

DRAFT EIA / EMP REPORT

FOR

ROUGH STONE AND GRAVEL QUARRY

A. Project Proponent Details

Name	THIRU. R. GOPALAKRISHNAN
Address	70/1E, Karpagam Nagar, Thirumangalam Town & Taluk, Madurai.

B. Location Details

Extent	1.08.0 HA
Survey No.	199/6A
Location	APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

C. Production Details

Total Production	ROUGH STONE - 76,566 m3, GRAVEL - 7,982 m3
Depth	20 m
Lease Period	5 YEARS

D. EIA/EMP details

ToR reference	TO24B0108TN5620880N DATED 11.01.2025
Baseline Monitoring	SUMMER SEASON (MAR - MAY 2025)

CONSULTANT

CREATIVE ENGINEERS & CONSULTANTS



NABET ACCREDITED CONSULTANCY, NABL ACCREDITED TESTING LAB

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

Ph: 044-22395170, Cell: 09444133619 Email : cecgiri@yahoo.com,

JUNE 2025

REVISIONS OF EIA/EMP REPORT

Revision number	Report Status	Date of submission
00/MAY/25	Draft EIA /EMP Report	23.06.2025

Environmental Impact Assessment & Environmental Management Plan Report for **Rough Stone and gravel Quarry of Thiru. R. Gopalakrishnan at S.F.No. 199/6A over an area of 1.08.0 ha In Appayanaickenpatti Village, Vembakottai Taluk, Virudhunagar District, Tamilnadu** and authorized for submission by Dr. B. Swamynathan, EIA Coordinator on 23.06.2025 after due review by the personnel and consultation with the project proponents. Current Revision number of the EIA/EMP report is 00/JUN/25, signifying as per the revision mentioned in the above table that this is a draft EIA/EMP report.

Signature:

Date: 23.06.2025

PROJECT PROPONENT DECLARATION

I, Thiru. Thiru. R. Gopalakrishnan received Terms of Reference under EIA Notification 2006 from SEIAA, Tamil Nadu vide their letter **TO24B0108TN5620880N dated 11.01.2025** for Rough Stone & Gravel Quarry at Survey No. 199/6A over an area of 1.08.0 hectares in Appayanaickenpatti Village, Vembakottai Taluk, Virudhunagar District, Tamilnadu.

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 the consultant. The data given in the EIA/EMP report are factually correct to the best of my knowledge.

Signature:

For Thiru. R. Gopalakrishnan

Date: 23.06.2025



CREATIVE ENGINEERS & CONSULTANTS

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

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.

Thiru. R. Gopalakrishnan received Terms of Reference under EIA Notification 2006 from SEIAA, Tamil Nadu vide their letter **TO24B0108TN5620880N dated 11.01.2025** for Rough Stone and Gravel Quarry at Survey No. 199/6A over an area of 1.08.0 hectares in Appayanaickenpatti Village, Vembakottai Taluk, Virudhunagar District, Tamilnadu.

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: 23.06.2025

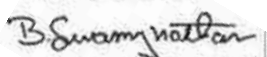
Annexure – VII

Declaration by Experts contributing to the EIA Report for

DRAFT EIA/EMP REPORT FOR ROUGH STONE & GRAVEL QUARRY OF THIRU. R. GOPALAKRISHNAN, AT SURVEY NO. 199/6A OVER AN AREA OF 1.08.0 HECTARES IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMILNADU STATE

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

EIA coordinator:



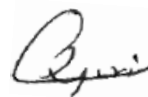
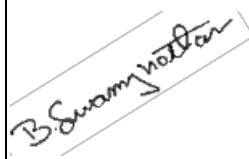
Name: **B.Swamynathan**

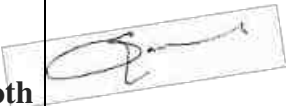
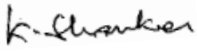
Signature and Date: 23.06.2025

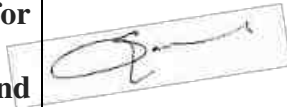
Period of involvement: **Jan 2025 onwards**

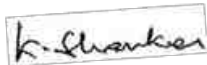
Contact information: **09444133619**

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: Jan 2025 onwards	
		B.Swamynathan	• Data interpretation of Micro meteorological data for wind rose. • Identification of polluting source and suggestion of suitable mitigation measures. Period: Jan 2025 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 2025 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 2025 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 2025 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: March 2025 onwards	
6	HG*	K.Shankar	• 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 2025 onwards	
7	GEO*	K.Shankar	• Study of geology of the ML area and the surrounding areas. • Provide details about Mineral composition Period: March 2025 onwards	
8	SC*	B.Swamynathan	• Study of soil profile • Assessment of Impact on soil and suggesting plantation scheme. Period: March 2025 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 2025 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 2025 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 2025 onwards	
12	RH*	K.Shankar	• Identified Major risks involved in the project Mitigation measures suggested to avoid risk. • Preparation of onsite and offsite emergency management plan Period: March 2025 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 **DRAFT EIA/EMP REPORT FOR ROUGH STONE & GRAVEL QUARRY OF THIRU. R. GOPALAKRISHNAN, AT SURVEY NO. 199/6A OVER AN AREA OF 1.08.0 HECTARES IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMILNADU STATE**

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**

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:	2-12
2.5 GEOLOGY:	2-13
2.6 SIZE AND MAGNITUDE OF THE OPERATION:	2-14
2.6.1 RESERVES:	2-14
2.6.2 MINING METHOD:	2-14
2.7 PROPOSED SCHEDULE FOR APPROVAL AND IMPLEMENTATION:	2-15
2.8 TECHNOLOGY AND PROCESS DESCRIPTION:	2-15
2.9 PROJECT DESCRIPTION:	2-16
2.10 DESCRIPTION OF MITIGATION MEASURES:	2-20
2.11 ASSESSMENT OF NEW & UNTESTED TECHNOLOGY:	2-20
2.12 CONCLUSION:	2-21
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	3-13
3.4 LAND ENVIRONMENT - LANDUSE & LAND COVER	3-32



3.5	BIOLOGICAL ENVIRONMENT:	3-38

3.6	HYDROGEOLOGICAL STUDY:	3-44

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:	4-12

4.4	NOISE AND VIBRATION:	4-17

4.5	LAND ENVIRONMENT:	4-25

4.6	BIOLOGICAL ENVIRONMENT:	4-27

4.7	SOCIO ECONOMIC ENVIRONMENT:	4-31

4.8	OCCUPATIONAL HEALTH AND SAFETY:	4-32

4.9	LOGISTICAL SYSTEM:	4-33

4.10	WASTE MANAGEMENT:	4-35

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	7-8
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 DETAILS OF THE PROJECT:	11-2
11.3	EXISTING ENVIRONMENTAL SCENARIO:	11-4
11.4	ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES:	11-8
11.5	ENVIRONMENTAL MONITORING PROGRAMME:	11-16
11.6	ADDITIONAL STUDIES:	11-16
11.7	CONCLUSION:	11-17
CHAPTER 12 DISCLOSURE OF CONSULTANTS ENGAGED		12-1

LIST OF FIGURES

Figure 2.1: Location Map	2-2
Figure 2.2: Approachability Map	2-3
Figure 2.3: Lease Plan	2-4
Figure 2.4: Satellite Imagery Showing Corner Co-ordinates of the Project Area	2-6
Figure 2.5: Village Map	2-9
Figure 2.6: Details of features within 500m radius	2-10
Figure 2.7: Geological Plan& Cross Section	2-13
Figure 2.8: Process Flow Diagram	2-15
Figure 2.9: Year wise Plan &Cross Section	2-18
Figure 2.10: Conceptual Plan& Cross Section	2-19
Figure 3.1: Study Area Map	3-2
Figure 3.2: Demographic Structure in Buffer Zone	3-6
Figure 3.3: Cyclone Prone Areas	3-14
Figure 3.4: Seismic Zone Map of India	3-15
Figure 3.5: Total Rainfall	3-17
Figure 3.6: Average Annual Rainfall	3-17
Figure 3.7: Average Wind Rose	3-19
Figure 3.8: Ambient Air Quality Study Stations	3-21
Figure 3.9: Ambient Air Quality Data	3-22
Figure 3.10: Location of Water Sampling Stations	3-24
Figure 3.11: Location of Noise Sampling Stations	3-27
Figure 3.12: Noise Level Data	3-28
Figure 3.13: Location of Soil Sampling Stations	3-30
Figure 3.14 : Satellite Data of the Study Area	3-33
Figure 3.15: Map Showing Land Use Categories around 10km Buffer	3-34
Figure 3.16: Landuse within the Buffer Zone Area	3-37



**DRAFT EIA/EMP REPORT FOR ROUGH STONE & GRAVEL QUARRY OF
THIRU. R. GOPALAKRISHNAN, AT SURVEY NO. 199/6A OVER AN AREA OF 1.08.0 HECTARES IN
APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT,
TAMILNADU STATE**

Figure 3.17: Drainage Map	3-44
Figure 3.18: Geology Map.....	3-45
Figure 3.19: Geomorphology Map.....	3-46
Figure 3.20: Lithology Map.....	3-47
Figure 3.21: Soil Map	3-48
Figure 3.22: Pre-Monsoon Water Level.....	3-49
Figure 3.23: Post Monsoon Water Level	3-50
Figure 3.24: Surface Water Bodies in 2Km radius.....	3-54
Figure 4.1: Isopleth of GLC prediction – PM ₁₀	4-5
Figure 4.2: Isopleth of GLC prediction – PM _{2.5}	4-6
Figure 4.3: Isopleth of GLC prediction – PM ₁₀ – Cumulative.....	4-9
Figure 4.4: Isopleth of GLC prediction – PM _{2.5} – Cumulative	4-10
Figure 4.5: Water Balance Diagram	4-12
Figure 4.6: Surface Runoff Management Structures	4-14
Figure 4.7: proposed quarry sites and adjacent quarries nearest college and village	4-21
Figure 4.8: Lease boundary of the proposed gravel and rough stone quarry	4-21
Figure 4.9: Mine Closure Plan.....	4-30
Figure 7.1: Vicinity Map.....	7-7
Figure 10.1: Organization Chart	10-3
Figure 12.1: disclosure of consultants engaged	12-1

LIST OF TABLES

Table 1.1 Identification 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



**DRAFT EIA/EMP REPORT FOR ROUGH STONE & GRAVEL QUARRY OF
THIRU. R. GOPALAKRISHNAN, AT SURVEY NO. 199/6A OVER AN AREA OF 1.08.0 HECTARES IN
APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT,
TAMILNADU STATE**

Table 2.1: Mine site description.....	2-1
Table 2.2: Features within 500m radius	2-11
Table 2.3: Survey Number wise Area Breakup.....	2-12
Table 2.4: Geological and Mineable Reserves	2-14
Table 2.5: Details of Equipments	2-14
Table 2.6: Proposed Schedule of Implementation	2-15
Table 2.7: Production Schedule During Plan Period.....	2-17
Table 2.8: Ultimate Pit Dimensions	2-18
Table 2.9: Land Use.....	2-19
Table 2.10: Project Requirements	2-20
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: Average Annual Rainfall Data (2011-2020)	3-16
Table 3.9: Meteorological Data	3-18
Table 3.10: Air Quality Monitoring	3-20
Table 3.11: Air Quality Monitoring Locations	3-20
Table 3.12: Ambient Air Quality Data	3-22
Table 3.13: Water Quality Monitoring	3-23
Table 3.14: Summary of Water Quality Data	3-25
Table 3.15: Noise Level Monitoring	3-26
Table 3.16: Ambient Noise Level in dB (A).....	3-28
Table 3.17: Soil Quality Monitoring.....	3-29



DRAFT EIA/EMP REPORT FOR ROUGH STONE & GRAVEL QUARRY OF THIRU. R. GOPALAKRISHNAN, AT SURVEY NO. 199/6A OVER AN AREA OF 1.08.0 HECTARES IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMILNADU STATE

Table 3.18: Soil Quality Data.....	3-31
Table 3.19: RS satellite image used for the present study.....	3-32
Table 3.20: Major Landuse Units of the Study Area	3-33
Table 3.21: Area Estimation of Landuse Categories in Buffer Zone	3-36
Table 3.22: Land Use Pattern of the Study Area Falling Within 10 Km Area in (Ha).....	3-37
Table 3.23: List of Floristic Species in the Core Zone.....	3-40
Table 3.24: List of Floristic Species in the Buffer Zone.....	3-41
Table 3.25: List of Fauna in the Buffer Zone	3-43
Table 3.26: General Trend of Depth to Water Level for Aruppukottai Block.....	3-49
Table 3.27: Well Inventory Data	3-51
Table 4.1: Impact and Mitigation Measures – Air Environment.....	4-2
Table 4.2: Emission Sources.....	4-3
Table 4.3: Emission Factors.....	4-3
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: Emission Rate - Cumulative	4-8
Table 4.9: Peak Incremental Concentration- Cumulative.....	4-8
Table 4.10: Post Project Concentrations Of PM ₁₀ -Cumulative.....	4-11
Table 4.11: Post Project Concentrations Of PM _{2.5} -Cumulative	4-11
Table 4.12: Ground Water Resources Estimation– Vembakottai Taluk (M.Cum).....	4-15
Table 4.13: Main Sources of Noise	4-17
Table 4.14: Impact of Noise Levels	4-17
Table 4.15: Post Project Noise Levels.....	4-18
Table 4.16: Summary of PPV predicted	4-23
Table 4.17: Permissible Peak Particle Velocity (PPV) In Mining Areas	4-25



**DRAFT EIA/EMP REPORT FOR ROUGH STONE & GRAVEL QUARRY OF
THIRU. R. GOPALAKRISHNAN, AT SURVEY NO. 199/6A OVER AN AREA OF 1.08.0 HECTARES IN
APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT,
TAMILNADU STATE**

Table 4.18: Land Use.....	4-25
Table 4.19: Land Use During Post Operational Period	4-26
Table 4.20: Impact on Biological Environment	4-27
Table 4.21: Proposed Plantation	4-30
Table 4.22: CER Cost	4-32
Table 4.23: Details of Transportation	4-34
Table 6.1: Environmental Monitoring Schedule	6-2
Table 6.2: Environmental Standards	6-2
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 10.1: Environmental Control Cost.....	10-9
Table 11.1: Basic details of the project.....	11-1
Table 11.2: Salient details of the projects.....	11-2
Table 11.3: Social, Economic And Demographic Profile of the Study Area	11-4
Table 11.4: Baseline Data	11-5
Table 11.5: Land Use in 10Km Buffer Zone	11-7
Table 11.6: Mitigation Measures – Air Environment	11-9
Table 11.7: Mitigation Measures – Water Pollution	11-11



LIST OF ANNEXURES

Annexure 1A:	Precise Area Communication	A-1
Annexure 2A:	Mining Plan Approval	A-11
Annexure 3A:	VAO Letter	A-17
Annexure 4A:	Details of quarry within 500m radius	A-21
Annexure 5:	Population Breakup and Literacy Levels in the Buffer Zone	A-29
Annexure 6:	Occupational Structure in the Buffer Zone	A-30
Annexure 7:	Educational Facilities in the Buffer Zone	A-31
Annexure 8:	Medical Facilities in the Buffer Zone	A-32
Annexure 9:	Infrastructural Facilities in the Buffer Zone	A-33
Annexure 10:	Ambient Air Quality Data	A-34
Annexure 11:	Water Quality Data	A-40
Annexure 12:	Village-wise Land Use Pattern in the Buffer Zone	A-42
Annexure 13:	Approved Mine Plan with Annexure & Plates	A-43

* * * * *



TERMS OF REFERENCE & ITS COMPLIANCE



File No: 11585
Government of India
Ministry of Environment, Forest and Climate Change
(Issued by the State Environment Impact Assessment Authority(SEIAA),
TAMIL NADU)



Dated 11/01/2025



To,

Thiru.RAMASAMY GOPALAKRISHNAN
Thiru. R. Gopalakrishnan S/o. Sri. Ramasamy 70/1E, Karpagam Nagar, Thirumangalam Town & Taluk,
Madurai District. , Appayanaickenpatti Village, VIRUDHUNAGAR, TAMIL NADU, 600026
dhanalakshmibluelmetalss@gmail.com

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

Sir/Madam,

SEIAA, Tamil Nadu – Terms of Reference with Public Hearing (ToR) for Proposed Rough Stone and gravel Quarry of at S.F. No. 199/6A Over an Area of 1.08.0 ha in Appayanaickenpatti Village, Vembakottai Taluk, Virudhunagar District, Tamilnadu by Thiru. R. Gopalakrishnan – 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/514033/2024, Dated: 10/12/2024.
2. Your application submitted for Terms of Reference dated: 11.12.2024.
3. Minutes of the 523th meeting of SEAC held on 27.12.2024.
4. Minutes of the 787th SEIAA meeting held on 08.01.2025.

2. The particulars of the proposal are as below :

(i) TOR Identification No.	TO24B0108TN5620880N
(ii) File No.	11585
(iii) Clearance Type	TOR
(iv) Category	B1
(v) Project/Activity Included Schedule No.	1(a) Mining of minerals
(vii) Name of Project	Rough Stone & Gravel Quarry
(viii) Name of Company/Organization	RAMASAMY GOPALAKRISHNAN
(ix) Location of Project (District, State)	VIRUDHUNAGAR, TAMIL NADU
(x) Issuing Authority	SEIAA
(xii) Applicability of General Conditions	no

1. In view of the particulars given in the Para 1 above, the project proposal interalia including Form-1 (Part A and B) were submitted to the SEIAA for an appraisal by the SEAC under the provision of EIA notification 2006 and its subsequent amendments.
2. The above-mentioned proposal has been considered by SEIAA in the meeting held on 08/01/2024. The minutes of the meeting and all the Application and documents submitted [(viz. Form-1 Part A, Part B,)] are available on PARIVESH portal which can be accessed by scanning the QR Code above.
3. The State Expert Appraisal Committee (SEAC), based on the information & clarifications provided by the project proponent and after detailed deliberations on all technical aspects recommended the proposal for grant of Terms of Reference with public hearing under the provision of EIA Notification, 2006 and as amended thereof subject to the stipulation of specific and general conditions as detailed in Annexure (2).
4. The SEIAA has examined the proposal in accordance with the Environment Impact Assessment (EIA) Notification, 2006 & further amendments thereto and after accepting the recommendations of the SEAC hereby decided to issue the following Terms of Reference with public hearing for instant proposal of **Thiru. R. Gopalakrishnan** 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 OM No. J-11013/41/2006-IA-II(I)(part) dated 29th August, 2017

Copy To

1. The Secretary, Ministry of Mines, Government of India, Shastri Bhawan, New Delhi.
2. The Principal Secretary to Government, Environment and Forests Department, Tamil Nadu.
3. The Additional Chief Secretary to Government, Natural Resources Department, Tamil Nadu.
4. The Additional Principal Chief Conservator of Forests, Regional Office (SZ), 34, HEPC Building, 1st& 2nd Floor, Cathedral Garden Road, Nungambakkam, Chennai – 34.
5. The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-Cum-Office Complex, East Arjun Nagar, New Delhi-110 032.
6. The Chair Person, TNPC Board, 76, Mount Salai, Guindy, Chennai-32
7. The District Collector, Virudhunagar District
8. The Commissioner of Geology and Mines, Guindy, Chennai-32
9. Assistant Director, Department of Geology & Mining, Virudhunagar District
10. EI Division, Ministry of Environment & Forests, Paryavaran Bhawan, New Delhi.
11. File Copy

Annexure 1

Specific Terms of Reference for (Mining Of Minerals)

1. Seiaa Specific Conditions:

S. No	Terms of Reference
1.1	1. The PP shall furnish the Compliance Certificate Report for the EC obtained earlier from the DEIAA, duly audited by the RO, MoEF & CC, Chennai with the percentage of non-compliances, reasons for non-compliances, status on half-yearly compliance report submitted during the mine

S. No	Terms of Reference
	operation, actions taken on the non-compliances, etc during the EIA appraisal without fail. 2. Since the college is located at 507m from the proposed site, the PP shall furnish the detailed studies on the impact on college students, college building and other structures located in the vicinity and the action plan to prevent the same shall be included in the EIA report. 3. The PP shall ensure to involve all the stakeholders available in the vicinity of the site during public hearing. 4. Since vaippar river is located at 240m from the proposed site, the PP shall obtain NOC from WRD. 5. Since vaippar river is located at 240m from the proposed site, the PP shall carry out the scientific studies to assess the hydrological and hydrogeological condition of the quarry by involving any one of the reputed Research and Academic Institution. A copy of such scientific study report shall be included in the EIA report. 6. The PP shall furnish NOC from the Agriculture department. 7. The detailed studies on the Loss of Vegetation, Loss of Biodiversity shall be carried out and the action plan to prevent the same shall be included in the EIA report. 8. The detailed studies on the Impact on water bodies and drainage pattern shall be carried out and the action plan to prevent the same shall be included in the EIA report. 9. The detailed studies on the Impact on Agriculture shall be carried out and the action plan to prevent the same shall be included in the EIA report. 10. The detailed studies on the Impact on temperature rise and human health shall be carried out and the action plan to prevent the same shall be included in the EIA report. 11. The detailed studies on the Impact on Free ranging Wildlife & grazing domestic animals, cattle breeds and animal husbandry shall be carried out and the action plan to prevent the same shall be included in the EIA report. 12. The detailed studies on the Livelihood shall be carried out and the action plan to prevent the same shall be included in the EIA report. 13. Since vaippar river is located at 240m from the proposed site, the PP shall carry out the scientific studies to assess the hydrological and hydrogeological condition of the quarry by involving any one of the reputed Research and Academic Institution. A copy of such scientific study report shall be included in the EIA report. 14. The PP shall carry out the scientific studies with prior permission from the DMS/Chennai Region, to design the controlled blast parameters for reducing the blast-induced ground/air-vibrations and eliminating the fly rock from the blasting operations carried out in the quarry, by involving anyone of these reputed Research and Academic Institution. A copy of such scientific study report shall be included in the EIA report. 15. The PP shall furnish the details of EMP addressing the revegetation and restoration activities proposed for the project activity.

2. Seac Conditions - Site Specific

S. No	Terms of Reference
2.1	1. A Cluster Management Committee (CMC) shall be constituted including all the mines in the cluster as Committee Members for the effective management of the mining operation in the cluster through systematic & scientific approach with appointment of statutory personnel, appropriate environmental monitoring, good maintenance of haul roads and 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

S. No	Terms of Reference
	c. The 'Standard Operating Procedures' (SoP) executing the planned activities. 2. The PP shall erect the DGPS reference pillars painted with blue & white colour indicating the safety barrier of 7.5 m to be left under the Rule 13 (1) of MCDR, 1988 within the lease boundary and protective bunds and submit the photographic/videographic evidence along with the EIA report. 3. The proponent shall furnish photographs of adequate fencing, garland drainage built with siltation tank & green belt along the periphery including replantation of existing trees; maintaining the safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan. 4. Since the education institution is located at 507m, the PP shall furnish the impacts of the proposed activity & their mitigation measures along with the EIA report. 5. The Proponent shall carry out Bio diversity study as a part of EIA study and the same shall be included in the Report. 6. The PP shall prepare the EMP for the entire project life of mine, i.e., 10 years and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine. 7. The PP shall carry out the comprehensive studies on the cumulative environmental impacts of the existing & proposed quarries which included drilling & blasting, loading & hauling on the surrounding village and structures. 8. The PP shall prepare a conceptual working plan accommodating the inclusion of haul road accessibility keeping the benches intact, by ensuring the slope stability of the working benches to be constructed and existing quarry wall. 9. The PP shall install the CCTV camera for the continuous surveillance of mining activity & furnish the photographic/videographic evidence along with the EIA report.

3. Seac Standard Conditions

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

S. No	Terms of Reference
	6. The DFO letter stating that the proximity distance of Reserve Forests, Protected Areas, Sanctuaries, Tiger reserve etc., up to a radius of 25 km from the proposed site. 7. In the case of proposed lease in an existing (or old) quarry where the benches are not formed (or) partially formed as per the approved Mining Plan, the Project Proponent (PP) shall the PP shall carry out the scientific studies to assess the slope stability of the working benches to be constructed and existing quarry wall, by involving any one of the reputed Research and Academic Institutions - CSIR-Central Institute of Mining & Fuel Research / Dhanbad, NIRM/Bangalore, Division of Geotechnical Engineering-IIT-Madras, NIT-Dept of Mining Engg, Surathkal, and Anna University Chennai-CEG Campus. The PP shall submit a copy of the aforesaid report indicating the stability status of the quarry wall and possible mitigation measures during the time of appraisal for obtaining the EC. 8. However, in case of the fresh/virgin quarries, the Proponent shall submit a conceptual 'Slope Stability Plan' for the proposed quarry during the appraisal while obtaining the EC, when the depth of the working is extended beyond 30 m below ground level. 9. The PP shall furnish the affidavit stating that the blasting operation in the proposed quarry is carried out by the statutory competent person as per the MMR 1961 such as blaster, mining mate, mine foreman, II/I Class mines manager appointed by the proponent. 10. The PP shall present a conceptual design for carrying out only controlled blasting operation involving line drilling and muffle blasting in the proposed quarry such that the blast-induced ground vibrations are controlled as well as no fly rock travel beyond 30 m from the blast site. 11. The EIA Coordinators shall obtain and furnish the details of quarry/quarries operated by the proponent in the past, either in the same location or elsewhere in the State with video and photographic evidences. 12. If the proponent has already carried out the mining activity in the proposed mining lease area after 15.01.2016, then the proponent shall furnish the following details from AD/DD, mines, 13. What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines? 14. Quantity of minerals mined out. · Highest production achieved in any one year · Detail of approved depth of mining. · Actual depth of the mining achieved earlier. · Name of the person already mined in that leases area. · If EC and CTO already obtained, the copy of the same shall be submitted. · Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches. 15. All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/Topo sheet, topographic sheet, geomorphology, lithology and geology of the mining lease area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone). 16. The PP shall carry out Drone video survey covering the cluster, green belt, fencing, etc., 17. The proponent shall furnish photographs of adequate fencing, green belt along the periphery including replantation of existing trees & safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan. 18. The Project Proponent shall provide the details of mineral reserves and mineable reserves, planned production capacity, proposed working methodology with justifications, the anticipated impacts of the mining operations on the surrounding environment, and the remedial measures for the same. 19. The Project Proponent shall provide the Organization chart indicating the appointment of various statutory officials and other competent persons to be appointed as per the provisions of the Mines Act'1952 and the MMR, 1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment. 20. The Project Proponent shall conduct the hydro-geological study considering the contour map of

S. No	Terms of Reference
	the water table detailing the number of groundwater pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds, etc. within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD / TWAD so as to assess the impacts on the wells due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. 21. The proponent shall furnish the baseline data for the environmental and ecological parameters with regard to surface water/ground water quality, air quality, soil quality & flora/fauna including traffic/vehicular movement study. 22. The Proponent shall carry out the Cumulative impact study due to mining operations carried out in the quarry specifically with reference to the specific environment in terms of soil health, biodiversity, air pollution, water pollution, climate change and flood control & health impacts. Accordingly, the Environment Management plan should be prepared keeping the concerned quarry and the surrounding habitations in the mind. 23. Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted. 24. Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given. 25. Details of the land for storage of Overburden/Waste Dumps (or) Rejects outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be provided. 26. Proximity to Areas declared as 'Critically Polluted' (or) the Project areas which attracts the court restrictions for mining operations, should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the TNPCB (or) Dept. of Geology and Mining should be secured and furnished to the effect that the proposed mining activities could be considered. 27. Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided. 28. Impact on local transport infrastructure due to the Project should be indicated. 29. A tree survey study shall be carried out (nos., name of the species, age, diameter etc.,) both within the mining lease applied area & 300m buffer zone and its management during mining activity. 30. A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific. 31. As a part of the study of flora and fauna around the vicinity of the proposed site, the EIA coordinator shall strive to educate the local students on the importance of preserving local flora and fauna by involving them in the study, wherever possible. 32. The purpose of Green belt around the project is to capture the fugitive emissions, carbon sequestration and to attenuate the noise generated, in addition to improving the aesthetics. A wide range of indigenous plant species should be planted as given in the appendix-I in consultation with the DFO, State Agriculture University. The plant species with dense/moderate canopy of native origin should be chosen. Species of small/medium/tall trees alternating with shrubs should be planted in a mixed manner. 33. Taller/one year old Saplings raised in appropriate size of bags, preferably ecofriendly bags should be planted as per the advice of local forest authorities/botanist/Horticulturist with regard to site specific choices. The proponent shall earmark the greenbelt area with GPS coordinates all along the boundary of the project site with at least 3 meters wide and in between blocks in an organized manner 34. A Disaster management Plan shall be prepared and included in the EIA/EMP Report for the

S. No	Terms of Reference
	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	Cluster Management Committee 1. Cluster Management Committee shall be framed which must include all the proponents in the cluster as members including the existing as well as proposed quarry. 2. The members must coordinate among themselves for the effective implementation of EMP as committed including Green Belt Development, Water sprinkling, tree plantation, blasting etc., 3. The List of members of the committee formed shall be submitted to AD/Mines before the execution of mining lease and the same shall be updated every year to the AD/Mines. 4. Detailed Operational Plan must be submitted which must include the blasting frequency with respect to the nearby quarry situated in the cluster, the usage of haul roads by the individual quarry in the form of route map and network. 5. The committee shall deliberate on risk & 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.

S. No	Terms of Reference
	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, horticultural plantations, the natural ecosystem, the soil micro flora, fauna and soil seed banks and suggest measures to maintain the natural Ecosystem. 13. Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services. 14. The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands, Horticulture, Agriculture and livestock. 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

S. No	Terms of Reference
	groundwater. Necessary data and documentation in this regard may be provided, covering the entire mine lease period. 20. Erosion Control measures. 21. Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area on the nearby Villages, Water-bodies/ Rivers, & any ecological fragile areas. 22. The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir. 23. The project proponent shall study and furnish the details on potential fragmentation impact on natural environment, by the activities. 24. The project proponent shall study and furnish the impact on aquatic plants and animals in water bodies and possible scars on the landscape, damages to nearby caves, heritage site, and archaeological sites possible land form changes visual and aesthetic impacts. 25. The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components. 26. The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites. 27. The EIA shall include the impact of mining activity on the following: 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

S. No	Terms of Reference
	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

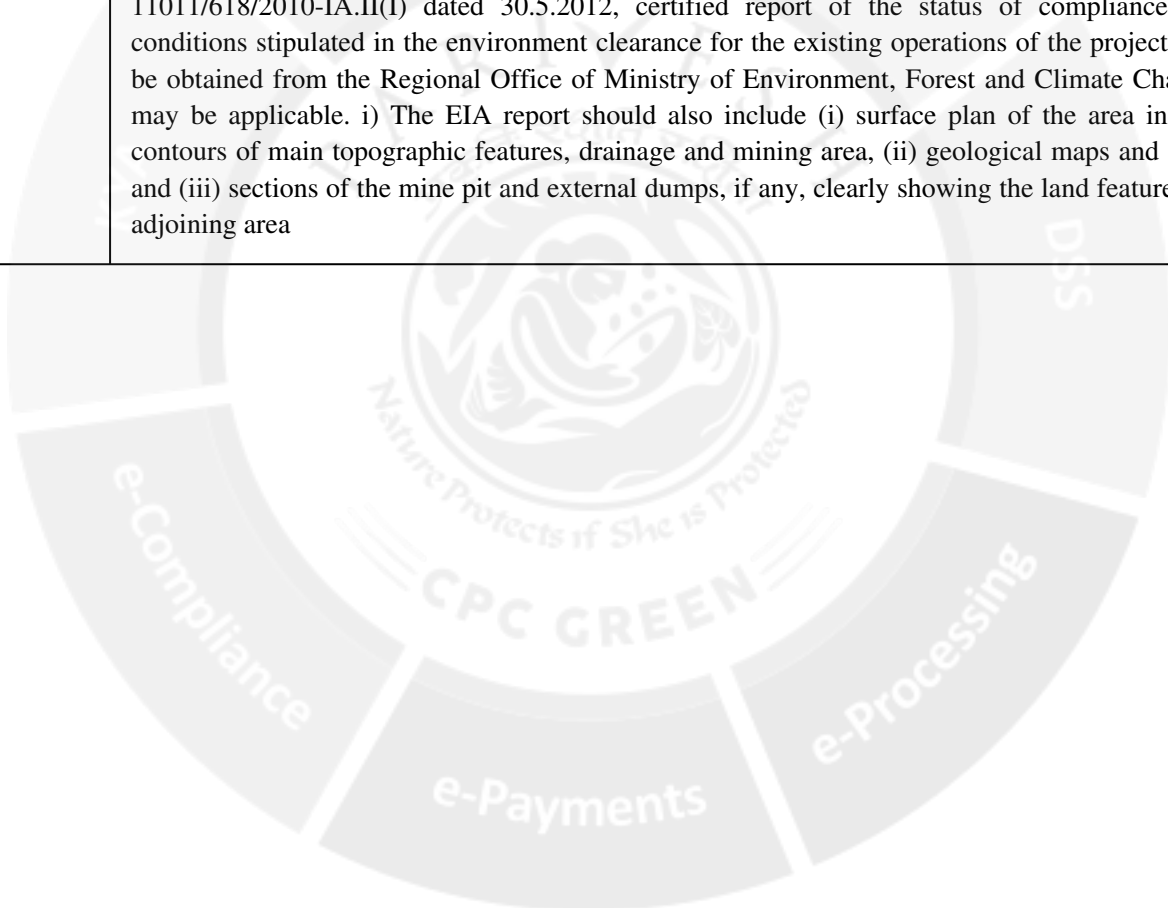
S. No	Terms of Reference
1.2	A copy of the document in support of the fact that the Proponent is the rightful lessee of the mine should be given
1.3	All documents including approved mine plan, EIA and Public Hearing should be compatible with one another in terms of the mine lease area, production levels, 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 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)
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 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
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 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
1.10	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
1.11	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
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

S. No	Terms of Reference
	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 Wildlife and 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)
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

S. No	Terms of Reference
	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
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

S. No	Terms of Reference
	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
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

S. No	Terms of Reference
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



A. STANDARD TERMS OF REFERENCE

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

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

- due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished.
- 18) A detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled-I fauna found in the study area, the necessary plan along with budgetary provisions for their conservation should be prepared in consultation with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost.
 - 19) Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravali Range', (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Department should be secured and furnished to the effect that the proposed mining activities could be considered.
 - 20) Similarly, for Coastal Projects, a CRZ map duly authenticated by one of the authorized agencies demarcating LTL, HTL, CRZ area, location of the mine lease with respect to CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).
 - 21) R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine lease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspects should be discussed in the Report.
 - 22) One season (non-monsoon) [i.e. March-May (Summer Season); October-December (post monsoon season) ; December-February (winter season)] primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented

date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM₁₀, particularly for free silica, should be given.

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

both in AMSL and bgl. A schematic diagram may also be provided for the same.

- 31) A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the Project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The details of plantation already done should be given. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution.
- 32) Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines.
- 33) Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.
- 34) Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report.
- 35) Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.
- 36) Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.
- 37) Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.
- 38) Detailed Environmental Management Plan (EMP) to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural

and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project.

- 39) Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.
- 40) Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.
- 41) The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.
- 42) A Disaster management Plan shall be prepared and included in the EIA/EMP Report.
- 43) Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.
- 44) Besides the above, the below mentioned general points are also to be followed: -
 - a) Executive Summary of the EIA/EMP Report
 - b) All documents to be properly referenced with index and continuous page numbering.
 - c) Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated.
 - d) Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise etc. using the MoEF&CC/NABL accredited laboratories. All the original analysis/testing reports should be available during appraisal of the Project.
 - e) Where the documents provided are in a language other than English, an English translation should be provided.
 - f) The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted.
 - g) While preparing the EIA report, the instructions for the Proponents and instructions for the Consultants issued by MoEF&CC vide O.M. No. J-11013/41/2006-IA.II (I) dated 4th August, 2009, which are available on the website of this Ministry, should be followed.
 - h) Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the PFR for securing the TOR) should be brought to the attention of MoEF&CC with reasons for such changes and permission should be sought, as the ToR may also have to be altered. Post Public Hearing changes in structure and

content of the draft EIA/EMP (other than modifications arising out of the P.H. process) will entail conducting the PH again with the revised documentation.

- i) As per the circular no. J-11011/618/2010-IA.II (I) dated 30.5.2012, certified report of the status of compliance of the conditions stipulated in the Environment Clearance for the existing operations of the project, should be obtained from the Regional Office of Ministry of Environment, Forest and Climate Change, as may be applicable.
- j) The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and sections and (iii) sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area.

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

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

1. Project name and location (Village, District, State, Industrial Estate (if applicable)).
2. Process description in brief, specifically indicating the gaseous emission, liquid effluent and solid and hazardous wastes.
3. Measures for mitigating the impact on the environment and mode of discharge or disposal.
4. Capital cost of the project, estimated time of completion.
5. The proponent shall furnish the contour map of the water table detailing the number of wells located around the site and impacts on the wells due to mining activity.
6. A detailed study of the lithology of the mining lease area shall be furnished.
7. Details of village map, "A" register and FMB sketch shall be furnished.
8. Detailed mining closure plan for the proposed project approved by the Geology of Mining department shall be submitted along with EIA report.
9. Obtain a letter /certificate from the Assistant Director of Geology and Mining standing that there is no other Minerals/resources like sand in the quarrying area within the approved depth of mining and below depth of mining and the same shall be furnished in the EIA report.
10. EIA report should strictly follow the Environmental Impact Assessment Guidance Manual for Mining of Minerals published February 2010.
11. Detail plan on rehabilitation and reclamation carried out for the stabilization and

restoration of the mined areas.

12. The EIA study report shall include the surrounding mining activity, if any.
13. Modeling study for Air, Water and noise shall be carried out in this field and incremental increase in the above study shall be substantiated with mitigation measures.
14. A study on the geological resources available shall be carried out and reported.
15. A specific study on agriculture & livelihood shall be carried out and reported.
16. Impact of soil erosion, soil physical chemical and biological property changes may be assumed.
17. Site selected for the project - Nature of land - Agricultural (single/double crop), barren, Govt./ private land, status of its acquisition, nearby (in 2-3 km.) water body, population, within 10km other industries, forest, eco-sensitive zones, accessibility, (note - in case of industrial estate this information may not be necessary)
18. Baseline environmental data - air quality, surface and ground water quality, soil characteristic, flora and fauna, socio-economic condition of the nearby population
19. Identification of hazards in handling, processing and storage of hazardous material and safety system provided to mitigate the risk.
20. Likely impact of the project on air, water, land, flora-fauna and nearby population
21. Emergency preparedness plan in case of natural or in plant emergencies
22. Issues raised during public hearing (if applicable) and response given
23. CER plan with proposed expenditure.
24. Occupational Health Measures
25. Post project monitoring plan
26. The project proponent shall carry out detailed hydro geological study through intuitions/NABET Accredited agencies.
27. A detailed report on the green belt development already undertaken is to be furnished and also submit the proposal for green belt activities.
28. The proponent shall propose the suitable control measure to control the fugitive emissions during the operations of the mines.
29. A specific study should include impact on flora & fauna, disturbance to migratory pattern of animals.
30. Reserve funds should be earmarked for proper closure plan.
31. A detailed plan on plastic waste management shall be furnished. Further, the proponent should strictly comply with, Tamil Nadu Government Order (Ms) No.84 Environment and forests (EC.2) Department dated 25.06.2018 regarding ban on one time use and throw

away plastics irrespective of thickness with effect from 01.01.2019 under Environment (Protection) Act, 1986. In this connection, the project proponent has to furnish the action plan.

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

- a. A note confirming compliance of the TOR, with cross referencing of the relevant sections / pages of the EIA report should be provided.
- b. All documents may be properly referenced with index, page numbers and continuous page numbering.
- c. Where data are presented in the report especially in tables, the period in which the data were collected and the sources should be indicated.
- d. While preparing the EIA report, the instructions for the proponents and instructions for the consultants issued by MoEF & CC vide O.M. No. J-11013/41/2006-IA.II (I) dated 4th August, 2009, which are available on the website of this Ministry should also be followed.
- e. The consultants involved in the preparation of EIA/EMP report after accreditation with Quality Council of India (QCI)/National Accreditation Board of Education and Training (NABET) would need to include a certificate in this regard in the EIA/EMP reports prepared by them and data provided by other organization/Laboratories including their status of approvals etc. In this regard circular no F. No.J -11013/77/2004-IA-II(I) dated 2nd December, 2009, 18th March 2010, 28th May 2010, 28th June 2010, 31st December 2010 & 30th September 2011 posted on the Ministry's website <http://www.moef.nic.in/> may be referred.
 - After preparing the EIA (as per the generic structure prescribed in Appendix-III of the EIA Notification, 2006) covering the above-mentioned points, the proponent will take further necessary action for obtaining environmental clearance in accordance with the procedure prescribed under the EIA Notification, 2006.
 - The final EIA report shall be submitted to the SEIAA, Tamil Nadu for obtaining Environmental Clearance.
 - The TORs with public hearing prescribed shall be **valid for a period of three years** from the date of issue, for submission of the EIA/EMP report as per OM No. J-11013/41/2006-IA-II(I)(part) dated 29th August, 2017

**DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF
THIRU. R GOPALAKRISHNAN AT SURVEY NOS.199/6A OVER AN AREA OF 1.08.0 HA IN
APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT
TAMIL NADU.**

TOR COMPLIANCE

S. No	ToR Points	Reply	Pg.No
I. SEIAA SPECIFIC CONDITIONS			
1.	The PP shall furnish the Compliance Certificate Report for the EC obtained earlier from the DEIAA, duly audited by the RO, MoEF & CC, Chennai with the percentage of non-compliances, reasons for non-compliances, status on half-yearly compliance report submitted during the mine operation, actions taken on the non-compliances, etc during the EIA appraisal without fail.	• In progress.	-
2.	Since the college is located at 507m from the proposed site, the PP shall furnish the detailed studies on the impact on college students, college building and other structures located in the vicinity and the action plan to prevent the same shall be included in the EIA report.	• Scientific Study on Blast Induced Ground Vibration and Design of Controlled Blasting Parameters for this project was conducted by Department of Mining Engineering, Anna University, Chennai. Details are given in Para 4.4.2.1, Chapter-IV.	4-19
3.	The PP shall ensure to involve all the stakeholders available in the vicinity of the site during public hearing.	• Agreed	-
4.	Since Vaippar river is located at 240m from the proposed site, the PP shall obtain NOC from WRD	• Hydrogeological Study is detailed under Section 3.6, Chapter-III.	-
5.	Since Vaippar river is located at 240m from the proposed site, the PP shall carry out the scientific studies to assess the hydrological and hydrogeological condition of the quarry by involving any one of the reputed Research and Academic Institution. A copy of such scientific study report shall be included in the EIA report.	• Hydrogeological Study is detailed under Section 3.6, Chapter-III.	3-44
6.	The PP shall furnish NOC from the Agriculture department.	• Most of the study area 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, water scarcity, high agricultural labor cost, manpower shortage and less yield are reason for very little agricultural activity in this region.	-
7.	The detailed studies on the Loss of Vegetation, Loss of Biodiversity shall be carried out and the action plan to prevent the same shall be included in the 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.	3-38
8.	The detailed studies on the Impact on water bodies and drainage pattern shall be carried out and the action plan to prevent the same shall be	• Hydrogeological Study is detailed under Section 3.6, Chapter-III.	3-44



**DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF
THIRU. R GOPALAKRISHNAN AT SURVEY NOS.199/6A OVER AN AREA OF 1.08.0 HA IN
APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT
TAMIL NADU.**

	included in the EIA report.		
9.	The detailed studies on the Impact on Agriculture shall be carried out and the action plan to prevent the same shall be included in the EIA report.	• Most of the study area 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, water scarcity, high agricultural labor cost, manpower shortage and less yield are reason for very little agricultural activity in this region	3-32
10.	The detailed studies on the Impact on temperature rise and human health shall be carried out and the action plan to prevent the same shall be included in the EIA report.	• Details of occupational health and safety aspects are given under the subsections of Para 4.8, Chapter-IV.	4-32
11.	The detailed studies on the Impact on Free ranging Wildlife & grazing domestic animals, cattle breeds and animal husbandry shall be carried out and the action plan to prevent the same shall be included in the EIA report.	• Part of the lease area is mined out with rock exposure and the remaining land is free from major vegetation. Study area depicts varying land use and Bio diversity study details are provided in Para 3.5, Chapter-III.	4-27
12.	The detailed studies on the Livelihood shall be carried out and the action plan to prevent the same shall be included in the EIA report.	• The 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 about 16 people and indirect employment to scores of people. • Towards the same, the proponent has allocated Rs.2 Lakhs for activities under CER. From the CER activities allocated for various social welfare activities, the villages near the lease area will be benefited.	4-32
13.	Since Vaippar river is located at 240m from the proposed site, the PP shall carry out the scientific studies to assess the hydrological and hydrogeological condition of the quarry by involving any one of the reputed Research and Academic Institution. A copy of such scientific study report shall be included in the EIA report.	• Hydrogeological Study is detailed under Section 3.6, Chapter-III.	3-44
14.	The PP shall carry out the scientific studies with prior permission from the DMS/Chennai Region, to design the controlled blast parameters for reducing the blast-induced ground/air vibrations and eliminating the fly rock from the blasting operations carried out in the quarry, by involving anyone of these reputed Research and Academic Institution. A copy of such scientific study report shall be included in the EIA report.	• 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.	4-19
15.	The PP shall furnish the details of EMP addressing the revegetation and restoration activities proposed for the project activity.	• The Environment Management Budget of Rs. 17.22 Lakhs is allocated under capital cost and Rs.13.08 Lakhs/ annum under recurring cost and	10-9



**DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF
THIRU. R GOPALAKRISHNAN AT SURVEY NOS.199/6A OVER AN AREA OF 1.08.0 HA IN
APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT
TAMIL NADU.**

		the same has been furnished in Table 10.2, Chapter-X. All the recurring cost of maintenance of pollution control measures, environmental monitoring etc., will be met from revenue.	
2. SEAC CONDITIONS – SITE SPECIFIC			
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.	•Agreed •Details of the cluster management committee is provided under Section 10.2.2, Chapter-X.	10-2
2.	The PP shall erect the DGPS reference pillars painted with blue & white colour indicating the safety barrier of 7.5 m to be left under the Rule 13 (1) of MCDR, 1988 within the lease boundary and protective bunds and submit the photographic/videographic evidence along with the EIA report.	•Will be carried out immediately after execution of lease & before commencement of mining operation.	-
3.	The proponent shall furnish photographs of adequate fencing, garland drainage built with siltation tank & green belt along the periphery including replantation of existing trees; maintaining the safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan.	•Provided under section 2.6, Chapter-II.	2-7
4.	Since the education institution is located at 507m, the PP shall furnish the impacts of the proposed activity & their mitigation measures along with the EIA report.	•Scientific Study on Blast Induced Ground Vibration and Design of Controlled Blasting Parameters for this project was conducted by Department of Mining Engineering, Anna University, Chennai. Details are given in Para 4.4.2.1, Chapter-IV.	4-19
5.	The Proponent shall carry out Bio diversity study as a part of EIA study and the same shall be included in the Report.	•Part of the lease area is mined out with rock exposure and the remaining land is free from major vegetation. Study area depicts varying land use and Bio diversity study details are provided in Para 3.5, Chapter-III.	3-38
6.	The PP shall prepare the EMP for the entire project life of mine, i.e., 10 years and also furnish the sworn affidavit stating to abide the EMP for	•The Environment Management Budget of Rs. 17.22 Lakhs is allocated under capital cost and Rs.13.08 Lakhs/annum under recurring cost and the same	10-9



**DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF
THIRU. R GOPALAKRISHNAN AT SURVEY NOS.199/6A OVER AN AREA OF 1.08.0 HA IN
APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT
TAMIL NADU.**

	the entire life of mine.	has been furnished in Table 10.2, Chapter-X.	
7.	The PP shall carry out the comprehensive studies on the cumulative environmental impacts of the existing & proposed quarries which included drilling & blasting, loading & hauling on the surrounding village and structures.	•A cumulative impact study has been carried out and furnished in Para 4.6, Chapter-IV.	4-11
8.	The PP shall prepare a conceptual working plan accommodating the inclusion of haul road accessibility keeping the benches intact, by ensuring the slope stability of the working benches to be constructed and existing quarry wall.	•Agreed	-
9.	The PP shall install the CCTV camera for the continuous surveillance of mining activity & furnish the photographic/videographic evidence along with the EIA report.	•Agreed	-
3. SEAC STANDARD CONDITIONS			
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.	•Fresh lease, the lease period is 5 years. The present proposed quarry was earlier worked by the applicant from 29.05.2017 to 28.05.2022 with the proceeding no. KV1/5171/2013 dated 10.05.2017.	2-16
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 – 3.	A-5
3.	The proponent is requested to carry out a survey and enumerate on the structures located within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m (v) 500m shall be enumerated with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places of worship, industries, factories, sheds, etc with indicating the owner of the building, nature of construction, age of the	•Details of the features produced within 500m radius are provided in Figure 2.3, Chapter-II	2-11



**DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF
THIRU. R GOPALAKRISHNAN AT SURVEY NOS.199/6A OVER AN AREA OF 1.08.0 HA IN
APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT
TAMIL NADU.**

	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.	•Hydrogeological Study is detailed under Section 3.6, Chapter-III.	3-44
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.	3-38
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 Reserve forest, Protected Areas, Sanctuaries, Tiger reserve etc., within 10km Radius.	-
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.	•The existing mine pit dimensions are 82m x 44m x 4m. Pit slope stability plan is provided in para 7.7, Chapter – VII.	2-16
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	4-19
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	•Controlled blasting will be adopted in this project and details of the same has been provided in Section 4.4.2, Chapter-IV	4-19



**DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF
THIRU. R GOPALAKRISHNAN AT SURVEY NOS.199/6A OVER AN AREA OF 1.08.0 HA IN
APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT
TAMIL NADU.**

	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.	• 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,	• Fresh lease, the lease period is 5 years. The present proposed quarry was earlier worked by the 29.05.2017 to 28.05.2022 with the proceeding no. KV1/5171/2013 dated 10.05.2017. The existing mine pit dimensions are 82m x 44m x 4m.	2-16
13.	What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?	• Fresh lease, the lease period is 5 years. The present proposed quarry was earlier worked by the 29.05.2017 to 28.05.2022 with the proceeding no. KV1/5171/2013 dated 10.05.2017. The existing mine pit dimensions are 82m x 44m x 4m.	2-16
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.	• Fresh lease, the lease period is 5 years. The present proposed quarry was earlier worked by the 29.05.2017 to 28.05.2022 with the proceeding no. KV1/5171/2013 dated 10.05.2017. The existing mine pit dimensions are 82m x 44m x 4m.	2-16
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.3.21, 3.22 and 3.23, Chapter-III.	2-4
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. Fencing and plantation are already carried out.	2-7
18.	The Project Proponent shall provide the details of mineral reserves and mineable reserves, planned production capacity, proposed working	• The details of the geological and mineable reserves are provided in Table No.2.4, Chapter-II. • The mining method will be Opencast semi	2-14



**DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF
THIRU. R GOPALAKRISHNAN AT SURVEY NOS.199/6A OVER AN AREA OF 1.08.0 HA IN
APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT
TAMIL NADU.**

	methodology with justifications, the anticipated impacts of the mining operations on the surrounding environment, and the remedial measures for the same.	mechanized mining using jackhammer drilling, blasting, excavation through excavator & mineral transport through tippers. • The production schedule is given in Table No.2.7, Chapter-II. • Anticipated Impacts of the mining operations and mitigation measures are discussed elaborately in Chapter-IV.	
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.	• The organization chart has been provided in Figure No.10.1, Chapter-X.	10.2
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.	• Details of hydrogeological scenario of this project is provided under section 3.6, Chapter-III.	3-44
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 Summer Season (March 2024 to May 2025) and detailed in Section 3.3 to 3.5 of Chapter-III. The details of Traffic is provided under Section 4.9, Chapter-IV.	3-18
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.	• 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 7.3, Chapter-VII. • Environmental Management Plan is provided under Chapter-X.	4-11
23.	Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.	• 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,	4-12



**DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF
THIRU. R GOPALAKRISHNAN AT SURVEY NOS.199/6A OVER AN AREA OF 1.08.0 HA IN
APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT
TAMIL NADU.**

		before outlet. etc. Towards surface runoff management, a garland drain of length 495 m 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. •Details of rainwater harvesting are provided under Section 4.3.4.2, Chapter-IV.	
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. 4.16. The post mining land use plan showing afforestation and water body is shown in Figure No- 4.5.	3-34
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 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.	2-16
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 management structures diagram is given in Figure No 4.4, Chapter-IV. •The methods for reducing water consumption and	4-13



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. R GOPALAKRISHNAN AT SURVEY NOS.199/6A OVER AN AREA OF 1.08.0 HA IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT TAMIL NADU.

		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 for producing stone aggregates of different sizes or construction of roads, bridges, buildings and other buyers etc. Details of the traffic is provided under section 4.9, Chapter-IV.	4.34
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.	3-45
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.	7-1
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.	3-38
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	• Various risks likely to arise due to mining activities are detailed under section 7.3, Chapter-VII.	7-3



**DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF
THIRU. R GOPALAKRISHNAN AT SURVEY NOS.199/6A OVER AN AREA OF 1.08.0 HA IN
APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT
TAMIL NADU.**

	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.	•Details of occupational health and safety aspects are given under the subsections of Para 4.8, Chapter-IV.	11-14
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 health checkups, medical camps for the locals will be conducted.	3-4
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.	3-4
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 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 about 16 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 allocated Rs.2 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.	3-4
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,	•In progress	-



**DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF
THIRU. R GOPALAKRISHNAN AT SURVEY NOS.199/6A OVER AN AREA OF 1.08.0 HA IN
APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT
TAMIL NADU.**

	Chennai (or) the concerned DEE/TNPCCB.		
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.	•EMP is prepared for the entire life of the 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 CONDITONS :			
<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.	•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.,	•Details of the cluster management committee is provided under Section 10.2.2, Chapter-X.	10-2
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.	•Details of the cluster management committee is provided under Section 10.2.2, Chapter-X.	10-2
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.	•Details of the cluster management committee is provided under Section 10.2.2, Chapter-X.	10-2
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.	•Details of the cluster management committee is provided under Section 10.2.2, Chapter-X.	10-2
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.	•Details of the cluster management committee is provided under Section 10.2.2, Chapter-X.	10-2
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.	•Details of the cluster management committee is provided under Section 10.2.2, Chapter-X.	10-2



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. R GOPALAKRISHNAN AT SURVEY NOS.199/6A OVER AN AREA OF 1.08.0 HA IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT TAMIL NADU.

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.	•Details of the cluster management committee is provided under Section 10.2.2, Chapter-X.	10-2
Agriculture & Agro-Biodiversity			
9.	Impact on surrounding agricultural fields around the proposed mining Area.	•Most of the study area 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, water scarcity, high agricultural labor cost, manpower shortage and less yield are reason for very little agricultural activity in this region	3-45
10.	Impact on soil flora & vegetation around the project site.	•The impact of mining on biological environment is provided under Table 4.15, Chapter-IV.	4-18
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.	3-38
12.	The Environmental Impact Assessment should study the agro-biodiversity, agro-forestry, horticultural plantations, the natural ecosystem, the soil micro flora, fauna and soil seed banks and suggest measures to maintain the natural Ecosystem.	•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.	3-38
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. 4.16. The post mining land use plan showing afforestation and water body is shown in Figure No- 4.5.	4-25
14.	The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands, Horticulture, Agriculture and livestock.	•Due to poor soil condition and non-availability of perineal water source, no major agricultural activity is carried out in and around the lease area. Only patches of plantation are observed in few places in the monsoon season based on water availability	3-35
•Forests			
15.	The project proponent shall detailed study on impact of mining on Reserve forests free ranging wildlife.	•There are no reserve forest within 10km radius and as such no impact on this front envisaged.	3-35
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-	4-27
17.	The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection.	•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.	4-27



**DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF
THIRU. R GOPALAKRISHNAN AT SURVEY NOS.199/6A OVER AN AREA OF 1.08.0 HA IN
APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT
TAMIL NADU.**

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 10 km radius. There are no reserve forest in the proximity of the lease area.	4-27
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.	3-47
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	4-27
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	4-27
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.	4-27
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. 4.16. The post mining land use plan showing afforestation and water body is shown in Figure No- 4.5.	4-25
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. • The land use pattern details are provided under section 4.5.1, Chapter-IV.	3-38
25.	The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components.	• The nearest major water bodies is provided in Table No.3.1, Chapter-III. • The mining area consists of hard compact rock, hence no major water seepage within the mine is	3-38



**DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF
THIRU. R GOPALAKRISHNAN AT SURVEY NOS.199/6A OVER AN AREA OF 1.08.0 HA IN
APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT
TAMIL NADU.**

		expected from the periphery. The ultimate pit depth of mining is 20 m. 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.	
26.	The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites.	•The details of hydrogeological study is provided under Section 3.6, Chapter-III.	3-47
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.	•The details of the same is provided in Table 4.20, Chapter-IV.	4-27
Energy			
28.	The measures taken to control Noise, Air, Water, Dust Control and steps adopted to efficiently utilize 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.	4-27
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 equipment's will be properly and regularly maintained. Besides, regular vehicular emission tests will be done for the transport vehicles to ensure minimal impact due to carbon emissions. To further mediate the carbon emissions, a good greenbelt and plantation plan has been planned wherein 500 number of plants will be planted in and around the lease area.	4-28
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.	•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 wherein 500 number of plants will be planted in and around the lease area.	4-28
31.	Impact of mining on pollution leading to GHGs emissions and the impact of the same on the local livelihood.	•Replied above	-
Mine Closure Plan			
32.	Detailed Mine Closure Plan covering the entire mine lease period as per precise area	•Details of Mine Closure Plan is provided under section 7.5, Chapter-VII.	4-30



**DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF
THIRU. R GOPALAKRISHNAN AT SURVEY NOS.199/6A OVER AN AREA OF 1.08.0 HA IN
APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT
TAMIL NADU.**

	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.	•Detailed environmental management plan is provided under Chapter-X.	10-2
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.	10-2
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.	7-2
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.	•The disaster management plan has been provided under section 7.3.1, Chapter-VII.	7-5
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.	•VAO Letter has been provided as Annexure-3	A-5
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.	-
1. 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	•Fresh lease, the lease period is 5 years. The present proposed quarry was earlier worked by the	2-11



**DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF
THIRU. R GOPALAKRISHNAN AT SURVEY NOS.199/6A OVER AN AREA OF 1.08.0 HA IN
APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT
TAMIL NADU.**

	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.	29.05.2017 to 28.05.2022 with the proceeding no. KV1/5171/2013 dated 10.05.2017. The existing mine pit dimensions are 82m x 44m x 4m.	
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 was obtained from the District Collector Virudhanagar.	A1
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.	2-5
4.	All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/ toposheet, topographic sheet, geomorphology and geology of the area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).	•Project coordinates superimposed in satellite imagery and given as Figure No - 2.4 in Chapter – II. •The geology and geomorphology map is provided in Figure No.3.21, 3.22, Chapter-III. The Lithology map and Soil map are provided under Figure No. 3.23, 3.24, Chapter-III. •The 10km Radius Index plan showing buffer zone is given in Figure No.3.1 in Chapter – III.	3-16
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 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.	10-2



**DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF
THIRU. R GOPALAKRISHNAN AT SURVEY NOS.199/6A OVER AN AREA OF 1.08.0 HA IN
APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT
TAMIL NADU.**

	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.	• 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.	7-5
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.	3-45
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, entire 0.75.0 Ha of mined out area will be left as water body. 0.02.0 Ha is infrastructure & Road, 0.27.0 ha will be under afforestation, 0.04.0 Ha will be Fencing.	3-47
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.	4-5
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.	-



**DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF
THIRU. R GOPALAKRISHNAN AT SURVEY NOS.199/6A OVER AN AREA OF 1.08.0 HA IN
APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT
TAMIL NADU.**

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, detailed mitigative measures required, should be worked out with cost implications and submitted.	• The mining lease area and the 10 km buffer zone from the periphery of the core zone is devoid of declared ecologically sensitive features like national parks, biospheres, sanctuaries, etc.	-
17.	Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/ Elephant Reserves/(existing as well as proposed), if any, within 10 km of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished.	• 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.	3-45
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	-



**DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF
THIRU. R GOPALAKRISHNAN AT SURVEY NOS.199/6A OVER AN AREA OF 1.08.0 HA IN
APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT
TAMIL NADU.**

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 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 shilling of village(s) including their R&R and socio-economic aspects should be discussed in the Report.	• 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.	2-1
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.	• The baseline data on micro- meteorology, ambient air quality, Water quality, noise level, soil and flora & fauna are collected during Summer Season (March 2025 to May 2025) 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.	3-20
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	• 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	4-25



**DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF
THIRU. R GOPALAKRISHNAN AT SURVEY NOS.199/6A OVER AN AREA OF 1.08.0 HA IN
APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT
TAMIL NADU.**

	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.	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 on individual basis, the resultant added concentrations with baseline figures with respect to PM10 is in the range of 52.9 µg/m³ to 75.0 µg/m³ and with respect to PM2.5 are in the range of 25.1µg/m³ to 36.7 µg/m³ which are within the stipulated statutory limits. •Additionally, cumulative impact due to working of the proposed projects and also another 2 proposed project on ambient air quality is also assessed. The cumulative post project concentration with respect to PM10 is in the range of 52.9 µg/m³ to 76.3 µg/m³ and with respect to PM2.5 are in the range of 25.1µg/m³ to 36.7 µg/m³ which are within the statutory limits in each case.	
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 8.0 KLD comprising 1.0 KLD for drinking water and domestic use, 5.0 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.	4-12
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 475m 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.	4-12



**DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF
THIRU. R GOPALAKRISHNAN AT SURVEY NOS.199/6A OVER AN AREA OF 1.08.0 HA IN
APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT
TAMIL NADU.**

		•The methods for reducing water consumption and rainwater harvesting is provided in section 4.3.4, Chapter-IV.	
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 are no perineal water courses in the lease areas. Seasonal odai-180m-SE, Vaippar River – 240m – (NE), Nikshopa Nadi – 240m – (NE), Uppu Odai – 3.1km – (SE), Marugal Odai – 5.0km – (NE), Kayalkudi River -7.2km – (NE). •The ultimate pit depth of mining is 20m. 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.	4-12
28.	Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter-alia, shall include details of the aquifers present and impact of mining activities on these aquifers. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.	•The 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. •The ultimate pit depth of mining is 20m. 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.	4-12
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.	4-12
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. Part of the lease area has already been mined out. •The ultimate pit depth of mining is 20m. The ground water table in this area is below this level.	2-14
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	•Greenbelt / Plantation will be carried out to enhance the vegetative growth and aesthetic in the safety zone area. About 500 trees will be planted in and around the lease area. Details of the same is provided under TableNo.4.16, Chapter-IV.	4-18



**DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF
THIRU. R GOPALAKRISHNAN AT SURVEY NOS.199/6A OVER AN AREA OF 1.08.0 HA IN
APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT
TAMIL NADU.**

	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.	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. Details of the traffic is provided under section 4.9, Chapter-IV.	
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.	10-2
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, entire 0.75.0 Ha of mined out area will be left as water body. 0.02.0 Ha is infrastructure & Road, 0.27.0 ha will be under afforestation, 0.04.0 Ha will be Fencing. 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.	2-16
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.	4-31
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	Towards the socio economic development of the surrounding area, the proponent has earmarked an amount of Rs. 2 Lakhs under Corporate Environmental Responsibility. The activities identified under CER will be implemented in a	4-31



**DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF
THIRU. R GOPALAKRISHNAN AT SURVEY NOS.199/6A OVER AN AREA OF 1.08.0 HA IN
APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT
TAMIL NADU.**

	implementation.	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	
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.	10-2
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.	- 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.	7-1
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. 34,58,887 - The Environment Management Budget of Rs. 17.22 Lakhs is allocated under capital cost and Rs.13.08 Lakhs/annum under recurring cost and the same has been furnished in Table 10.2, Chapter-X. All the recurring cost of maintenance of pollution control measures, environmental monitoring etc., will be met from revenue.	2-20
42.	A Disaster management Plan shall be prepared and included in the EIA/EMP Report.	The disaster management plan has been provided under section 7.3.1, Chapter-VII.	7-1
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.	- 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 16 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 allocated Rs. 2 Lakhs for various activities under CER. From the CER activities	4-32



**DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF
THIRU. R GOPALAKRISHNAN AT SURVEY NOS.199/6A OVER AN AREA OF 1.08.0 HA IN
APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT
TAMIL NADU.**

		allocated for various social welfare activities, the villages near the lease area will be benefited.	

