிலம் வடக்கு திருவேங்கி கிராம

M/s. Sri Magaveer Mines over an extent of 3.04.00 Hectare, SF.Nos: 7/1, 7/2, 7/3, 7/4, 7/5, 7/6 & 7/7 of Rough Stone & Gravel Quarry located at Senalur Village, Tindivanam Taluk, Viluppuram District, Tamil Nadu State.



General View of the Proposed Lease Area Photo

21/4/2025
கிராம நிர்வாக அலுவலர்
94. கீழ்சேவூர் குரூப்,
88. சேணலூர், 89. கீழ்பூதேரி
திண்டிவனம் வட்டம்.

Annexure - 5

POPULATION BREAKUP & LITERACY LEVEL IN THE BUFFER ZONE

Sl.No	No. of Villages	Name of village	Rural / urban	HOUSE HOLDS	POPULATION			POPULATION BELOW 6 AGE GROUP			SCHEDULE CASTE			SCHEDULE TRIBE			LITRERATES			ILLITRERATES		
					TOTAL	MALE	F.MALE	TOTAL	MALE	F.MALE	TOTAL	MALE	F.MALE	TOTAL	MALE	F. MALE	TOTAL	MALE	F.MALE	TOTAL	MALE	F.MALE
0-2 km,Tindivanam Sub-District, Viluppuram District																						
1	1	Kilsevur	**Rural**	274	1075	534	541	78	36	42	656	327	329	125	59	66	681	387	294	394	147	247
2	2	Kilarungunam	**Rural**	177	798	389	409	113	51	62	560	277	283	33	17	16	397	236	161	401	153	248
3	3	Kulapakkam (Vada)	**Rural**	52	222	115	107	26	15	11	204	107	97	0	0	0	124	81	43	98	34	64
4	4	Senalur	**Rural**	83	378	181	197	56	31	25	354	171	183	0	0	0	178	88	90	200	93	107
5	5	Buderi	**Rural**	199	844	440	404	95	59	36	450	248	202	0	0	0	530	317	213	314	123	191
6	6	Chokkantangal	**Rural**	93	387	186	201	37	18	19	264	122	142	0	0	0	237	128	109	150	58	92
		total (A)		**878**	**3704**	**1845**	**1859**	**405**	**210**	**195**	**2488**	**1252**	**1236**	**158**	**76**	**82**	**2147**	**1237**	**910**	**1557**	**608**	**949**
2-5 km,Tindivanam Sub-District, Viluppuram District																						
7	1	Ichcheri	**Rural**	192	780	409	371	80	50	30	183	99	84	0	0	0	482	278	204	298	131	167
8	2	Nolambur	**Rural**	865	3523	1746	1777	371	186	185	1322	654	668	86	44	42	2124	1212	912	1399	534	865
9	3	Eppakkam	**Rural**	485	2053	1058	995	193	107	86	813	419	394	13	7	6	1237	709	528	816	349	467
10	4	Andapattu	**Rural**	261	1123	597	526	132	65	67	310	178	132	9	5	4	665	421	244	458	176	282
11	5	Kilpasar	**Rural**	250	1206	617	589	144	79	65	1075	553	522	10	5	5	680	385	295	526	232	294
12	6	Atchipakkam	**Rural**	426	1811	911	900	231	124	107	948	476	472	15	8	7	1179	664	515	632	247	385
13	7	Kilnemili	**Rural**	67	243	117	126	22	10	12	144	68	76	0	0	0	112	62	50	131	55	76
14	8	Vandarampundi	**Rural**	21	60	31	29	5	3	2	0	0	0	5	3	2	26	15	11	34	16	18
15	9	Kilmannur	**Rural**	126	515	270	245	62	33	29	217	110	107	0	0	0	288	173	115	227	97	130
16	10	Karuppur	**Rural**	116	451	210	241	51	21	30	43	19	24	71	34	37	256	140	116	195	70	125
17	11	Kattalai	**Rural**	365	1453	723	730	163	76	87	3	2	1	0	0	0	747	437	310	706	286	420
18	12	Janakipettai	**Rural**	152	640	323	317	70	27	43	572	283	289	0	0	0	386	238	148	254	85	169
19	13	Perumukkal	**Rural**	779	3320	1674	1646	360	186	174	873	439	434	101	47	54	2077	1205	872	1243	469	774
20	14	Kunnappakkam	**Rural**	82	403	211	192	60	31	29	368	192	176	0	0	0	241	142	99	162	69	93
21	15	Tennampundi	**Rural**	127	543	271	272	51	25	26	441	220	221	9	5	4	376	199	177	167	72	95
22	16	Mandaperumpakkam	**Rural**	100	406	209	197	42	18	24	319	163	156	10	6	4	254	149	105	152	60	92
23	17	Madavantangal	**Rural**	50	153	71	82	21	10	11	5	3	2	0	0	0	81	44	37	72	27	45
24	18	Endur	**Rural**	413	1848	903	945	188	87	101	1438	699	739	0	0	0	1179	657	522	669	246	423
25	19	Bramaddesam	**Rural**	728	3254	1636	1618	361	183	178	1721	872	849	163	69	94	2020	1150	870	1234	486	748
26	20	Ariyantangal	**Rural**	110	453	217	236	54	29	25	407	198	209	0	0	0	254	138	116	199	79	120
27	21	Nalmukkal	**Rural**	237	940	463	477	91	49	42	370	181	189	0	0	0	627	348	279	313	115	198
28	22	Alagaipakkam	**Rural**	48	225	114	111	24	9	15	14	6	8	0	0	0	148	89	59	77	25	52
29	23	T. Nellalam	**Rural**	323	1467	718	749	156	71	85	804	384	420	0	0	0	988	526	462	479	192	287
30	24	Elavalapakkam	**Rural**	87	351	174	177	47	21	26	242	125	117	0	0	0	192	105	87	159	69	90
		total (B)		**6410**	**27221**	**13673**	**13548**	**2979**	**1500**	**1479**	**12632**	**6343**	**6289**	**492**	**233**	**259**	**16619**	**9486**	**7133**	**10602**	**4187**	**6415**
5-10 km,Tindivanam Sub-District, Viluppuram District																						
31	1	Olakkur Kilpadi	**Rural**	332	1327	654	673	114	68	46	691	346	345	0	0	0	936	504	432	391	150	241
32	2	Koochikolathur	**Rural**	178	713	351	362	52	31	21	149	74	75	0	0	0	433	239	194	280	112	168
33	3	Padiri	**Rural**	273	1112	553	559	128	58	70	233	122	111	0	0	0	756	423	333	356	130	226
34	4	Kambur	**Rural**	268	1163	587	576	99	53	46	676	342	334	10	5	5	713	399	314	450	188	262

Sl.No	No. of Villages	Name of village	Rural / urban	HOUSE HOLDS	POPULATION			POPULATION BELOW 6 AGE GROUP			SCHEDULE CASTE			SCHEDULE TRIBE			LITRERATES			ILLITRERATES		
					TOTAL	MALE	F.MALE	TOTAL	MALE	F.MALE	TOTAL	MALE	F.MALE	TOTAL	MALE	F. MALE	TOTAL	MALE	F.MALE	TOTAL	MALE	F.MALE
35	5	Annambakkam	**Rural**	299	1283	660	623	115	61	54	440	242	198	7	3	4	893	516	377	390	144	246
36	6	Avanipur	**Rural**	553	2521	1205	1316	283	128	155	1450	698	752	229	109	120	1531	836	695	990	369	621
37	7	Panaiyur	**Rural**	192	865	427	438	99	48	51	752	366	386	0	0	0	482	257	225	383	170	213
38	8	Pangalathur	**Rural**	291	1341	660	681	120	64	56	529	251	278	0	0	0	780	431	349	561	229	332
39	9	Nangunam	**Rural**	181	745	380	365	77	42	35	308	157	151	0	0	0	442	251	191	303	129	174
40	10	Nallathur	**Rural**	355	1475	726	749	144	79	65	366	188	178	0	0	0	945	525	420	530	201	329
41	11	Kadur (S)	**Rural**	76	309	152	157	39	18	21	307	151	156	0	0	0	189	99	90	120	53	67
42	12	Saram	**Rural**	855	3390	1688	1702	366	188	178	2189	1094	1095	54	25	29	2489	1373	1116	901	315	586
43	13	Purangarai	**Rural**	228	1006	502	504	110	54	56	571	288	283	6	2	4	759	407	352	247	95	152
44	14	Kilkaranai	**Rural**	142	567	296	271	70	39	31	435	221	214	0	0	0	355	213	142	212	83	129
45	15	Evalur	**Rural**	191	832	424	408	71	40	31	345	170	175	0	0	0	600	341	259	232	83	149
46	16	Sattanur	**Rural**	115	482	246	236	31	17	14	213	109	104	0	0	0	286	165	121	196	81	115
47	17	Salavadi	**Rural**	598	2467	1218	1249	270	148	122	319	153	166	129	67	62	1477	806	671	990	412	578
48	18	Melpettai	**Rural**	205	827	400	427	79	44	35	541	267	274	0	0	0	647	332	315	180	68	112
49	19	Vittalapuram	**Rural**	449	1985	1013	972	204	98	106	1140	595	545	9	5	4	1368	761	607	617	252	365
50	20	Kilgudalur	**Rural**	231	879	427	452	93	48	45	519	248	271	0	0	0	512	292	220	367	135	232
51	21	Mangalam	**Rural**	201	768	406	362	68	38	30	265	141	124	0	0	0	534	319	215	234	87	147
52	22	Kiladanur	**Rural**	285	1347	656	691	181	84	97	965	468	497	41	22	19	763	423	340	584	233	351
53	23	Pallipakkam	**Rural**	172	754	389	365	94	55	39	0	0	0	56	24	32	420	262	158	334	127	207
54	24	Naramagani	**Rural**	88	387	191	196	57	28	29	192	96	96	0	0	0	221	122	99	166	69	97
55	25	Sendamangalam	**Rural**	317	1396	713	683	200	102	98	456	229	227	6	3	3	819	480	339	577	233	344
56	26	Nallur	**Rural**	169	715	373	342	77	42	35	222	113	109	0	0	0	417	258	159	298	115	183
57	27	Pantodu	**Rural**	84	337	167	170	31	15	16	219	107	112	0	0	0	174	82	92	163	85	78
58	28	Nagar	**Rural**	822	3428	1769	1659	383	204	179	891	465	426	85	39	46	2272	1323	949	1156	446	710
59	29	Siruvadi	**Rural**	667	2913	1432	1481	316	155	161	1326	638	688	30	11	19	1959	1078	881	954	354	600
60	30	Vaidapakkam	**Rural**	295	1307	682	625	155	84	71	195	95	100	0	0	0	835	488	347	472	194	278
61	31	Nerkunam (Vada)	**Rural**	604	2495	1275	1220	301	158	143	278	145	133	42	23	19	1321	788	533	1174	487	687
62	32	Endiyur	**Rural**	773	3103	1556	1547	308	157	151	0	0	0	0	0	0	2092	1202	890	1011	354	657
63	33	Attur	**Rural**	360	1473	746	727	158	89	69	602	304	298	17	8	9	892	505	387	581	241	340
64	34	Alapakkam (Vada)	**Rural**	297	1282	677	605	123	66	57	278	143	135	0	0	0	836	502	334	446	175	271
65	35	Manur	**Rural**	1513	6290	3114	3176	648	309	339	1806	861	945	5	3	2	4775	2571	2204	1515	543	972
66	36	Molasur	**Rural**	639	2798	1412	1386	358	186	172	1637	833	804	0	0	0	1691	951	740	1107	461	646
67	37	Guruvammapettai	**Rural**	284	1171	594	577	112	65	47	403	200	203	53	29	24	776	448	328	395	146	249
68	38	Kurur	**Rural**	259	1079	551	528	119	59	60	436	225	211	18	8	10	646	399	247	433	152	281
69	39	Vepperi	**Rural**	104	485	245	240	57	31	26	329	167	162	57	22	35	316	181	135	169	64	105
70	40	Murukeri	**Rural**	278	1170	579	591	163	70	93	111	55	56	6	2	4	839	457	382	331	122	209
71	41	Sattamangalam	**Rural**	111	446	222	224	40	23	17	52	26	26	5	3	2	259	149	110	187	73	114
72	42	Singanandai	**Rural**	94	501	282	219	62	35	27	212	125	87	0	0	0	348	217	131	153	65	88
73	43	Alanguppam	**Rural**	476	2102	1051	1051	239	113	126	271	145	126	124	58	66	1157	648	509	945	403	542
74	44	Manoor	**Rural**	886	3550	1793	1757	312	162	150	625	311	314	91	47	44	2181	1237	944	1369	556	813
75	45	Vanniper	**Rural**	616	2537	1283	1254	239	111	128	775	404	371	54	29	25	1795	1013	782	742	270	472

Sl.No	No. of Villages	Name of village	Rural / urban	HOUSE HOLDS	POPULATION			POPULATION BELOW 6 AGE GROUP			SCHEDULE CASTE			SCHEDULE TRIBE			LITRERATES			ILLITRERATES		
					TOTAL	MALE	F.MALE	TOTAL	MALE	F.MALE	TOTAL	MALE	F.MALE	TOTAL	MALE	F. MALE	TOTAL	MALE	F.MALE	TOTAL	MALE	F.MALE
76	46	Kilsiviri	**Rural**	334	1491	759	732	144	69	75	535	271	264	0	0	0	916	542	374	575	217	358
77	47	Palamukkal	**Rural**	179	852	426	426	87	47	40	505	257	248	15	5	10	517	297	220	335	129	206
78	48	Nerkunam (Then)	**Rural**	220	972	505	467	74	37	37	424	218	206	0	0	0	730	406	324	242	99	143
79	49	Kovadi	**Rural**	555	2303	1182	1121	271	139	132	572	304	268	0	0	0	1502	882	620	801	300	501
80	50	Ommandur	**Rural**	615	2594	1308	1286	285	132	153	932	470	462	49	23	26	1461	844	617	1133	464	669
81	51	Varagapattu	**Rural**	105	406	201	205	54	24	30	0	0	0	246	121	125	213	132	81	193	69	124
82	52	Iraiyanur	**Rural**	907	3869	1919	1950	418	217	201	1192	595	597	1	0	1	2763	1505	1258	1106	414	692
Vanur Sub-District, Viluppuram District																						
83	1	Kodippakkam (Ten)	**Rural**	401	1738	896	842	225	108	117	904	462	442	20	13	7	1253	714	539	485	182	303
84	2	Peravur	**Rural**	637	2678	1383	1295	296	155	141	1394	716	678	4	2	2	1672	948	724	1006	435	571
85	3	Olagapuram	**Rural**	560	2481	1265	1216	268	134	134	1351	696	655	6	2	4	1449	839	610	1032	426	606
86	4	Kumalampattu	**Rural**	283	1274	663	611	144	83	61	494	252	242	31	18	13	739	448	291	535	215	320
87	5	Nallavur	**Rural**	786	3326	1692	1634	403	214	189	1720	869	851	0	0	0	2064	1172	892	1262	520	742
		total (C)		**21988**	**93107**	**46926**	**46181**	**10034**	**5126**	**4908**	**34742**	**17488**	**17254**	**1506**	**731**	**775**	**60210**	**34002**	**26208**	**32897**	**12924**	**19973**
		Grand Total (A+B+C)		**29276**	**124032**	**62444**	**61588**	**13418**	**6836**	**6582**	**49862**	**25083**	**24779**	**2156**	**1040**	**1116**	**78976**	**44725**	**34251**	**45056**	**17719**	**27337**

**Source: District Primary Census Abstract, Viluppuram District of Tamilnadu State-2011*

Annexure - 6

OCCUPATIONAL STRUCTURE IN THE BUFFER ZONE

Sl.No	No. of Villages	Name of village	Rural / urban	MAIN WORKERS		CULTIVATORS		AGRI LABOURS		HOUSE HOLD		OTHERS		MARGINAL WORKERS		NON WORKERS	
				MALE	F.MALE	MALE	F.MALE	MALE	F.MALE	MALE	F.MALE	MALE	F.MALE	MALE	F.MALE	MALE	F.MALE
0-2 km,Tindivanam Sub-District, Viluppuram District																	
1	1	Kilsevur	**Rural**	293	277	171	177	57	67	4	8	61	25	44	45	197	219
2	2	Kilarungunam	**Rural**	224	137	23	7	169	124	0	0	32	6	1	0	164	272
3	3	Kulapakkam (Vada)	**Rural**	67	47	2	1	45	35	0	0	20	11	0	3	48	57
4	4	Senalur	**Rural**	84	9	30	2	45	6	0	0	9	1	0	0	97	188
5	5	Buderi	**Rural**	172	121	117	64	20	41	4	4	31	12	20	41	248	242
6	6	Chokkantangal	**Rural**	125	106	12	0	68	98	0	0	45	8	0	2	61	93
		total (A)		**965**	**697**	**355**	**251**	**404**	**371**	**8**	**12**	**198**	**63**	**65**	**91**	**815**	**1071**
2-5 km,Tindivanam Sub-District, Viluppuram District																	
7	1	Ichcheri	**Rural**	264	229	32	4	183	215	0	0	49	10	4	7	141	135
8	2	Nolambur	**Rural**	765	314	438	82	212	194	6	4	109	34	313	503	668	960
9	3	Eppakkam	**Rural**	409	220	154	58	206	145	2	2	47	15	278	366	371	409
10	4	Andapattu	**Rural**	10	1	0	0	1	1	2	0	7	0	378	342	209	183
11	5	Kilpasar	**Rural**	42	129	16	24	2	97	0	0	24	8	295	187	280	273
12	6	Atchipakkam	**Rural**	477	201	96	7	323	167	7	6	51	21	14	132	420	567
13	7	Kilnemili	**Rural**	21	14	12	8	7	6	0	0	2	0	57	73	39	39
14	8	Vandarampundi	**Rural**	4	0	3	0	0	0	0	0	1	0	18	24	9	5
15	9	Kilmannur	**Rural**	152	70	49	6	30	45	0	0	73	19	8	30	110	145
16	10	Karuppur	**Rural**	96	9	34	1	18	3	0	0	44	5	31	20	83	212
17	11	Kattalai	**Rural**	429	200	250	106	57	68	0	0	122	26	38	61	256	469
18	12	Janakipettai	**Rural**	31	7	3	1	2	1	0	0	26	5	176	120	116	190
19	13	Perumukkal	**Rural**	929	339	191	77	145	129	16	11	577	122	45	181	700	1126
20	14	Kunnappakkam	**Rural**	79	9	64	6	6	2	0	0	9	1	30	83	102	100
21	15	Tennampundi	**Rural**	38	9	0	0	0	0	0	0	38	9	127	164	106	99
22	16	Mandaperumpakkam	**Rural**	136	62	22	1	70	53	0	0	44	8	3	25	70	110
23	17	Madavantangal	**Rural**	52	34	21	4	9	22	0	0	22	8	0	5	19	43
24	18	Endur	**Rural**	485	99	88	5	345	85	1	0	51	9	24	17	394	829
25	19	Bramaddesam	**Rural**	761	356	77	22	388	270	7	9	289	55	193	250	682	1012
26	20	Ariyantangal	**Rural**	26	6	5	1	10	2	1	1	10	2	99	106	92	124
27	21	Nalmukkal	**Rural**	235	110	45	34	82	59	2	1	106	16	12	8	216	359
28	22	Alagaipakkam	**Rural**	67	32	15	5	7	9	2	0	43	18	0	1	47	78
29	23	T. Nellalam	**Rural**	241	71	15	8	146	49	5	0	75	14	137	197	340	481
30	24	Elavalapakkam	**Rural**	101	79	2	5	4	2	2	6	93	66	8	3	65	95
		total (B)		**5850**	**2600**	**1632**	**465**	**2253**	**1624**	**53**	**40**	**1912**	**471**	**2288**	**2905**	**5535**	**8043**
5-10 km,Tindivanam Sub-District, Viluppuram District																	
31	1	Olakkur Kilpadi	**Rural**	307	265	125	90	118	163	0	0	64	12	53	63	294	345
32	2	Koochikolathur	**Rural**	153	127	23	16	92	97	0	0	38	14	42	38	156	197
33	3	Padiri	**Rural**	264	233	179	170	54	33	0	1	31	29	112	119	177	207
34	4	Kambur	**Rural**	159	34	33	2	84	21	1	0	41	11	173	107	255	435

Sl.No	No. of Villages	Name of village	Rural / urban	MAIN WORKERS		CULTIVATORS		AGRI LABOURS		HOUSE HOLD		OTHERS		MARGINAL WORKERS		NON WORKERS	
				MALE	F.MALE	MALE	F.MALE	MALE	F.MALE	MALE	F.MALE	MALE	F.MALE	MALE	F.MALE	MALE	F.MALE
35	5	Annambakkam	**Rural**	163	111	21	13	102	73	2	1	38	24	255	246	242	266
36	6	Avanipur	**Rural**	507	217	51	4	360	197	11	1	85	15	205	180	493	919
37	7	Panaiyur	**Rural**	258	194	149	122	65	61	2	0	42	11	10	13	159	231
38	8	Pangalathur	**Rural**	304	192	56	31	113	79	5	4	130	78	108	56	248	433
39	9	Nangunam	**Rural**	121	107	7	4	80	81	3	0	31	22	148	122	111	136
40	10	Nallathur	**Rural**	267	173	36	15	145	151	3	0	83	7	217	205	242	371
41	11	Kadur (S)	**Rural**	98	104	46	45	51	59	0	0	1	0	0	0	54	53
42	12	Saram	**Rural**	690	259	39	12	415	202	23	6	213	39	330	353	668	1090
43	13	Purangarai	**Rural**	140	75	27	10	61	54	2	2	50	9	131	137	231	292
44	14	Kilkaranai	**Rural**	172	123	54	51	48	56	9	2	61	14	19	31	105	117
45	15	Evalur	**Rural**	269	178	106	4	56	144	0	0	107	30	0	0	155	230
46	16	Sattanur	**Rural**	122	9	39	0	15	0	0	0	68	9	28	54	96	173
47	17	Salavadi	**Rural**	679	325	122	59	373	229	4	1	180	36	6	1	533	923
48	18	Melpettai	**Rural**	218	189	11	1	134	157	1	0	72	31	12	11	170	227
49	19	Vittalapuram	**Rural**	608	441	202	45	293	363	10	14	103	19	42	38	363	493
50	20	Kilgudalur	**Rural**	265	136	83	8	93	118	1	1	88	9	9	62	153	254
51	21	Mangalam	**Rural**	219	103	78	0	68	86	0	1	73	16	4	4	183	255
52	22	Kiladanur	**Rural**	83	14	17	2	34	7	6	1	26	4	298	249	275	428
53	23	Pallipakkam	**Rural**	219	75	144	46	50	26	1	0	24	3	0	1	170	289
54	24	Naramagani	**Rural**	5	2	0	0	0	0	0	0	5	2	107	96	79	98
55	25	Sendamangalam	**Rural**	395	56	147	5	80	36	9	0	159	15	2	6	316	621
56	26	Nallur	**Rural**	199	61	106	16	59	37	0	0	34	8	11	55	163	226
57	27	Pantodu	**Rural**	92	43	16	1	73	39	1	1	2	2	0	1	75	126
58	28	Nagar	**Rural**	1048	448	343	71	553	351	9	0	143	26	39	92	682	1119
59	29	Siruvadi	**Rural**	831	400	216	96	258	227	9	8	348	69	11	9	590	1072
60	30	Vaidapakkam	**Rural**	437	361	229	184	128	166	0	0	80	11	0	3	245	261
61	31	Nerkunam (Vada)	**Rural**	730	582	354	280	190	222	14	4	172	76	76	98	469	540
62	32	Endiyur	**Rural**	786	400	302	224	155	107	7	6	322	63	168	182	602	965
63	33	Attur	**Rural**	420	188	78	3	184	152	10	0	148	33	47	24	279	515
64	34	Alapakkam (Vada)	**Rural**	356	136	28	6	80	70	4	3	244	57	3	2	318	467
65	35	Manur	**Rural**	1496	565	223	98	184	155	12	8	1077	304	182	199	1436	2412
66	36	Molasur	**Rural**	700	387	247	140	267	215	8	7	178	25	90	156	622	843
67	37	Guruvammapettai	**Rural**	305	77	86	21	97	35	1	2	121	19	37	221	252	279
68	38	Kurur	**Rural**	181	101	26	2	89	87	0	2	66	10	152	157	218	270
69	39	Vepperi	**Rural**	111	36	14	5	52	20	0	1	45	10	0	0	134	204
70	40	Murukeri	**Rural**	329	57	50	15	75	22	0	3	204	17	1	2	249	532
71	41	Sattamangalam	**Rural**	113	64	5	1	78	59	0	0	30	4	18	31	91	129
72	42	Singanandai	**Rural**	101	10	7	2	18	3	2	0	74	5	20	34	161	175
73	43	Alanguppam	**Rural**	406	184	81	17	138	105	11	2	176	60	279	310	366	557
74	44	Manoor	**Rural**	1160	984	426	210	617	735	7	8	110	31	15	12	618	761
75	45	Vanniper	**Rural**	712	563	562	500	15	14	5	4	130	45	191	189	380	502

Sl.No	No. of Villages	Name of village	Rural / urban	MAIN WORKERS		CULTIVATORS		AGRI LABOURS		HOUSE HOLD		OTHERS		MARGINAL WORKERS		NON WORKERS	
				MALE	F.MALE	MALE	F.MALE	MALE	F.MALE	MALE	F.MALE	MALE	F.MALE	MALE	F.MALE	MALE	F.MALE
76	46	Kilsiviri	**Rural**	21	9	0	0	3	1	1	0	17	8	376	331	362	392
77	47	Palamukkal	**Rural**	249	157	44	11	99	127	2	1	104	18	3	5	174	264
78	48	Nerkunam (Then)	**Rural**	314	251	129	102	163	142	5	2	17	5	0	0	191	216
79	49	Kovadi	**Rural**	520	263	328	127	123	128	7	2	62	6	157	180	505	678
80	50	Ommandur	**Rural**	488	202	224	104	77	58	4	5	183	35	254	321	566	763
81	51	Varagapattu	**Rural**	27	4	0	0	0	0	0	0	27	4	101	74	73	127
82	52	Iraiyanur	**Rural**	934	310	133	18	77	68	4	1	720	223	120	245	865	1395
Vanur Sub-District, Viluppuram District																	
83	1	Kodippakkam (Ten)	**Rural**	399	213	111	7	145	177	7	1	136	28	48	86	449	543
84	2	Peravur	**Rural**	612	501	114	95	399	360	11	13	88	33	233	98	538	696
85	3	Olagapuram	**Rural**	765	544	98	56	539	461	3	5	125	22	10	19	490	653
86	4	Kumalampattu	**Rural**	395	321	158	148	134	147	15	4	88	22	22	31	246	259
87	5	Nallavur	**Rural**	962	696	162	94	558	536	6	5	236	61	21	16	709	922
		total (C)		**22884**	**12860**	**6695**	**3409**	**8611**	**7519**	**258**	**133**	**7320**	**1799**	**4996**	**5375**	**19046**	**27946**
		Grand Total (A+B+C)		**29699**	**16157**	**8682**	**4125**	**11268**	**9514**	**319**	**185**	**9430**	**2333**	**7349**	**8371**	**25396**	**37060**

**Source: District Primary Census Abstract, Viluppuram District of Tamilnadu State-2011*

EDUCATIONAL FACILITIES IN THE STUDY AREA

Sl.No	No. of Villages	Name of village	Educational Facilities (A(1)/ NA(2))	Govt Pre - Primary School (Nursery/LKG/ UKG) (Numbers)	Govt Primary School (Numbers)	Govt Middle School (Numbers)	Govt Secondary School (Numbers)	Govt Senior Secondary School (Numbers)	Govt Arts and Science Degree College (Numbers)	Govt Engineering College (Numbers)	Govt Medicine College (Numbers)	Govt Management Institute (Numbers)	Govt Polytechnic (Numbers)	Govt Vocational Training School/ITI (Numbers)	Government Non Formal Training Centre (Numbers)	Government School For Disabled (Numbers)
0-2 km,Tindivanam Sub-District, Viluppuram District																
1	1	Kilsevur	**1**	1	1	1	0	0	0	0	0	0	0	0	1	0
2	2	Kilarungunam	**1**	1	1	0	0	0	0	0	0	0	0	0	0	0
3	3	Kulapakkam (Vada)	**1**	1	1	0	0	0	0	0	0	0	0	0	0	0
4	4	Senalur	**2**	0	0	0	0	0	0	0	0	0	0	0	0	0
5	5	Buderi	**1**	1	1	1	0	0	0	0	0	0	0	0	1	0
6	6	Chokkantangal	**1**	1	0	0	0	0	0	0	0	0	0	0	0	0
		total (A)		**5**	**4**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**
2-5 km,Tindivanam Sub-District, Viluppuram District																
7	1	Ichcheri	**1**	1	1	0	0	0	0	0	0	0	0	0	0	0
8	2	Nolambur	**1**	1	2	1	1	1	0	0	0	0	0	0	1	0
9	3	Eppakkam	**1**	1	1	1	0	0	0	0	0	0	0	0	1	0
10	4	Andapattu	**1**	1	1	0	0	0	0	0	0	0	0	0	0	0
11	5	Kilpasar	**1**	1	1	0	0	0	0	0	0	0	0	0	0	0
12	6	Atchipakkam	**1**	1	1	1	1	0	0	0	0	0	0	0	1	0
13	7	Kilnemili	**1**	1	0	0	0	0	0	0	0	0	0	0	0	0
14	8	Vandarampundi	**1**	1	1	0	0	0	0	0	0	0	0	0	0	0
15	9	Kilmannur	**1**	1	0	0	0	0	0	0	0	0	0	0	0	0
16	10	Karuppur	**1**	1	0	0	0	0	0	0	0	0	0	0	0	0
17	11	Kattalai	**1**	0	1	1	0	0	0	0	0	0	0	0	1	0
18	12	Janakipettai	**2**	0	0	0	0	0	0	0	0	0	0	0	0	0
19	13	Perumukkal	**1**	1	1	1	0	0	0	0	0	0	0	0	1	0
20	14	Kunnappakkam	**1**	1	1	0	0	0	0	0	0	0	0	0	0	0
21	15	Tennampundi	**1**	1	1	0	0	0	0	0	0	0	0	0	0	0
22	16	Mandaperumpakkam	**2**	0	0	0	0	0	0	0	0	0	0	0	0	0
23	17	Madavantangal	**1**	1	1	0	0	0	0	0	0	0	0	0	0	0
24	18	Endur	**1**	1	2	0	0	0	0	0	0	0	0	0	0	0
25	19	Bramaddesam	**1**	1	1	1	1	0	0	0	0	0	0	0	1	0
26	20	Ariyantangal	**1**	1	1	0	0	0	0	0	0	0	0	0	0	0
27	21	Nalmukkal	**1**	1	2	1	0	0	0	0	0	0	0	0	0	0
28	22	Alagaipakkam	**2**	0	0	0	0	0	0	0	0	0	0	0	0	0
29	23	T. Nellalam	**1**	1	1	1	0	0	0	0	0	0	0	0	1	0
30	24	Elavalapakkam	**1**	1	0	0	0	0	0	0	0	0	0	0	0	0
		total (B)		**20**	**20**	**8**	**3**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	**0**
5-10 km,Tindivanam Sub-District, Viluppuram District																
31	1	Olakkur Kilpadi	**1**	1	1	0	0	0	0	0	0	0	0	0	1	0
32	2	Koochikolathur	**1**	1	1	0	0	0	0	0	0	0	0	0	0	0
33	3	Padiri	**1**	1	2	0	0	0	0	0	0	0	0	0	0	0
34	4	Kambur	**1**	1	1	0	0	0	0	0	0	0	0	0	0	0
35	5	Annambakkam	**1**	1	1	0	0	0	0	0	0	0	0	0	0	0
36	6	Avanipur	**1**	1	1	1	1	1	0	0	0	0	0	0	1	0
37	7	Panaiyur	**1**	1	1	1	0	0	0	0	0	0	0	0	1	0
38	8	Pangalathur	**1**	1	1	0	0	0	0	0	0	0	0	0	0	0
39	9	Nangunam	**1**	1	0	0	0	0	0	0	0	0	0	0	0	0
40	10	Nallathur	**1**	2	1	1	0	0	0	0	0	0	0	0	1	0
41	11	Kadur (S)	**1**	1	1	0	0	0	0	0	0	0	0	0	0	0
42	12	Saram	**1**	2	2	1	1	1	0	0	0	0	0	0	1	0
43	13	Purangarai	**1**	1	1	0	0	0	0	0	0	0	0	0	0	0
44	14	Kilkaranai	**1**	1	1	0	0	0	0	0	0	0	0	0	0	0