* * * * *



CHAPTER - I

INTRODUCTION

CHAPTER 1 INTRODUCTION

1.1 PURPOSE OF THE REPORT:

Thiru. R. Gopalakrishnan proposes to operate a **Rough Stone and Gravel Quarry** over an area of **1.08.0** Ha in Appayanaickenpatti Village, Vembakottai Taluk, Virudhunagar District, Tamil Nadu and has initiated action towards obtaining environmental clearance.

Proposed Revised production capacity of 76,566 m³ of Rough stone & 7,982 m³ of Gravel upto a depth of 20m. Although the individual lease area of this project is less than 5 Ha, the other existing and proposed quarries within the 500m radius cluster along with this subject project works out to >5 Ha. Hence, this proposal is considered under Category – B1 and as per MoEF & CC notification necessitates preparation of EIA/EMP report and public hearing.

This EIA/EMP report is prepared based on standard and additional Terms of Reference issued by SEIAA, Tamil Nadu **TOR Identification NO. TO24B0108TN5620880N dated 11.01.2025** 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 1.1 Identification of project

1	Project Name	Rough Stone and Gravel Quarry of Thiru. R. Gopalakrishnan
2	Extent	1.08.0 Ha
3	Production	The Proposed Production is 76,566m ³ of Rough Stone and 7982m ³ of gravel for the period of five years up to depth of 20 meter for 5 year period
4	Ultimate Depth	20 m bgl for 5 years
5	Land Classification	It is patta land and register in the name of the applicant
6	Location	Survey Number: 199/6A
		Village: Appayanaickenpatti village
		Taluk: Vembakottai Taluk
		District: Virudhunagar
		State: Tamil Nadu

DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. R. GOPALAKRISHNAN AT SURVEY NO. 199/6A (PATTA LAND) OVER AN AREA OF 1.08.0HA IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU.

Table 1.2: Identification of Project Proponent

1	Proponent Name	Thiru. R. Gopalakrishnan
2	Address	Thiru. R. Gopalakrishnan S/o. Sri. Ramasamy 70/1E, Karpagam Nagar, Thirumangalam Town & Taluk, Madurai District.
3	Contact Number	98421 33786
4	Email-ID	dhanalakshmibluelmetalss@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

S.No	Statutory Approval	Authority	Letter Number and Date	Reference
1.	Precise Area Communication Letter	Assistant Director, Dep. of Geology & Mining	KV1/221/2022-Mines, Dated: 26.04.2022.	Annexure-1
2.	Mining Plan Approval	Assistant Director, Dep. of Geology & Mining	Roc. KV1/221/2022, dated 15.06.2022	Annexure-2
3.	Details of other quarries within 500m radius	Assistant Director, Dep. of Geology & Mining	Roc. KV1/221/2022, dated 15.06.2022	Annexure-3

The following conditions have been stated in the Precise Area Letter:

- Safety distance of 10 m should be left for cart track passing on the North Western & Southern side.
- 7.5m safety distance for nearby patta lands

The above conditions have been adhered to.



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. R. GOPALAKRISHNAN AT SURVEY NO. 199/6A (PATTA LAND) OVER AN AREA OF 1.08.0HA IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU.

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	Brown field
3.	Category	B1 (Cluster Situation)
4.	Mineral Mined	Rough stone, Gravel
5.	Major/Minor Mineral	Minor
6.	Mining method	Opencast mechanized Mining
7.	End use	The gravel will be loaded into tipper and marketed to needy customers on payment of necessary Seignior age Fees to Government. The excavated rough stone will be excavated and loaded into tipper to the needy buyers for producing crusher aggregates, M Sand.

Table 1.5: Location of the project

S.No	Particulars	Details
1.	Location	Appayanaickenpatti village, Vembakottai Taluk, Virudhunagar District, Tamil Nadu
2.	Corner Coordinates	Latitude: 9° 17' 41.8"N to 9° 17' 46.8"N Longitude: 77° 41' 46.6"E to 77° 41' 44.4"E
3.	Toposheet Number	58 G /11

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

1.3.1 IMPORTANCE TO THE COUNTRY AND REGION:

Rough stone and Gravel from this quarry will meet the domestic demand. There is good demand for the Gravel & stone aggregate, which is the main requisite for the construction/ infrastructure sector. Gravel quarried from this lease will be directly transported to the nearby end users. The boulders will be marketed to the nearby crushers for producing crusher aggregates.

This project in the area will provide both direct and indirect employment opportunities through allied opportunities in logistics, trading, repairing works etc., improved per capita income for local people, improved social welfare facilities like infrastructural build-up, improvement in facilities due to the proposed CER activities of the proponent etc.



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. R. GOPALAKRISHNAN AT SURVEY NO. 199/6A (PATTA LAND) OVER AN AREA OF 1.08.0HA IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU.

1.4 SCOPE OF THE STUDY:

Particulars	Details
TOR Identification No	TO24B0108TN5620880N
File no	11585
SEAC meeting for issue of TOR	523 th SEAC Meeting held on 27.12.2024
SEIAA meeting for issue of TOR	787 th SEIAA Meeting held on 08.01.2025
Terms of Reference	Received from SEIAA, Tamil Nadu vide their TOR Identification NO. TO24B0108TN5620880N dated 11.01.2025
Baseline Data Collection	Carried out by Creative Engineers & Consultants , Chennai for Summer Season (March – May 2025)

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.



**DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF
THIRU. R. GOPALAKRISHNAN AT SURVEY NO. 199/6A (PATTA LAND) OVER AN AREA OF
1.08.0HA IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR
DISTRICT, TAMIL NADU.**

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.

* * * * *



CHAPTER - II

PROJECT DESCRIPTION

CHAPTER 2

PROJECT DESCRIPTION

2.1 TYPE OF PROJECT:

This proposal involves quarrying of Rough stone and Gravel by Thiru. R. Gopalakrishnan using mechanized opencast method for the lease period of 5 years for the Revised production capacity of 76,566 m³ of Rough stone & 7,982 m³ of Gravel upto a depth of 20m to meet the SEIAA requirement as against the AMP quantity of 82,561 m³ of Rough stone & 7,982 m³ of Gravel upto a depth of 25m.

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	Appayanaickenpatti Village, Vembakottai Taluk, Virudhunagar District, Tamil Nadu
Survey No.	199/6A
Coordinates	Latitude: 9° 17' 41.8"N to 9° 17' 46.8"N Longitude: 77° 41' 46.6"E to 77° 41' 44.4"E
Nearest Village	Kundampatti -1.4km – S
Nearest Town	Thiruvankadam – 5 Km - SW

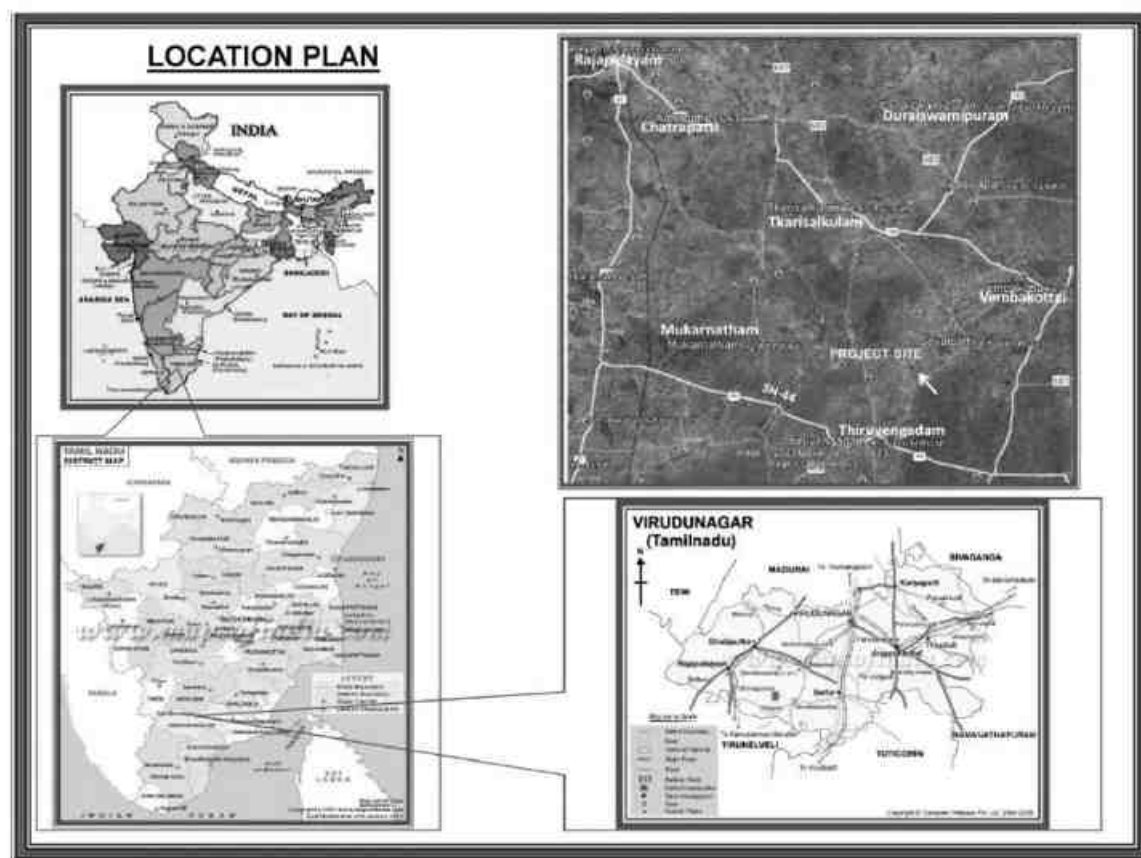


DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU R. GOPALAKRISHNAN AT SURVEY NO. 199/6A (PATTA LAND) OVER AN AREA OF 1.08.0HA IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU.

Nearest Highway	SH-44 - 4.0km - S
Nearest Railway Station	Sivakasi – 21km - NE
Nearest Airport	Madurai - 74km- NE
Accessibility	The applied area can be easily from Virudhunagar to Thiruvengadam road, Via. Vellur, Sivakasi, Vembakottai & Sevalpatti, and then to the applied area.
Topography	The area applied for mining lease is a gentle plain terrain and dry lands without any vegetation. Small part of the area is already mined.
Drainage	Seasonal odai-180m-SE, Vaippar River –240m – (NE), Nikshopa Nadi – 240m – (NE), Uppu Odai – 3.1km – (SE), Marugal Odai – 5.0km – (NE), Kayalkudi River -7.2km – (NE).

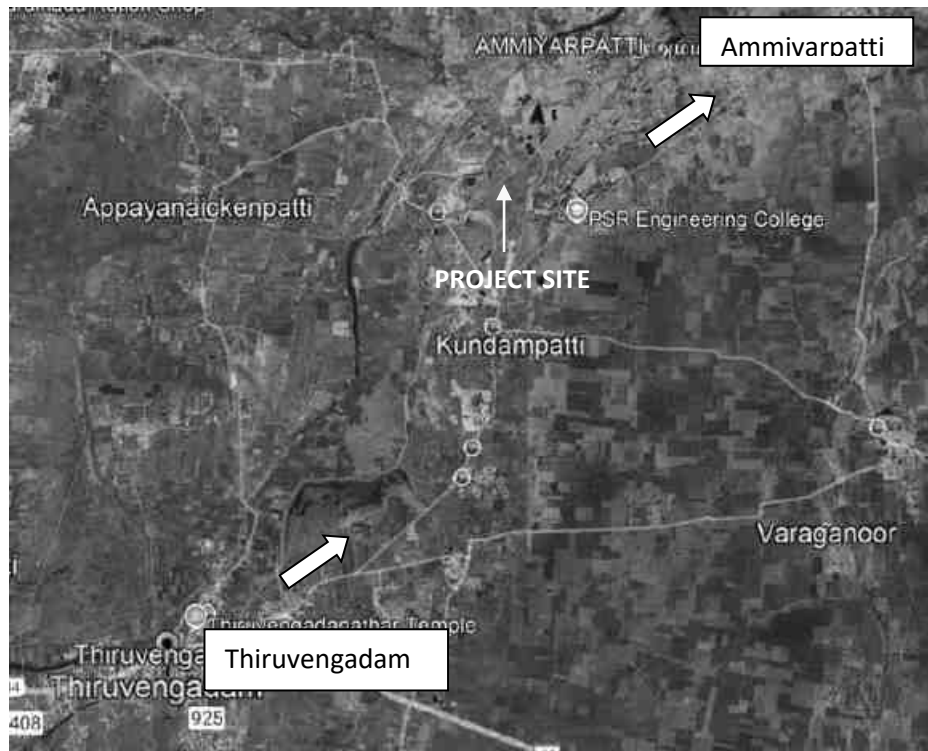
Location map is provided in **Figure No.2.1**.The approachability map is provided in **Figure No.2.2**. Corner co-ordinates of the lease area and satellite imagery are shown in **Figure No. 2.3 & 2.4** respectively. Village map for 500m radius from the lease is shown in **Figure No. 2.5**.

Figure 2.1: Location Map



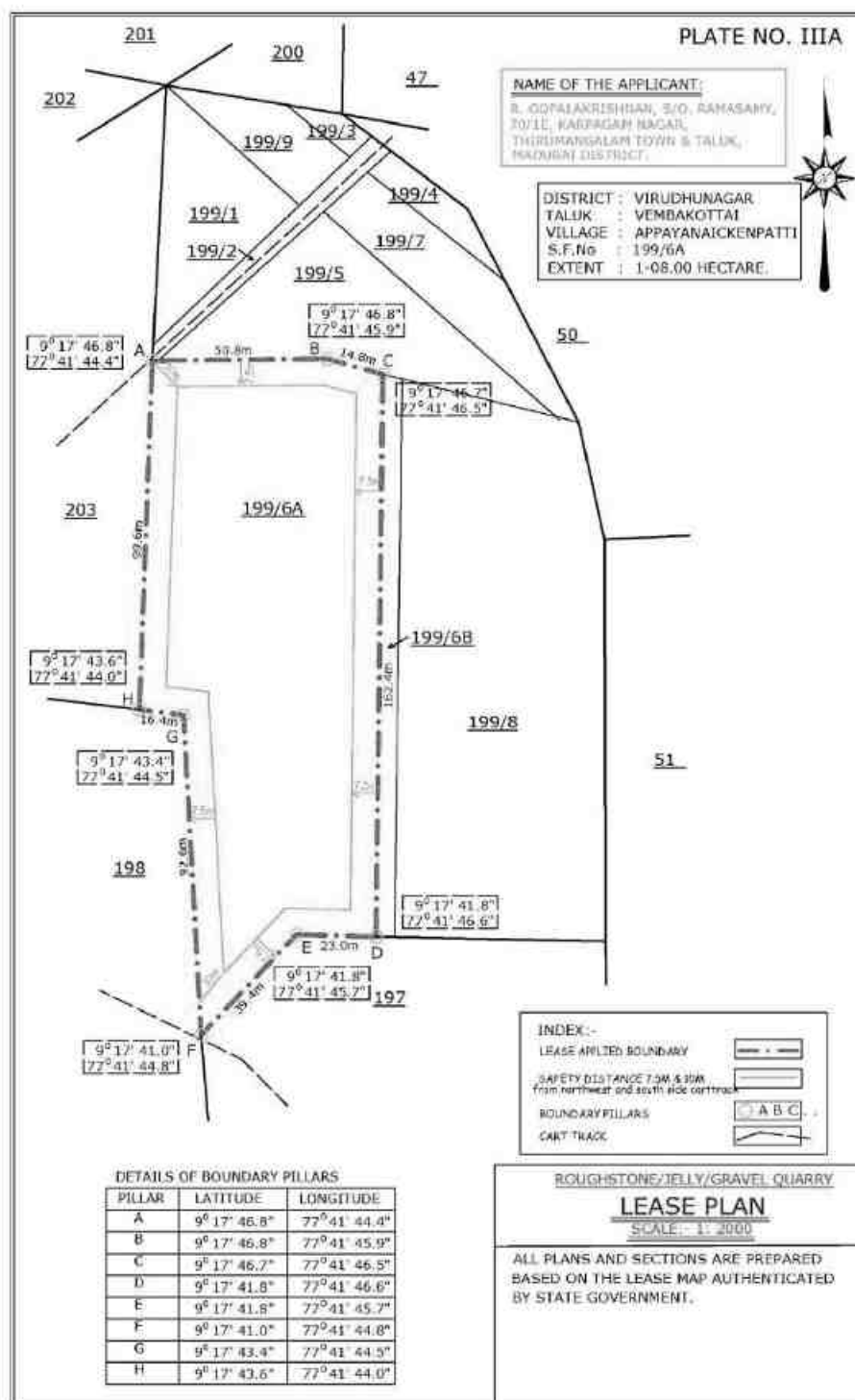
DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU R. GOPALAKRISHNAN AT SURVEY NO. 199/6A (PATTA LAND) OVER AN AREA OF 1.08.0HA IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU.

Figure 2.2: Approachability Map



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU R. GOPALAKRISHNAN AT SURVEY NO. 199/6A (PATTA LAND) OVER AN AREA OF 1.08.0HA IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU.

Figure 2.3: Lease Plan



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU R. GOPALAKRISHNAN AT SURVEY NO. 199/6A (PATTI LAND) OVER AN AREA OF 1.08.0HA IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU.

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



**DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF
THIRU R. GOPALAKRISHNAN AT SURVEY NO. 199/6A (PATTI LAND) OVER AN AREA OF
1.08.0HA IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR
DISTRICT, TAMIL NADU.**

SITE PHOTOGRAPH



**DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF
THIRU R. GOPALAKRISHNAN AT SURVEY NO. 199/6A (PATTA LAND) OVER AN AREA OF
1.08.0HA IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR
DISTRICT, TAMIL NADU.**



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU R. GOPALAKRISHNAN AT SURVEY NO. 199/6A (PATTI LAND) OVER AN AREA OF 1.08.0HA IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU.

Figure 2.5: Village Map

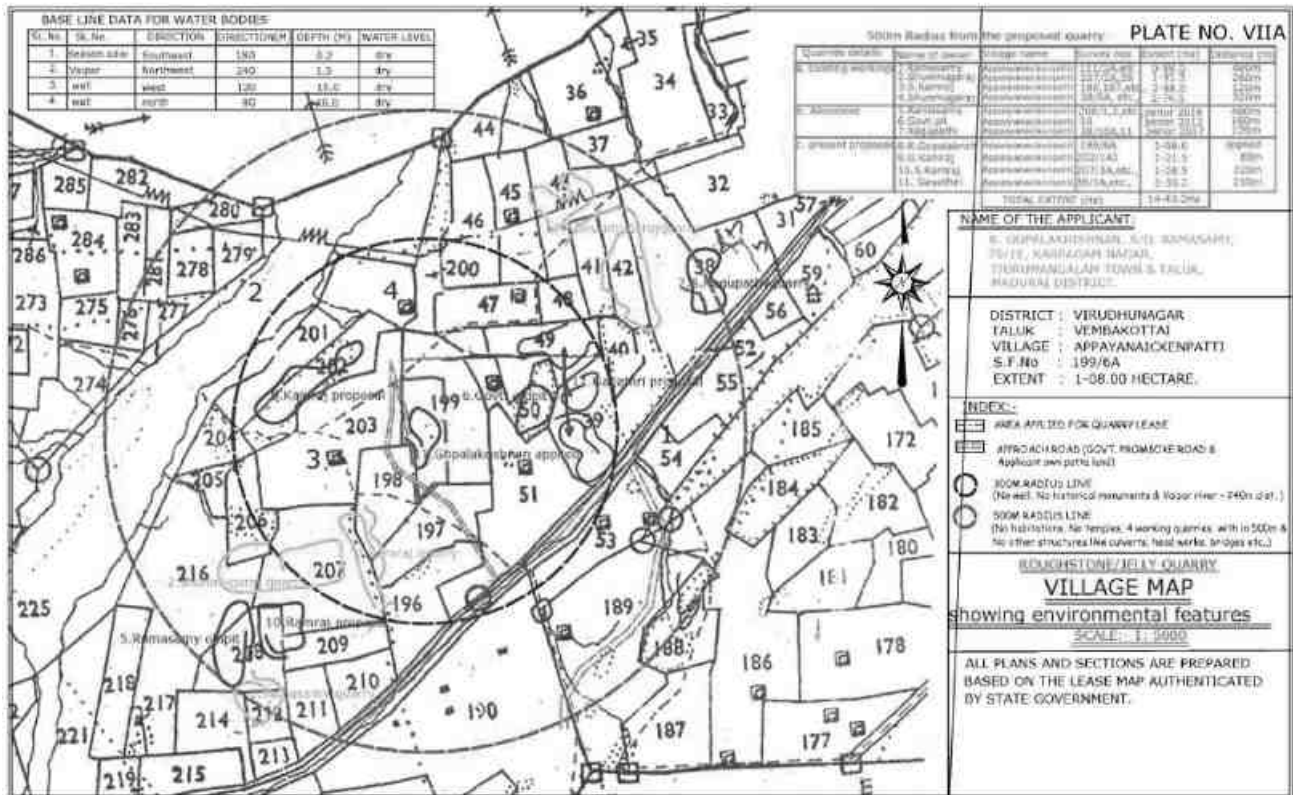


Figure 2.6: Details of features within 500m radius



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU R. GOPALAKRISHNAN AT SURVEY NO. 199/6A (PATTI LAND) OVER AN AREA OF 1.08.0HA IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU.

As per the conditions of the Terms of Reference, the details of structures located within the 100m, 200m, 300m, 400m and 500m radius are provided below.

Table 2.2: Features within 500m radius

S.No	Features	Distance	Photo
1	Odai	180m-SE	
2	Nadhi	240 m-NE	

DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU R. GOPALAKRISHNAN AT SURVEY NO. 199/6A (PATTA LAND) OVER AN AREA OF 1.08.0HA IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU.

3	Cart track	180m-SE	
4	College	525m-SE	

2.4 LAND CLASSIFICATION:

This lease area in SF.No. 199/6A over on extent 1.08.0 ha, It is patta land and register in the name of the applicant. 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	Remarks
Virudhunagar	Vembakottai	Appayanaick enpatti	199/6A	1.08.0	R. GOPALAKRISHNAN	Patta Land owned by Applicant

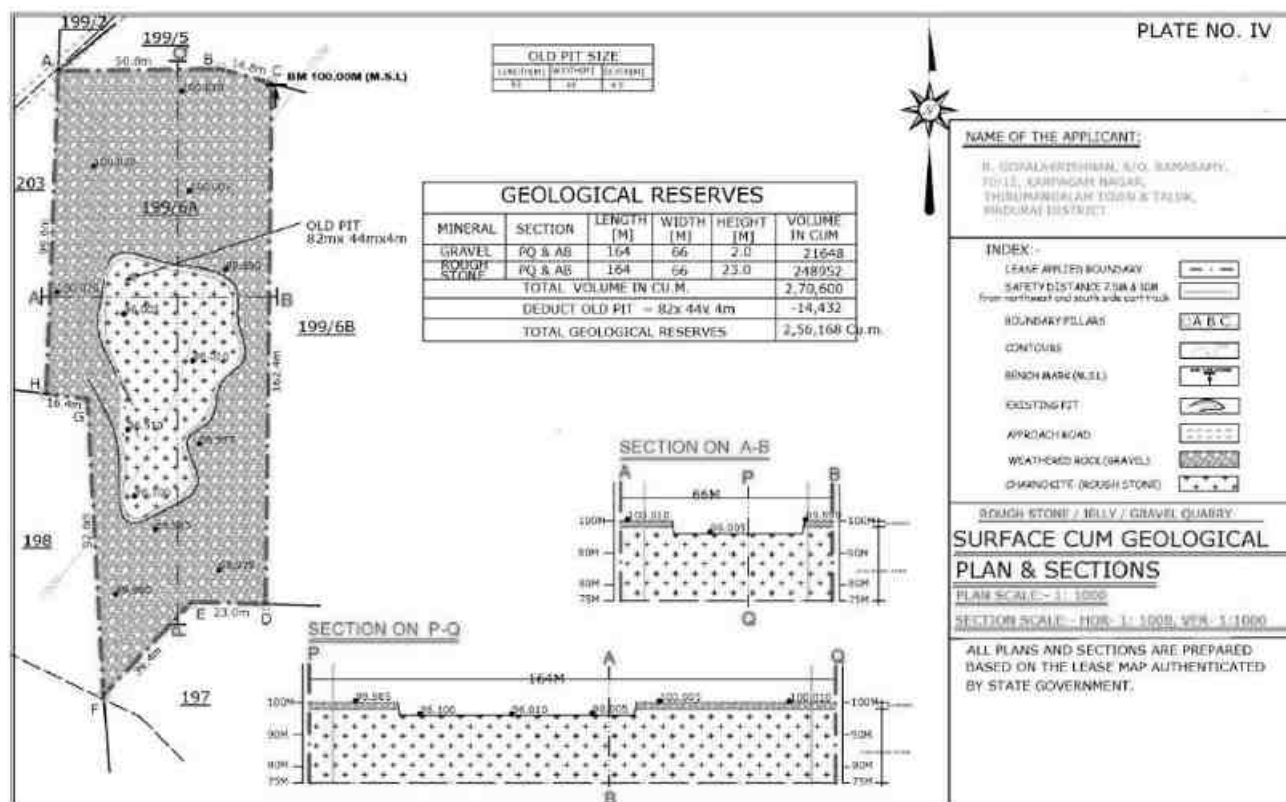


DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU R. GOPALAKRISHNAN AT SURVEY NO. 199/6A (PATTA LAND) OVER AN AREA OF 1.08.0HA IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU.

2.5 GEOLOGY:

The rocks in this area belonging to ARCHEAN group of rocks. Below the gravel formation a hard Rough stone Charnockite is noticed. The rocks are Phaneric to medium grained nature. And in these rocks there are mineral constituents of BLUE QUARTZS, MICRO CLINE FELDSPAR, HYPERSTHENE and flakes of BIOTITE MICA. The rocks are striking towards North west – South east direction dipping 80° Vertical towards South east direction. The strike length of the deposit on 164m length and 66m width.

Figure 2.7: Geological Plan& Cross Section



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU R. GOPALAKRISHNAN AT SURVEY NO. 199/6A (PATTI LAND) OVER AN AREA OF 1.08.0HA IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU.

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.
- The Proposed Production 76,566 m³ of Rough Stone and 7982 m³ of gravel for the period of five years up to depth of 20 meter for 5 year period.
- .There is no waste generation anticipated in this quarry operation since the entire excavated material will be transported to buyers.

2.6.1 RESERVES:

Table 2.4: Geological and Mineable Reserves

Type of reserves	Gravel + Rough stone in Cub.m
Geological Resources	2,56,168 Cu.m.
Mineable reserves	90,543 Cu.m.
Mineable reserves at 20 M	84,548
Bench locked & 7.5m boundary barrier reserves	1,65,625 Cu.m.

The mineable reserves is arrived after considering the safety distance as per the Precise area letter and SEIAA requirement.

2.6.2 MINING METHOD:

Opencast 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 gravel and rough stone below will be blasted and then excavated. Bench height of 5.0m & 5m width is considered.

Table 2.5: Details of Equipments

SI. NO	NAME OF THE EQUIPMENT	CAPACITY	REQUIRED
1	Excavator	TATA HITACHI (EX200)	1
2	Tipper	10 Tonnes	2
3	Tractor compressor for drilling	175 CFM	1
	Dewatering pump	5 Hp Diesel pump	1



2.7 PROPOSED SCHEDULE FOR APPROVAL AND IMPLEMENTATION:

The proponent propose 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.

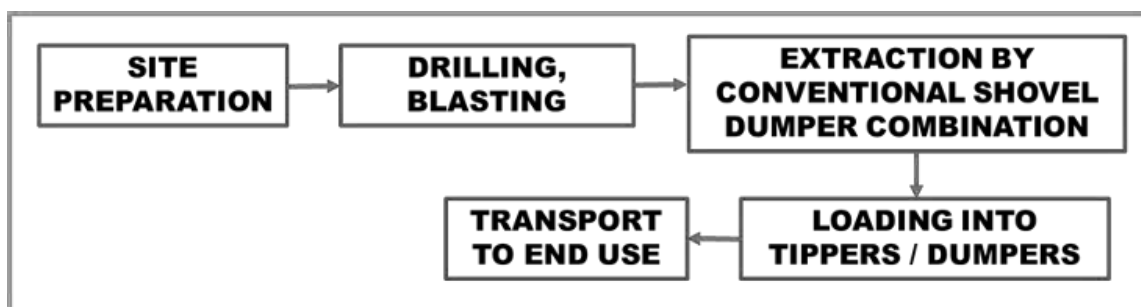
Table 2.6: Proposed Schedule of Implementation

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 2.8: Process Flow Diagram



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU R. GOPALAKRISHNAN AT SURVEY NO. 199/6A (PATTI LAND) OVER AN AREA OF 1.08.0HA IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU.

2.9 PROJECT DESCRIPTION:

Earlier lease details:

- Quarrying in this lease area was earlier carried out by R. Gopalakrishnan for the period of 29.05.2017 to 28.05.2022 with the proceeding no. KV1/5171/2013 dated 10.05.2017 (Refer Annexure-3 of PFR).
- Environmental clearance for the earlier lease area obtained from SEIAA – TN vide letter no Lr.No. SEIAA-TN/F.No.2510/EC/1(a)/1800/2014 dated 27.03.2015 for Rough stone quarrying at SF no 199/6A, Appainaickanpatti village, Sivakasi taluk, Virudhunagar District, Tamil Nadu over 1.08.0 Ha of the lease area. (Refer Annexure-IV of Mining plan report).

Earlier Lease details are as follows:

Environmental Clearance	Proceeding & Lease period	Permitted Quantity as per Approved mining plan & EC			Quantity transit Permit issued & Transported		
		Rough Stone	Gravel	Depth	Rough Stone	Gravel	Depth
SEIAA-TN/F.No.2510/EC/1(a)/1800/2014 dated 27.03.2015	KV1/5171/2013 dated 10.05.2017. From 29.05.2017 to 28.05.2022	36420	14768	4	6932	3973	4m

The dimension of the existing pit in the area applied for leases is given below.

	Length (Max)	Width (Max)	Depth (Max)
Pit	82	44	4



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU R. GOPALAKRISHNAN AT SURVEY NO. 199/6A (PATTI LAND) OVER AN AREA OF 1.08.0HA IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU.

2.9.1 PRODUCTION & WASTE DISPOSAL:

Proposed year wise production is given below:

Table 2.7: Production Schedule During Plan Period

YEAR	GRAVEL(m3)	ROUGHSTONE (m3)
I	5534	11,909
II	2448	15,562
III	----	16,605
IV	----	19,995
V	----	12,495
Total	7,982	76,566

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 overburden in the form of 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 needy buyers for producing crusher aggregates, M Sand.



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU R. GOPALAKRISHNAN AT SURVEY NO. 199/6A (PATTA LAND) OVER AN AREA OF 1.08.0HA IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU.

Figure 2.9: Year wise Plan & Cross Section

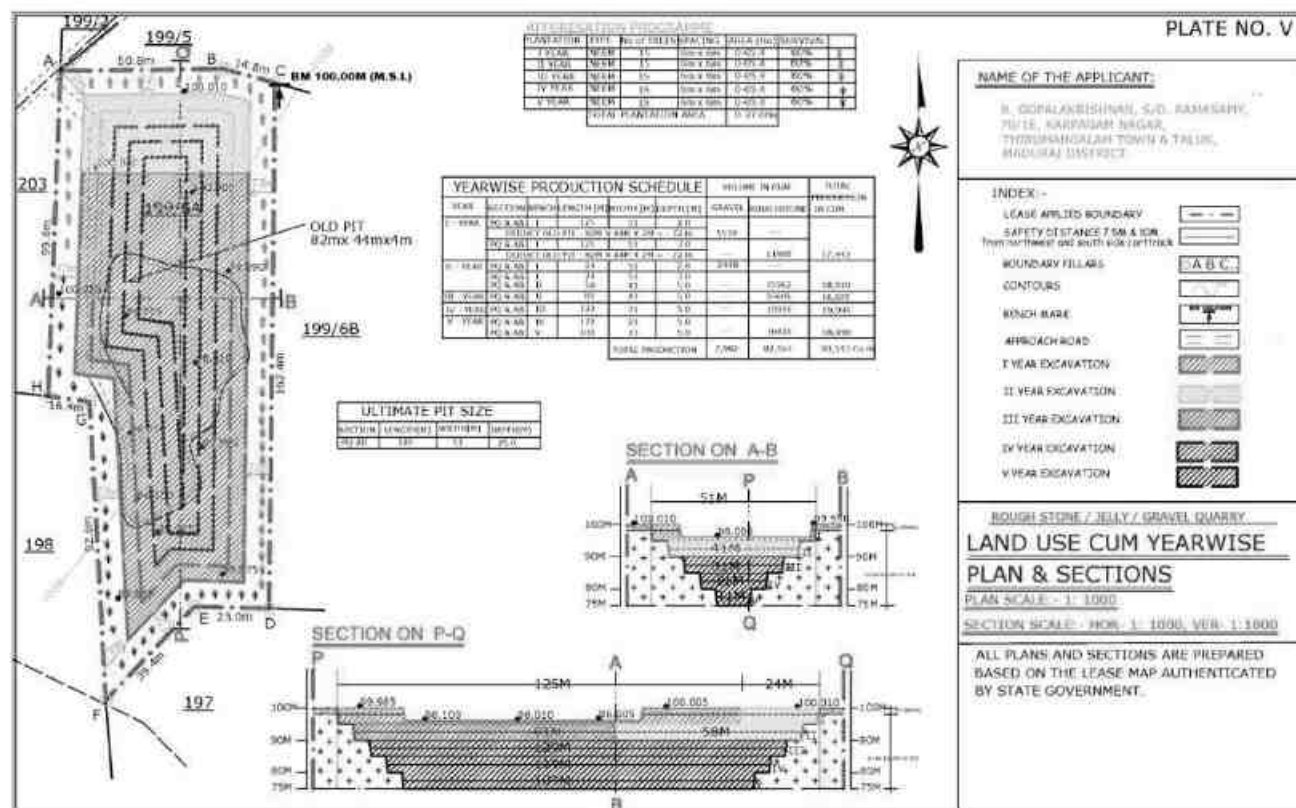


Table 2.8: Ultimate Pit Dimensions

Pit dimension at the end of 5 th year period(M)			
Pit No	Length (Max) in m	Width (Max) in m	Depth(Max) in (m)
PQ-AB	149	51	20

The ground water table on the surface in this area is ranging from 50 to 55 meter Hence, ground water intersection in not envisaged. The Conceptual Plan & Cross section are shown in **Figure No. 2.11.**

At the end of the 5 year period, In the post mining stage, entire 0.75.0 Ha of mined out area will be left as water body. 0.02.0 Ha is infrastructure & Road, 0.27.0 ha will be under afforestation, 0.04.0 Ha will be Fencing.



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU R. GOPALAKRISHNAN AT SURVEY NO. 199/6A (PATTA LAND) OVER AN AREA OF 1.08.0HA IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU.

2.9.2 PROJECT REQUIREMENTS:

Table 2.10: Project Requirements

Manpower	9 People directly and more than 10 people indirectly	
Water Requirement and Source	Water Requirement: 5 KLD	
	Details	Quantity (KLD)
	Drinking water and Domestic Use	1.0
	Dust Suppression	2.5
	Green belt	1.5
	Total	5.0
	Source: The water will be sourced initially from outside agencies. Later the rainwater collected in the mine pit sump can be used for this purpose.	
Power Requirement	No electricity needed for mining operation. The minimum power requirement for office, etc will be met from state grid.	
Site Services	This is a proposed project. Site services like mine office, first aid room, rest shelters, toilets etc. will be provided as semi-permanent structures.	
Project Cost	Rs. 34,58,887 /- (Including operational + Fixed Asset + EMP cost).	
Funds allocated for socio-economic development	Rs.2.0 Lakhs is allocated under CER budget.	

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.



**DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF
THIRU R. GOPALAKRISHNAN AT SURVEY NO. 199/6A (PATTI LAND) OVER AN AREA OF
1.08.0HA IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR
DISTRICT, TAMIL NADU.**

2.12 CONCLUSION:

Since the production capacity & magnitude of operation from the lease is very less, with good environmental preservation, 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 2025 to May 2025)** 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 in Index Plan in **Figure No - 3.1**

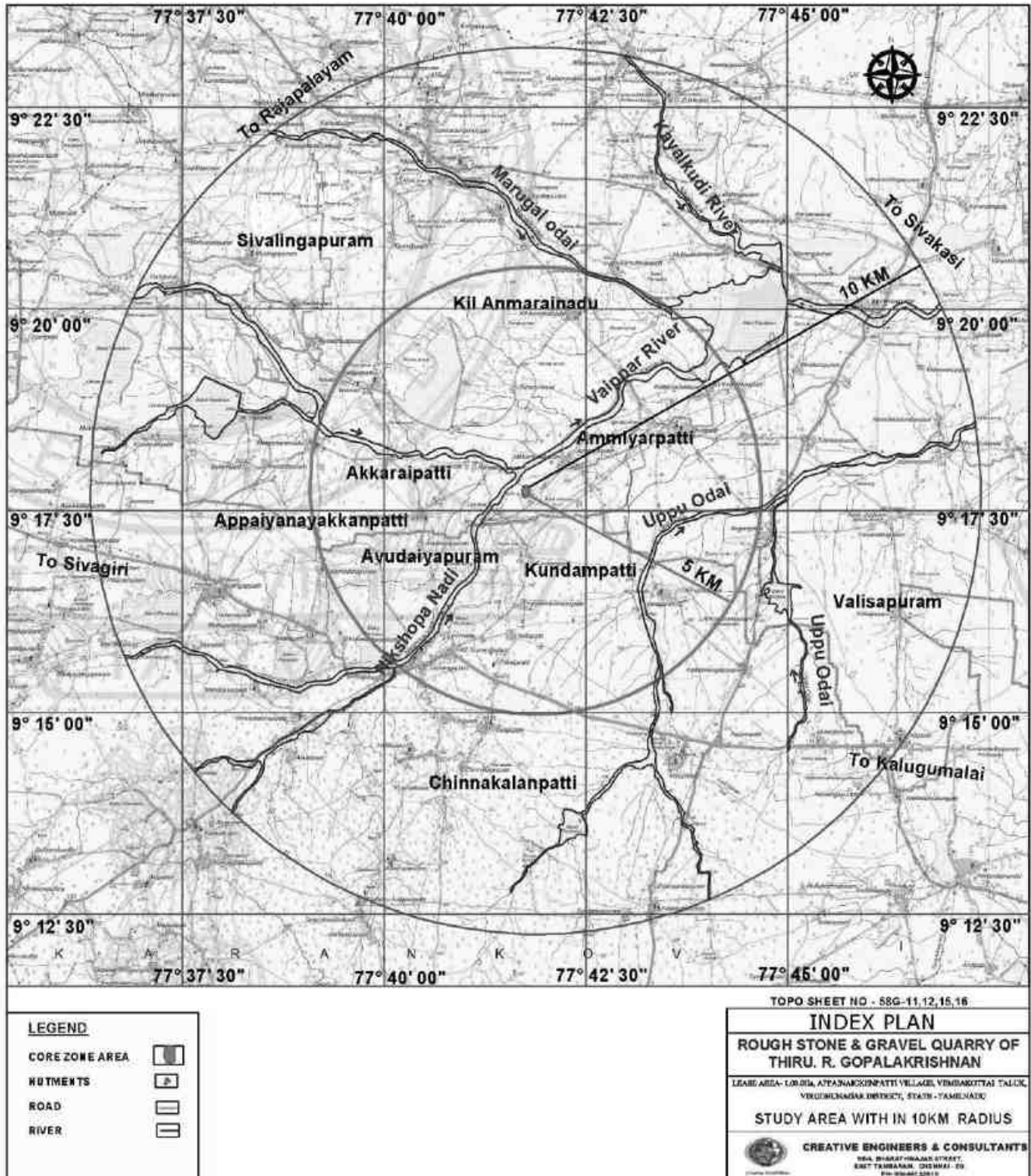
The primary data collection was done by means of field monitoring and the secondary data collection was obtained from published sources and Government documents. The details of the baseline data collection which has been elaborated through the course of this chapter has been concised below:

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, Viruthunagar	Virudhunagar
		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

DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. R. GOPALAKRISHNAN AT SURVEY NO. 199/6A (PATTA LAND) OVER AN AREA OF 1.08.0HA IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU.

Figure 3.1: Study Area Map



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. R. GOPALAKRISHNAN AT SURVEY NO. 199/6A (PATTA LAND) OVER AN AREA OF 1.08.0HA IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU.

Table 3.2: Environmental Setting of the Study Area

S.No	PARTICULARS	Details
1	Nearest Highway	Kovilpatti – Thiruvengadam (SH-44)– 4.0km (S)
2	Nearest Railway station	Sivakasi RS – 21km - NE
3	Nearest Airport	Madurai - 74km - NE
4	Nearest major water bodies	➤ Seasonal odai-180m-SE, ➤ Vaippar River –240m – (NE), ➤ Nikshopa Nadi – 240m – (NE), ➤ Uppu Odai – 3.1km – (SE), ➤ Marugal Odai – 5.0km – (NE), ➤ Kayalkudi River -7.2km – (NE).
5	Nearest villages	Appaiyanayakkanpatti - 2.4km – (W) Kundampatti – 1.4km – (S) Ammiyarpatti -1.2km – (NE) Avudaiyarpuram -2.6km – (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 10m radius
10	Reserved / Protected Forests	Nil within 10 km radius
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, match box, fire works factories 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 in Appayanaickenpatti Village, Vembakottai Taluk, Virudhunagar District. Based on 2011 census data, in the 10km radius there are 35 Rural Villages and 2 urban areas from Five Taluks namely Sivakasi, Rajapalayam, Sattur, Sankarankoil, Kovilpatti. of 3 districts namely Virudhunagar, Tirunelveli and of Thoothukkudi 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	49528	49.35
Female Population	50838	50.65
Total	100366	100
B. Caste-wise population distribution		
Scheduled Caste	23360	23.27
Scheduled Tribes	149	0.15
Other	76857	76.58
Total	100366	100
C. Literate and Illiterate population		

DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. R. GOPALAKRISHNAN AT SURVEY NO. 199/6A (PATTA LAND) OVER AN AREA OF 1.08.0HA IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU.

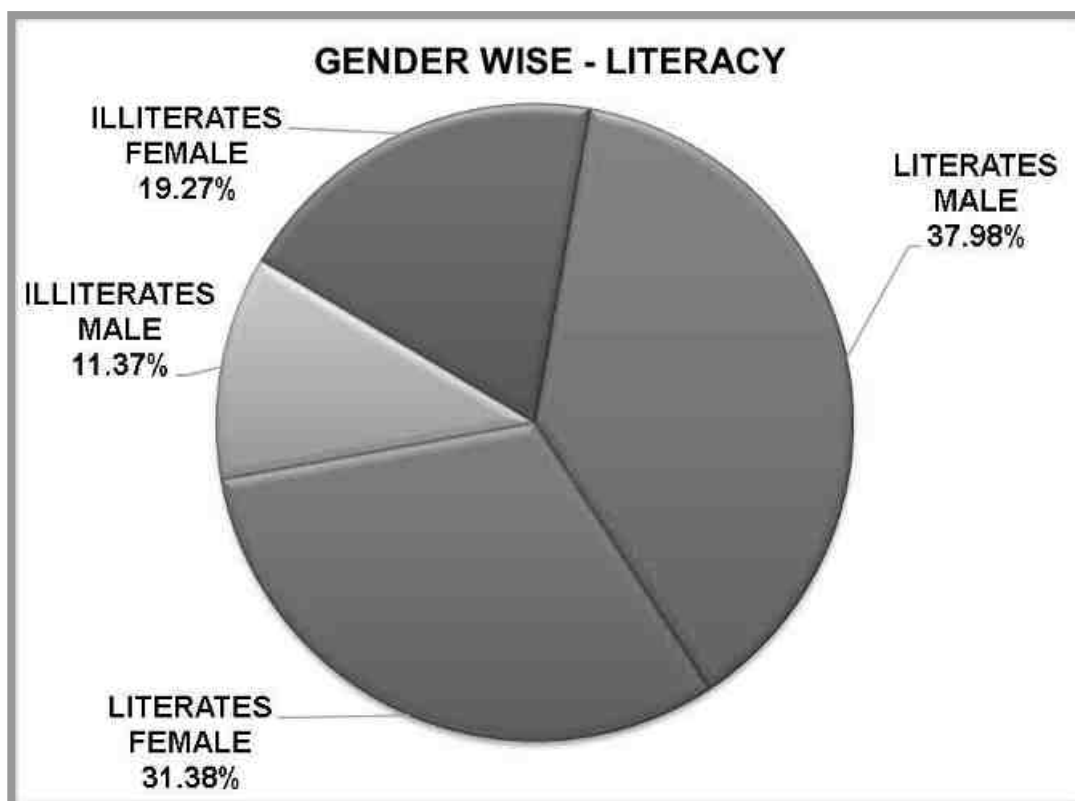
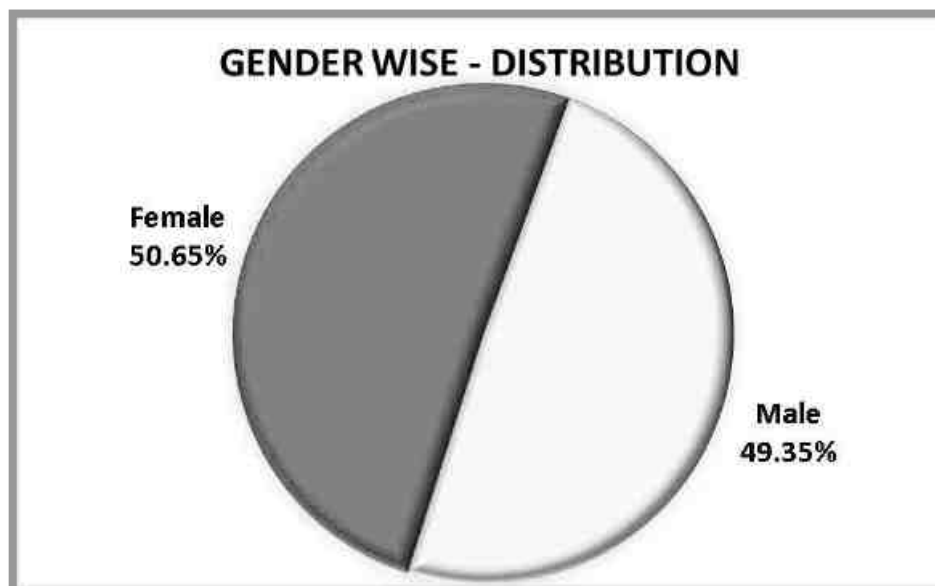
Details	Population	Percentage
Literate Males	38114	54.75
Literate Females	31498	45.25
Total Literate Population	69612	69.36
Others Males	11414	37.11
Others Females	19340	62.89
Others Population	30754	30.64
Total	100366	100
D. Occupational structure		
Main workers	49466	49.30
Marginal workers	5157	5.10
Total Workers	54623	54.40
Total Non-workers	45743	45.60
Total	100366	100

The total population of these 35 rural villages and 2 urban areas is 100366 in which the male population is 49528 (49.35%) and the female population is 50838 (50.65%). This shows that the male and female population ratio is almost equal. Among the total population 0.15% belong to Scheduled Tribes, 23.27% are Scheduled Caste and the balance 76.58% people belong to other castes. Among the total population, 69.36% of the people are literate.

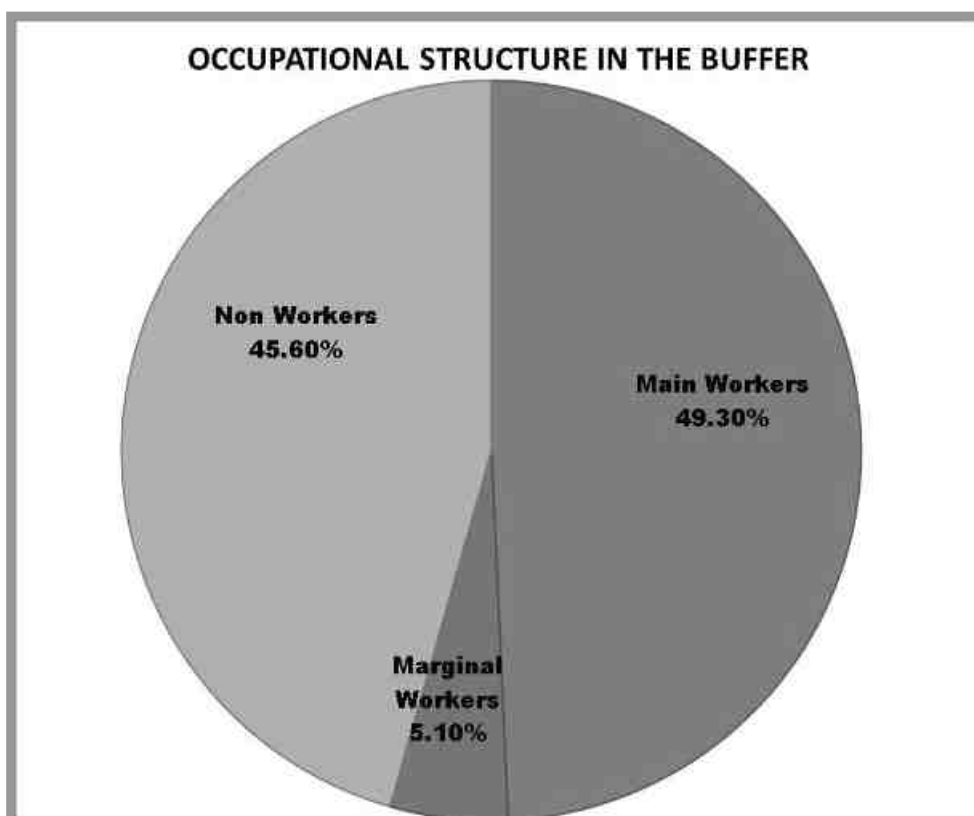
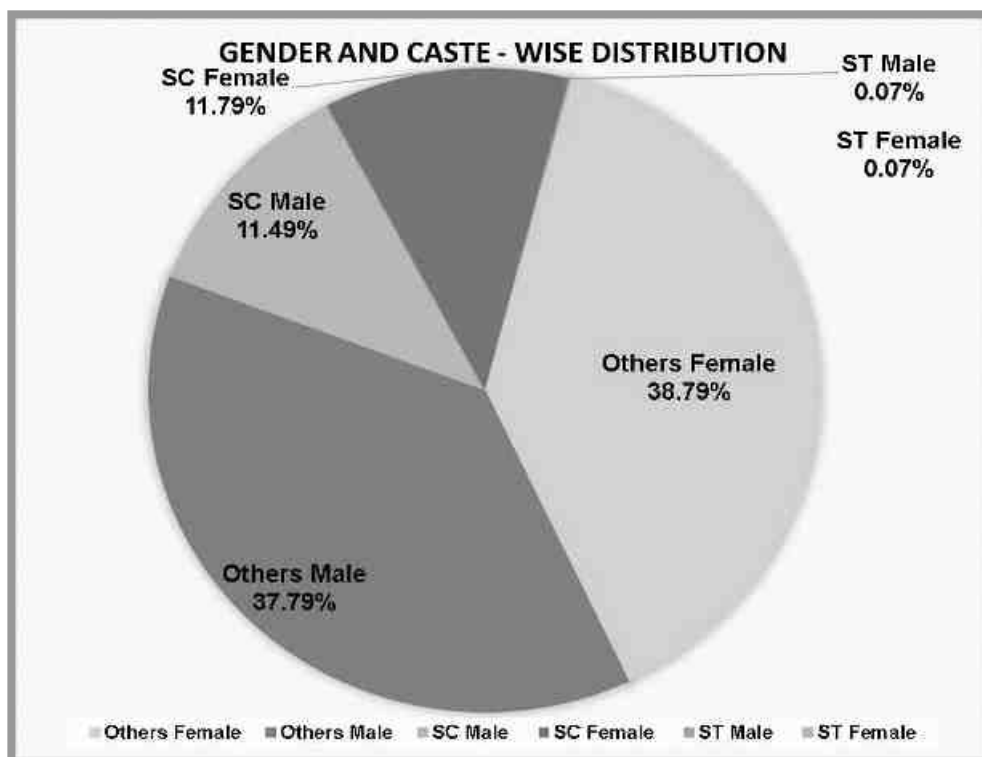
Among the total population, 54.75% are literate males and 45.25% are literate females. This shows that the male literates are slightly more than the female literates. Totally, the illiterate constitute 30.64% of which the female cover 62.89% and the male 37.11%. Illiteracy in women is more than in the male population.

The village wise population, literacy levels and occupational structure details area given in **Annexures 4 and 5**. The demographic structure within the buffer zone is shown diagrammatically in **Figure No – 3.2**.

Figure 3.2: Demographic Structure in Buffer Zone



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. R. GOPALAKRISHNAN AT SURVEY NO. 199/6A (PATTI LAND) OVER AN AREA OF 1.08.0HA IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU.



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. R. GOPALAKRISHNAN AT SURVEY NO. 199/6A (PATTA LAND) OVER AN AREA OF 1.08.0HA IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU.

3.2.3 DETAILS OF AMENITIES:

Based on 2011 census data, regarding the educational facilities, 35 rural villages out of 35 rural villages have educational facilities. There are totally 73 Primary Schools functioning in these 35 rural villages. Among them 13 villages have one primary school, 13 villages have 2 primary schools, 4 villages have 3 primary schools, 3 villages have 4 primary schools, 2 villages has 5 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 35 villages, 19 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	0	0	0
2	13	1	13
3	13	2	26
4	4	3	12
5	3	4	12
6	2	5	10
Total	35		73

Table 3.5: Education Facility Availability

PARTICULARS	Available in village
Govt Primary School	31
Govt Middle School	21
Govt Secondary School	8
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

DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. R. GOPALAKRISHNAN AT SURVEY NO. 199/6A (PATTA LAND) OVER AN AREA OF 1.08.0HA IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU.

Table 3.6: Healthcare Amenities Availability

PARTICULARS	Available in village
Community Health Centre	1
Primary Health Centre	2
Primary Health Sub Centre	19
Maternity And Child Welfare Centre	4
TB Clinic	2
Hospital Allopathic	0
Hospital Alternative Medicine	0
Dispensary	2
Veterinary Hospital	4
Mobile Health Clinic	0
Family Welfare Centre	2

Table 3.7: Infrastructure Facilities

Particulars	Available in village
Tap Water-Treated	30
Covered Well	10
Hand Pump	20
Tube Wells/Borehole	28
Post office	3
Bus services	33
Railway station	0
Commercial Bank	4
Cooperative bank	10

The details of the educational, medical and infrastructural facilities available in the buffer zone as per 2011 census is provided in **Annexures- 6-8**.

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

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:

- Predominantly the study area is rocky, dry, barren land with predominant mining and allied activities.
- Due to scanty rainfall, poor soil condition and less ground water availability, very little plantation and agriculture are observed in the area.
- The study area is predominantly fallow land with thorny bushes.
- Other allied activities livestock rearing and poultry farming are also found.
- Majority of the people are small farmers
- Agriculture is predominantly rainfed and the irrigation is available only during rainy period, during the rest of the time locals have less employment opportunities. Other occupations include Mining worker, construction workers, vendors, etc.
- Bore well is the main source for drinking water. There are OHT's, Ground level tanks, public taps are available.
- Reasonably better amenities like approach road bus facility, electricity, mobile phone connectivity, Public Distribution System , banks etc are available.

**DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF
THIRU. R. GOPALAKRISHNAN AT SURVEY NO. 199/6A (PATTA LAND) OVER AN AREA OF
1.08.0HA IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR
DISTRICT, TAMIL NADU.**



Anganwadi, Appanayakkanpatti



**Community
Hall, Ramalingapuram**



Library, Appanayakkanpatti



OHT, Kundanpatti

**DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF
THIRU. R. GOPALAKRISHNAN AT SURVEY NO. 199/6A (PATTI LAND) OVER AN AREA OF
1.08.0HA IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR
DISTRICT, TAMIL NADU.**



Panchyat Office Appanayakkanpatti



Primary School , Appanayakkanpatti



Primary School, Kundanpatti



Primary School, Vadakanmarinadu



Sub Library, Appanayakkanpatti



Ration Shop, Appanayakkanpatti

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.

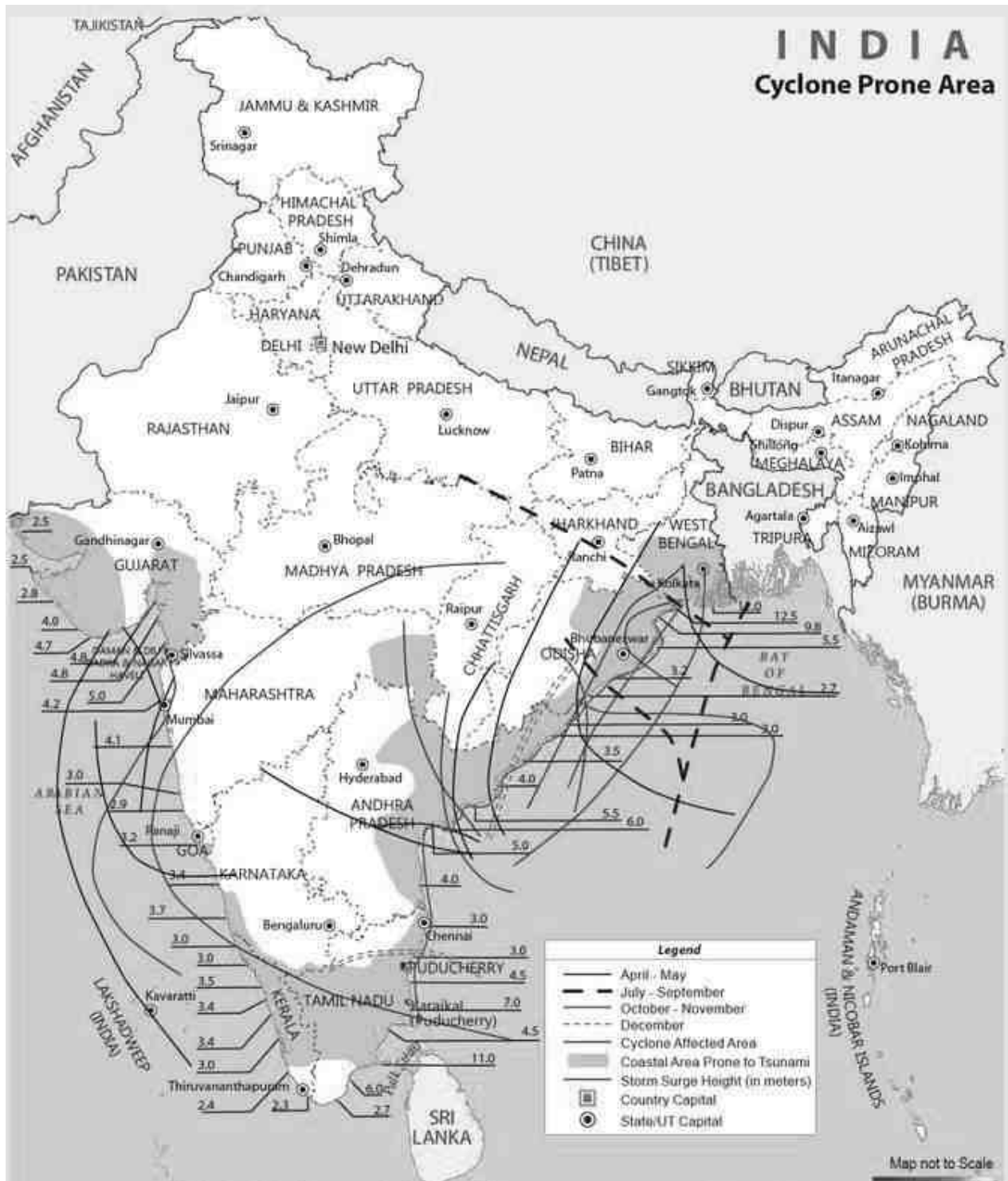
3.3.1.2 Historical Meteorological Data:

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.

DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. R. GOPALAKRISHNAN AT SURVEY NO. 199/6A (PATTA LAND) OVER AN AREA OF 1.08.0HA IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU.

Figure 3.3: Cyclone Prone Areas

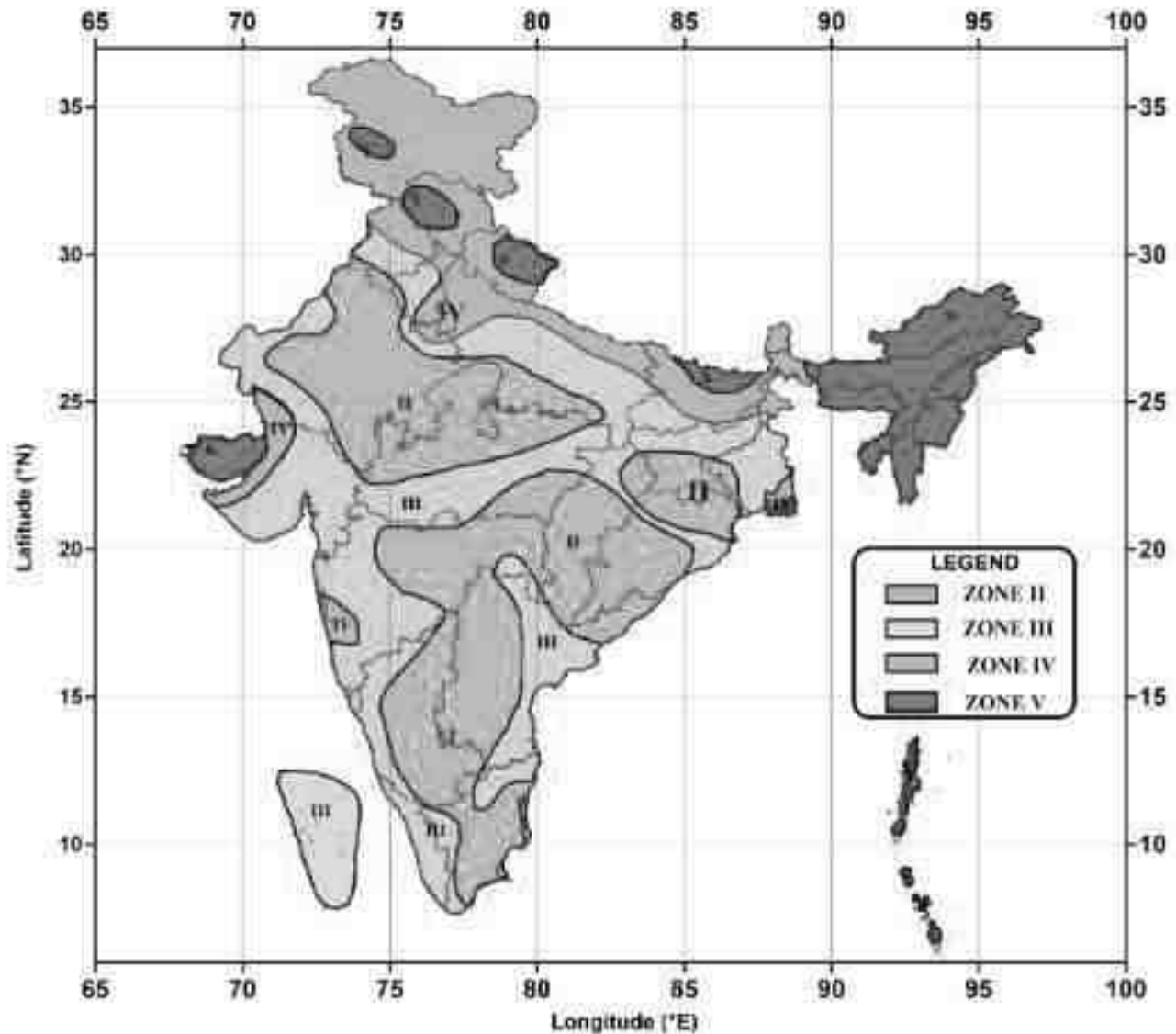


DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. R. GOPALAKRISHNAN AT SURVEY NO. 199/6A (PATTA LAND) OVER AN AREA OF 1.08.0HA IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU.

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



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. R. GOPALAKRISHNAN AT SURVEY NO. 199/6A (PATTA LAND) OVER AN AREA OF 1.08.0HA IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU.

C. Climate and Rainfall Data:

Temperature: From the middle of February, temperature increases steadily. The weather is quite hot in May and June and the maximum temperature sometimes reaches 40°Celsius. With the onset of the southwest monsoon by the end of May or beginning of June, there is some drop in temperature.

Cloudiness: During the months of April and May, the skies become heavily clouded and threatening in the afternoons on many days when thunderstorms follow. In the southwest and northeast monsoon seasons, the sky is heavily clouded or overcast.

Winds: Generally light to moderate in strength and NW-SW and vice-versa. Between May and September winds are mainly north westerly or westerly. From October to February winds are mainly north easterly or northerly.

Rainfall: Main rainy season is from October to the middle of January. November is generally the rainiest month. The average annual rainfall data from 2011 – 2020 is given in Table No. 3.8.

Rainfall data collected by Virudhu Nagar , IMD station for the period of 2011 to 2020 is given in **Table No.3.8** Rainfall histograms are presented in **Figure No - 3.5 and 3.6.**

Table 3.8: Average Annual Rainfall Data (2011-2020)

YEAR	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total Rainfall
2011	85.49	162.8	109.57	201.3	119.75	392.46	313.13	227.99	199.02	146.11	190.62	197.52	2345.76
2012	16.29	18.37	76.82	297.85	81.31	192.98	223.09	287.28	155.75	234.49	127.34	14.38	1725.95
2013	10.22	43.85	46.9	14.44	27.26	15.48	2.4	115.17	43.3	118.37	68.61	84.27	590.27
2014	11.2	2.25	7.42	14.03	187.33	9.68	9	78.69	65.2	217.23	146.17	55.08	803.28
2015	4.45	3.43	31.39	95.62	114.89	17.83	28.19	53.96	84.73	103.78	279.24	140.03	957.54
2016	0.24	0.03	1.71	5.88	85.2	16.88	69.79	39.75	47.21	66.65	49.6	60.33	443.27
2017	20.72	2.81	15.1	3.18	32.84	7.88	27.54	42.11	62.59	40.74	42.35	17	314.86
2018	0.74	1.28	11.62	21.13	66.02	14.49	33.67	41.94	47.92	134.91	68.92	7.28	449.92
2019	5.08	2.26	3.23	2.33	4.5	17.83	18.5	71.16	163.58	251.1	109.63	88.91	738.11
2020	3.87	0.48	0.11	24.2	69.81	32.41	40.51	45.93	94.14	138.83	241.45	139.88	831.62
NORMAL	18.5	23.5	37.6	76.8	60.2	18.3	31.1	51.6	80.8	191	175.5	64.7	829.6

Source – Virudhunagar District, IMD



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. R. GOPALAKRISHNAN AT SURVEY NO. 199/6A (PATTA LAND) OVER AN AREA OF 1.08.0HA IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU.

Figure 3.5: Total Rainfall

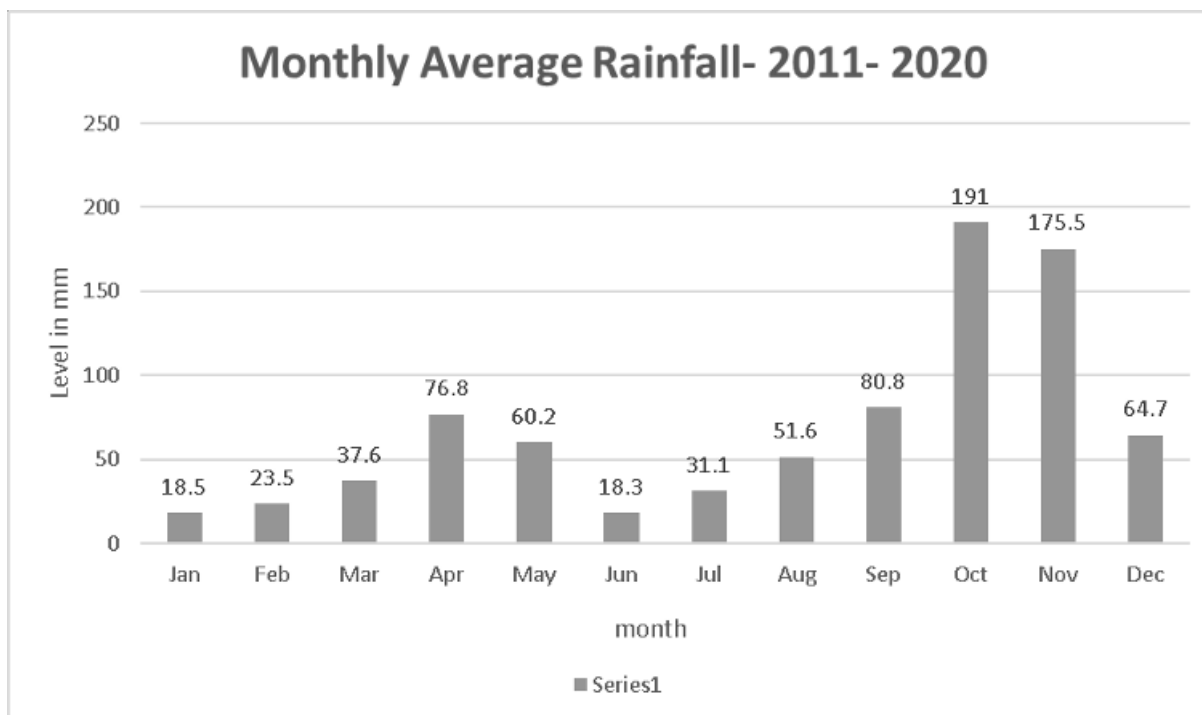
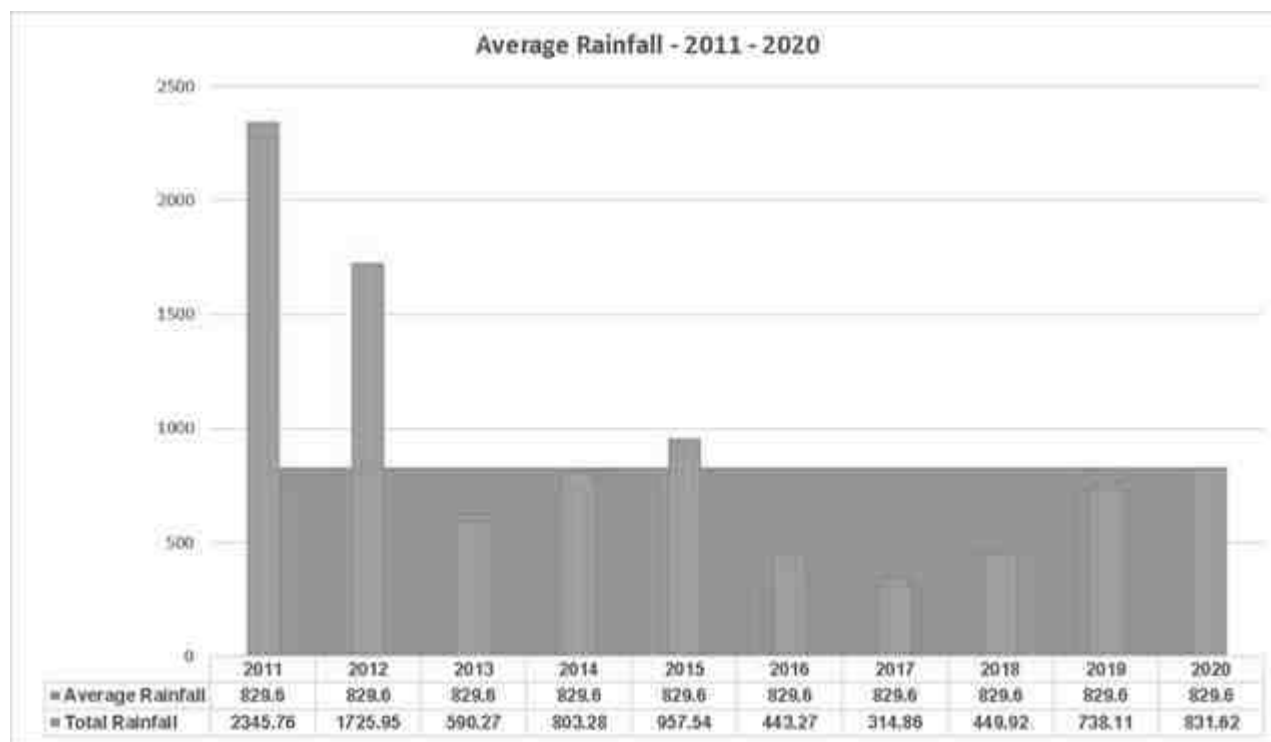


Figure 3.6: Average Annual Rainfall



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. R. GOPALAKRISHNAN AT SURVEY NO. 199/6A (PATTI LAND) OVER AN AREA OF 1.08.0HA IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU.

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:

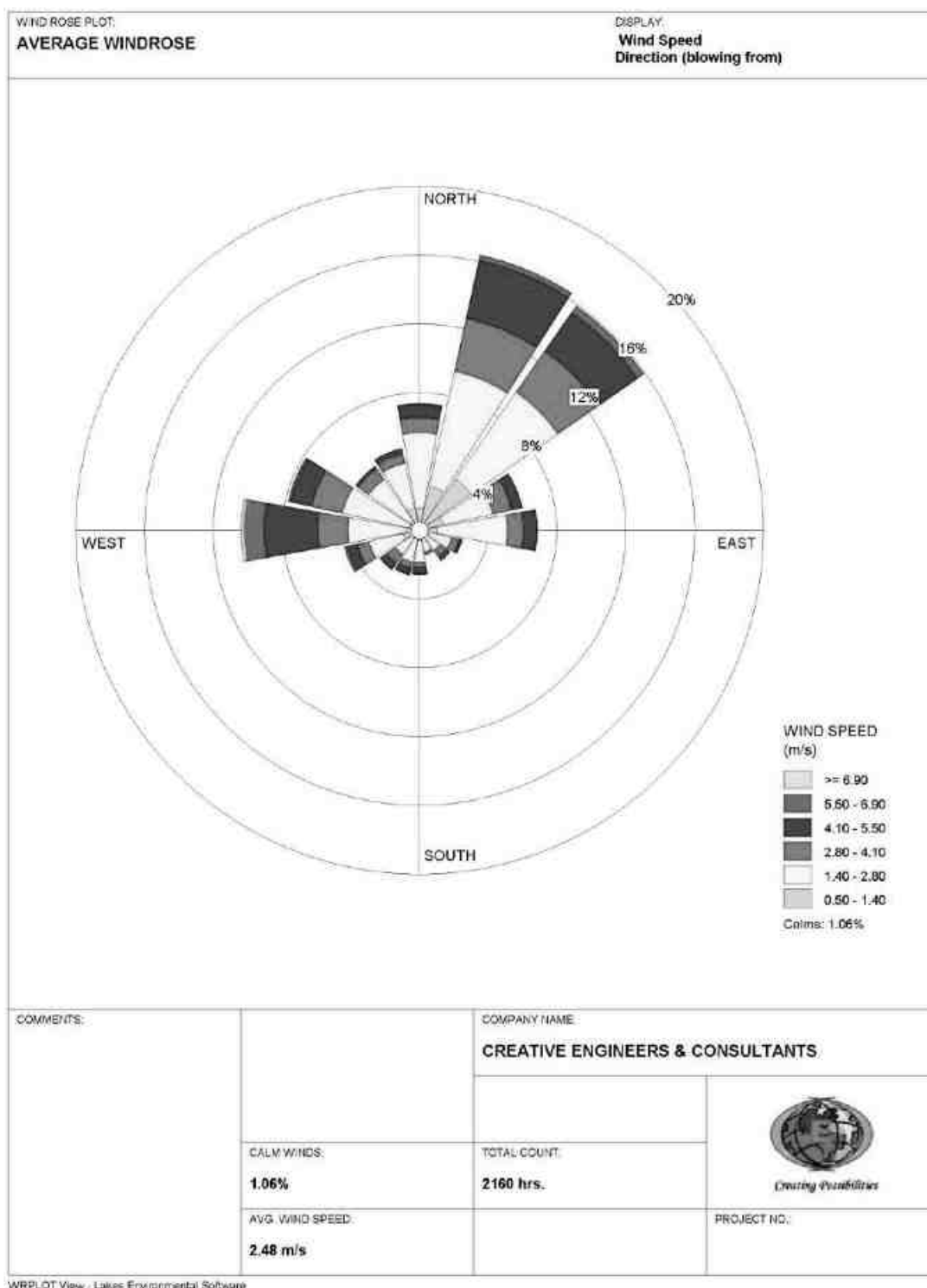
The temperature in the area during the study period ranged from 22.0°C to 40.0°C while the relative humidity varied between 19.8 – 94.4%. The wind speed during the study period ranged from <1.8 to 37.1 Km/hr. The predominant wind direction is from NE. The meteorological data are presented in **Table no – 3.9**. The average wind rose is depicted in **Figure No - 3.7**.

Table 3.9: Meteorological Data

Season: Summer Season, March 2025 to May 2025)			
S.NO	PARAMETERS	MIN	MAX
1	Temperature In °c	22.0	40.0
2	Humidity in %	19.8	94.4
3	Wind speed in km/hr	<1.8	37.1
4	Predominant wind direction from	NE	

DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. R. GOPALAKRISHNAN AT SURVEY NO. 199/6A (PATTI LAND) OVER AN AREA OF 1.08.0HA IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU.

Figure 3.7: Average Wind Rose



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. R. GOPALAKRISHNAN AT SURVEY NO. 199/6A (PATTI LAND) OVER AN AREA OF 1.08.0HA IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU.

3.3.2 AMBIENT AIR QUALITY (AAQ):

Ambient Air quality has been assessed through a network of 6 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, 6 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 2025 – May 2025)
2.	Monitoring Location	The location map showing Ambient Air Quality study stations are shown in Figure No- 3.8.
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
4.	f. Silica	Colorimetric (Molybdate Method) NIOSH 7601 -2003
	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	Appaiyanayakkanpatti Village	2.4km	W
3	A3	Akkaraipatti Village	1.4km	NW
4	A4	Kundampatti Village	1.4km	S
5	A5	Ammiyarpatti Village	1.2km	NE
6	A6	Avudaiyarpuram Village	2.6km	SW



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. R. GOPALAKRISHNAN AT SURVEY NO. 199/6A (PATTI LAND) OVER AN AREA OF 1.08.0HA IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU.

Figure 3.8: Ambient Air Quality Study Stations



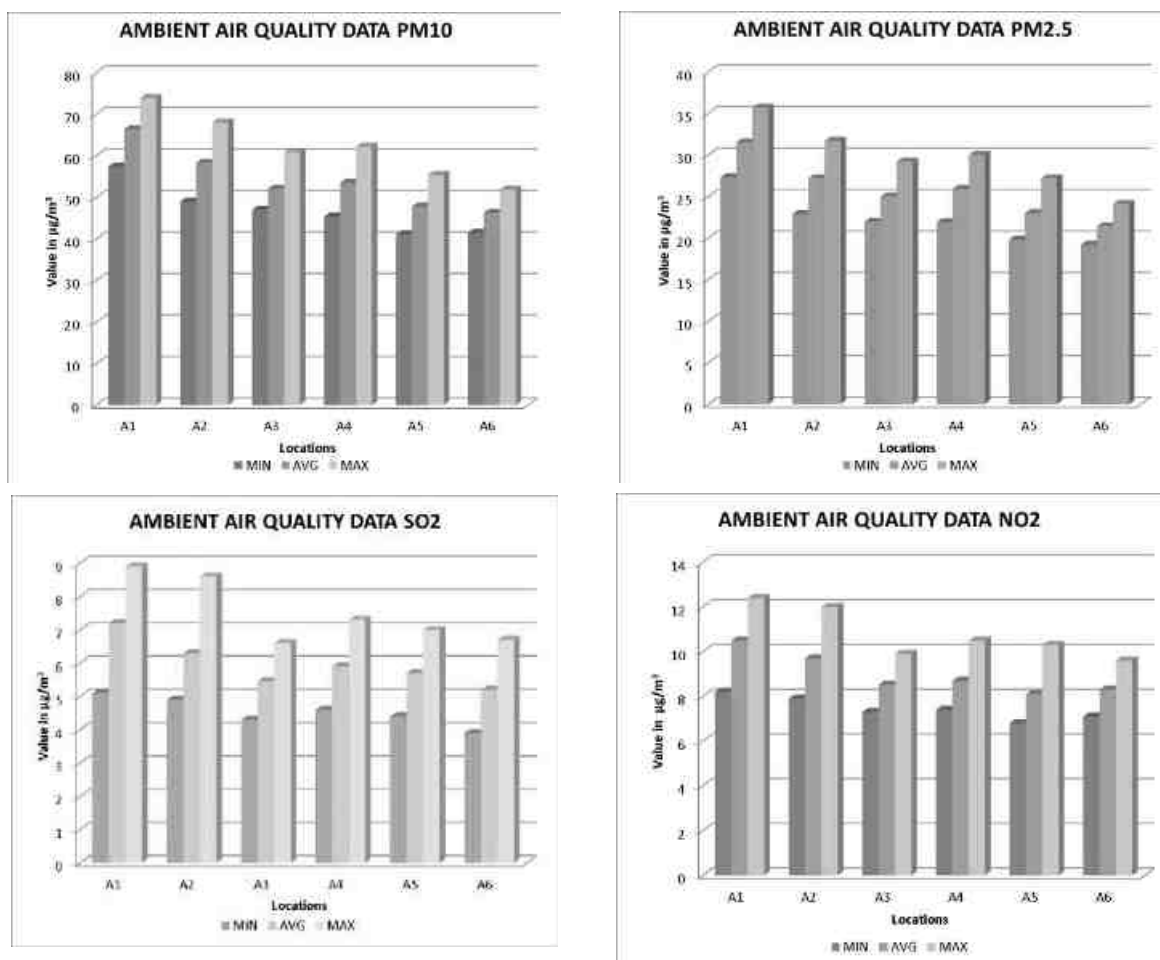
DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. R. GOPALAKRISHNAN AT SURVEY NO. 199/6A (PATTI LAND) OVER AN AREA OF 1.08.0HA IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU.

Table 3.12: Ambient Air Quality Data

PARAMETERS	Cat.*	All Value in $\mu\text{g}/\text{m}^3$											
		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	57.4	66.4	73.9	27.3	31.5	35.7	5.1	7.2	8.9	8.2	10.5	12.4
A2-Appaiyanayakkanpatti Village	R	49.0	58.3	68.0	22.9	27.2	31.7	4.9	6.3	8.6	7.9	9.7	12.0
A3-Akkaraipatti Village	R	47.0	52.1	60.9	22.0	25.0	29.2	4.3	5.5	6.6	7.3	8.5	9.9
A4-Kundampatti Village	R	45.4	53.5	62.2	21.9	25.9	30.0	4.6	5.9	7.3	7.4	8.7	10.5
A5-Ammiyarpatti Village	R	41.1	47.8	55.4	19.8	23	27.2	4.4	5.7	7	6.8	8.1	10.3
A6-Avudaiyarpuram Village	R	41.5	46.3	51.9	19.2	21.4	24.1	3.9	5.2	6.7	7.1	8.3	9.6
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 3.9: Ambient Air Quality Data



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. R. GOPALAKRISHNAN AT SURVEY NO. 199/6A (PATTA LAND) OVER AN AREA OF 1.08.0HA IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU.

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 - 3.10**. Ambient Air Quality data during the study period is given in **Annexure-9**. From the table it is seen that, in the ambient air, the PM₁₀ values were in the range of 41.1-73.9 µg/m³. PM_{2.5} values were in the range of 19.2 -35.7 µg/m³. SO₂ levels were ranging from 3.9–8.9 µg/m³. NO₂ levels were ranging from 6.8-12.4 µg/m³.

The existing Ambient Air Quality levels for PM₁₀, PM_{2.5}, 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)

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 6 locations. Details of the same has been provided below:

Table 3.13: Water Quality Monitoring

1.	Monitoring Period	Summer Season (March 2025 – May 2025)			
2.	Monitoring Location	The location map showing water sampling locations are given in Figure No.3.11 .			
	Code	Location	Sample Type	Distance	Direction
	W1	Near Mine Lease Area	Bore well	-	-
	W2	Appaiyanayakanpatti Village	Bore well	2.4km	W
	W3	Akkaraipatti Village	Bore well	1.4km	NW
	W4	Kundampatti Village	Bore well	1.4km	S
	W5	Ammiyarpatti Village	Bore well	1.2km	NE
	W6	Avudaiyarpuram Village	Bore well	2.6km	SW
3.	Methodology	Sampling - IS 3025 Part - I			
		Analysis – IS 3025 relevant parts / APHA 23rd Edition			



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. R. GOPALAKRISHNAN AT SURVEY NO. 199/6A (PATTA LAND) OVER AN AREA OF 1.08.0HA IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU.

Figure 3.10: Location of Water Sampling Stations



Table 3.14: Summary of Water Quality Data

Season	Summer Season (March 2025 – May 2025)	
Monitoring Locations	6 locations	
Parameters	Range of values	Limits*
pH at 25 °C	7.25 – 7.67	6.5-8.5
Total Dissolved Solids, mg/L	298.56 – 590.7	2000
Chloride as Cl ⁻ , mg/L	39.5 – 164	1000
Total Hardness (as CaCO ₃), mg/L	194 – 396	600
Total Alkalinity (as CaCO ₃), mg/L	279– 310	600
Sulphates as SO ₄ ²⁻ , mg/L	16.2 – 25.5	400
Iron as Fe, mg/L	0.03 – 0.09	0.3
Nitrate as NO ₃ , mg/L	1.44 – 5.32	45
Fluoride as F, mg/L	0.23 – 0.52	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 7.25 – 7.67, TDS values were in the range of 298.56 – 590.7mg/L. Chloride values were ranging from 39.5 – 164mg/L. Iron content was found to be in the range 0.03 – 0.09mg/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-10**.

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 6 locations during the monitoring period. Details of the same are provided below:

DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. R. GOPALAKRISHNAN AT SURVEY NO. 199/6A (PATTA LAND) OVER AN AREA OF 1.08.0HA IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU.

Table 3.15: Noise Level Monitoring

1.	Monitoring Period	Summer Season (March 2025 – May 2025)		
2.	Monitoring Location	The location map showing noise monitoring locations are given in Figure No.3.11.		
	Code	Location	Distance	Direction
	N1	Near Mine Lease Area	-	-
	N2	Appaiyanayakkanpatti Village	2.4km	W
	N3	Akkaraipatti Village	1.4km	NW
	N4	Kundampatti Village	1.4km	S
	N5	Ammiyarpatti Village	1.2km	NE
	N6	Avudaiyarpuram Village	2.6km	SW
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		

DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. R. GOPALAKRISHNAN AT SURVEY NO. 199/6A (PATTI LAND) OVER AN AREA OF 1.08.0HA IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU.

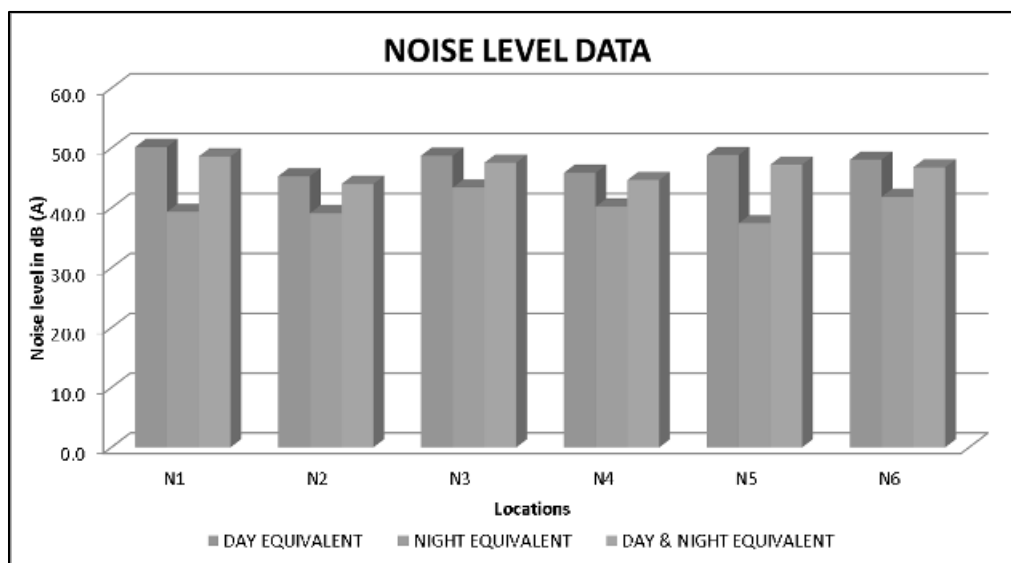
Figure 3.11: Location of Noise Sampling Stations



Table 3.16: Ambient Noise Level in dB (A)

Date and time of monitoring	N1	N2	N3	N4	N5	N6
Day Equivalent	50.2	48.7	45.3	45.9	48.9	48.1
Night Equivalent	39.3	43.4	39.1	40.2	37.4	41.9
Day & Night Equivalent	48.6	47.6	44.0	44.7	47.2	46.8
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 3.12: 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 - 3.12**. Day Equivalent Noise (Leq-d levels) were ranging from 45.3 dB(A) to 50.2 dB(A) and night Equivalent Noise (Leq-d) levels ranged between 37.4 dB(A) to 43.4 dB(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.

DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. R. GOPALAKRISHNAN AT SURVEY NO. 199/6A (PATTA LAND) OVER AN AREA OF 1.08.0HA IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU.

Table 3.17: Soil Quality Monitoring

1.	Monitoring Period	Summer Season (March 2025 – May 2025)		
2.	Monitoring Location	The location map showing soil sampling locations are given in Figure No.3.13.		
	Code	Location	Distance	Direction
	S1	Near Mine Lease Area	-	-
	S2	Kundampatti Village	1.4km	S
	S3	Ammiyarpatti Village	1.2km	NE
3.	Methodology	Composite soil samples using sampling augers and field capacity apparatus.		
4.	Monitoring Frequency	Once during monitoring period		

DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. R. GOPALAKRISHNAN AT SURVEY NO. 199/6A (PATTA LAND) OVER AN AREA OF 1.08.0HA IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU.

Figure 3.13: Location of Soil Sampling Stations



DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. R. GOPALAKRISHNAN AT SURVEY NO. 199/6A (PATTA LAND) OVER AN AREA OF 1.08.0HA IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU.

Table 3.18: Soil Quality Data

S.No	Parameters	Unit	S1	S2	S3
1	pH at 25°C	-	6.36	6.25	7.52
2	Electrical Conductivity	(µmhos/cm)	97.54	86.74	82.55
3	Dry matter content	%	96.54	93.78	98.62
4	Water Content	%	3.46	6.22	1.38
5	Organic Matter	%	2.39	2.55	3.12
6	Soil texture	-	CLAY LOAM	SANDY CLAY LOAM	LOAM
7	Grain Size Distribution i. Sand	%	42.59	52.34	36.75
8	ii. Silt	%	28.97	20.75	40.63
9	iii. Clay	%	28.44	26.91	22.62
10	Phosphorous	µg/g	2.95	3.54	2.34
11	Sodium	mg/kg	1040	770	976
12	Potassium	mg/kg	780	624	660
13	Total Nitrogen	mg/kg	732	595	475
14	Total Sulphur	%	BDL(D.L - 0.02)	BDL(D.L - 0.02)	BDL(D.L.0.02)

3.3.5.1 Results and Discussion:

Results of the soil samples show that the pH values were ranging between 6.25 to 7.52 and Electrical Conductivity values were ranging between 82.55 – 97.54 µmhos/cm. Soils are generally silt loam type. Organic matter values were ranging between 2.39 – 3.12%. Total Nitrogen values were ranging between 475 - 732 mg/kg. Phosphorus values were ranging between 2.34 – 3.54 µg/g. Potassium values were ranging between 624 -780 mg/kg. Sodium values were ranging between 770- 1040 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 acquired on Mar 2025 (**Figure No.3.14**) 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	Mar 2025	Landuse (LU) Map showing 10 Km around the ML area

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.

DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. R. GOPALAKRISHNAN AT SURVEY NO. 199/6A (PATTI LAND) OVER AN AREA OF 1.08.0HA IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU.

Figure 3.14 : Satellite Data of the Study Area

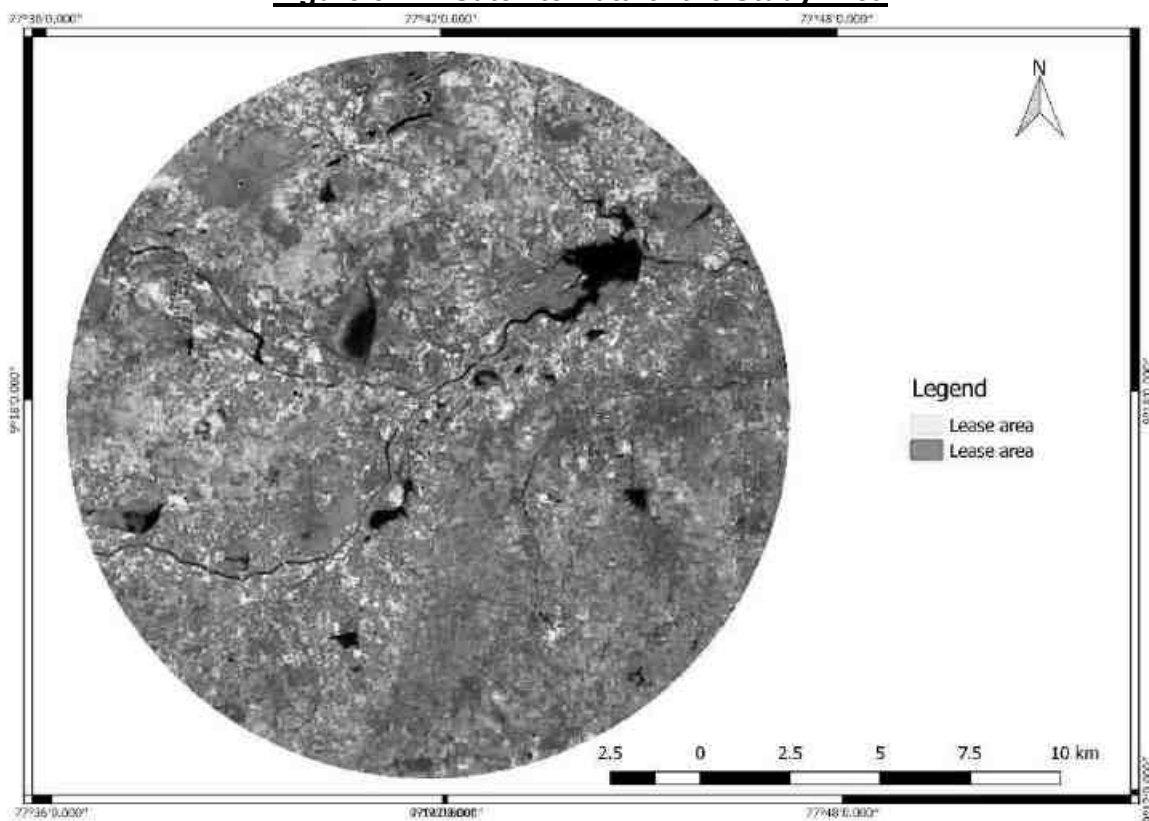


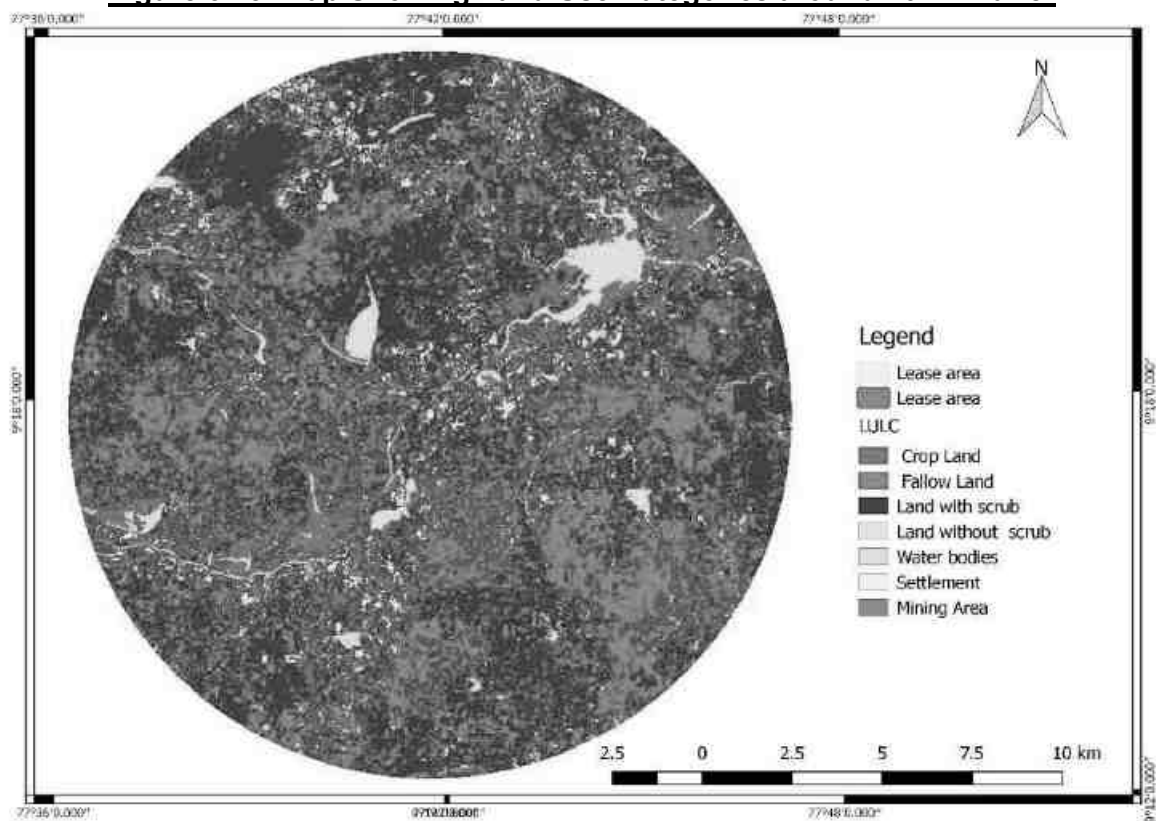
Table 3.20: Major Landuse Units of the Study Area

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. 3.15**) 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:

DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. R. GOPALAKRISHNAN AT SURVEY NO. 199/6A (PATTA LAND) OVER AN AREA OF 1.08.0HA IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU.

Figure 3.15: Map Showing Land Use Categories around 10km Buffer

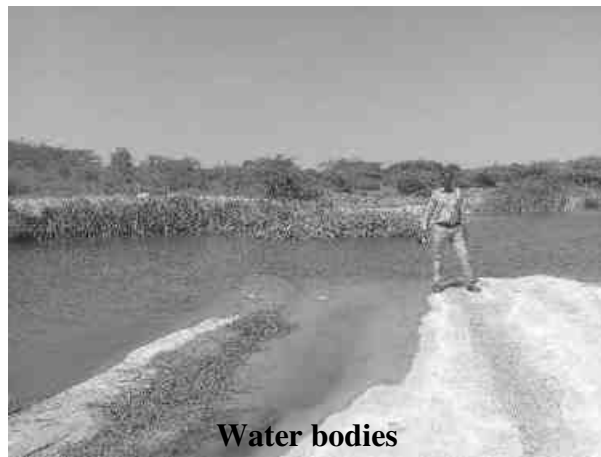


**DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF
THIRU. R. GOPALAKRISHNAN AT SURVEY NO. 199/6A (PATTA LAND) OVER AN AREA OF
1.08.0HA IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR
DISTRICT, TAMIL NADU.**

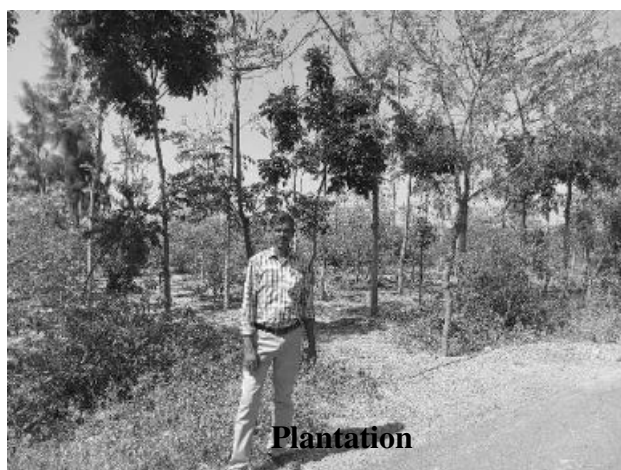
Photograph showing Land use In Buffer Zone



Land without Scrub



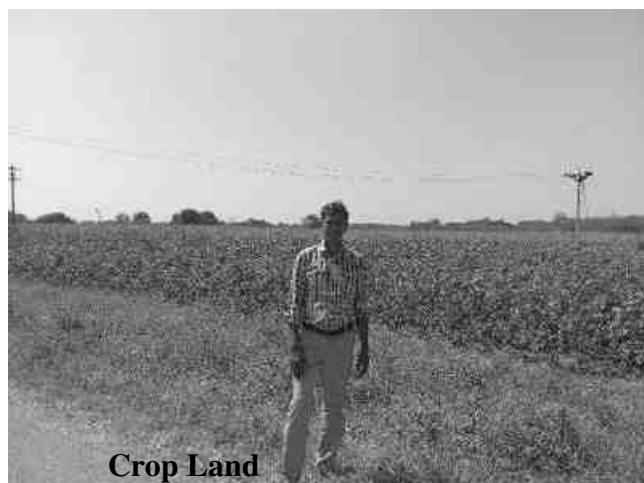
Water bodies



Plantation



Land with Scrub



Crop Land



Fireworks

DRAFT EIA/EMP REPORT FOR ROUGH STONE AND GRAVEL QUARRY OF THIRU. R. GOPALAKRISHNAN AT SURVEY NO. 199/6A (PATTA LAND) OVER AN AREA OF 1.08.0HA IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU.

Table 3.21: Area Estimation of Landuse Categories in Buffer Zone

S.No	Landuse Feature	Area (Sq.Km)	Percentage
1	Agriculture/ Plantation	86.40	27.07
2	Fallow Land	117.00	36.66
3	Land With Scrub	88.41	27.70
4	Land Without Scrub	7.25	2.27
5	Water bodies	11.69	3.66
6	Settlement	4.70	1.47
7	Mining Area/ Industries	3.74	1.17
	Total	319.19	100

From the above table it is seen that 27.07 % of the study area is agriculture land and 36.66 % are fallow land. Land with scrub constitutes 27.70 %, lands without scrub constitute 2.27% and waterbodies constitute 3.66% and remaining constitute 2.64 %

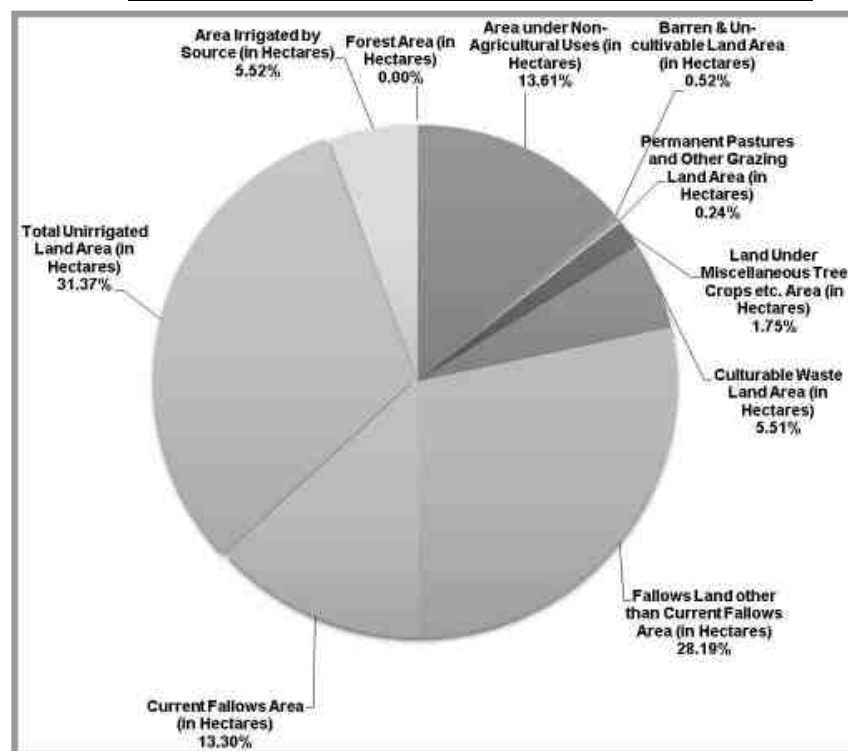
3.4.2 LAND USED BASED ON REVENUE RECORDS:

The lease area falls in Appanayakkanpatti Villae, Vembakottai Taluk, Virudhunagar District, Tamil Nadu state 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-11**.

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	1582.78	0	206.49	14.57	4.18	0	3.88	0	633.33	416.45	303.88
2 - 5 KM	6360.3	0	1179.92	0.74	6	20	938.2	2376.68	87.91	1357.35	393.5
5-10 KM	29019.95	0	3643.29	176.69	77.89	627.2	1094.08	8042.57	4193.62	9820.41	1344.2
Total	36963.03	0	5029.7	192	88.07	647.2	2036.16	10419.25	4914.86	11594.21	2041.58

Figure 3.16: 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. Accordingly, the ecological survey for the proposed quarry area including core and buffer zone were carried out to identify various species occurring in the area.

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 10 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 : Quadrats of 10 × 10m were laid down randomly within core 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 at a minimum distance of a kilometer apart to maximize the sampling efforts and minimize the species homogeneity, such as small stream area, trees in agricultural bunds, 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 i th species in the dataset of interest.

Evenness index was calculated as: $E = H'/H_{max}$,

Whereas $H_{max} = \log_2$ (number of species in the plot)

A.CORE ZONE:

The lease area is a non-forest, private land. Part of lease area is partly mined out area and remaining area is barren land with thorny bushes, shrubs & plantation carried out by the proponent. The detailed list of plants found in the core zone are given in **Table no – 3.23**.

DRAFT EIA/EMP REPORT FOR ROUGH STONE & GRAVEL QUARRY OF THIRU. R. GOPALAKRISHNAN, AT SURVEY NO. 199/6A OVER AN AREA OF 1.08.0 HECTARES IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMILNADU

Table 3.23: List of Floristic Species in the Core Zone

Sl.No	Species Name	Common Name	Family
Trees			
1	<i>Leucaena leucocephala</i>	<i>Fabaceae</i>	<i>Subabul</i>
2	<i>Prosopis juliflora</i>	<i>Fabaceae</i>	<i>Cimaikkaruvel</i>
3	<i>Pongamia pinnata</i>	<i>Fabaceae</i>	<i>Pungai</i>
4	<i>Morinda pubescens</i>	<i>Rubiaceae</i>	<i>Manjanathi</i>
Shrubs			
1	<i>Lantana camara</i>	<i>Verbenaceae</i>	<i>Uni</i>
	<i>Ricinus communis</i>	<i>Euphorbiaceae</i>	<i>Amanakku</i>
2	<i>Cassia auriculata</i>	<i>Fabaceae</i>	<i>Aavarampoo</i>
	<i>Calotropis gigantea</i>	<i>Apocynaceae</i>	<i>Earukku</i>
Herbs			
1	<i>Anisomeles malabarica</i>	<i>Lamiaceae</i>	<i>Peyimarutti</i>
2	<i>Acalypha indica</i>	<i>Amaranthaceae</i>	<i>Kupaimeni keeri</i>
3	<i>Sida acuta</i>	<i>Malvaceae</i>	<i>Palambasi</i>
4	<i>Acanthospermum hispidum</i>	<i>Asteraceae</i>	<i>Gokul kanta</i>
5	<i>Tridax procumbens</i>	<i>Asteraceae</i>	<i>Vettukai poondu</i>
Grasses			
1	<i>Cyperus rotundus</i>	<i>Cyperaceae</i>	<i>Korai pullu</i>
2	<i>Cynodon dactylon</i>	<i>Poaceae</i>	<i>Arugampillu</i>

View of Lease area



C.BUFFER ZONE:

The Dominated species are *Prosopis juliflora*, *Azadirachta indica*, *Borassus flabellifer*, *Acacia nilotica*, *Albizia lebeck*, *Acacia leucophloea*, *Acacia auriculiformis*, etc. The detailed list of plants found in the Bufferzone is given in **Table no – 3.26**.

Table 3.24: List of Floristic Species in the Buffer Zone

Sl.No	Species Name	Family	Local Name
Trees			
1	<i>Aegle marmelos</i>	Rutaceae	Vilvamaran
2	<i>Syzygium cumuni</i>	Myrtaceae	Naval
3	<i>Delonix regia</i>	Fabaceae	Gulmohar
4	<i>Madhuca longifolia</i>	Sapotaceae	Iluppai
5	<i>Azadirachta indica</i>	Meliaceae	Vembu
6	<i>Bobax ceiba</i>	Malvaceae	Ilavu
7	<i>Pithecellobium dulce</i>	Fabaceae	Kodukkapuli
8	<i>Leucaena leucocephala</i>	Fabaceae	Subabul
9	<i>Tectona grandis</i>	Verbenaceae	Tekku
10	<i>Ficus religiosa</i>	Moraceae	Poarasamaram
11	<i>Pongamia pinnata</i>	Fabaceae	Pungai
12	<i>Gmelina arborea</i>	Lamiaceae	Kumalaamaram
13	<i>Musa paradisiaca</i>	Musaceae	Valzhilai
14	<i>Cassia fistula</i>	Fabaceae	Konrai
15	<i>Peltophorum pterocarpum</i>	Fabaceae	Kilukiluppai
16	<i>Citrus limon</i>	Rutaceae	Lemon
17	<i>Tamarindus indica</i>	Fabaceae	Puli
18	<i>Borassus flabelliformis</i>	Arecaceae	Panna-maram
19	<i>Polyalthia longifolia</i>	Annonaceae	Nietilingam
20	<i>Prosopis juliflora</i>	Fabaceae	Seemai karuvel
21	<i>Mimusops elengi</i>	Sapotaceae	Magizhamboo
22	<i>Acacia nilotica</i>	Fabaceae	Karuvelan
23	<i>Terminalia arjuna</i>	Combretaceae	Marudha Maram
24	<i>Albizia lebeck</i>	Fabaceae	Vagai
25	<i>Thespesia populnea</i>	Malvaceae	Puvarasu
26	<i>Carica papaya</i>	Caricaceae	Pappali
27	<i>Morinda pubescens</i>	Rubiaceae	Manjanathi
28	<i>Morinda tinctoria</i>	Rubiaceae	Nuna
29	<i>Casuarina equisetifolia</i>	Casuarinaceae	Savukku
30	<i>Acacia auriculiformis</i>	Fabaceae	Pencile tree
31	<i>Mangifera indica</i>	Anacardiaceae	Maamaram
32	<i>Cocus nucifera</i>	Arecaceae	Tennai
33	<i>Moringa oleifera</i>	Moringaceae	Murungai
34	<i>Ficus benghalensis</i>	Moraceae	Aalamaram
35	<i>Bauhinia purpurea</i>	Caesalpiniaceae	Mantharai
36	<i>Psidium guava</i>	Myrtaceae	Koyya

DRAFT EIA/EMP REPORT FOR ROUGH STONE & GRAVEL QUARRY OF THIRU. R. GOPALAKRISHNAN, AT SURVEY NO. 199/6A OVER AN AREA OF 1.08.0 HECTARES IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMILNADU

Sl.No	Species Name	Family	Local Name
37	<i>Samanea saman</i>	Fabaceae	Amaivagai
38	<i>Acacia leucophloea</i>	Fabaceae	Valvelam
Shrubs			
1	<i>Lantana camara</i>	Verbenaceae	Uni
2	<i>Ziziphus jujuba</i>	Rhamnaceae	Elanthai
3	<i>Abutilon indicum</i>	Malvaceae	Thuthi
4	<i>Tecoma stans</i>	Bignoniaceae	Yellow trumpetbush
5	<i>Jatropha glandulifera</i>	Euphorbiaceae	Vellaikattukottai
6	<i>Ricinus communis</i>	Euphorbiaceae	Amanakku
7	<i>Justicia adhatoda</i>	Acanthaceae	Adathoda
8	<i>Ixora casei</i>	Rubiaceae	Idlipoo
9	<i>Nerium indicum</i>	Apocynaceae	Arali
10	<i>Lawsonia inermis</i>	Lythraceae	Maruthani
11	<i>Aloe vera</i>	Asphodelaceae	Chotthu kathalai
12	<i>Vitex negundo</i>	Verbinaceae	Vanili
13	<i>Hibiscus rosa-sinensis</i>	Malvaceae	Semparuthi
14	<i>Ipomoea carnea</i>	Convolvulaceae	Pink morning glory
15	<i>Sida cordifolia</i>	Malvaceae	Sida plant
16	<i>Cassia auriculata</i>	Fabaceae	Aavarampoo
17	<i>Calotropis gigantea</i>	Apocynaceae	Earukku
Herbs			
1	<i>Leucas aspera</i>	Lamiaceae	Thumbai
2	<i>Parthenium hysterophorus</i>	Asteraceae	Parthenium
3	<i>Acalypha indica</i>	Amaranthaceae	Kupaimeni keeri
4	<i>Argemone mexicana</i>	Papaveraceae	Mexican poppy
5	<i>Anisomeles indica</i>	Lamiaceae	marutti
6	<i>Phyllanthus niruri</i>	Phyllanthaceae	Keelzhaneeli
7	<i>Tridax procumbens</i>	Asteraceae	Vettukai poondu
8	<i>Sida acuta</i>	Malvaceae	Palambasi
9	<i>Anisomeles malabarica</i>	Lamiaceae	Peyimarutti
10	<i>Cleome viscosa</i>	Cleomaceae	Naai velai
11	<i>Solanum xanthocarpum</i>	Solanaceae	Kandangkattari
12	<i>Sida rhombifolia</i>	Malvaceae	Kurundotti
13	<i>Acanthospermum hispidum</i>	Asteraceae	Gokul kanta
14	<i>Achyranthes aspera</i>	Amaranthaceae	Nayuruvi
Climber			
1	<i>Asparagus racemosus</i>	Asparagaceae	Tannir-vittan
2	<i>Cissus quadrangularis</i>	Vitaceae	Pirandai
3	<i>Abrus precatorius</i>	Fabaceae	Kundumani
Grasses			
1	<i>Cyperus rotundus</i>	Cyperaceae	korai pullu
2	<i>Chloris barbata</i>	Poaceae	Kodai pullu
3	<i>Cynodon dactylon</i>	Poaceae	Arugampillu

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 are commonly found.No wild mammalian species was directly sighted during the field survey. There is no Schedule I animals in the buffer zone area. The list of fauna within the study area is given in **Table No – 3.27**.

Table 3.25: List of Fauna in the Buffer Zone

S.No	Common Name	Scientific name	IWPA, Schedule
Mammals			
1	Indian Palm squirrel	Funambus palmarum	IV
2	Wild Boar	Sus scrofa cristatus	III
3	Bonnet macaque	Macaca radiata	IV
4	Indian Grey Mongoose	Herpestes edwardsii	II
5	Common Indian Hare	Lepus ruficaudatus	IV
Birds			
1	Spotted Dove	Streptopelia chinensis	IV
2	Common Kingfisher	Alcedo atthis	IV
3	Common Myna	Acridotheres tristis	IV
4	Rose-ringed Parakeet	Psittacula krameri	IV
5	House Sparrow	Passer domesticus	IV
6	Black Drongo	Dicrurus macrocercus	IV
7	Common Crow	Corvus splendens	V
8	Red-vented Bulbul	Pycnonotus cafer	IV
9	Indian Cuckoo	Cuculus micropterus	IV
10	Little Cormorant	Phalacrocorax niger	IV
11	Purple-rumped Sunbird	Nectarinia zeylonica	IV
12	Little Egret	Egretta garzetta	IV
13	Common Quail	Coturnix coturnix	IV
14	Cattle Egret	Bubulcus ibis	IV
15	Common Babbler	Turdoides caudatus	IV
Reptiles			
1	Garden Lizard	Calotes versicolor	IV
2	Rat Snake	Ptyas mucosa	II
3	Common Indian krait	Bungarus caeruleus	II
Amphibians			
1	Common Indian toad	Bufo melanostictus	IV

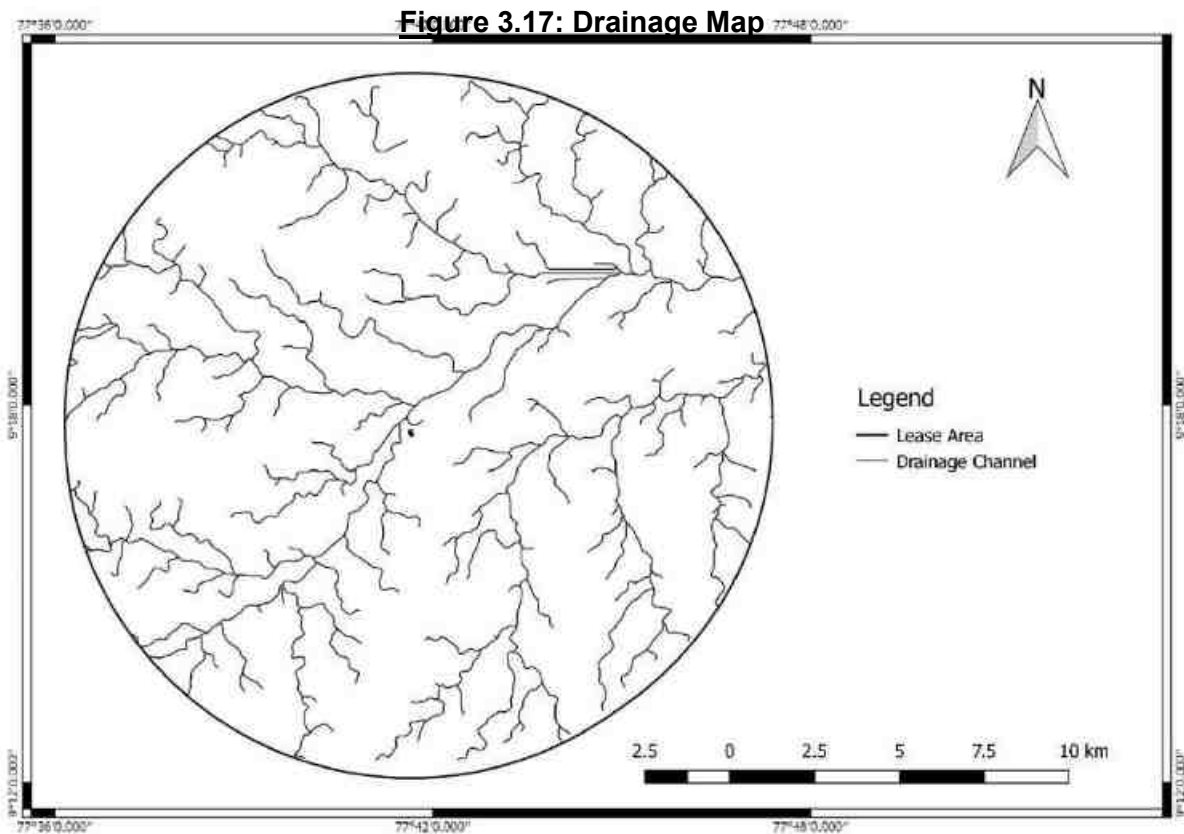
3.6 HYDROGEOLOGICAL STUDY:

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 located in Appanayakkanpatti Village, Vembakottai Taluk, Virudhunagar District 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. Part of the lease area has already been mined out. The topography of the lease area ranges around 101m RL.