Sl.No	No. of Villages	Name of village	Educational Facilities (A(1)/ NA(2))	Govt Pre - Primary School (Nursery/LKG/ UKG) (Numbers)	Govt Primary School (Numbers)	Govt Middle School (Numbers)	Govt Secondary School (Numbers)	Govt Senior Secondary School (Numbers)	Govt Arts and Science Degree College (Numbers)	Govt Engineering College (Numbers)	Govt Medicine College (Numbers)	Govt Management Institute (Numbers)	Govt Polytechnic (Numbers)	Govt Vocational Training School/ITI (Numbers)	Government Non Formal Training Centre (Numbers)	Government School For Disabled (Numbers)
45	15	Evalur	**1**	1	1	0	0	0	0	0	0	0	0	0	0	0
46	16	Sattanur	**1**	1	1	0	0	0	0	0	0	0	0	0	0	0
47	17	Salavadi	**1**	2	1	1	0	0	0	0	0	0	0	0	1	0
48	18	Melpettai	**1**	1	1	0	0	0	0	0	0	0	0	0	0	0
49	19	Vittalapuram	**1**	1	1	1	0	0	0	0	0	0	0	0	1	0
50	20	Kilgudalur	**1**	1	0	0	0	0	0	0	0	0	0	0	0	0
51	21	Mangalam	**1**	1	1	0	0	0	0	0	0	0	0	0	0	0
52	22	Kiladanur	**1**	1	1	1	0	0	0	0	0	0	0	0	1	0
53	23	Pallipakkam	**1**	1	1	0	0	0	0	0	0	0	0	0	0	0
54	24	Naramagani	**1**	1	1	0	0	0	0	0	0	0	0	0	0	0
55	25	Sendamangalam	**1**	1	1	0	0	0	0	0	0	0	0	0	0	0
56	26	Nallur	**1**	1	1	0	0	0	0	0	0	0	0	0	0	0
57	27	Pantodu	**1**	1	1	0	0	0	0	0	0	0	0	0	0	0
58	28	Nagar	**1**	2	2	1	1	0	0	0	0	0	0	0	1	0
59	29	Siruvadi	**1**	1	1	0	0	0	0	0	0	0	0	0	0	0
60	30	Vaidapakkam	**1**	1	2	0	0	0	0	0	0	0	0	0	0	0
61	31	Nerkunam (Vada)	**1**	1	1	1	0	0	0	0	0	0	0	0	1	0
62	32	Endiyur	**1**	1	1	1	1	1	0	0	0	0	0	0	1	0
63	33	Attur	**1**	1	1	0	0	0	0	0	0	0	0	0	0	0
64	34	Alapakkam (Vada)	**1**	1	1	0	0	0	0	0	0	0	0	0	0	0
65	35	Manur	**1**	1	1	0	0	0	0	0	0	0	0	0	0	0
66	36	Molasur	**1**	1	1	1	0	0	0	0	0	0	0	0	0	0
67	37	Guruvammapettai	**1**	1	1	0	0	0	0	0	0	0	0	0	0	0
68	38	Kurur	**1**	1	1	0	0	0	0	0	0	0	0	0	0	0
69	39	Vepperi	**1**	1	1	1	1	1	0	0	0	0	0	0	1	0
70	40	Murukeri	**2**	0	0	0	0	0	0	0	0	0	0	0	0	0
71	41	Sattamangalam	**1**	1	1	0	0	0	0	0	0	0	0	0	0	0
72	42	Singanandai	**2**	0	0	0	0	0	0	0	0	0	0	0	0	0
73	43	Alanguppam	**1**	1	1	1	1	0	0	0	0	0	0	0	1	0
74	44	Manoor	**1**	2	1	1	0	0	0	0	0	0	0	0	1	0
75	45	Vanniper	**1**	1	1	1	0	0	0	0	0	0	0	0	1	0
76	46	Kilsiviri	**1**	1	1	1	1	0	0	0	0	0	0	0	1	0
77	47	Palamukkal	**1**	1	1	1	0	0	0	0	0	0	0	0	1	0
78	48	Nerkunam (Then)	**1**	1	1	1	0	0	0	0	0	0	0	0	1	0
79	49	Kovadi	**1**	1	1	1	1	0	0	0	0	0	0	0	1	0
80	50	Ommandur	**1**	1	1	1	1	1	0	0	0	0	0	0	1	0
81	51	Varagapattu	**1**	1	1	0	0	0	0	0	0	0	0	0	0	0
82	52	Iraiyanur	**1**	2	1	0	0	0	0	0	0	0	0	0	1	0
Vanur Sub-District, Viluppuram District																
83	1	Kodippakkam (Ten)	**1**	1	1	1	1	0	0	0	0	0	0	0	1	0
84	2	Peravur	**1**	1	1	1	0	0	0	0	0	0	0	0	1	0
85	3	Olagapuram	**1**	1	1	1	0	0	0	0	0	0	0	0	1	0
86	4	Kumalampattu	**2**	0	0	0	0	0	0	0	0	0	0	0	0	0
87	5	Nallavur	**1**	2	2	1	0	0	0	0	0	0	0	0	2	0
		total (C)		**61**	**57**	**24**	**10**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**26**	**0**
		Grand Total (A+B+C)		**86**	**81**	**34**	**13**	**6**	**0**	**0**	**0**	**0**	**0**	**0**	**35**	**0**

**Source: District Primary Census Abstract, Viluppuram District of Tamilnadu State-2011*

MEDICAL FACILITIES WITHIN THE STUDY AREA

Sl.No	No. of Villages	Name of village	Medical Facilities (A(1)/NA(2))	Community Health Centre (Numbers)	Primary Health Centre (Numbers)	Primary Heallth Sub Centre (Numbers)	Maternity And Child Welfare Centre (Numbers)	TB Clinic (Numbers)	Hospital Allopathic (Numbers)	Hospiltal Alternative Medicine Numbers)	Dispensary (Numbers)	Veterinary Hospital (Numbers)	Mobile Health Clinic (Numbers)	Family Welfare Centre (Numbers)
0-2 km,Tindivanam Sub-District, Viluppuram District														
1	1	Kilsevur	**1**	0	0	1	0	0	0	0	0	0	0	0
2	2	Kilarungunam	**2**	0	0	0	0	0	0	0	0	0	0	0
3	3	Kulapakkam (Vada)	**2**	0	0	0	0	0	0	0	0	0	0	0
4	4	Senalur	**2**	0	0	0	0	0	0	0	0	0	0	0
5	5	Buderi	**2**	0	0	0	0	0	0	0	0	0	0	0
6	6	Chokkantangal	**2**	0	0	0	0	0	0	0	0	0	0	0
		total (A)		**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
2-5 km,Tindivanam Sub-District, Viluppuram District														
7	1	Ichcheri	**2**	0	0	0	0	0	0	0	0	0	0	0
8	2	Nolambur	**1**	0	0	1	0	0	0	0	0	0	0	0
9	3	Eppakkam	**1**	0	0	1	0	0	0	0	0	0	0	0
10	4	Andapattu	**1**	0	0	1	0	0	0	0	0	0	0	0
11	5	Kilpasar	**2**	0	0	0	0	0	0	0	0	0	0	0
12	6	Atchipakkam	**2**	0	0	0	0	0	0	0	0	0	0	0
13	7	Kilnemili	**2**	0	0	0	0	0	0	0	0	0	0	0
14	8	Vandarampundi	**2**	0	0	0	0	0	0	0	0	0	0	0
15	9	Kilmannur	**2**	0	0	0	0	0	0	0	0	0	0	0
16	10	Karuppur	**2**	0	0	0	0	0	0	0	0	0	0	0
17	11	Kattalai	**2**	0	0	0	0	0	0	0	0	0	0	0
18	12	Janakipettai	**2**	0	0	0	0	0	0	0	0	0	0	0
19	13	Perumukkal	**1**	0	0	1	0	0	0	0	0	0	0	0
20	14	Kunnappakkam	**2**	0	0	0	0	0	0	0	0	0	0	0
21	15	Tennampundi	**2**	0	0	0	0	0	0	0	0	0	0	0
22	16	Mandaperumpakkam	**2**	0	0	0	0	0	0	0	0	0	0	0
23	17	Madavantangal	**2**	0	0	0	0	0	0	0	0	0	0	0
24	18	Endur	**1**	0	0	1	0	0	0	0	0	0	0	0
25	19	Bramaddesam	**1**	0	1	1	1	1	0	0	1	1	0	1
26	20	Ariyantangal	**2**	0	0	0	0	0	0	0	0	0	0	0
27	21	Nalmukkal	**2**	0	0	0	0	0	0	0	0	0	0	0
28	22	Alagaipakkam	**2**	0	0	0	0	0	0	0	0	0	0	0
29	23	T. Nellalam	**2**	0	0	0	0	0	0	0	0	0	0	0
30	24	Elavalapakkam	**2**	0	0	0	0	0	0	0	0	0	0	0
		total (B)		**0**	**1**	**6**	**1**	**1**	**0**	**0**	**1**	**1**	**0**	**1**
5-10 km,Tindivanam Sub-District, Viluppuram District														
31	1	Olakkur Kilpadi	**1**	1	1	1	1	1	0	0	1	0	0	1
32	2	Koochikolathur	**1**	0	0	1	0	0	0	0	0	0	0	0
33	3	Padiri	**2**	0	0	0	0	0	0	0	0	0	0	0
34	4	Kambur	**2**	0	0	0	0	0	0	0	0	0	0	0
35	5	Annambakkam	**1**	0	0	1	1	0	0	0	0	0	0	0
36	6	Avanipur	**1**	0	1	1	1	1	0	0	1	0	0	1
37	7	Panaiyur	**1**	0	0	1	0	0	0	0	0	0	0	0
38	8	Pangalathur	**1**	0	0	1	0	0	0	0	0	0	0	0
39	9	Nangunam	**2**	0	0	0	0	0	0	0	0	0	0	0
40	10	Nallathur	**1**	0	0	1	0	0	0	0	0	0	0	0
41	11	Kadur (S)	**2**	0	0	0	0	0	0	0	0	0	0	0
42	12	Saram	**1**	0	1	1	1	1	0	0	1	1	0	1
43	13	Purangarai	**1**	0	0	1	0	0	0	0	0	0	0	0

Sl.No	No. of Villages	Name of village	Medical Facilities (A(1)/NA(2))	Community Health Centre (Numbers)	Primary Health Centre (Numbers)	Primary Heallth Sub Centre (Numbers)	Maternity And Child Welfare Centre (Numbers)	TB Clinic (Numbers)	Hospital Allopathic (Numbers)	Hospiltal Alternative Medicine Numbers)	Dispensary (Numbers)	Veterinary Hospital (Numbers)	Mobile Health Clinic (Numbers)	Family Welfare Centre (Numbers)
44	14	Kilkaranai	**1**	0	0	1	0	0	0	0	0	0	0	0
45	15	Evalur	**2**	0	0	0	0	0	0	0	0	0	0	0
46	16	Sattanur	**1**	0	0	1	0	0	0	0	0	0	0	0
47	17	Salavadi	**2**	0	0	0	0	0	0	0	0	0	0	0
48	18	Melpettai	**1**	0	0	1	0	0	0	0	0	0	0	0
49	19	Vittalapuram	**2**	0	0	0	0	0	0	0	0	0	0	0
50	20	Kilgudalur	**2**	0	0	0	0	0	0	0	0	0	0	0
51	21	Mangalam	**2**	0	0	0	0	0	0	0	0	0	0	0
52	22	Kiladanur	**2**	0	0	0	0	0	0	0	0	0	0	0
53	23	Pallipakkam	**2**	0	0	0	0	0	0	0	0	0	0	0
54	24	Naramagani	**2**	0	0	0	0	0	0	0	0	0	0	0
55	25	Sendamangalam	**2**	0	0	0	0	0	0	0	0	0	0	0
56	26	Nallur	**2**	0	0	0	0	0	0	0	0	0	0	0
57	27	Pantodu	**2**	0	0	0	0	0	0	0	0	0	0	0
58	28	Nagar	**1**	0	0	1	0	0	0	0	0	0	0	0
59	29	Siruvadi	**1**	0	0	1	0	0	0	0	0	0	0	0
60	30	Vaidapakkam	**1**	0	0	1	0	0	0	0	0	0	0	0
61	31	Nerkunam (Vada)	**1**	0	0	1	0	0	0	0	0	0	0	0
62	32	Endiyur	**1**	0	0	1	0	0	0	0	0	1	0	0
63	33	Attur	**2**	0	0	0	0	0	0	0	0	0	0	0
64	34	Alapakkam (Vada)	**2**	0	0	0	0	0	0	0	0	0	0	0
65	35	Manur	**1**	0	0	1	0	0	0	0	0	0	0	0
66	36	Molasur	**1**	0	0	1	0	0	0	0	0	0	0	0
67	37	Guruvammapettai	**2**	0	0	0	0	0	0	0	0	0	0	0
68	38	Kurur	**2**	0	0	0	0	0	0	0	0	0	0	0
69	39	Vepperi	**2**	0	0	0	0	0	0	0	0	0	0	0
70	40	Murukeri	**1**	1	1	1	1	1	0	0	1	1	0	1
71	41	Sattamangalam	**2**	0	0	0	0	0	0	0	0	0	0	0
72	42	Singanandai	**2**	0	0	0	0	0	0	0	0	0	0	0
73	43	Alanguppam	**2**	0	0	0	0	0	0	0	0	0	0	0
74	44	Manoor	**1**	0	0	1	0	0	0	0	0	0	0	0
75	45	Vanniper	**1**	0	0	1	0	0	0	0	0	0	0	0
76	46	Kilsiviri	**2**	0	0	0	0	0	0	0	0	0	0	0
77	47	Palamukkal	**1**	0	0	1	0	0	0	0	0	0	0	0
78	48	Nerkunam (Then)	**2**	0	0	0	0	0	0	0	0	0	0	0
79	49	Kovadi	**2**	0	0	0	0	0	0	0	0	0	0	0
80	50	Ommandur	**1**	0	1	1	1	1	0	0	1	1	0	1
81	51	Varagapattu	**2**	0	0	0	0	0	0	0	0	0	0	0
82	52	Iraiyanur	**1**	0	0	1	0	0	0	0	0	0	0	0
Vanur Sub-District, Viluppuram District														
83	1	Kodippakkam (Ten)	**1**	0	0	0	0	0	0	0	0	1	0	0
84	2	Peravur	**1**	0	0	1	0	0	0	0	0	0	0	0
85	3	Olagapuram	**2**	0	0	0	0	0	0	0	0	0	0	0
86	4	Kumalampattu	**2**	0	0	0	0	0	0	0	0	0	0	0
87	5	Nallavur	**1**	0	0	1	0	0	0	0	0	1	0	0
		total (C)		**2**	**5**	**27**	**6**	**5**	**0**	**0**	**5**	**6**	**0**	**5**
		Grand Total (A+B+C)		**2**	**6**	**34**	**7**	**6**	**0**	**0**	**6**	**7**	**0**	**6**

**Source: District Primary Census Abstract, Viluppuram District of Tamilnadu State-2011*

Note : A: Available, NA- Not Available

Annexure - 9

INFRASTRUCTURAL FACILITIES IN THE STUDY AREA

Sl.No	No. of Villages	Name of village	Tap Water-Treated (Status A(1)/NA(2))	Covered Well (Status A(1)/NA(2))	Hand Pump (Status A(1)/NA(2))	Tube Wells/Borehole (Status A(1)/NA(2))	Spring (Status A(1)/NA(2))	River/Canal (Status A(1)/NA(2))	Tank/Pond/Lake (Status A(1)/NA(2))	Post Office (Status A(1)/NA(2))	Sub Post Office (Status A(1)/NA(2))	Post And Telegraph Office (Status A(1)/NA(2))	Telephone (landlines) (Status A(1)/NA(2))	Mobile Phone Coverage (Status A(1)/NA(2))	Public Bus Service (Status A(1)/NA(2))	Railway Station (Status A(1)/NA(2))	Commercial Bank (Status A(1)/NA(2))	Cooperative Bank (Status A(1)/NA(2))	Agricultural Credit Societies (Status A(1)/NA(2))
0-2 km,Tindivanam Sub-District, Viluppuram District																			
1	1	Kilsevur	2	2	1	2	2	2	1	2	1	2	1	1	1	2	2	2	2
2	2	Kilarungunam	2	2	2	2	2	2	1	2	2	2	1	1	1	2	2	2	2
3	3	Kulapakkam (Vada)	2	2	2	2	2	2	1	2	2	2	1	1	1	2	2	2	2
4	4	Senalur	2	2	1	2	2	2	1	2	2	2	1	1	1	2	2	2	2
5	5	Buderi	2	2	1	2	2	2	1	2	2	2	1	1	1	2	2	2	2
6	6	Chokkantangal	2	2	1	2	2	2	1	2	2	2	1	1	1	2	2	2	2
2-5 km,Tindivanam Sub-District, Viluppuram District																			
7	1	Ichcheri	1	2	1	1	2	2	2	2	2	2	1	1	1	2	2	2	2
8	2	Nolambur	2	1	1	2	2	2	1	2	1	2	1	1	1	2	1	2	1
9	3	Eppakkam	2	2	1	1	2	2	2	2	2	2	1	1	1	2	2	2	2
10	4	Andapattu	2	2	1	1	2	2	2	2	1	2	1	1	1	2	2	2	2
11	5	Kilpasar	1	2	1	1	2	2	2	2	2	2	1	1	1	2	2	2	2
12	6	Atchipakkam	1	2	1	2	2	2	1	1	2	1	1	1	1	2	2	2	2
13	7	Kilnemili	1	2	1	2	2	2	1	2	2	2	1	1	2	2	2	2	2
14	8	Vandarampundi	1	2	1	2	2	2	1	2	2	2	2	2	1	2	2	2	2
15	9	Kilmannur	1	2	1	2	2	2	1	2	2	2	2	1	1	2	2	2	2
16	10	Karuppur	1	2	1	2	2	2	1	2	2	2	1	1	1	2	2	2	2
17	11	Kattalai	1	2	1	2	2	2	2	2	1	2	1	1	2	2	2	2	2
18	12	Janakipettai	1	2	1	2	2	2	1	2	2	2	2	1	1	2	2	2	2
19	13	Perumukkal	2	2	1	1	2	2	1	2	1	2	1	1	1	2	2	2	2
20	14	Kunnappakkam	1	2	1	2	2	2	1	2	1	2	1	1	1	2	2	1	2
21	15	Tennampundi	1	2	1	2	2	2	2	2	2	2	2	1	2	2	2	2	2
22	16	Mandaperumpakkam	1	2	1	2	2	2	1	2	2	2	1	1	2	2	2	2	2
23	17	Madavantangal	2	2	1	2	2	2	2	2	2	2	2	1	2	2	2	2	2
24	18	Endur	2	2	1	2	2	2	2	2	2	2	2	1	1	2	2	2	2
25	19	Bramaddesam	2	2	1	1	2	2	2	1	2	1	1	1	1	2	1	1	1
26	20	Ariyantangal	2	2	1	2	2	2	2	2	2	2	2	1	2	2	2	2	2
27	21	Nalmukkal	2	2	1	2	2	2	1	2	2	2	1	1	1	2	2	2	2
28	22	Alagaipakkam	2	2	2	2	2	2	1	2	2	2	1	1	1	2	2	2	2
29	23	T. Nellalam	2	2	1	2	2	2	2	2	2	2	1	1	1	2	2	2	2
30	24	Elavalapakkam	1	2	1	1	2	2	1	2	2	2	1	1	2	2	2	2	2
5-10 km,Tindivanam Sub-District, Viluppuram District																			
31	1	Olakkur Kilpadi	1	2	2	2	2	2	2	2	2	2	1	1	1	1	1	2	2
32	2	Koochikolathur	2	2	1	1	2	2	2	2	2	2	2	1	1	2	2	2	2
33	3	Padiri	1	1	2	1	2	2	2	2	2	2	2	1	1	2	2	2	2
34	4	Kambur	1	2	2	1	2	2	2	2	2	2	1	1	1	2	2	2	2
35	5	Annambakkam	1	1	1	2	2	2	2	2	2	2	1	2	1	2	2	2	2
36	6	Avanipur	2	1	1	2	2	2	1	2	1	2	1	1	1	2	1	1	1
37	7	Panaiyur	1	1	1	2	2	2	2	2	2	2	1	1	1	2	2	2	2
38	8	Pangalathur	1	1	1	2	2	2	2	2	1	2	1	1	1	2	2	2	2
39	9	Nangunam	2	2	1	2	2	2	1	2	2	2	1	1	1	2	2	2	2
40	10	Nallathur	2	2	1	2	2	2	1	2	1	2	1	1	1	2	2	1	2
41	11	Kadur (S)	1	2	2	2	2	2	2	2	1	2	2	1	1	2	2	2	2
42	12	Saram	2	1	1	1	2	2	2	1	2	1	1	1	1	2	2	2	1
43	13	Purangarai	2	1	1	2	2	2	2	2	2	2	1	1	1	2	2	2	2
44	14	Kilkaranai	2	1	1	2	2	2	2	2	2	2	1	1	1	2	2	2	2

Sl.No	No. of Villages	Name of village	Tap Water-Treated (Status A(1)/NA(2))	Covered Well (Status A(1)/NA(2))	Hand Pump (Status A(1)/NA(2))	Tube Wells/Borehole (Status A(1)/NA(2))	Spring (Status A(1)/NA(2))	River/Canal (Status A(1)/NA(2))	Tank/Pond/Lake (Status A(1)/NA(2))	Post Office (Status A(1)/NA(2))	Sub Post Office (Status A(1)/NA(2))	Post And Telegraph Office (Status A(1)/NA(2))	Telephone (landlines) (Status A(1)/NA(2))	Mobile Phone Coverage (Status A(1)/NA(2))	Public Bus Service (Status A(1)/NA(2))	Railway Station (Status A(1)/NA(2))	Commercial Bank (Status A(1)/NA(2))	Cooperative Bank (Status A(1)/NA(2))	Agricultural Credit Societies (Status A(1)/NA(2))
45	15	Evalur	2	1	1	2	2	2	2	2	2	2	1	1	1	2	2	2	2
46	16	Sattanur	1	2	1	1	2	2	2	2	2	2	2	1	1	2	2	2	2
47	17	Salavadi	2	2	1	2	2	2	2	2	2	2	1	1	1	2	2	2	2
48	18	Melpettai	2	2	1	1	2	2	2	1	2	1	1	1	1	2	2	2	2
49	19	Vittalapuram	2	2	1	2	2	2	1	2	2	2	1	1	2	2	2	2	2
50	20	Kilgudalur	1	2	1	1	2	2	2	2	2	2	1	1	1	2	2	2	2
51	21	Mangalam	1	2	2	1	2	2	2	2	2	2	1	1	2	2	2	2	2
52	22	Kiladanur	1	2	1	1	2	2	2	2	1	2	1	1	2	2	2	2	2
53	23	Pallipakkam	2	2	1	2	2	2	1	2	2	2	1	1	2	2	2	2	2
54	24	Naramagani	1	2	1	2	2	2	1	2	2	2	2	1	2	2	2	2	2
55	25	Sendamangalam	2	1	1	2	2	2	1	2	2	2	1	1	1	2	2	2	2
56	26	Nallur	2	2	1	1	2	2	2	2	2	2	2	1	1	2	2	2	2
57	27	Pantodu	2	2	1	1	2	2	2	2	2	2	2	1	1	2	2	2	2
58	28	Nagar	1	2	1	1	2	2	1	2	1	2	1	1	1	2	2	2	2
59	29	Siruvadi	1	2	1	1	2	2	2	2	1	2	1	1	1	2	1	2	2
60	30	Vaidapakkam	1	2	1	2	2	2	1	2	1	2	1	1	2	2	2	2	2
61	31	Nerkunam (Vada)	2	2	1	2	2	2	2	2	1	2	1	1	1	2	2	2	2
62	32	Endiyur	2	2	2	2	2	2	2	2	1	2	1	1	1	2	1	1	1
63	33	Attur	1	2	1	2	2	2	1	2	1	2	1	1	1	2	2	2	2
64	34	Alapakkam (Vada)	2	2	2	1	2	2	1	2	2	2	1	1	2	2	2	1	2
65	35	Manur	1	2	1	2	2	2	1	2	2	2	2	1	1	2	2	2	2
66	36	Molasur	1	2	1	1	2	2	1	2	1	2	1	1	1	2	2	2	2
67	37	Guruvammapettai	2	2	2	2	2	2	2	2	2	2	1	1	1	2	2	1	1
68	38	Kurur	1	2	1	1	2	2	1	2	2	2	1	1	2	2	2	1	2
69	39	Vepperi	1	2	1	2	2	2	1	2	2	2	1	1	1	2	2	1	2
70	40	Murukeri	1	2	1	1	2	2	2	2	2	2	1	1	1	2	2	2	2
71	41	Sattamangalam	2	2	1	2	2	2	1	2	2	2	2	1	1	2	2	2	2
72	42	Singanandai	2	2	1	2	2	2	1	2	2	2	2	1	1	2	2	2	2
73	43	Alanguppam	2	2	1	2	2	2	2	2	1	2	1	1	1	2	2	2	1
74	44	Manoor	2	2	1	2	2	2	1	2	1	2	1	1	1	2	2	2	2
75	45	Vanniper	2	2	1	2	2	2	2	2	2	2	2	1	1	2	2	2	2
76	46	Kilsiviri	2	2	1	2	2	2	1	2	2	2	1	1	1	2	2	2	2
77	47	Palamukkal	2	2	1	2	2	2	2	2	2	2	1	1	1	2	2	2	2
78	48	Nerkunam (Then)	1	2	1	2	2	2	1	2	2	2	1	1	1	2	2	2	2
79	49	Kovadi	2	1	1	1	2	2	2	2	2	2	2	1	1	2	2	2	2
80	50	Ommandur	2	2	1	1	2	2	2	2	1	2	1	1	1	2	1	1	1
81	51	Varagapattu	2	2	1	2	2	2	2	2	2	2	1	1	2	2	2	2	2
82	52	Iraiyanur	1	1	1	2	2	2	2	2	1	2	1	1	1	2	2	2	2
Vanur Sub-District, Viluppuram District																			
83	1	Kodippakkam (Ten)	1	1	1	1	2	2	1	2	2	2	1	1	2	2	2	1	1
84	2	Peravur	2	2	1	1	2	2	1	2	2	2	1	1	1	2	2	2	2
85	3	Olagapuram	2	2	1	1	2	2	1	2	1	2	1	1	2	2	2	2	2
86	4	Kumalampattu	2	2	1	1	2	2	1	2	2	2	1	1	1	2	2	2	2
87	5	Nallavur	2	2	1	2	2	1	1	2	2	2	1	1	2	2	2	1	1

**Source: District Primary Census Abstract, Viluppuram District of Tamilnadu State-2011*

Note : A: Available, NA- Not Available

Status: A(1)/NA(2)

CREATIVE ENGINEERS & CONSULTANTS

(NABET ACCREDITED, NABL ACCREDITED TESTING LABORATORY,
DEPARTMENT OF INDUSTRIES AND COMMERCE REGISTERED COMPANY

AMBIENT AIR QUALITY

Project	:	**Rough Stone and Gravel Quarry Of M/s.Sri Magaveer Mines, Prop. T.A.P.Jayakeerthi**
Name of the Location	:	**Near Lease Area**
Station Code	:	**A1**

SL.NO	DATE	PM10	PM2.5	SO2	NO2
1	3/3/2026	58.4	28.0	6.7	10.1
2	3/4/2026	55.9	26.8	6.1	9.4
3	3/14/2026	62.9	30.2	8.3	11.1
4	3/15/2026	59.5	28.6	6.9	10.3
5	3/17/2026	57.3	27.5	6.6	9.9
6	3/18/2026	54.6	26.2	5.9	8.6
7	3/28/2026	53.4	25.6	5.7	8.2
8	3/29/2026	55.1	26.4	6.0	8.7
9	3/31/2026	58.9	28.3	6.8	10.2
10	4/1/2026	61.4	29.5	7.7	12.6
11	4/11/2026	54.1	26.0	5.8	8.4
12	4/12/2026	57.9	27.8	6.6	10.1
13	4/14/2026	60.2	28.9	7.1	10.4
14	4/15/2026	55.5	26.6	6.1	9.1
15	4/25/2026	64.4	30.9	8.7	11.5
16	4/26/2026	62.3	29.9	8.1	10.9
17	4/28/2026	60.4	29.0	7.3	11.6
18	4/29/2026	56.5	27.1	6.3	9.4
19	5/9/2026	66.2	31.8	8.1	13.8
20	5/10/2026	62.0	29.8	7.9	12.7
21	5/12/2026	60.9	29.2	7.6	12.6
22	5/13/2026	57.1	27.4	6.4	9.6
23	5/23/2026	63.4	30.4	8.2	13.1
24	5/24/2026	65.0	31.2	8.4	13.8
	MIN	**53.4**	**25.6**	**5.7**	**8.2**
	AVE	**59.3**	**28.5**	**7.1**	**10.7**
	MAX	**66.2**	**31.8**	**8.7**	**13.8**

Note: BDL – Below Detectable Limit, DL: Detectable Limit.

Prepared by

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CREATIVE ENGINEERS & CONSULTANTS
(NABET ACCREDITED, NABL ACCREDITED TESTING LABORATORY,
DEPARTMENT OF INDUSTRIES AND COMMERCE REGISTERED COMPANY

AMBIENT AIR QUALITY

Project	:	**Rough Stone and Gravel Quarry Of M/s.Sri Magaveer Mines, Prop. T.A.P.Jayakeerthi**
Name of the Location	:	**Vadakolapakkam Village**
Station Code	:	**A2**

SL.NO	DATE	PM10	PM2.5	SO2	NO2
1	3/3/2026	54.1	26.2	6.2	8.5
2	3/4/2026	51.3	24.9	5.4	7.7
3	3/14/2026	57.0	27.6	7.0	9.7
4	3/15/2026	54.5	26.4	6.3	8.6
5	3/17/2026	50.9	24.7	5.2	7.6
6	3/18/2026	53.3	25.1	6.0	8.3
7	3/28/2026	51.7	25.1	5.6	9.9
8	3/29/2026	52.9	25.1	5.9	10.2
9	3/31/2026	58.9	28.6	7.6	10.7
10	4/1/2026	55.3	26.8	6.6	9.9
11	4/11/2026	53.6	25.2	6.1	9.4
12	4/12/2026	56.5	26.6	6.9	9.8
13	4/14/2026	59.3	28.8	7.7	10.9
14	4/15/2026	55.6	26.3	6.8	10.1
15	4/25/2026	57.7	27.2	7.2	11.2
16	4/26/2026	52.1	25.3	5.7	9.3
17	4/28/2026	58.2	27.4	7.3	11.5
18	4/29/2026	52.4	25.4	5.8	8.1
19	5/9/2026	61.3	29.7	8.1	12.5
20	5/10/2026	58.6	28.4	7.4	11.6
21	5/12/2026	56.1	26.4	6.8	10.3
22	5/13/2026	54.9	26.0	6.4	9.7
23	5/23/2026	59.7	28.1	7.9	12.1
24	5/24/2026	57.3	27.2	7.1	11.8
	MIN	**50.9**	**24.7**	**5.2**	**7.6**
	AVE	**55.6**	**26.6**	**6.6**	**10.0**
	MAX	**61.3**	**29.7**	**8.1**	**12.5**

Note: BDL – Below Detectable Limit, DL: Detectable Limit.