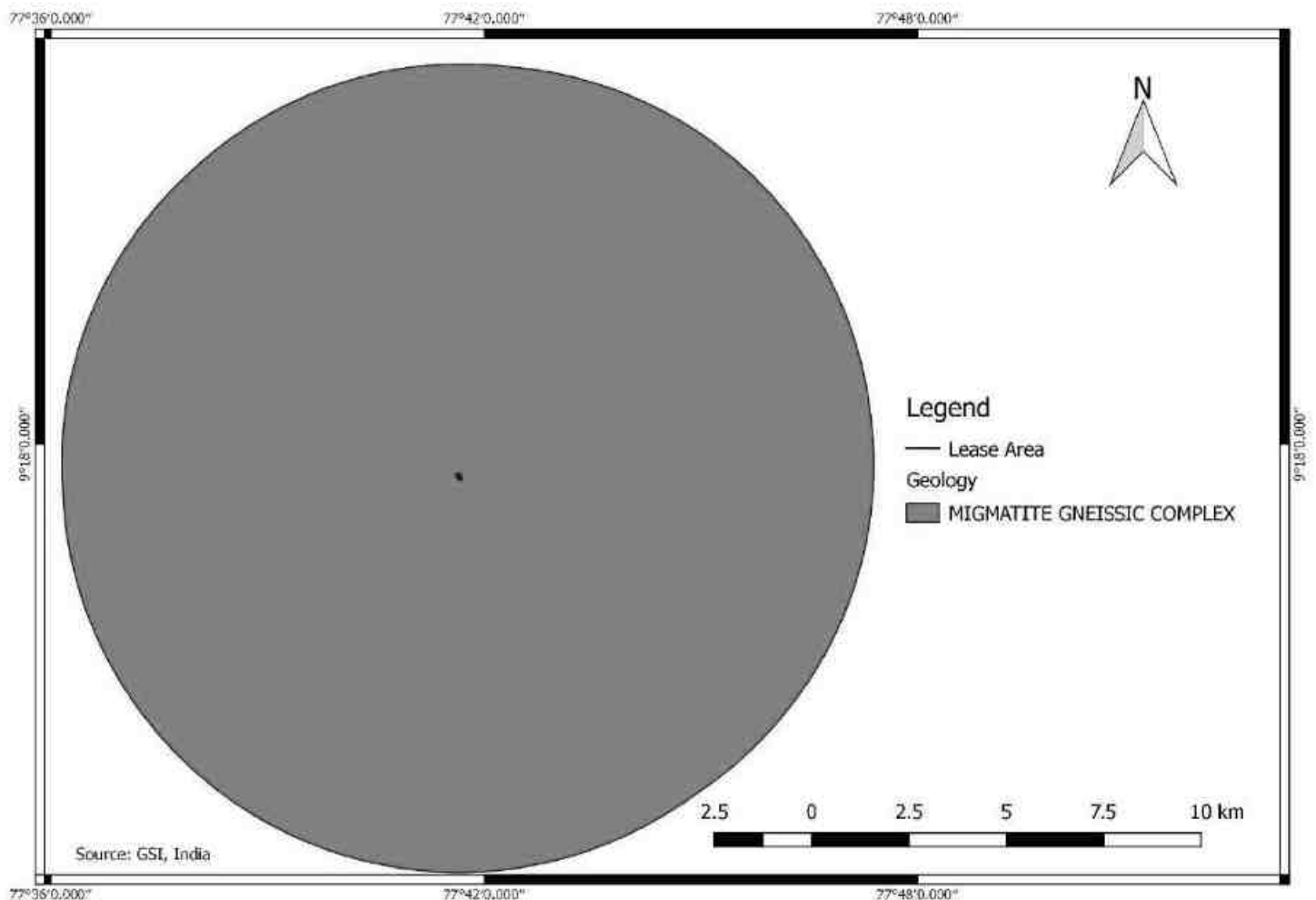
Drainage: There is no major water body in the core zone. There is a drainage channel in southern side of the lease area at a distance of 180m Besides, Nikshopa Nadi – 240m (NE) and Vaippar River at a distance of 240m (NE).



3.6.2 GEOLOGY AND GEOMORPHOLOGY

Geology: The type of rock formation in the core and buffered zone is composed of Migmatite Gneissic complex. The lease area falls under Migmatite Gneissic complex category.

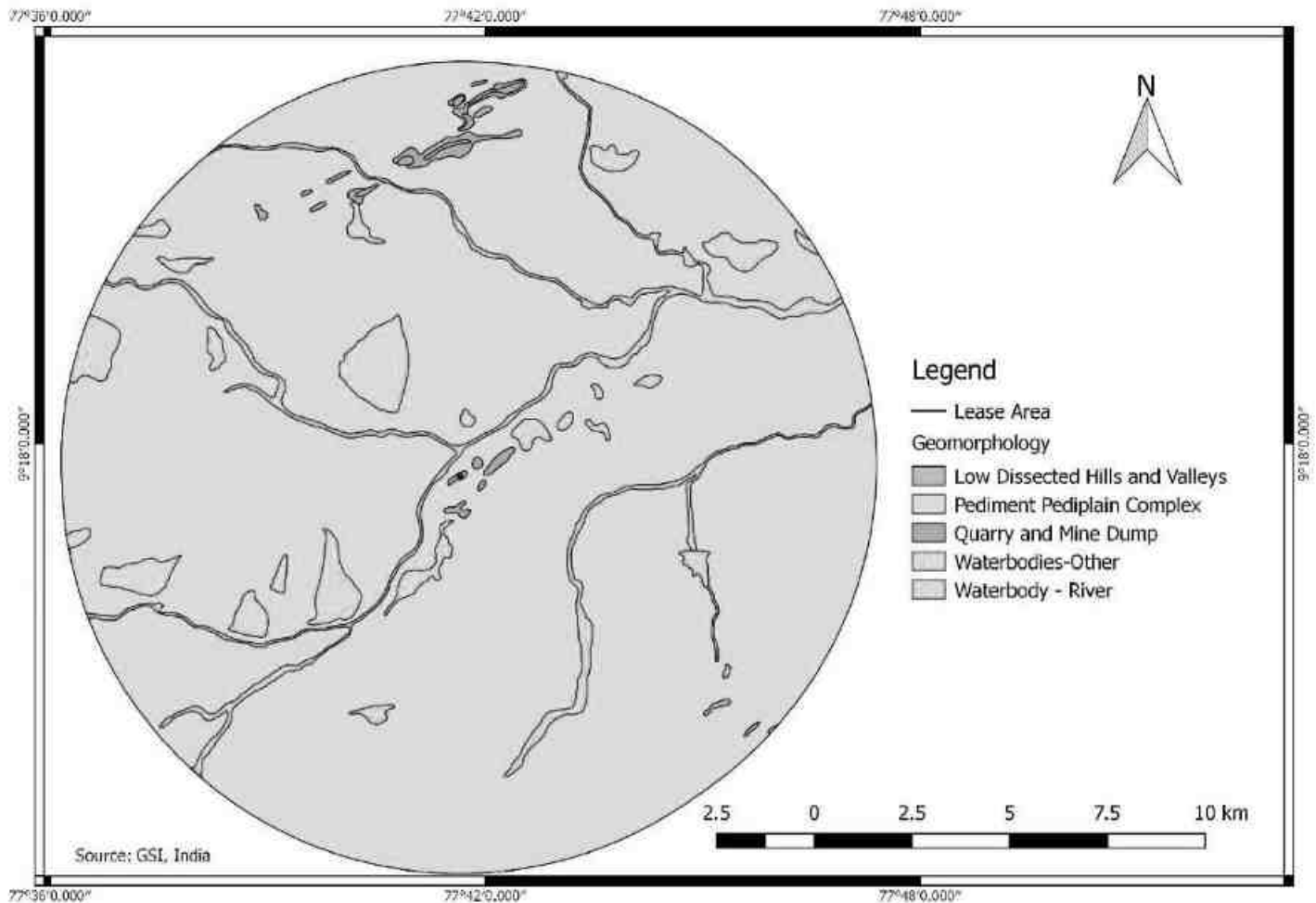
Figure 3.18: Geology Map



DRAFT EIA/EMP REPORT FOR ROUGH STONE & GRAVEL QUARRY OF THIRU. R. GOPALAKRISHNAN, AT SURVEY NO. 199/6A OVER AN AREA OF 1.08.0 HECTARES IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMILNADU

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 category that the lease area also falls under.

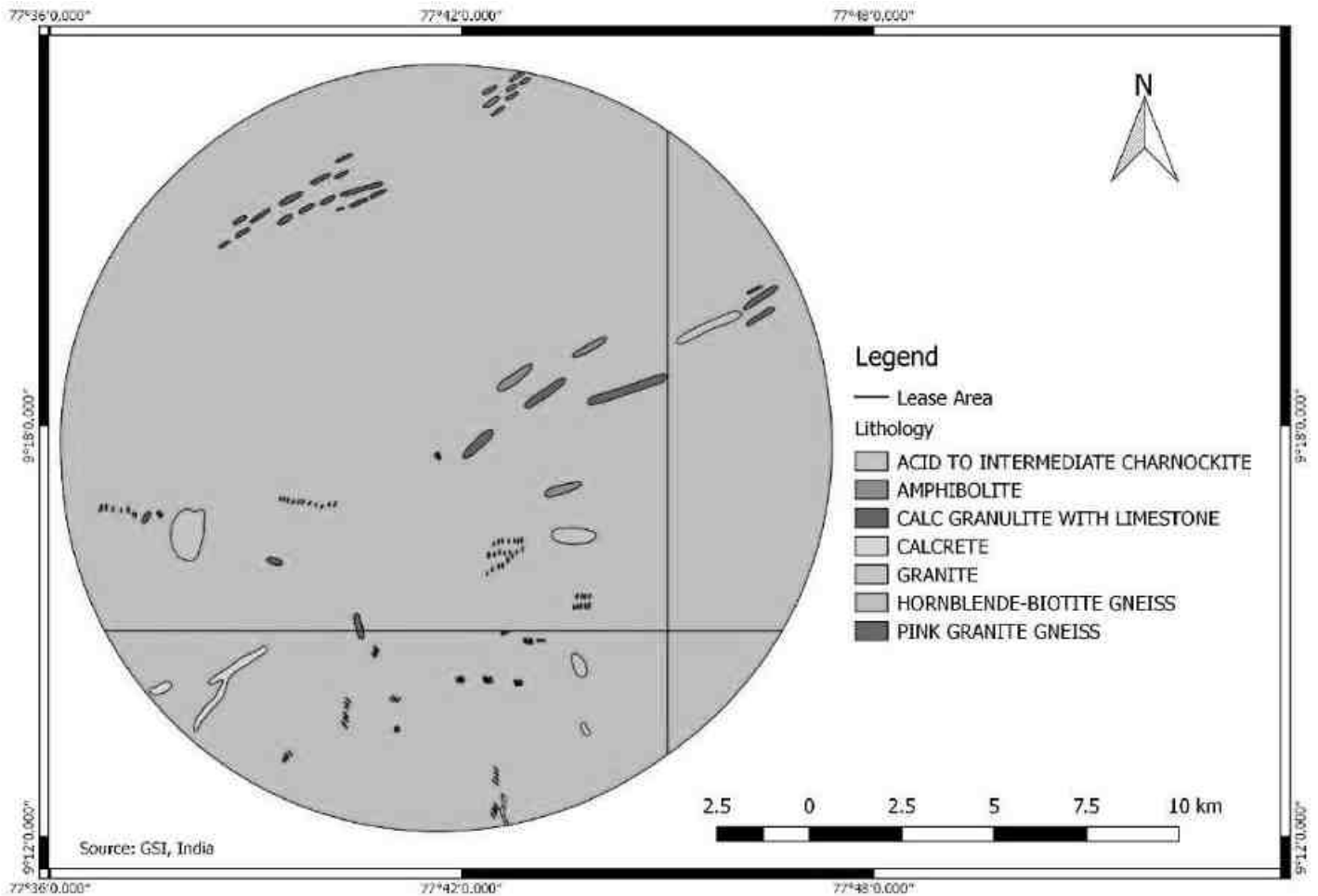
Figure 3.19: Geomorphology Map



**DRAFT EIA/EMP REPORT FOR ROUGH STONE & GRAVEL QUARRY OF
THIRU. R. GOPALAKRISHNAN, AT SURVEY NO. 199/6A OVER AN AREA OF 1.08.0 HECTARES IN
APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT,
TAMILNADU**

Lithology: The study area is mainly dominated by Hornblende-Biotite Gneiss. The lithology map has been provided below.

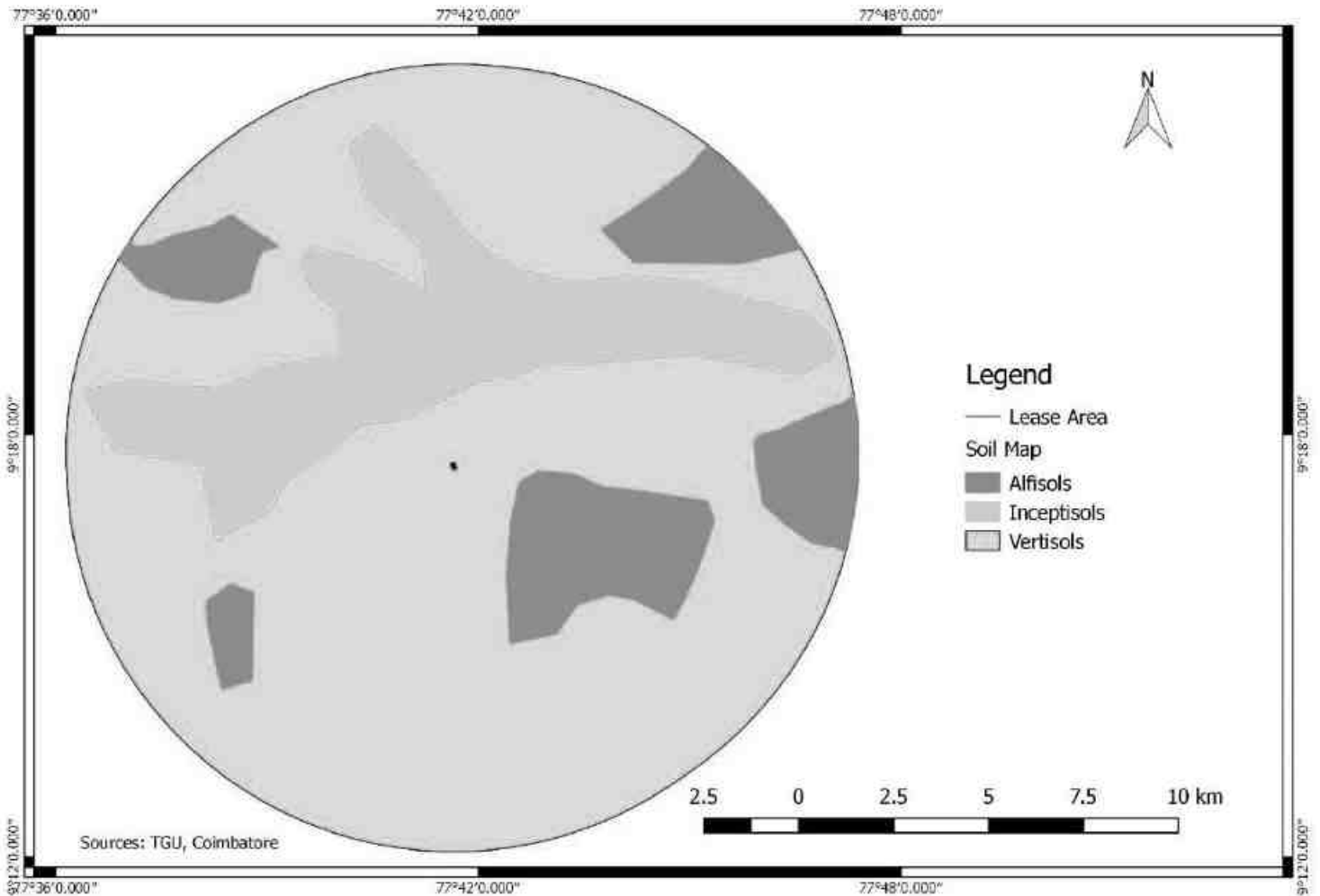
Figure 3.20: Lithology Map



DRAFT EIA/EMP REPORT FOR ROUGH STONE & GRAVEL QUARRY OF THIRU. R. GOPALAKRISHNAN, AT SURVEY NO. 199/6A OVER AN AREA OF 1.08.0 HECTARES IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMILNADU

Soil: The study area is characterized by Inceptisol, Vertisols and Alfisols. The project area is dominated with Inceptisol type of soil.

Figure 3.21: Soil Map



3.6.3 WATER TABLE OF THE AREA:

Based on the depth to water level data obtained from the India-WRIS, Department of Water Resources, Ministry of Jal Shakti for Aruppukottai Block, Viruthunagar District, Tamil Nadu the following is observed.

Table 3.26: General Trend of Depth to Water Level for Aruppukottai Block

Year	Depth to Water Level (m bgl)		Wells Monitored	
	Pre-Monsoon	Post-Monsoon	Pre-Monsoon	Post-Monsoon
2015	2.67 - 9.65	1.74 - 7.94	3	3
2016	3.5 - 7.66	4.07 - 9.9	4	3
2017	-	2.27- 4.88	-	2
2018	4.03-10.38	6.35-8.5	3	2

The premonsoon and post monsoon water levels are depicted in **Figure No.3.25, and 3.26** and they indicate that the depth to water level in project area ranges between 5.0 to 10.0 m bgl during the pre-monsoon season(April) and 0.0 to 0.5 m bgl during the post monsoon season (November).

Figure 3.22: Pre-Monsoon Water Level

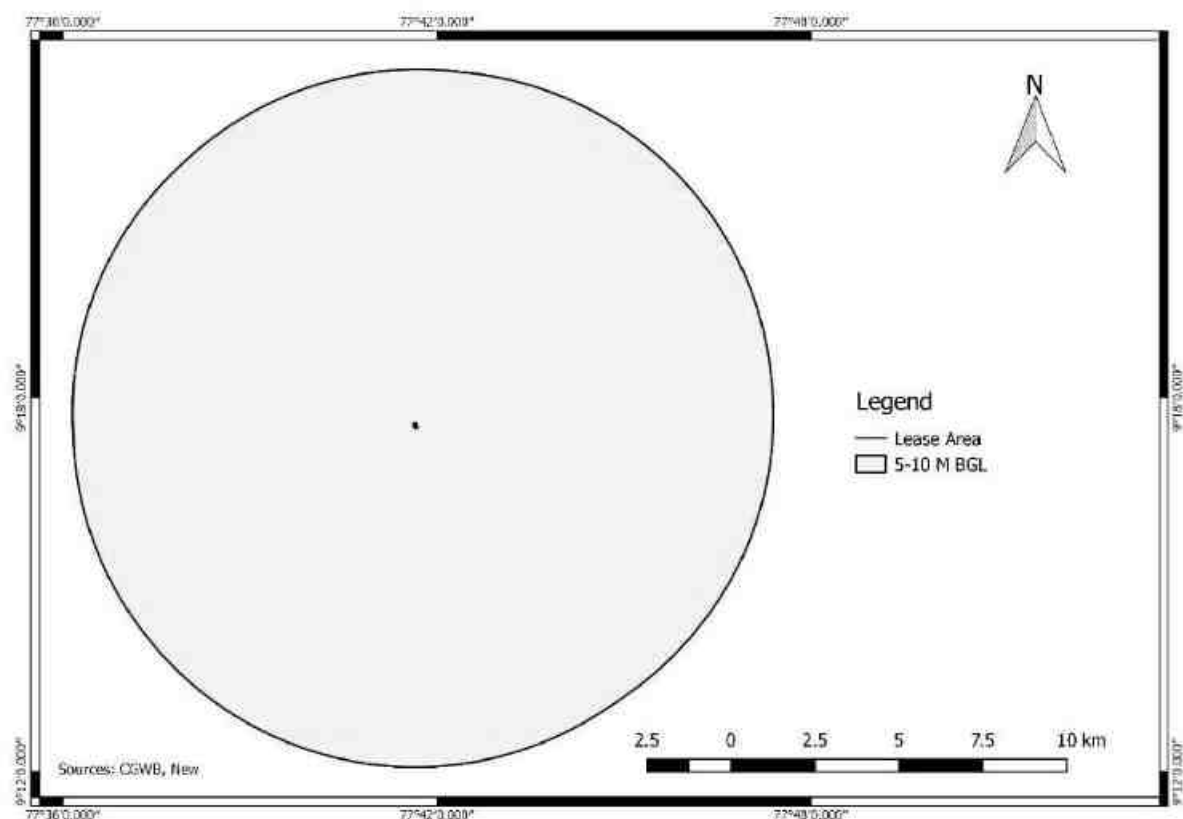
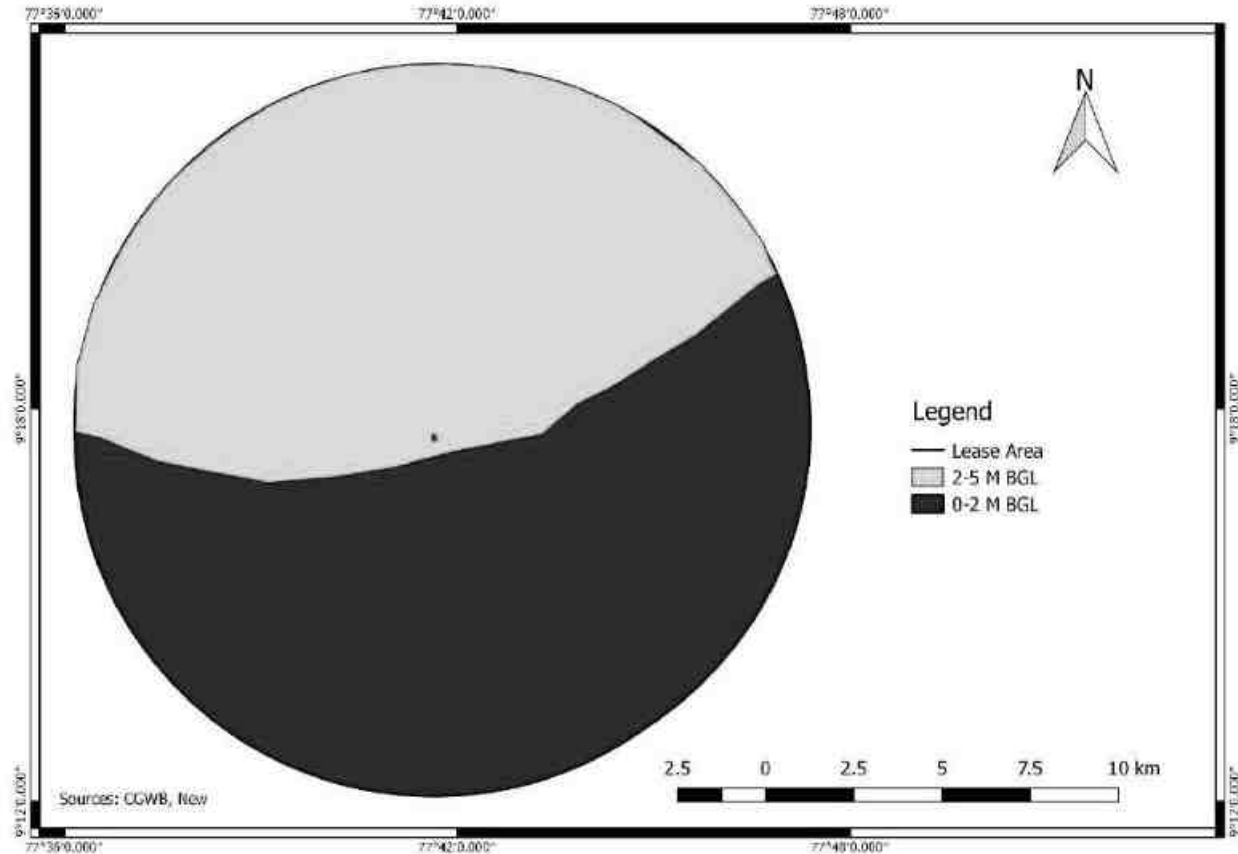


Figure 3.23: Post Monsoon Water Level



3.6.4 HYDROLOGICAL SCENARIO OF THE STUDY AREA:

A Hydro Geological study for the Roughstone and Gravel Quarry was carried out by Dr.S. Selvam., M.Sc., Ph.D (Asst. Professor, Geotechnical-Principal Investigator, Dept. of Geology), V.O.Chidambaram College in the nearby area . The primary objective of the study is to carry out hydrogeological evaluation and geophysical investigations to determine the ground water potential, assessment of ground water availability, impact of the proposed quarring activity on the ground water and surface water regime. Towards this, the following studies were conducted:

- ❖ Vertical Electrical Sounding (VES) – 3 locations
- ❖ Well Inventory Data
- ❖ Surface Water bodies

3.6.4.1 Electrical Resistivity Method:

Electrical resistivity is used to identify fractures in the rock formation. The Schlumberger array has been used throughout this study.

3.6.4.2 Pseudosections

The 3D pseudo-section is the inversion of apparent resistivity following horizontal and vertical lines. It reflects the resistivity distribution versus electrode spacing values (AB/2) and shows the electrical characteristic of layers following horizontal and vertical lines. Along pseudo sections, the resistivity varies in depth and following the horizontal line, and then we note the vertical and horizontal changes of layers. These changes characterize a diversity of geological structures in depth and along the horizontal line and therefore attest the diversity of observed curve types. Generally, in the 3D model pseudo-sections of the study area, minimum resistivity values appeared in the upper parts because of the hard soil or of the presence of basement in the subsurface and followed by very hard or fissure rocks. 3D model pseudo-sections clearly depict that resistivity value normally increased and there is no any other water bearing formation. The value of the resistivity reveals fractured / fissured zone between 9 to 14 mts below ground level is not contiguous to conduct the ground water seepage.

3.6.4.3 Well Inventory

To know the water table level well/borewell study in the nearby 5 wells and 2 borewells were carried out.

Table 3.27: Well Inventory Data

ID No.	Well/Borewell	Coordinates		Depth of Well / Borewell (M)	Water Level (m)	
		Latitude	Longitude		Pre Monsoon	Post Monsoon
1	Well	9°17'28.00"N	77°41'46.00"E	4.0	3.0	1.0
2	Well	9°17'29.00"N	77°41'46.00"E	4.5	3.0	1.2
3	Well	9°17'32.00"N	77°41'52.00"E	5.0	-	1.5
4	Well	9°17'32.00"N	77°41'53.00"E	6.0	-	1.5
5	Well	9°17'29.00"N	77°41'45.00"E	20.0	8.5	1.2
6	Bore well	9°17'12.00"N	77°41'46.00"E	100	60	-
7	Bore well	9°17'41.00"N	77°42'05.00"E	100	50	-

**DRAFT EIA/EMP REPORT FOR ROUGH STONE & GRAVEL QUARRY OF
THIRU. R. GOPALAKRISHNAN, AT SURVEY NO. 199/6A OVER AN AREA OF 1.08.0 HECTARES IN
APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT,
TAMILNADU**

LOCATION OF STUDY WELLS



From the above table, it can be seen that shallow water levels are observed in the wells. The range of water levels observed in the wells ranges from 3m – 8.5 m bgl during the pre monsoons season and 1m – 1.5 m bgl during the post monsoon season.

In the study area, the shallow aquifer is developed through dug wells and deeper aquifer through tube wells. The groundwater has revealed that potential fractures are encountered at deeper levels. Rain water collected in the tanks in the region acts as a good source of water during post monsoon. The water in the wells are available mainly after post monsoon and it some times become dry during summer. Bore wells > 300 ft reflects that the yield is only better at deeper water levels

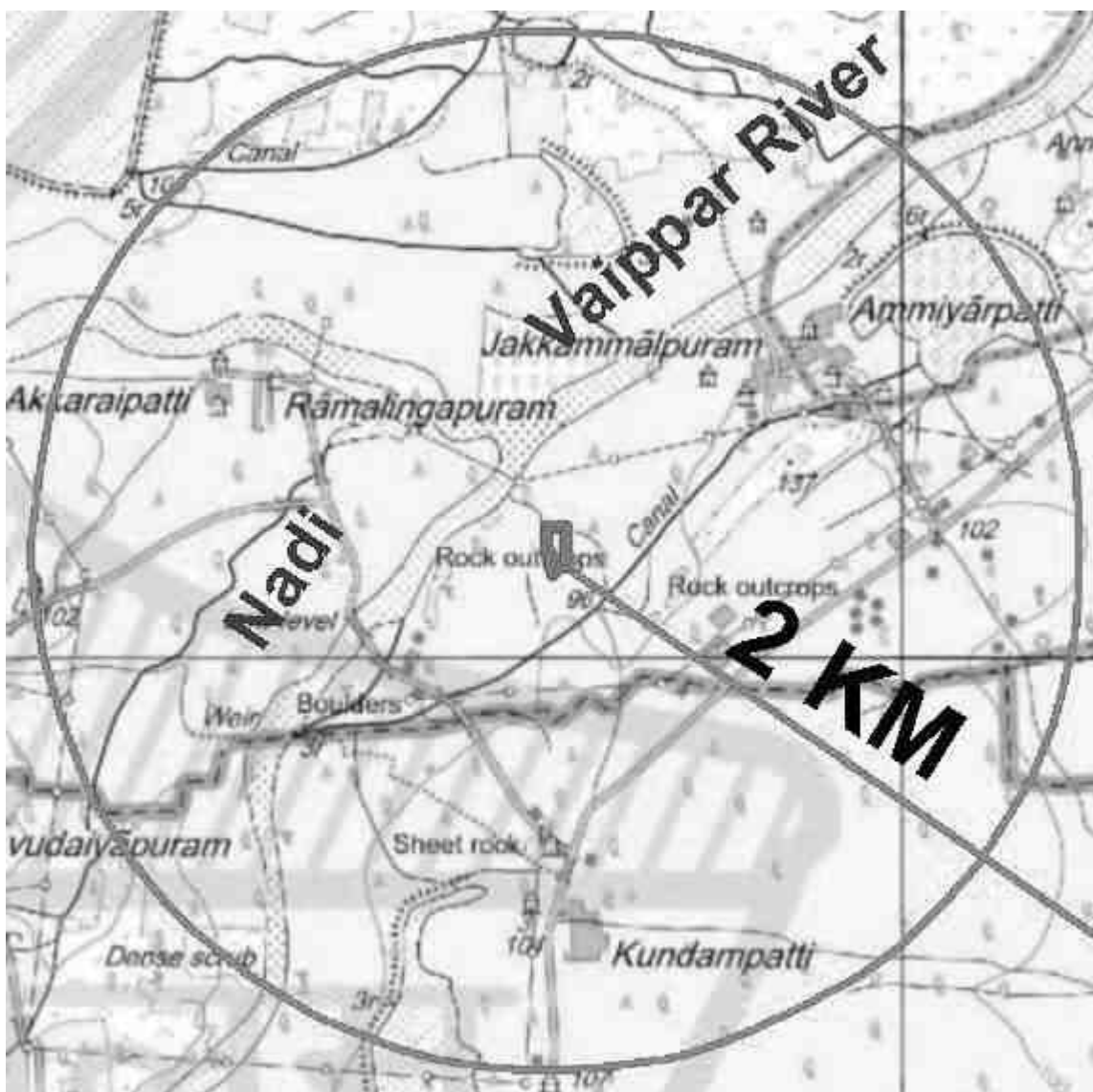
The occurrence of groundwater mainly in the porous soil are weathered layers, very negligible amount of groundwater percolated through the poorly fractured layer, after that there is no existence of groundwater. Besides, the mining area consists of hard compact rock, no major water seepage within the mine is expected. From the nearby working mines no such seepage is also observed.

3.6.4.4 Surface Water Bodies:

Drainage of the area is controlled by Vaippar river. Non- perennial Vaippar river and its tributary Nadhi is located 240 meter (North) and 240 m (west) respectively from the lease area. Ammiyarpatti tank is located 1.1km NE of the lease area..

Based on geophysical study there is no observation of fractured zone/ fissure vein up to 60m of the study area. During the rainy time only surface water flow in vaippar river is observed and in the remaining period it is almost dry. The Ammiyarpatti village tanks are also dry due to scanty rainfalls. Location of the surface water bodies within 2km from the lease area is show in Figure no 3.31.

Figure 3.24: Surface Water Bodies in 2Km radius



View of River / Nadhi



Based on geophysical study it can be concluded that there is no influence in vaippar river non-perennial tributary in the study area since most of the time it is dry and the intervening mining and the river bed is infested with hard rocky formation.

3.6.4.5 Conclusions:

- The surveyed land and nearby area within 300 metres radius, the sub-surface formations reveal about a metre-thick layer of soil followed by weathered rock available upto 4.0 metres from ground level followed by hard and massive formations of Charnockite rock.
- The geophysical study shows that, there is no moisture below 5.0 metres from ground level and the area is not feasible for ground water extraction.
- The value of the resistivity reveals fractured / fissured zone between 5 to 55 mts below ground level is not contiguous to conduct the ground water seepage.
- There is no water seepage noticed in to the already quarried pits situated 500mts north, north west, north east of the study area.
- Most of the open wells in this area is not in use for agricultural activity and mostly dry crops during rainy seasons cultivated in this area.
- Non- perennial Vaippar river and its tributary Nadhi is located 240 meter (North) and 240 m (west) respectively from the lease area. Based on geophysical study there is no observation of fractured zone/ fissure vein up to 60m of the study area. During the

rainy time only surface water flow in vaippar river is observed and in the remaining period it is almost dry.

- Based on geophysical study it can be concluded that there is no influence in vaippar river non- perennial tributary in the study area since most of the time it is dry and the intervening mining and the river bed is infested with hard rocky formation.
- The Ammiyarpatti village tanks are also dry due to scanty rainfalls.
- Due to paucity of rainfall, poor soil condition no agricultural activities are carried out nearby the site. As such there will be no major impact over local agricultural activities and on water bodies in the surroundings due to mining activities.
- Surface water only act as a main role in agriculture activity in the study area and only patches of seasonal crops are cultivated in the rainfed lands.

Based on the available information and the geophysical investigations it is concluded that the project area is considered to have poor groundwater potential. Productive aquifers are expected beyond depth of 60m BGL. Besides, the mining area consists of hard compact rock, no major water seepage within the mine is expected. There is no water seepage noticed in to the already quarried 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.

* * * * *

CHAPTER - IV

ANTICIPATED ENVIRONMENTAL IMPACTS & MITIGATION MEASURES

CHAPTER 4

ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

4.1 GENERAL

In these projects Mechanized Open Cast mining will be carried out to quarry out Rough Stone & Gravel. The identified impacts due to the mining operation in the leases individually as well as cumulatively 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 PM₁₀, 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 the above mentioned fugitive dust emissions, atmospheric pollution can occur as a result of emission of SO₂, 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



DRAFT EIA/EMP REPORT FOR ROUGH STONE & GRAVEL QUARRY OF THIRU. R. GOPALAKRISHNAN AT SURVEY NO. 199/6A (PATTA LAND) OVER AN AREA OF 1.08.0HA IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU.

problems. Higher concentration of SO₂, NO_x, CO may cause some health effect on the human beings exposed to it. In case of this mine, the following measures will be adopted in the quarry 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.
4	Transportation	Dust emanation, Gaseous Emission	Avoiding overloading of dumpers.
			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
5	Others	Dust emanation, Gaseous Emission	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.
			Development of greenbelt / barriers around mine in the safety zone and carrying out plantation within the lease area.
			Fencing with green net as necessary will be carried out around the lease periphery on all sides.



Due to adoption of all these measures, no major impact on air quality is envisaged due to the proposed opencast mining operations in the leases.

The impact on air quality due to the proposed projects 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, PM₁₀, 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 on individual basis as well as cumulative basis. 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 for the peak production capacity, 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	PM₁₀ (g/sec)	PM_{2.5}(g/sec)
Excavation	0.01	0.00
Drilling	0.04	0.02
Hauling	0.04	0.01
Total	0.09	0.03

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

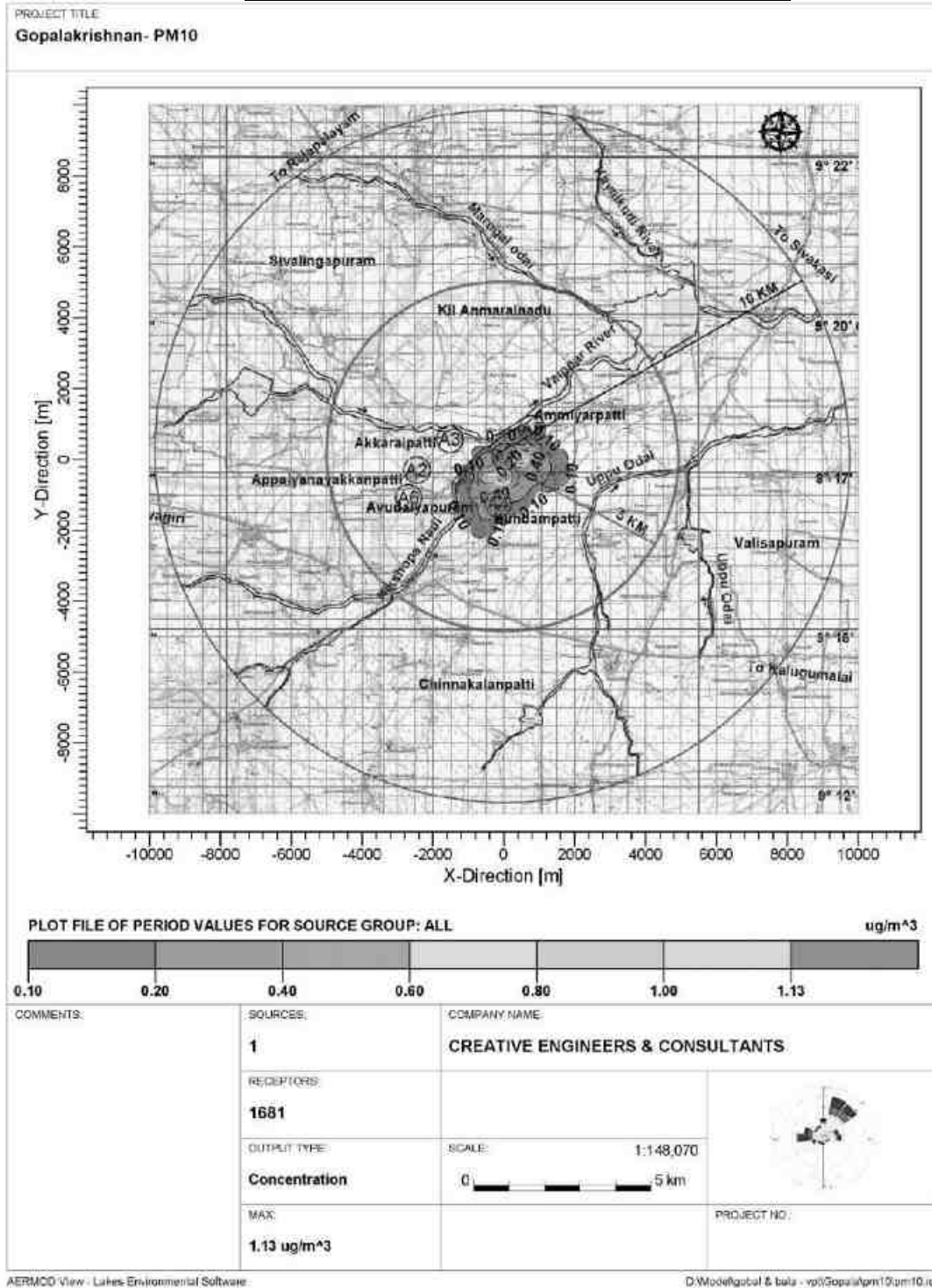
Table 4.5: Peak Incremental Concentration

S.No	Parameters	Peak incremental concentration µg/m³– Individual basis
1	PM ₁₀	1.13
2	PM _{2.5}	0.42

It is observed that the peak incremental concentration for PM₁₀, 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 PM₁₀, 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.

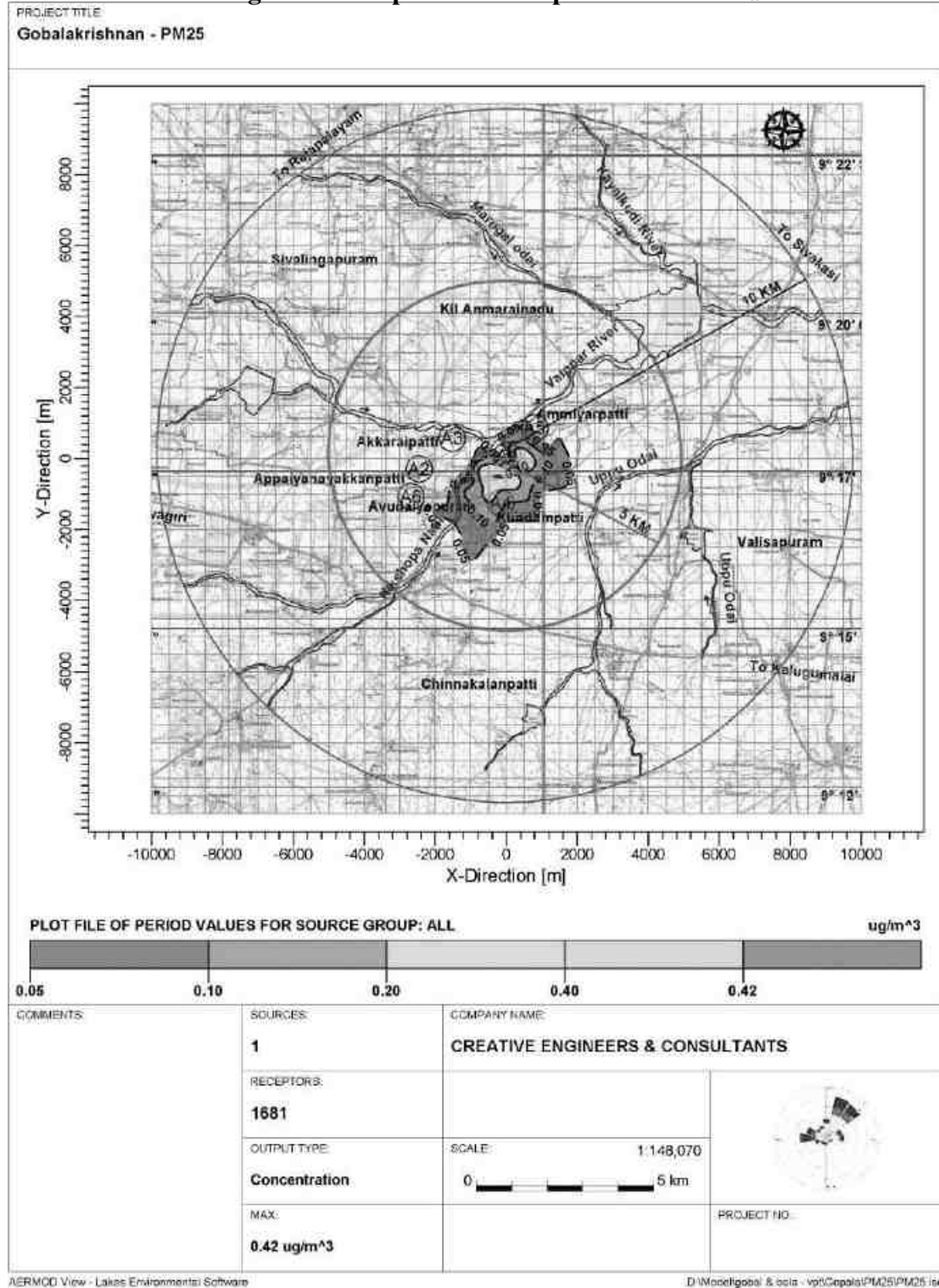
DRAFT EIA/EMP REPORT FOR ROUGH STONE & GRAVEL QUARRY OF THIRU. R. GOPALAKRISHNAN AT SURVEY NO. 199/6A (PATTI LAND) OVER AN AREA OF 1.08.0HA IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU.

Figure 4.1: Isopleth of GLC prediction – PM₁₀



DRAFT EIA/EMP REPORT FOR ROUGH STONE & GRAVEL QUARRY OF THIRU. R. GOPALAKRISHNAN AT SURVEY NO. 199/6A (PATTA LAND) OVER AN AREA OF 1.08.0HA IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU.

Figure 4.2: Isoleth of GLC prediction – PM_{2.5}



DRAFT EIA/EMP REPORT FOR ROUGH STONE & GRAVEL QUARRY OF THIRU. R. GOPALAKRISHNAN AT SURVEY NO. 199/6A (PATTA LAND) OVER AN AREA OF 1.08.0HA IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU.

Predicted Ambient Air Quality:

Table 4.6: Concentrations Of PM₁₀ after Project Implementation

Values in $\mu\text{g}/\text{m}^3$

S. No	Location	Background Concentration			Statutory Limits
			Incremental Conc	Post Project Conc	
1	A1-Near Mine Lease Area	73.9	1.1	75.0	-
2	A2-Appaiyanayakkanpatti Village	68.0	<1.0	61.9	100
3	A3-Akkaraipatti Village	60.9	<1.0	69.0	
4	A4-Kundampatti Village	62.2	<1.0	63.2	
5	A5-Ammiyarpatti Village	55.4	<1.0	56.4	
6	A6-Avudaiyarpuram Village	51.9	<1.0	52.9	

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

Values in $\mu\text{g}/\text{m}^3$

S. No	Location	Background Concentration			Statutory Limits
			Incremental Conc	Post Project Conc	
1	A1-Near Mine Lease Area	35.7	<1.0	36.7	-
2	A2-Appaiyanayakkanpatti Village	31.7	<1.0	30.2	60
3	A3-Akkaraipatti Village	29.2	<1.0	32.7	
4	A4-Kundampatti Village	30.0	<1.0	31.0	
5	A5-Ammiyarpatti Village	27.2	<1.0	28.2	
6	A6-Avudaiyarpuram Village	24.1	<1.0	25.1	

It can be seen that, the resultant added concentrations with baseline figures with respect to PM₁₀ is in the range of 52.9 $\mu\text{g}/\text{m}^3$ to 75.0 $\mu\text{g}/\text{m}^3$ and with respect to PM_{2.5} are in the range of 25.1 $\mu\text{g}/\text{m}^3$ to 36.7 $\mu\text{g}/\text{m}^3$ which are within the stipulated statutory limits for the project.



DRAFT EIA/EMP REPORT FOR ROUGH STONE & GRAVEL QUARRY OF THIRU. R. GOPALAKRISHNAN AT SURVEY NO. 199/6A (PATTA LAND) OVER AN AREA OF 1.08.0HA IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU.

Additionally, cumulative impact due to working of **Thiru. R. Gopalakrishnan** project and proposed projects namely **Balakrishnan** on ambient air quality is assessed, and the details regarding the same has been provided below:

Table 4.8: Emission Rate - Cumulative

Activities	PM₁₀ (g/sec)	PM_{2.5}(g/sec)
Excavation	0.02	0.01
Drilling	0.10	0.04
Hauling	0.09	0.01
Total	0.21	0.06

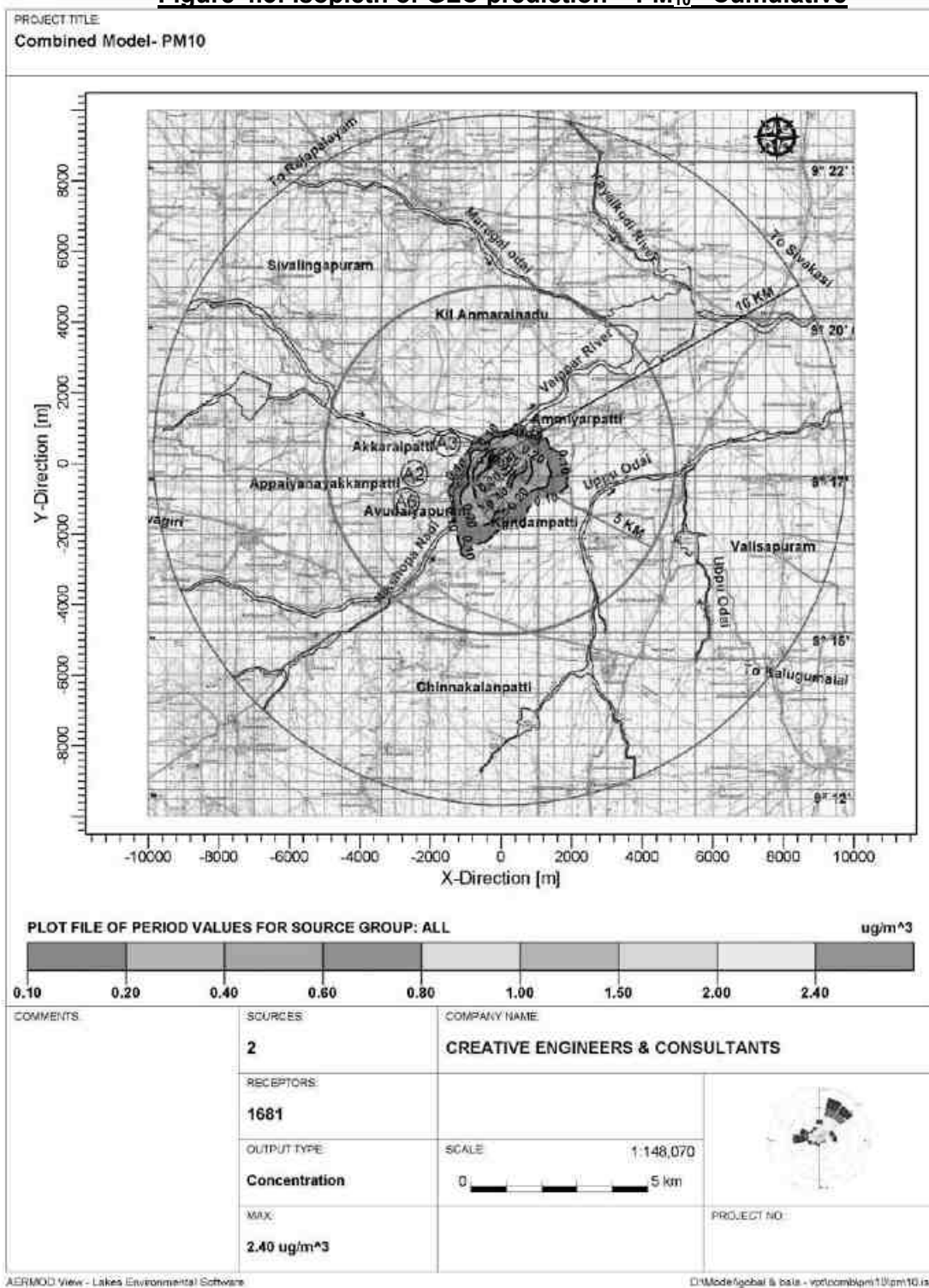
Table 4.9: Peak Incremental Concentration- Cumulative

Parameters	Peak incremental concentration $\mu\text{g}/\text{m}^3$
PM ₁₀	2.40
PM _{2.5}	0.95



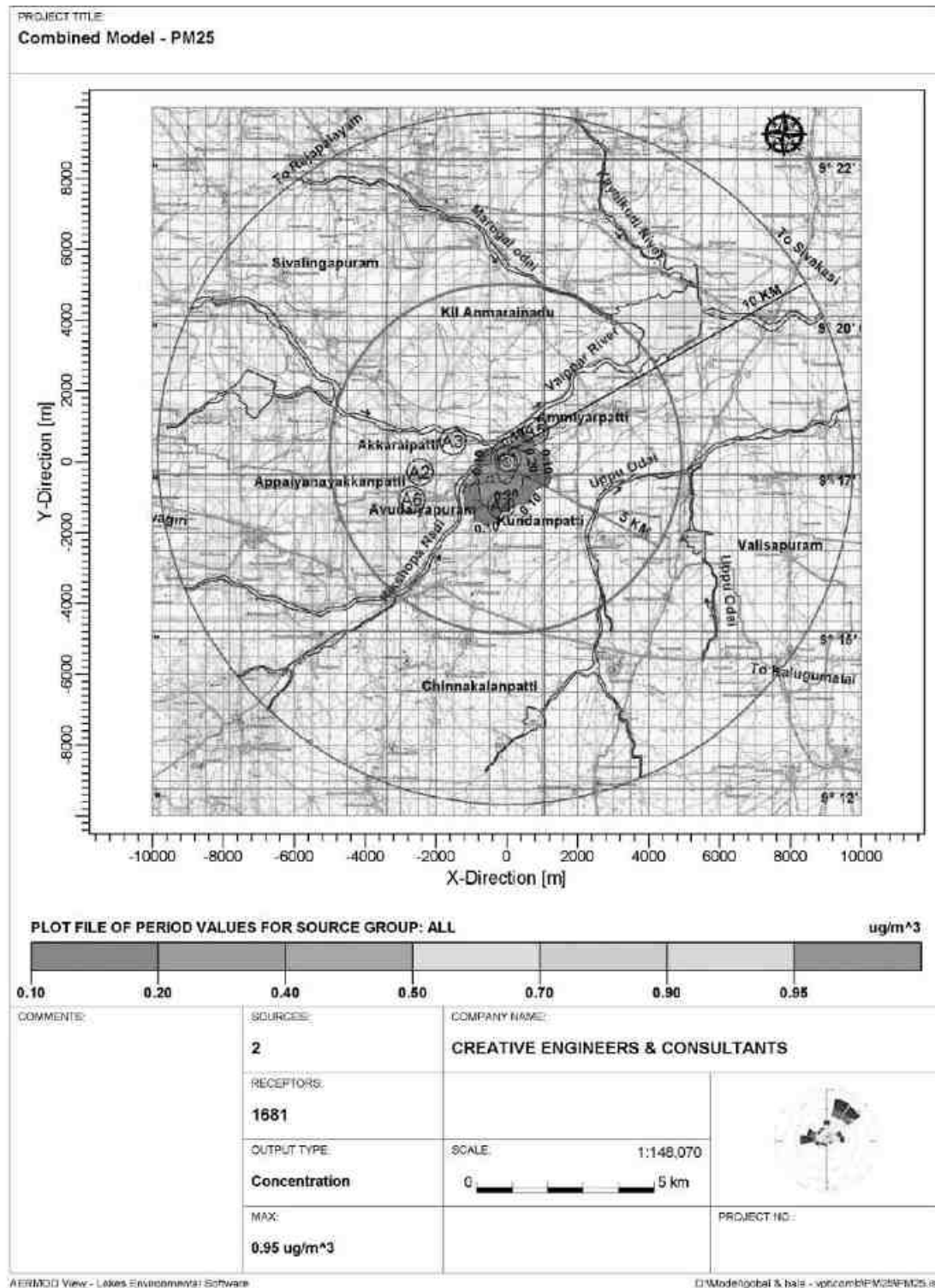
DRAFT EIA/EMP REPORT FOR ROUGH STONE & GRAVEL QUARRY OF THIRU. R. GOPALAKRISHNAN AT SURVEY NO. 199/6A (PATTA LAND) OVER AN AREA OF 1.08.0HA IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU.

Figure 4.3: Isopleth of GLC prediction – PM₁₀– Cumulative



DRAFT EIA/EMP REPORT FOR ROUGH STONE & GRAVEL QUARRY OF THIRU. R. GOPALAKRISHNAN AT SURVEY NO. 199/6A (PATTA LAND) OVER AN AREA OF 1.08.0HA IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU.

Figure 4.4: Isopleth of GLC prediction – PM_{2.5}– Cumulative



DRAFT EIA/EMP REPORT FOR ROUGH STONE & GRAVEL QUARRY OF THIRU. R. GOPALAKRISHNAN AT SURVEY NO. 199/6A (PATTI LAND) OVER AN AREA OF 1.08.0HA IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU.

The post project concentrations of PM₁₀, PM_{2.5}, (GLC) (base line + incremental) after adopting necessary control measures is provided below:

Table 4.10: Post Project Concentrations Of PM₁₀ -Cumulative

Values in $\mu\text{g}/\text{m}^3$

S. No	Location	Background Concentration	Incremental Conc	Post Project Conc	Statutory Limits
1	A1-Near Mine Lease Area	73.9	2.4	76.3	-
2	A2-Appaiyanayakkanpatti Village	68.0	<1.0	61.9	100
3	A3-Akkaraipatti Village	60.9	<1.0	69.0	
4	A4-Kundampatti Village	62.2	<1.0	63.2	
5	A5-Ammiyarpatti Village	55.4	<1.0	56.4	
6	A6-Avudaiyarpuram Village	51.9	<1.0	52.9	

Table 4.11: Post Project Concentrations Of PM_{2.5} -Cumulative

Values in $\mu\text{g}/\text{m}^3$

S. No	Location	Background Concentration	Incremental Conc	Post Project Conc	Statutory Limits
1	A1-Near Mine Lease Area	35.7	<1.0	36.7	-
2	A2-Appaiyanayakkanpatti Village	31.7	<1.0	30.2	60
3	A3-Akkaraipatti Village	29.2	<1.0	32.7	
4	A4-Kundampatti Village	30.0	<1.0	31.0	
5	A5-Ammiyarpatti Village	27.2	<1.0	28.2	
6	A6-Avudaiyarpuram Village	24.1	<1.0	25.1	

The cumulative post project concentration with respect to PM₁₀ is in the range of 52.9 $\mu\text{g}/\text{m}^3$ to 76.3 $\mu\text{g}/\text{m}^3$ and with respect to PM_{2.5} are in the range of 25.1 $\mu\text{g}/\text{m}^3$ to 36.7 $\mu\text{g}/\text{m}^3$ 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.

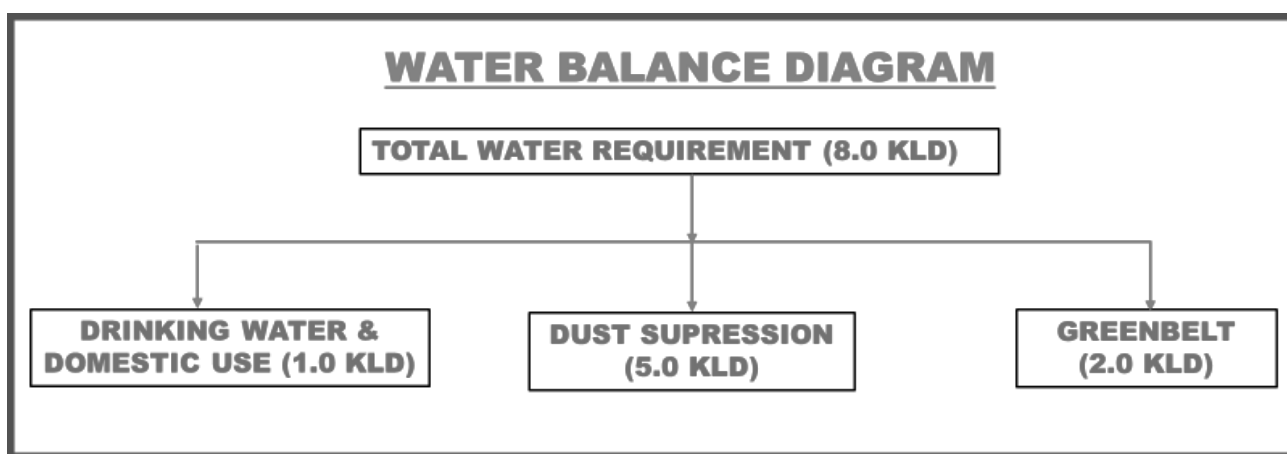


4.3 WATER ENVIRONMENT:

4.3.1 WATER REQUIREMENT:

The water requirement for this project is expected to be 8 KLD comprising 1.0 KLD for drinking water and domestic use, 5.0 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 respective mine pit sump will be used for this purpose. The water balance diagram for the same is shown in **Figure No 4.7.**

Figure 4.5: 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:

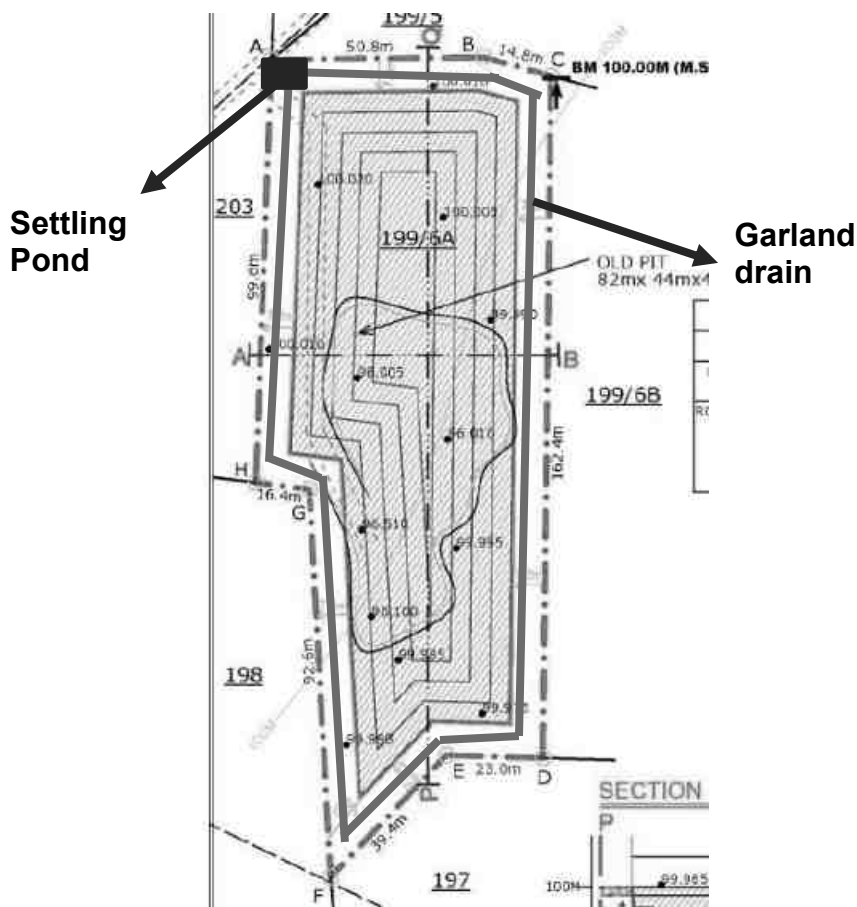
The domestic sewage to be generated from the projects will be collected in respective septic tank with soak pits.

B. Washouts from overburden, ore stockpile, etc.

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

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, a garland drain of length 475m will be constructed and will be connected to settling ponds 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 4.8.**

Figure 4.6: Surface Runoff Management Structures



C. Disturbance to drainage courses

There is a Seasonal Odai-180m-SE, Vaippar River –240m – (NE), Nikshopa Nadi – 240m – (NE). Due to scanty rainfall these drainage channels remains dry for most of the year. In fact, mining activity in the southern side of the applied lease area was already carried out in the earlier lease period. Lease area is at an higher elevation and it does not farm as a water catchment area. It is of shallow depth with rock exposure and bushes and it remains dry for the most of the year. 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 Supernatant clear water will be discharged ensuring proper flow of rainwater for downstream users. There is no proposal to discharge any effluent into this waterbody. As such no major impact is envisaged on the nearby water bodies due to project operations.

DRAFT EIA/EMP REPORT FOR ROUGH STONE & GRAVEL QUARRY OF THIRU. R. GOPALAKRISHNAN AT SURVEY NO. 199/6A (PATTA LAND) OVER AN AREA OF 1.08.0HA IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU.

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 in space and depth. Hence recharge of groundwater in hard rock formations is influenced by the intensity and depth of weathering. As already mentioned, the lease area is part of a compact rock formation 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. As such hence no major water seepage within the mines is expected from the periphery. The ultimate pit depth of mining is 20 m for Rough stone and Gravel Quarry. The ground water table in this area is below this level. Hence, ground water intersection is not envisaged and ground water will not be affected appreciably due to the quarrying operation. The working nearby quarries also depicts the same scenario. 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.