Prepared by

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CREATIVE ENGINEERS & CONSULTANTS
(NABET ACCREDITED, NABL ACCREDITED TESTING LABORATORY,
DEPARTMENT OF INDUSTRIES AND COMMERCE REGISTERED COMPANY

AMBIENT AIR QUALITY

Project	:	**Rough Stone and Gravel Quarry Of M/s.Sri Magaveer Mines, Prop. T.A.P.Jayakeerthi**
Name of the Location	:	**Sevur Village**
Station Code	:	**A3**

SL.NO	DATE	PM10	PM2.5	SO2	NO2
1	3/5/2026	46.2	22.2	4.4	7.3
2	3/6/2026	48.0	23.1	5.1	7.9
3	3/12/2026	50.4	24.2	6.0	8.7
4	3/13/2026	51.9	24.9	6.6	9.2
5	3/19/2026	45.9	22.1	4.3	7.2
6	3/20/2026	47.7	22.9	5.0	7.8
7	3/26/2026	50.1	24.1	5.9	8.6
8	3/27/2026	48.3	23.2	5.2	8.0
9	4/2/2026	52.2	25.1	6.8	9.3
10	4/3/2026	48.6	23.4	5.3	8.1
11	4/9/2026	49.2	23.7	5.6	8.3
12	4/10/2026	46.5	22.4	4.6	7.4
13	4/16/2026	51.6	24.8	6.4	9.1
14	4/17/2026	46.9	22.5	4.7	7.5
15	4/23/2026	51.3	24.7	6.3	9.0
16	4/24/2026	48.9	23.5	5.4	8.2
17	4/30/2026	52.5	25.2	7.0	10.4
18	5/1/2026	51.0	24.5	6.2	8.9
19	5/7/2026	49.5	23.8	5.7	8.4
20	5/8/2026	47.1	22.6	4.8	7.6
21	5/14/2026	52.7	25.3	7.3	9.5
22	5/15/2026	50.7	24.4	6.1	8.8
23	5/21/2026	47.4	22.8	4.9	7.7
24	5/22/2026	49.9	24.0	5.8	8.5
	MIN	**45.9**	**22.1**	**4.3**	**7.2**
	AVE	**49.4**	**23.7**	**5.6**	**8.4**
	MAX	**52.7**	**25.3**	**7.3**	**10.4**

Note: BDL – Below Detectable Limit, DL: Detectable Limit.

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AMBIENT AIR QUALITY

Project	:	**Rough Stone and Gravel Quarry Of M/s.Sri Magaveer Mines, Prop. T.A.P.Jayakeerthi**
Name of the Location	:	**Buderi Village**
Station Code	:	**A4**

SL.NO	DATE	PM10	PM2.5	SO2	NO2
1	3/5/2026	49.9	24.2	5.3	8.1
2	3/6/2026	48.3	23.4	4.8	7.5
3	3/12/2026	51.3	24.9	5.8	8.6
4	3/13/2026	49.2	23.9	5.1	7.9
5	3/19/2026	48.0	23.3	4.7	7.4
6	3/20/2026	49.5	24.0	5.2	9.1
7	3/26/2026	51.0	24.7	5.7	9.5
8	3/27/2026	53.7	26.3	6.5	10.4
9	4/2/2026	50.6	24.5	5.6	9.4
10	4/3/2026	54.0	26.2	6.6	10.5
11	4/9/2026	50.4	24.4	5.5	9.3
12	4/10/2026	53.1	26.0	6.3	10.2
13	4/16/2026	54.4	26.4	6.9	11.5
14	4/17/2026	48.6	23.6	4.9	7.6
15	4/23/2026	52.2	25.6	6.1	10.3
16	4/24/2026	54.1	26.2	6.7	10.6
17	4/30/2026	51.6	25.0	5.9	9.7
18	5/1/2026	50.1	24.3	5.4	9.2
19	5/7/2026	48.9	23.7	5.0	8.7
20	5/8/2026	51.9	25.4	6.0	9.9
21	5/14/2026	54.7	26.5	7.0	10.2
22	5/15/2026	53.4	26.2	6.4	10.6
23	5/21/2026	54.2	26.3	6.8	11.2
24	5/22/2026	52.5	25.7	6.2	10.9
	MIN	**48.0**	**23.3**	**4.7**	**7.4**
	AVE	**51.5**	**25.0**	**5.9**	**9.5**
	MAX	**54.7**	**26.5**	**7.0**	**11.5**

Note: BDL – Below Detectable Limit, DL: Detectable Limit.

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AMBIENT AIR QUALITY

Project	:	**Rough Stone and Gravel Quarry Of M/s.Sri Magaveer Mines, Prop. T.A.P.Jayakeerthi**
Name of the Location	:	**Senalur Village**
Station Code	:	**A5**

SL.NO	DATE	PM10	PM2.5	SO2	NO2
1	3/7/2026	50.9	23.5	5.2	7.7
2	3/8/2026	52.4	24.2	5.7	8.2
3	3/10/2026	56.1	27.5	8.0	10.7
4	3/11/2026	54.2	25.8	6.3	8.9
5	3/21/2026	54.7	26.4	6.6	9.3
6	3/22/2026	55.9	27.4	7.8	10.5
7	3/24/2026	50.6	24.5	5.1	7.6
8	3/25/2026	52.1	24.0	5.6	8.1
9	4/4/2026	56.3	27.6	8.2	10.9
10	4/5/2026	53.9	25.4	6.2	8.7
11	4/7/2026	53.6	25.2	6.1	8.6
12	4/8/2026	54.9	26.7	6.8	9.5
13	4/18/2026	56.5	27.7	8.3	11.1
14	4/19/2026	55.1	27.0	7.0	9.7
15	4/21/2026	51.2	23.7	5.3	7.9
16	4/22/2026	52.7	24.3	5.8	8.3
17	5/2/2026	54.5	26.0	6.4	9.1
18	5/3/2026	55.3	27.1	7.2	9.9
19	5/5/2026	51.5	23.8	5.4	8.0
20	5/6/2026	53.3	25.1	6.0	8.5
21	5/16/2026	57.0	28.0	8.4	12.4
22	5/17/2026	55.5	27.2	7.4	10.1
23	5/19/2026	53.0	24.5	5.9	8.4
24	5/20/2026	55.7	27.3	7.6	10.3
	MIN	**50.6**	**23.5**	**5.1**	**7.6**
	AVE	**54.0**	**25.8**	**6.6**	**9.3**
	MAX	**57.0**	**28.0**	**8.4**	**12.4**

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WATER QUALITY DATA

Project Name	:	**Rough Stone and Gravel Quarry Of M/s.Sri Magaveer Mines, Prop. T.A.P.Jayakeerthi**
Location Name	:	

Location Code	Location Name
GW1	Near Mine Lease Area (BW)
GW2	Vada kolapakkam Village(BW)
GW3	Sevur Village(BW)
GW4	Buderi Village(BW)
GW5	Senalur Village(BW)

S. No.	Parameter	Unit	GW1	GW2	GW3	GW4	GW5	*Permissible Limits
1	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	**AGREEABLE**
2	Turbidity	NTU	<1	<1	<1	<1	<1	**5.0**
3	pH at 25 ˚C	-	7.62	7.21	7.15	7.45	7.13	**6.5-8.5**
4	Electrical Conductivity	µmhos/cm	470.6	420.5	565.6	712.2	672.3	
5	Total Dissolved Solids	mg/L	284	252	340	430	405	**2000**
6	Total hardness as $CaCO_3$	mg/L	182	190	205	254	235	**600**
7	Calcium as Ca	mg/L	38.9	42.0	44.8	52.8	56.0	**200**
8	Magnesium as Mg	mg/L	20.4	20.4	22.3	29.3	22.8	**100**
9	Calcium as $CaCO_3$	mg/L	97.2	105	112	132	140	**200**
10	Magnesium as $CaCO_3$	mg/L	84.8	85.0	93.0	122	95.0	**-**
11	Total alkalinity as $CaCO_3$	mg/L	176	135	159	210	223	**600**

S. No.	Parameter	Unit	GW1	GW2	GW3	GW4	GW5	*Permissible Limits
12	Chloride as Cl^-	mg/L	86.5	70.5	112	156	142.0	**1000**
13	Free Residual chlorine as Cl^-	mg/L	BDL(D.L-0.2)	BDL(D.L-0.2)	BDL(D.L-0.2)	BDL (D.L-0.2)	BDL (D.L-0.2)	**1.0**
14	Sulphates as SO_4^{2-}	mg/L	20.5	23.5	37.5	40.6	44.8	**400**
15	Iron as Fe	mg/L	BDL(D.L -0.01)	0.02	0.05	0.06	0.02	**0.3**
16	Nitrate as NO_3	mg/L	BDL(D.L –1.0)	2.31	2.69	2.89	3.26	**45**
17	Fluoride as F	mg/L	BDL(D.L –0.1)	0.32	0.37	0.41	0.46	**1.5**
18	Manganese as Mn	mg/L	BDL(D.L-0.05)	BDL(D.L-0.05)	BDL(D.L-0.05)	BDL(D.L-0.05)	BDL(D.L-0.05)	**0.1**

Note: * The water quality of the collected ground water samples were found to be within the prescribed permissible limits of IS: 10500:2012 Norms for Drinking in the absence of an alternative source.

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LAND USE PATTERN OF THE STUDY AREA WITHIN 10 KM RADIUS AROUND THE PROPOSED PROJECT AREA

Sl.No	No. of Villages	Name of village	Total Geographical Area (in Hectares)	Forest Area (in Hectares)	Area under Non-Agricultural Uses (in Hectares)	Barren & Un-cultivable Land Area (in Hectares)	Permanent Pastures and Other Grazing Land Area (in Hectares)	Land Under Miscellaneous Tree Crops etc. Area (in Hectares)	Culturable Waste Land Area (in Hectares)	Fallows Land other than Current Fallows Area (in Hectares)	Current Fallows Area (in Hectares)	Total Unirrigated Land Area (in Hectares)	Area Irrigated by Source (in Hectares)
0-2 km,Tindivanam Sub-District, Viluppuram District													
1	1	Kilsevur	506.71	0	60.54	90.2	0	20	2	27.1	92.87	90.78	123.22
2	2	Kilarungunam	245.13	0	52.58	0	4.11	0	0	10.16	102.85	23.67	51.76
3	3	Kulapakkam (Vada)	111.21	0	20.18	0	0	0	3.04	2.78	56.49	0	28.72
4	4	Senalur	222.28	0	20	20	0	12.1	2.1	11.65	108.1	10.79	37.54
5	5	Buderi	139.16	0	0	0	0	10.1	4	39.83	42.1	6.3	36.83
6	6	Chokkantangal	84.4	0	20.43	0	0	0	0.26	2.16	26.11	3.36	32.08
		total (A)	**1308.89**	**0**	**173.73**	**110.2**	**4.11**	**42.2**	**11.4**	**93.68**	**428.52**	**134.9**	**310.15**
2-5 km,Tindivanam Sub-District, Viluppuram District													
7	1	Ichcheri	342.46	0	38.82	1.84	0	0	0.44	0	92.17	191	18.19
8	2	Nolambur	783.17	0.23	107.19	0	0	0	4.31	0.83	47.52	419.49	203.6
9	3	Eppakkam	470.73	0	48.16	19.93	0	0	0.82	0	68.67	259.45	73.7
10	4	Andapattu	251.52	0	35.2	0.18	0	0	0	0	66.78	33.58	115.78
11	5	Kilpasar	585.43	0	125.38	0	0.66	0	7.54	0.8	100.4	248.37	102.28
12	6	Atchipakkam	501.89	0	3.91	82.14	6.86	0	1.82	39.43	102.28	157.15	108.3
13	7	Kilnemili	365.5	0	0	35.67	0	0	8.38	6.36	149.98	127.51	37.6
14	8	Vandarampundi	109.19	0	0	36.08	0	0	0.31	0	9.45	26.39	36.96
15	9	Kilmannur	102.98	0	0	36.23	0	0	0.04	0	5.78	39.5	21.43
16	10	Karuppur	161.09	0	0	40.41	0	0	3.18	0	47.53	44.04	25.93
17	11	Kattalai	526.89	7.1	87.1	8.86	2.15	0	6.06	0	112.87	80.77	221.98
18	12	Janakipettai	106.26	0	9.1	0	0	1.8	0	2.1	28.16	14.51	50.59
19	13	Perumukkal	665.32	0	120.1	106.99	0	0	12.3	0	188	38.73	199.2
20	14	Kunnappakkam	155.95	0	60.54	2.77	0	0	0	0	31.44	22.03	39.17
21	15	Tennampundi	152.18	0	35.65	0.38	0	0	19.43	0	20.26	51	25.46
22	16	Mandaperumpakkam	118.26	0	17.46	0	0	0	0.2	0	34.22	49.67	16.71
23	17	Madavantangal	139.55	0	23.84	3.42	0	0	0.89	0	63.54	35.72	12.14
24	18	Endur	544.9	0	78.54	18.44	0	2	5	0	175.61	185.65	79.66
25	19	Bramaddesam	724.33	0	157.35	12.48	0	15.3	6.31	0	256.57	85.74	190.58
26	20	Ariyantangal	116.7	0	28.54	3.44	0	0	3.02	0	32.17	31.97	17.56
27	21	Nalmukkal	274.95	0	41.73	0	0	0	0	30	123.36	14.02	65.84
28	22	Alagaipakkam	168.86	0	19.33	0	0	0	4.67	0.35	94.71	17.64	32.16
29	23	T. Nellalam	375.14	0	25.4	48.1	0	1.78	50.4	52	40.15	0	157.31
30	24	Elavalapakkam	196.26	0	61.78	0	0	0	0	0	21.16	15.99	97.33
		total (B)	**7939.51**	**7.33**	**1125.12**	**457.36**	**9.67**	**20.88**	**135.12**	**131.87**	**1912.78**	**2189.92**	**1949.46**
5-10 km,Tindivanam Sub-District, Viluppuram District													
31	1	Olakkur Kilpadi	561.98	0	9.55	53.65	40.09	0.78	9.65	8.62	277.24	0	162.4
32	2	Koochikolathur	553.3	0	156.68	119.72	14	50.3	30.2	20.1	12	0	150.3
33	3	Padiri	392.23	0	93.78	15.92	0	5.2	12.15	12.6	13.6	88.88	150.1
34	4	Kambur	476.94	0	80.94	0	0	0	0	11	135	210	40

Sl.No	No. of Villages	Name of village	Total Geographical Area (in Hectares)	Forest Area (in Hectares)	Area under Non-Agricultural Uses (in Hectares)	Barren & Un-cultivable Land Area (in Hectares)	Permanent Pastures and Other Grazing Land Area (in Hectares)	Land Under Miscellaneous Tree Crops etc. Area (in Hectares)	Culturable Waste Land Area (in Hectares)	Fallows Land other than Current Fallows Area (in Hectares)	Current Fallows Area (in Hectares)	Total Unirrigated Land Area (in Hectares)	Area Irrigated by Source (in Hectares)
35	5	Annambakkam	626.53	0	30.43	9.21	0	0	6.22	138.47	137.98	139.12	165.1
36	6	Avanipur	1033.58	0	237.84	0	0	0	11.92	3.41	91.76	300.61	388.04
37	7	Panaiyur	250.14	0	62.64	1.83	0	0	3.59	0	68.26	112.95	0.87
38	8	Pangalathur	508.25	0	2.52	11.16	0	25.4	2.53	121.27	120.29	136.86	88.22
39	9	Nangunam	189.28	0	8.56	0	0	0	0.32	0	43.54	102.03	34.83
40	10	Nallathur	183.18	0	70.9	0	0	0	0	3.68	21.8	54.44	32.36
41	11	Kadur (S)	78.43	0	4.04	0	0	0	0	15.8	31.9	12.83	13.86
42	12	Saram	1060.91	0	349.5	0	0	0	0	0	375.22	0	336.19
43	13	Purangarai	232.52	0	51.37	0.47	0	0	0	0	37.81	55.94	86.93
44	14	Kilkaranai	132.64	0	29.74	0.39	0.99	0	0	0	31.54	20	49.98
45	15	Evalur	182.16	0	54.19	0.6	0.6	0	0	0	57.78	14.76	54.23
46	16	Sattanur	252	0	32	0	0	12	5	0	75	45	83
47	17	Salavadi	450.19	0	81.92	0	0	0	155.41	48.91	0	85	78.95
48	18	Melpettai	155.67	0	38.63	0	0	0	0	0	60.57	0	56.47
49	19	Vittalapuram	711.19	7.1	13.25	7.1	5.05	2.05	2.15	0	269.53	1.25	403.71
50	20	Kilgudalur	196.11	0	49.11	0	0	0	0	0	60.21	56.44	30.35
51	21	Mangalam	200	0	34	0	0	7	0	0	24	59	76
52	22	Kiladanur	261.3	0	71	0	2	14	1	0	87	0	86.3
53	23	Pallipakkam	242.64	0	45.55	0	0	0	0.25	0.13	15.75	113.1	67.86
54	24	Naramagani	55.94	0	0	14.94	0	0	0	0	7.28	11.63	22.09
55	25	Sendamangalam	252.59	0	59.18	0	0	0	0	0	21.63	75.99	95.79
56	26	Nallur	217.91	0	41.38	25	33	19	2.05	12.16	7.7	0	77.62
57	27	Pantodu	170.3	0	7.7	15.5	13.32	19.74	33.25	9.5	0.04	0	71.25
58	28	Nagar	1086	0	180.4	0	2.94	15.4	190.1	10.2	36.64	0	650.32
59	29	Siruvadi	615.37	0	99.09	0	5.11	0	2	0	212.28	217.13	79.76
60	30	Vaidapakkam	379.78	0	65.18	0	0	0	0.36	0	95.19	67.73	151.32
61	31	Nerkunam (Vada)	714.85	0	163.65	0	0	0	0.95	1.52	21.43	114.52	412.78
62	32	Endiyur	405.58	0	80.6	0	0	0	2	0	88.18	97.95	136.85
63	33	Attur	461.3	0	67.19	0	0	0	20.1	3.65	50.03	109.18	211.15
64	34	Alapakkam (Vada)	162.97	0	45.42	0	1.81	10.13	0	0	0	38.01	67.6
65	35	Manur	280.37	0	103.3	0	0	0	10.2	0	49.24	79.07	38.56
66	36	Molasur	791.25	0	0	0	0	37.48	1.53	394.45	7.43	0	350.36
67	37	Guruvammapettai	205.69	0	41.4	0	0	0	0.15	0	39.5	0	124.64
68	38	Kurur	304.6	0	53.76	0	0	0	0.65	0	26.56	0.65	222.98
69	39	Vepperi	177.82	0	5.57	0	0.8	0	96.09	0	9.42	38.6	27.34
70	40	Murukeri	55.76	0	9.95	0	0	0	0.13	0	36.3	4.65	4.73
71	41	Sattamangalam	111.85	0	2.97	17.14	0	0	42.28	0	0.09	0	49.37
72	42	Singanandai	109.81	0	0.1	13.46	0	0	35.73	0	0.1	35.96	24.46
73	43	Alanguppam	482.16	0	110.6	0	0	0	7.2	0	41.47	224.73	98.16
74	44	Manoor	1048.19	0	220.29	212.37	0	254.7	3.92	3.99	7.92	195.15	149.85

Sl.No	No. of Villages	Name of village	Total Geographical Area (in Hectares)	Forest Area (in Hectares)	Area under Non-Agricultural Uses (in Hectares)	Barren & Un-cultivable Land Area (in Hectares)	Permanent Pastures and Other Grazing Land Area (in Hectares)	Land Under Miscellaneous Tree Crops etc. Area (in Hectares)	Culturable Waste Land Area (in Hectares)	Fallows Land other than Current Fallows Area (in Hectares)	Current Fallows Area (in Hectares)	Total Unirrigated Land Area (in Hectares)	Area Irrigated by Source (in Hectares)
75	45	Vanniper	759.05	0	156.25	4.2	0	0	0	40.1	3.4	396.94	158.16
76	46	Kilsiviri	281.64	0	62.04	60	0	0	0	0	79.26	0	80.34
77	47	Palamukkal	289.82	0	16.49	30.68	0	0	6.36	15	58.11	0	163.18
78	48	Nerkunam (Then)	261.92	0	43.5	0	0	0	0	0	33.49	41.16	143.77
79	49	Kovadi	350.76	0	0	0	0	96.38	6.46	0.47	65.43	7.34	174.68
80	50	Ommandur	866.95	0	186.15	0	0	380.52	0	0	180.2	0	120.08
81	51	Varagapattu	63.9	0	8.06	0	0	0	0	0	9.82	25.62	20.4
82	52	Iraiyanur	471.83	0	24.18	0	0	0	130.96	0	102	103.31	111.38
Vanur Sub-District, Viluppuram District													
83	1	Kodippakkam (Ten)	694.25	0	0.2	0	0	0	2.3	2.29	212.31	414.41	62.74
84	2	Peravur	1091.19	0	2.19	2.27	0	0	16.4	0	215.37	710.38	144.58
85	3	Olagapuram	917.84	0	169.91	0	0	0	9.6	0	0	609.74	128.59
86	4	Kumalampattu	112.7	0	0	0	0	0	1	0	28.1	34.3	49.3
87	5	Nallavur	691.05	0	186.46	4.14	3.57	0	0	0.05	0	348.01	148.82
Vanur Sub-District, Viluppuram District													
88	1	Kumalampattu R.F	444.552798	444.552798	0	0	0	0	0	0	0	0	0
		total (C)	**24318.7128**	**451.652798**	**3821.3**	**619.75**	**123.28**	**950.08**	**862.16**	**877.37**	**3793.7**	**5610.37**	**7209.05**
		Grand Total (A+B+C)	**33567.1128**	**458.982798**	**5120.15**	**1187.31**	**137.06**	**1013.16**	**1008.68**	**1102.92**	**6135**	**7935.19**	**9468.66**

**Source: District Primary Census Abstract, Viluppuram District of Tamilnadu State-2011*

**Source: District Primary Census Abstract, Viluppuram District of Tamilnadu State-2011*

தமிழ்நாடு அரசு
நீர்வளத்துறை

Annexure - 13

அனுப்புநர்	பெறுநர்
பொறிஞர்.ச.அருணகிரி, எம்.இ.,எம்.பி.ஏ., செயற்பொறியாளர், நீ.வ.து., கீழ்பெண்ணையாறு வடிநில கோட்டம், விழுப்புரம்-605 602.	உதவி இயக்குநர், புவியியல் மற்றும் சுரங்கத்துறை, விழுப்புரம்

கடித எண். 224m / கோ.705 / வபி / இவஅ-1 / 2026 / நாள்:25.06.2026

அய்யா,

பொருள்: கனிமங்களும் சுரங்கங்களும் – விழுப்புரம் மாவட்டம் – திண்டிவனம் வட்டம் – சேனலூர் கிராமம் –பட்டா புல எண். 7/1-0.36.0, 7/2-0.58.0, 7/3-0.16.0,7/4-0.36.0, 7/5-0.36.0, 7/6-0.58.0 மற்றும் 7/7-0.64.0 ஆகியவற்றின் மொத்த பரப்பு 3.04.0 ஹெக்டேர் பரப்பளவில் சாதாரண கற்கள் மற்றும் கிராவல் குவாரி குத்தகை உரிமம் வேண்டி மனுதாரர் தி/ள்.மகாவீர் மைன்ஸ், உரிமையாளர் திரு. T.A.P.ஜெயகீர்த்தி என்பவர் அனுமதி கோரி விண்ணப்பம் செய்தது – துறை சார்ந்த அறிக்கை கோரியது– தொடர்பாக.

25 JUN 2026

பார்வை:

1. உதவி இயக்குநர், புவியியல் மற்றும் சுரங்கத்துறை, விழுப்புரம் அவர்களின் கடித எண்.ந.க.ஆ / புவி(ம)சுர / 277 / 2024, நாள்:15.05.2026.
2. உதவி செயற்பொறியாளர், நீ.வ.து., கீழ் பெண்ணையாறு வடிநில உபகோட்டம், திண்டிவனம் அவர்களின் கடித எண். 265 / கோ.40 /2026/ உ.செ.பொ -திண்டினம்/ நாள்.05.06.2026.

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பார்வை (1) ல் காணும் உதவி இயக்குநர், புவியியல் மற்றும் சுரங்கத்துறை, விழுப்புரம் அவர்களின் கடிதத்தில், தி/ள்.மகாவீர் மைன்ஸ், உரிமையாளர் திரு.T.A.P.ஜெயகீர்த்தி என்பவர் விழுப்புரம் மாவட்டம், திண்டிவனம் வட்டம். சேனலூர் கிராமம், பட்டா புல எண். 7/1-0.36.0, 7/2-0.58.0, 7/3-0.16.0,7/4-0.36.0, 7/5-0.36.0, 7/6-0.58.0 மற்றும் 7/7-0.64.0 ஆகியவற்றின் மொத்த பரப்பு 3.04.0 ஹெக்டேர் பரப்பளவில் சாதாரண கற்கள் மற்றும் கிராவல் குவாரி குத்தகை உரிமம் கோரிய புலங்களுக்கு வடக்கு பகுதியில் உள்ள ஏரிக்கு விடப்பட வேண்டிய பாதுகாப்பு இடைவெளி தூரம் மற்றும் கடைபிடிக்க வேண்டிய நிபந்தனைகள் கோரப்பட்டுள்ளது.

மேற்கண்ட தளத்தினை பார்வை (2)ல் காணும் உதவி செயற்பொறியாளர், நீ.வ.து., கீழ் பெண்ணையாறு வடிநில உபகோட்டம், திண்டிவனம் அவர்களால் தள ஆய்வு செய்து பரிந்துரை செய்ததின் அடிப்படையில் விழுப்புரம் மாவட்டம், திண்டிவனம் வட்டம். சேனலூர் கிராமம், பட்டா புல எண். 7/1-0.36.0, 7/2-0.58.0, 7/3-0.16.0,7/4-0.36.0, 7/5-0.36.0, 7/6-0.58.0 மற்றும் 7/7-0.64.0 ஆகியவற்றின் மொத்த பரப்பு 3.04.0 ஹெக்டேர் பரப்பளவில் சாதாரண கற்கள் மற்றும் கிராவல் குவாரி குத்தகை உரிமம் கோரிய புல எண்கள், புல எண்.7ல் கீழ்அருங்குணம் கீழ்சேவூர் செல்லும் சாலையின் வலதுபுறம் அமைந்துள்ளது. மனுதாரின் புல எண்.7 ற்கு அருகாமையில் புல எண்.1ல் சேனலூர் கிராம ஏரி உள்ளது. சேனலூர் ஏரியானது (புல எண்.1) மனுதாரரின் புலத்திலிருந்து 204 மீட்டர் இடைவெளியில் உள்ளது. எனவே, மேற்காணும் கூறுகளை கருத்தில் கொண்டு மனுதாரரின் புல எண்கள். 7/1, 7/2, 7/3, 7/4, 7/5, 7/6 மற்றும் 7/7-ல் சாதாரண கற்கள் மற்றும் கிராவல் வெட்டியெடுத்து குவாரி அமைக்க கீழ் கண்ட நிபந்தனைகள் பரிந்துரை செய்யப்படுகிறது.

(த.பி.பா)

1. மனுதாரர் குவாரி பணியின் போது எடுக்கப்படும் மண், கிராவல் மற்றும் இதர தேவையற்ற கணிமங்களை தனது பட்டா நிலத்திலேயே கொட்டப்பட வேண்டும்.
2. நீர்நிலைகளில் மாசு ஏற்படுதலை தவிற்க ஏதுவான புல எண் 7 மற்றும் 9 ற்கு இடையே மரங்களை ஒவ்வொரு 3 மீட்டர் இடைவெளியில் தொடர்சியாக நடப்பட வேண்டும்.
3. சேனலூர் ஏரியானது (புல எண்.1) மனுதாரரின் புலத்திலிருந்து 204 மீட்டர் இடைவெளியில் உள்ளது
4. மனுதாரர் மேற்கொள்ளப்படும் குவாரி பணியினால் நீர் மாசு ஏற்படுதல் கூடாது மேலும் ஏரியின் கொள்ளளவில் குறைபாடுகள் ஏதும் ஏற்படுதல் கூடாது. ஏரியில் நீர் மாசு ஏற்படுத்துதல் போன்ற புகார்கள் ஏதும் வரும் நடவடிக்கை பட்டசத்தில் நீர்வளத்துறையின் மூலம் உரிய நடவடிக்கை மேற்கொள்ளப்படும்
5. அரசால் அவ்வபோது நிர்ணயிக்கப்படும் வரன்முறை மற்றும் விதிமுறைகளுக்கு கட்டுப்பட வேண்டும்.
6. மனுதாரரின் புல எண்.7 – ஐ சுற்றி 10 மீட்டர் இடைவெளி (OFFSET) விட்டு குவாரி பணிகள் மேற்கொள்ளபட வேண்டும்.
7. இவ்வனுமதி வழங்குவதால் மனுதாரர் அனுமதி கோரும் இடம் மற்றும் விபத்துகள் தொடர்பாக ஏதேனும் சட்டப்படியான வழக்குகளுக்கு இத்துறை எந்தவிதமான பொறுப்பும் ஏற்காது.
8. மனுதாரர் விண்ணப்பித்துள்ள புல எண்ணில் அமைக்கப்படவுள்ள குவாரியிலிருந்து வெளியேறும் நீரினை அருகிலுள்ள ஓடை பகுதியில் விடக்கூடாது.
9. மனுதாரரின் புல எண்களில் மேற்கொள்ளப்படும் கட்டுமானங்கள் அனைத்தும் Tamil Nadu Combined Development and Building Rules 2019–ன்படியே அமைய வேண்டும்.
10. மனுதாரரின் புலஎண்களில் குடிநீர் ஆதாரம் அமைக்கும் முன் தமிழக அரசின் உரிய வழிகாட்டுதலின்படி சம்மந்தப்பட்ட உள்ளாட்சியின் அனுமதி பெறப்பட்டு அமைக்கப்படுதல் வேண்டும்.

மேற்கண்ட நிபந்தனைகளோடும் தற்பொழுது நடைமுறையில் உள்ள அரசு விதிமுறைகளின்படியும் குறிப்பிடப்பட்டுள்ள மனுதாரருக்கு சொந்தமான விழுப்புரம் மாவட்டம், திண்டிவனம் வட்டம். சேனலூர் கிராமம், பட்டா புல எண். 7/1–0.36.0, 7/2–0.58.0, 7/3–0.16.0,7/4–0.36.0, 7/5–0.36.0, 7/6–0.58.0 மற்றும் 7/7–0.64.0 ஆகியவற்றின் மொத்த பரப்பு 3.04.0 ஹெக்டேர் பரப்பளவில் சாதாரண கற்கள் மற்றும் கிராவல் குவாரி குத்தகை உரிமம் பெற தி/ள்.மகாவீர் மைன்ஸ், உரிமையாளர் திரு.T.A.P.ஜெயகீர்த்தி என்பவருக்கு நிபந்தனைகளுடன் அனுப்பப்படுகிறது

இணைப்பு:

1) 'அ' பதிவேடு – 1 எண்
2) கிராம வரைபடம் – 1 எண்
3) புல வரைபடம் – 1 எண்
4) பட்டா, அடங்கல் –1 எண்
5) பத்திர நகல் – 1 எண்

செயற்பொறியாளர், நி.வ.து.,
கீழ்பெண்ணையாறுவடிநிலகோட்டம்,
விழுப்புரம்

From
Thiru.S.Rameshkumar, M.Sc.,
Assistant Director,
Geology and Mining,
Viluppuram District,
Viluppuram.

To
The Chairman,
State Level Environment Impact Assessment Authority,
Tamil Nadu,
3rd Floor, Panagal Maaligai,
No.1, Jeenis Road, Saidapet,
Chennai-15.

Rc.No.B/G&M/277/2024, Dated 2506.2026.

Sir,

Sub: Mines and Minerals – Minor Mineral – Rough stone and Gravel - Viluppuram District – Tindivanam Taluk – Senalur Village – Patta lands - S.F.Nos.7/1 - 0.36.0, 7/2 - 0.58.0, 7/3 - 0.16.0, 7/4 - 0.36.0, 7/5 - 0.36.0, 7/6 - 0.58.0 & 7/7 - 0.64.0 - over an extent of 3.04.0 Hectares - quarry lease application preferred by Thiru.T.A.P.Jayakeerthi, Proprietor of Tvl.Mahaveer Mines – Precise area communicated – Further particulars called for – sent – reg.

Ref :
1. Application dated 27.11.2024 from Thiru.T.A.P.Jayakeerthi, Proprietor of Tvl.Mahaveer Mines, Senalur Village, Tindivanam Taluk, Viluppuram District.
2. Assistant Director (i/c), Geology and Mining, Viluppuram Precise area communication notice Rc.No. B/G&M/277/2024, Dated: 08.04.2025.
3. Representation submitted by Thiru.T.A.P.Jayakeerthi, Proprietor of Tvl.Mahaveer Mines Dated: 23.07.2025 along with Minutes of 587th SEAC Meeting State Level Expert Appraisal Committee meeting held on 07.07.2025.
4. This office letter even number dated 15.05.2026 addressed to the Executive Engineer, Water Resources Department, Lower Pennaiyar Basin Division, Viluppuram.
5. The Executive Engineer, Water Resources Department, Lower Pennaiyar Basin Division, Viluppuram letter No.224M/கோ.705/வபி/இவஅ-1/2026/ dated 25.06.2026.

*****

I invite kind attention to the references cited.

2) In the reference 2nd cited, precise area was communicated by the Assistant Director of Geology and Mining, Viluppuram to the applicant Thiru.T.A.P.Jayakeerthi, Proprietor of Tvl.Mahaveer Mines, for the grant of quarry lease for rough stone and gravel over an extent of 3.04.0 Hectares of Patta land in S.F.Nos.7/1 - 0.36.0, 7/2 - 0.58.0, 7/3 - 0.16.0, 7/4 - 0.36.0, 7/5 - 0.36.0, 7/6 - 0.58.0 & 7/7 - 0.64.0 of Senalur Village, Tindivanam Taluk, Viluppuram District.

3) In the reference 3rd cited, the applicant has requested to obtain NOC from the WRD Department.

4) The Executive Engineer, Water Resources Department, Lower Pennaiyar Basin Division, Viluppuram has reported vide reference 5th cited. The above report has been enclosed herewith for necessary action.

Encl: Copy of the EE, WRD, Viluppuram letter.

25/6/20

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

25/06/20

From

M/s.SRI MAGAVEER MINES,
Prop: T.A.P. Jayakeerthi,
Senalur Village,
Tindivanam Taluk,
Viluppuram District- 604 101.

To

The Assistant Director (i/c),
Department of Geology and Mining,
District Collectorate,
Viluppuram District.

RespectedSir,

Sub: Submission of Mining Plan for **Rough Stone & Gravel Quarry** over an extent of **3.04.00** Ha in Patta Land S.F.Nos. 7/1, 7/2, 7/3, 7/4, 7/5, 7/6 & 7/7 **Senalur** Village, **Tindivanam** Taluk, **Viluppuram** District, Tamil Nadu–Reg.

Ref: Your Letter **RC.No.B/G & M/277/2024, Dated 08.04.2025.**

****

As directed by the Assistant Director in the reference cited, (Three) 3 copies of Draft Mining Plan has been prepared and submitted to your good office for your kind perusal and favorable condition.

Thanking You,

Yours Sincerely,
For, M/s.SRI MAGAVEER MINES

T.A.P Jayakeerthi

Prop: T.A.P. Jayakeerthi

Dated :
Place : Viluppuram
Encl : 3 Copies of Mining Plan

MINING PLAN

FOR SENALUR ROUGH STONE & GRAVEL QUARRY

Total Lease Period = 5 Years

(Prepared under Rule 41 & 42 as amended in Tamil Nadu Minor Mineral Concession Rules, 1959)

Lease in Patta Land

IN

LOCATION OF THE LEASE APPLIED AREA

EXTENT : 3.04.00 Ha

S.F.NOs : 7/1, 7/2, 7/3, 7/4, 7/5, 7/6 & 7/7

VILLAGE : SENALUR

TALUK : TINDIVANAM

DISTRICT : VILUPPURAM

STATE : TAMIL NADU

FOR

APPLICANT

M/s. SRI MAGAVEER MINES

Prop: T.A.P. Jayakeerthi,
Senalur Village,
Tindivanam Taluk,
Viluppuram District- 604 101.
Email.id: srimagaveermines@gmail.com
Mobile No: 9442134799 & 7010307987

PREPARED BY

Mr.N. Suresh, M.Sc.,(Qualified Person)
GEO MINING & ECO SOLUTIONS
D.No. 257/2, Arthi Nager II,
Emarald Garden, Narasothipatty,
Salem-636004.
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LIST OF CONTENTS

S. No		Page No.
i)	List of Annexure	3
ii)	List of Plates	4
iii)	Certificates	4
1.0	Introduction	8
2.0	Executive Summary	11
	PART -A	
3.0	General Information	13
4.0	Location	14
5.0	Geology and Mineral Reserves	15
6.0	Mining	20
7.0	Blasting	25
8.0	Mine Drainage	27
9.0	Ecology and Biodiversity	27
10.0	Other Permanent Structures	30
11.0	Employment Potentials & Welfare Measures	31
	PART - B	
12.0	Environment Management Plan	33
13.0	Mine Closure Plan	39
14.0	Any Other Details Intend to furnish by the Applicant	41

17 APR 2025

LIST OF ANNEXURES

Sl. No.	Description	Annexure No.
1	Precise Area Communication Letter issued from the Assistant Director, Department of Geology and Mining,	I
2	FMB Sketch along with measurements	II
3	Copy of Village Map	III
4	Copy of Land Documents (Patta, A Register, Adangal)	IV
5	Copy of Identity Proofs	VI
6	Copy of QP Certificate	VII

LIST OF PLATES

Sl. No.	Description	Plate No	Scale
1	Location Plan	I	Not to scale
2	Route Map	IA	Not to scale
3	Top sheet map 10km Radius	IB	1:100000
4	Satellite Imagery & Lease area around 300m, 500m and 1km Radius	IC	1:10000
5	Mine Lease & Surface Plan	II	1:1000
6	Geological Plan & Section	III & IIIA	1:1000 Ver-1:1000
7	First Five-Year Wise Development Plan & Production Sections	IV & IVA	Hor-1:1000 Ver-1:1000
8	Second Five Year Wise Development Plan & Production Sections	V & VA	Hor-1:1000 Ver-1:1000
9	Mine layout, land use pattern & Afforestation Plan	VI	1:1000
10	Environmental Management Plan	VII	1:1000
11	Conceptual & final mine Closure plan	VIII	1:1000
12	Conceptual & final Mine closure sections	VIIIA	Hor-1:1000 Ver-1:1000
13	Progressive Mine Closure Plan	IX	1:1000

CONSENT LETTER FROM THE MINE OWNER

17 APR 2025

The Mining Plan in respect of **Rough Stone & Gravel Quarry** over an extent of **3.04.00** Ha of **Patta Land** in **S.F.Nos**. 7/1(0.36.00), 7/2(0.58.00), 7/3(0.36.00), 7/4(0.36.00), 7/5(0.36.00), 7/6(0.58.00) & 7/7(0.64.00) of **Senalur** Village, **Tindivanam** Taluk, **Viluppuram** District and Tamil Nadu State has been prepared by **Mr. N. Suresh, M.sc**, a Qualified Person.,

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

Mr.N. Suresh, M.Sc., (Qualified Person)
GEO MINING & ECO SOLUTIONS
D.No. 257/2, Arthi Nager II, Emarald Garden,
Narasothipatty, Salem-636004.
Email id: sureshhydrogeology@gmail.com
Mobile No: 9994289822.

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

For, M/s. SRI MAGAVEER MINES

T.A.P Jayakeerthi

Prop: T.A.P. Jayakeerthi

Place : Viluppuram
Date :

M/s. SRI MAGAVEER MINES,
Prop: T.A.P. Jayakeerthi,
Senalur Village,
Tindivanam Taluk,
Viluppuram District- 604 101.
Email.id: srimagaveermines@gmail.com
Mobile No: 9442134799 & 7010307987.

7 APR 2025

DECLARATION

The Mining Plan in respect of **Rough Stone & Gravel Quarry** over an extent of **3.04.00** Ha of **Patta Land** in **S.F.Nos.** 7/1(0.36.00), 7/2(0.58.00), 7/3(0.16.00), 7/4(0.36.00), 7/5(0.36.00), 7/6(0.58.00) & 7/7(0.64.00) of **Senalur** Village, **Tindivanam** Taluk, **Viluppuram** District and Tamil Nadu State has been prepared with my consultation and I have understood the contents and agree to implement the same in accordance with the Mining Laws.

For, M/s. SRI MAGAVEER MINES

T.A.P Jayakeerthi

Prop: T.A.P. Jayakeerthi

Place : Viluppuram
Date :

Mr.N. Suresh, M.Sc.,(Qualified Person)
GEO MINING & ECO SOLUTIONS
D.No. 257/2, Arthi Nager II,
Emarald Garden, Narasothipatty, Salem-636004.
Email id: sureshhydrogeology@gmail.com
Mobile No: 99942 89822.

17 APR 2025

CERTIFICATE

This is to certify that, the provisions of Tamil Nadu Minor Minerals Concession Rules 1959 have been observed in the Mining Plan for the grant of **Rough Stone & Gravel Quarry** lease over an extent of **3.04.00** Ha of **Patta Land** in **S.F.Nos**. 7/1(0.36.00), 7/2(0.58.00), 7/3(0.16.00), 7/4(0.36.00), 7/5(0.36.00), 7/6(0.58.00) & 7/7(0.64.00) of **Senalur** Village, **Tindivanam** Taluk, **Viluppuram** District, Tamil Nadu State applied by

M/s. SRI MAGAVEER MINES,

Prop: T.A.P. Jayakeerthi,
Senalur Village,
Tindivanam Taluk,
Viluppuram District- 604 101.
Email.id: srimagaveermines@gmail.com
Mobile No: 9442134799 & 7010307987.

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

Certified

Signature of Qualified Person

N. SURESH, M.Sc.,(Geology)
Qualified Person

Place : Salem
Date : 11-4-2025

Mr. Suresh, M.Sc., (Qualified Person)
GEO MINING & ECO SOLUTIONS
D.No. 257/2, Arthi Nager II,
Emarald Garden, Narasothipatty, Salem-636004.
Email id: sureshhydrogeology@gmail.com
Mobile: 99942 89822.

17 APR 2025

CERTIFICATE

Certified that, in preparation of Mining Plan for **Rough Stone & Gravel Quarry** over an extent of **3.04.00** Ha of **Patta Land** in **S.F.Nos.** 7/1(0.36.00), 7/2(0.58.00), 7/3(0.16.00), 7/4(0.36.00), 7/5(0.36.00), 7/6(0.58.00) & 7/7(0.64.00) of **Senalur** Village, **Tindivanam** Taluk, **Viluppuram** District and Tamil Nadu State.

M/s. SRI MAGAVEER MINES, covers all the provisions of Mines Act, Rules, and Regulations etc., made there under and whenever specific permission are required, the Applicant will approach the Director General of Mines Safety, Chennai. The standards prescribed by DGMS in respect of Mines Health will be strictly implemented.

Certified

Signature of Qualified Person

N. SURESH, M.Sc.,(Geology)
Qualified Person

Place : Salem
Date : 11-4-2025

17 APR 2025

MINING PLAN

FOR SENALUR ROUGH STONE & GRAVEL QUARRY

Total Lease Period – 5Years

(Prepared under Rules 41 & 42Tamil Nadu Minor Mineral Concession Rules, 1959 And amended Minor Mineral Conservation and Development Rules, 2010)

1.0 INTRODUCTION

1. The present Mining Plan and Environmental Management Plan are prepared for **M/s. SRI MAGAVEER MINES,** Prop: T.A.P. Jayakeerthi, Senalur Village, Tindivanam Taluk, Viluppuram District, Tamil Nadu – 604 101.
2. The applicant proposed to quarry **Rough Stone & Gravel** in over an extent of **3.04.00** Ha of **Patta Land** in **S.F.Nos**. 7/1(0.36.00), 7/2(0.58.00), 7/3(0.16.00), 7/4(0.36.00), 7/5(0.36.00), 7/6(0.58.00) & 7/7(0.64.00) of **Senalur** Village, **Tindivanam** Taluk, **Viluppuram** District for a Period of Mining **5 Years** only. The excavated rough stone is used for crushing units and Gravel is used for filling and leveling of low-lying areas of Highway Road projects and other infrastructure development work in and around the district.
3. The application was meritoriously processed and precise area communication letter issued by the Assistant Director (i/c), Department of Geology and Mining, Viluppuram District has passed an order vide **R.c.No.B/G&M/277/2024, dated 08.04.2025.** The applicant to submit the Mining Plan and to get approval from the Assistant Director (i/c), Department of Geology & Mining, Viluppuram District and to obtain Environmental Clearance from State Level Environment Impact Assessment Authority, Tamil Nadu State, as per EIA Notification 2006 and its amendments vide MOEF and Climate Change Notification.
4. Accordingly, Mining Plan is prepared under the provisions Rule 41 of Tamil Nadu Minor Minerals Concession Rules, 1959 for rough stone and Gravel Quarry.

5. Geological Resources is estimated at **15, 27,250m³** of Rough Stone & **61,090m³** Gravel and Mineable Reserves are estimated at **48,912m³** of Gravel & **5, 84,175m³** of rough stone up to depth of **52m.**
6. The proposed quantity of reserves/level of production to be mined is **5,84,175m³** of rough stone and **48,912m³** of gravel up to a depth of **52** meters for a period of 5 years.
7. The Production Schedule of **5,84,175m³** (97,363 Lorry Loads) of **Rough Stone & 48,912m³(8,152** Lorry Loads) **Gravel** up to a depth of **52m (2m Gravel & 50m Rough Stone)** for the permission period of Mining **5 Years** only. Under the provisions of Rule 19 (1) of Tamil Nadu Minor Mineral Concession Rules, 1959, subject to the following conditions.
    I. The applicant should leave a safety distance of 7.5 mts to the surrounding patta lands.
    II. Quarrying should be restricted to the lease granted area only.
    III. The applicant should not cause any hindrance to the surrounding Patta lands and barbed wire fencing should be erected all along the boundary of the lease granted area before the commencement of quarrying operation.
    IV. The applicant should not cause any hindrance to the Northern side of water channel (odai) and Water Catchment Area.
    V. The applicant has to obtain Environmental Clearance from State Level Environmental Impact Assessment Authority, Chennai, Tamil Nadu before grant of quarry lease.
    VI. The applicant should strictly adhere to the existing Act and Rules.
8. Safety measures under mechanized loading as per the provisions of Reg.106(2)(b) of Metalliferous Mines Regulation-1961, Labour welfare Amenities as per the Mines Rules 1955 and amended DGMS circular shall be taken care of in preparation of Mining Plan.

ENVIRONMENTAL PARAMETERS,

(i) **Forest Conservation Act, 1980:**

There is no Reserve Forest around 1.0Kms radius found a kilsevur reserved forest at a distance of 2.45 Km west side from lease applied area.

(ii) **Wildlife (Protection) Act, 1972:**

The area does not attract the wild life sanctuary around 10Kms radius.

(iii)**The Coastal Regulation Zone (CRZ) Notification 2011:**

The area does not attract the Coastal zone around 10kms radius.

(iv)**Interstate Boundary:** There is no interstate boundary found within radius of 10Km.

I. ENVIRONMENTAL MEASURES TO BE ADOPTED SHALL BE,

1) Dust Control at source while *wet drilling* and *controlled blasting.*
2) Dust suppression at loading point and transport haul roads.
3) Noise Control in Blasting, control of fly rock missiles and Vibration by doing peak particle velocity with in standard as prescribed by the DGMS and MOEF.
4) Unnecessary land degradation should be avoided or damaged land should be reclaimed or rehabilitated.
5) Avoid uneven rat hole mining and follow scientific and systematic mining by safe bench system of open cast mining.
6) Mining near major fracture zones if any should be avoided to control ground water fluctuation in the adjacent agricultural lands.
7) Emission test of vehicles should be in tack to maintain minimum emission level of fuel gases.
8) Noise level should not exceed *80db* and the vehicles should use only permitted Air Horn while on road near residential areas.
9) Safety zones as prescribed by the Department of Geology and Mining from adjacent infrastructures should be strictly to adhere to.
10) Any other conditions as stipulated by the concerned authorities should be followed to protect the Environment and Ecology of the area.

17 APR 2025

2.0. EXECUTIVE SUMMARY

The area applied for lease is Rough Stone & Gravel quarry in Patta Land at Survey Numbers-7/1, 7/2, 7/3, 7/4, 7/5, 7/6 & 7/7 of **Senalur** Village, **Tindivanam** Taluk and **Viluppuram** District.

a. Name of the Village Panchayat – Senalur
b. Name of the Panchayat Union – Tindivanam
c. The proposed total Mineable Reserves –**48,912m³**of Gravel **& 584175m³**of rough stone.
d. The Production Schedule of **5,84,175m³**(97,363 Lorry Loads) of **Rough Stone & 48912m³(8,152** Lorry Loads) **Gravel** up to a depth of **52m (2m Gravel & 50m Rough Stone)** for the permission period of Mining **5 Years** only.
e. Total extent of the area –**3.04.00** Ha
f. Total Lease Period –**Five years** only
g. Existing depth of mining –**it is fresh lease applied area.**
h. Proposed Depth of mining –**52m (2m Gravel & 50m Rough Stone)**
i. Method of mining / level of mechanization - Opencast, Semi-mechanized Mining with a bench height of 5.0m & width of 5.0m is proposed and involves shallow Jackhammer drilling, Slurry blasting is proposed for this quarrying operation.
j. Types of Machineries used in the quarry –Jack hammer 30-32mm dia, Tractor mounted compressor attached with Jack hammer. Excavator of 0.90m³ bucket capacity is attached with Rock breaker is proposed to deploy for quarrying operation. Total consumption of Diesel for Rough Stone & Gravel is around= **4,75,494Liters** of HSD for the entire period of life of the quarry.
k. No Trees will be uprooted due to this quarrying operation.
l. 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 & Gravel.
m. There is no Export of this quarrying Rough Stone & Gravel.
n. Topo sketch covering 10Km,500m radius around the proposed area with markings of Habitations, Water bodies like Streams, Rivers, Roads, Major structure like Bridges, Wells, Archeological, Historical importance, Places of worship is marked and enclosed as Plate No. IB& VI.

o. The lease applied area is **3.04.00 Ha**, the corners are designated from the South western corner and the coordinates are clearly marked in Plate no - II

p. The diagram showing the Mining area, dimensions of the Pit, proposed depth of mining for the mining plan period are enclosed as Plate No –IV.

q. The lease applied area is 10Km away from the Inter State boundary, protected area under Wildlife Production Act 1972, critically polluted area as identified by CPCB and notified Eco sensitive areas.

r. There are no wastages anticipated during this quarry operation; hence waste dump is not proposed in this lease applied area.

s. Around **35 Employees** are deploying in this quarrying operation.

1. The lease applied area is bounded by all corners and the DGPS coordinates are clearly marked in Plate no - II

Table -2

S.Nos	LATITUDE	LONGITUDE
1	12° 13' 48.2936" N	79° 45' 15.9136" E
2	12° 13' 50.4744" N	79° 45' 16.6706" E
3	12° 13' 52.8157" N	79° 45' 16.7746" E
4	12° 13' 52.4986" N	79° 45' 19.0818" E
5	12° 13' 51.8310" N	79° 45' 23.7314" E
6	12° 13' 47.6714" N	79° 45' 24.0670" E
7	12° 13' 48.3204" N	79° 45' 18.2569" E
8	12° 13' 47.7519" N	79° 45' 17.9776" E
9	12° 13' 47.9918" N	79° 45' 17.2148" E

PART - A



3.0. GENERAL INFORMATION:

3.1. Name of the Applicant with Address, contact no, email etc.,

Name : **M/s. SRI MAGAVEER MINES,**
Prop: T.A.P. Jayakeerthi,
Senalur Village,
Tindivanam Taluk,
Viluppuram District- 604 101.
Email.id: srimagaveermines@gmail.com
Mobile No: 9442134799 & 7010307987.

District : Viluppuram
State : Tamil Nadu

3.2. Status of the Applicant (Individual / Company / Firm)

The applicant is a Private Individual.

3.3. Mineral which the Applicant intends to mine

Rough Stone & Gravel only.

3.4. Precise area communication Letter details received from the competent authority of the government.

Precise area communication letter issued from the Assistant Director (i/c), Department of Geology and Mining, Viluppuram vide **R.C.No.B/G & M/277/2024 Dated 08.04.2025.**

3.5. Period of permission / lease to be granted

The applicant has applied permission for **5Years**. Assistant Director (i/c), Department of Geology and Mining, Viluppuram, consider grant for a Period of Mining **5 Years** only.

3.6. Name and Address of the RQP/Authorized person for preparing the Mining Plan

Name : **Mr.N. Suresh, M.Sc., (Qualified Person)**
GEO MINING & ECO SOLUTIONS
Address : D.No. 257/2, Arthi Nager II, Emarald Garden,
Narasothipatty, Salem-636004. TN.
Email id:sureshhydrogeology@gmail.com
Mobile:99942 89822.

4.0. LOCATION:

Table No: 3

State	**Tamil Nadu**
District	Viluppuram
Taluk	Tindivanam
Village	Senalur
S.F.Nos	7/1,7/2,7/3,7/4,7/5,7/6,7/7
Extent in (Ha)	3.04.00 Ha

17 APR 2025

4.1. Details of Existence of public road /railway line, if any nearby and approximate distance.

Table No: 4

S.No	Description	Place	Distance (Km)	Direction
1	Bus stop	Salavadi	9.6	W
2	Post Office	Kunnapakkam	2.5	E
3	Police Station	Brammadesam	4.2	NE
4	Fire service	Tindivanam	10.7	NW
5	Railway Station	Panchalam	8.4	NW
6	Government	Endiyur	6.2	W
7	Government School	Kilsevur	1.7	N
8	Airport	Puducherry	165.0	SE

Location site of **M/s. SRI MAGAVEER MINES, Senalur Village, Tindivanam Taluk, Viluppuram District.**





Fig.1 - Showing Location and route map of lease applied area



ROUTE MAP: → Villuppuram 37 kms Tindivanam 12.0Kms Kilarungranany
1.3kms

Classification of the Area (Ryotwari / Poramboke /Patta/ others)

- It is a Patta Land and non-agricultural land.

a. Ownership / Occupancy of the applied area (Surface rights)

- It is Patta Land registered in the name of T.A.P. Jayakeerthi S/o. Appachi Vide Patta No 341, of S.F.Nos. 7/1, 7/2, 7/3, 7/4, 7/5, 7/6 & 7/7.

b. Toposheet No. with Latitude and Longitude

Topo sheet No: 58–P/16
Latitude :12° 13' 47.67" N to 12° 13' 52.81" N
Longitude :79° 45' 15.91" E to 79° 45' 24.06" E

5.0. GEOLOGY AND MINERAL RESERVES

5.1. Topography:

- The lease applied area is exhibits Plain topography covered by massive Charnockite formation.
- The massive Charnockite formation is clearly visible from outcrop in the lease area gentle sloping towards southeastern side of the area, the altitude of the area is above **68m** MSL.
- No major river is found nearby the lease applied area.
- Water Level is found at a depth of ***60m to 65m*** below Ground Level, 60m in Rainy seasons and 65m in summer seasons by monitoring nearby bore hole.
- Temperature of the area is reported to be 18°C to a maximum of 42°C during summer.
- Rainfall of this area is about 800mm to 900mm during the both NE & SW monsoons.
-

17 APR 2025

5.2. General Geology of the area (with plans):

- The area is underlain by the wide range of metamorphic rocks of peninsular gneissic complex. These rocks are extensively weathered and overlain by the recent valley fills and alluvium at places.
- The geological formations found in the district are Archaean rocks like Gneisses, Granites, Charnockite basic granulites and calc gneisses. The younger formations are Quartz veins and pegmatite.
- The rock type noticed in the area for lease is Charnockite which contains mostly Quartz and Feldspar with some ferromagnesian minerals.
- The Charnockite is part of peninsular Gneisses, a high-grade metamorphic rock.
- The strike of the Charnockite formation is N45^{0}W-S45^{0}E with dipping towards SW60^0.

The General Geological succession of the area is given as under.

Age	Formation
Recent	- Quaternary to recent formation (Gravel)
Archaean	- Charnockite, Peninsular Gneiss complex

5.3. Details of Exploration already carried out if any:

- There is no exploration carried out in this applied quarry area.
- State Geology and Mining Department Government of Tamil Nadu has been carried out geological exploration and regional mapping study of the lease area.
- Geological Survey of India has carried out detailed mapping in Viluppuram District.
- Besides the QP and the team members made a detailed geological study of the area, Geological map has been prepared in 1:1000 scale and enclosed plate –III.



Fig.1 - Photograph showing general view of the lease applied area

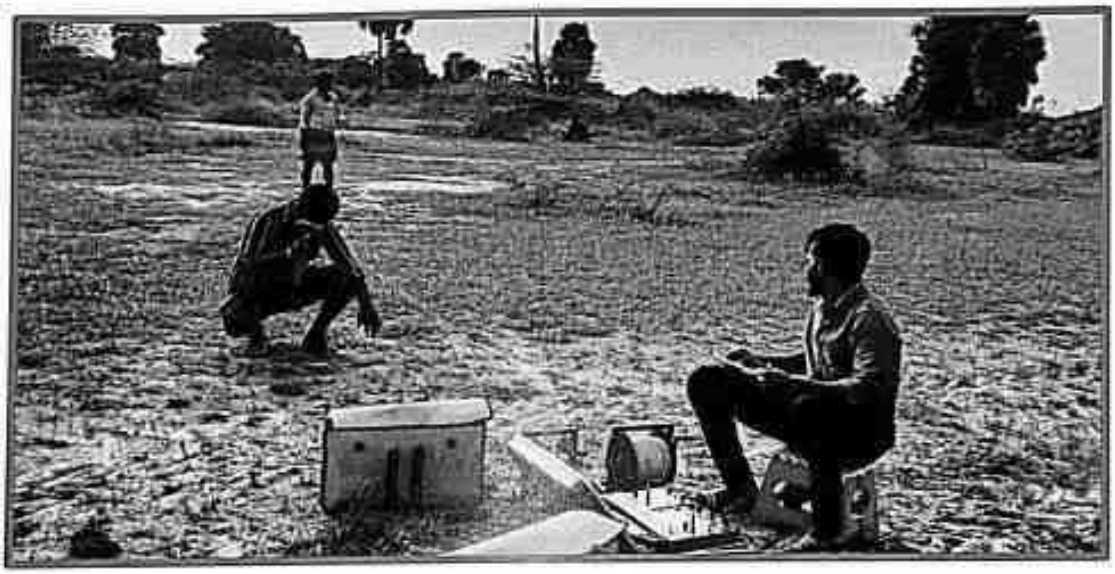


Fig.2 – Photograph showing Geophysical electrical Resistivity survey conducted for proposed lease applied area

5.3. a. Estimation of Reserves (Geological Resources with geological sections on a scale of 1:1000)

- As far as Rough Stone & Gravel (Charnockite) is concerned, the only practical method is the systematic geological mapping and delineation of Rough Stone & Gravel within the field and careful evaluation of body lustre, physical properties, engineering properties, commercial aspects etc.,

7 APR 2025

- Totally Three sections have been drawn, one section drawn length wise as (X-Y), another two sections drawn width wise as (A-B) & (C-D) have three sections have been drawn.
- The Topographical, Geological plan and sections demarcated the commercial, marketable Rough Stone & Gravel (Charnockite) deposit has been prepared in Scale 1:1000 and Sections have been drawn with a scale of Hor 1:1000 and Ver 1:1000 respectively.
- Please refer Plate No. IIIA, VII-A Rough Stone & Gravel are terms of Cubic Meters (Volume) only and not for in terms of Tonnage calculations.

I. GEOLOGICAL RESOURCES:

The Geological Resources is estimated as **15, 27,250m3** of Rough Stone & **61,090m³**Gravel up to a depth of **52m** (2m Gravel & 50m Rough Stone).

Table No: 5

GEOLOGICAL RESOURCES							
Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in (m3)	Geological Resources in m3 (100%)	Gravel in m3
XY-AB	I	95	145	2			27550
	II	95	145	5	68875	68875	
	III	95	145	5	68875	68875	
	IV	95	145	5	68875	68875	
	V	95	145	5	68875	68875	
	VI	95	145	5	68875	68875	
	VII	95	145	5	68875	68875	
	VIII	95	145	5	68875	68875	
	IA	95	145	5	68875	68875	
	X	95	145	5	68875	68875	
	XI	95	145	5	68875	68875	
	Total				**688750**	**688750**	**27550**
XY-CD	I	130	129	2			33540
	II	130	129	5	83850	83850	
	III	130	129	5	83850	83850	
	IV	130	129	5	83850	83850	
	V	130	129	5	83850	83850	
	VI	130	129	5	83850	83850	
	VII	130	129	5	83850	83850	
	VIII	130	129	5	83850	83850	
	IA	130	129	5	83850	83850	
	X	130	129	5	83850	83850	
	XI	130	129	5	83850	83850	
	Total				**838500**	**838500**	**33540**
Grand Total					**1527250**	**1527250**	**61090**

II. MINEABLE RESERVES:

The mineable reserves are calculated by deducting the safety distance of 7.5m & 10m for the Patta land & Government along the lease area and accounting for bench loss, with a height of 5.0m and width of 5.0m.

Table No-6

MINEABLE RESERVES							
Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in (m3)	Mineable Reserves in m3 (100%)	Gravel in m3
XY-AB	I	87	128	2			22272
	II	85	124	5	52700	52700	
	III	80	114	5	45600	45600	
	IV	75	104	5	39000	39000	
	V	70	94	5	32900	32900	
	VI	65	84	5	27300	27300	
	VII	60	74	5	22200	22200	
	VIII	55	64	5	17600	17600	
	IA	50	54	5	13500	13500	
	X	45	44	5	9900	9900	
	XI	40	34	5	6800	6800	
	Total				**267500**	**267500**	**22272**
XY-CD	I	120	111	2			26640
	II	118	107	5	63130	63130	
	III	113	97	5	54805	54805	
	IV	108	87	5	46980	46980	
	V	103	77	5	39655	39655	
	VI	98	67	5	32830	32830	
	VII	93	57	5	26505	26505	
	VIII	88	47	5	20680	20680	
	IA	83	37	5	15355	15355	
	X	78	27	5	10530	10530	
	XI	73	17	5	6205	6205	
	Total				**316675**	**316675**	**26640**
Grand Total					**584175**	**584175**	**48912**

The Mineable Reserves is computed as **5,84,175m³** of Rough Stone & **48,912m³**of Gravel formation at the rate of 100% recovery up to a depth of **52m (2m Gravel & 50m Rough Stone)**.

6.0. MINING

6.1. Method of Mining (Open cast / Underground)

Opencast method of semi mechanized mining with 5.0m vertical bench height and width 5.0m of the bench is not less than bench height.

However, as far as the quarrying of Rough Stone & Gravelis concerned, observance of the provisions of Regulation 106 (2) (b) as above is seldom possible due to various inherent petro genetic factors coupled with mining difficulties. Hence it is proposed to obtain relaxation to the provisions of the above regulation from the Director of mines safety for which necessary provision is available with the regulation 106 (2) (b) of MMR-1961, under Mine Act-1952.

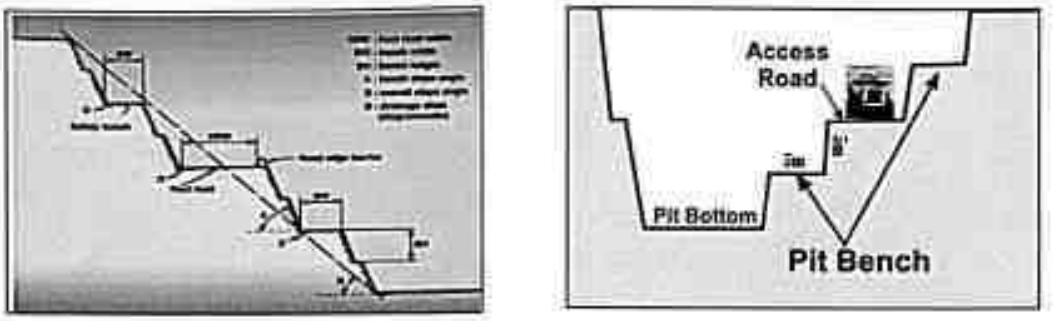


Figure no..3, shows Open pit Mining method

6.2. Mode of Working (Mechanized, Semi-mechanized, Manual)

- The Rough Stone & Gravelis proposed to quarry 5.0m bench height and 5.0m bench width with conventional opencast semi-Mechanized method. The quarrying operation involves manual Jackhammer drilling, Slurry explosives blasting, loading and transportation of Rough Stone & Gravel to the needy nearby crusher units, road formation filling purpose of low-lying area for road project works of residential and industrial customers.
- The production of Rough Stone & Gravelin this quarry involves the following method which is typical for Rough Stone & Gravel quarrying in contrast to other major mineral mining.
- The splitting of rock mass of considerable volume from the parent rock mass by jackhammer drilling and blasting, hydraulic excavators are used for loading of Rough Stone & Gravel from pithead to the needy crushers.
- The hydraulic excavators are attached with rock breakers for fragmentation to avoid secondary blasting.