4.3.3.1 STAGE OF GROUNDWATER DEVELOPMENT

Details of hydrological scenario of the study area were given in para 3.6, Chapter – III. The groundwater resource data of Virudhunagar district was obtained from the data provided in the technical report of the Central Ground Water Board, South Eastern Coastal Region – ‘District groundwater brochure, Virudhunagar District.’

Table 4.12: Ground Water Resources Estimation– Vembakottai Taluk (M.Cum)

Net Groundwater Availability	Existing Gross Draft for Irrigation	Existing Gross Draft for Domestic and industrial water supply	Existing Gross Draft for all uses	Allocation for Domestic and Industrial Requirement supply upto next 25 years (2029)	Allocation for Domestic and Industrial Requirement supply upto next 25 years (2029)	Stage of Ground water Development (%)	Category of Block
26.82	13.14	23.7	15.51	24.7	11.22	58	Safe

From the table it is seen that the stage of groundwater development of Vembakottai where the study area falls is 58% and as such this area can be categorized as ‘Safe’ from ground water development point of view. Thus there is scope for further ground water development.



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 hard rocky formations 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 on the western side of the lease.
- 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 – 4.9.**

Table 4.13: 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 - 4.10.**

Table 4.14: 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.

DRAFT EIA/EMP REPORT FOR ROUGH STONE & GRAVEL QUARRY OF THIRU. R. GOPALAKRISHNAN AT SURVEY NO. 199/6A (PATTA LAND) OVER AN AREA OF 1.08.0HA IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU.

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 4.15: 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	Appaiyanayakkanpatti Village	48.7	48.9	55
2	Akkaraipatti Village	45.3	45.6	55
3	Kundampatti Village	45.9	46.2	55
4	Ammiyarpatti Village	48.9	49.3	55
5	Avudaiyarpuram Village	48.1	48.3	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.

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

4.4.2 GROUND VIBRATION 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.

To ensure no adverse impact is caused to the nearby structures blasting study is carried out and its details are given below:

4.4.2.1 Blasting Study:

'Scientific Study on Blast Induced Ground Vibration and Design of Controlled Blasting Parameters' for this project was conducted by **Department of Mining Engineering, Anna University, Chennai**. The present study has proposed a controlled blasting design based on the available information and site inspections to find out the influence of blasting to be carried out in the proposed Gravel and Rough Stone Quarry and cluster quarry operations including the



causeway on it and any sensitive structures in respect of blast-induced ground vibrations, fly-rock, airborne dust, and blasting fumes. Salient point of the study is given below.

Objectives of the Study:

- Site visit and collection of data.
- Submission of the detailed methodology for blasting including safety measures to be taken.
- Design trial blasts and to prescribe safe methodology for regular blasting operations.
- Carry out at least 10 controlled trial blasts and monitor blast-induced ground vibrations at least at 20 points under the supervision of the author of this report and their team.
- Develop a scaled distance equation for the site and determine the site constant which are site specific.
- Fine-tune the blast design, if required, which will restrict the blast-induced ground vibrations to the levels tolerable to the said site-specific the fly-rock and minimise their effect on the residents, traffic on the road, people working in the agricultural lands and effects on the dam.
- Training the people in carrying out the designed blast and blast vibration monitoring.
- Submit the report including suggesting a suitable methodology for carrying out regular drilling, controlled blasting operations in the quarry, and also appropriate safety measures to be taken to guard against blast-induced vibrations and fly-rock.

DRAFT EIA/EMP REPORT FOR ROUGH STONE & GRAVEL QUARRY OF THIRU. R. GOPALAKRISHNAN AT SURVEY NO. 199/6A (PATTA LAND) OVER AN AREA OF 1.08.0HA IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU.

Figure 4.7: Location of the proposed quarry sites and adjacent quarries indicating the nearest college and village



Figure 4.8: Lease boundary of the proposed gravel and rough stone quarry



Control of Fly rock: Fly rock can be controlled by judicious selection of blast parameters mentioned above based on experience and calculations using certain empirical formulae developed from the site investigations. The fly rocks produced during the blasting can be controlled by adopting the following measures:

- Proper blast design and its implementation.
- Careful inspection of site before laying out blast holes and deciding the drilling pattern to be adopted based on the bench geometry.
- Drilling in accordance with the requisite blast design.
- Blast hole charging (using optimum charge factor).
- Maintaining the adequate stemming column.
- Use of proper stemming material
- Imparting adequate training to the blasting crew.

Blasting can certainly be carried out in the cluster rough stone and gravel quarries belonging to Thiru. R. Gopalakrishnan, Thiru.S.Ramraj, Thiru.S.Ragupathi, Smt R.Gayathri, Thiru. S Shanmugaraj and Thiru.Subburaj in a very safe manner by resorting to controlled blasting techniques restricting the maximum charges per delay based on the distance of the structure to be protected from the blasting site and adopting proper initiation sequencing under the supervision of qualified and experienced Blaster as per the requirement of the statute.

Design of Controlled Blasting:

To minimize generation of blast-induced ground vibrations and thereby their adverse effects on the college, residential buildings and other structures, the blast vibration predictor equation for the cluster quarry area has been developed by determining the field constants (which are site-specific) by monitoring ground vibrations during all 15 trial blasts in the nearby working quarries. This monitoring was carried out by TWO numbers of seismographs by locating them at the shortest distance from the blasting cluster site. Based on the parameters like the maximum explosive charge per delay, measured peak particle velocities (PPV), distances of each of the blasting sites to the monitoring stations of that particular blast, predictor equations for the cluster area have been developed using regression analysis. This predictor equation was used to



DRAFT EIA/EMP REPORT FOR ROUGH STONE & GRAVEL QUARRY OF THIRU. R. GOPALAKRISHNAN AT SURVEY NO. 199/6A (PATTA LAND) OVER AN AREA OF 1.08.0HA IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU.

calculate the maximum (safe) explosive charge per delay by substituting the distance of the blasting site from the nearest college and residential structures.

The predictor PPV for the proposed rough stone and gravel quarry site with constraint of allowable PPV limit is 2 mm/s at the distance of more than 250 m.

$$V = 4.49 * (D/Q^{1/2})^{-0.338}$$

Table 4.16: Summary of PPV predicted

Distance (m)	Maximum charge per delay (kg)	Predicted PPV (mm/s)
50	25	2.06
100	25	1.63
150	25	1.42
200	25	1.29
250	25	1.19
300	25	1.13
350	25	1.07
400	25	1.02
450	25	0.98
500	25	0.95
550	25	0.92
600	25	0.89
650	25	0.87
700	25	0.85

Conclusion:

This scientific report has been prepared to determine the influence of ground vibrations and fly-rock generated due to blasting in the proposed and existing quarries associated as a cluster quarry belonging to Thiru. R. Gopalakrishnan, Thiru. S. Ramraj, Thiru.S. Ragupathi, Smt R. Gayathri, Thiru. S Shanmugaraj and Thiru.Subburaj on the surrounding sensitive structures, residential structures, village roads and any other structures not belonging to the owner. The report also addresses the associated environmental issues like noise, fly rock, etc. Based on the investigations, recommendations are made in this report to carry out controlled blasting in the said quarry in a safe manner without affecting the structures under consideration and the surrounding environment.



It is concluded that the controlled blasting using NONEL by limiting maximum explosive charge per delay, did not produce peak particle velocities (blast vibrations) greater than 2 mm/s at the locations of the interest, namely, College building, Women's hostel building, residential and other buildings implying that they are safe.

All the blasting face shall be chosen in the North-West direction that is working face away from the college building structures to avoid the propagation of ground vibration from the blasting site. In unavoidable condition, line drilling or muffle blasting technique shall be adopted in the blasting site facing along the North-East and South-East direction. If the blasting is conducted at the depth of 5 to 10 m from the surface, it is highly recommended to adopt the controlled blasting technique by mean of muffle blasting to avoid the fly rock.

Noise (air over pressure) pollution by blasting is impulsive in nature and that too for a very short duration during a specific period of the day when the blasting timings are restricted to a specific period of the day instead of spreading throughout the day and the same is also announced and declared. This air over pressure will not cause any structural damage to the College building, Women's hostel building, residential and other buildings. This problem can be reduced by restricting the timings of the blasting and also restricting the number of blasts per week.

Restricting the specific explosive charge, cleaning the top & near the toe of the bench thoroughly before drilling, charging & blasting and adopting V pattern of initiation, the fly-rock can be restricted to within the leasehold area. Avoiding overcharging, cleaning the top & near the toe of the bench thoroughly before drilling, charging & blasting, use of water as per the recommendations of this report would substantially control adverse effect. The recommendations of this report are site specific and can be effectively implemented only in the proposed quarry associated as a cluster quarry and not to the quarries outside the study area. However, blast induced ground vibrations can cause damage to the causeway, residential and other structures in the village, and fly-rock can endanger the surroundings, if indiscriminate blasting of multiple rows of drillholes are blasted with instantaneous detonators using huge charges of high explosives per delay (more than what has been recommended in this report per delay) is used.

It is highly recommended that the blasting operations shall be conducted as per the report suggestions and recommendations for the production blasts to be carried out in future.



DRAFT EIA/EMP REPORT FOR ROUGH STONE & GRAVEL QUARRY OF THIRU. R. GOPALAKRISHNAN AT SURVEY NO. 199/6A (PATTA LAND) OVER AN AREA OF 1.08.0HA IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU.

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 4.17: 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 present land use pattern, and the post mining land use pattern is shown below:

Table 4.18: Land Use

Sl. No.	Land Use	Present Area (Hect)	Area in use during the quarrying period (Hect)
1.	Quarrying Pit	Nil	0.75.0
2.	Infrastructure & Road	Nil	0.02.0
3.	Afforestation (greenbelt & plantation)	Nil	0.27.0
4	Unutilized	1.08.0	0.00.0
5	Fencing	Nil	0.04.0
	Total	Total	1.08.0

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. In the post



DRAFT EIA/EMP REPORT FOR ROUGH STONE & GRAVEL QUARRY OF THIRU. R. GOPALAKRISHNAN AT SURVEY NO. 199/6A (PATTA LAND) OVER AN AREA OF 1.08.0HA IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU.

mining stage, mined out area will be left as water body and the rest will be covered with vegetation.

Table 4.19: Land Use During Post Operational Period

S.No	Description	Land use (Ha.)			
		Plantation	Water body	Others	Total
1	Quarrying Pit	-	0.75.0	-	0.75.00
3	Green Belt	0.27.0	-	-	0.27.00
5	Others	--	-	0.06.0	0.06.0
	TOTAL	0.27.0	0.75.0	0.06.0	1.08.0

In the post mining stage, entire entire 0.75.0 Ha of mined out area will be left as water body. 0.02.0 Ha is infrastructure & Road, 0.27.0 ha will be under afforestation, 0.04.0 Ha will be Fencing. Entire mined out area will be properly fenced to prevent inadvertent entry of men and animals. In the post mining stage the entire mined out area shall be used as a rainwater harvesting pond.

Mine closure :

At the end of the life of the mine, the following points will be ensured:

- The mine benches will be properly dressed, loose material in the face if any and the mine site will also be cleared.
- Mine Closure activities will be carried out progressively by way of fencing, laying of garland drain around the lease periphery & plantation.
- The peripheral barbed wire fencing, will be strengthened to prevent inadvertent entry of public and animal. surface runoff management arrangements will be improved so as not to disturb the hydrological cycle of the area post mining.
- Besides, to prevent any access to the mined out void, entrance will be secured with tall gate and a blockage bund across the access road.
- No entry / safety board will be erected all around the lease area.
- Benches will be kept intact and haul road accessibility will be maintained.
- Regular checking to prevent inherent entry in to the lease area post mining will be done.
- PP will ensure effective post closure monitoring.



4.6 BIOLOGICAL ENVIRONMENT:

4.6.1 EXISTING FLORA AND FAUNA:

Part of the lease area is mined out void and the balance 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 4.20: Impact on Biological Environment

S.No	ISSUES	OBSERVATIONS
1	Clearance of vegetation due to mining and allied activities	Part of lease area is already mined out area. In the unmined area no major vegetation is observed. As such there will be no clearance of vegetation is involved in the leases.
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 areas 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	The study area is observed to be not ecologically sensitive and no endangered or endemic species as per IUCN red list is observed.
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.

**DRAFT EIA/EMP REPORT FOR ROUGH STONE & GRAVEL QUARRY OF
THIRU. R. GOPALAKRISHNAN AT SURVEY NO. 199/6A (PATTA LAND) OVER AN AREA OF
1.08.0HA IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR
DISTRICT, TAMIL NADU.**

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	Since the lease area forms part of a vast tract of hard rocky formation , no agricultural activities are possible and practiced in the lease and its nearby areas. Agricultural activities are carried out far away lands irrigated by tanks and wells during monsoon rainfall. 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.
14	Impact on soil health and biodiversity	The lease area is rocky type with very little and poor soil cover. 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.	•No adverse impact on the surrounding environment is envisaged since the number of equipments to be used to achieve this production is 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 various mitigative measures.
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.	



DRAFT EIA/EMP REPORT FOR ROUGH STONE & GRAVEL QUARRY OF THIRU. R. GOPALAKRISHNAN AT SURVEY NO. 199/6A (PATTI LAND) OVER AN AREA OF 1.08.0HA IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU.

		•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. •Extensive plantation will be developed in and around the lease area for carbon absorption.
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.



DRAFT EIA/EMP REPORT FOR ROUGH STONE & GRAVEL QUARRY OF THIRU. R. GOPALAKRISHNAN AT SURVEY NO. 199/6A (PATTA LAND) OVER AN AREA OF 1.08.0HA IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU.

4.6.4 GREEN BELT & PLANTATION:

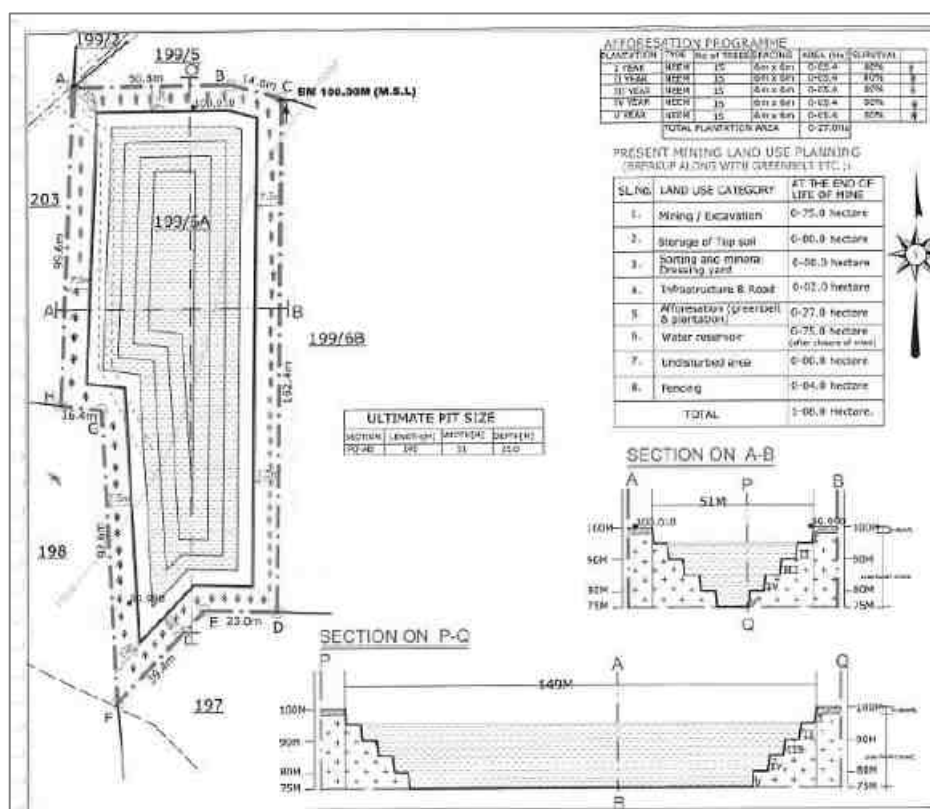
In the lease area, safety barrier 7.5m around the periphery and 10m safety zone. about 500 trees will be planted in and around the lease area..

Table 4.21: Proposed Plantation

Year	No of trees	Name of the species
I	100	Pungai, Vagai, Vembu, Manjal konrai, Naval, Puvarasu, etc.,
II	100	
III	100	
IV	100	
V	100	
Total	500	

In the post mining stage, entire entire 0.75.0 Ha of mined out area will be left as water body. 0.02.0 Ha is infrastructure & Road, 0.27.0 ha will be under afforestation, 0.04.0 Ha will be Fencing.

Figure 4.9: Mine Closure Plan



4.7 SOCIO ECONOMIC ENVIRONMENT:

The lease areas are in the respective proponent's possession. Hence, there are no habitations or hutments in the core zone area and no rehabilitation or resettlement problems will arise here.

The mining operations in the proposed mines will each employ about 16 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 4.22: CER Cost

Project Name	Details
Project Cost (Rs.)	Rs. 34,58,887
CER Cost Requirement (2% of the Project Cost) (Rs.)	Rs. 69,177.74
CER cost allocated (Rs.)	Rs. 2.0 Lakhs

However, towards the socio-economic development of the surrounding area, Rs.2 Lakhs is allocated. 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 Metalliferous 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:

SI No	Safety Equipment's
1.	Helmets
2.	Shoes
3.	Goggles
4.	Dust Mask
5.	Hand Gloves
6.	Reflective Jackets
7.	Ear Muffs
8.	Signal Lights/Flags

4.9 LOGISTICAL SYSTEM:

From these proposed quarries 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 lease area can be approached through localized road which is well connected with highway roads. The expected peak transport will be as follows:

Table 4.23: Details of Transportation

Sl.no	Particulars of activity	Details
A	Maximum Rough stone Transported (m ³ /year)	19,995
B	No of days in a year	300
C	Transport hours per day	8
D	Truck capacity in Cum	8.0
	Trips per hour	1 Trip/hr

From the above table it is seen that there will be about less 1 trips per hour. 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 if warranted.
- ❖ Keeping traffic regulators at vulnerable locations.
- ❖ Distribution of transport vehicles for avoiding choking of roads
- ❖ Limiting of speed
- ❖ Installation of barriers at vulnerable locations
- ❖ 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 these projects.

Liquid waste: There is no process effluent generation from these mines. Hence no liquid waste is generated.

Hazardous waste management: In these projects 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.

* * * * *



CHAPTER - V

ANALYSIS OF ALTERNATIVES (TECHNOLOGY & SITE)

CHAPTER 5

ANALYSIS OF ALTERNATIVES

5.1 ALTERNATE TECHNOLOGY:

In this proposed Rough Stone and Gravel Quarry, Mechanized Open Cast mining will be carried out. It involves jack hammer drilling, blasting, excavation, loading and transportation of Rough stone to the crushing units. As this method is techno economically proven, 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.

* * * * *



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. The monitoring schedules to be adopted in the proposed quarry is given below. However, based on the need and priority it may be suitably modified / improved in consultation with local authorities.

Since there are other leases within the cluster, it is proposed to form a cluster management committee (CMC) and its details are provided under Section 10.2.2, Chapter-X.



DRAFT EIA/EMP REPORT FOR ROUGH STONE & GRAVEL QUARRY OF THIRU. R. GOPALAKRISHNAN, AT SURVEY NO. 199/6A OVER AN AREA OF 1.08.0 HECTARES IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMILNADU

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 & outside 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/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



DRAFT EIA/EMP REPORT FOR ROUGH STONE & GRAVEL QUARRY OF THIRU. R. GOPALAKRISHNAN, AT SURVEY NO. 199/6A OVER AN AREA OF 1.08.0 HECTARES IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMILNADU

Table 6.3: National Ambient Air Quality Standards

[Part III—खण्ड 4]

आयुक्त आरक्षण : असाधारण

3

NATIONAL AMBIENT AIR QUALITY STANDARDS
CENTRAL POLLUTION CONTROL BOARD
NOTIFICATION

New Delhi, the 18th November, 2009

No. B-29616/2009/PCI-I.—In exercise of the powers conferred by Sub-section (2) (b) 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 Areas	Ecologically Sensitive Areas (notified by Central Government)	Methods of Measurement
(1)	(2)	(3)	(4)	(5)	(6)
1	Sulphur Dioxide (SO ₂), µg/m ³	Annual* 24 hours**	50 80	20 80	• Improved Wet and Gaeke • Ultraviolet fluorescence
2	Nitrogen Dioxide (NO ₂), µg/m ³	Annual* 24 hours**	40 80	30 80	• Modified Jacob & Hochheiser (Na-Arsenite) • Chemiluminescence
3	Particulate Matter (size less than 10µm) or PM ₁₀ , µg/m ³	Annual* 24 hours**	60 100	60 100	• Gravimetric • TOEM • Beta attenuation
4	Particulate Matter (size less than 2.5µm) or PM _{2.5} , µg/m ³	Annual* 24 hours**	40 60	40 60	• Gravimetric • TOEM • Beta attenuation
5	Ozone (O ₃), µg/m ³	8 hours** 1 hour**	100 180	100 180	• UV photometric • Chemiluminescence • Chemical Method
6	Lead (Pb), µg/m ³	Annual* 24 hours**	0.50 1.0	0.50 1.0	• AAS/ICP method after sampling on EPM 2000 or equivalent filter paper • ED-XRF using Teflon filter
7	Carbon Monoxide (CO), mg/m ³	8 hours** 1 hour**	02 04	02 04	• Non Dispersive Infra Red (NDIR) spectroscopy
8	Ammonia (NH ₃), µg/m ³	Annual* 24 hours**	100 400	100 400	• Chemiluminescence • Indophenol blue method



DRAFT EIA/EMP REPORT FOR ROUGH STONE & GRAVEL QUARRY OF THIRU. R. GOPALAKRISHNAN, AT SURVEY NO. 199/6A OVER AN AREA OF 1.08.0 HECTARES IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMILNADU

THE GAZETTE OF INDIA : EXTRAORDINARY					
[PART III—SEC. 4]					
(1)	(2)	(3)	(4)	(5)	(6)
9	Benzene (C ₆ H ₆) µg/m ³	Annual*	05	05	- Gas chromatography based continuous analyzer - Adsorption and Desorption followed by GC analysis
10	Benzo(a)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/4/18409/Exy.]

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.



DRAFT EIA/EMP REPORT FOR ROUGH STONE & GRAVEL QUARRY OF THIRU. R. GOPALAKRISHNAN, AT SURVEY NO. 199/6A OVER AN AREA OF 1.08.0 HECTARES IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMILNADU

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, <i>Max</i>	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)	pH 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, <i>Max</i>	1	5	Part 10	—
vi)	Total dissolved solids, mg/l, <i>Max</i>	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.



DRAFT EIA/EMP REPORT FOR ROUGH STONE & GRAVEL QUARRY OF THIRU. R. GOPALAKRISHNAN, AT SURVEY NO. 199/6A OVER AN AREA OF 1.08.0 HECTARES IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMILNADU

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, <i>Max</i>	0.03	0.2	IS 3025 (Part 55)	—
ii)	Ammonia (as total ammonia-N), mg/l, <i>Max</i>	0.5	No relaxation	IS 3025 (Part 34)	—
iii)	Anionic detergents (as MBAS) mg/l, <i>Max</i>	0.2	1.0	Annex K of IS 13428	—
iv)	Barium (as Ba), mg/l, <i>Max</i>	0.7	No relaxation	Annex F of IS 13428* or IS 15302	—
v)	Boron (as B), mg/l, <i>Max</i>	0.5	1.0	IS 3025 (Part 57)	—
vi)	Calcium (as Ca), mg/l, <i>Max</i>	75	200	IS 3025 (Part 40)	—
vii)	Chloramines (as Cl ₂), mg/l, <i>Max</i>	4.0	No relaxation	IS 3025 (Part 26)* or APHA 4500-Cl G	—
viii)	Chloride (as Cl), mg/l, <i>Max</i>	250	1 000	IS 3025 (Part 32)	—
ix)	Copper (as Cu), mg/l, <i>Max</i>	0.05	1.5	IS 3025 (Part 42)	—
x)	Fluoride (as F) mg/l, <i>Max</i>	1.0	1.5	IS 3025 (Part 60)	—
xi)	Free residual chlorine, mg/l, <i>Min</i>	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, <i>Max</i>	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, <i>Max</i>	30	100	IS 3025 (Part 46)	—
xiv)	Manganese (as Mn), mg/l, <i>Max</i>	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, <i>Max</i>	0.5	No relaxation	Clause 6 of IS 3025 (Part 39) Infrared partition method	—
xvi)	Nitrate (as NO ₃), mg/l, <i>Max</i>	45	No relaxation	IS 3025 (Part 34)	—
xvii)	Phenolic compounds (as C ₆ H ₅ OH), mg/l, <i>Max</i>	0.001	0.002	IS 3025 (Part 43)	—
xviii)	Selenium (as Se), mg/l, <i>Max</i>	0.01	No relaxation	IS 3025 (Part 56) or IS 15303*	—
xix)	Silver (as Ag), mg/l, <i>Max</i>	0.1	No relaxation	Annex J of IS 13428	—
xx)	Sulphate (as SO ₄) mg/l, <i>Max</i>	200	400	IS 3025 (Part 24)	May be extended to 400 provided that Magnesium does not exceed 30
xxi)	Sulphide (as H ₂ S), mg/l, <i>Max</i>	0.05	No relaxation	IS 3025 (Part 29)	—
xxii)	Total alkalinity as calcium carbonate, mg/l, <i>Max</i>	200	600	IS 3025 (Part 23)	—
xxiii)	Total hardness (as CaCO ₃), mg/l, <i>Max</i>	200	600	IS 3025 (Part 21)	—
xxiv)	Zinc (as Zn), mg/l, <i>Max</i>	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
1/2	102
1/4	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	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

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. Further details of the capital and recurring cost of environmental management has been provided in in Table No. 10.2, Chapter-X.



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 submitted for Public Hearing 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 replacement of worn out accessories in the



DRAFT EIA/EMP REPORT FOR ROUGH STONE & GRAVEL QUARRY OF THIRU. R. GOPALAKRISHNAN, AT SURVEY NO. 199/6A OVER AN AREA OF 1.08.0 HECTARES IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMILNADU

S.No	Factors	Causes of risks	Control measures
		burst. b) Down the hole drill rod may break due to improper maintenance of rod.	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.

These being small rough stone projects 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 the 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 Firefighting 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 areas only. Mine lease areas are Patta lands. 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



DRAFT EIA/EMP REPORT FOR ROUGH STONE & GRAVEL QUARRY OF THIRU. R. GOPALAKRISHNAN, AT SURVEY NO. 199/6A OVER AN AREA OF 1.08.0 HECTARES IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMILNADU

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**.

7.6 CUMULATIVE IMPACT STUDY:

The lease area is located in Appayanaickenpatti Village, Vembakottai Taluk, Virudhunagar District, Tamil Nadu. The details of the other quarries located within the 500m radius of the project considered for cumulative impact study now (**Annexure-3A and 3B**) has been provided below:

Table 7.1: Details of quarries within 500m radius

S. No	Quarry detail	Village	S.F. No.& Extent (Hect)	Proceedings No. & Lease Period
I	Existing Quarries:			
1.	Thiru.S.Ragupathy S/o. Subba Reddiyar, D.No. 2, N.G.O. Colony, Thiruvengadam, Sankarankovil Taluk, Tirunelveli District.	Appayanaickenpatti	32/4 , 38/3A2 etc., (2.91.00)	KV1/27944/2014 Dated: 06.05.2017 22.05.2017 to 21.05.2022
2.	Thiru.P.Shanmugaraj, S/o. Perumal Reddiyar, D.No. 37/1 North Street, Sathirakondon Post, Sankarankovil Taluk, Tirunelveli District.	Appayanaickenpatti	38/6A, 41/2, 42 (2.74.5)	KV1/27945/2014 Dated: 08.05.2017 22.05.2017 to 21.05.2022
3.	Thiru.S.Ramraj, S/o. Shanmugaraj, D.No. 7/112, Kundampatti, Sevalpatti (P.O), Sankarankovil Taluk, Tirunelveli District.	Appayanaickenpatti	97/1,198/4 206, 207/1 (2.88.00)	KV1/21616/2014 Dated: 09.02.2018 26.02.2018 to 25.02.2023
4.	Thiru.S.Subburaj S/o, Shanmugaraj 7/112, Kundampatti Sangarankovil Taluk, Tirunelveli District	Appayanaickenpatti	44 46/1 (2.20.50)	KV1/7441/2017 Dated:01.02.2019 25.02.2019 to
5.	Thiru.G.Ramasamy S/o, Gopalsamy 70/1E, Karpagam Nagar, Thirumangalam Madurai District.	Appayanaickenpatti	21 1 / 1A1,21 1 / 1A2 211/2B, 213/1 213 / 2A (0.93.00)	KV1/24590/2015 Dated:01.02.2019 25.02.2019 to



**DRAFT EIA/EMP REPORT FOR ROUGH STONE & GRAVEL QUARRY OF
THIRU. R. GOPALAKRISHNAN, AT SURVEY NO. 199/6A OVER AN AREA OF 1.08.0 HECTARES IN
APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT,
TAMILNADU**

S. No	Quarry detail	Village	S.F. No.& Extent (Hect)	Proceedings No. & Lease Period
6.	Thiru.P.Shanmugaraj, S/o. Perumal Reddiyar, Sathirakondan Post, Thiruvankadam Taluk, Tirunelveli District.	Appayanaickenpatti	207/2A 207/2B (1.91.50)	KV1/202/2018 Dated:01.02.2019 25.02.2019 to 24.02.2024
II Abandoned Quarry : NIL				
1.	Thiru.S.RAGUPATHI, S/o.Subba Reddiyar residing at Door No. 2, N.G.O. Colony, Thiruvengadam Village, Sankarankovil Taluk, Tirunelveli District	Appayanaickenpatti	38/10A 38/11 (0.51.00)	KV1/ 1312 /2012 Dated: 07-10-2013 8/10/2013 to 7/10 0/2018
2.	Thiru.G.Ramasamy, S/o.Gopalsamy, Door No. 70/1, Karpagam Nagar, Thirumangalam Post and Taluk, Madurai District.	Appayanaickenpatti	208/1, 208/2 208/3, 214/1 (1.98.00)	KV1/1227/2014 Dated: 03.03.2016 27.05.2016 to
3.	Government Old Pit	Appayanaickenpatti	50	
III Present Proposed Quarry :				
1.	Thiru.R.Gopalakrishnan, S/o.Sri.Ramasamy, 70/1E, Karpagam Nagar, Thirumangalam Town & Taluk, Madurai.	Appayanaickenpatti	199/6A (1.08.00)	KV1/221/2022 Dated: 26.04.2022
2.	Tmt.R.Gayathiri S/o, Rajendran 44, Kalugumalai Road, Thiruvengadam Nagar & Taluk, Thirunelveli District.	Appayanaickenpatti	39/1A, 39/1B 39/2A , 49 (2.30.20)	KV1/572/2019 Dated: 11.12.2019
3.	Thiru.G.Kaniraj S/o, Gurusamy 60C, Indira Nagar, Keela Thiruvengadam Village, Sangaran Kovil Taluk, Thenkasi District.	Appayanaickenpatti	202/ 1A2 (1.21.50)	KV1/158/2021 Dated: 13.08.2021
4.	Thiru.S.Ramraj S/o, Shanmugaraj 7/98, South Street, Kundapatti, Paraganur Sevalpatti Village, Thirunelveli Taluk, Sangaran Kovil	Appayanaickenpatti	207/ 3A,207/ 3 B, 209/1A, 209/1B,210/1 A1, 210/1A2, 210/1A3,211/ 3A, 211/3A2 (1.28.50)	KV1/638/2021 Dated: 01.09.2021



DRAFT EIA/EMP REPORT FOR ROUGH STONE & GRAVEL QUARRY OF THIRU. R. GOPALAKRISHNAN, AT SURVEY NO. 199/6A OVER AN AREA OF 1.08.0 HECTARES IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMILNADU

From that above it is seen that, the other existing and proposed quarries within the 500m radius along with this subject project works out to >5 Ha. As such cluster situation applicable and this EMP is prepared. A map showing the existing and proposed quarries located near the lease area is provided Figure No.7.1 given below:

Figure 7.1: Vicinity Map



The baseline monitoring carried out for this project reflects the cumulative impact of the existing quarries. The cumulative impacts of the proposed Rough stone and Gravel Quarries of Thiru. R. Gopalakrishnan & Thiru Balakrishnan are provided in detail in Chapter-IV of the

EIA/EMP Report. From the study it is observed that by ensuring systematic mining with proper mitigative measures as suggested in the report no adverse impact on the surrounding environment is envisaged. It is also worth mentioning that, these proposed quarry leases are more of a substitute for the recently expired quarry leases and as such cumulatively no additional pollution load may be there.

7.7 PIT SLOPE STABILITY PLAN

- Factors affecting slope stability of the mines 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:
 - Pruning of top worked out pit area and adopting proper bench pattern.
 - 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 slope with adequate road width with benches intact.
- 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. Slope stability study is site specific and largely dependent on the geological formation of the local strata. As such , carrying out such special studies after commencement of mining operation with exposed rock of sufficient quantity , depth only is expected to deliver the desired results. Besides, during mining , such study will provide to arrive at the optimum bench slope parameters design. As such , scientific study through involving reputed institution will be carried out during the course of mining.

CONCLUSION:

No adverse impact on the surrounding environment is envisaged from these projects 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.

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 is 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.

* * * * *



CHAPTER - VIII

PROJECT BENEFITS

CHAPTER 8

PROJECT BENEFITS

The proposed Rough stone and Gravel Quarries will improve physical and social infrastructures in the area like:

- Direct employment.
- 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 facilities for the local schools and panchyats

In short, 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, 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 have allocated Rs.2.0 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.

* * * * *



CHAPTER - IX

ENVIRONMENTAL COST BENEFIT ANALYSIS

CHAPTER 9

ENVIRONMENTAL COST BENEFIT ANALYSIS

Appendix-III of the MoEF 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 Roughstone and Gravel Quarry of was granted by SEIAA vide TOR Identification No. **TO24B0108TN5620880N** dated **11.01.2025**. Environmental cost benefit analysis is not prescribed in the terms of reference. Hence, it is not applicable.

* * * * *



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 separately in the leases.

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 proponents 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, metalliferous 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 ENVIRONMENTAL MANAGEMENT CELL:

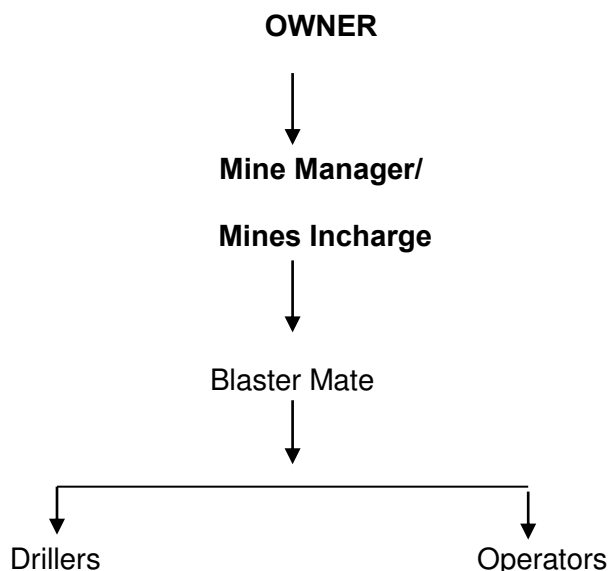
The Mines Manager/Mine Incharge of the respective mines will undertake effective monitoring and implementation of various environmental control measures promptly and effectively and to oversee various environmental management schemes for air quality control, water quality



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 Incharge 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 Incharge 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 these projects 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 aquatic 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 goals 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 in quarries:

- 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.
- Green netting will be carried out around the lease periphery on all sides.



10.2.3.3 Water Environment:

There will be no process effluent generated from either 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 areas 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 quarries 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 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.

There are no perineal water courses in the leases. There is no proposal to discharge any effluent into either of these water bodies. No major impact is envisaged on the nearby water bodies due to project operations

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 equipments
- 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. There is no endangered or endemic species as per IUCN red list is observed. There will be no major clearance of vegetation involved in this project since part of the lease area is mined and the balance areas are free from major vegetation and contains bushes and shrubs only. However, good greenbelt and plantation programmes are planned within the lease area.



10.2.2.7 Socio-Economic Environment:

The proposed project operations 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 have earmarked an amount of Rs.2.0 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 10.1: Environmental Control Cost

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	0.11	0.11
	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-friendly drill machine with separate dust extractor unit	Dust extractor @ Rs. 25,000/- per unit deployed as capital & @ Rs. 2500 per unit recurring cost for maintenance	0.25	0.03
	No overloading of trucks/tippers/tractors	Manual Monitoring through Security guard	0.00	0.01
	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 Governors @ Rs. 5000/- per Tipper/Dumper deployed - 2 Units	0.10	0.01
	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	0.00	0.22
	Installing wheel wash system near gate of quarry	Installation + Maintenance + Supervision	0.50	0.20

**DRAFT EIA/EMP REPORT FOR ROUGH STONE & GRAVEL QUARRY OF
THIRU. R. GOPALAKRISHNAN, AT SURVEY NO. 199/6A OVER AN AREA OF 1.08.0 HECTARES IN
APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT,
TAMILNADU**

Activities	Mitigation Measure	Provision for Implementation	Capital	Recurring
Sub-Total			8.96	1.27
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	0.20
	NONEL Blasting will be practiced to control Ground vibration and fly rocks	Rs. 30/- per 6 Tonnes of Blasted Material	0.00	1.99
Sub-Total			0.50	2.19
Waste Management	Waste management (Spent Oil, Grease etc.,)	Provision for domestic waste collection and disposal through authorized agency	0.25	0.20
		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	0.00	0.00
Sub-Total			0.30	0.22
Mine Closure	1. Progressive Closure Activity - Surface Runoff managment	Provision for garland drain @ Rs. 10,000/- per Hectare with maintenance of Rs. 5,000/- per annum	0.11	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	2.16	0.11
	3. Progressive Closure Activity Green belt development - 500 trees per one hectare - Proposal for 550 Trees - 220 Inside Lease Area & 330 Outside Lease Area)	Site clearance, preparation of land, digging of pits / trenches, soil amendmets, transplantation of saplings @ 200 per plant (capital) for plantation inside the lease area and @ 30 per plant maintenance (recurring)	0.22	0.07
		Avenue Plantation @ 300 per plant (capital) for plantation outside the lease area and @ 30 per plant maintenance (recurring)	0.50	0.10
	4. Implementation of Final Mine Closure Activity as per Approved Mining Plan on Last Year	Few activities already covered as progressive closure activities as greenbelt development, wire fencing, garland drain.	0.45	0



**DRAFT EIA/EMP REPORT FOR ROUGH STONE & GRAVEL QUARRY OF
THIRU. R. GOPALAKRISHNAN, AT SURVEY NO. 199/6A OVER AN AREA OF 1.08.0 HECTARES IN
APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT,
TAMILNADU**

Activities	Mitigation Measure	Provision for Implementation	Capital	Recurring
		*For Final Closure Activities 15% of the proposed closure cost will be spent during the final mine closure stage - Last Year		
	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	1.38	0
Sub-Total			2.99	0.33
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	0.5
	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	0.16
	Health check up for workers will be provisioned	IME & PME Health check up @ Rs. 1000/- per employee	0.00	0.27
	First aid facility will be provided	Provision of 2 Kits per Hectare @ Rs. 2000/-	0.00	0
	Mine will have safety precaution signages, boards.	Provision for signages and boards made	0.1	0.02
	No parking will be provided on the transport routes. Separate provision on the south side of the hill will be made for vehicles /HEMMs. Flaggers will be deployed for traffic management	Parking area with shelter and flags @ Rs. 50,000/- per hectare project and Rs. 10,000/- as maintenance cost	3.33	0.1
	Installation of CCTV cameras in the mines and mine entrance	Camera 4 Nos, DVR, Monitor with internet facility	0.3	0.05
	Implementation as per Mining Plan and ensure safe quarry working	Mines Manager (1 st Class / 2 nd 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	7.8
Sub-Total			4.47	9.07
TOTAL			17.22	13.08

Towards EMP measures, Rs.17.22 Lakhs is allocated under capital cost and Rs.13.08 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.

* * * * *



CHAPTER-XI



SUMMARY AND CONCLUSION

CHAPTER 11

SUMMARY & CONCLUSION

11.1 INTRODUCTION:

Thiru. R. Gopalakrishnan propose to operate Rough Stone and Gravel Quarry at Survey No. 199/6A Over An Area Of 1.08.0 ha In Appayanaickenpatti Village, Vembakottai Taluk, Virudhunagar District, Tamilnadu . Revised production of 76,566 m³ of rough stone and 7,982 m³ of Gravel up to depth of 20 m for the period of 5 years and has initiated action towards obtaining environmental clearance. Its details are as follows:

Table 11.1: Basic details of the project

1	Project Name	Rough stone and Gravel Quarry of Thiru. R. Gopalakrishnan
2	Survey No.	199/6A
3	Extent	1.08.0 Ha
4	Production	The Proposed Production is 76,566m ³ of Rough Stone and 7,982m ³ of gravel for the period of five years up to depth of 20 meter for 5 year period
5	Land ownership	Patta land in the name applicant

Although the individual lease area of this project is less than 5 Ha, the other existing and proposed quarries within the 500m radius cluster along with this subject project works out to >5 Ha. Hence, this proposal is considered under Category – B1 and as per MoEF & CC notification necessitates preparation of EIA/EMP report and public hearing. Apart from this proposal of Thiru. R. Gopalakrishnan, another proposal of Thiru. Balakrishnan is also falling in the cluster. As such combined impact prediction and individual EMP report preparation is carried out. This EIA/EMP report for Thiru. R. Gopalakrishnan is prepared based on standard and additional Terms of Reference issued by SEIAA, Tamil Nadu vide TOR Identification No. TO24B0108TN5620880N dated 11.01.2025 and is in conformance of the generic structure prescribed by MOEF&CC in their notification of September 2006 and the approved mining plan.



11.2 SALIENT DETAILS OF THE PROJECT:

Table 11.2: Salient details of the projects

Details	
A.Statutory Clearances	
Precise Area Communication	Issued by Department of Geology & Mining vide KV1/221/2022-Mines, Dated: 26.04.2022. (Annexure-1)
Mining Plan Approval	Approved Department of Geology & Mining vide Roc. KV1/221/2022, dated 15.06.2022 (Annexure-2)
Details of Quarries within 500m radius	Approved Department of Geology & Mining vide Roc. KV1/221/2022, dated 15.06.2022 (Annexure-3A)
B. Application for Environmental Clearance	
Terms of Reference	TO24B0108TN5620880N dated 11.01.2025
Baseline Data Collection	Carried out by Creative Engineers & Consultants , Chennai for Summer Season (Mar 2025 – May 2025)
C.Site Details	
Location	Appayanaickenpatti village, Vembakottai Taluk, Virudhunagar District, Tamil Nadu
Coordinates	Latitude: 9° 17' 41.8"N to 9° 17' 46.8"N Longitude: 77° 41' 46.6"E to 77° 41' 44.4"E
Nearest Village	Kundampatti -1.4km – S
Nearest Town	Thiruvenkadam – 5 Km - SW
Nearest Highway	SH-44 - 4.0km - S
Nearest Railway Station	Sivakasi – 21km - NE
Nearest Airport	Madurai - 74km- NE
Accessibility	The applied area can be easily accessible 48.5Kms from Virudhunagar to Thiruvenkadam road, Via. Vellur, Sivakasi, Vembakottai & Sevalpatti, and then to the applied area at a distance of 4Km towards southwest.
Topography	The area applied for mining lease is a gentle plain terrain and dry lands without any vegetation
D. Environmental Setting of the Study Area	
Nearest Water Bodies	Seasonal odai-180m-SE, Vaippar River –240m – (NE), Nikshopa Nadi – 240m – (NE), Uppu Odai – 3.1km – (SE), Marugal Odai – 5.0km – (NE), Kayalkudi River -7.2km – (NE).
Nearest Reserve Forests	Nil within 10 km radius
Notified Archaeologically important places, Monuments	Nil within 10km radius
Local Places of Historical and Tourism Interest	Nil within 10 km radius
Environmental sensitive areas, Protected areas as per Wildlife Protection Act, 1972*	Nil within 10km radius



DRAFT EIA/EMP REPORT FOR ROUGH STONE & GRAVEL QUARRY OF THIRU. R. GOPALAKRISHNAN, AT SURVEY NO. 199/6A OVER AN AREA OF 1.08.0 HECTARES IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMILNADU

Other industries	Other than crushers, Rough stone quarries, match box, fire works factories no other major industries are located in the study area.
E. Technical Description	
Past production details	Earlier worked by the applicant from 29.05.2017 to 28.05.2022 by EC Lr.No. SEIAA-TN/F.No.2510/EC/1(a)/1800/2014 dated 27.03.2015 .Existing pit dimension – 82m x44mx4m (Max)
Geological Reserves	2,56,168 m3
Mineable Reserves	Rough stone - 76,566 m3 Gravel - 7,982 m3
Mining Method	Opencast mechanized mining using jackhammer drilling, blasting, excavation through excavator & mineral transport through tippers will be carried out.
Production	It is proposed to mine out 76,566 m3 of Rough Stone & 7,982 m3 of Gravel up to depth of 20m for the period of 5 years
Waste Generation and Management	There is no waste generation anticipated in these quarries since the entire excavated material will be utilized.
Ultimate Depth	20m
F. Project Requirements	
Manpower	16 persons directly and 50 people indirectly.
Water Requirement and Source	Water Requirement: 8 KLD Source: The required water will be procured initially from outside agencies. Later Rain water harvested in the mine sump can also be used.
Power Requirement	No electricity needed for mining operation. The minimum power requirement for office, etc will be met from state grid.
Site Services	This is a proposed project. Site services like mine office, first aid room, rest shelters, toilets etc. will be provided as semi-permanent structures.
Project Cost	Rs. 34,58,887 /-

Mining and its associated activities are only observed within 300m radius.



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 2025 to May 2025)** For the purpose of this study, the area has been divided into two zones, namely, core and buffer zones. The lease area is considered to be the core zone while the buffer zone encompasses a 10km radius from the periphery of the core zone.

11.3.2 SOCIO-ECONOMIC STATUS:

The proposed Rough stone and gravel quarries are located in in Appayanaickenpatti Village, Vembakottai Taluk, Virudhunagar District. Based on 2011 census data, in the 10km radius there are 35 Rural Villages and 2 urban areas from Five Taluks namely Sivakasi, Rajapalayam, Sattur, Sankarankoil, Kovilpatti. of 3 districts namely Virudhunagar, Tirunelveli and of Thoothukkudi District. The demographic profile of the study area is given below:

Table 11.3: Social, Economic And Demographic Profile of the Study Area

Details	Population	Percentage
A. Gender-wise distribution		
Male Population	49528	49.35
Female Population	50838	50.65
Total	100366	100
B. Caste-wise population distribution		
Scheduled Caste	23360	23.27
Scheduled Tribes	149	0.15
Other	76857	76.58
Total	100366	100
C. Literate and Illiterate population		
Literate Males	38114	54.75
Literate Females	31498	45.25
Total Literate Population	69612	69.36
Others Males	11414	37.11
Others Females	19340	62.89
Others Population	30754	30.64

DRAFT EIA/EMP REPORT FOR ROUGH STONE & GRAVEL QUARRY OF THIRU. R. GOPALAKRISHNAN, AT SURVEY NO. 199/6A OVER AN AREA OF 1.08.0 HECTARES IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMILNADU

Details	Population	Percentage
Total	100366	100
D. Occupational structure		
Main workers	49466	49.30
Marginal workers	5157	5.10
Total Workers	54623	54.40
Total Non-workers	45743	45.60
Total	100366	100

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 11.4: Baseline Data

A. Meteorological Data			
Parameters	Minimum	Maximum	
Temperature In °c	22.0	40.0	
Humidity in %	19.8	94.4	
Wind speed in km/hr	<1.8	37.1	
Predominant wind direction from	NE		
B. Ambient Air Quality Data – 6 Locations			
Parameters	Core Zone	Buffer Zone	Limits
Particulate Matter (Size <10 µm)	57.4 – 73.9	41.1 – 68.0	100
Particulate Matter (Size <2.5 µm)	27.3 – 35.7	19.2 – 31.7	60
Sulphur Dioxide (as SO ₂)	5.1 – 8.9	3.9 – 8.6	80
Nitrogen Dioxide (as NO ₂)	8.2 – 12.4	6.8 – 12.0	80
Conclusion: The existing Ambient Air Quality levels for PM10, PM2.5, SO2 and NO2, are within the NAAQ standards prescribed CPCB limits. 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)			



DRAFT EIA/EMP REPORT FOR ROUGH STONE & GRAVEL QUARRY OF THIRU. R. GOPALAKRISHNAN, AT SURVEY NO. 199/6A OVER AN AREA OF 1.08.0 HECTARES IN APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT, TAMILNADU

C. Water Quality – 6 Locations			
pH at 25 °C	7.25 – 7.67	6.5-8.5	
Total Dissolved Solids, mg/L	298.56 – 590.7	2000	
Chloride as Cl-, mg/L	39.5 – 164	1000	
Total Hardness (as CaCO3), mg/L	194 – 396	600	
Total Alkalinity (as CaCO3), mg/L	279– 310	600	
Sulphates as SO42-, mg/L	16.2 – 190	400	
Iron as Fe, mg/L	0.03 – 0.09	0.3	
Nitrate as NO3, mg/L	1.44 – 5.32	45	
Fluoride as F, mg/L	0.23 – 0.52	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 – 6 Locations			
Parameter	Core Zone	Buffer Zone	Limit
Day Equivalent	50.2	45.3 – 48.9	55
Night Equivalent	39.3	37.4 – 43.4	45
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.			
E. Soil Quality – 3 Locations			
Parameter	Buffer Zone		
pH	6.25 – 7.52		
Electrical Conductivity (µmho/cm)	82.55 – 97.54		
Organic matter (%)	2.39 – 3.12		
Total Nitrogen (mg/kg)	475 - 732		
Phosphorus (mg/kg)	2.34 – 3.54		
Sodium (mg/kg)	770 – 1040		
Potassium (mg/kg)	624-780		
Soil is of Silt loam type.			



F. Land Environment:

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 11.5: Land Use in 10Km Buffer Zone

S.No	Land use Feature	Area (Sq.Km)	Percentage
1	Agriculture/ Plantation	86.40	27.07
2	Fallow Land	117.00	36.66
3	Land With Scrub	88.41	27.70
4	Land Without Scrub	7.25	2.27
5	Water bodies	11.69	3.66
6	Settlement	4.70	1.47
7	Mining Area/ Industries	3.74	1.17
	Total	319.19	100

From the above table it is seen that 27.07 % of the study area is agriculture land and 36.66 % are fallow land. Land with scrub constitutes 27.70 %, lands without scrub constitute 2.27% and waterbodies constitute 3.66% and remaining constitute 2.64 %

Biological Environment:

Flora: The lease area is a non forest, private land partly mined & exposed with rock. Unmined area is mostly barren interspersed with thorny bushes only.

Buffer Zone comprise of agricultural land, rocky waste land, barren land and mined out pits. The Dominated species in the buffer zone are Prosopis juliflora, Sygygium cumuni, Borassus flabellifer, Albizia lebbeck, Acacia auriculiformis, Azadirachta indica, etc. The list of flora in the core and buffer zone is provided in Table No.3.24 and 25, Chapter-III.

Fauna: 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. From the study it observed that the area in general consists of species of least concern only. The area does not form the migratory path of the birds also. List of fauna within the study area is given in Table No – 3.26, Chapter-III.

H) HYDROLOGICAL STUDY:

The area applied for mining lease is a gentle plain terrain. Part of the lease area is already mined. There are no perennial water courses in the lease areas.

In the study area, the shallow aquifer is developed through dug wells and deeper aquifer through tube wells. The groundwater has revealed that potential fractures are encountered at deeper levels. Rain water collected in the tanks in the region acts as a good source of water during post monsoon. The water in the wells are available mainly after post monsoon and it reduces during summer. Bore wells are as deep as 400 ft also and it reflects that the yield is only better at deeper water levels

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. Besides, the mining area consists of hard compact rock, no major water seepage within the mine is expected. From the nearby working mines, no such seepage is also observed.

The stage of groundwater development of Vembakottai where the study area falls is 58%. In view of this, this area can be categorized as 'Safe' from ground water development point of view.

11.4 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES:

11.4.1 GENERAL:

The identified impacts due to the mining operation of the leases individually as well as cumulatively 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 in the area due to mining and allied activities are 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 occur as a result of emission of SO₂, NO_x, 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 11.6: 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 equipments.
		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.
		Fencing with green net as necessary will be carried out around the lease periphery on all sides

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 through model simulations are done using AERMOD View Gaussian Plume Air Dispersion Model for the air pollutant arising from the mining operations, namely, PM₁₀, PM_{2.5}. **Ground Level Concentration** (GLC) have been computed .

It can be seen, the resultant added concentrations with baseline figures with respect to PM₁₀ is in the range of 52.9 µg/m³ to 75.0 µg/m³ and with respect to PM_{2.5} are in the range of 25.1 µg/m³ to 36.7 µg/m³, which are within the stipulated statutory limits for the projects.

Additionally, cumulative impact due to working of Thiru. R. Gopalakrishnan project and proposed project namely Balakrishnan on ambient air quality is also assessed. The cumulative post project concentration with respect to PM₁₀ is in the range of 52.9 µg/m³ to 76.3 µg/m³ and with respect to PM_{2.5} are in the range of 25.1 µg/m³ to 36.7 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:

The water requirement for this project is expected to be 8 KLD comprising 1.0 KLD for drinking water and domestic use, 5.0 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 respective mine pit sump will be used for this purpose.

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



Table 11.7: 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 475 m 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 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 if any..
C	Drainage Course	Disturbance to drainage course	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 southern side of the lease area. Besides, plantation will also be carried out in the safety zone. There is no proposal to discharge any effluent into this waterbody. As such no major impact is envisaged on the nearby water bodies due to project operations.

Stage of Groundwater Development: The groundwater resource data of Virudhunagar district was obtained from the data provided in the technical report of the Central Ground Water Board, South Eastern Costal Region – ‘District groundwater brochure, Virudhunagar District.’ Based on the report it is seen that that the stage of groundwater development of Vembakottai where the study area falls is 58% and as such this area can be categorized as ‘Safe’ from ground water development point of view. Thus there is scope for further ground water development.

- **Generation of mine pit water:** 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. In the nearby region, the 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. The mining area consists of hard compact rock, hence no major water seepage within the mine is expected from the periphery. Besides, the ground water potential in the region is low. The ultimate pit depth of mining



is 20m for the two project. 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.

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:

The following control measures will be implemented in the projects 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) Adopting different blast timing 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. Elaborate details regarding the same are provided under section 4.4.2, Chapter-IV.

11.4.6 IMPACT ON LAND ENVIRONMENT:

There is no waste generation anticipated in these quarry operations 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, entire 0.75.0 Ha of mined out area



will be left as water body. 0.02.0 Ha is infrastructure & Road, 0.27.0 ha will be under afforestation, 0.04.0 Ha will be Fencing.

. 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:

Leased and its nearby area is of dry rocky type with very little vegetation. Necessary mitigative measures like dust suppression, proper maintenance of equipment's, greenbelt and plantation etc., will be carried out to prevent dust generation & any further impact on the vegetation. About 500 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 in the name applicant.. Hence, there are no habitations or hutments in the core zone area and no rehabilitation or resettlement is involved. The mining operations in the proposed mines will each employ about 16 persons directly and about 50 persons. 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, Rs.2.0 Lakhs is allocated for each project. The activities identified under CER will be implemented in a phased manner in provision of facilities in nearby Government School.

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 like external crusher units for producing stone aggregates of different sizes or construction of roads, bridges, buildings and other buyers etc. Since the productivity is less, there will be about 1 trips per hour. The transport route can absorb this negligible 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 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 and vehicles
- ❖ Avoiding overloading of material
- ❖ Covering of loaded vehicles with tarpaulins sheet if warranted.
- ❖ Installation of barriers at vulnerable locations
- ❖ Provision of tyre washing facility at the mine outlet

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 the mines. Hence no liquid waste is generated.

The hazardous waste generated 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. 17.22 Lakhs is allocated under capital cost and Rs.13.08 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 have been provided in in Table No. 10.2, Chapter-X.

11.6 ADDITIONAL STUDIES:

This draft EIA/EMP report will be submitted for public hearing 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**.

The baseline monitoring carried out for this project reflects the cumulative impact of the existing quarries. The cumulative impacts of the proposed Rough stone and Gravel Quarries of Thiru. R. Gopalakrishnan project and another proposed projects namely Balakrishnan are



provided in detail in Chapter-IV of the EIA/EMP Report. From the study it is observed that by ensuring systematic mining with proper mitigative measures as suggested in the report no adverse impact on the surrounding environment is envisaged. It is also worth mentioning here that, these proposed quarry leases are more of a substitute for the recently expired quarry leases and as such cumulatively no major additional pollution load is expected.

11.7 CONCLUSION:

By systematic and scientific mining adhering to all the statutory norms and enforcing and strictly implementing the above said mitigation measures mentioned in this report, no adverse impact is envisaged. The proposed mining project will benefit this region in the fields of potential employment opportunities, improved per capita income for local people, improved social welfare facilities in respect of education, medical healthcare systems, 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 NABER 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 13 years of experience in dispersion modeling, computer applications. Specialized in cad and computer software, applications. 5years experience in the field of socio economy



**DRAFT EIA/EMP REPORT FOR ROUGH STONE & GRAVEL QUARRY OF
THIRU. R. GOPALAKRISHNAN, AT SURVEY NO. 199/6A OVER AN AREA OF 1.08.0 HECTARES IN
APPAYANAICKENPATTI VILLAGE, VEMBAKOTTAI TALUK, VIRUDHUNAGAR DISTRICT,
TAMILNADU**

Expert name	Qualification	Position	Experience
			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 & Environmental Sciences)	EIA Coordinator & Functional area expert (EB,SC,LU&AP)	More than 12 years of experience in environment and allied fields.
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

* * * * *



ANNEXURES

ANNEXURE - V

புவியியல் மற்றும் சுரங்கத்துறை

உதவி இயக்குநர் அலுவலகம்,
மாவட்ட ஆட்சியர் அலுவலக வளாகம்,
விருதுநகர்.



ந.க.எண்: கேவி1/221/2022-கனிமம்,

நாள்: 26.04.2022.

குறிப்பாணை

பொருள்: கனிமங்களும் குவாரிகளும் - விருதுநகர் மாவட்டம், வெம்பக்கோட்டை வட்டம் - அப்பையநாயக்கன்பட்டி கிராமம் - பட்டா புல எண்: 199/6A மொத்தப்பரப்பு 1.08.00 ஹெக்டேர் - ஐந்து வருடங்களுக்கு உடைகல் மற்றும் கிராவல் குவாரி உரிமம் வழங்கல் - சரியான உகந்த பரப்பு (Precise Area) தேர்வு செய்யப்பட்டது - சுரங்ககத்திட்டம் மற்றும் மாநில அளவிலான சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணையத்தின் இசைவினைப் பெற்று சமர்ப்பிக்க கோருவது - தொடர்பாக.

- பார்வை:**
1. திரு.இரா.கோபாலகிருஷ்ணன், த/பெ. இராமசாமி மதுரை விண்ணப்பம் நாள்: 14.02.2022.
 2. இவ்வலுவலக கடிதம் எண் ந.க.கேவி1/221/2022, நாள்: 23.02.2022.
 3. சாத்தூர் வருவாய் கோட்டாட்சியர் கடிதம் எண்: மூ.மு-அ2/1586/2022 நாள்: 11.04.2022.
 4. உதவி இயக்குநர், புவியியல் மற்றும் சுரங்கத்துறை அவர்களின் புலத்தணிக்கை அறிக்கை நாள்: 22.04.2022.
 5. 1959 -ம் வருடத்திய தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 41 மற்றும் 42.
 6. அரசாணை எண்.169 தொழில் (எம்.எம்.சி.1) துறை, நாள்: 04.08.2020.
 7. அரசாணை எண்.208, தொழில் (எம்.எம்.சி.1) துறை, நாள்: 21.09.2020.
 8. தொடர்புடைய ஆவணங்கள்.

விருதுநகர் மாவட்டம், வெம்பக்கோட்டை வட்டம், அப்பையநாயக்கன்பட்டி கிராமம், பட்டா புல எண்:199/6A மொத்தப்பரப்பு 1.08.00 ஹெக்டேர் பரப்பில் 5 வருடங்களுக்கு உடைகல் மற்றும் கிராவல் குவாரி குத்தகை உரிமம் வழங்கக்கோரி மதுரை மாவட்டம், திருமங்கலம் வட்டம், கற்பகம் நகர், கதவு எண்: 70/1 என்ற

A1

R. Gopalakrishnan

102

சாத்தூர் வருவாய் கோட்டாட்சியர் மற்றும் புலியியல் மற்றும் சுரங்கத்துறை, உதவி இயக்குநர் ஆகியோர் கீழ்க்காணும் நிபந்தனைகளுக்குட்பட்டு மேற்கண்ட புலங்களில் உடைகல், கிராவல் குவாரி குத்தகை உரிமம் ஐந்தாண்டுகளுக்கு வழங்க பரிந்துரை செய்துள்ளனர்.

- எனவே, துறை அலுவலர்களின் பரிந்துரையினை ஏற்றும் நிபந்தனைகளுக்கு உட்பட்டும், விருதுநகர் மாவட்டம், வெம்பக்கோட்டை வட்டம், அப்பையநாயக்கன்பட்டி கிராமம், புல எண்: 199/6A மொத்தப்பரப்பு 1.08.00 ஹெக்டேர் நிலம் 1959-ம் வருடத்திய தமிழ்நாடு சிறுகணிம சலுகை விதிகள் விதி எண்: 19 (1) மற்றும் 20 -ன் படி ஐந்து வருடகாலத்திற்கு உடைகல் மற்றும் கிராவல் குவாரி உரிமம் வழங்க தகுதி வாய்ந்த நிலப்பரப்பாக (Precise area) கருதப்படுகிறது.