17 APR 2025

- The primary boulders thus splitted are removed from the pits by excavators and further made to smaller sizes by rock breakers attached in excavators. It is a conventional opencast semi mechanized method of mining.

6.3. Proposed bench Height and Width

The quarrying of Rough Stone & Gravel is proposed to the safely bench height of 5.0m and bench width of 5.0m.

6.4. Indicate the overburden/mineral production expected pit wise as detailed as below (Composite plan and section showing pit layout, dumps, disposal of waste if any etc.,)

The excavated Rough Stone & Gravel will be directly loaded into Tippers to the needy crushers / Customers site. The Composite Plan, Development Plan and section indicating pit layout, green belt development is shown in Plate No.VII-A.

I. <u>RECOVERABLE RESERVES:</u>

The year-wise recoverable reserves are calculated by deducting the safety distance of 7.5m & 10m for the Patta & Government land along the lease area and accounting for bench loss, with a height of 5.0m and width of 5.0m.

Table No: 7

YEARWISE DEVELOPMENT AND PRODUCTION RESERVES

Year	Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in (m3)	Gravel Formation in m3	Recoverable Reserves of Rough Stone in m3 (100%)
I - YEAR	XY-AB	I	64	128	2		16384	
		II	60	124	5	37200		37200
		III	50	114	5	28500		28500
		IV	40	104	5	20800		20800
		V	30	94	5	14100		14100
		VI	20	84	5	8400		8400
		Total					**16384**	**109000**
II - YEAR	XY-AB	I	23	128	2		5888	
	XY-CD	I	48	111	2		10656	
	XY-AB	II	25	124	5	15500		15500
		III	30	114	5	17100		17100
		IV	35	104	5	18200		18200
		V	16	94	5	7520		7520
	XY-CD	II	46	107	5	24610		24610
		III	41	97	5	19885		19885
		IV	35	87	5	15225		15225
		Total					**16544**	**118040**
III - YEAR	XY-CD	I	72	111	2		15984	
		II	72	107	5	38520		38520
		III	72	97	5	34920		34920
		IV	73	87	5	31755		31755

		V	5	77	5	1925		1925
	XY-AB	V	24	94	5	11280		11280
		Total					15984	118400
IV - YEAR	XY-AB	VI	45	84	5	18900		18900
		VII	60	74	5	22200		22200
	XY-CD	V	98	77	5	37730		37730
		VI	98	67	5	32830		32830
		VII	25	57	5	7125		7125
		Total						118785
V - YEAR	XY-AB	VIII	55	64	5	17600		17600
		IX	50	54	5	13500		13500
		X	45	44	5	9900		9900
		XI	40	34	5	6800		6800
	XY-CD	VII	68	57	5	19380		19380
		VIII	88	47	5	20680		20680
		IX	83	37	5	15355		15355
		X	78	27	5	10530		10530
		XI	73	17	5	6205		6205
		Total						119950
Grand Total							48912	584175

- The Recoverable reserves have been computed as **5,84,175m³** of rough stone. **48,912m³** of Gravel at 100% recovery up to depth of **52m** below ground level (R.L.68m) **[2m below ground level + 50m below ground level]** for a period five years.
- **Production quantity as per day** (1Load=6m³approx) (1Year=300 Working days)

Rough Stone quantity = 584175/ 97,363Loads
= 97,363/ 5 years
= **390m³or 65**Lorry Loads per day

Gravel quantity = 48912m³/ 8152Loads / 3 years
= **54m³** or **9**Lorry Loads per day

6.5. MACHINERIES TO BE USED

a. Mining

It is proposed to use the following machineries on rental basis for the development and production work in this quarrying operation,

Table No: 7A

S.No	Type	Nos	Dia Hole mm	Size capacity	Make	Motive Power
1	Jack Hammer	6	32	1.2m to 6m	Atlas Copco	Compressed air
2	Compressor	2	-	400psi	Atlas Copco	Diesel Drive

b. Loading

Loading will be carried out by (considerable Rough Stone & Gravel) by Hired front end loader like JCB) Excavator of 0.90m³bucket capacity (with Rock breaker attachment)

S.No	Type	Nos	Bucket capacity	Make	Motive Power
1	Excavator	2	0.90m³	Tata Hitachi - 210	Diesel Drive

c. Transportation

Tippers/Trucks = 4Nos. 5/20Tons capacity (from the quarry to destination (customer/other buyers)

S.No	Type	Nos	Capacity	Make	Motive Power
1	Tippers	4	10/20 Tons	Tata Tipper	Diesel Drive

IMAGES OFMACHINERIES

EXCAVATOR



17 APR 2025



TATA TIPPER



JACK HAMMER

6.6. Energy

The Electricity for Mines office and Lights only at nights (working is restricted on day time only between 9 Am to 5 Pm). Diesel (HSD) will be used for quarrying machineries around **4,75,494 Liters of HSD** will be used for the entire project life. Diesel will be brought from nearby diesel pumps. Lightings on the Night time the power will be taken from nearby electric poles after obtaining permission from concerned authorities.

1. **Gravel:**

The Excavator will consume	= 10Liters / 1 hour
The Excavator will excavate	= 60m³of Gravel
Gravel quantity	= 48912 / 60= 815hours
Diesel consume	= 815hours x 10liters
Total diesel consumption	= **8150** Liters of HSD will be utilized for this Gravel Quarry.

2. **Rough Stone:**

The Excavator will consume	= 16 Liters / 1 hour
The Excavator will excavate	= 20m³ of Rough Stone
Rough Stone quantity	= 584175/20=29209 hours
Diesel consume	= 29209hours x 16 liters
Total diesel consumption	=**4,67,344** Liters of HSD will be utilized for this Rough Stone Quarry.

Total consumption for rough stone & Gravel is around = **4,75,494 Liters** of HSD for the entire period of life.

17 APR 2025

6.7. Disposal of Overburden/Waste

There is no over burden in the lease applied area.

6.8. Brief Note on Conceptual Mining Plan for the entire lease period

Conceptual Mining Plan is prepared with an object of (Five) 5 Years of systematic development of bench lay outs, selection of ultimate pit limit, depth of quarrying, ultimate pit slope, selection of sites for construction of infrastructures etc.,

Ultimate pit size is designed based on certain practical factors such as the economical depth of mining, safety zones, permissible areas etc.,

Ultimate Pit dimension is given as under

	Pit ID	Length in m (Max)	Width in m (Max)	Depth in m (Max)
Five Years Proposed Pit Dimension	I	207	128	52m below ground level (2m – Gravel & 50m–Rough stone)

Afforestation has been proposed on all along the safety barrier by planting native species of Saplings. All the baseline information studies like Air Quality monitoring, Noise and Vibration monitoring, Water Analysis studies will be carried out every year as per the MOEF norms. It is proposed to engage any local institution to monitor the EIA and EMP studies during the course of quarrying operation after the grant of quarry lease

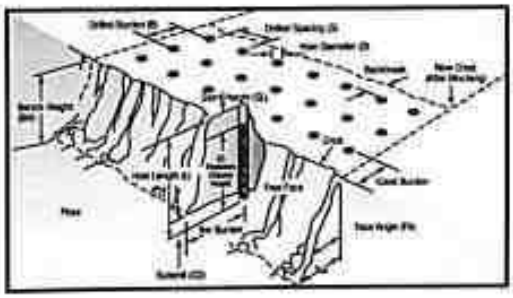
7.0. BLASTING

7.1. Blasting Pattern:

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

Drilling and blasting parameters are as follows

Diameter of the hole	: 30-32 mm
Spacing between holes	: 1.5m
Depth of each hole	: 1 to 1.5m
Burden for hole	: 1.0m
Inclination of hole	: 80^0 from the horizontal
Use of delay detonators	: 25 milliseconds
Detonating fuse	: Detonating cord
Blasting Design	: Staggered " V " Pattern



11 APR 2025

7.2. Types of Explosives

Small dia, 45mm Slurry explosive are proposed to be used for shattering and heaving effect for removal and winning of Rough Stone & Gravel. No deep hole drilling or primary blasting is proposed.

7.3. Measures proposed to minimize ground vibration due to blasting

- Controlled blasting measures will be adopted for minimizing ground vibration and fly of rocks. Shallow depth drilling and smooth blasting is proposed to carry out with minimum usage of explosive mainly to give shattering effect in Rough Stone for easy excavation and control of fly rocks.
- The following steps shall be adopted to control ground vibration due to blasting. The minimum recommended delay time of 8ms was introduced to minimize ground vibration.
- In case of **electronic detonators,** which are inherently much more accurate **delays** (+/- 0.2 milliseconds delay) to minimizes the **ground vibration reduction in air, reduction over break, improved well fragmentation** and better **control of fly-rocks.**
- Use of Ammonium nitrate, fuel oil mixture for shot holes may be avoided because which cause for high fly of rocks in view critical diameter problem. Only high strength explosives like slurry will be used in the form of cartridge.

7.4. Storage of Explosives and safety measures to be taken while blasting.

- The Applicant is advised to engage an authorized explosive agency to carry out small amount of blasting and it will be supervised by the competent statutory Mining Mate /Foreman /Manager. The explosive agency should have the valid Blaster Certificate.
- He will blast holes in quarry site. After completion the blasting, the agency will take it out back the remaining quantity of explosives to the temporarily available the Magazine at the quarry site. **The blasting time of the day is proposed to be 1 PM to 2.30PM.**
- First Aid Box will be keeping ready at all the time in Mines Office room. Necessary precautionary announcement will be carried out before the blasting operation.

17 APR 2025

8.0. MINE DRAINAGE

8.1. Depth of Water Level

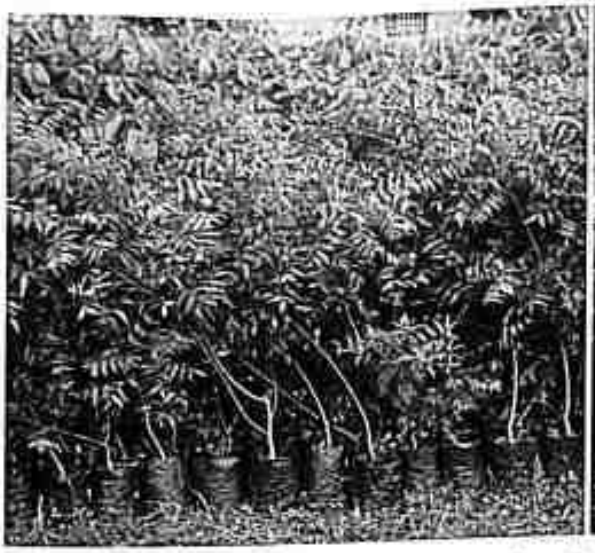
- The ground Water Level is noticed at the depth of **60m to 65m** below Ground Level by monitoring nearby bore hole, during the climatic conditions, the fluctuations of water level are **60m** in Rainy seasons and **65m** in summer seasons of this quarry area.
- The quarry operation is proposed up to a depth of **52m (2m Gravel & 50m Rough Stone)**. Hence the quarrying operation may not affect the ground water in any manner.
- It shall be ensured that quarrying shall not be carried out below ground water table under any circumstances.
- If ground water table occurs/intervenes within the permitted depth, then also the quarrying shall be stopped.

8.2. Arrangement and Places where the mine water is finally proposed to be discharged

- The ground water may not rise immediately in this type of mining. However, the rain water percolation and collection of from seepage shall be less than 150LPM and it will be pumped out periodically by a stand by diesel powered Centrifugal pump with 5HP Motor.
- The quality of water is potable and no contamination with any hazardous things.
- Hence, the water stored in quarrying pit will be pumped out the adjacent agricultural fields and further stored in old pit the water is used for Dust suppression/ Plantation purposes.

9.0. ECOLOGY AND BIODIVERSITY

The green belt in the lease area be developed taking into consideration the availability of area as the efficiency of green belt in pollution control mainly depends on tree species, its width, distance from pollution sources, side of the habitat from working place and tree height. The proposed green belt should be designed to control PM10, gaseous pollutants, noise, surface run off and soil erosion etc., While considering the above aspects due care should be taken for selecting the suitable characteristics plant species such as fast growing, locally suitable plant species, resistant to specific pollutant and those which would maintain the regional ecological balance, soil and hydrological conditions.




Flora as observed and identified in the field are covered by mostly Neem, Erukku, Panai trees, Palmira tree are found more on regional scale. The Applicant has developed trees like Neem, Pungam, Teak, Caesarians and Eucalyptus, regional trees etc., with Proper nursery garden and plantation on vacant land. The fauna species observed around the 500m radius of the project site is given in the table.

List of Flora observed around the quarry site
(Flora Trees & Flora Shrubs)
Table No: 10

Flora - Trees			
S.No	**Tamil Name**	**Botanical Name**	**Photograph**
1	Neem tree	Azadirachataindica	
2	Panai tree	Borassusflabellifer	
3	MulluMaram	Prosopisjuliflora	
4	Punga Maram	Millettia pinnata	
5	Savukku Maram	Casuarina cunning hamiana	

17 APR 2025

Flora - Shrubs			
1	Korai	Cyperus Pangorei	
2	Avaram	Senna articulate	
3	Erukku	Calotropis	
4	Mookuthichedi	Tridaxprocumbens	
5	Musumusukkai	Melothria	

List of Fauna observed around the quarry site
(Fauna Mammals & Fauna Avian)
Table No: 11

Fauna Mammals			
S.No	**Common Name**	**scientific name**	**Photograph**
1	Anil	Funambulus Palmarum	
2	Thavalai	Cane toad	
3	Keeri	Herpestes Edwardsii	
4	Rabbit	Oryctolaguscuniculus	
Avian Fauna			

1	Crow	CorvusSplendens	
2	Myna	Acridotherestristis	
3	Chittukuruvi	SaxicoloidesFulicatus	
4	Parunthu	Haliastur Indus	

10.0. OTHER PERMANENT STRUCTURES

1. ***Habitations / Village Natham (300m)***
   - *There are no inhabited sites within the radius of 300m from the boundary of lease area under Rule 36(1-A) (a) TNMMCR 1959.*
   - The Nearest Village habitation is Vadakolapakkam Village which is about 680m on Southwest of the Lease applied area.
   - The applicant ensures the quarrying operation will be carried out without any hindrance to the habitants and adjoining land owners.
2. ***Power lines (HT/LT) (50m)***

   There are no Power lines (HT/LT) within a radius of 50m
3. ***Water bodies (River, Pond, Lake, Odai, Channel etc.,) (50m)***

   A small Odai is situated on the northern side, and the applicant has maintained a safety distance of 10 meters from the lease applied area.

   Archeological / Historical Monuments (500m)

   There are no Archeological / Historical Monuments within a radius of 300m from the boundary of lease applied area.
4. ***Existence of public road /(SH, NH others), Railway line if any (50m)***
   - There is an existing road from the area leads Kilsevur Village Road about 160m is Western side of the lease applied area.

17 APR 2025

- ❖ NH Road Villupuram to Chennai which is about 7.5 Kms on the Western side of the lease applied area.
- ❖ SH-Tindivanam to Marakkanam road is located which is about 3Kms on the Southern side of the lease applied area.

5. The Nearest Railway line is Tindivanam station line which is about [illegible] the Northwest side of the area.
6. *Places of Worship (Temples, Church, Mosque etc.,) (500m)*
   - ❖ There is no Places of Worship within a radius of 500m.
7. *Reserved Forest / Forest / Wild Life Sanctuary etc., (10Km)*
   - ❖ There is no Reserve Forest around 1.0 Kms radius
8. *Any Other Structures: Nil*

11.0. EMPLOYMENT POTENTIAL & WELFARE MEASURES:

11.1. Employment Potential (Management & Supervisory personal)

The following man powers are proposed carry out the day-to-day quarrying activities at the proposed production and also comply with the statutory provision of the MMR 1961.

Management and Supervisor:

1.	Second Class Mines Manager (with valid statutory qualification)	: 1 No
2.	Mines Foreman (with valid statutory qualification)	: 1 No
3.	Mines Mate (with valid statutory qualification)	: 1 No
4.	Blaster	: 1 No
5.	Hand Jack-Hammer operator	: 12 Nos

Laborers, Skilled, Semi-Skilled & Un-skilled

a.	Skilled (Operators- Excavator & Jackhammer)	: 2Nos
b.	Semi-skilled (Driver)	:5Nos
c.	Unskilled (Musdoor/Labours, Cleaners & Watch man)	: 12Nos
	Total	**: 35Nos**

Allowing 10% absenteeism, the no. of men of roll will be around 15Nos.

It is been ensured that, ***Child Labours under 18 Years of age will not be engaged for any quarrying operation.***

Necessary Life Insurance policies will be taken by the applicant to all the employees up to the end of the lease period.

17 APR 2025

11.2. Welfare Measures

a. Drinking Water

b. Drinking water is available from the nearby bore wells or from water vendors in Vadakolapakkam Village which is about 680m on Southwest of the Lease applied area.

c. Sanitary facilities

- Semi-permanent latrines & urinals shall be maintained at convenient places for use of Labours as per the provisions of Rule (33) of the Mines Rules, 1955 separately for males and females. Washing facilities shall also be arranged as per Rule (36) of Mines Rules, 1955 and it will be maintained periodically.

d. 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 Kilarungunam Village is about 1.75 Km on Southwestern side. The competent and statutory of Foreman/Mate/Permit Manager will be in charge of the First aid.

e. Labour Health

f. Periodic medical examination has to be arranged for occupational health once in a year in addition to attending medical treatment of occupational injuries under the Rule 45(A), Mines Rules, 1955.

g. Precautionary safety measures to the Laborers



- Helmets, Mine Goggles, Ear plugs, Ear muffs, Dust mask, Reflector Jackets, Safety Shoes.

All personnel protective devices will be provided as per the specification approved by Director of mines safety. Periodically medical check-up will be conducted for all workers for any mine health related problems. Proper training and vocational education will be given by qualified and experienced safety officer to all the employees about the safety and systematic rough stone quarrying operations. The drillers and workers will be sent for vocational training periodically, to carry out the quarrying operations scientifically and to safe guard the men and machinery and to create awareness about conventional opencast quarrying operations.

PART - B

12.0. ENVIRONMENT MANAGEMENT PLAN

12.1. Existing Land Use Pattern

The area is exhibiting Plain topography. The applied area is dry barren land and devoid of agriculture and habitations and the area is not used for the specific vegetation. The surrounding area is practiced by the seasonal cultivation.

The existing Land use pattern is given as under

Table No-12

S. No.	Land Use	Present Area (Hect)	Area in use during the quarrying period (Hect)
1.	Quarrying Pit	Nil	2.37.30
2.	Infrastructure	Nil	0.02.00
3.	Roads	Nil	0.02.00
4.	Green Belt	Nil	0.62.00
5.	Unutilized	3.04.00	Nil
	Total	**3.04.00Ha**	**3.04.00Ha**

12.2. Water Regime

Water Level in this quarry area is noticed at a depth of **60m to 65m** below Ground Level, observed nearby bore hole the quarrying of Rough Stone & Gravel is proposed up to a depth of **52.0m (2m Gravel & 50m Rough Stone)**. Hence, it will not affect the quality of ground water depletion of this area.

17 APR 2025

12.3. Flora and Fauna

The Thorny bushes are placed in quarry area and Neem, Pungam, Panai trees are noticed around the quarry area. Except acacia bushes, no other valuable trees are noticed in the lease applied area. Further, neither flora of botanical interest nor fauna of zoological interest is noticed in this area.

12.4. Climatic conditions

The area receives annual rainfall of about 800mm to 900mm and the rainy season is mainly from Oct – Dec receives rain both in south west and north east monsoon. The summer is hot with maximum temperature of 35°C and during winter encounters a minimum temperature of 18°C.

12.5. Human Settlement

The nearest habitations with the population, approx. distance within 5.0Km radius from the proposed quarry site are as given under,

Table No-13

S. No	Name of the Village	Approximate distance	Direction from lease applied area	Approximate population
1.	Buderi	1.81Km	NE	1425
2.	Kilsevur	1.52Km	NW	1650
3.	Vadakolappakkam	0.8 Km	SW	720
4.	Alagaipakkam	2.5Km	SE	1530

12.6. Plan for Air, Dust Suppression

The air quality will be affected by the Suspended Particulate Matter (SPM) generated by the blasting, jack hammer drilling, loading and unloading during the quarrying operation. The following mitigation measures will be carried out, Mist water spraying will be carried out by means of water sprinklers to suppress dust emission in the Haul roads. The native species of Neem, Pungam, Panai etc., will be planted along the lease boundary and Safety buffer zone. The quarried-out materials will be fully covered by the Tarpaulin during transportation to avoid the spillage of materials. The Air quality will be monitored periodically as per the norms and mitigate measures carried out to prevent dust and air propagation in to the air Operators, those exposed

directly to such conditions will be provide such as (PPE) Personnel Protective Equipment's like Dust mask, Ear plug, Helmet, Gloze etc., as per the Mines Act -1952.

17 APR 2025

Image of the water spray Vehicle



12.7. Plan for Noise Control

- The quarrying of Rough Stone & Gravel will be carried out by Shallow holes of 32mm diameter and 1.5meter depth of wet drilling and conventional low power explosives such as slurry explosives, ordinary safety fuse only. Hence the ground vibration and noise pollution will be very minimum and restricted within the quarry workings. However, periodical noise level monitoring and other mitigation measures will be carried out to reduce the noise level and vibration in and around the quarry site.
- Nowhere the noise level should exceed the permissible limit of 80db during the quarry working hours.
- The drivers will be strictly instructed to move the vehicle during the transportation not exceeding 40Km per Hour, Sentries with Red Flag & whistle will be posted in village junction and regulate traffic.

12.8. Environmental Impact Assessment Statement Describing Impact on mining on the Five years

- The mining plan proposed is for a small production of Rough Stone & Gravel without involving deep hole drilling and heavy blasting. Such limited mining activity is not likely to cause any impact adversely on environment as far as pollution of air, Water and noise is concerned, anyhow environmental impact studies will be conducted as per EIA notification issued by MOEF. It is B2 Category of mine.

17 APR 2025

12.9. Proposal for Waste Management

There are no wastes anticipated during this Rough Stone & Gravel quarry operation. The quarried-out materials 100% will be utilized.

12.10. Proposal of Reclamation of Land affected during mining activities and at the end of mining (refilling/fencing etc.)

In the proposed mining plan only a maximum depth of **52m (2m Gravel & 50m Rough Stone)** has been envisaged as workable depth for Safe & Economic mining during the lease period. Hence, after quarry reaches Ultimate Pit Limit (for this lease period) of **52.0m (2m Gravel & 50m Rough Stone)**, Barbed wire fencing will be constructed around the quarried pits to prevent inherent entry of the public and cattle.

12.11. Program for Afforestation:

The 7.5m & 10m safety distance along the lease boundary has been identified to be utilized for Afforestation in a phased manner as described below

Table – 14

Years	No. of tress proposed to be planted	Survival %	Area to be covered sq.m	Name of the species	No. of trees expected to be grown
I	100	80	1254	Neem, Pongamia Pinnata, Casuarina, etc.,	80
II	100	80	1254		80
III	100	80	1254		80
IV	100	80	1254		80
V	100	80	1254		80

- Nearly 6270 Sq.m area is proposed to use under Afforestation by planting 250Nos of Neem Saplings etc., every year in the spacing interval of (5m X 5m) with an anticipated survival rate of 80%.
- Appropriate native species of Neem, Pungan, Teak and Casuarinas Saplings will be planted approach roads, service roads, nearby villages, village roads, government school etc.,
- Saplings of local plants of regional tress will be planted as per the consultation of the local Forest Department.
- The Quarry Land use, Layout and Afforestation Plan are showing in Plate No. V.

12.12. Proposed Financial Estimate / Budget for (EMP) Environment Management

Table - 15

S.No	Monitory and Analysis Description	Rate per location	No. of location	Total Charges for monitoring		
				6 months	Per Year	5 Years
1	Ambient Air quality monitoring	6500	4	26000	52000	260000
2	Water sampling and analysis	9000	1	9000	18000	90000
3	Noise level monitoring	250	4	1000	2000	10000
4	Ground vibration monitoring	1000	2	2000	4000	20000
			Total EMP Cost	38000	76000	3,80,000

The Environment Monitoring EMP Studies Cost would be around **Rs. 3,80,000/-** for a period of 5 Years only.

I. **Project Cost & Investment:**

1) Land cost

It is a Own Patta land, the approximate present land cost is about Rs.5,00,000/- per Acres hence the land cost is calculated as **Rs. 37,54,400/-**

2) Refilling/ Fencing

There is no proposal for Refilling, after the excavation of Rough Stone & Gravel the quarried-out land will be fenced with barbed wire fencing the cost would be around **Rs.1,75,000/-.**

3) Laborers shed

Labours are proposed for quarrying Rough Stone & Gravel. The machine Operators and workers are from nearby local villages; hence no cost is involved. Rest shelter will be constructed as semi-permanent structure at the cost of **Rs.1,10,000/-**

4) Sanitary facility

Sanitary facility will be constructed as semi-permanent structure, the cost will be around **Rs.1, 00,000/.**

II. **Machinery to be used:**

The Machineries like Jack Hammer, Tractor mounted compressor attached with Jack hammer, Excavator of 0.9m³ bucket capacity attached with Rock Breaker are proposed to deploy for quarrying operation and Tippers/Trucks of 10/2Tons capacity will be used for the quarrying transportation for hired basis, the cost will be around Rs.25,00,000/.

I. Fixed Asset Cost:

1. Land cost	= Rs.37,54,400/-
2. Refilling/Fencing cost	= Rs.1,75,000/-
3. Rest shelter	= Rs.1,10,000/-
4. Sanitary Facility	=Rs.1,00,000/-
	=Rs. 25,00,000/-
Total Project Cost	=Rs. 66,39,400/-

II. Machinery Cost: -

III. Expenditure:

1) Drinking Water facility and other utilities for the labourers

Packaged drinking water will be provided for all the Labours. Drinking water will be readily available at conveniently accessible points during the whole of the working shift the cost would be around **Rs. 2,00,000/-**

2) Sanitary arrangement

The latrine and urinal will keep clean and sanitary condition. The maintenance cost would be around **Rs. 1,00,000/-**

3) Safety kits

All the Safety kit such as Helmet, Earmuffs, Goggles, Reflector Jackets, Safety shoes etc., will be provided to the workers by the applicant own cost which would be around **Rs. 1,00,000/-**

4) Water sprinkling (if necessary)

Water will be sprinkled in the haul roads by water sprinklers the cost would be around **Rs. 2, 00,000/-**

5) Afforestation etc.,

Afforestation is proposed within safety zones of the lease applied area and plantations will be carried out on the nearby villages and village roads, Govt School after consultation with the Panchayat authorities. The cost estimate is around **Rs.1,00,000/-**

Expenditure:

1. Drinking water	= Rs. 2,00,000/-
2. Sanitary Arrangements	= Rs. 1,00,000/-
3. Safety kits	= Rs. 1,00,000/-
4. Water Sprinkling	= Rs. 2,00,000/-
5. Afforestation cost	= Rs. 1,00,000/-



Environment Monitoring /5Years:

1) Air Quality Sampling	= Rs. 2, 60, 000/-
2) Water Quality Sampling	=Rs. 90,000/-
3) Noise Level Monitoring	= Rs. 10,000/-
4) Ground vibration test	= Rs. 20,000/-
EMP Cost Total	*= Rs. 10,80,000/-*

(Expenditure Including EMP Studies)

Total Project Cost	**=Rs.66,39,400/-**
EMP Cost	**=Rs.10,80,000/-**

12.13 Corporate Environment Responsibility (CER):

- The Applicant shall distribute Note books, Stationary items to nearby Govt Primary School and to conduct the medical camp, Environment awareness program, etc., to nearby villages after consultation with local panchayat authorities.
- The Applicant shall ensure that a minimum of 2.0% from the Total project cost (Rs.1, 54,348, /-) for the entire lease period will be utilized for the CER Activities.
- *District Mineral Fund @10% of the Royalty shall be given to the Dept. of Geology and Mining.*

13.0. MINE CLOSURE PLAN

13.1. Steps proposed for phased restoration, reclamation of already mined out area.

- This conventional Systematic, Scientific and Eco- Friendly quarrying operation for a depth of **52.0m (2m Gravel &50m Rough Stone)** and not required any Backfill, Reclamation and Rehabilitation, the quarried-out lands will be used for Water storage/ Recharge purpose.
- The mined-out area will be fenced on top of open cast working with wire fencing to arrest the entry of cattle and public in to the quarry site.

13.2. Measures to be under taken on mine closure as per Act & Rules.

Measure will be taken as per Act &Rules. The quarried pit will be fenced by using Barbed wire fencing to prevent inherent entry of public and cattle.

13.3. **Mitigation measures to be undertaken for safety and restoration/ reclamation of the already mined out area.**

17 APR 2025

Air Quality:

- (Air quality will be degrade due to drilling, blasting, mining operation and transportation)
- Drilling will be carried out by Wet drilling mode to control the dust propagation into the air.
- Blasting will be carried out on limited scale.
- Mist Water spraying on haul roads is proposed to prevent the dust propagation into the air.

Noise and Vibration:

- (The noise will be formed due to the drilling, blasting, loading and movement of Vehicles, Machineries)
- The applicant has proposed to plant native species of Neem, saplings all along safety area to prevent Noise besides wet drilling will be practiced to prevent dust and spillage.
- All the Vehicles, Machineries will be maintained in good conditions as per RTO and TNPCB Norms to prevent Noise, Smoke and Vibration to maintain Noise levels below 80 dB(decibel).

Water Regime:

- The quarrying operation has proposed up to a maximum depth of **52.0m (2m Gravel & 50m Rough Stone)** is well above the ground water table (Summer 65m and Rainy seasons 60m) Proposed Period of Mining **5 Years** only. Hence the ground water table will not affect in any manner.
- The seepage and rain water stored in quarrying pit will be drained out by 5 H.P motor pump and will be discharged through filter media to boundary barrier for afforestation and excess water will be sprayed on haul roads to prevent dust propagation in to the atmosphere.
- The Rough Stone & Gravel quarry will not produce any harmful toxic effluence in the form of Solid, Liquid or Gas.

14.0. ANY OTHER DETAILS INTEND TO FURNISH BY THE APPLICANT

i. This Mining Plan for Rough stone (Charnockite) & Gravel Quarry is prepared under amended Rules 41 &42 of Tamil Nadu Minor Mineral Concession Rules 1959.

ii. The measures will be taken as per Mines Act & Mine Rules and Regulations and orders made there under shall be complied with, so that the safety of mine, machinery and mine workers will be protected.

iii. It is expected that the mining will be done skillful, systematically, scientifically, and Eco-friendly quarrying operation.

iv. There is no deep hole drilling and heavy blasting of this lease area.

v. The Applicant will endeavor every attempt to quarry the Rough Stone & Gravel economically without any wastage and to improve the environment and ecology.

vi. Any violation pointed out by the inspecting authorities shall be rectified as per the guidelines of the Department.

Prepared by

Signature of Qualified Person

N. SURESH, M.Sc.,(Geology)
Qualified Person

Place : Salem
Date : 11-4-2025

This mining plan is approved based on the instructions and guidelines issued by the Commissioner of Geology and Mining, Chennai vide letter No.Lr.No.3568/LC/2012 dated 19-11-2012 and based on incorporation of the conditions laid by the Assistant Director i/c, Geology and Mining, Viluppuram in precise area communication letter
Rc.No. B/1624/277/2014 Dated : 08.04.2025

Dated : 10.4.2025

Assistant Director,
Geology and Mining,
Viluppuram.

17.4.25

Rc.No.B/G&M/277/2024
Dated:08.04.2025

O/o. Assistant Director
Geology and Mining,
Viluppuram.