A2

R. Gopalakrishnan

தினங்களுக்குள் சமர்ப்பிக்குமாறும், விதி எண்: 42-ன்படி மாநில அளவிலான சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணையத்தின் (State Level Environmental Impact Assessment Authority) இசைவினைப் பெற்று சமர்ப்பிக்குமாறும் மனுதாரர் திரு.இரா.கோபாலகிருஷ்ணன் கேட்டுக் கொள்ளப்படுகிறார்.



[Signature]
உதவி இயக்குநர்,
புவியியல் மற்றும் சுரங்கத்துறை,
விருதுநகர்

பெறுநர்
திரு.இரா.கோபாலகிருஷ்ணன்,
த/பெ. இராமசாமி,
கதவு எண்: 70/1, கற்பகம் நகர்,
திருமங்கலம் வட்டம்,
மதுரை மாவட்டம்.

[Signature]
26/6/2022

நகல்
உறுப்பினர் செயலர்,
மாநில சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணையம் (SEIAA),
சென்னை.

From

Thiru.T.Selvasekar, M.Sc.,
Assistant Director,
Geology and Mining,
Virudhunagar.

To

Thiru.R.Gopalakrishnan,
S/o.Sri.Ramasamy,
70/1E, Karpagam Nagar,
Thirumangalam Town & Taluk,
Madurai.

Roc.No: KV1/221/2022, Dated: 15.06.2022.

Sir,

Sub: Mines and Minerals - Minor Mineral - Virudhunagar District - Vembakottai Taluk - Appayanaickenpatti Village - Patta Land - S.F.No: 199/6A - Extent 1.08.00 Hectares - Quarry lease application preferred by Thiru.R.Gopalakrishnan for quarrying Rough Stone and Gravel - Approval of Mining Plan - Regarding.

Ref: 1. Quarry lease application received from Thiru.R.Gopalakrishnan dated: 14.02.2022.
2. The Assistant Director, Geology and Mining, Virudhunagar Rc.No.KV1/221/2022, Dated: 26.04.2022.
3. Thiru.R.Gopalakrishnan letter, dated: 16.05.2022.

Thiru.R.Gopalakrishnan has preferred an application for the grant of quarrying lease to quarry Rough Stone and Gravel over an extent of 1.08.00 Hectares of Patta Land in S.F.No: 199/6A of Appayanaickenpatti Village, Vembakottai Taluk, Virudhunagar District for a period of 5 (Five) Years Under Rule 19 of Tamil Nadu Minor Mineral Concession Rules 1959.

2) The application was examined and consented to grant lease to quarrying Rough Stone and Gravel over an extent of 1.08.00 Hectares of Patta Land in S.F.No: 199/6A for a period of 5 years subject to produce Mining Plan for approval and to obtain Environment Clearance from SEIAA in the reference 2nd cited.

3) The applicant has submitted the Mining Plan, prepared as per guidelines issued by the Commissioner of Geology and Mining and as per Rules and Acts. The Geological and Mineable reserves are discussed in Part - A 3. The applicant can quarry the mineral in the following measurements:-

R. Gopalakrishnan

GEOLOGICAL RESERVES (As per Mining Plan)

MINERAL	SECTION	LENGTH (M)	WIDTH (M)	DEPTH (M)	TOTAL VOLUME IN CUM
GRAVEL	PQ - AB	164	66	2.0	21,648
ROUGH STONE	PQ - AB	164	66	23.0	2,48,952
TOTAL GEOLOGICAL RESERVES VOLUME IN CU.M.					2,70,600
DEDUCT OLD PIT = 82m x 44m x 4.0m					-14,432
TOTAL GEOLOGICAL RESERVES					2,56,168

MINEABLE RESERVES (As per Mining Plan)

MINERAL	SECTION	BENCH	LENGT H (M)	WIDTH (M)	DEPTH (M)	VOLUME IN CUM	TOTAL VOLUME IN CUM
GRAVEL	PQ – AB	I	149	51	2.0	15198	7,982
	DEDUCT OLD PIT – 82 X 44 X 2 =					-7216	
ROUGH STONE	PQ - AB	I	149	51	3.0	22797	82,561
	PQ - AB	II	139	41	5.0	28495	
	PQ - AB	III	129	31	5.0	19995	
	PQ - AB	IV	119	21	5.0	12495	
	PQ – AB	V	109	11	5.0	5995	
	DEDUCT OLD PIT – 82 X 44 X 2 =					-7216	
TOTAL MINEABLE RESERVES						90,543	

Production Schedule for 5Years Period (As per Mining Plan)

YEAR	SECTION	BENCH	LENGTH(M)	WIDTH(M)	DEPTH(M)	VOLUME IN CUM		TOTAL PRODUCTION IN CUM
						GRAVEL	ROUGH STONE	
I	PQ-AB	I	125	51	2.0	5534	----	17,443
	DEDUCT OLD PIT = 82 X 44 X 2 = -7216						----	
	PQ-AB	I	125	51	3.0	----	11909	
	DEDUCT OLD PIT = 82 X 44 X 2 = -7216					----		
II	PQ-AB	I	24	51	2.0	2448	----	18,010
	PQ-AB	I	24	51	3.0	----	3672	
	PQ-AB	II	58	41	5.0	----	11890	
III	PQ-AB	II	81	41	5.0	----	16605	16,605
IV	PQ-AB	III	129	31	5.0	----	19995	19,995
V	PQ-AB	IV	119	21	5.0	----	12495	18,490
	PQ-AB	V	109	11	5.0	----	5995	
TOTAL PRODUCTION						7,982	82,561	90,543

R. Appalakrishnan

A5
80

The available mineable reserves have been computed as **82,561 m³** as Rough Stone, Gravel as **7,982 m³** up to the depth of **25m** from the ground level.

The Environmental Management Plan and Mine closure plan are discussed Part - B 9 & 10 and all conditions has been incorporated in the Mining Plan as laid down by the authorities.

4) In view of the above, in exercise of the powers delegated under Rule 41 of Tamil Nadu Minor Mineral Concession Rules, 1959, I hereby approve the Mining Plan submitted by Thiru.R.Gopalakrishnan for quarrying Rough Stone and Gravel over an Extent of 1.08.00 Hectares of Patta Land in S.F.No: 199/6A of Appayanaickenpatti Village, Vembakottai Taluk, Virudhunagar District for a period of 5 years to obtain Environment Clearance from SEIAA, Chennai subject to the following conditions:

1. The Mining Plan is approved without prejudice to any other law applicable to the quarry permission from time to time where such Laws are made by the State Government or any other authority.
2. 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 Tamil Nadu Minor Mineral Concession Rules, 1959.
3. The Mining Plan is approved without prejudice to any other order or direction from any court of competent jurisdiction.
4. The 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) Amendment Act, 2015 or any other connected Laws including, Environment Protection Act, 1986, and the Rules made there under in Tamil Nadu Minor Mineral Concession Rules, 1959.

Encl: Two copies of Mining Plan.


Assistant Director,
Geology and Mining,
Virudhunagar.

Copy to:
The Member Secretary,
State Level Environmental Impact
Assessment Authority,
PanagalMaligai,
No. 1 Jeenis Road,
Saidapet, Chennai-15.

*for
15/11/2015*

R. Gopalakrishnan A6 8)



MINES LAND PHOTO



விருதுநகர் மாவட்டம், வெம்பக்கோட்டை வட்டம், அப்பையநாயக்கன்பட்டி கிராமம், பட்டா பட்டா புலஎண். 199/6A ஆக மொத்தம் 1-08.00 ஹெக்டேரில் மட்டும் 5 வருடங்களுக்கு விருதுநகர் மாவட்ட ஆட்சித்தலைவர் அவர்களின் செயல்முறை ஆணை எண். கே.வி.1/221/2022-கனிமம் நாள் 26.04.2022ன் படி திரு. இரா. கோபாலகிருஷ்ணன், த/பெ. இராமசாமி அவர்கள் மனு செய்துள்ளார். மேற்படி இடம் உடைகல், ஜல்லி மற்றும் கிராவல் வெட்டி எடுப்பதற்கு அங்கீகரிக்கப்பட்ட இடம் என்பதை இதன் மூலம் சான்றளிக்கிறேன்.

மேற்படி இடத்திற்கு செல்வதற்கு அணுகுபாதை வசதி உள்ளது என்றும் சான்றளிக்கிறேன்.

இடம்:

நாள்:

மனுதாரர் கையெழுத்தம்

R. Gopakrishnan

Handwritten signature
கிராம நிர்வாக அலுவலர்
APPAYANAIKENPATTI VILLAGE,
VEMBAKOTTAI (T.K.)
VIRUDHUNAGAR (D.L.)



கிராம நிர்வாக அலுவலரின் சான்று

விருதுநகர் மாவட்டம், வெம்பக்கோட்டை வட்டம், அப்பையநாயக்கன்பட்டி கிராமம், பட்டா புலஎண். 199/6A ஆக மொத்தம் 1-08.00 ஹெக்டேரில் மட்டும் 5 வருடங்களுக்கு விருதுநகர் மாவட்ட ஆட்சித்தலைவர் அவர்களின் செயல்முறை ஆணை எண். கே.வி.1/221/2022-கனிமம் நாள் 26.04.2022ன் படி திரு. இரா. கோபாலகிருஷ்ணன், த/பெ. இராமசாமி அவர்கள் மனு செய்துள்ளார். இவர் ஆரம்பிக்க உள்ள உடைகல், ஜல்லி மற்றும் கிராவல் குவாரி இடத்திற்கு செல்ல போதிய அனுகுபாதை வசதி உள்ளது மேலும் நிலத்தை சுற்றி 300மீட்டர் சுற்றளவில் குடியிருப்புகள், கோயில்கள், பள்ளிக்கூடம் ஏதும் இல்லை.

மேற்படி புல எண்கள். மேற்படி கிராம கணக்கு தடை ஆணை புத்தகத்தில் இடம் பெறவில்லை. மேலும் 10கி.மீ. சுற்றளவில் பிற மாவட்ட எல்லையோ, மாநில எல்லையோ இடம்பெறவில்லை. மேற்படி சான்று கனிமவளத்துறைக்கு அளிக்கும் வகைக்காக வழங்கப்படுகிறது.

சுருதி
05/05/2022
கிராம நிர்வாக அலுவலர்
APPANAMAICKENPATI VILLAGE
VEMBAKOTTAI (T.N)
VIRUDHUNAGAR (D.C.)

From

Thiru.T.Selvasekar, M.Sc.,
Assistant Director,
Geology and Mining,
Virudhunagar.

To

Thiru.R.Gopalakrishnan,
S/o.Sri.Ramasamy,
70/1E, Karpagam Nagar,
Thirumangalam Town & Taluk,
Madurai.

Roc.No: KV1/221/2022, Dated: 15.06.2022.

Sir,

Sub: Mines and Minerals - Minor Mineral -
Virudhunagar District - Vembakottai Taluk -
Appayanaickenpatti Village - Patta Land - S.F.No:
199/6A - Extent 1.08.00 Hectares - Quarry lease
application preferred by Thiru.R.Gopalakrishnan
for quarrying Rough Stone and Gravel - Details of
quarries in 500 meter radius - Regarding.

Ref: 1. Quarry lease application received from
Thiru.R.Gopalakrishnan dated: 14.02.2022.
2. The Assistant Director, Geology and Mining,
Virudhunagar Rc.No.KV1/221/2022, Dated:
26.04.2022.
3. Thiru.R.Gopalakrishnan letter, dated:
16.05.2022.

Thiru.R.Gopalakrishnan has preferred an application for the grant of quarrying lease to quarry Rough Stone and Gravel over an extent of 1.08.00 Hectares of Patta Land in S.F.No: 199/6A of Appayanaickenpatti Village, Vembakottai Taluk, Virudhunagar District for a period of 5 (Five) Years Under Rule 19 of Tamil Nadu Minor Mineral Concession Rules 1959.

The applicant Thiru.R.Gopalakrishnan in the reference 3rd cited has requested to furnish details of quarries situated within 500 m radial distance from the applied area.

In this connection, it is informed that the details of quarry situated within 500 meter radius from the proposed area for Environmental Clearance as detailed below:

R. Gopalakrishnan

82
A9

1) Details of quarry within 500 m radius from the applied area

S. No	Quarry detail	Village	S.F. No.& Extent (Hect)	Proceedings No. & Lease Period
I	Existing Quarries:			
1.	Thiru.S.Ragupathy S/o. Subba Reddiyar, D.No. 2, N.G.O. Colony, Thiruvengadam, Sankarankovil Taluk, Tirunelveli District.	Appayanaickenpatti	32/4 , 38/3A2 etc., (2.91.00)	KV1/27944/2014 Dated: 06.05.2017 22.05.2017 to 21.05.2022
2.	Thiru.P.Shanmugaraj, S/o. Perumal Reddiyar, D.No. 37/1 North Street, Sathirakondon Post, Sankarankovil Taluk, Tirunelveli District.	Appayanaickenpatti	38/6A, 41/2, 42 (2.74.5)	KV1/27945/2014 Dated: 08.05.2017 22.05.2017 to 21.05.2022
3.	Thiru.S.Ramraj, S/o. Shanmugaraj, D.No. 7/112, Kundampatti, Sevalpatti (P.O), Sankarankovil Taluk, Tirunelveli District.	Appayanaickenpatti	97/1,198/4 206, 207/1 (2.88.00)	KV1/21616/2014 Dated: 09.02.2018 26.02.2018 to 25.02.2023
4.	Thiru.S.Subburaj S/o, Shanmugaraj 7/112, Kundampatti Sangarankovil Taluk, Tirunelveli District	Appayanaickenpatti	44 46/1 (2.20.50)	KV1/7441/2017 Dated:01.02.2019 25.02.2019 to 24.02.2024
5.	Thiru.G.Ramasamy S/o, Gopalsamy 70/1E, Karpagam Nagar, Thirumangalam Madurai District.	Appayanaickenpatti	211/1A1,211/ 1A2 211/2A 211/2B, 213/1 213/2A (0.93.00)	KV1/24590/2015 Dated:01.02.2019 25.02.2019 to 24.02.2024
6.	Thiru.P.Shanmugaraj, S/o. Perumal Reddiyar, Sathirakondon Post, Thiruvankadam Taluk, Tirunelveli District.	Appayanaickenpatti	207/2A 207/2B (1.91.50)	KV1/202/2018 Dated:01.02.2019 25.02.2019 to 24.02.2024
II	Abandoned Quarry : NIL			
1.	Thiru.S.RAGUPATHI, S/o.Subba Reddiyar residing at Door No. 2, N.G.O. Colony, Thiruvengadam Village, Sankarankovil Taluk, Tirunelveli District	Appayanaickenpatti	38/10A 38/11 (0.51.00)	KV1/ 1312 /2012 Dated: 07-10-2013 8/10/2013 to 7/10/2018
2.	Thiru.G.Ramasamy, S/o.Gopalsamy, Door No. 70/1, Karpagam Nagar, Thirumangalam Post and Taluk, Madurai District.	Appayanaickenpatti	208/1, 208/2 208/3, 214/1 (1.98.00)	KV1/1227/2014 Dated: 03.03.2016 27.05.2016 to 26.05.2019
3.	Government Old Pit	Appayanaickenpatti	50	

R. Gopalakrishnan A10 83

Environmental Clearance	Proceedings & Lease Period	Permitted Quantity as per Approved Mining Plan & EC		permit issued & transported Quantity		Depth (m)
		Rough Stone	Gravel	Rough Stone	Gravel	
SEIAA-TN/F.No.2510/EC/1(a)/1800/2014, dated: 27.03.2015	K KV1/5171/2013, dated: 10.05.2017 to 29.05.2017 to 28.05.2022	36,420 Cu.m	14,768 Cu.m	6,932 Cu.m	3,973 Cu.m	4m (Average)

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

Copy to:
The Member Secretary,
State Level Environmental Impact
Assessment Authority,
PanagalMaligai,
No. 1 Jeenis Road,
Saidapet,
Chennai-15.

[Signature]
5/6/2022

[Signature]

A184

III Present Proposed Quarry :				
1.	Thiru.R.Gopalakrishnan, S/o.Sri.Ramasamy, 70/1E, Karpagam Nagar, Thirumangalam Town & Taluk, Madurai.	Appayanaickenpatti	199/6A (1.08.00)	KV1/221/2022 Dated: 26.04.2022
2.	Tmt.R.Gayathiri S/o, Rajendran 44, Kalugumalai Road, Thiruvengadam Nagar & Taluk, Thirunelveli District.	Appayanaickenpatti	39/1A, 39/1B 39/2A , 49 (2.30.20)	KV1/572/2019 Dated: 11.12.2019
3.	Thiru.G.Kaniraj S/o, Gurusamy 60C, Indira Nagar, Keela Thiruvengadam Village, Sangaran Kovil Taluk, Thenkasi District.	Appayanaickenpatti	202/1A2 (1.21.50)	KV1/158/2021 Dated: 13.08.2021
4.	Thiru.S.Ramraj S/o, Shanmugaraj 7/98, South Street, Kundapatti, Paraganur Sevalpatti Village, Thirunelveli Taluk, Sangaran Kovil	Appayanaickenpatti	207/3A,207/3 B, 209/1A, 209/1B,210/1 A1, 210/1A2, 210/1A3,211/ 3A, 211/3A2 (1.28.50)	KV1/638/2021 Dated: 01.09.2021

2) The dimension of the existing pit in the area applied for leases is given below.

	Length (Max) (M)	Width (Max) (M)	Depth (Max) (M)
Pit	82	44	4

3) The period of the earlier Quarry operations (Expired)

Sl. No.	Extent	SF. Nos.	Village & Taluk	Proceedings No. & date	Period
1	1.08.0	199/6A	Appayanaickenpatti & Vembakottai	KV1/5171/2013, dated: 10.05.2017	29.05.2017 to 28.05.2022

R. Gopalakrishnan
A12 85

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,Sivakasi Sub-District, Virudhunagar District																						
1	1	Appanayakkanpatti	Rural	1017	4594	2135	2459	379	202	177	1086	529	557	0	0	0	3291	1620	1671	1303	515	788
		total (A)		1017	4594	2135	2459	379	202	177	1086	529	557	0	0	0	3291	1620	1671	1303	515	788
2-5 km,Sivakasi Sub-District, Virudhunagar District																						
2	1	Kilanmarinadu	Rural	637	2388	1190	1198	252	116	136	525	261	264	0	0	0	1614	914	700	774	276	498
Sattur Sub-District, Virudhunagar District																						
3	1	Sevalpatti	Rural	1316	4806	2438	2368	569	288	281	579	307	272	21	12	9	3098	1795	1303	1708	643	1065
4	2	Kuganparai	Rural	394	1290	641	649	119	61	58	167	78	89	0	0	0	899	489	410	391	152	239
Sankarankoil Sub-District,Tirunelveli District																						
5	1	Chattrappatti	Rural	403	1420	699	721	151	69	82	800	395	405	0	0	0	1020	562	458	400	137	263
6	2	Varaganur	Rural	781	2574	1268	1306	245	133	112	574	290	284	0	0	0	1790	987	803	784	281	503
Sankarankoil Sub-District,Tirunelveli District																						
7	1	Thiruvenkadam (TP)	Urban	2368	8337	4144	4193	865	454	411	2281	1151	1130	78	37	41	5866	3234	2632	2471	910	1561
		total (B)		5899	20815	10380	10435	2201	1121	1080	4926	2482	2444	99	49	50	14287	7981	6306	6528	2399	4129
5-10 km,Rajapalayam Sub-District, Virudhunagar District																						
8	1	Gopalapuram	Rural	423	1461	708	753	128	61	67	385	189	196	0	0	0	1051	572	479	410	136	274
9	2	Vadagarai	Rural	992	3454	1720	1734	316	156	160	91	42	49	0	0	0	2539	1413	1126	915	307	608
Sivakasi Sub-District, Virudhunagar District																						
10	1	Edirkottai	Rural	1203	4329	2129	2200	465	254	211	331	156	175	0	0	0	3086	1656	1430	1243	473	770
11	2	Kongankulam	Rural	318	1050	507	543	87	44	43	138	64	74	0	0	0	761	409	352	289	98	191
12	3	Alangulam (Part)	Rural	508	1924	1004	920	164	95	69	480	247	233	0	0	0	1473	812	661	451	192	259
13	4	Kundayiruppu	Rural	1846	6812	3365	3447	852	424	428	1677	820	857	0	0	0	4602	2498	2104	2210	867	1343
14	5	Kangaraseval	Rural	429	1627	790	837	180	96	84	408	187	221	0	0	0	1047	561	486	580	229	351
15	6	Vembakottai	Rural	1196	4478	2225	2253	573	285	288	756	371	385	0	0	0	3128	1714	1414	1350	511	839
16	7	Surarpatti	Rural	406	1523	751	772	195	103	92	999	496	503	0	0	0	933	525	408	590	226	364
17	8	Lakshmipuram	Rural	1603	5610	2771	2839	577	251	326	1327	652	675	5	3	2	3847	2156	1691	1763	615	1148
Sattur Sub-District, Virudhunagar District																						
18	1	Sankarapandiyapuram	Rural	893	3200	1580	1620	315	163	152	1116	540	576	0	0	0	2096	1171	925	1104	409	695
19	2	Thlukkankurichchi	Rural	655	2294	1116	1178	269	135	134	143	66	77	0	0	0	1409	781	628	885	335	550
20	3	Sippipparai	Rural	677	2299	1115	1184	199	103	96	832	414	418	0	0	0	1593	856	737	706	259	447
Sankarankoil Sub-District,Tirunelveli District																						
21	1	Kalingappatti	Rural	1775	6537	3242	3295	641	330	311	1573	784	789	24	12	12	4347	2429	1918	2190	813	1377
22	2	Naduvappatti	Rural	290	998	492	506	81	50	31	78	35	43	0	0	0	589	328	261	409	164	245
23	3	Maipparai	Rural	542	1842	885	957	157	76	81	322	161	161	0	0	0	1272	684	588	570	201	369
24	4	Sangupatti	Rural	677	2418	1222	1196	228	122	106	1104	559	545	11	6	5	1673	959	714	745	263	482
25	5	Vellakulam	Rural	1152	3946	1903	2043	322	164	158	553	269	284	0	0	0	2787	1485	1302	1159	418	741
26	6	A.Karisalkulam	Rural	914	3394	1634	1760	330	169	161	341	159	182	0	0	0	2248	1219	1029	1146	415	731
27	7	Kulasekarapperi	Rural	171	645	327	318	53	25	28	0	0	0	0	0	0	416	239	177	229	88	141
28	8	Kurunjakulam	Rural	397	1425	675	750	122	66	56	616	282	334	9	4	5	1069	562	507	356	113	243
29	9	Sundaresapuram	Rural	95	323	154	169	38	17	21	28	19	9	0	0	0	215	116	99	108	38	70
30	10	Kulakkattakurichi	Rural	278	854	418	436	78	41	37	194	93	101	0	0	0	558	321	237	296	97	199
Kovilpatti Sub-District,Thoothukkudi District																						
31	1	Sundaresapuram	Rural	335	1179	613	566	116	54	62	459	242	217	0	0	0	874	508	366	305	105	200
32	2	Kuruvinatham	Rural	439	1640	826	814	223	112	111	722	365	357	0	0	0	1126	615	511	514	211	303
33	3	Mukkuttumalai	Rural	297	896	441	455	98	65	33	272	139	133	0	0	0	586	310	276	310	131	179
34	4	Lakshmiammalpuram	Rural	316	1115	545	570	108	63	45	724	361	363	0	0	0	826	444	382	289	101	188
35	5	Nakkalamuthanpatti	Rural	351	1215	612	603	118	67	51	396	189	207	0	0	0	826	462	364	389	150	239
36	6	Vadakkupatti	Rural	447	1539	768	771	163	75	88	476	220	256	0	0	0	1248	656	592	291	112	179
Sivakasi Sub-District, Virudhunagar District																						
37	1	Alangulam (CT)	Urban	1364	4930	2475	2455	456	236	220	807	398	409	1	1	0	3809	2052	1757	1121	423	698
		total (C)		20989	74957	37013	37944	7652	3902	3750	17348	8519	8829	50	26	24	52034	28513	23521	22923	8500	14423
		Grand Total (A+B+C)		27905	100366	49528	50838	10232	5225	5007	23360	11530	11830	149	75	74	69612	38114	31498	30754	11414	19340

*Source: District Primary Cences Absract, Virudhunagar, Tirunelveli, Thoothukkudi District of Tamilnadu State-2011

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,Sivakasi Sub-District, Virudhunagar District																	
1	1	Appanayakkanpatti	Rural	1125	1097	85	99	307	499	28	19	705	480	54	106	956	1256
		total (A)		1125	1097	85	99	307	499	28	19	705	480	54	106	956	1256
2-5 km,Sivakasi Sub-District, Virudhunagar District																	
2	1	Kilanmarinadu	Rural	648	417	38	21	53	141	8	14	549	241	75	86	467	695
Sattur Sub-District, Virudhunagar District																	
3	1	Sevalpatti	Rural	1474	1159	59	23	178	229	16	42	1221	865	19	50	945	1159
4	2	Kuganparai	Rural	433	412	165	150	61	107	24	21	183	134	14	20	194	217
Sankarankoil Sub-District,Tirunelveli District																	
5	1	Chattrappatti	Rural	436	410	11	3	359	384	0	0	66	23	0	0	263	311
6	2	Varaganur	Rural	802	768	204	197	367	451	11	9	220	111	3	5	463	533
Sankarankoil Sub-District,Tirunelveli District																	
7	1	Thiruvenkadam (TP)	Urban	2290	1407	244	172	471	576	11	32	1564	627	176	310	1678	2476
		total (B)		6083	4573	721	566	1489	1888	70	118	3803	2001	287	471	4010	5391
5-10 km,Rajapalayam Sub-District, Virudhunagar District																	
8	1	Gopalapuram	Rural	271	99	35	14	11	9	9	8	216	68	186	250	251	404
9	2	Vadagarai	Rural	1006	704	214	91	304	366	14	20	474	227	17	22	697	1008
Sivakasi Sub-District, Virudhunagar District																	
10	1	Edirkottai	Rural	1178	836	70	34	44	37	11	5	1053	760	131	182	820	1182
11	2	Kongankulam	Rural	320	271	11	7	197	222	1	0	111	42	3	1	184	271
12	3	Alangulam (Part)	Rural	547	340	21	6	42	58	9	14	475	262	9	9	448	571
13	4	Kundayiruppu	Rural	1707	1406	141	87	344	472	26	19	1196	828	220	251	1438	1790
14	5	Kangaraseval	Rural	478	413	52	38	114	139	3	5	309	231	6	22	306	402
15	6	Vembakottai	Rural	1251	795	50	10	133	87	9	10	1059	688	88	219	886	1239
16	7	Surarpatti	Rural	274	254	4	7	34	22	0	0	236	225	185	195	292	323
17	8	Lakshmipuram	Rural	1570	1198	128	123	507	607	21	26	914	442	119	61	1082	1580
Sattur Sub-District, Virudhunagar District																	
18	1	Sankarapandiyapuram	Rural	961	797	123	89	227	200	4	3	607	505	14	24	605	799
19	2	Thlukkankurichchi	Rural	669	594	8	5	76	44	9	5	576	540	49	86	398	498
20	3	Sippipparai	Rural	471	352	94	111	229	183	1	2	147	56	200	195	444	637
Sankarankoil Sub-District,Tirunelveli District																	
21	1	Kalingappatti	Rural	1751	1297	165	79	1078	1037	24	18	484	163	164	162	1327	1836
22	2	Naduvappatti	Rural	324	325	56	56	261	258	1	0	6	11	1	2	167	179
23	3	Maipparai	Rural	565	564	77	56	395	464	1	4	92	40	1	0	319	393
24	4	Sangupatti	Rural	473	351	15	10	174	204	8	5	276	132	236	219	513	626
25	5	Vellakulam	Rural	1142	1058	110	95	687	727	25	25	320	211	34	62	727	923
26	6	A.Karisalkulam	Rural	987	915	95	60	738	782	7	6	147	67	26	97	621	748
27	7	Kulasekarapperi	Rural	196	193	16	1	151	27	0	144	29	21	6	6	125	119
28	8	Kurunjakulam	Rural	402	384	127	46	157	272	2	4	116	62	12	40	261	326
29	9	Sundaresapuram	Rural	100	84	45	33	40	47	0	0	15	4	0	1	54	84
30	10	Kulakkattakurichi	Rural	256	261	50	24	153	194	1	0	52	43	1	3	161	172
Kovilpatti Sub-District,Thoothukkudi District																	
31	1	Sundaresapuram	Rural	415	310	195	158	142	137	0	0	78	15	1	3	197	253
32	2	Kuruvinatham	Rural	416	383	182	35	157	311	0	1	77	36	90	42	320	389
33	3	Mukkuttumalai	Rural	233	218	28	26	176	183	0	0	29	9	13	20	195	217
34	4	Lakshmiammalpuram	Rural	343	313	21	16	289	270	1	0	32	27	4	6	198	251
35	5	Nakkalamuthanpatti	Rural	364	331	33	22	263	286	0	1	68	22	10	15	238	257
36	6	Vadakkuppatti	Rural	494	410	138	96	322	292	0	0	34	22	0	3	274	358
Sivakasi Sub-District, Virudhunagar District																	
37	1	Alangulam (CT)	Urban	1350	618	98	11	191	232	61	24	1000	351	103	112	1022	1725
		total (C)		20514	16074	2402	1446	7636	8169	248	349	10228	6110	1929	2310	14570	19560
		Grand Total (A+B+C)		27722	21744	3208	2111	9432	10556	346	486	14736	8591	2270	2887	19536	26207

*Source: District Primary Cences Absract, Virudhunagar, Tirunelveli, Thoothukkudi District of Tamilnadu State-2011

EDUCATIONAL FACILITIES IN THE BUFFER ZONE

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,Sivakasi Sub-District, Virudhunagar District																
1	1	Appanayakkanpatti	1	2	0	0	0	0	0	0	0	0	0	0	0	0
		total (A)		2	0	0	0	0	0	0	0	0	0	0	0	0
2-5 km,Sivakasi Sub-District, Virudhunagar District																
2	1	Kilanmarinadu	1	2	1	0	0	0	0	0	0	0	0	0	1	0
Sattur Sub-District, Virudhunagar District																
3	1	Sevalpatti	1	5	2	1	1	1	0	0	0	0	0	0	2	0
4	2	Kuganparai	1	1	1	1	0	0	0	0	0	0	0	0	1	0
Sankarankoil Sub-District,Tirunelveli District																
5	1	Chattrappatti	1	2	3	1	0	0	0	0	0	0	0	0	1	0
6	2	Varaganur	1	3	1	1	0	0	0	0	0	0	0	0	1	0
		total (B)		13	8	4	1	1	0	0	0	0	0	0	6	0
5-10 km,Rajapalayam Sub-District, Virudhunagar District																
7	1	Gopalapuram	1	1	2	1	0	0	0	0	0	0	0	0	2	0
8	2	Vadagarai		3	2	1	1	0	0	0	0	0	0	0	3	0
Sivakasi Sub-District, Virudhunagar District																
9	1	Edirkottai	1	2	2	0	0	0	0	0	0	0	0	0	2	0
10	2	Kongankulam	1	1	0	0	0	0	0	0	0	0	0	0	0	0
11	3	Alangulam (Part)	1	5	3	3	2	2	0	0	0	0	0	0	3	0
12	4	Kundayiruppu	1	3	3	1	0	0	0	0	0	0	0	0	3	0
13	5	Kangaraseval	1	2	1	1	0	0	0	0	0	0	0	0	1	0
14	6	Vembakottai	1	4	5	1	1	1	0	0	0	0	0	0	5	1
15	7	Surarpatti	1	2	3	1	0	0	0	0	0	0	0	0	3	0
16	8	Lakshmipuram	1	4	4	0	0	0	0	0	0	0	0	0	4	0
Sattur Sub-District, Virudhunagar District																
17	1	Sankarapandiyapuram	1	3	4	1	1	1	0	0	0	0	0	0	4	0
18	2	Thlukkankurichchi	1	1	2	1	0	0	0	0	0	0	0	0	2	0
19	3	Sippipparai	1	1	2	1	1	1	0	0	0	0	0	0	3	0
Sankarankoil Sub-District,Tirunelveli District																
20	1	Kalingappatti	1	2	4	1	1	1	0	0	0	0	0	0	1	0
21	2	Naduvappatti	1	1	2	0	0	0	0	0	0	0	0	0	1	0
22	3	Maipparai	1	1	1	1	0	0	0	0	0	0	0	0	1	0
23	4	Sangupatti	1	2	0	0	0	0	0	0	0	0	0	0	0	0
24	5	Vellakulam	1	4	4	3	0	0	0	0	0	0	0	0	1	0
25	6	A.Karisalkulam	1	2	3	1	1	0	0	0	0	0	0	0	1	0
26	7	Kulasekarapperi	1	1	1	1	0	0	0	0	0	0	0	0	1	0
27	8	Kurunjakulam	1	2	1	1	0	0	0	0	0	0	0	0	1	0
28	9	Sundaresapuram	1	1	1	0	0	0	0	0	0	0	0	0	1	0
29	10	Kulakkattakurichi	1	1	0	0	0	0	0	0	0	0	0	0	1	0
Kovilpatti Sub-District,Thoothukkudi District																
30	1	Sundaresapuram	1	1	1	0	0	0	0	0	0	0	0	0	1	0
31	2	Kuruvinatham	1	2	1	0	0	0	0	0	0	0	0	0	1	0
32	3	Mukkuttumalai	1	2	2	0	0	0	0	0	0	0	0	0	1	0
33	4	Lakshmiammalpuram	1	2	1	0	0	0	0	0	0	0	0	0	1	0
34	5	Nakkalamuthanpatti	1	1	1	0	0	0	0	0	0	0	0	0	1	0
35	6	Vadakkuppatti	1	1	1	1	0	0	0	0	0	0	0	0	1	0
		total (C)		58	57	21	8	6	0	0	0	0	0	0	50	1
		Grand Total (A+B+C)		73	65	25	9	7	0	0	0	0	0	0	56	1

*Source: District Primary Cences Absract, Virudhunagar, Tirunelveli, Thoothukkudi District of Tamilnadu State-2011

MEDICAL FACILITIES IN THE BUFFER ZONE

Sl.No	No. of Villages	Name of village	Medical Facilities (A(1)/NA(2))	Community Health Centre (Numbers)	Primary Health Centre (Numbers)	Primary Health Sub Centre (Numbers)	Maternity And Child Welfare Centre (Numbers)	TB Clinic (Numbers)	Hospital Allopathic (Numbers)	Hospital Alternative Medicine (Numbers)	Dispensary (Numbers)	Veterinary Hospital (Numbers)	Mobile Health Clinic (Numbers)	Family Welfare Centre (Numbers)
0-2 km,Sivakasi Sub-District, Virudhunagar District														
1	1	Appanayakkanpatti	1	0	0	1	0	0	0	0	0	0	0	0
		total (A)		0	0	1	0	0	0	0	0	0	0	0
2-5 km,Sivakasi Sub-District, Virudhunagar District														
2	1	Kilanmarinadu	1	0	0	1	0	0	0	0	0	0	0	0
Sattur Sub-District, Virudhunagar District														
3	1	Sevalpatti	1	0	0	1	0	0	0	0	0	0	0	0
4	2	Kuganparai		0	0	0	0	0	0	0	0	0	0	0
Sankarankoil Sub-District,Tirunelveli District														
5	1	Chattrappatti	1	0	0	1	0	0	0	0	0	0	0	0
6	2	Varaganur	1	0	0	1	0	0	0	0	0	0	0	0
		total (B)		0	0	4	0	0	0	0	0	0	0	0
5-10 km,Rajapalayam Sub-District, Virudhunagar District														
7	1	Gopalapuram	2	0	0	0	0	0	0	0	0	0	0	0
8	2	Vadagarai	1	0	0	1	1	0	0	0	0	0	0	0
Sivakasi Sub-District, Virudhunagar District														
9	1	Edirkottai	1	0	0	1	0	0	0	0	0	0	0	0
10	2	Kongankulam	1	0	0	1	0	0	0	0	0	0	0	0
11	3	Alangulam (Part)	1	1	1	1	1	1	0	0	1	1	0	1
12	4	Kundayiruppu	1	0	0	3	0	0	0	0	0	0	0	0
13	5	Kangaraseval	2	0	0	0	0	0	0	0	0	0	0	0
14	6	Vembakottai	1	0	0	1	1	0	0	0	0	1	0	0
15	7	Surarpatti	2	0	0	0	0	0	0	0	0	0	0	0
16	8	Lakshmipuram	1	0	0	1	0	0	0	0	0	0	0	0
Sattur Sub-District, Virudhunagar District														
17	1	Sankarapandiyapuram	1	0	0	1	0	0	0	0	0	0	0	0
18	2	Thlukkankurichchi	2	0	0	0	0	0	0	0	0	0	0	0
19	3	Sippipparai	1	0	0	1	0	0	0	0	0	0	0	0
Sankarankoil Sub-District,Tirunelveli District														
20	1	Kalingappatti	1	0	1	1	1	1	0	0	1	1	0	1
21	2	Naduvappatti	2	0	0	0	0	0	0	0	0	0	0	0
22	3	Maipparai	1	0	0	1	0	0	0	0	0	0	0	0
23	4	Sangupatti	2	0	0	0	0	0	0	0	0	0	0	0
24	5	Vellakulam	1	0	0	1	0	0	0	0	0	0	0	0
25	6	A.Karisalkulam	1	0	0	1	0	0	0	0	0	1	0	0
26	7	Kulasekarapperi	2	0	0	0	0	0	0	0	0	0	0	0
27	8	Kurunjakulam	1	0	0	1	0	0	0	0	0	0	0	0
28	9	Sundaresapuram	2	0	0	0	0	0	0	0	0	0	0	0
29	10	Kulakkattakurichi	2	0	0	0	0	0	0	0	0	0	0	0
Kovilpatti Sub-District,Thoothukkudi District														
30	1	Sundaresapuram	2	0	0	0	0	0	0	0	0	0	0	0
31	2	Kuruvinatham	2	0	0	0	0	0	0	0	0	0	0	0
32	3	Mukkuttumalai	2	0	0	0	0	0	0	0	0	0	0	0
33	4	Lakshmiammalpuram	2	0	0	0	0	0	0	0	0	0	0	0
34	5	Nakkalamuthanpatti	2	0	0	0	0	0	0	0	0	0	0	0
35	6	Vadakkuppatti	2	0	0	0	0	0	0	0	0	0	0	0
		total (C)		1	2	16	4	2	0	0	2	4	0	2
		Grand Total (A+B+C)		1	2	21	4	2	0	0	2	4	0	2

*Source: District Primary Cences Absract, Virudhunagar, Tirunelveli, Thoothukkudi District of Tamilnadu State-2011

Note : A: Available, NA- Not Available

INFRASTRUCTURAL FACILITIES IN THE BUFFER ZONE

Sl.No	No of Villages	Name of village	Tap Water-Treated	Covered Well	Hand Pump	Tube Wells/Bo rehole	Spring	River/Can al	Tank/Pond/ Lake	Post Office	Sub Post Office	Post And Telegrap h Office	Telephone (landlines)	Mobile Phone Coverage	Public Bus Service	Railway Station	Commerci al Bank	Cooperativ e Bank	Agricultural Credit Societies
0-2 km,Sivakasi Sub-District, Virudhunagar District																			
1	1	Appanayakkanpatti	2	2	2	1	2	2	2	2	1	2	1	1	1	2	2	1	1
2-5 km,Sivakasi Sub-District, Virudhunagar District																			
2	1	Kilanmarinadu	1	2	1	1	2	2	2	2	2	2	1	1	1	2	2	2	1
Sattur Sub-District, Virudhunagar District																			
3	1	Sevalpatti	1	2	1	1	2	2	2	1	1	1	1	1	1	2	2	1	1
4	2	Kuganparai	2	2	1	1	2	2	2	2	1	2	1	1	1	2	2	1	1
Sankarankoil Sub-District,Tirunelveli District																			
5	1	Chattrappatti	1	1	2	1	2	2	2	2	1	2	1	1	1	2	2	2	2
6	2	Varaganur	1	2	2	1	2	2	2	2	1	2	1	1	1	2	2	2	2
5-10 km,Rajapalayam Sub-District, Virudhunagar District																			
7	1	Gopalapuram	1	2	2	2	2	2	2	2	1	2	1	1	1	2	1	2	2
8	2	Vadagarai	2	2	2	1	2	2	2	2	1	2	1	1	1	2	2	1	1
Sivakasi Sub-District, Virudhunagar District																			
9	1	Edirkottai	1	1	2	2	2	2	2	2	1	2	1	1	1	2	2	1	1
10	2	Kongankulam	1	2	1	1	2	1	2	2	2	2	1	1	1	2	2	2	1
11	3	Alangulam (Part)	1	1	1	1	2	2	2	1	1	1	1	1	1	2	1	1	1
12	4	Kundayiruppu	1	2	2	1	2	2	2	2	1	2	1	1	1	2	2	2	1
13	5	Kangaraseval	1	2	1	1	1	2	2	2	1	2	1	1	1	2	2	2	2
14	6	Vembakottai	1	1	1	1	2	2	2	1	1	1	1	1	1	2	1	2	2
15	7	Surarpatti	1	2	1	1	2	2	2	2	2	2	1	1	1	2	2	2	2
16	8	Lakshmipuram	1	1	1	1	2	2	2	2	1	2	1	1	1	2	2	2	1
Sattur Sub-District, Virudhunagar District																			
17	1	Sankarapandiyapuram	1	2	2	1	2	2	1	2	1	2	1	1	1	2	2	1	2
18	2	Thlukkankurichchi	1	2	1	1	2	2	2	2	2	2	1	1	1	2	2	1	1
19	3	Sippipparai	2	2	1	1	2	2	2	2	1	2	1	1	1	2	2	2	1
Sankarankoil Sub-District,Tirunelveli District																			
20	1	Kalingappatti	1	1	1	1	2	2	2	2	1	2	1	1	2	2	1	2	1
21	2	Naduvappatti	1	2	2	1	2	2	2	2	2	2	1	1	1	2	2	1	1
22	3	Maipparai	1	2	1	2	2	2	2	2	1	2	1	1	1	2	2	2	2
23	4	Sangupatti	1	1	1	1	2	2	2	2	2	2	1	1	2	2	2	2	2
24	5	Vellakulam	1	1	2	2	2	2	2	2	1	2	1	1	1	2	2	2	2
25	6	A.Karisalkulam	1	2	1	2	2	2	2	2	1	2	1	1	1	2	2	2	2
26	7	Kulasekarapperi	1	2	2	2	2	2	2	2	1	2	1	1	1	2	2	2	2
27	8	Kurunjakulam	1	1	2	1	2	2	2	2	1	2	1	1	1	2	2	2	2
28	9	Sundaresapuram	1	2	1	1	2	2	2	2	1	2	1	1	1	2	2	2	2
29	10	Kulakkattakurichi	1	2	1	1	2	2	2	2	1	2	1	1	1	2	2	2	2
Kovilpatti Sub-District,Thoothukkudi District																			
30	1	Sundaresapuram	1	2	2	1	2	2	2	2	2	2	1	1	1	2	2	2	2
31	2	Kuruvinatham	2	2	2	1	2	2	2	2	2	2	1	1	1	2	2	2	2
32	3	Mukkuttumalai	1	2	1	1	2	2	2	2	2	2	1	1	1	2	2	2	2
33	4	Lakshmiammalpuram	1	2	1	1	2	2	2	2	2	2	1	1	1	2	2	2	2
34	5	Nakkalamuthanpatti	1	1	1	1	2	2	2	2	2	2	1	1	1	2	2	1	1
35	6	Vadakkuppatti	1	2	2	2	2	2	2	2	2	2	1	1	1	2	2	2	2

*Source: District Primary Cences Absract, Virudhunagar, Tirunelveli, Thoothukkudi District of Tamilnadu State-2011

Note : A: Available, NA- Not Available, A(1), NA(2)



CREATIVE ENGINEERS & CONSULTANTS

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

Annexure No.10

AMBIENT AIR QUALITY

Project	:	Rough Stone and Gravel Quarry Of Thiru. R. Gopalakrishnan
Name of the Location	:	Near Mine Lease Area
Station Code	:	A1

SL.NO	DATE	PM10	PM2.5	SO2	NO2
1	04.03.2025	72.9	34.5	8.6	12.1
2	05.03.2025	67.8	32.4	7.7	10.8
3	15.03.2025	61.6	29.3	6.1	9.2
4	16.03.2025	70.7	33.5	8.2	11.6
5	18.03.2025	57.4	27.3	5.1	8.2
6	19.03.2025	62.9	29.9	6.5	9.6
7	29.03.2025	60.2	28.6	5.7	8.8
8	30.03.2025	65.1	30.9	7.1	10.2
9	01.04.2025	58.2	27.6	5.3	8.4
10	02.04.2025	63.7	30.3	6.7	9.8
11	12.04.2025	62.3	29.5	6.3	9.4
12	13.04.2025	71.4	33.8	8.3	11.7
13	15.04.2025	73.9	35.7	8.9	12.4
14	16.04.2025	68.6	32.5	7.9	11.3
15	26.04.2025	66.5	31.6	7.3	10.4
16	27.04.2025	71.6	33.9	8.4	11.8
17	29.04.2025	72.2	34.3	8.5	12.1
18	30.04.2025	67.2	31.9	7.5	10.6
19	10.05.2025	73.5	34.7	8.7	12.2
20	11.05.2025	69.3	32.8	7.9	11.2
21	13.05.2025	62.1	28.9	5.9	9.1
22	14.05.2025	70.1	33.2	8.1	11.4
23	24.05.2025	59.6	28.4	5.5	8.6
24	25.05.2025	64.4	30.5	6.9	10.2
	MIN	57.4	27.3	5.1	8.2
	AVE	66.4	31.5	7.2	10.5
	MAX	73.9	35.7	8.9	12.4

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

Prepared by



9B/4, Bharathwajar Street, East Tambaram, Chennai 600 059.

Ph : 22395170, 9444133619, Fax : 91-44-22396643.

e-mail : cecgiri@yahoo.com, web : www.creativeengineers.co.in



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 Thiru. R. Gopalakrishnan
Name of the Location	:	Appaiyanayakkanpatti Village
Station Code	:	A2

SL.NO	DATE	PM10	PM2.5	SO2	NO2
1	04.03.2025	66.1	30.9	8.0	11.5
2	05.03.2025	61.9	28.9	6.6	10.6
3	15.03.2025	55.4	25.9	5.7	8.9
4	16.03.2025	58.6	27.4	6.2	9.8
5	18.03.2025	50.6	23.7	5.1	8.1
6	19.03.2025	54.6	25.5	5.6	8.6
7	29.03.2025	60.2	28.3	6.4	10.1
8	30.03.2025	56.2	26.3	5.9	9.2
9	01.04.2025	49.0	22.9	4.9	7.9
10	02.04.2025	57.0	26.6	6.0	9.3
11	12.04.2025	67.4	31.5	8.4	11.8
12	13.04.2025	62.6	29.3	6.7	10.9
13	15.04.2025	58.1	27.0	6.1	9.5
14	16.04.2025	64.2	30.0	7.0	11.1
15	26.04.2025	52.2	24.4	5.3	8.3
16	27.04.2025	59.4	27.7	6.3	9.9
17	29.04.2025	51.4	24.0	5.2	8.2
18	30.04.2025	53.0	24.8	5.4	8.4
19	10.05.2025	68.0	31.7	8.6	12.0
20	11.05.2025	63.4	29.6	6.9	10.9
21	13.05.2025	49.9	23.3	5.1	8.1
22	14.05.2025	54.0	25.2	5.5	8.5
23	24.05.2025	65.0	30.3	7.3	11.3
24	25.05.2025	61.0	28.5	6.5	10.2
	MIN	49.0	22.9	4.9	7.9
	AVE	58.3	27.2	6.3	9.7
	MAX	68.0	31.7	8.6	12.0

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

Prepared by



9B/4, Bharathwajar Street, East Tambaram, Chennai 600 059.

Ph : 22395170, 9444133619, Fax : 91-44-22396643.

e-mail : cecgiri@yahoo.com, web : www.creativeengineers.co.in



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 Thiru. R. Gopalakrishnan
Name of the Location	:	Akkaraipatti Village
Station Code	:	A3

SL.NO	DATE	PM10	PM2.5	SO2	NO2
1	06.03.2025	47.0	22.0	5.6	8.6
2	07.03.2025	57.8	27.6	4.9	7.9
3	13.03.2025	53.0	24.8	6.5	9.6
4	14.03.2025	48.2	22.5	5.8	8.9
5	20.03.2025	52.4	24.5	6.4	9.5
6	21.03.2025	60.9	29.2	5.2	8.2
7	27.03.2025	51.6	26.4	4.7	7.8
8	28.03.2025	47.8	25.4	5.3	8.3
9	03.04.2025	58.2	23.9	6.3	9.4
10	04.04.2025	53.4	27.2	4.8	7.8
11	10.04.2025	52.4	26.7	4.6	7.6
12	11.04.2025	50.2	23.4	6.1	9.2
13	17.04.2025	53.9	25.1	4.3	7.3
14	18.04.2025	55.7	28.9	5.4	8.4
15	24.04.2025	49.0	22.9	5.9	9.1
16	25.04.2025	50.6	23.7	6.2	9.3
17	01.05.2025	48.9	23.4	5.1	8.1
18	02.05.2025	49.4	23.1	6.0	9.2
19	08.05.2025	53.4	25.0	6.6	9.9
20	09.05.2025	47.6	22.3	5.7	8.8
21	15.05.2025	52.1	24.8	4.5	7.5
22	16.05.2025	54.3	26.9	5.1	8.2
23	22.05.2025	49.9	23.5	4.4	7.4
24	23.05.2025	53.4	26.9	5.5	8.5
	MIN	47.0	22.0	4.3	7.3
	AVE	52.1	25.0	5.5	8.5
	MAX	60.9	29.2	6.6	9.9

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

Prepared by

9B/4, Bharathwajar Street, East Tambaram, Chennai

Ph : 22395170, 9444133619, Fax : 91-44-22396

e-mail : cecgiri@yahoo.com, web : www.creativeengineers.co.in





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 Thiru. R. Gopalakrishnan
Name of the Location	:	Kundampatti Village
Station Code	:	A4

SL.NO	DATE	PM10	PM2.5	SO2	NO2
1	06.03.2025	59.4	28.7	6.9	9.6
2	07.03.2025	56.0	27.0	6.3	9.1
3	13.03.2025	49.6	24.0	5.3	8.1
4	14.03.2025	51.0	24.6	5.5	8.3
5	20.03.2025	45.4	21.9	4.6	7.4
6	21.03.2025	53.1	25.6	5.9	8.6
7	27.03.2025	58.7	28.3	6.7	9.5
8	28.03.2025	51.7	25.0	5.6	8.4
9	03.04.2025	46.9	22.7	4.9	7.6
10	04.04.2025	52.4	25.3	5.7	8.5
11	10.04.2025	62.2	30.0	7.3	10.5
12	11.04.2025	58.0	28.0	6.6	9.4
13	17.04.2025	47.5	23.0	5.0	7.8
14	18.04.2025	54.2	26.2	6.0	8.8
15	24.04.2025	46.1	22.3	4.7	7.5
16	25.04.2025	50.3	24.3	5.4	8.2
17	01.05.2025	60.1	29.0	7.0	9.9
18	02.05.2025	56.6	27.3	6.4	9.2
19	08.05.2025	48.2	23.3	5.1	7.9
20	09.05.2025	54.5	26.3	6.1	8.9
21	15.05.2025	49.0	23.7	5.2	8.0
22	16.05.2025	55.3	26.7	6.2	9.0
23	22.05.2025	61.5	29.7	7.2	10.3
24	23.05.2025	57.3	27.7	6.5	9.3
	MIN	45.4	21.9	4.6	7.4
	AVE	53.5	25.9	5.9	8.7
	MAX	62.2	30.0	7.3	10.5

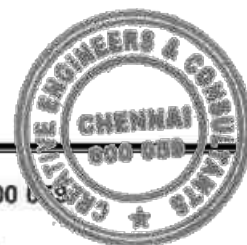
Note: BDL – Below Detectable Limit, DL: Detectable Limit.

Prepared by

9B/4, Bharathwajar Street, East Tambaram, Chennai 600 045

Ph : 22395170, 9444133619, Fax : 91-44-22396643.

e-mail : cecgiri@yahoo.com, web : www.creativeengineers.co.in





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 Thiru. R. Gopalakrishnan
Name of the Location	:	Ammiyarpatti Village
Station Code	:	A5

SL.NO	DATE	PM10	PM2.5	SO2	NO2
1	08.03.2025	47.5	22.7	5.6	8.0
2	09.03.2025	51.7	25.0	6.4	8.8
3	11.03.2025	55.4	27.2	7.0	10.3
4	12.03.2025	51.1	24.8	6.3	8.6
5	22.03.2025	42.7	20.4	4.7	7.1
6	23.03.2025	45.1	21.7	5.2	7.5
7	25.03.2025	53.0	25.6	6.7	9.0
8	26.03.2025	43.9	21.0	5.0	7.3
9	05.04.2025	41.1	19.8	4.4	6.8
10	06.04.2025	45.7	22.0	5.3	7.6
11	08.04.2025	41.5	19.8	4.4	6.9
12	09.04.2025	46.9	22.4	5.5	7.9
13	19.04.2025	43.3	20.7	4.9	7.2
14	20.04.2025	48.1	23.0	5.7	8.1
15	22.04.2025	46.4	22.2	5.4	7.8
16	23.04.2025	50.5	24.4	6.2	8.5
17	03.05.2025	42.1	20.2	4.6	7.0
18	04.05.2025	48.7	23.3	6.1	8.2
19	06.05.2025	53.5	25.8	6.7	9.1
20	07.05.2025	49.3	23.6	6.0	8.3
21	17.05.2025	44.5	21.4	5.1	7.4
22	18.05.2025	52.3	25.3	6.5	8.9
23	20.05.2025	54.1	26.5	7.0	9.9
24	21.05.2025	49.9	23.8	6.1	8.4
	MIN	41.1	19.8	4.4	6.8
	AVE	47.8	23.0	5.7	8.1
	MAX	55.4	27.2	7.0	10.3

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

Prepared by

9B/4, Bharathwajar Street, East Tambaram, Chennai

Ph : 22395170, 9444133619, Fax : 91-44-22396643.

e-mail : cecgiri@yahoo.com, web : www.creativeengineers.co.in





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 Thiru. R. Gopalakrishnan
Name of the Location	:	Avudaiyarpuram Village
Station Code	:	A6

SL.NO	DATE	PM10	PM2.5	SO2	NO2
1	08.03.2025	47.9	22.2	5.6	8.8
2	09.03.2025	50.7	23.4	6.2	9.3
3	11.03.2025	42.0	19.4	4.0	7.1
4	12.03.2025	43.9	20.3	4.5	7.6
5	22.03.2025	51.0	23.6	6.5	9.5
6	23.03.2025	47.5	22.0	5.5	8.6
7	25.03.2025	42.3	19.6	4.1	7.2
8	26.03.2025	45.5	21.1	5.1	8.1
9	05.04.2025	48.7	22.5	5.9	9.2
10	06.04.2025	43.5	20.2	4.4	7.5
11	08.04.2025	41.5	19.2	3.9	7.1
12	09.04.2025	45.1	20.9	4.9	8.0
13	19.04.2025	49.5	22.9	6.0	9.1
14	20.04.2025	46.7	21.6	5.3	8.4
15	22.04.2025	42.7	19.8	4.2	7.3
16	23.04.2025	46.3	21.4	5.2	8.3
17	03.05.2025	51.9	24.1	6.7	9.6
18	04.05.2025	48.3	22.3	5.7	8.9
19	06.05.2025	44.3	20.5	4.6	7.8
20	07.05.2025	45.9	21.2	5.1	8.2
21	17.05.2025	43.1	19.9	4.3	7.4
22	18.05.2025	44.7	20.7	4.7	7.9
23	20.05.2025	50.3	23.3	6.1	9.2
24	21.05.2025	47.1	21.8	5.4	8.5
	MIN	41.5	19.2	3.9	7.1
	AVE	46.3	21.4	5.2	8.3
	MAX	51.9	24.1	6.7	9.6

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

Handwritten signature



9B/4, Bharathwajar Street, East Tambaram, Chennai 600 059.

Ph : 22395170, 9444133619, Fax : 91-44-22396643.

e-mail : cecgiri@yahoo.com, web : www.creativeengineers.co.in



CREATIVE ENGINEERS & CONSULTANTS

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

Annexure No.11

WATER QUALITY DATA

Project Name	:	Rough Stone and Gravel Quarry Of Thiru. R. Gopalakrishnan							
Location Name	:	Location Code				Location Name			
		W1				Near Mine Lease Area			
		W2				Appaiyanayakkanpatti Village			
		W3				Akkaraipatti Village			
		W4				Kundampatti Village			
		W5				Ammiyarpatti Village			
		W6				Avudaiyarpuram Village			

S. No.	Parameter	Unit	W1	W 2	W 3	W 4	W 5	W 6	*Permissibl e Limits
1	pH	-	7.56	7.34	7.25	7.52	7.67	7.32	6.5-8.5
2	Electrical Conductivity	µmhos/cm	984.5	936.2	564.8	812.2	497.6	920.6	-
3	Odor	-	AGREEABLE	AGREEABLE	AGREEABLE	AGREEABLE	AGREEABLE	AGREEABLE	AGREEABLE
4	Turbidity	NTU	<1	<1	<1	<1	<1	<1	5.0
5	Total Hardness as CaCO ₃	mg/L	322	396	208	286	194	378	600
6	Calcium Hardness CaCO ₃	mg/L	179	212	70.5	168	102	260	-
7	Magnesium Hardness CaCO ₃	mg/L	143	184	138	118	92.0	118	-
8	Calcium Ca	mg/L	71.6	84.8	28.2	67.2	40.8	104	200
9	Magnesium	mg/L	34.3	44.2	33.0	28.3	22.1	28.3	100

9B/4, Bharathwajar Street, East Tambaram, Chennai 600 059.

Ph : 22395170, 9444133619, Fax : 91-44-22396643.

e-mail : cecgiri@yahoo.com, web : www.creativeengineers.co.in



CREATIVE ENGINEERS & CONSULTANTS

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

S. No.	Parameter	Unit	W1	W 2	W 3	W 4	W 5	W 6	*Permissible Limits
	Mg								
10	Alkalinity CaCO ₃	mg/L	287	310	296	302	284	279	600
11	Chloride Cl ⁻	mg/L	78.6	159	90.5	114	39.5	164	1000
12	Sulphate SO ₄ ²⁻	mg/L	25.5	23.5	19.7	20.5	16.2	36.5	400
13	Iron Fe	mg/L	0.09	0.04	0.03	0.05	BDL(D.L - 0.01)	0.08	0.3
14	Nitrate NO ₃	mg/L	5.32	1.95	1.47	1.65	BDL(D.L – 1.0)	1.44	45
15	Fluoride F	mg/L	0.52	0.48	0.23	0.38	BDL(D.L – 0.1)	0.41	1.5
16	Total Dissolved Solids	mg/L	590.7	561.72	338.88	487.32	298.56	552.36	2000
17	Free Residual Chlorine 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)	BDL(D.L-0.2)	1.0
18	Manganese 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)	BDL (D.L-0.05)	0.3

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.

[Handwritten Signature]

Prepared by



9B/4, Bharathwajar Street, East Tambaram, Chennai 600 059.