17 APR 2025
விழுப்புரம்

Precise Area Communication Notice

Sub: Mines and Minerals – Minor Mineral – Rough Stone & Gravel - Viluppuram District – Tindivanam Taluk - Senalur Village – Patta land in S.F.Nos. 7/1 - 0.36.0, 7/2 - 0.58.0, 7/3 - 0.16.0, 7/4 - 0.36.0, 7/5 - 0.36.0, 7/6 - 0.58.0 & 7/7 - 0.64.0 hectares over an extent of 3.04.0 Hectares - quarry lease application preferred by applicant M/s. Sri Magaveer Mines Prop. T.A.P. Jayakeerthi - Precise Area Communication – direct to submit Mining Plan for approval and Clearance from SEIAA - Directed – reg.

Ref:
1. Application dated 27.11.2024 from M/s. Sri Magaveer Mines Prop. T.A.P. Jayakeerthi, Senalur Village, Tindivanam Taluk, Viluppuram District.
2. This office letter in Rc.No.B/G&M/277/2024, dated 03.12.2024 addressed to the Sub Collector, Tindivanam
3. The Sub Collector, Tindivanam letter Rc.No. A3/266/2025, Dated: 20.03.2025
4. The Assistant Geologist, Special Deputy Tahsildar & Spl. Revenue Inspector, O/o The Assistant Director, Geology and Mining, Viluppuram Joint Inspection Dated: 25.03.2025
5. The Commissioner of Geology and Mining Chennai Lr.No. 3868/LC/2012, dated: 19.11.2012.
6. The Chairman, State Environment Impact Assessment Authority, Chennai Lr No SEIAA-TN-/ Minor minerals/2012 dated 17.09.2012.
7. Representation by M/s. Sri Magaveer Mines Pro. T.A.P. Jayakeerthi, Senalur Village, Tindivanam Taluk, Viluppuram District dated: 08.04.2025

******

Kind attention is invited to the reference cited above.



2) One M/s. Sri Magaveer Mines Prop. T.A.P. Jayakeerthi, Tindivanam has preferred an application to grant of quarry lease for mineral Rough Stone & Gravel comprised in S.F.Nos. 7/1 - 0.36.0, 7/2 - 0.58.0, 7/3 - 0.16.0, 7/4 - 0.36.0, 7/5 - 0.36.0, 7/6 - 0.58.0 & 7/7 - 0.64.0 hectares over an extent of 3.04.0 Hectares in Senalur Village, Tindivanam Taluk, Viluppuram District for a period of 10 years under the provisions of Rule 19 (1) of Tamil Nadu Minor Mineral Concession Rules 1959.

3) The Sub Collector, Tindivanam and the Assistant Geologist, Office of the Assistant Director, Geology and Mining Viluppuram have inspected the lease applied area and recommended for the grant of quarry lease subject to the terms and conditions prescribed in Act and Rules in force, in addition to the following conditions.

i. The applicant should leave a safety distance of 7.5 mts to the surrounding patta lands.
ii. Quarrying should be restricted to the lease granted area only.
iii. The applicant should not cause any hindrance to the surrounding Patta lands and barbed wire fencing should be erected all along the boundary of the lease granted area before the commencement of quarrying operation.
iv. The applicant should not cause any hindrance to the Northern side of water channel (odai) and water catchment area.
v. The applicant has to obtain Environmental Clearance from State Level Environmental Impact Assessment Authority, Chennai, Tamil Nadu before grant of quarry lease.
vi. The applicant should strictly adhere to the existing Act and Rules.

In the reference 7th cited, Applicant M/s. Sri Magaveer Mines Pro. T.A.P. Jayakeerthi, Tindivanam has requested to reduce the mining lease period in 05 years for personal reasons.

Based on the recommendations of the Sub Collector, Tindivanam, Assistant Geologist, Geology and Mining, Viluppuram and Applicant requisition deeply analyzed it may be considered for the grant

of quarry lease application of the applicant M/s. Sri Magaveer Mines Prop. T.A.P. Jayakeerthi, Tindivanam to quarry the mineral Rough Stone & Gravel over an extent of 3.04.0 Hects of patta lands in S.F.Nos. 7/1 - 0.36.0, 7/2 - 0.58.0, 7/3 - 0.16.0, 7/4 - 0.36.0, 7/5 - 0.36.0, 7/6 - 0.58.0 & 7/7 - 0.64.0 over an extent of 3.04.0 Hects in Senaur Village, Tindivanam Taluk, Viluppuram District for a period of 05 years subject to the submission of Mining Plan prepared by RQP and Environmental Clearance from the State Level Environment Impact Assessment Authority as ordered under Rule 41 & 42 of Tamil Nadu Minor Mineral Concession Rule 1959, amended vide G.O. (Ms).No.79, Industries (MMC1) Department dated 06.04.2015.

APR 2025

Hence, the applicant M/s. Sri Magaveer Mines Prop. T.A.P. Jayakeerthi, Tindivanam is hereby directed to submit the Mining Plan prepared by the Recognised Qualified person (R.Q.P), for approval of Assistant Director (Mines) and Environmental Clearance from the State Level Environment Impact Assessment Authority for the grant of lease as stipulated in the MoEF memorandum.

8/4/25

Assistant Director (i/c)
Geology and Mining,
Viluppuram.

08.04.25

To
M/s. Sri Magaveer Mines
Prop. T.A.P. Jayakeerthi,
Senalur Village,
Tindivanam Taluk,
Viluppuram District - 604 101.

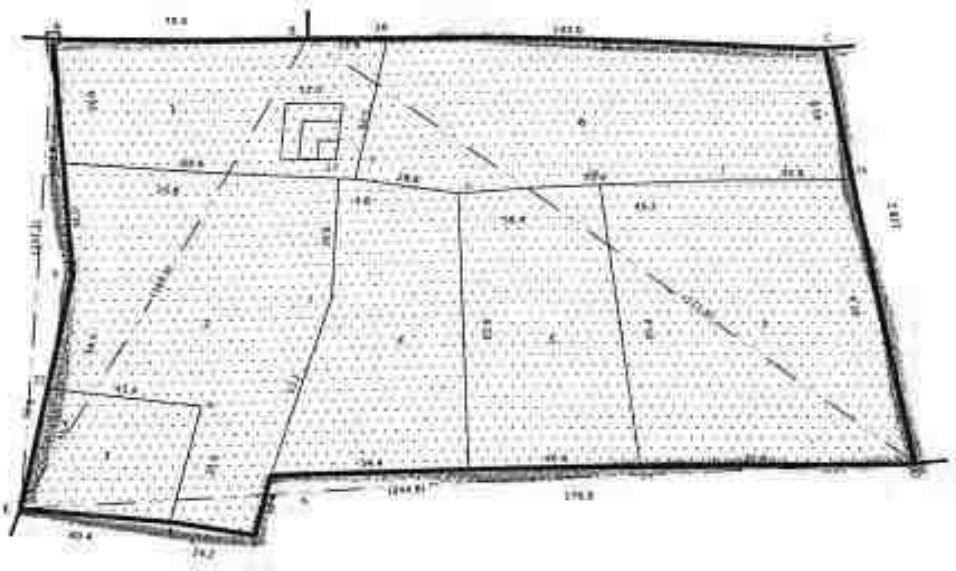
District : Villupuram
Taluk : Tindivanam
Village : Chenalur (162)

Survey No : 7
Area : Hect 03 Ares 4.00
Scale : 1 : 1000

17 APR 2025

6

5



9

V.NO.106 VADAKOLAPAKKAM

8

Q. LEASE APPLIED AREA

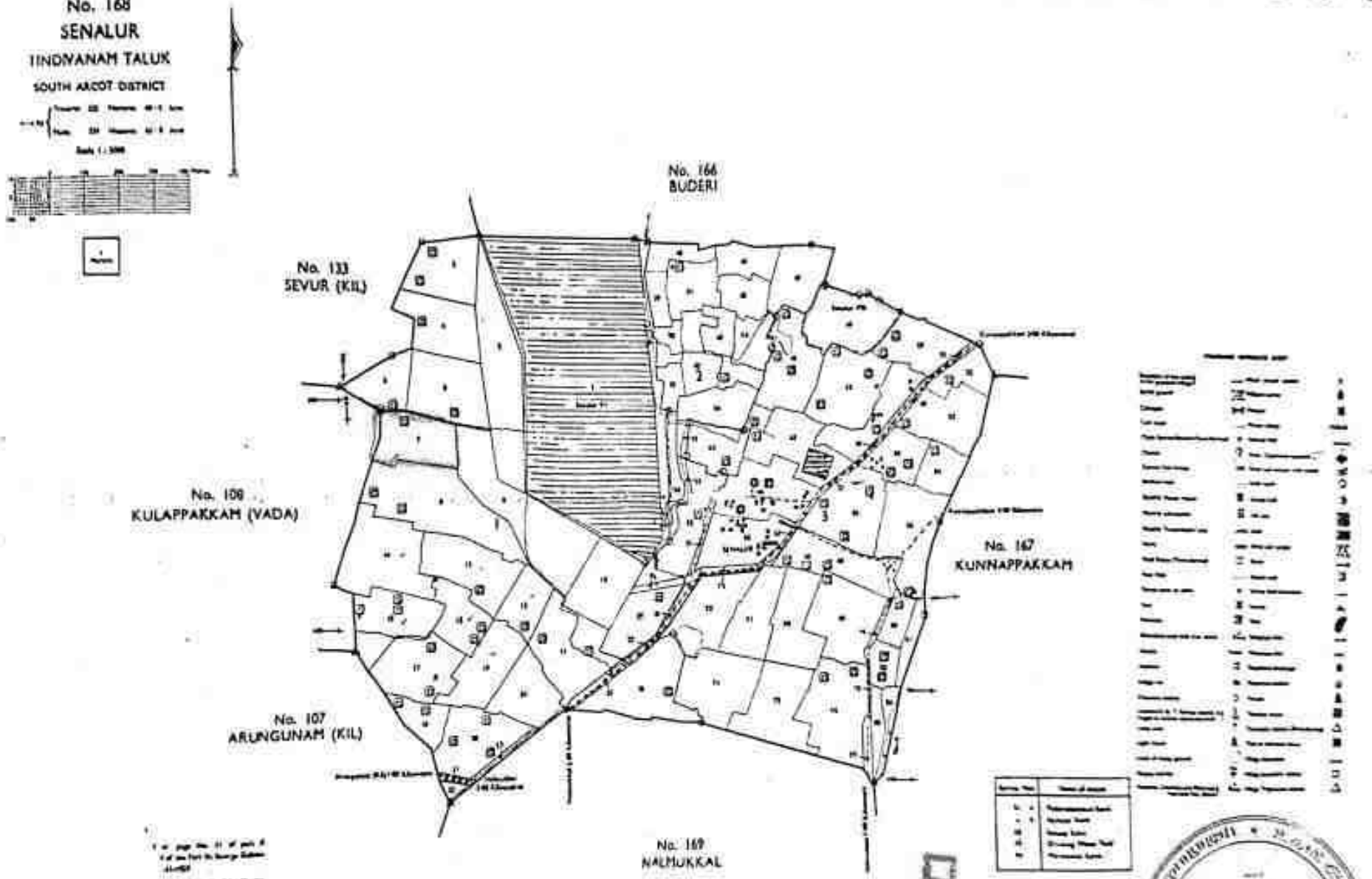
N. SURESH, M.Sc.,(Geology)
Qualified Person

Signed By Tahsildar
Name of approver : tahsildar
Date of Approval : 24-08-2017

Date of Issue: 21-10-2024 11:14:01

Survey and Settlement Department, Government of Tamilnadu

No. 168
SENALUR
TINDIVANAM TALUK
SOUTH ARCOT DISTRICT



Lease applied area

N. SURESH, M.Sc.,(Geology)
Qualified Person

தமிழ்நாடு அரசு

வருவாய்த் துறை

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

17 APR 2025

மாவட்டம் : விழுப்புரம் வட்டம் : இளவனாசம்

வருவாய் கிராமம் : சேனனூர் பட்டா எண் : 342

உரிமையாளர்கள் பெயர்

1. அப்பாசாமி தமிழரசு தன்னை பெயரிலுள்ள

புல எண்	உட்பிரிவு	பரப்பு		நன்செய்		புன்செய்		குறிப்புரைகள்
		பரப்பு	இங்கை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		தெக்-ஏ	ரூ-பை	தெக்-ஏ	ரூ-பை	தெக்-ஏ	ரூ-பை	
52	4	0 - 14.50	0.50	--	--	--	--	2020/0103/07/231277-- -------- 19-09-2020
53	15	0 - 18.00	0.61	--	--	--	--	2020/0103/07/231277-- -------- 19-09-2020
6	1B	0 - 16.00	0.67	--	--	--	--	2020/0103/07/227002-- -------- 08-09-2020
6	2	0 - 68.00	2.86	--	--	--	--	2020/0103/07/227002-- --சதுரக்கிணறு------ 08-09-2020
7	1	0 - 36.00	1.51	--	--	--	--	2020/0103/07/227002-- --சதுரக்கிணறு------ 08-09-2020
7	2	0 - 58.00	2.44	--	--	--	--	2020/0103/07/227002-- -------- 08-09-2020
7	3	0 - 16.00	0.67	--	--	--	--	2020/0103/07/227002-- -------- 08-09-2020
7	4	0 - 36.00	1.51	--	--	--	--	2020/0103/07/227002-- -------- 08-09-2020
7	5	0 - 36.00	1.51	--	--	--	--	2020/0103/07/227002-- -------- 08-09-2020
7	6	0 - 58.00	2.44	--	--	--	--	2020/0103/07/227002-- -------- 08-09-2020
7	7	0 - 64.00	2.69	--	--	--	--	2020/0103/07/227002-- -------- 08-09-2020
		4 - 20.50	17.41					

குறிப்பு :

1. மேற்கண்ட தகவல் / சான்றிதழ் தகவல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் **https://eservices.tn.gov.in** என்ற இணைய தளத்தில் **07/03/162/00341/40248** என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 21-10-2024 அன்று 11:13:54 AM நேரத்தில் அச்சடிக்கப்பட்டது.
3. மைக்ரோசாப்ட் கேமராவின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

அ-பதிவேடு விவரங்கள் - ஊரகம்

மாவட்டம் : விழுப்புரம்

வட்டம் : திண்டிவனம்

கிராமம் : சேனலூர்



1. புல எண்	7	9. மண் வயனமும் ரகமும்	3 - 5
2. உட்பிரிவு எண்	1	10. மண் தரம்	5
3. பழைய புல உட்பிரிவு எண்	53-1A	11. தீர்வை (ரூ - பை)	4.20
4. பகுதி	-	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 36.00
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	1.51
6. நிலத்தின் வகை	புஞ்சை	14. பட்டா எண்	341
7. பாசன ஆதாரம்	-	15. குறிப்பு	சதுரக்கிணறு
8. இரு போகமா	-	16. பெயர்	1.ஜெயகீர்த்தி

குறிப்பு:

மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் **https://eservices.tn.gov.in** என்ற இணைய தளத்தில் **07/03/162/7/1/80248** என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

அ-பதிவேடு விவரங்கள் - ஊரகம்

மாவட்டம் : விழுப்புரம்

வட்டம் : திண்டிவனம்

கிராமம் : சேனலூர்

17 APR 2025
விழுப்புரம்

1. புல எண்	7	9. மண் வயனமும் ரகமும்	3 - 5
2. உட்பிரிவு எண்	2	10. மண் தரம்	S
3. பழைய புல உட்பிரிவு எண்	45-46 53-1A	11. தீர்வை (ரூ - நெ)	4.20
4. பகுதி	-	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 58.00
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	2.44
6. நிலத்தின் வகை	புஞ்சை	14. பட்டா எண்	341
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	-	16. பெயர்	1.ஜெயகீர்த்தி

குறிப்பு:

1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் **https://eservices.tn.gov.in** என்ற இணைய தளத்தில் **07/03/162/7/2/80248** என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

அ-பதிவேடு விவரங்கள் - ஊரகம்

மாவட்டம் : விழுப்புரம்

வட்டம் : திண்டிவனம்

கிராமம் : சேனலூர்

17 APR 2025

விழுப்புரம்

1. புல எண்	7	9. மண் வயனமும் ரகமும்	3 - 5
2. உட்பிரிவு எண்	3	10. மண் தரம்	5
3. பழைய புல உட்பிரிவு எண்	46	11. தீர்வை (ரூ - பை)	4.20
4. பகுதி	-	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 16.00
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	0.67
6. நிலத்தின் வகை	புஞ்சை	14. பட்டா எண்	341
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	-	16. பெயர்	1.ஜெயகீர்த்தி

குறிப்பு:

1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் **https://eservices.tn.gov.in** என்ற இணைய தளத்தில் **07/03/162/7/3/80248** என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

அ-பதிவேடு விவரங்கள் - ஊரகம்



மாவட்டம் : விழுப்புரம்

வட்டம் : திண்டிவனம்

கிராமம் : சேனலூர்

1. புல எண்	7	9. மண் வயனமும் ரகமும்	3 - 5
2. உட்பிரிவு எண்	4	10. மண் தரம்	5
3. பழைய புல உட்பிரிவு எண்	53-1A	11. தீர்வை (ரூ - ஹெ)	4.20
4. பகுதி	-	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 36.00
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	1.51
6. நிலத்தின் வகை	புஞ்சை	14. பட்டா எண்	341
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	-	16. பெயர்	1.ஜெயகீர்த்தி

குறிப்பு:

1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் **https://eservices.tn.gov.in** என்ற இணைய தளத்தில் **07/03/162/7/4/80248** என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

அ-பதிவேடு விவரங்கள் - ஊரகம்

மாவட்டம் : விழுப்புரம்

வட்டம் : திண்டிவனம்

கிராமம் : சேனலூர்

17 APR 2025

விழுப்புரம்

1. புல எண்	7	9. மண் வகைமும் ரகமும்	3 - 5
2. உட்பிரிவு எண்	5	10. மண் தரம்	5
3. பழைய புல உட்பிரிவு எண்	-1A	11. தீர்வை (ரூ - ஹெ)	4.20
4. பகுதி	-	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 36.00
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	1.51
6. நிலத்தின் வகை	புஞ்சை	14. பட்டா எண்	341
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	-	16. பெயர்	1.ஜெயகீர்த்தி

குறிப்பு:

1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் **https://eservices.tn.gov.in** என்ற இணைய தளத்தில் **07/03/162/7/5/80248** என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

அ-பதிவேடு விவரங்கள் - ஊரகம்

17 APR 2025
விழுப்புரம்

மாவட்டம் : விழுப்புரம்

வட்டம் : திண்டிவனம்

கிராமம் : சேனலூர்

1. புல எண்	7	9. மண் வகையும் ரகமும்	3 - 5
2. உட்பிரிவு எண்	6	10. மண் தரம்	5
3. பழைய புல உட்பிரிவு எண்	-1A	11. தீர்வை (ரூ - பை)	4.20
4. பகுதி	-	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 58.00
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	2.44
6. நிலத்தின் வகை	புஞ்சை	14. பட்டா எண்	341
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	-	16. பெயர்	1.ஜெயகீர்த்தி

குறிப்பு:

1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் **https://eservices.tn.gov.in** என்ற இணைய தளத்தில் **07/03/162/7/6/80248** என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

17 APR 2025
விழுப்புரம்

அ-பதிவேடு விவரங்கள் – ஊரகம்

மாவட்டம் : விழுப்புரம்

வட்டம் : திண்டிவனம்

கிராமம் : சேனலூர்

1. புல எண்	7	9. மண் வயனமும் ரகமும்	3 - 5
2. உட்பிரிவு எண்	7	10. மண் தரம்	5
3. பழைய புல உட்பிரிவு எண்	-1A	11. தீர்வை (ரூ - பை)	4.20
4. பகுதி	-	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 64.00
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	2.69
6. நிலத்தின் வகை	புஞ்சை	14. பட்டா எண்	341
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	-	16. பெயர்	1.ஜெயதீர்த்தி

குறிப்பு:

1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் **https://eservices.tn.gov.in** என்ற இணைய தளத்தில் **07/03/162/7/7/80248** என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

1432- ஆம் பகுதியில் விவசாயம் வாலாட்டம் திண்டுக்கல் மாவட்டம் திண்டுக்கல்

(1) நில அளவை எண்.	(2) உட்பிரிவு எண்.	(3) பரப்பு	(4) தீர்வை.	(5) ஒரு போகம் அல்லது இரு போகம்.	(6) கைமாற்று தாருடைய வேலும் வன்னும் அன்று அனுபோக தாருடைய பெயர்.	சாகுபடி வாரிய பெயர். (7) நிலத்தின் சந்த பருத்தி எண்ணெய்வித்துக்கள், பயிரிடப்பட்டுள்ளதை.	முதல் போகம் (8) எந்த பருத்தில் பயிர் செய்யப்பட்டது அல்லது தரிசாக விடப்பட்டது.	(9) பயிரின் பெயர்.	(10) பயிரை / அறுவடை வாய பரப்பு	(11) உள்ளபடியான மகசூல் ஆகாரம்.	(12) விவசாயி அரசு விருதுகள்.
7	1	0.49	1.21	241	வெங்கடேஷ்			சோளம்			
7	2	0.20	0.44	241	— do —			சோளம்			
7	3	0.46	0.67	241	— do —			சோளம்			
7	4	0.46	1.21	241	do			சோளம்			
7	5	0.46	1.21	241	— do —			சோளம்			
7	6	0.16	0.44	241	— do —			சோளம்			
7	7	0.40	1.09	241	do			சோளம்			

வெங்கடேஷ்
37/11, [illegible]
கோம நிர்வாக அலுவலர்
பூச. திருமலாபுரி குறுவட்டம்,
88 வேலூர், 89. திருமுருகன்
திண்டுக்கல் வட்டம்.

360/21-R.F. III-A-10-10,00,000 Cps.-GBP,-MDU,-7-2022.

படிவம் 2
கிராமத்தில் வருடவாரி பயிரான கைம்மாற்று சாகுபடி அடங்கல் கணக்கு

(13) சந்த பருத்தில் பயிர் செய்யப்பட்டது அறுவடை முதற்தில் பயிரிடப்பட்டது.	(14) பயிரின் பெயர்.	(15) பயிரை / அறுவடை வாய பரப்பு.	(16) உள்ளபடியான பின்னால் ஆகாரம்.	(17) விவசாயி அரசு விருதுகள்.	(18) தோட்டக்கலை பயிர்கள் மற்றும் மலைப்பயிர்கள் விவரம் (1) பழங்கள் மற்றும் பூக்களின் பரப்பு (2) மலர்களின் பரப்பு (3) நறுமண பயிர்கள் பரப்பு (4) மருத்துவ பயிர்கள் தோட்டக்கலை பயிர்கள் மற்றும் பதிவேற்றம் செய்வதற்கு பரிந்துரை செய்யப்பட்டுள்ளது	(19) பயிர் பாதுகாப்பு அலுவலர் குறிப்புகள் (a) வளர், (b) பயன்படுத்தப்பட்ட பூச்சிக்கொல்லி மருந்து அளவு, (c) பயன்படுத்திய முறை (d) பயிர்க்கு ஏற்ற நிலை (e) கையாளப்பட்ட நோய்கள் மற்றும் இதர கொள்ள நிலைகளும் (f) விதைக்கப்பட்ட நாள் பயிர் தொடர்பாக (g) பயிர் பாதுகாப்பு அலுவலர் பெயர் மற்றும் அலுவலர் முகவரி (h) இதர தகவல்கள்	(20) விவசாயி அல்லது அவரது பிரதிநிதி கையொப்பம்

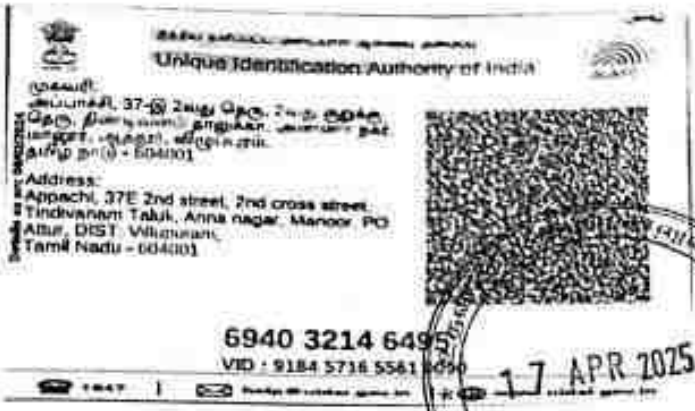
7 APR 2025


Government of India

T A P Jayakeerthi
DOB/DOB: 22/05/1977
MALE

Aadhaar is proof of identity, not of citizenship

6940 3214 6495

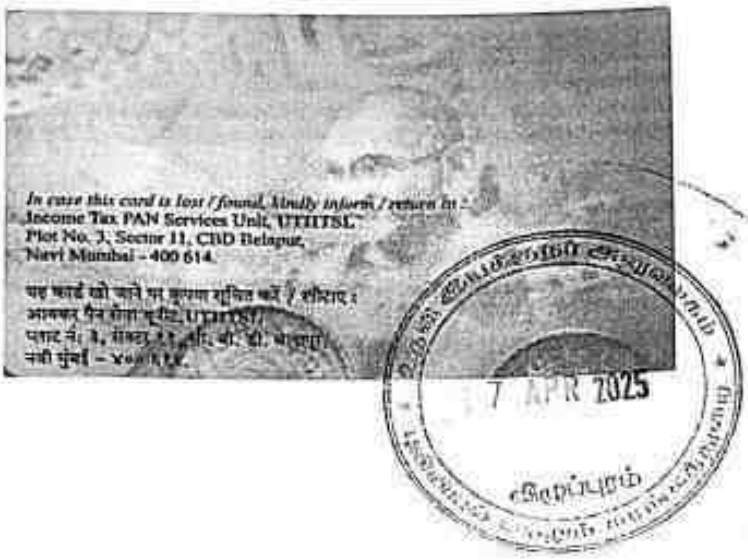

Unique Identification Authority of India

Address:
Appachi, 37E 2nd street, 2nd cross street,
Tindivanam Taluk, Anna nagar, Manoor PO
Attur, DIST: Villupuram,
Tamil Nadu - 604001

6940 3214 6495
VID : 9184 5716 5561 4690

17 APR 2025


आयकर विभाग
INCOME TAX DEPARTMENT
भारत सरकार
GOVT. OF INDIA
स्थायी लेखा संख्या कार्ड
Permanent Account Number
AQFPJ9716M
नाम / Name
T A P JAYAKEERTHI
पिता का नाम / Father's Name
APPACHI
जन्म की तारीख / Date of Birth
22/05/1977
हस्ताक्षर / Signature


In case this card is lost / found, kindly inform / return to :
Income Tax PAN Services Unit, UTIITSL
Plot No. 3, Sector 11, CBD Belapur,
Navi Mumbai - 400 614.
7 APR 2025

SUPER
MINES & MINERALS

MINES : Deveenna Goundanoor,
S.F.No - 631/9, Sankari, Taluk,
SALEM DISTRICT. Cell : 94432 52403
Email : chandramohan5@yahoo.com

Date : 08.07.2024

7 APR 2025

TO WHOMSOEVAR IT MAY CONCERN

This is to certify that **Mr. N.SURESH** S/o. Mr.P.NARAYANAN, Residing at D.No.6/187-A, Amaragundhi Post, Omalur Taluk, Salem Taluk, Salem District -636 503 has worked in our mines from the date of **13.03.2018 to 08.07.2024** as a **GEOLOGIST with Supervisor capacity.** During the above tenure of service his execution of the assigned work in exemplary and worth mentioning. I wish him success in his future endeavors.

8.7.2024

Signature of the Mine owner
With Date & Seal
M/s. SUPER MINES & MINERALS
DEVANNAGOUNDANUR VILLAGE,
SANKARI TALUK,
SALEM DISTRICT-637 101,
TAMILNADU STATE.

Name of Mine: M/S. SUPER MINES & MINERALS

Address: No. 23/12 Sri Krishna Kudil Apartment, Highways Colony Road, Opp. To Sona Engg. College,
District: Salem – 636 005.

State: Tamilnadu.

Place: Salem
Date: 08.07.2024

OFFICE : 23/12 Sri Krishna Kudil Apartments,
Highways Colony Road,
Opp.Sona Engg. College, Salem - 636 005.

Scanned with OKEN Scanner

Reg. No. 10PGL83012
Col. Code. 106

No. 2KJ 027257

பெரியார் பல்கலைக்கழகம்
Periyar University

APR 2025

அறிவியல் புலம்
FACULTY OF SCIENCE

பெரியார் பல்கலைக்கழக ஆட்சிக்குழு **2012** ஆம் ஆண்டு ஏப்ரல் மாதம் நடந்த **பயன்பாட்டுப்புவியமைப்பியல்** தேர்வில் அரசு கலைக் கல்லூரி, சேலம் - 636 007 (தன்னாட்சி) பயின்ற **N சுரேஷ்** என்பவர் **முதல் வகுப்பு A++ தரத்தில்** தேர்ச்சி பெற்றார் என்று தக்க தேர்வாளர்கள் சான்றளித்தபடி **அறிவியல் நிறைஞர்** என்னும் பட்டத்தை அவருக்குப் பல்கலைக்கழக இலச்சினையுடன் வழங்குகிறது.

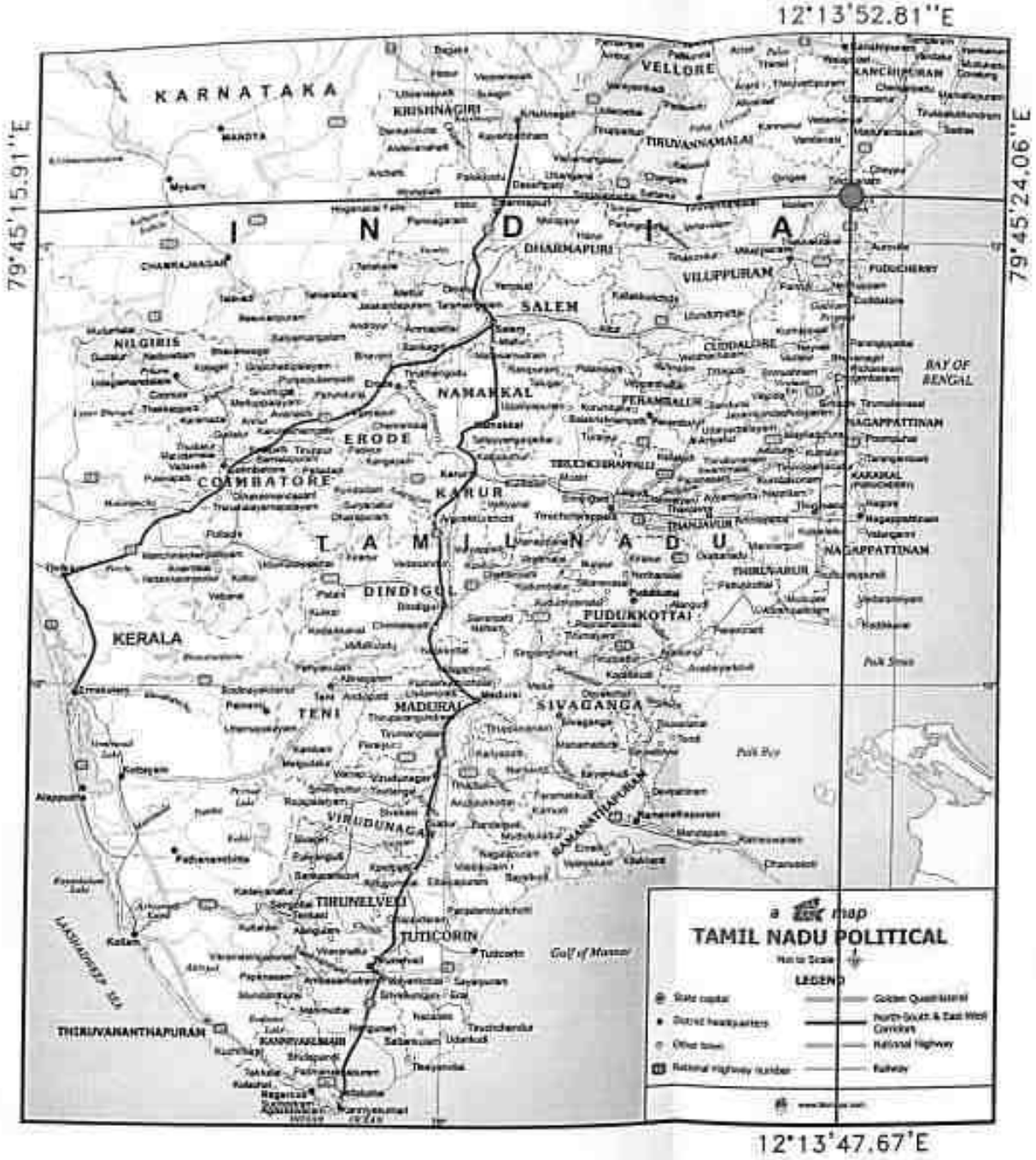
The Syndicate of the **Periyar University** *hereby makes known that* **SURESH N** *has been admitted to the* **DEGREE OF MASTER OF SCIENCE in APPLIED GEOLOGY** *he/she having been certified by duly appointed Examiners to be qualified to receive the same and was placed in the* **FIRST CLASS WITH A++ GRADE** *at the Examination held in* **APR-2012** *through* GOVERNMENT ARTS COLLEGE, SALEM - 636 007 (AUTONOMOUS).

Given under the seal of this university

நாள்
Dated 09-11-2012
சேலம் 636011, தமிழ்நாடு, இந்தியா.
Salem 636011, Tamil Nadu, India.

பதிவாளர்
Registrar

துணைவேந்தர்
Vice-Chancellor



17 APR 2025

PLATE NO:I

DATE OF SURVEY: 09.04.2025

APPLICANT ADDRESS:

M/s. SRI MAGAVEER MINES,
PROP:T.A.P. JAYAKEERTHI,
SENALUR VILLAGE,
TINDIVANAM TALUK,
VILUPPURAM DISTRICT - 604 101.

LOCATION OF QUARRY:

EXTENT	:	3.04.00 Ha.
S.F.NOs	:	771, 772, 773, 774, 775, 776 & 777.
VILLAGE	:	SENALUR,
TALUK	:	TINDIVANAM,
DISTRICT	:	VILUPPURAM,
STATE	:	TAMIL NADU.

INDEX

QUARRY LEASE AREA :

TOPO SHEET NO. : 58-P/16.

LATITUDE : 12° 13' 47.67"N to 12° 13' 52.81"N

LONGITUDE 79° 45' 15.91"E to 79° 45' 24.06"E

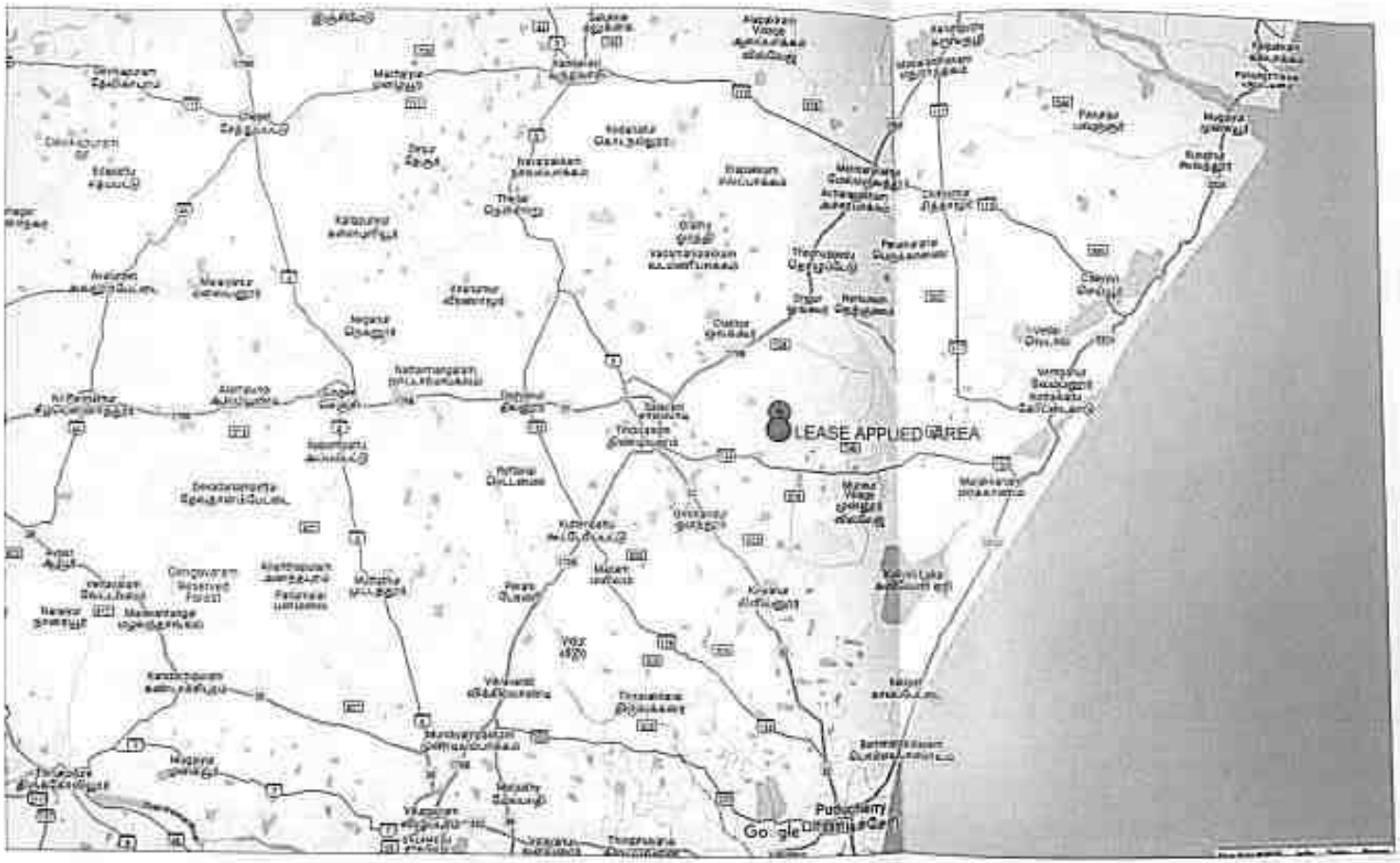
LOCATION PLAN

NOT TO SCALE

Prepared By:

I DO HEREBY CERTIFY THAT THE PLAYE HAS BEEN CHECKED BY ME AND IS CORRECT TO THE BEST OF MY KNOWLEDGE

H.SURESH, M.Sc.,
QUALIFIED PERSON



N

17 APR 2025

PLATE NO:1A

DATE OF SURVEY: 09.04.2025

APPLICANT ADDRESS:

M/s. SRI MAGAVEER MINES,
PROP:T.A.P. JAYAKEERTHI,
SENALUR VILLAGE,
TINDIVANAM TALUK,
VILUPPURAM DISTRICT - 604 101.

LOCATION OF QUARRY:

EXTENT : 3.04.00 Ha.
S.F.NOs : 7/1, 7/2, 7/3, 7/4, 7/5, 7/6 & 7/7.
VILLAGE : SENALUR.
TALUK : TINDIVANAM.
DISTRICT : VILUPPURAM.
STATE : TAMIL NADU.

INDEX

QUARRY LEASE AREA
APPROACH ROAD
VILLAGE ROAD

ROUTE MAP

NOT TO SCALE

Prepared By:

I DO HEREBY CERTIFY THAT THE PLATE HAS BEEN CHECKED BY ME AND IS CORRECT TO THE BEST OF MY KNOWLEDGE

M.SURESH, M.Sc,
QUALIFIED PERSON

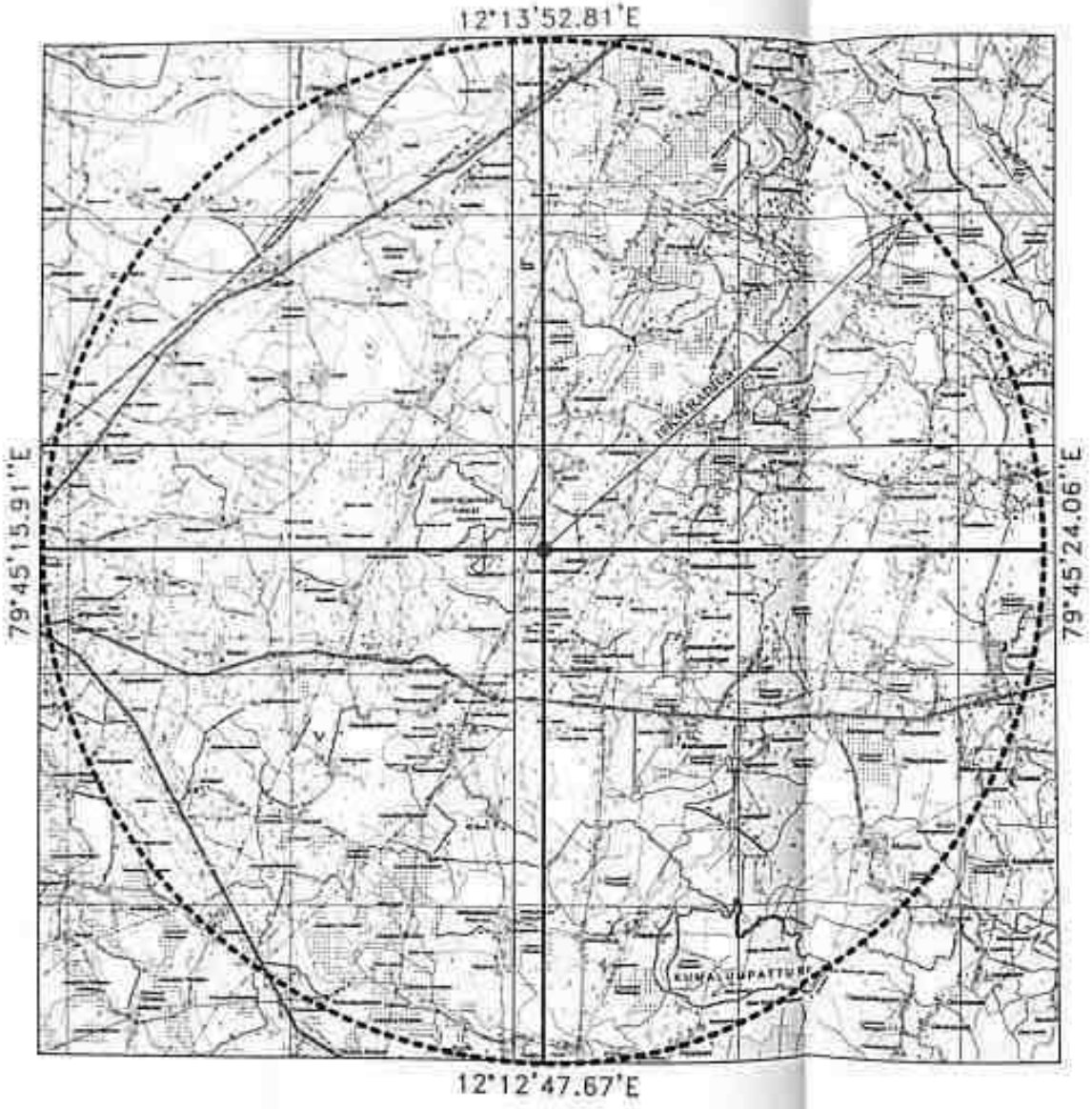


PLATE NO :1B

DATE OF SURVEY: 09.04.2025

APPLICANT ADDRESS:

M/s. SRI MAGAVEER MINES,
PROP:T.A.P. JAYAKEERTHI,
SENALUR VILLAGE,
TINDIVANAM TALUK,
VILUPPURAM DISTRICT - 604 101.

7 APR 2025

LOCATION OF QUARRY:

EXTENT	:	3.04.00 Hrs.
S.F.NOs	:	7/1, 7/2, 7/3, 7/4, 7/5, 7/6 & 7/7,
VILLAGE	:	SENALUR,
TALUK	:	TINDIVANAM,
DISTRICT	:	VILUPPURAM,
STATE	:	TAMIL NADU.

INDEX

QUARRY LEASE AREA :

10Km RADIUS :

TOPO SHEET NO. : 58-P/16,
LATITUDE : 12° 13' 47.67"N to 12° 13' 52.81"N
LONGITUDE: 79° 45' 15.91"E to 79° 45' 24.06"E



TOPO SHEET MAP WITH
10Km RADIUS
SCALE : 1: 100000

Prepared By:

I DO HEREBY CERTIFY THAT THE PLATE HAS BEEN CHECKED BY ME AND IS CORRECT TO THE BEST OF MY KNOWLEDGE

N.SURESH, M.Sc,
QUALIFIED PERSON



PLATE NO:IC

DATE OF SURVEY: 09.04.2025

APPLICANT ADDRESS:

M/s. SRI MAGAVEER MINES,
PROP:T.A.P. JAYAKEERTHI,
SENALUR VILLAGE,
TINDIVANAM TALUK,
VILUPPURAM DISTRICT - 604 102.

17 APR 2025

LOCATION OF QUARRY:

EXTENT	:	3.04.00 Ha.
S.F.NOs	:	7/1, 7/2, 7/3, 7/4, 7/5, 7/6 & 7/7.
VILLAGE	:	SENALUR,
TALUK	:	TINDIVANAM,
DISTRICT	:	VILUPPURAM,
STATE	:	TAMIL NADU.

INDEX

- QUARRY LEASE BOUNDARY
- VILLAGE ROAD
- CART TRACK
- APPROACH ROAD
- 300m RADIUS
- 500m RADIUS
- 1Km RADIUS

TOPO SHEET NO. : 58-P/16.

LATITUDE : 12° 13' 47.67"N to 12° 13' 52.81"N

LONGITUDE: 79° 45' 15.91"E to 79° 45' 24.06"E

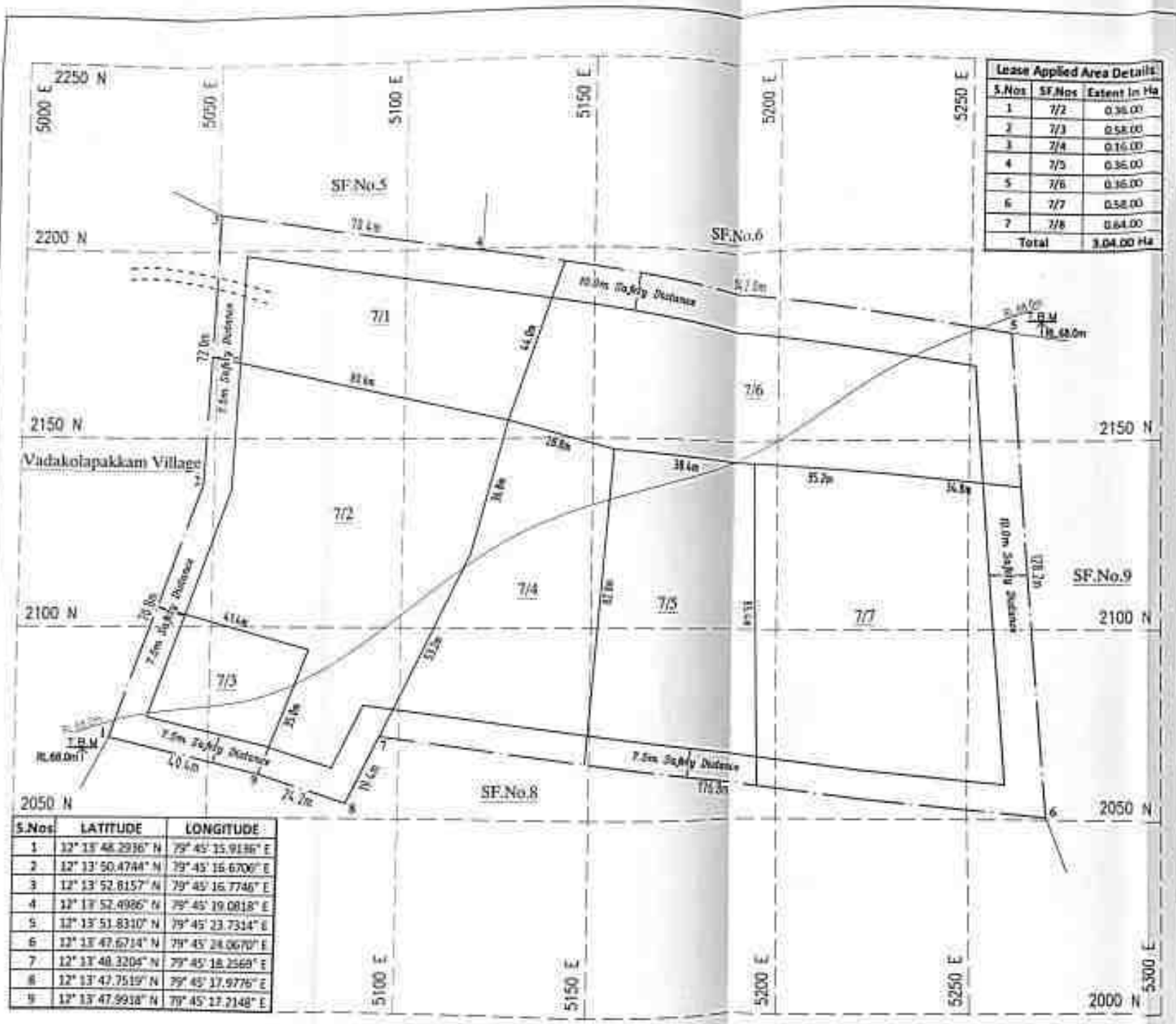
SATELLITE IMAGE
(1Km RADIUS)

SCALE: 1: 10000

Prepared By:

I DO HEREBY CERTIFY THAT THE PLATE HAS BEEN CHECKED BY ME AND IS CORRECT TO THE BEST OF MY KNOWLEDGE

R.SURESH, M.Sc.,
QUALIFIED PERSON



Lease Applied Area Details		
S.Nos	SF.Nos	Extent in Ha
1	7/2	0.36.00
2	7/3	0.58.00
3	7/4	0.16.00
4	7/5	0.36.00
5	7/6	0.36.00
6	7/7	0.58.00
7	7/8	0.64.00
Total		3.04.00 Ha

S.Nos	LATITUDE	LONGITUDE
1	12° 13' 48.2936" N	79° 45' 15.9186" E
2	12° 13' 50.4744" N	79° 45' 16.6706" E
3	12° 13' 52.8157" N	79° 45' 16.7746" E
4	12° 13' 52.4986" N	79° 45' 19.0818" E
5	12° 13' 51.8310" N	79° 45' 23.7314" E
6	12° 13' 47.6714" N	79° 45' 24.0670" E
7	12° 13' 48.3204" N	79° 45' 18.2569" E
8	12° 13' 47.7519" N	79° 45' 17.9776" E
9	12° 13' 47.9918" N	79° 45' 17.2148" E

PLATE NO:II

DATE OF SURVEY: 09.04.2025

APPLICANT ADDRESS

M/s. SRI MAGAVEER MINES,
PROP:T.A.P. JAYAKEERTHI,
SENALUR VILLAGE,
TINDIVANAM TALUK,
VILUPPURAM DISTRICT - 604 101.

LOCATION OF QUARRY

EXTENT : 3.04.00 Ha.
S.F.NOs : 7/1, 7/2, 7/3, 7/4, 7/5, 7/6 & 7/7
VILLAGE : SENALUR,
TALUK : TINDIVANAM,
DISTRICT : VILUPPURAM,
STATE : TAMIL NADU.

INDEX

QUARRY LEASE BOUNDARY
7.5m & 10m SAFETY DISTANCE
TEMPORARY BENCH MARK
APPROACH ROAD

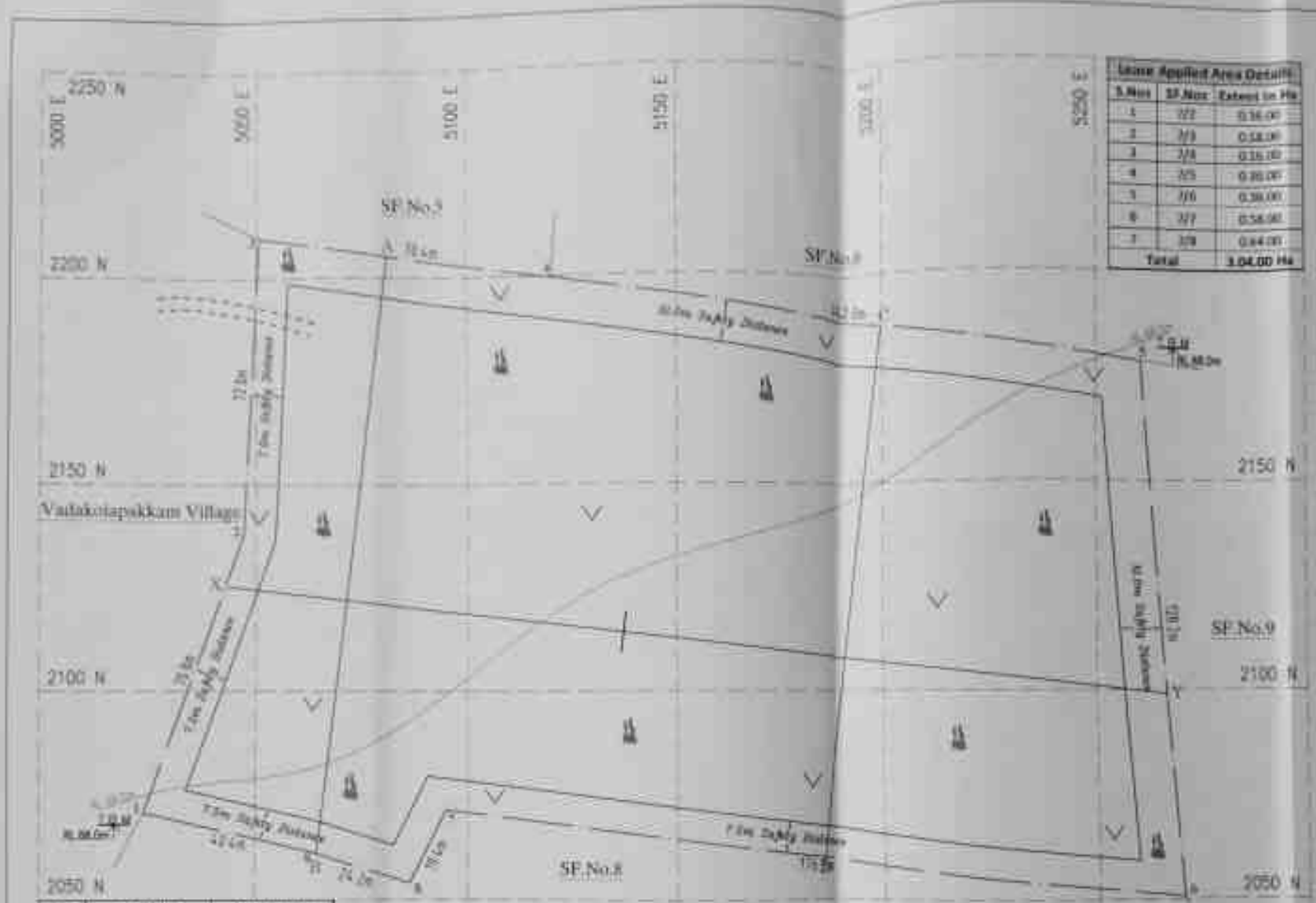
MINE LEASE PLAN

SCALE 1:1000

Prepared By:

I DO HEREBY CERTIFY THAT THE PLATE HAS BEEN CHECKED BY ME AND IS CORRECT TO THE BEST OF MY KNOWLEDGE

N.SURESH, M.Sc.
QUALIFIED PERSON



Lease Applied Area Details		
S.Nos	SF.Nos	Extent in Ha
1	7/2	0.56.00
2	7/3	0.58.00
3	7/4	0.56.00
4	7/5	0.80.00
5	7/6	0.36.00
6	7/7	0.56.00
7	7/8	0.64.00
Total		3.04.00 Ha

S.Nos	LATITUDE	LONGITUDE
1	12° 13' 48.2936" N	79° 45' 15.9136" E
2	12° 13' 50.4744" N	79° 45' 16.6706" E
3	12° 13' 52.8157" N	79° 45' 16.7746" E
4	12° 13' 53.4986" N	79° 45' 19.0818" E
5	12° 13' 51.8107" N	79° 45' 23.7314" E
6	12° 13' 47.6734" N	79° 45' 24.0670" E
7	12° 13' 48.3204" N	79° 45' 18.2569" E
8	12° 13' 47.7519" N	79° 45' 17.9776" E
9	12° 13' 47.9918" N	79° 45' 17.2148" E

PLATE NO.III

DATE OF SURVEY: [illegible]

APPLICANT ADDRESS:

M/s SRI MARIAMMAN MINES,
PROP.T.A.P. JAYAKEERTHI,
SENALUR VILLAGE,
TINDIVANAM TALUK,
VILUPPURAM DISTRICT - 604 101.

LOCATION OF QUARRY:

EXTENT : 3.04.00 Hrs.
S.F.NOs : 7/1, 7/2, 7/3, 7/4, 7/5, 7/6 & 7/7
VILLAGE : SENALUR
TALUK : TINDIVANAM
DISTRICT : VILUPPURAM
STATE : TAMILNADU

INDEX

QUARRY LEASE BOUNDARY
7.5m & 10m SAFETY DISTANCE
TEMPORARY BENCH MARK
APPROACH ROAD
GRAVEL
SHRUB
CONTOUR

SURFACE & GEOLOGICAL PLAN

SCALE 1:1000

Prepared By:

I DO HEREBY CERTIFY THAT THE PLATE HAS BEEN CHECKED BY ME AND IS CORRECT TO THE BEST OF MY KNOWLEDGE

N.SURESH, M.Sc.,
QUALIFIED PERSON

SECTION ALONG X-Y



SECTION ALONG A-B



SECTION ALONG C-D



GEOLOGICAL RESOURCES

Section	Bench	Length (in m)	Width (in m)	Depth (in m)	Volume (in m3)	Geological Resources in m3 (100%)	Gravel (in m3)
XY-AB	I	95	145	2			27500
	II	95	145	5	68875	68875	
	III	95	145	5	68875	68875	
	IV	95	145	5	68875	68875	
	V	95	145	5	68875	68875	
	VI	95	145	5	68875	68875	
	VII	95	145	5	68875	68875	
	VIII	95	145	5	68875	68875	
	IX	95	145	5	68875	68875	
	X	95	145	5	68875	68875	
	XI	95	145	5	68875	68875	
	Total				688750	688750	27500
XY-CD	I	130	129	2			33540
	II	130	129	5	83850	83850	
	III	130	129	5	83850	83850	
	IV	130	129	5	83850	83850	
	V	130	129	5	83850	83850	
	VI	130	129	5	83850	83850	
	VII	130	129	5	83850	83850	
	VIII	130	129	5	83850	83850	
	IX	130	129	5	83850	83850	
	X	130	129	5	83850	83850	
	XI	130	129	5	83850	83850	
	Total				838500	838500	33540
Grand Total					1527250	1527250	61040

17 APR 2025

PLATE NO:III-A

DATE OF SURVEY: 09.04.2025

APPLICANT ADDRESS:

M/S. SRI MAGAVEER MINES,
PROP:T.A.P. JAYAKEERTHI,
SENALUR VILLAGE,
TINDIVANAM TALUK,
VILUPPURAM DISTRICT - 604 101.

LOCATION OF QUARRY:

EXTENT : 3.04.00 Hrs
S.F.NOs : 515, 516, 518, 519, 520, 521 & 522
VILLAGE : SENALUR
TALUK : TINDIVANAM
DISTRICT : VILUPPURAM
STATE : TAMIL NADU

INDEX

QUARRY LEASE BOUNDARY
7.5m & 10m SAFETY DISTANCE
GRAVEL
ROUGH STONE

GEOLOGICAL SECTIONS

SCALE- HOR-1:1000
VER-1:1000

Prepared By:

I DO HEREBY CERTIFY THAT THE PLATE HAS BEEN CHECKED BY ME AND IS CORRECT TO THE BEST OF MY KNOWLEDGE

R.GURESH, M.Sc.,
QUALIFIED PERSON



Lease Applied Area Details		
S.Nos	SF.Nos	Extent in Ha
1	5/2	0.36.00
2	5/3	0.54.00
3	5/4	0.24.00
4	5/5	0.30.00
5	5/6	0.30.00
6	5/7	0.58.00
7	5/8	0.64.00
Total		3.04.00 Ha

S.Nos	LATITUDE	LONGITUDE
1	12° 13' 48.2996" N	79° 45' 15.9136" E
2	12° 13' 50.4394" N	79° 45' 16.6706" E
3	12° 13' 52.8337" N	79° 45' 16.7746" E
4	12° 13' 52.4966" N	79° 45' 18.0618" E
5	12° 13' 51.8310" N	79° 45' 23.7314" E
6	12° 13' 47.6714" N	79° 45' 24.0875" E
7	12° 13' 48.3304" N	79° 45' 18.2568" E
8	12° 13' 47.7133" N	79° 45' 17.9776" E
9	12° 13' 47.9918" N	79° 45' 17.2146" E

I YEAR PROPOSED EXCAVATION
II YEAR PROPOSED EXCAVATION
III YEAR PROPOSED EXCAVATION
IV YEAR PROPOSED EXCAVATION
V YEAR PROPOSED EXCAVATION

I YEAR PROPOSED PLANTATION
II YEAR PROPOSED PLANTATION
III YEAR PROPOSED PLANTATION
IV YEAR PROPOSED PLANTATION
V YEAR PROPOSED PLANTATION

Proposed Pit Dimension: (Max)
207m(L) X 128m(W) X 62m(D)

PLATE NO:IV

DATE OF SURVEY: 09.04.2025

APPLICANT ADDRESS:

M/S. SRI MAHALAKSHMI METALS,
PROP.T.A.P. JAYAKUMAR,
SENALUR VILLAGE,
TINDIVANAM TALUK,
VILUPPURAM DISTRICT - 604 304.