Ph : 22395170, 9444133619, Fax : 91-44-22396643.

e-mail : cecgiri@yahoo.com, web : www.creativeengineers.co.in

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,Sivakasi Sub-District, Virudhunagar District													
1	1	Appanayakkanpatti	1582.78	0	206.49	14.57	4.18	0	3.88	0	633.33	416.45	303.88
		total (A)	1582.78	0	206.49	14.57	4.18	0	3.88	0	633.33	416.45	303.88
2-5 km,Sivakasi Sub-District, Virudhunagar District													
2	1	Kilanmarinadu	2765	0	586.05	0	6	20	5.8	1764.53	76.3	277.7	28.62
Sattur Sub-District, Virudhunagar District													
3	1	Sevalpatti	1163.3	0	249.2	0	0	0	719	0	0	114.9	80.2
4	2	Kuganparai	430.5	0	107.4	0	0	0	213.4	0	0	98.9	10.8
Sankarankoil Sub-District,Tirunelveli District													
5	1	Chattrappatti	599.1	0	134.35	0	0	0	0	172.47	11.61	35.48	245.19
6	2	Varaganur	1402.4	0	102.92	0.74	0	0	0	439.68	0	830.37	28.69
		total (B)	6360.3	0	1179.92	0.74	6	20	938.2	2376.68	87.91	1357.35	393.5
5-10 km,Rajapalayam Sub-District, Virudhunagar District													
7	1	Gopalapuram	1088.78	0	57.46	0	0	265.35	0.94	262.91	190.15	163.72	148.25
8	2	Vadagarai	929.81	0	246.54	0	0	0	0.06	275.33	139.89	28.14	239.85
Sivakasi Sub-District, Virudhunagar District													
9	1	Edirkottai	1916	0	151.39	0	1.8	8.81	9.1	1459.59	68.06	188.48	28.77
10	2	Kongankulam	128.59	0	5.81	0	0	0.01	0.51	16.29	27.43	65.95	12.59
11	3	Alangulam (Part)	1491.2	0	102.14	20	3.4	38.05	5.21	944.23	157.45	196.89	23.83
12	4	Kundayiruppu	1464.07	0	225.42	0	3.09	15	2	768.64	205.16	205.59	39.17
13	5	Kangaraseval	943.49	0	66.79	0	0	0	2.13	0	711.22	85.1	78.25
14	6	Vembakottai	1481.07	0	466.31	0	0	0	0	0	862.39	92.87	59.5
15	7	Surarpatti	486.8	0	75.29	0	4.7	21.1	3.04	317.57	13.25	47.85	4
16	8	Lakshmpuram	2000.71	0	200.63	85.04	1.9	39.66	3.5	1229.55	61.7	314.18	64.55
Sattur Sub-District, Virudhunagar District													
17	1	Sankarapandiyapuram	1061.43	0	206.59	20.01	3	90.34	211	382.24	20.2	125.84	2.21

18	2	Thlukkankurichchi	1168.81	0	293.08	0	60	60.1	221.84	266.93	0	257.35	9.51
19	3	Sippipparai	898.1	0	65.7	0	0	0	262.2	0	0	550.9	19.3
Sankarankoil Sub-District,Tirunelveli District													
20	1	Kalingappatti	2766.17	0	249.47	0	0	14.72	145.2	10.25	989.89	1221.11	135.53
21	2	Subbiahpuram	22.72	0	0.62	0	0	0	0	0	0.07	22.03	0
22	3	Naduvappatti	789.29	0	72.93	0	0	0	0	68.32	45.01	599.78	3.25
23	4	Maipparai	1024.54	0	165.17	0	0	0	0	34.68	35.32	783.97	5.4
24	5	Sangupatti	792.05	0	40.58	0.53	0	0	0.53	97.52	4.73	617.62	30.54
25	6	Vellakulam	1524.27	0	179.05	2.25	0	29	187	441.19	50.33	480.96	154.49
26	7	A.Karisalkulam	1894.12	0	248.15	0.39	0	34	2.07	391.28	309.46	763.48	145.29
27	8	Kulasekarapperi	28.49	0	5.72	0	0	0	0	4.04	0.74	17.99	0
28	9	Kurunjakulam	753.22	0	88.28	0	0	0	0.3	104.48	40.6	486.29	33.27
29	10	Sundaresapuram	269.2	0	9.77	0	0	0	0	0	28.59	230.84	0
30	11	Kulakkattakurichi	444.87	0	31.71	0	0	0	0	10.6	42.54	357.56	2.46
Kovilpatti Sub-District,Thoothukkudi District													
31	1	Sundaresapuram	611.04	0	60.74	0	0	5.95	12.53	132.43	42.11	329.18	28.1
32	2	Kuruvinatham	681.36	0	67.36	22	0	5.11	24.85	83.48	11.43	411.22	55.91
33	3	Mukkuttumalai	811.62	0	137.11	20.97	0	0	0	244.19	0	402.31	7.04
34	4	Lakshmiammalpuram	343.01	0	35.26	0	0	0	0	257.12	4.03	44	2.6
35	5	Nakkalamuthanpatti	630.65	0	45.99	3	0	0	0.07	230.22	0	351.17	0.2
36	6	Vadakkuppatti	574.47	0	42.23	2.5	0	0	0	9.49	131.87	378.04	10.34
		total (C)	29019.95	0	3643.29	176.69	77.89	627.2	1094.08	8042.57	4193.62	9820.41	1344.2
		Grand Total (A+B+C)	36963.03	0	5029.7	192	88.07	647.2	2036.16	10419.25	4914.86	11594.21	2041.58

*Source: District Primary Cences Absract, Virudhunagar, Tirunelveli, ThoothukkudiDistrict of Tamilnadu State-2011



**MINING PLAN & ENVIRONMENT MANAGEMENT
PLAN FOR ROUGH STONE, JELLY & GRAVEL**

(PREPARED UNDER RULE 19 (1) & 22 OF TNMMCR1959
AMENDED 2015)

MINING PLAN SUBMITTED UNDER RULE NO. 41 & 42 OF TNMMCR
AMENDED 2015

**For Obtaining Environmental Clearance from
State Environmental Authority**

PATTA LAND LEASE PERIOD FIVE YEARS

LOCATION OF THE AREA

EXTENT	:	1.08.0 HECTARE
S.F. No.	:	199/6A
VILLAGE	:	APPAYANAICKENPATTI
TALUK	:	VENBAKOTTAI
PANCHAYATH UNION	:	VIRUDHUNAGAR
DISTRICT	:	VIRUDHUNAGAR
STATE	:	TAMIL NADU

APPLICANT

**THIRU. R. GOPALAKRISHNAN,
S/o. SRI. RAMASAMY,
70/1E, KARPAGAM NAGAR,
THIRUMANGALAM TOWN & TALUK,
MADURAI DISTRICT.**

PREPARED BY

**M. DHARMALINGAM, Msc(Geol)., FCC(Mining),
RECOGNISED QUALIFIED PERSON
REGISTRATION NO: RQP/MAS/260/2014/A**



Shri. R. Gopalakrishnan,
S/o. Sri. Ramasamy,

70/1E, Karpagam Nagar,
Thirumangalam Town & Taluk,
Madurai District.
Mobile No. 988421 33786

CONSENT LETTER FROM THE APPLICANT

The Mining Plan in respect of **ROUGH STONE, JELLY AND GRAVEL** deposit over Extent of 1-08.0 Hectares in S.F. No. 199/6A (Patta Land) in Appayanaickenpatti Village, Vembakottai Taluk, Virudhunagar District, Tamil Nadu state has been prepared by

Shri. M. DHARMALINGAM,

RQP/MAS/260/2014/A

I request the District Collector Virudhunagar, State Environmental Authority to make further correspondence regarding the mining plan with the said Recognized Qualified Person in his following addresses:

Shri. M. DHARMALINGAM, MSc (Geol)., FCC(Mining),

No.28, Polpettai,

Tuticorin - 628 002.

Mobile No. 99528 08328

RQP/MAS/260/2014/A

I hereby undertake that all the modifications, if any made in the mining plan by the Recognized Qualified Person may be deemed to have made with my knowledge and shall be acceptable to me and binding on me in all respects.

Place: Virudhunagar

Date: .05.2022

Signature of the Applicant

R. Gopalakrishnan

R. Gopalakrishnan

Shri. R. Gopalakrishnan,
S/o. Sri. Ramasamy,

70/1E, Karpagam Nagar,
Thirumangalam Town & Taluk,
Madurai District.
Mobile No. 988421 33786



DECLARATION OF THE APPLICANT

The Mine Plan In Respect of **ROUGH STONE, JELLY AND GRAVEL** deposit over an Extent of 1-08.0 Hectares in S.F. No. 199/6A (Patta Land) in Appayanaickenpatti Village, Vembakottai Taluk, Virudhunagar District, Tamil Nadu state has been prepared with full consultation with me. I have understood its contents and I agree to implement the same in accordance with the Laws applicable to mines.

I am also giving further undertaking to plant the species as specified in the afforestation plan to provide Green belt to protect the environmental aspects while quarrying Rough Stone and Gravel in the Patta Land.

Place: Virudhunagar

Date: .05.2022

Signature of the Applicant

R. Gopalakrishnan

R. Gopalakrishnan

This Mining is approved based on guidelines/ instructions issued in the CGM, Letter No.3868/LC/2012 dated 19-11-2012 and incorporation of the particulars specified in the letter Roc.No. KV1/221/2022 Dated 15/06/2022 of the Deputy Director of Geology and Mining, Virudhunagar and subject to further Fulfillment of the conditions laid down under rule 41,42 of Tamil Nadu Minor Mineral Concession Rules 1959

[Signature]
Assistant Director of Geology & Mining
Virudhunagar

This Mining Plan is approved Subject to the conditions / Stipulation Indicated in the Mining Plan Approval

Letter Roc. No. KV1/221/2022 Dated 15/06/2022

Shri. M. DHARMALINGAM, MSc (Geol)., FCC(Mining),
Recognised Qualified Person
Reg. No. RQP/MAS/260/2014/A



No.28, Polpettai,
Tuticorin - 628 002.
Mobile No. 99528 08328

CERTIFICATE FROM THE RECOGNISED QUALIFIED PERSON

This is to certify that the provisions of the Mines Act, Metalliferrous Mines Rules and Regulations, Minor Mineral Conservation and Development Rules, 2010 & Minerals Amended Rules of Tamilnadu Minor Mineral Concession Rule 1959 etc, made there under have been observed in the preparation of Mining Plan for **ROUGH STONE, JELLY AND GRAVEL** deposit over an Extent of 1-08.0 Hectares in S.F. No. 199/6A (Patta Land) in Appayanaickenpatti Village, Vembakottai Taluk, Virudhunagar District, Tamil Nadu state.

THIRU. R. GOPALAKRISHNAN,
S/o. SRI. RAMASAMY,
70/1E, KARPAGAM NAGAR,
THIRUMANGALAM TOWN & TALUK,
MADURAI DISTRICT.

Wherever Specific permission are required , the applicant will approach the concerned authorities of state, central Government and State Environmental Authority officers, for such permission, approvals, exemption or relaxation Standards prescribed by Rules and regulations in respect of miners health and the rules will be strictly implemented.

It is also certified that the information furnished in the mining plan is true and correct to the best of my knowledge.

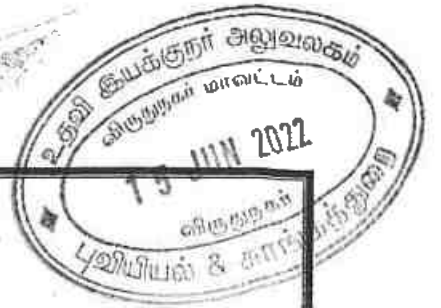
Place: Tuticorin – 628 002

Date: .05.2022

M. Dharmalingam
M. DHARMALINGAM

M. DHARMALINGAM
M.Sc.,(Geol.) FCC (Mining)
Recognised Qualified Person
RQP / MAS / 260 / 2014 / A
Valid up to: 13-11-2024

TABLE OF CONTENTS



Sl.NO	Description	Page No
	Introduction	1
1	GENERAL INFORMATION	2
2	LOCATION	3
	PART -A	
3	GEOLOGY AND MINEABLE RESERVES	4
4	MINING	4
5	BLASTING	6
6	MINE DRAINAGE	7
7	OTHER PERMANENT STRUCTURES	8
8	EMPLOYMENT POTENTIAL AND WELFARE MEASURES	8
	PART - B	
9	ENVIRONMENTAL MANAGEMENT PLAN	10
10	MINE CLOSURE PLAN	16
11	ANY OTHER INFORMATION	16

LIST OF ANNEXURES

S.No	Description	Annexure No.
1.	GEOLOGICAL & MINEABLE RESERVES	I
2.	PRODUCTION SCHEDULE FOR 5 YEARS PERIOD	II
3.	BASE LINE STUDIES & HYDROGEOLOGICAL SURVEY REPORT	III
4.	Copy of RQP CERTIFICATE	IV
5.	Copy of PRICISE AREA COMMUNICATION	V
6.	A.D... INSPECTION REPORT	VI
7.	COPY OF THE ID PROOF OF THE PROPONENT	VII
8.	FMB SKETCHES & VILLAGE MAP	VIII
9.	FIELD PHOTOGRAPH ATTESTED BY VAO & VAO CERTIFICATE	IX
10.	PATTA, CHITTA, 10-1EXTRACT, OF THE CONCERNED SURVEY FIELD NUMBERS	X
11.	LAND DOCUMENT COPIES	XI
12.	R.D.O., TASILDAR, R.I, FIRCA SURVEYOR, V.A.O, CERTIFICATES, A1-NOTICE	XII
13.	EXPLOSIVE LICENCE DOCUMENT AGREEMENT COPY & LICENCE COPIES	XIII
14.	PREVIOUS PERIOD LEASE DEED COPIES	XIV
15.	PREVIOUS PERIOD SEIAA- EC COPY	XV
16.	PREVIOUS PERIOD TNPCB COPY	XVI

R. Gopalakrishnan



LIST OF PLATES

S.No	Description	Plate No	Scale
1	Location Plan	I	1cm=12.5kms
2	Route Map	I-A	Not to scale
3	Topo sketch-10Km Radius	II	1:1,00,000
4	Lease Plan	III	1:2000
5	Surface cum Geological Plan & sections	IV	Plan :-1:1000 section scale :- HOR-1:1000, Ver-1:1000
6.	Land use cum year wise production plan & Sections	V	Plan :-1:1000 section scale :- HOR-1:1000, Ver-1:1000
7.	Conceptual mining Plan & sections	VI	Plan :-1:1000 section scale :- HOR-1:1000, Ver-1:1000
8.	Environmental Plan	VII	1:5000
9.	Village map showing Environmental features	VII-A	1:5000
10.	Progressive Mine Closure Plan & Sections	VIII	Plan :-1:1000 section scale :- HOR-1:1000, Ver-1:1000



**MINING PLAN INCLUDING
ENVIRONMENT MANAGEMENT PLAN FOR
ROUGH STONE /JELLY / GRAVEL QUARRY**

**Over an Extent of 1.08.0 Hectares in S.F. No. 199/6A (Patta Land) in
Appayanaickenpatti Village, Vembakottai Taluk, Virudhunagar
District, Tamilnadu**

INTRODUCTION

Extracting minor minerals from an area of less than 5 hectares will need environment clearance from the Union ministry of environment and forest (MOEF). The EIA (Environmental Impact Assessment) notification 2006, requires mining projects, including new projects, expansion, modernization, or renewal of mine leases, with lease area of 5 hectare and above irrespective of major or minor mineral to obtain prior environment clearance. Mining projects with lease area of 5 hectares and above but less than 50 hectares are categorized as category 'B' whereas projects with lease area of 50 hectares and above are categorized as category 'A'. The category 'A' projects are to be given clearance by MOEF while category 'B' projects are considered by the respective state-level EIA authority.

The mining plan has been prepared towards the order of Supreme Court of India 27 February, 2012, based on the Supreme court order, Tamilnadu Government , Secretary, Industry Department (NCI) as issued order vide G.O.Ms.No.79 dated 06.04.2015. In this order Tamilnadu Minor Mineral Concession Rule 1959 as amended rule 41 & 42 as the approved mining plan is required to the grant of mining lease and the lessee of existing quarry which has already granted with quarry lease should also obtain environmental clearance from SEIAA, Tamilnadu.

The approved mining plan has to be obtained and prior environment clearance by the committee formed recently by the SEIAA. The government of tamilnadu has formed one committee headed by the chairmen of SEIAA and the nominated members from each department as members. The environment clearance has to be issued by the SEIAA to grant of quarry lease and this mining plan is submitted based on the above orders to obtain environment clearance from SEIAA Tamilnadu committee.



The applicant, Thiru. R. Gopalakrishnan, S/o. Sri. Ramasamy, No.70/1E, Karpagam Nagar, Thirumangalam Town & Taluk, Madurai District has an individual having good experience and skill on quarrying of Rough Stone, Jelly and Gravel. He has applied for fresh grant of Quarry lease to the state government over an extent 1-08.0 Hectares in S.F. No. 199/6A (Patta Land) in Appayanaickenpatti Village, Vembakottai Taluk, Virudhunagar District, Tamil Nadu.

1. General Information

- a) Name of the applicant : THIRU. R. GOPALAKRISHNAN
- b) Address of the Applicant : S/o. SRI. RAMASAMY
70/1E, KARPAGAM NAGAR,
THIRUMANGALAM TOWN & TALUK,
MADURAI DISTRICT.
- c) Mobile No. : 98421 33786
- d) Status of the applicant : Private Individual
- e) Mineral which the applicant Intends to mine : Rough Stone, Jelly and Gravel
- f) Precise area communication letter details received from the competent authority of Government : KV 1/221/2022-MINES
Dated : 26.04.2022
- g) Period of Permission / lease to be granted : 5 Years.
- h) Name and address of the RQP /Authorized person preparing the Mining plan : M. Dharmalingam,
No.28, Polpettai,
Tuticorin - 628 002.
Mobile No. 99528 08328

Registration No : RQP/MAS/260/2014/A



2. LOCATION

a)

STATE	DISTRICT	PANCHAYATH	TALUK	VILLAGE	S.F.NO	EXTENT (Hectares)
Tamil nadu	Virudhunagar	Appayana ickenpatti	Vembakottai	Appayana ickenpatti	199/6A (Patta Land)	1-08.0 Hect

- b) Classification of the area : Patta Lands
- c) Ownership / Occupancy of the applied area : Own Patta lands
(Surface right)
- d) Toposheet No : 58-G/11
- Latitude : 9° 17' 41.8"N to 9° 17' 46.8"N
- Longitude : 77° 41' 46.6"E to 77° 41' 44.4"E
- e) Accessibility of public road / Railway line, : As shown in ROUTE MAP (Plate No. IA), the applied area can be easily accessible 48.5Kms from Virudhunagar to Thiruvankadam road, Via. Vellur, Sivakasi, Vembakottai & Sevalpatti, and then to the applied area at a distance of 4Km towards southwest. The nearest railway station is Sivakasi at a distance of 25km.
- f) Previous Lease Deed details : Collector's Proceeding No. KV1/5171/2013
Dated: 10-05-2017 - 5 years from 29th May 2017 to the day of 28th May 2022
- g) Previous EC details : SEIAA-TN/F.No.2510/EC/1(a)/1800/2014
dated 27.03.2015
- h) Previous TNPCB order details : CONSENT ORDER NO. 150422576502
Dated: 27/12/2015.

R. Gopalakrishnan 99



Part-A

3. GEOLOGY AND MINEABLE RESERVES

3.1 Topography and general Geology

The area applied for mining lease is a gentle plain terrain and dry lands without any vegetation. The gravel formation is having thickness of 2m.

The rocks in this area belonging to ARCHEAN group of rocks. Below the gravel formation a hard Rough stone Charnockite is noticed. The rocks are Phaneric to medium grained nature. And in these rocks there are mineral constituents of BLUE QUARTZ, MICRO CLINE FELDSPAR, HYPERSTHENE and flakes of BIOTITE MICA. The rocks are striking towards North west - South east direction dipping 80° Vertical towards South east direction. The strike length of the deposit on 164m length and 66m width.

3.2 DETAILS OF EXPLORATION

The old pits are noted in the field is 82m length, 44m width and 4m depth and also in the nearby wells and nearby quarries in the radius of 500m, the gravel occur to a thickness of 2m. Below 2m Charnockite (Rough stone) is noticed.

3.3 ESTIMATION OF RESERVES.

Reserves have been calculated based on the cross section method. The strike length of the deposit on 164m with an average width of 66meter.

Based on the above data geological reserves and mineable reserves has been calculated for a depth of 25 meter. The reserves have been computed for depth of 0 to 2meter gravel and 2 to 25 meter in Rough stone The details of reserves are shown in annexure I and in Geological Plan & Section Plate No IV.

SL NO	TYPE OF RESERVES	Gravel + Rough stone in Cub.m
1	Geological reserves	2,56,168 Cu.m.
2	Mineable reserves	90,543 Cu.m.
3	Bench locked & 7.5m boundary barrier reserves	1,65,625 Cu.m.

4. MINING

The area is under working by Semi-Mechanised open cast method. The bench height of the quarry is maintained to the height of boom of the machine used for digging and excavation. In the area applied for mining lease a boundary barrier of 7.5 meters has been left in all direction and 10m from north west and south side cart track.



During first year the mining operation will be commenced from south side of the old pit area to a strike length of 125m, width 51m. The gravel formation will be removed up to 2m and below 2m depth, roughstone will be removed up to 5m depth will be made to achieve the planned production quantity. During second year the mining operation will be further northern side up to safety barrier of the applied lease area on a strike length of 24m and width of 51m and a depth of 2m will be removed and below , roughstone will be removed up to 5m depth and also second bench of 5m depth, 58m length and 41m width will be made to achieve the planned production quantity. The third to fifth year the quarry advancement will be made below the first two years working make 3 benches of each 5m depth in rough stone will be removed to achieve the planned production quantity.

During every year working the bench width will be maintained not less than the height of the bench with a bench slope of 60° for safe reversal and working of machinery and movement of trucks.

During 5 years working the following quantity of rough stone and gravel will be removed and the details are given below.

YEAR WISE PRODUCTION SCHEDULE

YEAR	GRAVEL IN CU.M	ROUGHSTONE IN CU.M
I	5534	11909
II	2448	15562
III	----	16605
IV	----	19995
V	----	18490
Total	7,982	82,561

Machineries used

The blasted ROM will be excavated by TATA HITACHI EX200. For drilling tractor mounted compressor of 175 cfm will be used matching with jackhammers. For drilling two Tc drill rods of 32 mm dia will be used and the drill rod depends upon the depth of 4m to 6m drilling. Normally drill rods of .9m length and 1.5m length will be used in the quarry. For transportation 10 tons tippers will be used for transporting ROM and reject from the quarry. The ground water table in this area is ranging from 50 to 55 meter.

A diesel pump will be kept for dewatering rain water during rainy season. For manual production the labours will be provided with pick Axe, Spade, crowbar, iron basket and hammer.

DETAILS OF MACHINERIES TO BE USED IN QUARRY

SI. NO	NAME OF THE EQUIPMENT	CAPACITY	REQUIRED
1	Excavator	TATA HITACHI (EX200)	1
2	Tipper	10 Tonnes	2
3	Tractor compressor for drilling	175 CFM	1
4	Dewatering pump	5 Hp Diesel pump	1



MARKETING OF ROUGH STONE AND GRAVEL

The boulders will be marketed to the nearby crushers for producing crusher aggregates. The gravel & reject hard boulders will be marketed to filling and foundation works for construction works. The crusher aggregate will be marketed to nearby areas.

CONCEPTUAL MINING PLAN

Conceptual mining plan is prepared in a scale of 1:1000 in an object of long-term systematic development of bench layouts. In addition to consider the above factors, to avoid re-handling, setting roads, to determine ultimate pit limit depth of mining and ultimate pit slope, selection of sites for construction of infrastructures etc.,

Ultimate pit limit dimension:

The ultimate pit size is designed based on certain practical factor such as the economical depth of mining safety zones permissible area etc. The ultimate pit of the mine is given as under 149meter Length, 51meter Width, 25meter Depth. However during extraction of ROM bench will be 5m height with a slope of 60° for proper quarrying. After quarrying the mined out area will be used as water reservoir for making artificial recharge factor to the nearby areas.

The Conceptual Plan and Sections is shown in Plate No. VI. The mineable reserves calculated for a depth of 25meter a total Roughstone of $82,561\text{m}^3$ and Gravel 7982m^3 . Based on an average production of maximum quantity of $18,000\text{ m}^3$ to $18,500\text{ m}^3/\text{year}$. The life of the mine will be $90543/18,000\text{ m}^3 = 5$ years. The available reserve below 25m can be mined in the next quarry renewal period after 5 years. The next five years period more quantity of Rough stone can be quarried. Since the entire gravel which occurs to a depth of 2meter is planned for excavation during the present five year working.

5. BLASTING

5.1 BLASTING PATTERN

The massive formation shall be broken in to pieces of portable size by drilling and blasting using jack hammers and shot holes blasting. Powder factor of explosives for breaking such hard rock shall be in the order of 1.8 to 2.0 cub.m. Blasting parameter proposed to be adopted for shot holes shall be

Spacing of 0.9 m, burden 0.60m and depth 1.5m

Output per hole = $0.9\text{ m} \times 0.60\text{m} \times 1.5\text{m} = 0.810\text{ cub.m}$

Output per hole will be 0.810 cub.m with 90% blasting efficiency

Quantity of explosive required to blast one hole with a powder factor of 1.8

Explosive required will be $.810 / 1.8 = 0.450\text{ kg per hole}$

In the above quantity booster Cap sensitive explosives will be one third 0.150 kg per hole

Daily consumption of explosive will depend upon the number of shot holes drilled.

5.2 TYPES OF EXPLOSIVES

Following explosives are recommended for efficient blasting with safe practice:

Sl.No	Description	Class/ Division	Type	Size
1	Slurry Explosive	Class - 3	Nitro compound mixer	25mm X 0.125 kg
2	Delay Detonators	Class - 6	Ordinary and elect. (OD & ED)	Standard size of IDL
3	Safety Fuse	Class - 6 Div - 1	Blue sump fuse coil of 10 meter each	

5.3 MEASURES PROPOSED TO MINIMISE GROUND VIBRATION DUE TO BLASTING

There are no villages near by the area applied for mining lease. To control ground vibration delay electric detonator will be used.

5.4 STORAGES AND SAFETY MEASURES

The proposed rate of production is about 60m³ or 15loads / day of 10tonnes capacity of ROM boulder in one day with average working days of 25 in a month.

The applicant has made an agreement with explosive dealer Sri Balan Explosives, Rambalan Explosives, No.7, Gomathinagar 2nd Street, Sankarankovil - 627 756, Tenkasi District, who is having explosive licence bearing no: E/SC/TN/30/1382 (E79312) received from chief controller of explosive, Chennai. The owner of the Firm made agreement with Sri. R. Gopalakrishnan to make necessary safety practice to blast in his licence and supply of explosives will be made in Form22 as specified by Indian Explosives Act 1884. (Annexure- XIV)

After blasting no explosives will be kept in the mine area and the unused explosives will be taken up by the explosive dealer. Before blasting the explosives will be carried by the dealer in his own explosive van and the unused quantity will be returned to the explosive van for keeping the explosive in his Magazine. Before blasting men and animals will be cleared in a surrounding distance of 500m and three sirens will be made before blast and after completing blasting a long siren will be given. Safety guards with red flags will be posted on all the four side direction.

6. MINE DRAINAGE

From the local enquiry the ground water table in this area is ranging from 50 to 55m. The open dug wells are noted around the applied lease area. The wells are having a depth ranging from 14 to 16m and the wells are dry. There are also no joints or fractures in the hard rock. The area attains rain fall during northeast monsoon. Hence there will be no adverse effect by the mining to the nearby areas.

Sl. No.	Details	Direction	Distance (m)	Depth(m)	Water level
1.	Seasonalodai	South east	180	0.2	Dry
2.	Vaipar	North west	240	1.5	Dry
3.	well	Wwest	120	15.0	Dry
4.	well	North	80	16.0	Dry

7. OTHER PERMANENT STRUCTURES

There is no hospital or Primary school, village temples and primary health centres within 500m radius of the quarry. There is no river, lake nearby this area. There are also no historical monuments nearby this area. There are also no worship places, reserve forest, social forest, and wild life sanctuaries near this area. The water bodies are dry in all the season.

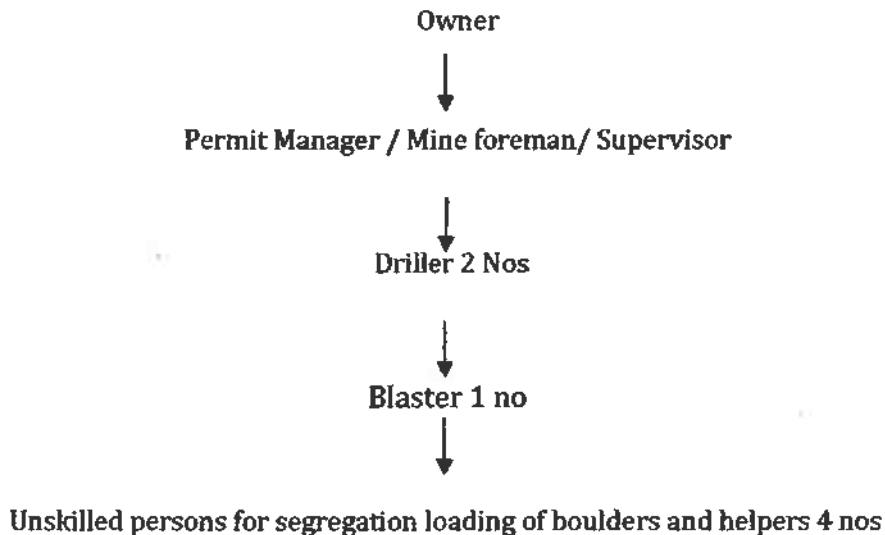
SL. NO	DIRECTION	VILLAGE	HABITATION	DISTANCE
1	North	Kurinjivel	30 houses	3 km
2	South	Gundampatti	100 houses	1 km
3	East	Chakkammalpuram	40 houses	1.5km
4	West	Appayanaickenpatti	200 houses	3 km

Nearest infrastructures

SL No	Name of infrastructure	Name of village	Distance from area applied for M.L
1	Post office	Appayanaickenpatti	3 Km
2	Police station	Alangulam	10 Km
3	Town	Thiruvankadam	5 Km
4	DSP office	Sattur	30 Km
5	Register office	Rajakularaman	20 Km
6	Hospital	Vembakottai	10 Km
7	School	Sevalpatti	4 Km
8	Railway station	Sivakasi	25 Km
9	Airport	Madurai	100 km
10	Sea Port	Thoothukudi	70 km

8. EMPLOYMENT POTENTIAL & WELFARE MEASURES

ORGANISATION CHART



25th இயக்குநர் அலுவலகம்
கிடுகாறுகள் மாவட்டம்
15 JUN 2022
விவியல் & சான்றிதழ்

The workers will be provided with drinking water facility, sanitation facility in the proposed office building. A bore well will be drilled near the office building.

First aid and labour health facility will be arranged from the nearby hospital at Vembakottai. All safety equipments will be provided for the persons employed in the mine. The supervisor will be provided with mobile phone to contact the owner or any officials during emergency time.

SAFETY AND SOCIAL SECURITY MEASURES

Safety equipments to be provided for the persons employed in the mines.

1. Safety helmet approved by Director General of mines Safety
2. Nose Mask
3. Ear Plug for machine operators and drillers
4. Safety shoes as specified by Director General of Mines Safety
5. Safety Goggles for drillers
6. Safety Belt and safety rope approved by Director General Mines of Safety – for labourers, working in the mine for removing danger over hang and undercut boulders. Employment of child labour will be strictly prohibited in the mines. All persons employed in the mines will be provided with Group Insurance System from a Govt. Recognised insurance Agency.

The applicant has given Notary Affidavit for Non employment of child labour directly or indirectly while operating the mine. The Affidavit is enclosed in Annexure.

PART -B

9. ENVIRONMENT MANAGEMENT PLAN

9.1 Existing land use pattern

The area applied for mining lease is a gentle plain terrain and having dry lands with no. vegetation available nearby this area. From the study of the nearby well the ground water table is ranging from 50 to 55m.

The area will obtain rain fall during NE monsoon in summer the climate will be very hot and the temp will be up to 42°C.

Present land use planning (break up along with green belt etc).-

S.No.	Land Use Category	At the end of life of mine
1.	Mining \Excavation	0-75.0 hectares
2.	Storage of Top Soil	0.00.0 hectares
3.	Sorting and Mineral Dressing Yard	0.00.0 hectares
4.	Infrastructure & Road	0.02.0 hectares
5.	Afforestation(Greenbelt& Plantation)	0-27.0 hectares
6.	Rain Water Storage	0-75.0 - (After closure of mine)
7.	Undisturbed Area	0.00.0 hectares
8.	Fencing	0.04.0 hectares
TOTAL		1.08.0 hectares

The area applied for mining lease is a plain terrain and having dry lands. The patta land is used for quarrying Rough Stone blue metal. Infra structure will be provided in the patta land. First aid, sanitation facilities is also provided in the office building. The Patta Land is with Surface right.

9.2 Water regime:

Ground water occurrence in this area is below 50m depth. The quarrying is restricted up to 25m below Ground Level. Hence the quarry operation will not be affected by the ground water.

9.3 Flora and Funna:

There are no trees observed in the area. Thorny bushes, neem and palm are found in around the area, No plants of botanical interest or animals of zoological interest are noticed. There is no cultivation, plantation or agriculture found within the vicinity of the area.

9.4 Climatic condition

The area receives rainfall of about 850mm/per annum and the rainy season is mainly from Oct - Jan during North East monsoon. The summer is hot with maximum temperature of 42°C and winter encounters a minimum temperature of 23°C.

9.5 Human settlement

There is no hospital or Primary school, villages, temples and primary health centres within 500m radius of the quarry. There is no river, lake nearby this area. There are also no historical monuments nearby this area. There are also no worship places, reserve forest, social forest, and wild life sanctuaries near this area. The water bodies are dry in all the season.

SL. NO	DIRECTION	VILLAGE	HABITATION	DISTANCE
1	North	Kurinjivel	30 houses	3 km
2	South	Gundampatti	100 houses	1 km
3	East	Chakkammalpuram	40 houses	1.5km
4	West	Appayanaickenpatti	200 houses	3 km

Basic human welfare Amenities such as Health centre, schools, communication facilities, and commercial centres etc., are available at Vembakottai located at a distance of 10Km on the northern side of the area.

9.6 Plan for Air, Dust suppression

The air quality will be affected by the Suspended Particle Matter (SPM) generated by the blasting, Jack hammer drilling, Loading and unloading during the Rough stone quarry operation.

The following Mitigations measures will be carried out:

- Mist Water spraying will be carried out by means of water sprinklers to suppress the dust emission in the Haul roads.
- Vegetations will be formed around the quarry to trap the dust.
- Avoiding spillages during the transportation.

AMBIENT AIR QUALITY (AAQ):

The ambient air quality depends upon the emission sources, meteorological conditions and the background concentration of specific contaminants. The principal objective of the Ambient Air Quality Monitoring (AAQM) is to assess the existing levels of ambient air quality in and around the lease area for assessing the impact on air quality due to future mining activity in the region.

With the above objective, the following parameters were analyzed at the sampling locations established in the study area.

- ❖ Particulate Matter (PM₁₀)
- ❖ Particulate Matter (PM_{2.5})
- ❖ Sulphur Dioxide
- ❖ Oxides of Nitrogen
- ❖ Carbon Monoxide



DESIGN CRITERIA FOR AMBIENT AIR QUALITY MONITORING STUDY NETWORK:

Ambient Air quality has been assessed through a net-work of 3 ambient air quality stations. The following methodology has been considered for design of ambient air quality monitoring network in the area.

- ❖ Topography / terrain of study area.
- ❖ Populated areas within study area
- ❖ Residential /sensitive areas within study area
- ❖ Predominant wind direction and wind pattern

9.7 Plan for noise level control:

Shallow holes of 32mm diameter and 1.5m depth will be drilled and to control ground vibration conventional low power explosives such as slurry explosives, delay electric detonator will be used for rough stone. Hence ground vibration and noise pollution will be minimal and restricted within the quarry workings. There are no villages near by the area applied for mining lease.

The drivers will be strictly instructed to move the vehicle during the transportation not exceed 40km per hour. Sentries with flags & whistle will posted in village junction and populated area to control and regulate traffic.

9.8 Environment impact assessment statement

The mining plan proposed is for a production of Rough stone with involving deep hole drilling and heavy blasting permission as per MMR1961 Regulation 106 (2b) against Director General of Mines Safety, Chennai Region. Such limited mining activity is not likely to cause any impact adversely on environment as for as pollution of air, water and noise is concentrated, anyhow environmental impact studies will be conducted as per EIA botification issued by MOEF. It is B2 category mine. For the average production of 25,000 m³ to 30,000 m³/year is planned. Besides **four working Quarries** and No villages in the surrounding radius of 500 metres.

Details of quarries around 500m radius of proposed quarry

Quarries	Sl. no	Name	Village	s.f.no.	Extent (Ha)	Distance (m)
Existing	1.	Ramasamy	Appayanaickenpatti	211/2A,2Betc.	0-98.0	480
	2.	p.shunmugaraj	Appayanaickenpatti	207/2A,2Betc.	1-91.5	260
	3.	S.Ramraj	Appayanaickenpatti	196/1A,etc.,	2-88.0	120
	4.	p.shunmugaraj	Appayanaickenpatti	38/6A,etc	2-74.5	320
Abandoned	5.	Ramasamy	Appayanaickenpatti	208/1,2,3	Prior to 2019	480
	6.	Govt. Pit.	Appayanaickenpatti	50	Prior to 2012	160
	7.	Ragupathi	Appayanaickenpatti	38/10A,11	Prior to 2017	120
Present proposed	8.	Gopalakrishnan	Appayanaickenpatti	199/6A	1-08.0	Applied
	9.	G.Kaniraj	Appayanaickenpatti	202/1A2	1-21.5	80
	10.	Ramraj	Appayanaickenpatti	207/3A,etc.,	1-28.5	320
	11.	Gayathiri	Appayanaickenpatti	39/1A,etc.,	2-30.2	250
Total extent in Hectares					14-40.2 Ha.	

To avoid environmental pollution during transport of Charnockite (Roughstone) to various destinations the loaded truck will maintain a speed of 40 km / hour. The loaded truck will be covered with tarpaulin cover to avoid dust generation during vehicle movement on the roads. Hence there will not be any environment impact to the mining area are to the nearby villagers.

9.10 Proposal for reclamation of land affected during mining activities and at the end of mining (refilling / fencing)

In the proposed mining plan only a maximum depth of 25m 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 25m depth) fencing will be constructed around the quarries pits to prevent inherent entry of the public and cattle. There is no proposal for reclamation and rehabilitation.

9.11 Proposal of Afforestation

The proposal of afforestation and land use is shown in Plate No: VI & VIII. The detail of proposed afforestation is given below.

Plantation	Type	No. of Trees	Spacing	Area (Hectares)	Survival
I YEAR	Neem	15	6m x 6m	0-05.4	80%
II YEAR	Neem	15	6m x 6m	0-05.4	80%
III YEAR	Neem	15	6m x 6m	0-05.4	80%
IV YEAR	Neem	15	6m x 6m	0-05.4	80%
V YEAR	Neem	15	6m x 6m	0-05.4	80%
TOTAL		75		0-27.0 Ha	

The applicant will arrange for watering the plants for effective survival of the plant. The afforestation will be properly monitored by the persons employed in the mines. The applicant has also given Notary Affidavit to make afforestation as specified with mining plan to make the area as green belt and to protect the environment.

9.12 Proposal for water management

	DETAILS	SOURCE	PROVISION QUANTITY/DAY
A	Drinking water & Domestic	From existing bore well & water vender	0.500KLD
B	Dust Suppression-water sprinkling	From existing bore well	1.300 KLD
C	Green belt	From the water tanker and the bore well	0.600 KLD
		TOTAL	2.400KLD

9.13 PROPOSED FINANCIAL ESTIMATE BUDGET FOR (EMP) ENVIRONMENT MANAGEMENT

Sl.no.	Details	All Figures are in Rs.
1.	LAND INVESTMENT COST Total Applied SF No. 199/6A = 1-08.00 Ha. As per Government of Tamilnadu Guideline Value per Ha. S.f.no199/6A = 1.08ha x Rs.1,49,500 = 1,61,460 Source (tnreginet.gov.in)	Rs.1,61,460
2.	FIXED INVESTMENT COST	
i)	Labour shed	Rs. 50,000
ii)	First aid room and accessories	Rs. 50,000
iii)	Toilet room with septic tank Facility construction & sanitary facility (for five years)	Rs. 30,000
iv)	Drinking water for staffs & Labour from water vendors (for five years)	<u>Rs. 80,000</u>
	TOTAL FIXED INVESTMENT COST =	Rs. 2,10,000
3.	OPERATIONAL COST (Siegnorage fee per unit for transport permit to be paid to state government Rs.26/m ³ at the time of marketing will be paid by Purchaser only.)	
i)	Machinery to be used for Quarrying & Cost Total Number of Excavator = 1No Total operational cost = 1509Ex.hours x Rs.1000 = (The Hired vehicle charges per hour inclusive of diesel around Rupees 1000/hour) (The Excavators of 0.90cu.m. bucket capacity and tippers of 10/20Ts capacity will be used. The quantity of Diesel consumption is based on the working hours of excavators {filling factor and loading cycling}. In the open cast quarry project excavators are proposed to quarry). (One excavators will be excavate = 60cu.m./Hr. For five years Project = 90,543cu.m./60cu.m. = 1509 excavator hours) {Diesel Consumption Tata Hitachi (Model EX200) = 9Ltr/Hr Diesel Price around = Rs.100 (At present scenario) Hence 1509 Hours x 9Ltrs/Hr = 13,581 Ltrs of HSD will be utilized for the 5year.}	Rs. 15,09,000

Sl.no.	Details			
ii)	<u>Compressor with Drilling Cost</u> Total Number of compressor with Drilling Machine used for quarrying = 1No (One Compressor with Drilling Machine will be Drilling = 100Cu.m./Hr.) The Hired vehicle charges per hour inclusive of diesel around Rs 750/Hour = 826 hours x Rs.750 = (For Five year project Roughstone = 82561cu.m./100cu.m. = 826 Running Hours) (Diesel Consumption = 8Ltr/Hr Diesel Price around = Rs.90 (At present scenario) Hence 826 Hours x 8Ltrs/Hr = 6,608 Ltrs of HSD will be utilized for the 5year.)			
iii)	<u>Explosives Cost</u> Total cost for the Five year Roughstone = (82561Cu.m./100Cu.m.) x Rs. 700 = (For five year project explosives-charging and blasting used for Rs.700/100Cu.m. Total drilling material for quarrying = 82,561Cu.m. of Roughstone.)			
	TOTAL OPERATIONAL COST = (Machinery operational +Drilling with Compressor + Explosives)			
4.	<u>EMP COST</u>			
Sl.no.	Details	Cost per Month (Rs.)	Total Cost per Year (Rs.)	Total cost for 5 years lease period (Rs.)
i)	Greenbelt development (plantation & maintenance)	1,100	13,200	66,000
ii)	Fencing arrangements & wind net arrester	-	-	75,000
iii)	Occupational health safety kits (mask, helmet, sanitizer, gloves, etc.,)	1,000	12,000	60,000
iv)	Water sprinkling using own tractor for the area (Control of Dust suppression)	1,000	12,000	60,000
v)	Environmental parameters testing expenses fees for every six months a. Ambient Air monitoring b. Water analysis c. Noise Monitoring d. Soil testing e. Ground Vibration Monitoring	12,000 (bi-annual)	24,000	1,20,000
Total EMP Cost=				Rs. 3,81,000

1.	Land Investment Cost	Rs. 1,61,460
2.	Fixed Investment Cost	Rs. 2,10,000
3.	Operational Cost	Rs. 27,06,427
4.	EMP Cost	Rs. 3,81,000
TOTAL PROJECT COST		Rs.34,58,887
CER @ 2% Project cost Carrying out provisions of Drinking water with dispensations Toilet/sanitary especially for girls students in Sevelpatti Government School, Vembakottai Taluk, Virudhunagar District.		Rs. 69,178

10. MINE CLOSURE PLAN

- The mined out area will be suitably fenced to avoid inadvertent entry of men and animal to the quarry area.
- After closure of mine the applicant will adhered the rules and regulations governed by state and central government
- All safety measures and mitigations will be maintained properly in the mined out area. Security persons will be engaged in all three shifts to ensure safety in the quarry.

The progressive mine closure plan is enclosed in Plate No. VIII.

11. ANY OTHER DETAILS INTEND TO FURNISH BY THE APPLICANT

- Permission will be obtained from the District Mines Office to extract the Rough Stone from the Boundary barriers and for slopes.
- Care and precautionary measures will be taken for the safety of workers as per Mines Rules-1955 and Mines Acts-1952.
- The applicant will endeavor every attempt to quarry the Rough Stone economically without any wastage and to improve the environment and ecology.
- Any violation pointed out by the inspecting authorities shall be rectified as per the guidelines of the Department.

PLACE: THOOTHUKUDI

DATE: 2.05.2022

[Signature]
ASSISTANT DIRECTOR
GEOLOGY AND MINING
VIRUDHUNAGAR DISTRICT
VIRUDHUNAGAR

[Signature]
Signature of the RQP

M. DHARMALINGAM
M.Sc.,(Geol.) FCC (Mining)
Recognised Qualified Person
RQP / MAS / 260 / 2014 / A
Valid up to: 13-11-2024

ANNEXURE- I



GEOLOGICAL RESERVES

MINERAL	SECTION	LENGTH (M)	WIDTH (M)	DEPTH (M)	TOTAL VOLUME IN CUM
GRAVEL	PQ - AB	164	66	2.0	21,648
ROUGH STONE	PQ - AB	164	66	23.0	2,48,952
TOTAL GEOLOGICAL RESERVES VOLUME IN CU.M.					2,70,600
DEDUCT OLD PIT = 82m x 44m x 4.0m					- 14,432
TOTAL GEOLOGICAL RESERVES					2,56,168 Cu.m.

MINEABLE RESERVES

MINERAL	SECTION	BENCH	LENGTH (M)	WIDTH (M)	DEPTH (M)	VOLUME IN CUM	TOTAL VOLUME IN CUM
GRAVEL	PQ – AB	I	149	51	2.0	15198	7,982
	DEDUCT OLD PIT – 82 X 44 X 2 =					-7216	
ROUGH STONE	PQ - AB	I	149	51	3.0	22797	82,561
	PQ - AB	II	139	41	5.0	28495	
	PQ - AB	III	129	31	5.0	19995	
	PQ - AB	IV	119	21	5.0	12495	
	PQ – AB	V	109	11	5.0	5995	
	DEDUCT OLD PIT – 82 X 44 X 2 =					-7216	
TOTAL MINEABLE RESERVES						90,543 Cu.M.	

M. Dharmalingam

M. DHARMALINGAM
M.Sc.,(Geol.) FCC (Mining)
Recognised Qualified Person
RQP / MAS / 260 / 2014 / A
Valid up to: 13-11-2024

YEAR	SECTION	BENCH	LENGTH (M)	WIDTH (M)	DEPTH (M)	VOLUME IN CUM		TOTAL PRODUCTION IN CUM
						GRAVEL	ROUGH STONE	
I	PQ-AB	I	125	51	2.0	5534	----	17,443
	DEDUCT OLD PIT = 82 X 44 X 2 = -7216							
	PQ-AB	I	125	51	3.0	----	11909	
	DEDUCT OLD PIT = 82 X 44 X 2 = -7216							
II	PQ-AB	I	24	51	2.0	2448	----	18,010
	PQ-AB	I	24	51	3.0	----	3672	
	PQ-AB	II	58	41	5.0	----	11890	
III	PQ-AB	II	81	41	5.0	----	16605	16,605
IV	PQ-AB	III	129	31	5.0	----	19995	19,995
V	PQ-AB	IV	119	21	5.0	----	12495	18,490
	PQ-AB	V	109	11	5.0	----	5995	
TOTAL PRODUCTION						7,982	82,561	90,543

M. DHARMALINGAM
M.Sc.,(Geol.) FCC (Mining)
Recognised Qualified Person
RQP / MAS / 260 / 2014 / A
Valid up to: 13-11-2024



Base Line Studies

The base line studies is prepared for Rough stone, Jelly & Gravel quarry Appayanaickenpatti Village, Vembakottai Taluk, Virudhunagar District, over an extent of 1-08.0 hectares in SF No. 199/6A. The proposed quarry lease will be granted for a period of 5 years. The total planned production quantity for 5 year in rough stone 82,561cum, & gravel 7982cum.

The project in the area will provide a quit considerable employment to nearby village which in turn enhance the earning source of the nearby villagers. The comprehensive base line studies and standards constitute of collecting data on ambient air quality, dust fall rate, water quality, soil analyze, noise level and ground vibration study in the area proposed for quarrying along with flora and fauna statistics.

General approach to Environment:

The environment studies besides data comprise of the features present in the site area it includes environmental features such as forest area, conservation area, water bodies, industries, wild life and fauna place of historic and importance etc.,

1. Air environment
2. Noise environment
3. Water environment
4. Ecology (biological and cultural environment)
5. Physical environment

Air Environment

The rough stone quarry is non toxic which does not emit any undesirable pollution in the form of solid, liquid and gas. The dust emitted during the transportation of vehicles and the drilling will be carried out in wet condition to prevent dust into air and the haul roads will be periodically sprinkled with mist water spray to prevent dust into the atmosphere. The area in and around is quit fresh and the impact on air environment will always be under control and will be monitored. No processing or beneficiation is proposed except quarrying hence the impact on air will be controlled, monitored and mitigated.

Noise Environment

The noise will be only during blasting. For controlling noise proper and adequate explosives will be charged to the short holes. The machineries will be properly made preventive maintenance to avoid much noise during machinery working. Except these features there are no possibilities of producing much noise during quarry working.

R. Gopalakrishnan

Ground vibration studies

The vibration source only through the movement of vehicles where the frequency is also very less. Hence the vibration is well below the standard permissible by MOEF. Displacement, velocity and acceleration of the three kinematics descriptions which are to be studied to describe ground motion. The peak particle velocity is the more referred since the area is virgin there is no significant measured velocity found in the area. During blasting delay electric detonators will be used to minimize vibration during blasting.

Water Environment

Geo - physical investigation was carried out by adopting schlumberger method. To find out the lateral variation and vertical in homogeneity's. The hydro - geological report is enclosed.

Soil analysis

The area applied for mining lease is flat terrain with little undulations covered by gravel for a depth of 2m followed by massive rock. The gravel is loose and natural growths to trees or plants are negligible except small bushes.

Climate

The area receives annual average rain fall of 825mm during southwest monsoon (June - Sep) and northeast monsoon (Oct - Dec). Temperature falls between 42°C - 23°C. Rainy season is three months in a year from October to December during monsoon. Temperature is maximum during May - June in a year.

Flora and fauna in and around the area

In small quarrying projects like this which involves very limited operations like secondary drilling and blasting conservation of flora and fauna along with ecology does not have significant impact of the overall eco system. A detailed survey related to flora and fauna was observed physically, the in and around area was seasonal dry cultivation, predominantly maize, cotton and millet and naturally grown trees like neem tree, karuvelam (juliflora) etc. The fauna is goat, rat crow, cat, ant, cow and squirrel etc.

Conclusion The base line studies relents no hazardous levels of dust and noise and prevailing at the project area. A well implemented environment management plan as discussed in the mining plan will help in mitigation of the adverse effects due to quarry activities.

The flora in the area is only small thorny bushes as much of the area exhibits flat terrain. No trees are proposed to uproot for the project and new trees will be planted on boundary barrier which will act as acoustic sound barriers. Environment care and attitude preventing environment is instructed to the proponent and advice to carry out and mitigate the minor impacts due to quarrying.

M. Dharmalingam
M. DHARMALINGAM

M.Sc., (Geol.) FCC (Mining)

Recognised Qualified Person

RQP / MAS / 260 / 2014 / A

Valid up to: 13-11-2024



HYDROGEOLOCAL SURVEY REPORT

1. Name of the Applicant : Sri, R. Gopalakrishnan, S/o. Sri. Ramasamy.
2. Major/ minor mineral : Roughstone, Jelly and gravel (minor mineral)
3. Location :
 - i). Survey no : 199/6A
 - ii). Village : Appayanaickenpatti
 - iii). Taluk : Vembakottai
 - iv). District : Virudhunager
4. Total Extent : 1-08.00 Hectares
5. Category of ground water : safe category (over all district)
6. Geomorphology : plain terrain covered with gravel
thorny bushes and no vegetations and the
slope of the land is very gentle towards west.
7. Geology : weathered gravel & massive charnockite.
8. Climate : Tropical
9. Average annual rainfall : 825mm
10. Nearby recharging sources : There are water recharging source of
Seasonal odai on southern side. These odai
are mostly dry in all seasons and will have
water staged only during heavy rainy season.
Due to monsoon failure the odai cannot be
taken as a recharge source.
11. Water level in near area : 45 to 50 meters from the local enquire.
12. Quality of the ground water : Not potable CaCl, NaCl, & CaCo3.
13. Hydro- geological conditions: The hard rock area allows rain water seepage
Only in weathered, fissured and fracture
zones And the ground water storage and
Movement is very poor in the study area.
14. Geophysical study : Geophysical Electrical Resistivity survey
conducted in schlumberger configuration
(VES) method using IPI2win software for a
depth of 45m. The VES-Interpreted curve and
Layers by. using IPI2win software shows
occurrence of hard rock formations below 2m
depth.

M. Dharmalingam

M. DHARMALINGAM
M.Sc., (Geol.) FCC (Mining)
Recognised Qualified Person
RQP / MAS / 260 / 2014 / A
Valid up to: 13-11-2024



1. GEOPHYSICAL ELECTRICAL RESISTIVITY SURVEY:

THE SCHLUMBERGER ARRAY

Geophysical Electrical Resistivity survey conducted in schlumberger Configuration (VES) method using IPI2win Software. The Schlumberger array is an array where four electrodes are placed in line around a common midpoint. The two outer electrodes, A and B, are current electrodes, and the two inner electrodes, M and N, are potential electrodes placed close together. With the Schlumberger array, for each measurement the current electrodes A and B are moved outward to a greater separation throughout the survey, while the potential electrodes M and N stay in the same position until the observed voltage becomes too small to measure (source). At this point, the potential electrodes M and N are moved outward to a new spacing. As a rule of the thumb, the reasonable distance between M and N should be equal or less than one-fifth of the distance between A and B at the beginning. This ratio goes about up to one-tenth or one-fifteenth depending on the signal strength. The Schlumberger array is commonly used for vertical electrical sounding (VES) for groundwater and aggregate minerals. Vertical electrical sounding (VES) using the Schlumberger array provides better resolution.

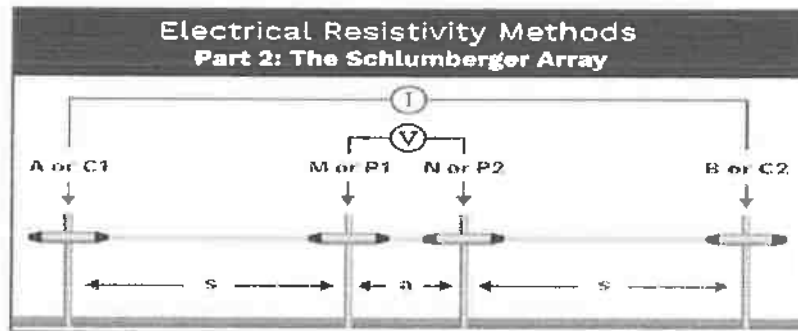


Fig No:1, Schlumberger Array



Fig No: 2. Model DDR-3 Electrical Resistivity Meter

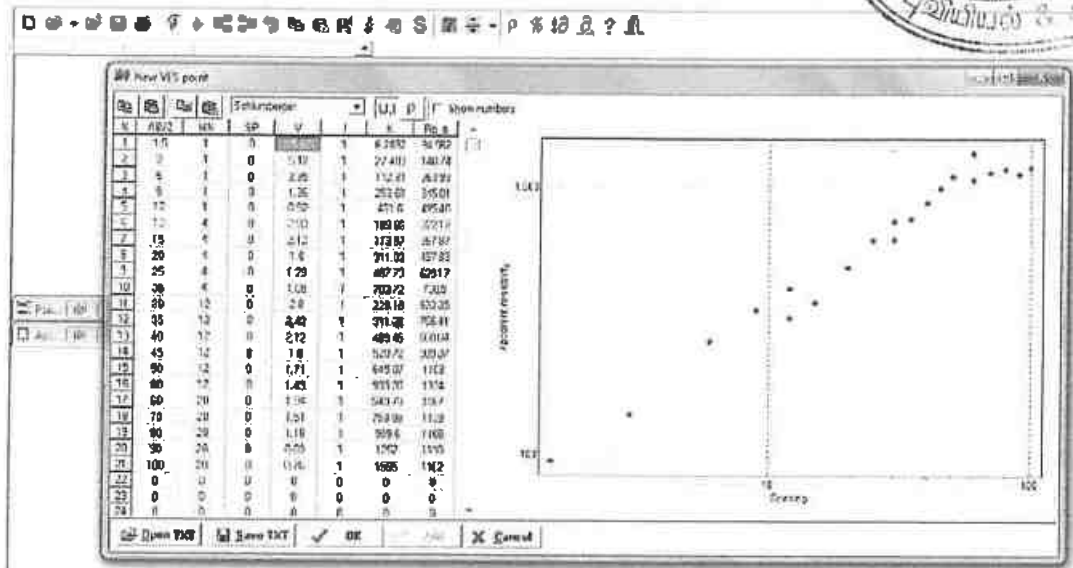


Figure No.3. Image showing VES data sheet by using IPI2win software.

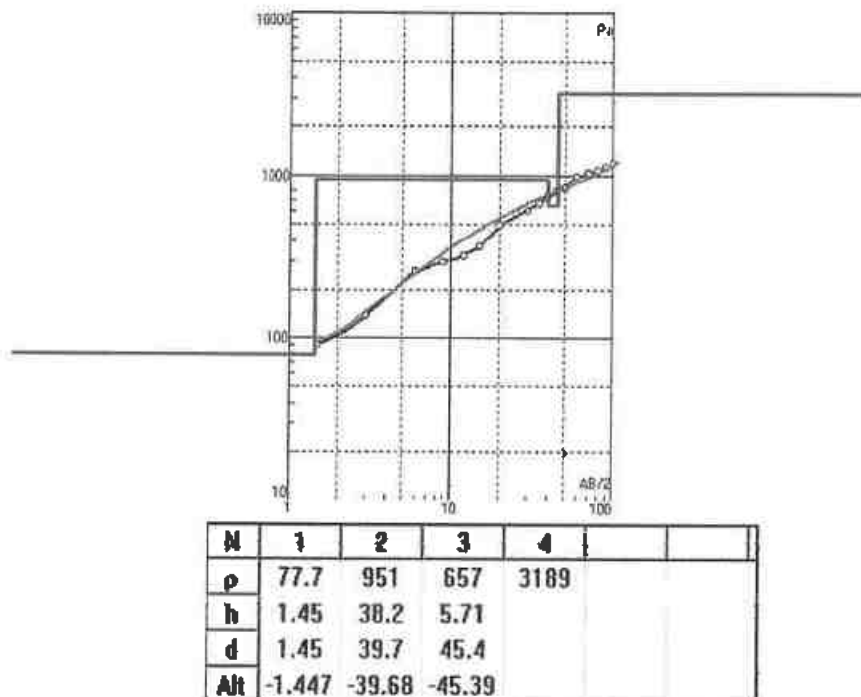


Figure No.4. Vertical electrical Sounding Interpreted curve & Layers by using IPI2win software



VES- INFERRED STRATA

- 0-2 m : Gravel with (Resistivity 78 Ohm)
2 m-40m : Hard Charnockite formation (951 Ohm. Resistivity)
40m-45m : Charnockite rock with water potential fracture (Resistivity 657 Ohm.)
Above 45m : Massive charnockite formation. (Resistivity 3189 Ohm.)

The presence of soil with gravel shows low resistivity followed by Charnockite formation with high resistivity is indication of the poor water bearing capacity at shallow depth. The deeper layer is having curve break at 45m with comparatively less resistivity shows possibility of fracture with water table. Above 45m the resistance is high (3189 Ohm) shows massive formation of charnockite at depth.

M. Dharmalingam

M. DHARMALINGAM

M.Sc.,(Geol.) FCC (Mining)

Recognised Qualified Person

RQP / MAS / 260 / 2014 / A

Valid up to: 13-11-2024

भारत सरकार / GOVERNMENT OF INDIA
खनन मंत्रालय / MINISTRY OF MINES
भारतीय खान ब्यूरो / INDIAN BUREAU OF MINES



Mo. [Signature]

अर्हता प्राप्त व्यक्ति के रूप में मान्यता प्रमाण पत्र
(खनिज खियायत नियमावली, 1960 के नियम 22सी के तहत)
CERTIFICATE OF RECOGNITION AS QUALIFIED PERSON
(Under Rule 22C of Mineral Concession Rules, 1960)

श्री एम. धरमलिंगम, नं.28, पोलपट्टी, टूटीकोरिन- 628 002, तमिलनाडू, जिनका फोटो और हस्ताक्षर ऊपर दिया हुआ है, तथा जिनहोंने अपनी अर्हता और अनुभव का संतोषजनक सबूत दिया है, को खनन योजना तैयार करने हेतु खनिज खियायत नियमावली 1960 के नियम 22सी के तहत अर्हता प्राप्त व्यक्ति के रूप में मान्यता प्रदान की जाती है ।

Shri M. Dharmalingam, No.28, Polpettai, Tuticorin - 628 002, Tamilnadu State, whose **Photograph and signature** is affixed herein above, having given satisfactory evidence of his qualifications & experience is hereby **RECOGNISED** under Rule 22C of the Mineral Concession Rule, 1960 as a **Qualified Person** to prepare Mining Plans.

उनकी पंजीयन संख्या है

His registration number is

RQP / MAS / 260 / 2014 / A

यह मान्यता 10 वर्षों की अवधि के लिए मान्यता है जो दिनांक 13.11.2024 को समाप्त होगी।
This recognition is valid for a period of 10 years ending on 13.11.2024

उनके द्वारा प्रस्तुत खनन योजना में गलत जानकारी / दस्तावेज पाए जाने की स्थिति में यह प्रमाण पत्र वापस लिया जाएगा / निरस्त किया जाएगा।

This certificate will liable to be withdrawn / cancelled in the event of furnishing the wrong information / documents in the Mining Plan submitted by him.

स्थान/ Place : Chennai

दिनांक/ Date : 14.11.2014

M. DHARMALINGAM

M.Sc., (Geol.) FCC (Mining)

Recognised Qualified Person

RQP / MAS / 260 / 2014 / A

Valid up to: 13-11-2024

क्षेत्रीय खान नियंत्रक / Regional Controller of Mines

A59 भारतीय खान ब्यूरो / Indian Bureau of Mines

चेन्नई क्षेत्र / Chennai Region

புவியியல் மற்றும் சுரங்கத்துறை

உதவி இயக்குநர் அலுவலகம்,
மாவட்ட ஆட்சியர் அலுவலக வளாகம்,
விருதுநகர்.



ந.க.எண்: கேவி1/221/2022-கனிமம்,

நாள்: 26.04.2022.

குறிப்பாணை

பொருள்: கனிமங்களும் குவாரிகளும் - விருதுநகர் மாவட்டம், வெம்பக்கோட்டை வட்டம் - அப்பையநாயக்கன்பட்டி கிராமம் - பட்டா புல எண்: 199/6A மொத்தப்பரப்பு 1.08.00 ஹெக்டேர் - ஐந்து வருடங்களுக்கு உடைகல் மற்றும் கிராவல் குவாரி உரிமம் வழங்கல் - சரியான உகந்த பரப்பு (Precise Area) தேர்வு செய்யப்பட்டது - சுரங்ககத்திட்டம் மற்றும் மாநில அளவிலான சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணையத்தின் இசைவினைப் பெற்று சமர்ப்பிக்க கோருவது - தொடர்பாக.