11 SEP 2025

LOCATION OF QUARRY:

EXTENT	3.04.00 HA.
S.F.NOS.	1/1, 2/2, 3/3, 3/4, 3/5, 3/6 & 3/7
VILLAGE	SENALUR
TALUK	TINDIVANAM
DISTRICT	VILUPPURAM
STATE	TAMIL NADU

INDEX

- QUARRY LEASE BOUNDARY
- 7.5m & 10m SAFETY DISTANCE
- TEMPORARY BENCH MARK
- APPROACH ROAD
- QUARRY ROAD
- GRAVEL
- SHRUB
- QUARRY PIT
- CONTOUR
- PROPOSED PIT LIMIT

YEAR WISE DEVELOPMENT AND PRODUCTION PLAN

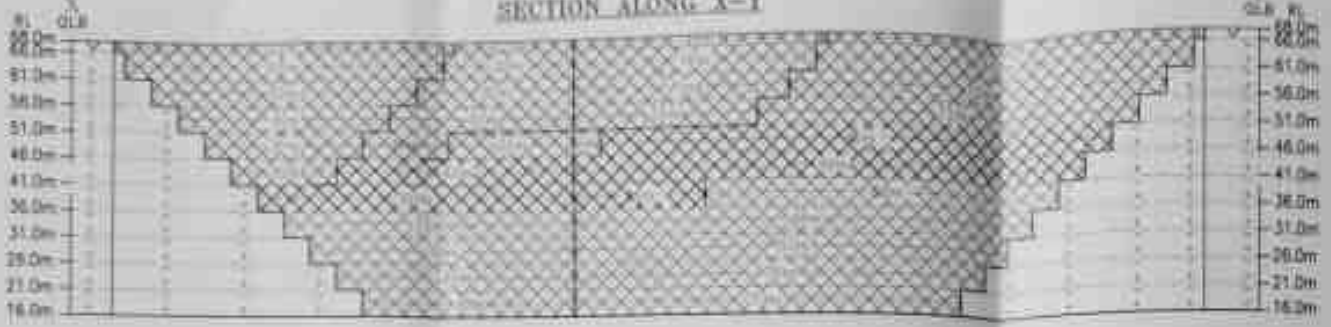
SCALE 1:1000

Prepared By:

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N. SURESH, M.Sc.
QUALIFIED PERSON

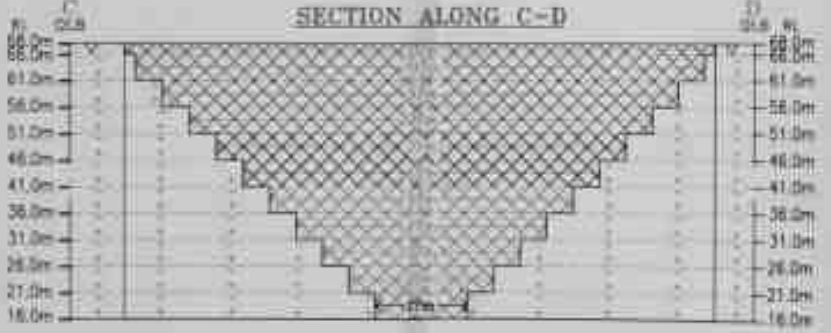
SECTION ALONG X-Y



SECTION ALONG A-B



SECTION ALONG C-D



YEARWISE DEVELOPMENT AND PRODUCTION RESERVES

Year	Section	Bench	Length (in m)	Width (in m)	Depth (in m)	Volume (in m3)	Deduction (in m3)	Recoverable Reserves of Rough Stone (in m3 (100%))
I Year	VV-AB	I	44	128	3		16356	
		II	46	133	3	17220		17220
		III	50	124	3	18594		18594
		IV	49	104	3	15840		15840
		V	30	94	3	14100		14100
		VI	28	84	3	9408		9408
		Total					16356	109152
II Year	XX-AB	I	33	128	3		7920	
	XX-CD	I	48	111	3		16656	
	XX-AB	II	25	124	3	13206		13206
		III	30	134	3	17286		17286
		IV	35	104	3	14280		14280
		V	16	94	3	7728		7728
	XX-CD	II	46	107	3	24610		24610
		III	41	97	3	17901		17901
		IV	35	87	3	15225		15225
		Total					16656	135943
III Year	XX-CD	I	72	111	3		23976	
		II	72	107	3	38534		38534
		III	72	97	3	34920		34920
		IV	73	87	3	31755		31755
		V	5	77	3	1155		1155
	XX-AB	VI	24	94	3	13536		13536
		Total					23976	139433
IV Year	XX-AB	VII	45	84	3	18522		18522
		VIII	69	74	3	22356		22356
	XX-CD	V	98	77	3	27258		27258
		VI	90	67	3	22554		22554
		VII	35	57	3	7125		7125
		Total						97815
V Year	XX-AB	VIII	55	64	3	17600		17600
		IX	50	54	3	13500		13500
		X	45	44	3	9900		9900
		XI	40	34	3	6800		6800
	XX-CD	VII	49	57	3	14535		14535
		VIII	38	47	3	10830		10830
		IX	43	37	3	12357		12357
		X	78	27	3	18954		18954
		XI	73	17	3	6205		6205
		Total						119993
Grand Total							40012	594173

I. YEAR PROPOSED EXCAVATION
II. YEAR PROPOSED EXCAVATION
III. YEAR PROPOSED EXCAVATION
IV. YEAR PROPOSED EXCAVATION
V. YEAR PROPOSED EXCAVATION

17 APR 2025

PLATE NO:IV-A

DATE OF SURVEY: 09.04.2025

APPLICANT ADDRESS:

M/S.SRI MAGAVEER MINES,
PROP.T.A.P. JAYAKEERTHI,
SENALUR VILLAGE,
TINDIVANAM TALUK,
VILUPPURAM DISTRICT - 604 101.

LOCATION OF QUARRY:

ESTENT : 3.04.00 Ha.
S.F.NOs : 101, 102, 103, 104, 105, 106 & 107
VILLAGE : SENALUR
TALUK : TINDIVANAM.
DISTRICT : VILUPPURAM.
STATE : TAMIL NADU.

INDEX

QUARRY LEASE BOUNDARY
7.5m & 10m SAFETY DISTANCE
GRAVEL
ROUGH STONE
PROPOSED PIT LIMIT

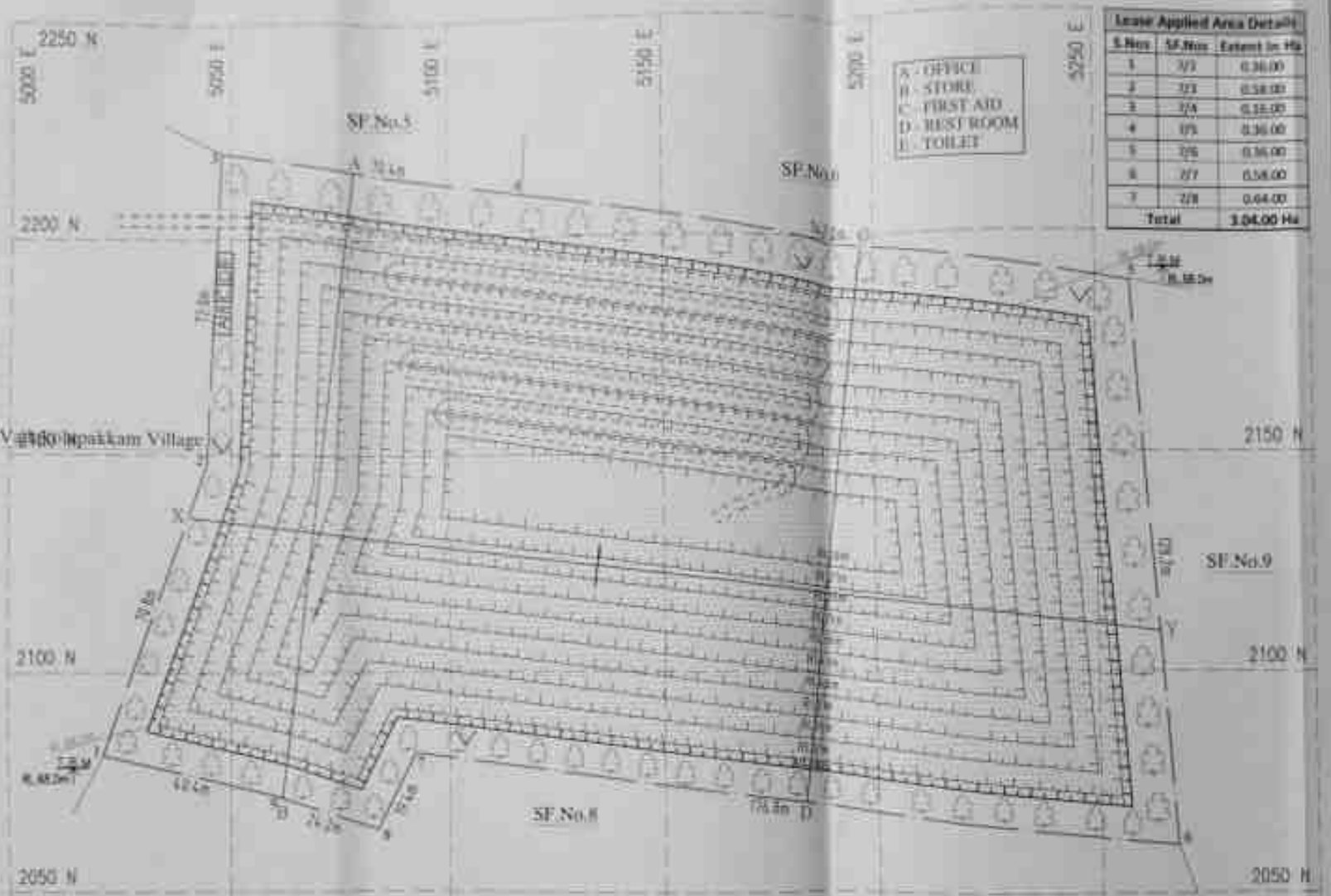
YEARWISE DEVELOPMENT AND PRODUCTION SECTIONS

SCALE: HOR-1:1000
VER-1:1000

Prepared By:

I DO HEREBY CERTIFY THAT THE PLATE HAS BEEN CHECKED BY ME AND IS CORRECT TO THE BEST OF MY KNOWLEDGE

K.SURESH, M.Sc,
QUALIFIED PERSON



Lease Applied Area Details		
S.Nos	SF.Nos	Extent in Ha
1	3/3	0.36.00
2	3/4	0.58.00
3	3/5	0.16.00
4	3/6	0.36.00
5	7/5	0.36.00
6	7/7	0.58.00
7	7/8	0.64.00
Total		3.04.00 Ha

PLATE NO:V

DATE OF SURVEY: 09.04.2024

APPLICANT ADDRESS:

M/s. SRI MAGAVEER MINES

PROP:T.A.P. JAYAKEERTHI

SENALUR VILLAGE,

TINDIVANAM TALUK,

VILUPPURAM DISTRICT - 604 101.

LOCATION OF QUARRY:

EXTENT	: 3.04.00 Hrs.
S.F.NOs	: 7/1, 7/2, 7/3, 7/4, 7/5, 7/6 & 7/7
VILLAGE	: SENALUR,
TALUK	: TINDIVANAM,
DISTRICT	: VILUPPURAM,
STATE	: TAMIL NADU.

INDEX

- QUARRY LEASE BOUNDARY
- 7.5m & 10m SAFETY DISTANCE
- TEMPORARY BENCH MARK
- APPROACH ROAD
- QAURRY ROAD
- GRAVEL
- SHRUB
- QUARRY PIT
- CONTOUR
- MINE LAYOUT

MINE LAYOUT, LAND USE PATTERN & AFFORESTATION PLAN

SCALE 1:2000

S.Nos	LATITUDE	LONGITUDE
1	12° 13' 48.2596" N	79° 45' 15.9136" E
2	12° 13' 50.4744" N	79° 45' 16.6706" E
3	12° 13' 52.8157" N	79° 45' 15.7746" E
4	12° 13' 52.4566" N	79° 45' 10.0818" E
5	12° 13' 51.8310" N	79° 45' 23.7314" E
6	12° 13' 47.4714" N	79° 45' 24.0670" E
7	12° 13' 48.3206" N	79° 45' 18.2569" E
8	12° 13' 47.7510" N	79° 45' 17.9776" E
9	12° 13' 47.9018" N	79° 45' 17.2348" E

- I. YEAR PROPOSED EXCAVATION
- II. YEAR PROPOSED EXCAVATION
- III. YEAR PROPOSED EXCAVATION
- IV. YEAR PROPOSED EXCAVATION
- V. YEAR PROPOSED EXCAVATION

DESCRIPTION	PRESENT AREA (Ha)	AREA IN USE DURING THE QUARRYING PERIOD (Ha)	COLOR CODE
AREA UNDER QUARRYING	NIL	2.37.80	
INFRASTRUCTURE	NIL	0.02.20	
ROADS	NIL	0.01.00	
GREEN BELT	NIL	0.62.70	
UN-UTILISED AREA	3.04.00	NIL	
GRAND TOTAL	3.04.00	3.04.00	

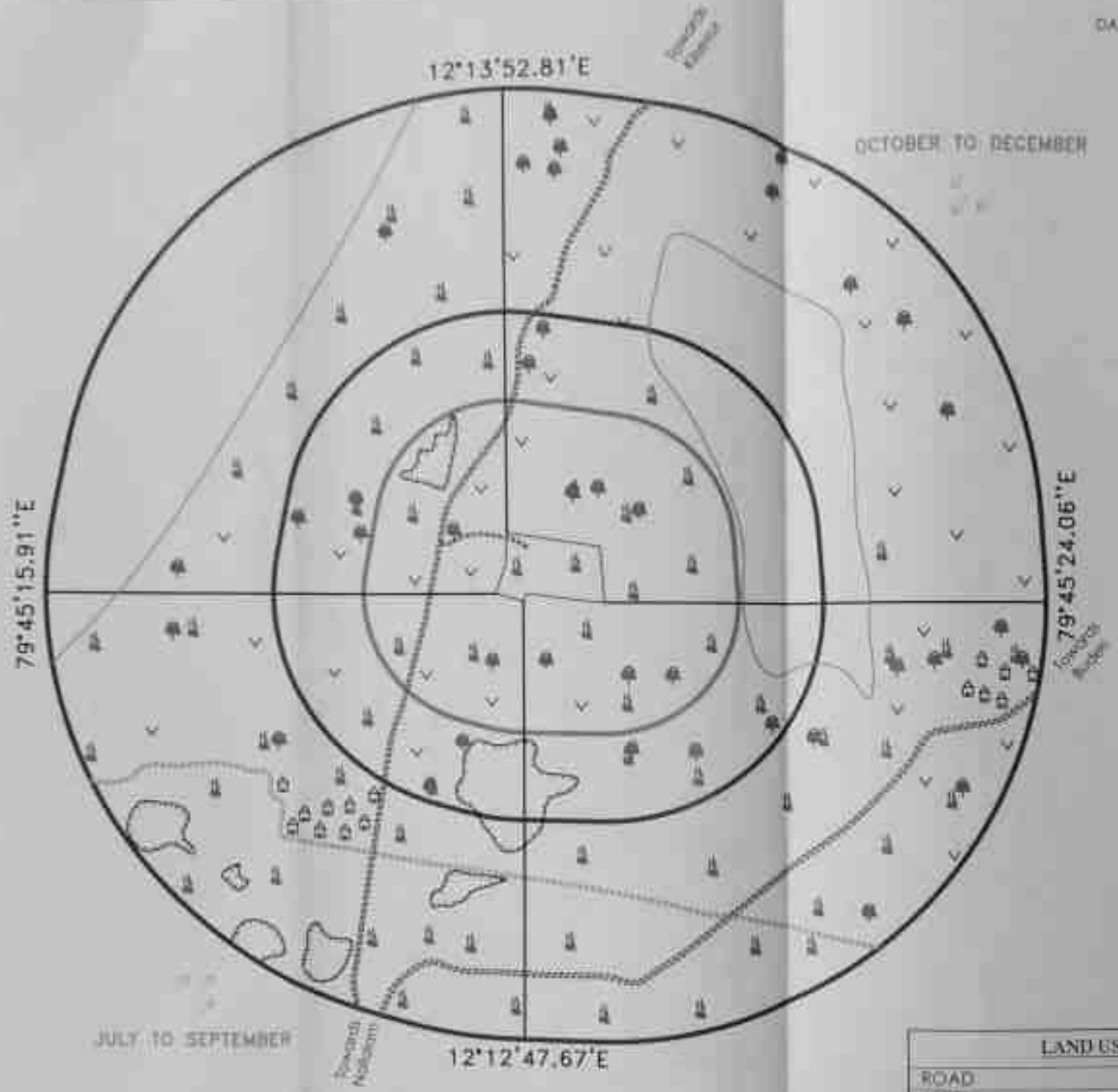
Prepared By:

I DO HEREBY CERTIFY THAT THE PLATE HAS BEEN CHECKED BY ME AND IS CORRECT TO THE BEST OF MY KNOWLEDGE

N.SURESH, M.Sc.,
QUALIFIED PERSON

PLATE NO:VI

DATE OF SURVEY: 09.04.2015



APPLICANT ADDRESS

M/S. SRI MAGA VEER MINES,
PROP.T.A.P. JAYAKEERTHI,
SENALUR VILLAGE,
TINDIVANAM TALUK,
VILUPPURAM DISTRICT - 604 101

LOCATION OF QUARRY:

EXTENT	:	3.54.00 Hq.
S.F.NOs	:	711, 712, 713, 714, 715, 716 & 717,
VILLAGE	:	SENALUR,
TALUK	:	TINDIVANAM,
DISTRICT	:	VILUPPURAM,
STATE	:	TAMIL NADU.

INDEX

- QUARRY LEASE BOUNDARY
- VILLAGE ROAD
- CART TRACK
- APPROACH ROAD
- 300m RADIUS
- 500m RADIUS
- 1Km RADIUS
- TREES
- SHRUB
- DRY AGRICULTURAL LAND
- QUARRY PIT
- INFRASTRUCTURES
- WIND DIRECTION
- TANK

ENVIRONMENT PLAN

SCALE 1:1000

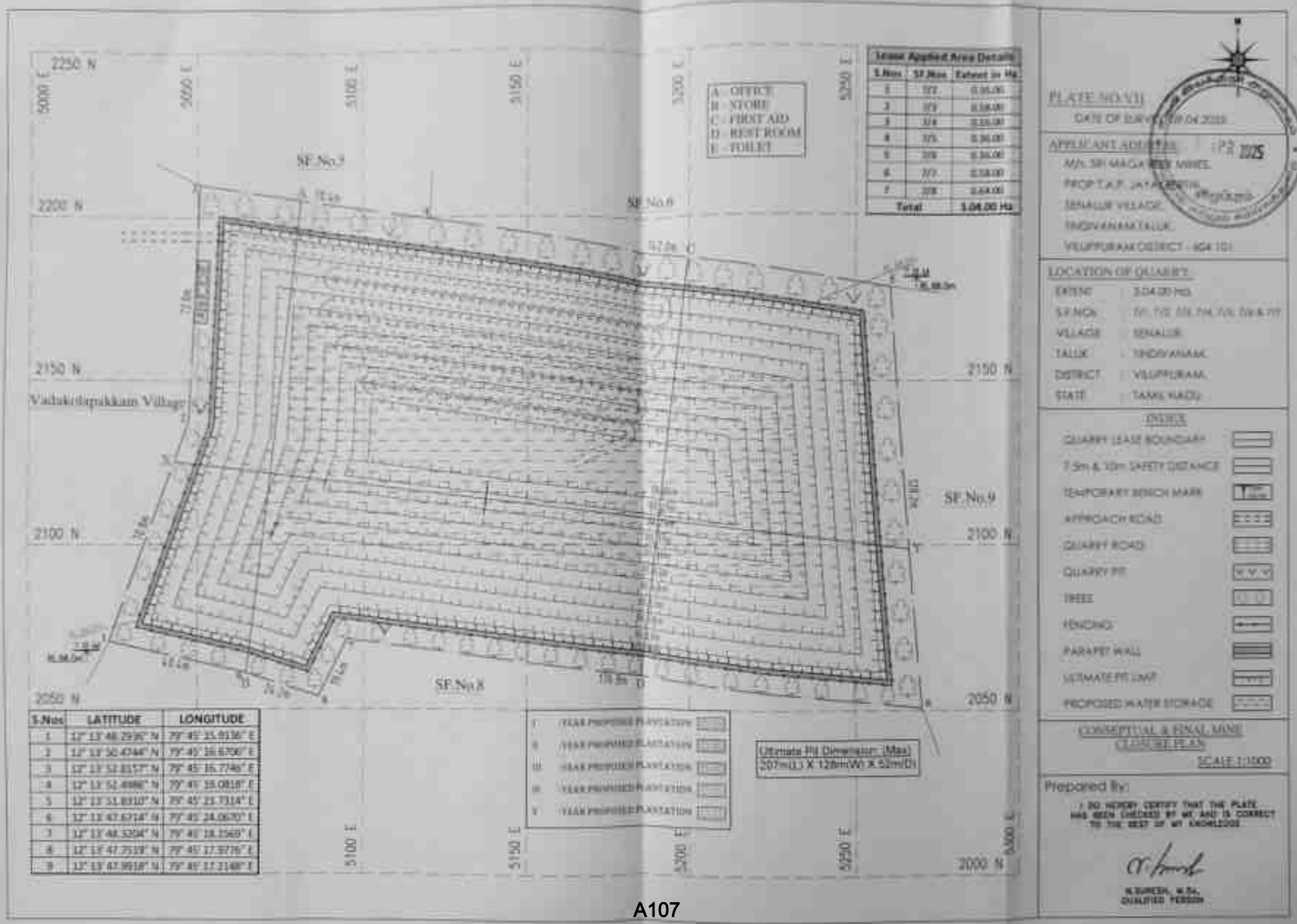
LAND USE PATTERN

ROAD	(05%)
TREES	(15%)
SEASONAL AGRICULTURAL LAND	(20%)
BARREN LAND	(55%)
HABITATIONS	(05%)
TANK	(20%)

Prepared By

I DO HEREBY CERTIFY THAT THE PLATE HAS BEEN CHECKED BY ME AND IS CORRECT TO THE BEST OF MY KNOWLEDGE

N.SURESH, M.Sc.,
QUALIFIED PERSON


2250 N
2200 N
2150 N
2100 N
2050 N
2000 N
5000 E
5050 E
5100 E
5150 E
5200 E
5250 E
5300 E
SF.No.5
SF.No.6
SF.No.8
SF.No.9
Vadukirippukkam Village
A - OFFICE
B - STORE
C - FIRST AID
D - REST ROOM
E - TOILET
Lease Applied Area Details
S.Nos | SF.Nos | Extent in Ha
1 | 372 | 0.95.00
2 | 373 | 0.58.00
3 | 374 | 0.55.00
4 | 375 | 0.36.00
5 | 376 | 0.50.00
6 | 377 | 0.58.00
7 | 378 | 0.64.00
Total | 3.04.00 Ha
S.Nos | LATITUDE | LONGITUDE
1 | 12° 13' 48.2936" N | 79° 45' 15.9136" E
2 | 12° 13' 50.4744" N | 79° 45' 16.6706" E
3 | 12° 13' 52.8157" N | 79° 45' 16.7746" E
4 | 12° 13' 52.4886" N | 79° 45' 15.0818" E
5 | 12° 13' 51.8310" N | 79° 45' 23.7314" E
6 | 12° 13' 47.6714" N | 79° 45' 24.0670" E
7 | 12° 13' 46.5204" N | 79° 45' 18.2569" E
8 | 12° 13' 47.7519" N | 79° 45' 17.9776" E
9 | 12° 13' 47.9918" N | 79° 45' 17.2148" E
Ultimate Pit Dimension: (Max)
207m(L) X 128m(W) X 52m(D)
PLATE NO.VII
APPLICANT ADDRESS
M/s. SRI MAGA
PROP.T.A.P. JAYA
SENALUR VILLAGE,
TINDIVANAM TALUK,
VILUPPURAM DISTRICT - 604 101
LOCATION OF QUARRY
EXTENT : 3.04.00 Ha.
S.F.NOs :
VILLAGE : SENALUR
TALUK : TINDIVANAM.
DISTRICT : VILUPPURAM.
STATE : TAMIL NADU
INDEX
QUARRY LEASE BOUNDARY
7.5m & 10m SAFETY DISTANCE
TEMPORARY BENCH MARK
APPROACH ROAD
QUARRY ROAD
QUARRY PIT
TREES
FENCING
PARAPET WALL
ULTIMATE PIT LIMIT
PROPOSED WATER STORAGE
CONCEPTUAL & FINAL MINE CLOSURE PLAN
SCALE 1:1000
Prepared By:
I DO HEREBY CERTIFY THAT THE PLATE HAS BEEN CHECKED BY ME AND IS CORRECT TO THE BEST OF MY KNOWLEDGE
N.SURESH, M.Sc.,
QUALIFIED PERSON

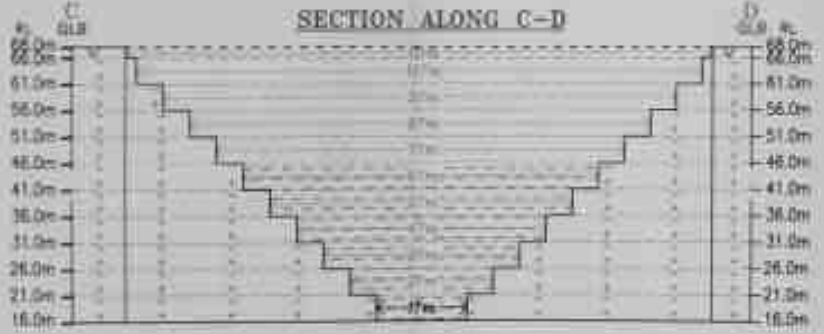
SECTION ALONG X–Y



SECTION ALONG A–B



SECTION ALONG C–D



MINEABLE RESERVES

Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in (m3)	Mineable Reserves in m3 (100%)	Gravel in m3
XY-AB	I	80	128	2			22272
	II	80	124	5	52700	52700	
	III	80	114	5	45600	45600	
	IV	75	104	5	39000	39000	
	V	70	94	5	32900	32900	
	VI	65	84	5	27300	27300	
	VII	60	74	5	22200	22200	
	VIII	55	64	5	17600	17600	
	IX	50	54	5	13500	13500	
	X	45	44	5	9900	9900	
	XI	40	34	5	6800	6800	
	Total				267500	267500	22272
XY-CD	I	120	111	2			26640
	II	118	107	5	63130	63130	
	III	113	97	5	54805	54805	
	IV	108	87	5	46980	46980	
	V	103	77	5	39655	39655	
	VI	98	67	5	32830	32830	
	VII	93	57	5	26505	26505	
	VIII	88	47	5	20680	20680	
	IX	83	37	5	15355	15355	
	X	78	27	5	10530	10530	
	XI	73	17	5	6205	6205	
	Total				316675	316675	26640
Grand Total					584175	584175	48912

PLATE NO VII-A

DATE OF SURVEY: 09.04.2025

APPLICANT ADDRESS

M/S. SRI MAGA VEER MINES,
PROP.T.A.P. JAYAKEERTHI,
SENALUR VILLAGE,
TINDIVANAM TALUK,
VILUPPURAM DISTRICT - 604 101.

LOCATION OF QUARRY

EXTENT : 3.04.00 Hrs.
S.F.NOs : 711, 712, 713, 714, 715, 716 & 717,
VILLAGE : SENALUR,
TALUK : TINDIVANAM,
DISTRICT : VILUPPURAM,
STATE : TAMIL NADU.

INDEX

- QUARRY LEASE BOUNDARY
- 7.5m SAFETY DISTANCE
- GRAVEL
- ROUGH STONE
- QUARRY PIT
- OLD SURFACE LEVEL
- ULTIMATE PIT SLOPE
- PROPOSED WATER STORAGE

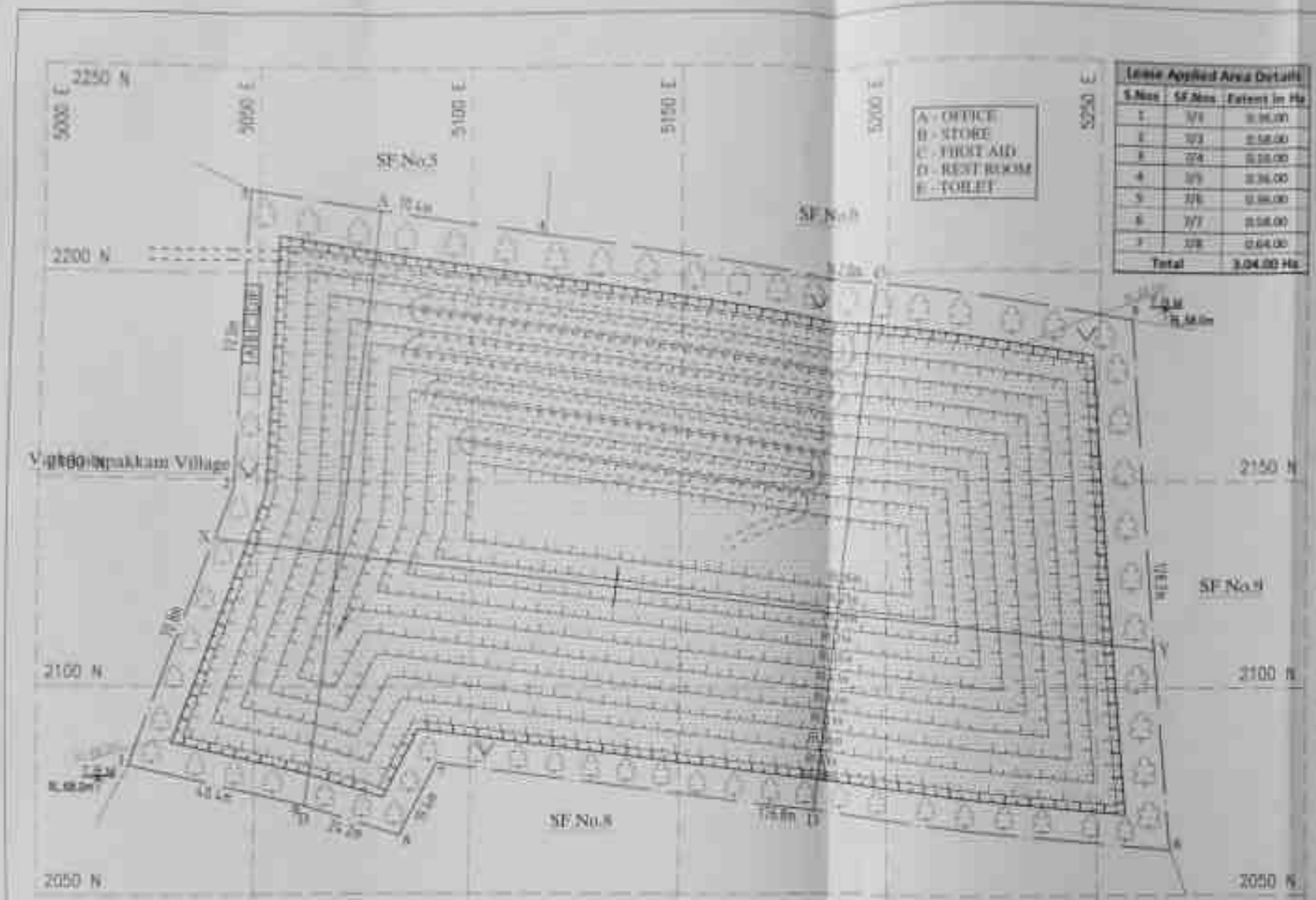
CONCEPTUAL & FINAL MINE CLOSURE SECTIONS

SCALE: HOR.1:1000
VER-1:1000

Prepared By:

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M.SURESH, M.Sc.
QUALIFIED PERSON



Lease Applied Area Details		
S.Nos	SF.Nos	Extent in Ha
1	101	0.96.00
2	103	0.58.00
3	104	0.58.00
4	105	0.96.00
5	106	0.96.00
6	107	0.58.00
7	108	0.64.00
Total		3.04.00 Hs

S.Nos	LATITUDE	LONGITUDE
1	12° 13' 46.2936" N	79° 45' 15.9136" E
2	12° 13' 50.4744" N	79° 45' 16.6706" E
3	12° 13' 52.8257" N	79° 45' 16.7746" E
4	12° 13' 52.4966" N	79° 45' 19.0816" E
5	12° 13' 51.8310" N	79° 45' 23.7314" E
6	12° 13' 47.6714" N	79° 45' 24.0670" E
7	12° 13' 48.1204" N	79° 45' 18.2589" E
8	12° 13' 47.7515" N	79° 45' 17.9778" E
9	12° 13' 47.9918" N	79° 45' 17.2146" E

I YEAR PROPOSED EXCAVATION
II YEAR PROPOSED EXCAVATION
III YEAR PROPOSED EXCAVATION
IV YEAR PROPOSED EXCAVATION
V YEAR PROPOSED EXCAVATION

DESCRIPTION	PRESENT AREA (Ha)	AREA IN USE DURING THE QUARRYING PERIOD (Ha)	COLOR CODE
AREA UNDER QUARRYING	NIL	2.37.50	
INFRASTRUCTURE	NIL	0.03.00	
ROADS	NIL	0.02.00	
GREEN BELT	NIL	0.82.70	
UN-UTILIZED AREA	3.04.00	NIL	
GRAND TOTAL	3.04.00	3.04.00	

PLATE NO.VIII

DATE OF SURVEY: 09.04.2025

APPLICANT ADDRESS:

M/S. SRI MAGAVEER METALS,
PROP.T.A.P. JAYAKEERTH,
SENALUR VILLAGE,
TINDIVANAM TALUK,
VILUPPURAM DISTRICT - 604 101.

LOCATION OF QUARRY

EXTENT	3.04.00 Hs
S.F.NOS	101, 103, 104, 105, 106 & 107
VILLAGE	SENALUR
TALUK	TINDIVANAM
DISTRICT	VILUPPURAM
STATE	TAMIL NADU

INDEX

- QUARRY LEASE BOUNDARY
- 7.5m & 10m SAFETY DISTANCE
- TEMPORARY BENCH MARK
- APPROACH ROAD
- GAUBEY ROAD
- GRAVEL
- SHRUB
- QUARRY PIT
- CONTOUR
- MINE LAYOUT

PROGRESSIVE MINE CLOSURE PLAN

SCALE 1:1000

Prepared By:

I DO HEREBY CERTIFY THAT THE PLATE HAS BEEN CHECKED BY ME AND IS CORRECT TO THE BEST OF MY KNOWLEDGE

R.SURESH, M.Sc.,
QUALIFIED PERSON