- பார்வை:**
1. திரு.இரா.கோபாலகிருஷ்ணன், த/பெ. இராமசாமி மதுரை விண்ணப்பம் நாள்: 14.02.2022.
 2. இவ்வலுவலக கடிதம் எண் ந.க.கேவி1/221/2022, நாள்: 23.02.2022.
 3. சாத்தூர் வருவாய் கோட்டாட்சியர் கடிதம் எண்: மூ.மு-அ2/1586/2022 நாள்: 11.04.2022.
 4. உதவி இயக்குநர், புவியியல் மற்றும் சுரங்கத்துறை அவர்களின் புலத்தணிக்கை அறிக்கை நாள்: 22.04.2022.
 5. 1959 -ம் வருடத்திய தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 41 மற்றும் 42.
 6. அரசாணை எண்.169 தொழில் (எம்.எம்.சி.1) துறை, நாள்: 04.08.2020.
 7. அரசாணை எண்.208, தொழில் (எம்.எம்.சி.1) துறை, நாள்: 21.09.2020.
 8. தொடர்புடைய ஆவணங்கள்.

விருதுநகர் மாவட்டம், வெம்பக்கோட்டை வட்டம், அப்பையநாயக்கன்பட்டி கிராமம், பட்டா புல எண்:199/6A மொத்தப்பரப்பு 1.08.00 ஹெக்டேர் பரப்பில் 5 வருடங்களுக்கு உடைகல் மற்றும் கிராவல் குவாரி குத்தகை உரிமம் வழங்கக்கோரி மதுரை மாவட்டம், திருமங்கலம் வட்டம், கற்பகம் நகர், கதவு எண்: 70/1 என்ற

முகவரியில் வசித்து வரும் திரு.இரா.கோபாலகிருஷ்ணன், த/பெ. இராமசாமி என்பவர் பார்வை 1-ல் காணும் விண்ணப்பத்தினை சமர்ப்பித்துள்ளார்.

சாத்தூர் வருவாய் கோட்டாட்சியர் மற்றும் புவியியல் மற்றும் சுரங்கத்துறை, உதவி இயக்குநர் ஆகியோர் கீழ்க்காணும் நிபந்தனைகளுக்குப்பட்டு மேற்கண்ட புலங்களில் உடைகல், கிராவல் குவாரி குத்தகை உரிமம் ஐந்தாண்டுகளுக்கு வழங்கப் பரிந்துரை செய்துள்ளனர்.

- 1) அருகிலுள்ள பட்டா நிலங்களுக்கு 7.5 மீ பாதுகாப்பு இடைவெளி விடுத்து குவாரி செய்தல் வேண்டும்.
- 2) புலத்தின் வட மேற்கு மற்றும் தெற்கில் செல்லும் வண்டிப்பாதை பாதிக்காத வகையில் 10 மீ பாதுகாப்பு இடைவெளி விடுத்து குவாரி பணிகள் மேற்கொள்ள வேண்டும்.
- 3) பொதுமக்கள் / விவசாய நிலங்களுக்கு பாதிப்பு ஏற்படாத வகையில் தகுதி வாய்ந்த அங்கீகரிக்கப்பட்ட நபர்கள் மூலம் வெடிமருந்துகள் சேமிக்கப்பட்டு குவாரியில் வெடித்தல் வேண்டும்.
- 4) சுரங்கத்திட்டம் மற்றும் சுற்றுச்சூழல் தடையில்லாச் சான்று குத்தகை உரிமம் வழங்குவதற்கு முன் சமர்ப்பிக்க வேண்டும்.
- 5) குவாரியில் வேலை செய்யும் தொழிலாளர்கள் தொழிலாளர் நலவாரியம் மற்றும் காப்பீடு திட்டத்தில் பதிவு செய்து தொழிலாளர் நலன் பேண்பட வேண்டும்.
- 6) குழந்தை தொழிலாளர்களை குவாரி பணியில் அமர்த்தக் கூடாது.
- 7) கனிமங்களை வாகனங்களில் கொண்டு செல்லும் போது பாதசாரிகள், பொது மக்கள் பாதிக்காதவண்ணம் தார்பாய்கள் கொண்டு மூடி எடுத்துச் செல்ல வேண்டும்.

எனவே, துறை அலுவலர்களின் பரிந்துரையினை ஏற்றும் நிபந்தனைகளுக்கு உட்பட்டும், விருதுநகர் மாவட்டம், வெம்பக்கோட்டை வட்டம், அப்பையநாயக்கன்பட்டி கிராமம், புல எண்: 199/6A மொத்தப்பரப்பு 1.08.00 ஹெக்டேர் நிலம் 1959-ம் வருடத்திய தமிழ்நாடு சிறுகணிம சலுகை விதிகள் விதி எண்: 19 (1) மற்றும் 20 -ன் படி ஐந்து வருடகாலத்திற்கு உடைகல் மற்றும் கிராவல் குவாரி உரிமம் வழங்க தகுதி வாய்ந்த நிலப்பரப்பாக (Precise area) கருதப்படுகிறது.

தமிழ்நாடு சிறுகனிம சலுகை விதிகள்-1959 விதி எண்: 41ன்படி குவாரி பணி மேற்கொள்வது தொடர்பாக வரைவு சுரங்கத் திட்டத்தினை (Mining Plan) 90

தினங்களுக்குள் சமர்ப்பிக்குமாறும், விதி எண்: 42-ன்படி மாநில அளவிலான சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணையத்தின் (State Level Environmental Impact Assessment Authority) இசைவினைப் பெற்று சமர்ப்பிக்குமாறும் மனுதாரர் திரு.இரா.கோபாலகிருஷ்ணன் கேட்டுக் கொள்ளப்படுகிறார்.



உதவி இயக்குநர்,
புவியியல் மற்றும் சுரங்கத்துறை,
விருதுநகர்

பெறுநர்
திரு.இரா.கோபாலகிருஷ்ணன்,
த/பெ. இராமசாமி,
கதவு எண்: 70/1, கற்பகம் நகர்,
திருமங்கலம் வட்டம்,
மதுரை மாவட்டம்.

நகல்
உறுப்பினர் செயலர்,
மாநில சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணையம் (SEIAA),
சென்னை.

இட ஆய்வறிக்கை
(நாள்: 22.04.2022.)



மதுரை மாவட்டம், திருமங்கலம் வட்டம், கற்பகம் நகர், கதவு எண்: 70/1 என்ற முகவரியில் வசித்து வரும் திரு.இரா.கோபாலகிருஷ்ணன், த/பெ. இராமசாமி என்பவர் விருதுநகர் மாவட்டம், வெம்பக்கோட்டை வட்டம், அப்பையநாயக்கன்பட்டி கிராமம், பட்டா புல எண்: 199/6A மொத்தப்பரப்பு 1.08.00 ஹெக்டேரில் ஐந்து வருட காலத்திற்கு உடைகல் மற்றும் கிராவல் குவாரி குத்தகை உரிமம் வேண்டி 1959-ம் வருடத்திய தமிழ்நாடு சிறுகனிம சலுகை விதிகள் விதி எண்.19 (1)-ன் படி விண்ணப்பம் செய்திருந்தார். விண்ணப்ப புலங்கள் 22.04.2022 தினத்தன்று ஆய்வு செய்யப்பட்டது.

விண்ணப்பிக்கப்பட்ட புல எண்: 199/6A பட்டா எண் 2010 -ன் படி திரு.இரா.கோபாலகிருஷ்ணன், த/பெ. இராமசாமி என்பவர் பெயரில் அப்பையநாயக்கன்பட்டி கிராம ஆவணங்களில் பதிவாகியுள்ளது. இவ்வாறாக மேற்கண்ட புலங்களுக்கு விண்ணப்பதாரர் முழு உரிமையுடையவராகிறார்.

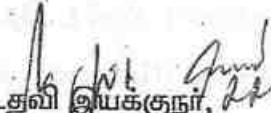
விண்ணப்பிக்கப்பட்ட புலங்களை சுற்றிலும் 300 மீட்டர் சுற்றளவில் குடியிருப்புகள், பள்ளிகள், கோயில்கள், மசூதிகள், சுடுகாடு ஏதும் இல்லை. 50 மீட்டர் சுற்றளவில் தேசிய / மாநில நெடுஞ்சாலைகள், ஆறுகள், கட்டிடங்கள், உயர் அழுத்த மின்கம்பிகள் இல்லை. உயர்வகை மரங்கள் ஏதுவும் இல்லை. புலங்களுக்கு சென்று வர பாதை வசதி உள்ளது.

விண்ணப்பிக்கப்பட்ட புலங்கள் புஞ்சை வகைப்பாடுடைய தரிசு நிலங்களாகும். விவசாய பணிகள் ஏதுமின்றி உள்ளது. புலத்தில் கற்குவாரி குத்தகை உரிமம் மாவட்ட ஆட்சியரின் செயல்முறை ஆணை எண்: ந.க.கேவி1/5171/2013 நாள்: 10.05.2017 -ன் படி விண்ணப்பதாரர் பெயரில் வழங்கப்பட்டு அவ்வுரிமம் 28.05.2022-டன் முடிவடைய உள்ளது. புலங்களில் சராசரியாக 4 மீ ஆழத்திற்கு கற்கல் குடைவு செய்யப்பட்டுள்ளது. மேற்பரப்பில் காணப்படும் சிதைந்த பாறைகளை (Weathered Rock), தொடர்ந்து சார்னகைட் (Charnockite) எனப்படும் கடின வகை பாறைகள் (Hard rock) உள்ளது. கடின பாறைகளில் காணப்படும் வேறுபட்ட நிறங்கள் (Different in colours), இணைப்புகள் (Joints), பிளவுகள், கீரல்கள் (Cracks) வெடிப்புகள் மற்றும் மாறுபட்ட அளவு கொண்ட கனிமங்கள் காரணமாக இப்பாறைகளில் மெருகேற்றக் கூடிய வண்ண கற்களை (Polished Granite / Blocks) உற்பத்தி செய்ய இயலாது. இவ்வகை பாறைகளில் இருந்து கட்டிடப்பணிகள் மற்றும் சாலை / இரயில்வே பணிகளுக்கு தேவைப்படும் கற்கள், ஜல்லிகள் மற்றும் எம்-சாண்ட் ஆகியவற்றை உற்பத்தி செய்ய இயலும்.

எனவே திரு.இரா.கோபாலகிருஷ்ணன் என்பவரின் கோரிக்கையினை ஏற்று விருதுநகர் மாவட்டம், வெம்பக்கோட்டை வட்டம், அப்பையநாயக்கன்பட்டி கிராமம், பட்டா புல எண்: 199/6A மொத்தப்பரப்பு 1.08.00 ஹெக்டேரில் உடைகல் மற்றும் கிராவல் குவாரி உரிமம் ஐந்தாண்டுகளுக்கு (5) தமிழ்நாடு சிறுகனிம சலுகை விதிகள் விதிஎண்.19 (1) மற்றும் 20-ன் படி பின்வரும் நிபந்தனைகளுக்குட்பட்டு வழங்க பரிந்துரை செய்கிறேன்.

நிபந்தனைகள் :

- 1) அருகிலுள்ள பட்டா நிலங்களுக்கு 7.5 மீ பாதுகாப்பு இடைவெளி விடுத்து குவாரி செய்தல் வேண்டும்.
- 2) புலத்தின் வட மேற்கு மற்றும் தெற்கில் செல்லும் வண்டிப்பாதை பாதிக்காத வகையில் 10 மீ பாதுகாப்பு இடைவெளி விடுத்து குவாரி பணிகள் மேற்கொள்ள வேண்டும்.
- 3) பொதுமக்கள் / விவசாய நிலங்களுக்கு பாதிப்பு ஏற்படாத வகையில் தகுதி வாய்ந்த அங்கீகரிக்கப்பட்ட நபர்கள் மூலம் வெடிமருந்துகள் சேமிக்கப்பட்டு குவாரியில் வெடித்தல் வேண்டும். குவாரியில் குறைந்த சக்தி கொண்ட வெடி மருந்துகளை பயன்படுத்தல் வேண்டும்.
- 4) சுரங்கத்திட்டம் மற்றும் சுற்றுச்சூழல் தடையில்லாச் சான்று குத்தகை உரிமம் வழங்குவதற்கு முன் சமர்ப்பிக்க வேண்டும்.
- 5) குவாரியில் வேலை செய்யும் தொழிலாளர்கள் தொழிலாளர் நலவாரியம் மற்றும் காப்பீடு திட்டத்தில் பதிவு செய்து தொழிலாளர் நலன் பேண்பட வேண்டும்.
- 6) குழந்தை தொழிலாளர்களை குவாரி பணியில் அமர்த்தக் கூடாது.
- 7) கனிமங்களை வாகனங்களில் கொண்டு செல்லும் போது பாதசாரிகள், பொது மக்கள் மற்றும் பிற வாகனங்கள் பாதிக்காதவண்ணம் தார்பாய்கள் கொண்டு மூடி எடுத்துச் செல்ல வேண்டும்.


 உதவி இயக்குநர்,
 புவியியல் மற்றும் சுரங்கத்துறை,
 விருதுநகர்.



APPLICANT I.D. PROOF


இந்திய அரசாங்கம்
Government of India
கோபாலகிருஷ்ணன் ரா
Gopalakrishnan R
பிறந்த நாள் / DOB 26/04/1966
ஆண்பால் / Male



3974 4862 3554

ஆதார் - சாதாரண மனிதனின் அதிகாரம்


இந்திய தனிப்பட்ட அடையாள அமைதி
Unique Identification Authority of India

முகவரி: S/O. ராமசாமி ஸ.
கலுமலைரோடு.
திருவேங்கடம், திருவேங்கடம்.
திருநெல்வேலி,
சங்கரன்கோவில், தமிழ் நாடு.
627719

Address: S/O: Ramasamy S/
kalugumalairoad
THIRUVENGADAM
Thiruvengadam, Tirunelveli
Sankarankoil, Tamil Nadu 627719

3974 4862 3554

1800 300 1947  help@uidai.gov.in  <http://uidai.gov.in>

R. Gopalakrishnan

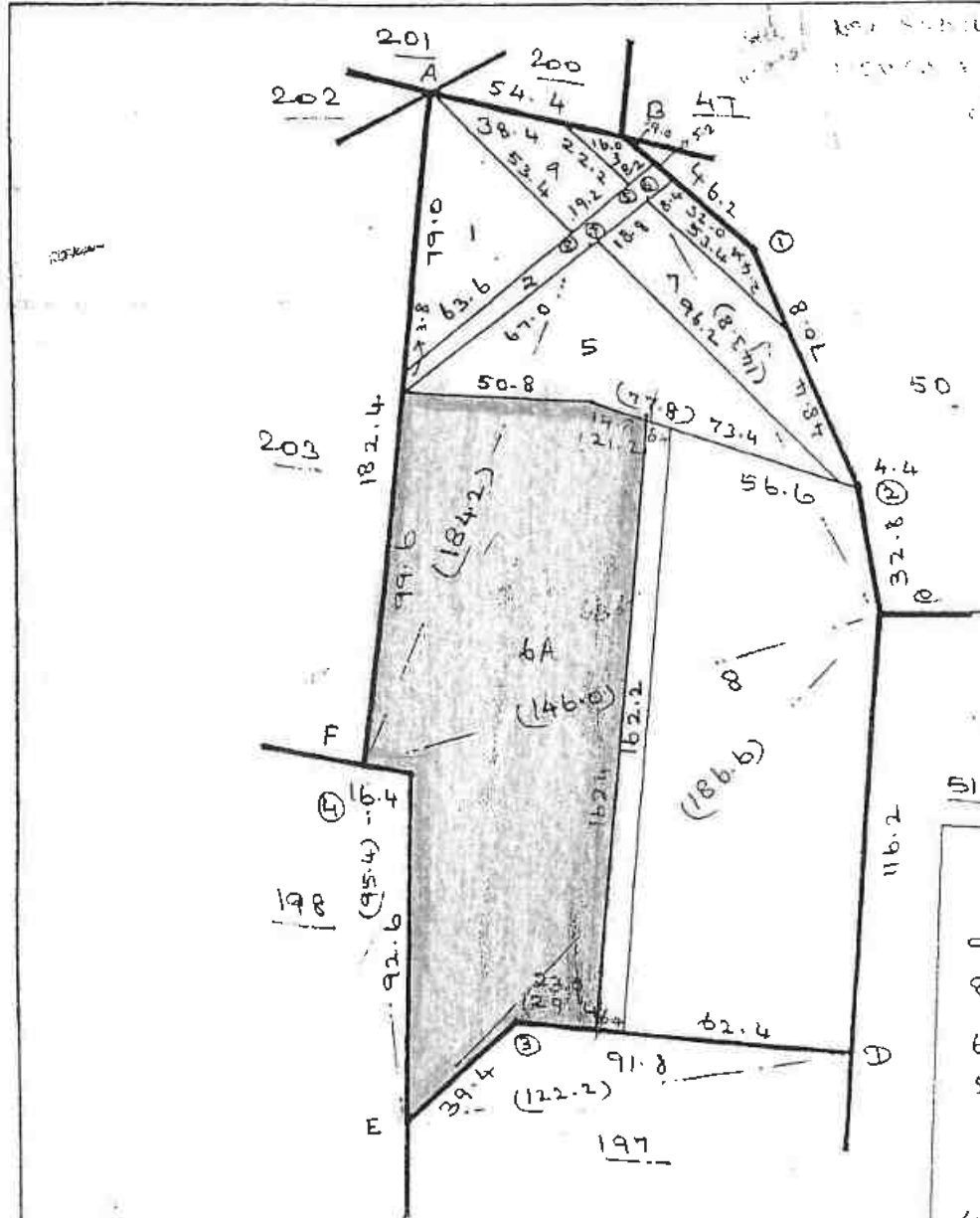
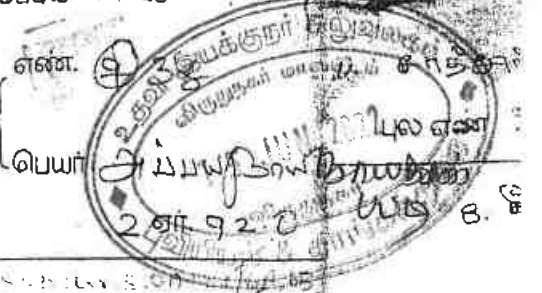
அளவைப்படிவ. எண் 23

மாவட்டம். கிராமராஜ்
புதுச்சேரி

வட்டம். சிவசாமி
புல எண். 199

கிராமம்

பரப்பு: ஹெக்டேர்



LEASE APPLIED AREA

கிராம ராஜ் கிராமராஜ்

சுற்றுலா அலுவலர்
அலங்காரம்

SI		F
9	18.2	184.2
8	1.0	29.8
6	9.2	28.0
5	5.0	11.6
		10.2
		B
		E
4	12.2	(95.4)
		3.6
		F
		D
		(122.2)
3	21.8	33.4
		E
		Q
		(143.8)
2	11.4	113.2
1	17.0	42.6
		B

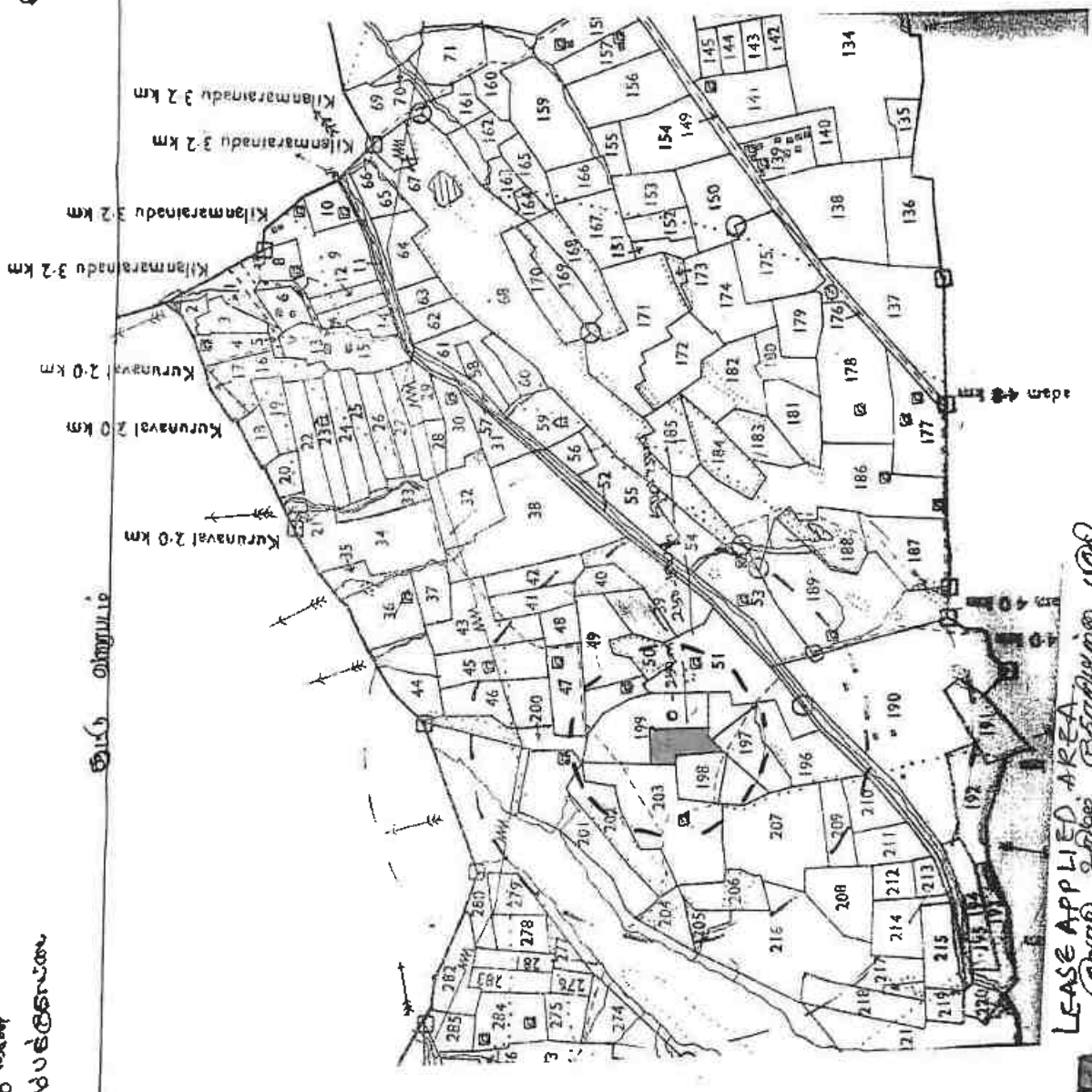
50 mas - 7200 mas

A67

120

சென்னை 10.05.2019

Dr. [Signature]
Fr. [Signature]





MINES LAND PHOTO



விருதுநகர் மாவட்டம், வெம்பக்கோட்டை வட்டம், அப்பையநாயக்கன்பட்டி கிராமம், பட்டா பட்டா புலஎண். 199/6A ஆக மொத்தம் 1-08.00 ஹெக்டேரில் மட்டும் 5 வருடங்களுக்கு விருதுநகர் மாவட்ட ஆட்சித்தலைவர் அவர்களின் செயல்முறை ஆணை எண். கே.வி.1/221/2022-கனிமம் நாள் 26.04.2022ன் படி திரு. இரா. கோபாலகிருஷ்ணன், த/பெ. இராமசாமி அவர்கள் மனு செய்துள்ளார். மேற்படி இடம் உடைகல், ஜல்லி மற்றும் கிராவல் வெட்டி எடுப்பதற்கு அங்கீகரிக்கப்பட்ட இடம் என்பதை இதன் மூலம் சான்றளிக்கிறேன்.

மேற்படி இடத்திற்கு செல்வதற்கு அணுகுபாதை வசதி உள்ளது என்றும் சான்றளிக்கிறேன்.

இடம்:

நாள்:

மனுதாரர் கையெப்பம்

R. Gopakrishnan

Handwritten signature
கிராம நிர்வாக அலுவலர்
APPAYANAIKENPATTI VILLAGE,
VEMBAKOTTAI (T.K.)
VIRUDHUNAGAR (D.L.)



கிராம நிர்வாக அலுவலரின் சான்று

விருதுநகர் மாவட்டம், வெம்பக்கோட்டை வட்டம், அப்பையநாயக்கன்பட்டி கிராமம், பட்டா புலஎண். 199/6A ஆக மொத்தம் 1-08.00 ஹெக்டேரில் மட்டும் 5 வருடங்களுக்கு விருதுநகர் மாவட்ட ஆட்சித்தலைவர் அவர்களின் செயல்முறை ஆணை எண். கே.வி.1/221/2022-கனிமம் நாள் 26.04.2022ன் படி திரு. இரா. கோபாலகிருஷ்ணன், த/பெ. இராமசாமி அவர்கள் மனு செய்துள்ளார். இவர் ஆரம்பிக்க உள்ள உடைகல், ஜல்லி மற்றும் கிராவல் குவாரி இடத்திற்கு செல்ல போதிய அனுகுபாதை வசதி உள்ளது மேலும் நிலத்தை சுற்றி 300மீட்டர் சுற்றளவில் குடியிருப்புகள், கோயில்கள், பள்ளிக்கூடம் ஏதும் இல்லை.

மேற்படி புல எண்கள். மேற்படி கிராம கணக்கு தடை ஆணை புத்தகத்தில் இடம் பெறவில்லை. மேலும் 10கி.மீ. சுற்றளவில் பிற மாவட்ட எல்லையோ, மாநில எல்லையோ இடம்பெறவில்லை. மேற்படி சான்று கனிமவளத்துறைக்கு அளிக்கும் வகைக்காக வழங்கப்படுகிறது.

சுருதி
05/06/2022
கிராம நிர்வாக அலுவலர்
APPANAMAICKENPATI VILLAGE
VEMBAKOTTAI (T.N)
VIRUDHUNAGAR (D.C.)



தமிழக அரசு

வருவாய்த் துறை

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

மாவட்டம் : விருதுநகர்

வட்டம் : வெம்பக்கோட்டை

வருவாய் இராமம் : அப்பையநாயக்கன்பட்டி

பட்டா எண் : 2010

உரிமையாளர்கள் பெயர்

1. இராமசாமி

மகன்

கோபாலகிருஷ்ணன்

புல எண்	உட்பிரிவு	புன்செய்		நன்செய்		மற்றவை		குறிப்புகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக்டர் - ஏர்	ரூ - பை	ஹெக்டர் - ஏர்	ரூ - பை	ஹெக்டர் - ஏர்	ரூ - பை	
199	6A	1 - 8.00	2.20	--	--	--	--	S2012/1157-- TPT4888/12 -- 26-01-2013
		1 - 8.00	2.20					

குறிப்பு 2 :



- மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 26/09/016/02010/100693 என்ற குறிப்பு எண்ணை உள்ளிடு செய்து உறுதி செய்துகொள்ளவும்.
- இத் தகவல்கள் 14-02-2022 அன்று 06:41:58 AM நேரத்தில் அச்சடிக்கப்பட்டது.
- கைப்பேசி கேமராவின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்



Revenue and Disaster Management Department

Government of Tamil Nadu

Tamil Nadu Information System On Land Administration and Management - TAMILNADU



Login: Firka Surveyor

District : Virudhunagar, Taluk : Vembakkottai, Firka : Alangulam

தமிழ்நாடு அரசு



வருவாய்த்துறை, விருதுநகர்(26) மாவட்டம்

நில அளவை ஆவணம் - பட்டா எண் : 2010

அலுவலக உபயோகத்திற்கு மட்டும்

மாவட்டம் : விருதுநகர்(26)

வட்டம் : வெம்பக்கோட்டை(09)

கிராமம் : அப்பையநாயக்கனபட்டி(016)

பட்டா எண் 10(1) பிரிவு

பட்டா எண் : 2010

உ.எ பட்டா எண்	உறவினர் பெயர்				உறவு				உரிமையாளர் பெயர்				
புல எண்	இராமசாமி				மகன்				கோபாலகிருஷ்ணன்				
புல எண்	நன்செய்				புன்செய்				மற்றவை				This Land Is Under
புல எண்	பரப்பு		தீர்வை		பரப்பு		தீர்வை		பரப்பு		தீர்வை		
புல எண்	ஹெ.	ஏர்	ரூ	பை	ஹெ.	ஏர்	ரூ	பை	ஹெ.	ஏர்	ரூ	பை	
199- A					1	08.00	2	20					-
மொத்தம்	0		0	0	1	08.00	2	20	0		0	0	

மண்டல துணை வட்டாட்சியர்

வெம்பக்கோட்டை(09)

Print Close & Reset

R. Appalakrishnan A71

133

PROJECT - VIRUDHUNAGAR TALUK - VEMBAKKOTTAI VILLAGE - APPAYYANAYA

3	199-3					8-2	4	2	00	0	1.50	0	06	513-லட்சுமண நாயக்கர் மற்றும் 2 நபர்(கள்)	
4	199-4					8-2	4	2	00	0	3.00	0	06	1452-பெரியசக்கண நாயக்கர் மற்றும் 4 நபர்(கள்)	
5	199-5					8-2	4	2	00	0	28.00	0	56	1452-பெரியசக்கண நாயக்கர் மற்றும் 4 நபர்(கள்)	
6A	199-6	P				8-2	4	2	00	1	8.00	2	20	2010-கோபாலகிருஷ்ணன் ✓	
6B	199-6	P				8-2	4	2	00	0	10.50	0	20	2011-ராமராஜ்	
7	199-7					8-2	4	2	00	0	16.50	0	31	1453-பெருமான் மற்றும் 4 நபர்(கள்)	
8	199-8					8-2	4	2	00	0	97.50	1	94	2011-ராமராஜ்	
9	199-9					8-2	4	2	00	0	6.50	0	13	513-லட்சுமண நாயக்கர் மற்றும் 2 நபர்(கள்)	
TOTAL FOR SURVEY NUMBER- 199										2	96.50	5	78		
1	200-2	P				8-2	4	2	00	0	62.00	1	30	1716-குமரேசன்	
2	200-2					8-2	4	2	00	0	11.50	0	25	513-லட்சுமண நாயக்கர் மற்றும் 2 நபர்(கள்)	
3	200-3	P				8-2	4	2	00	0	22.50	0	44	513-லட்சுமண நாயக்கர் மற்றும் 2 நபர்(கள்)	
TOTAL FOR SURVEY NUMBER- 200										0	96.00	1	99		
1	201-1					8-2	4	2	00	0	60.00	1	20	513-லட்சுமண நாயக்கர் மற்றும் 2 நபர்(கள்)	
2	201-2					8-2	4	2	00	0	69.50	1	39	513-லட்சுமண நாயக்கர் மற்றும் 2 நபர்(கள்)	
3	201-3	P	அ	யு		0-0	0	0	00	0	16.00	0	00	வாரி	
3	201-3	P	அ	யு		0-0	0	0	00	0	16.00	0	00	வாரி	
4	201-4					8-2	4	2	00	0	69.50	1	39	1844-கோபாலகிருஷ்ணன்	
5	201-5					8-2	4	2	00	0	53.50	1	07	1699-ராமசாமி நாயுடு	
TOTAL FOR SURVEY NUMBER- 201										2	84.50	5	05		
1A1	202-1A	P	அ	யு		0	8-2	4	0	00	0	11.00	0	00	வாரி
1A1	202-1A	P	அ	யு		0	8-2	4	0	00	0	11.00	0	00	வாரி
1A2	202-1A	P				8-2	4	2	00	1	21.50	2	47	1783-கனிராஜ்	

பேக்குத் திருவகம்
மாஸ்டம்

4/11/2008



தமிழ்நாடு தமிழ்நாடு TAMILNADU

D 452192

என்.ஆர். ஸ்டாம்பு வெண்டர்
உரிமம் எண்: 1779 / A1 / 2002
386A, பெரியகடை பஜார்,
இராஜபாளையம்.

32354

தேதி: 19.11.2008

ரூபாய்: 1000

கோபாலகிருஷ்ணன்
குருமங்கலம்

கிரையம் ரூபாய் 32,000/-

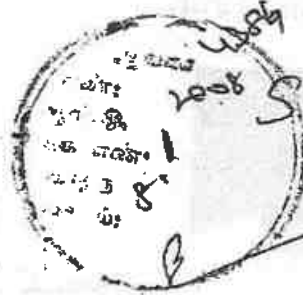
மார்க்கெட்மதிப்பு ரூபாய் 32,400/-

2008ம் வருஷம் நவம்பர் மாதம் 19-ம் தேதி

தமிழ் சர்வதாரி வருஷம் கார்த்திகை மாதம் 4-ம் தேதி

மதுரை மாவட்டம் திருமங்கலம் வட்டம் திருமங்கலம் டவுன் கற்பகநகர்
பழைய கதவு எண்.70/ 1E. புதிய கதவு எண்.18ல் வசித்து வரும் G.இராமசாமி
அவர்கள் துமாரர் R.கோபாலகிருஷ்ணன் (மதுரை தெற்கு ALA. வழங்கிய
ஒட்டுநர் உரிமம் எண்.F/ TN/ 058/ 006834/ 2002) அவர்களுக்கு

R. Gopalakrishnan



சென்னை

S. Pany

S. Kalu

4384/2008

புத்தகம்
ஆண்டு 4384
தாள்களைக்
கொண்டது.
வது தாள்
சார்பதிவாளர்

2008.08.08 ஆண்டு கட்டணம் தீர்வு
படி..... ரூ. 121
மணிகளுக்கிடையே கீழாஜகுலராமன்
சார்பதிவாளர் அலுவலகத்தில் தாக்கீது
செய்து கட்டணம் ரூ. 325,400/-
செலுத்தியமை.



சார்பதிவாளர்
கீழாஜகுலராமன்.

சமூகநிகழ்வுத்தரக ஒப்புகொண்டவர்
இடதுகை பெருவிரல்



சார்பதிவாளர்
கீழாஜகுலராமன்.

இடதுகை பெருவிரல்



சார்பதிவாளர்
கீழாஜகுலராமன்.

S. சண்முகராஜ்
தலைவர் அ. ச. சண்
T/35/207/0369487

சண்முகராஜ் தலைவர்
அ. ச. சண்
T/35/207/0369487

S. சண்முகராஜ்
தலைவர் அ. ச. சண்
T/35/207/0369487 0369252
2 2



தமிழ்நாடு தமி்லநாடு TAMILNADU

D 452193



என்.ஆர், பஞ்சுரங்கராஜா தமிழ்நாடு எண்: 32355-
ஸ்டாம்பு வெண்டர் தேதி: 18-11-2008
உரிமம் எண்: 1779 / A1 / 2002 ரூபாய் 1000
386A, பெரியகடை பஜார்,
இராஜபாளையம்.

செயல்படுத்தியது
திருமங்கலம்

-2-

விழுதுநகர் மாவட்டம் சிவகாசி வட்டம் எதிர்கோட்டை கிராமம் மஜுரா E.T.ரெட்டியப்பட்டியில் வசித்து வரும் சண்முகசுந்தரம் அவர்கள் குமாரர்கள் சண்முகராஜ் (சிவகாசி சட்டமன்ற தொகுதி வாக்காளர் அடையாள அட்டை எண்.TN/35/207/0369489) 1, பொன்னராஜ் (சிவகாசி சட்டமன்ற தொகுதி வாக்காளர் அடையாள அட்டை எண்.TN/35/207/0369252) 2, காளிராஜ் (சிவகாசி சட்டமன்ற தொகுதி வாக்காளர் அடையாள அட்டை எண்.TN/35/207/0369335) 3 ஆகிய நாங்கள் எழுதிக் கொடுத்த கிரையப்பத்திரம்.

R. Gopalakrishnan

S. சண்முகராஜ்

S.பஞ்சு

S. Kaluraj



R. Gopalakrishnan A75 137



தமிழ்நாடு தமில்நாடு TAMILNADU

E 779082



நாள். ஆர். முருகேசுவரன் தமிழ்நாடு எண்: 32356
 ஸ்டாம்பு வெண்டர் தேதி: 18.11.2008
 உரிமை எண்: 1779 / A1 / 2002 ரூபாய் 500

386A, பெரியகடை பஜார், இராஜபாளையம்.
 சிபைலகிடுஷினை
 திமெந்திவன்

-3-

என்னவென்றால், இதன் தபசில் கண்ட சொத்தானது எங்களுக்கு
 பூர்வீகமாய் பாத்தியமாகி, நாளது தேதி வரை எவ்வித வில்லங்கமின்றி
 நாங்கள் கூட்டாக அனுபவித்து வரும் சொத்தாகும். தபசில் சொத்தை
 நாங்கள் தங்களுக்கு நாளது தேதியில் கிரையம் செய்து கொடுத்தது
 ரூ.32,000/. இந்த ரூபாய் முப்பத்திரண்டாயிரமும் எங்கள் குடும்ப நன்மைக்காக
 இதுமுன் நாங்கள் தங்களிடம் நேரில் ரொக்கம் பெற்றுக் கொண்டபடியால்

R. Gopalakrishnan

S. அண்டிசிரிமன்



S. P. Kalwar

S. Kalwar

R. Gopalakrishnan

A77 139



தமிழ்நாடு தமிழ்நாடு TAMILNADU

K 926578

என்.ஆர். பூதரெங்கராஜா தமிழ்நாடு எண் 32357
 ஸ்டாம்பு வெண்டர் தேதி 18.11.2008
 உரிமம் எண்: 1779 / A1 / 2002 ரூபாய் 50
 386A, பெரியகடை பஜார், கோபலகிருஷ்ணன்
 இராஜபாளையம். தி.மென்.செ.வ.

-4-

தபசில் கண்ட சொத்தைத் தாங்கள் நாளது தேதி முதல் கிரையப் பாத்தியமாகவும், சர்வ சுதந்திர பாத்தியமாகவும், சந்ததி பரம்பரையாகவும், தானாதி விநியோக விற்கிரையங்களுக்கு யோக்கியமாகவும், ஆண்டு அனுபவித்துக் கொள்வீர்களாகவும். தபசில் சொத்தின் பேரில் எவ்வித வில்லங்கம் இல்லையென்று உறுதி கூறுகிறோம். ஏதேனும் வில்லங்கம்

R. Appalakrishnan

S சண்முகராஜன்



S. P. S.

5.11.2008

R. Appalakrishnan

A78

140



K 926579

என்.ஆர். முத்திரைக்காரர் தமிழ்நாடு எண்: 32358
ஸ்டாம்பு வெண்டர் தேதி: 18.11.2008
உரிமம் எண்: 1779 / A1 / 2002 ரூபாய் 50

386A, பெரியகடை யஜார்,
இராஜபாளையம்.

கேள்வனகிரியை
திருமன் உலக

-5-

விலகாரம் இருந்து பின்னர் வெளியிட்டால் எங்களுக்குப் பாத்தியப்பட்ட வேறு இதர சொத்துக்களில் இருந்து நிவர்த்தி செய்து கொடுப்போமாகவும். தபசில் சொத்து தங்கள் பெயருக்கு பட்டா மாறுதல் ஆவதற்கு இத்துடன் புள்ளி மனுவும் கையொப்பம் செய்து கொடுத்து விட்டோம். தபசில் சொத்தை இன்றே தங்கள் கவாதீன அனுபவத்திற்கு விட்டு விட்டோம்.

R. Appaluxan

S. சண்முகம்

S. Kalu

S. Kalu



R. Appaluxan

A79

141

சர்வே 199 நிரின் மற்ற உட்பிரிவு

எண்கள் உள்ள புஞ்சைகளுக்கு

ராமராஜ் புஞ்சைக்கு

பாலாறுகுடும்பன் வகையறா புஞ்சைக்கு

பெரியதக்காநாயக்கர் புஞ்சைக்கு

இம்மாலுக்குட்பட்டது,

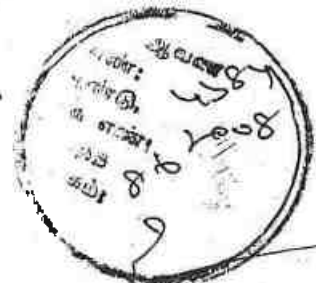
தபசில் சொத்து அப்பையநாயக்கன்பட்டி பஞ்சாயத்து வெம்பக்கோட்டை பஞ்சாயத்து யூனியனைச் சார்ந்தது. தபசில் சொத்தின் தற்கால மார்க்கெட் மதிப்பு ரூபாய் 32,400/-.

R. Gopalakrishnan

S சமீபத்தில்

S. P. P. P.

S. Kalwar



சாட்சிகள்

1. ச. கருணாநிதிகளையும் 9/10/2000-ஆம் திகதியில்
கொண்டுவந்த

2. ச- சசகரம் திசுக்கொட்டியம், குண்டியல்.
வரைவு செய்தவர்

மு. முத்துக்குமரேசன்
கீழராஜகுலராமன்.

த/பெ. சி. முத்துப்பாண்டி
உரிமம் எண்: B/1/2003/VNR.

R. Gopalakrishnan A80



அனுப்புநர்:

திருமதி. ஜா.புஷ்பா, பி.எஸ்.சி.,
வருவாய் கோட்டாட்சியர்,
சாத்தூர்.

பெறுநர்:

மாவட்ட ஆட்சியர்,
விருதுநகர்.

சம.மு.அ2 / 1586 /2022, நாள்: 11.04.2022.

ஐயா,

பொருள் :

கனிமம் மற்றும் சுரங்கம் - விருதுநகர் மாவட்டம் -
வெம்பக்கோட்டை வட்டம் - அப்பையநாயக்கன்பட்டி கிராமம் - புல
எண்.199/6A மொத்தம் 1.08.00 ஹெக்டேர் நிலங்களில் 5
வருடங்களுக்கு உடைகல் மற்றும் கிராவல் குவாரி உரிமம்
வழங்கக் கோரியது - கருத்துரு அனுப்புதல் - தொடர்பாக.

பார்வை:

1. விருதுநகர் மாவட்ட ஆட்சித்தலைவர் அவர்களின் கடிதம்
எண் ந.க கேவி1/221/2022, நாள்: 23.02.2022.
2. வெம்பக்கோட்டை, வருவாய் வட்டாட்சியர் கடிதம் எண். ந.க.
அ2/599/2022, நாள்: 02.04.2022.

மதுரை மாவட்டம், திருவங்கலம் வட்டம், கற்பகம் நகர் என்ற முகவரியைச் சேர்ந்த
திரு.கோபாலகிருஷ்ணன், த/பெ. இராமசாமி என்பவர் விருதுநகர் மாவட்டம், வெம்பக்கோட்டை வட்டம்,
அப்பையநாயக்கன்பட்டி கிராமம், புல எண்.199/6A, பரப்பு 1.08.00 ஹெக்டேர் பரப்பு நிலத்தில் 5
வருடங்களுக்கு உடைகல் மற்றும் கிராவல் குவாரி உரிமம் வழங்கக் கோரி மனு செய்துள்ளது
தொடர்பாக, எனதறிக்கையினை கீழ்க்கண்டவாறு சமர்ப்பிக்கிறேன்.

மனுதாரர் குவாரி உரிமம் வழங்கக் கோரும் இடம் வெம்பக்கோட்டை வட்டம்,
அப்பையநாயக்கன்பட்டி கிராமம், புன்செய் புல எண். 199/6A, பரப்பு 1.08.00 ஹெக்டேர், மட்டா எண்.
2010 இல் இராமசாமி மகன் கோபாலகிருஷ்ணன்- என்பவர் பெயரில் கிராமக் கணக்கில்
தாக்கலாகியுள்ளது.

குவாரி உரிமம் கோரும் புல எண்.199/6A-க்கு நான்குமால் விபரம்:-

- வடக்கு - புல எண்.199/5 - பெரிய சக்கணநாயக்கர் புஞ்சை நிலம்,
தெற்கு - புல எண். 197/5 - ராம்ராஜ் புஞ்சை நிலம் (முடிவற்ற குவாரி பகுதி),
கிழக்கு - புல எண். 199/6B - ராம்ராஜ் புஞ்சை நிலம்,
மேற்கு - புல எண்.198/1, 2, 5 - ராம்ராஜ் புஞ்சை நிலம், 203/5 - இராஜேந்திரன் புஞ்சை நிலம்,

மேற்படி நிலத்தின் மொத்த பரப்பு 1.08.00 ஹெக்டேர் ஆகும். மேற்படி புலங்களை புலத்தணிக்கை
செய்யப்பட்டதில் மனுதாரர் விருதுநகர் மாவட்ட ஆட்சியர் அவர்களின் செயல்முறை ஆணைகள்
ந.க.கே.வி1/5171/2013 இன்படி 29.05.2017 முதல் 28.05.2022 வரை ஐந்து ஆண்டுகளுக்கு குவாரி
உரிமம் பெற்றுள்ளது தெரியவருகிறது. மேலும் மேற்படி புல எண்ணில் தெற்குப் பகுதியில் சுமார் 4 மீட்டர்
ஆழத்திற்கு குவாரிப்பணி நடைபெற்றுள்ளது தெரியவருகிறது.

R. Gopalakrishnan

மேலும் குவாரி அமைக்க கோரும் புலத்தை புலத்தணிக்கை செய்யப்பட்டதில், 300 மீட்டர் சுற்றளவில் குடியிருப்பு பகுதிகள், பள்ளி மற்றும் கல்லூரிகள் ஏதும் இல்லை. 500 மீட்டர் சுற்றளவிற்குள் புல எண்கள். 46/1, 46/2, 46/3 இல் திரு.சுப்பராஜ் என்பவருக்கு சொந்தமான செயல்படும் குவாரியும் தெற்குபக்கமாக திரு.ராமராஜ் என்பவருக்குச் சொந்தமான புல எண்.197/5 மற்றும் 6-ல் முடிவற்ற குவாரியும் கிழக்கு பக்கமாக புல எண். 50/4, 39/1A, 1B இல் செயல்படாத குவாரியும், புல எண்.49 இல் திரு.சண்முகராஜ் என்பவருக்கு சொந்தமான செயல்படும் குவாரியும் மேற்குபக்கமாக புல எண்.202/1A, 1B இல் திரு.கனிராஜ் என்பவருக்கு சொந்தமான முடிவற்ற குவாரியும் புல எண்.198/4, 5 இல் திரு.ராமராஜ் என்பவருக்கு சொந்தமான செயல்படும் குவாரியும் உள்ளது.

மேலும் குவாரி அமைக்கக் கோரும் புலத்திற்கு 50 மீட்டர் சுற்றளவிற்குள் சாலைகள், இருப்பு பாதைகள், கோவில்கள் மற்றும் புராதானச் சின்னங்கள், நீர்நிலை ஆதாரங்கள், மின்கம்பிகள் வேறு நிரந்தர அமைப்புகள் ஏதும் இல்லை. மேலும் குவாரி அமைக்கக் கோரும் புலத்திற்கு வடமேற்குப் பக்கத்தில் புல எண். 198/2 இல் ஒரு வண்டிப்பாதையும், தெற்குப் பக்கத்தில் புல எண்.198/3 இல் ஒரு வண்டிப்பாதையும் செல்கிறது. மேற்படி குவாரி பணி செய்வதால் அதன் அருகில் உள்ள நிலங்களுக்கு எந்தவிதமான பாதிப்பும் இல்லை என்பது புலத்தணிக்கையின் மூலம் தெரியவருகிறது. மேலும் குவாரி அமைப்பது குறித்து பொது மக்களிடம் 07.03.2022 அன்று "அ1" ஆட்சேபணை அறிவிப்பு விளம்பரம் செய்யப்பட்டதில், 21.03.2022 வரை ஆட்சேபணை மறு ஏதும் வரப்பெறவில்லை என அப்பையநாயக்கன்மட்டி கிராம நிர்வாக அலுவலர் தெரிவித்துள்ளார். மேற்படி குவாரி அமைக்க கோரும் பட்டா நிலமானது அப்பையநாயக்கன்மட்டி பஞ்சாயத்து, வெம்பக்கோட்டை ஊராட்சி ஒன்றியத்திற்கு உட்பட்டது.

எனவே, வெம்பக்கோட்டை வட்டம், அப்பையநாயக்கன்மட்டி கிராமம், புல எண்.199/6A, பரப்பு 1.08.00 ஹெக்டேர் நிலத்தில் 5 வருடங்களுக்கு உடைகல் மற்றும் கிராவல் குவாரி பணி செய்ய திரு.கோபாலகிருஷ்ணன், த/பெ. இராமசாமி என்பவருக்கு அனுமதி வழங்கலாம் என்பதைப் பணிவுடன் தெரிவித்துக்கொள்கிறேன். இத்துடன் கிராமக் கணக்கு நகல்கள், புலத்தணிக்கை குறிப்பு, அ1 விளம்பரக ஆகியவை சமர்ப்பித்துள்ளேன் என்பதைப் பணிவுடன் தெரிவித்துக்கொள்கிறேன்.

இணைப்பு: மேற்கண்டவாறு.

/உத்தரவுப்படி/

ஓம்/ரா.புஷ்பா,
வருவாய் கோட்டாட்சியர்,
சாத்தூர்.

நேர்முக உதவியாளர்
13/04/22

R. Rajalakshmi



புலத்தணிக்கைக்குறிப்பு

புலத்தணிக்கை அலுவலர் பெயர் மற்றும் பதவி	திருமதிரா.புஷ்பா, வருவாய் கோட்டாட்சியர், சாத்தூர்.
தணிக்கை செய்த இடம்	வெம்பக்கோட்டை வட்டம், அப்பையநாயக்கன்பட்டி கிராமம்
புல எண்கள்	புல எண். 199/6A மொத்தம் 1.08.00 ஹெக்டேர்ஸ்
தணிக்கை நாள்	08.04.2022
புலத்தணிக்கையின் நோக்கம்	5 வருடங்களுக்கு உடைகல் மற்றும் கிராவல் குவாரி உரிமம் வழங்கக் கோரியது - தொடர்பாக.

மதுரை மாவட்டம், திருமங்கலம் வட்டம், கற்பகம் நகர் என்ற முகவரியைச் சேர்ந்த திரு.கோபாலகிருஷ்ணன், த/பெ. இராமசாமி என்பவர் விருதுநகர் மாவட்டம், வெம்பக்கோட்டை வட்டம், அப்பையநாயக்கன்பட்டி கிராமம், புல எண்.199/6A, பரப்பு 1.08.00 ஹெக்டேர் பரப்பு நிலத்தில் 5 வருடங்களுக்கு உடைகல் மற்றும் கிராவல் குவாரி உரிமம் வழங்கக் கோரி மனு செய்துள்ளது தொடர்பாக, இன்று (08.04.2022) புலத்தணிக்கை செய்யப்பட்டது. புலத்தணிக்கையின்போது வருவாய் வட்டாட்சியர், மண்டல துணை வட்டாட்சியர், குறுவட்ட ஆய்வாளர், குறுவட்ட அளவன் மற்றும் கிராம நிர்வாக அலுவலர் ஆகியோர் உடனிருந்தனர்.

மனுதாரர் குவாரி உரிமம் வழங்கக் கோரும் இடம் வெம்பக்கோட்டை வட்டம், அப்பையநாயக்கன்பட்டி கிராமம், புன்செய் புல எண். 199/6A, பரப்பு 1.08.00 ஹெக்டேர், பட்டா எண். 2010 இல் இராமசாமி மகன் கோபாலகிருஷ்ணன் என்பவர் பெயரில் கிராமக் கணக்கில் தாக்கலாகியுள்ளது.

குவாரி உரிமம் கோரும் புல எண்.199/6A-க்கு நான்குமால் விபரம்:-

- வடக்கு - புல எண்.199/5 - பெரிய சக்கணநாயக்கர் புஞ்சை நிலம்,
- தெற்கு - புல எண். 197/5 - ராம்ராஜ் புஞ்சை நிலம் (முடிவற்ற குவாரி பகுதி),
- கிழக்கு - புல எண். 199/6B - ராம்ராஜ் புஞ்சை நிலம்,
- மேற்கு - புல எண்.198/1, 2, 5 - ராம்ராஜ் புஞ்சை நிலம், 203/6 - இராஜேந்திரன் புஞ்சை நிலம்,

மேற்படி நிலத்தின் மொத்த பரப்பு 1.08.00 ஹெக்டேர் ஆகும். மேற்படி புலங்களின் புலத்தணிக்கை செய்யப்பட்டதில் மனுதாரர் விருதுநகர் மாவட்ட ஆட்சியர் அவர்களின் செயல்முறை ஆணைகள் ந.க.கே.வி/5171/2013 இன்படி 29.05.2017 முதல் 28.05.2022 வரை ஐந்து ஆண்டுகளுக்கு குவாரி உரிமம் பெற்றுள்ளது தெரியவருகிறது. மேலும் மேற்படி புல எண்ணில் தெற்குப் பகுதியில் சுமார் 4 மீட்டர் ஆழத்திற்கு குவாரிப்பணி நடைபெற்றுள்ளது தெரியவருகிறது.

R. Gopalakrishnan

மேலும் குவாரி அமைக்க கோரும் புலத்தை புலத்தணிக்கை செய்யப்பட்டதில், 300 மீட்டர் சுற்றளவில் குடியிருப்பு பகுதிகள், பள்ளி மற்றும் கல்லூரிகள் ஏதும் இல்லை. 500 மீட்டர் சுற்றளவிற்குள் புல எண்கள். 46/1, 46/2, 46/3 இல் திரு.சுப்பராஜ் என்பவருக்கு சொந்தமான செயல்படும் குவாரியும் தெற்குபக்கமாக திரு.ராமராஜ் என்பவருக்குச் சொந்தமான புல எண்.197/5 மற்றும் 6-ல் முடிவற்ற குவாரியும் கிழக்கு பக்கமாக புல எண். 50/4, 39/1A, 1B இல் செயல்படாத குவாரியும், புல எண்.49 இல் திரு.சண்முகராஜ் என்பவருக்கு சொந்தமான செயல்படும் குவாரியும் மேற்குபக்கமாக புல எண்.202/1A, 1B இல் திரு.கனிராஜ் என்பவருக்கு சொந்தமான முடிவற்ற குவாரியும் புல எண்.198/4, 5 இல் திரு.ராமராஜ் என்பவருக்கு சொந்தமான செயல்படும் குவாரியும் உள்ளது.

மேலும் குவாரி அமைக்கக் கோரும் புலத்திற்கு 50 மீட்டர் சுற்றளவிற்குள் சாலைகள், இருப்பு பாதைகள், கோவில்கள் மற்றும் புராதானச் சின்னங்கள், தீர்நிலை ஆதாரங்கள், மின்கம்பிகள் வேறு நிரந்தர அமைப்புகள் ஏதுமில்லை. மேலும் குவாரி அமைக்கக் கோரும் புலத்திற்கு வடமேற்குப் பக்கத்தில் புல எண். 198/2 இல் ஒரு வண்டிப்பாதையும், தெற்குப் பக்கத்தில் புல எண்.198/3 இல் ஒரு வண்டிப்பாதையும் செல்கிறது. மேற்படி குவாரி பணி செய்வதால் அதன் அருகில் உள்ள நிலங்களுக்கு எந்தவிதமான பாதிப்பும் இல்லை என்பது புலத்தணிக்கையின் மூலம் தெரியவருகிறது. மேலும் குவாரி அமைப்பது குறித்து பொது மக்களிடம் 07.03.2022 அன்று "அ1" ஆட்சேபணை அறிவிப்பு விளம்பரம் செய்யப்பட்டதில், 21.03.2022 வரை ஆட்சேபணை மனு ஏதும் வரப்பெறவில்லை என அப்பையநாயக்கன்பட்டி கிராம நிர்வாக அலுவலர் தெரிவித்துள்ளார். மேற்படி குவாரி அமைக்க கோரும் பட்டா நிலமானது அப்பையநாயக்கன்பட்டி மஞ்சாயத்து, வெம்பக்கோட்டை ஊராட்சி ஒன்றியத்திற்கு உட்பட்டது.

எனவே, வெம்பக்கோட்டை வட்டம், அப்பையநாயக்கன்பட்டி கிராமம், புல எண்.199/6A, பரப்பு 1.08.00 ஹெக்டேர் நிலத்தில் 5 வருடங்களுக்கு உடைகல் மற்றும் கிராவல் குவாரி பணி செய்ய திரு.கோபாலகிருஷ்ணன், த/பெ. இராமசாமி என்பவருக்கு அனுமதி வழங்க மாவட்ட ஆட்சியர் அவர்களுக்கு கடித வரைவு அனுப்பலாம்.


வருவாய் கோட்டாட்சியர்,
சாத்தூர்.

R. Gopalaswami



அனுப்புநர்

திரு.இரா.ரெங்கநாதன் எம்.ஏ., எம்.பி.ஏ.,
வருவாய் வட்டாட்சியர்,
வெம்பக்கோட்டை வட்டம்,
வெம்பக்கோட்டை.

பெறுநர்

வருவாய் கோட்டாட்சியர்,
சாத்தூர் வருவாய் கோட்டம்,
சாத்தூர்.

ந.க.அ/2/599/2022 நாள்:02.04.2022

அம்மையர்,

பொருள்:

கணிமம் மற்றும் சுரங்கம்-விருதுநகர் மாவட்டம் - வெம்பக்கோட்டை வட்டம் -
அப்பையநாயக்கன்பட்டி வருவாய் கிராமம் - மட்டா எண்.2010 புன்செய் புல
எண்.199/6A-ல் 1.08.00 ஹெக். பரப்பு நிலத்தில் 5 வருடங்களுக்கு உடைகல்
மற்றும் கிராவல் குவாரி உரிமம் வழங்கக் கோரி
திரு.இரா.கோபாலகிருஷ்ணன் த/பெ.இராமசாமி என்பவர் மனு செய்துள்ளது
- கருத்துரு அனுப்பி வைத்தல் - தொடர்பாக.

பார்வை:

1. உதவி இயக்குநர், புவியியல் மற்றும் சுரங்கத்துறை, விருதுநகர்
அவர்களின் கடிதம் எண் ந.க.கேவி1/221/2022 நாள்:23.02.2022.
2. சாத்தூர் வருவாய் கோட்டாட்சியர் அவர்களின் கடிதம்
ந.க.அ/2/1586/2022 நாள்:08.03.2022.
3. அப்பையநாயக்கன்பட்டி கிராம நிர்வாக அலுவலர் அறிக்கை
நாள்:21.03.2022.
4. ஆலங்குளம் குறுவட்ட அளவரின் அறிக்கை நாள்:21.03.2022.
5. ஆலங்குளம் குறுவட்ட வருவாய் ஆய்வாளரின் அறிக்கை
நாள்:22.03.2022.
6. வெம்பக்கோட்டை மண்டலத் துணை வட்டாட்சியரின் அறிக்கை
நாள்:01.04.2022.
7. வெம்பக்கோட்டை வட்டாட்சியரின் புலத்தணிக்கை குறிப்பு
நாள்:02.04.2022.

விருதுநகர் மாவட்டம், வெம்பக்கோட்டை வட்டம், அப்பையநாயக்கன்பட்டி கிராமம், மட்டா
எண்.2010-இல் புன்செய் புல எண். 199/6A பரப்பு 1.08.00ஹெக். நிலத்தில் திரு.R.கோபாலகிருஷ்ணன்
த/பெ.இராமசாமி என்பவர் 5 வருடங்களுக்கு உடைகல், மற்றும் கிராவல் குவாரி உரிமம் வழங்கக் கோரி
மனுச்செய்துள்ளது தொடர்பாக பார்வை 1மற்றும் 2-ல் காணும் கடிதங்களில் பிரேரணைகள் அனுப்ப
அறிவுறுத்தப்பட்டுள்ளது. மேற்படி மனுதாரரின் கோரிக்கை தொடர்பாக 02.04.2022 அன்று புலத்தணிக்கை
செய்து எனத்திறிக்கையினை கீழ்க்கண்டவாறு சமர்ப்பிக்கிறேன்.

மனுதாரர் குவாரி செய்ய உரிமம் வழங்கக்கோரும் இடம் வெம்பக்கோட்டை வட்டம்,
அப்பையநாயக்கன்பட்டி கிராமம், புன்செய் புல எண். 199/6A பரப்பு 1.08.00ஹெக். மட்டா எண்:2010-ல்
இராமசாமி மகன் கோபாலகிருஷ்ணன் என்பவர் பெயரில் அப்பையநாயக்கன்பட்டி வருவாய் கிராம கணக்கில்
தாக்கலாகியுள்ளது.

மேற்கண்ட புல எண்ணுக்கு நான்குமால் விபரம்:

புல எண்: 199/6A பரப்பு 1.08.00 ஏர்ஸ்-க்கு நான்குமால்

வடக்கு - புல எண்: 199/5 - பெரியசக்கணநாயக்கர் புஞ்சை நிலம்

தெற்கு - புல எண்:197/5 - ராமராஜ் புஞ்சை நிலம் (முடிவற்ற குவாரி நிலம்)

கிழக்கு - புல எண்: 199/6B - ராமராஜ் புஞ்சை நிலம்

மேற்கு - புல எண்:198/1, 2, 5 - ராமராஜ் புஞ்சை நிலம்

203/6 இராஜேந்திரன் புஞ்சை நிலம்

R. Appalarathan

A85

147

மேலும் குவாரி அமைக்கக் கோரும் புலத்தை புலத்தணிக்கை செய்யப்பட்டதில் 300 மீட்டர் சுற்றளவில் குடியிருப்பு பகுதிகள், பள்ளி மற்றும் கல்லூரிகள் ஏதும் இல்லை. 500 மீட்டர் சுற்றளவிற்குள் புல எண்கள்.46/1, 46/2, 46/3-ல் திரு.சுப்புராஜ் என்பவருக்கு சொந்தமான செயல்படும் குவாரியும் தெற்குப்பக்கமாக திரு.ராமராஜ் என்பவருக்குச் சொந்தமான புல எண்.197/5 மற்றும் 6-ல் முடிவற்ற குவாரியும் கிழக்குப்பக்கமாக புல எண்.50/4, 39/1A,1B-இல் செயல்படாத குவாரியும் புல எண்.49-ல் திரு.சண்முகராஜ் என்பவருக்கு சொந்தமான செயல்படும் குவாரியும் மேற்குப்பக்கமாக புல எண்.202/1A, 1B-இல் திரு.கனிராஜ் என்பவருக்கு சொந்தமான முடிவற்ற குவாரியும் புல எண்.198/4,5-ல் திரு.ராமராஜ் என்பவருக்கு சொந்தமான செயல்படும் குவாரியும் உள்ளது. } மேலும் குவாரி அமைக்கக் கோரும் புலத்திற்கு 50 மீட்டர் சுற்றளவில் சாலைகள், இரயில் இருப்பு பாதைகள், கோவில்கள் மற்றும் டிராஜனச் சின்னங்கள், நீர்நிலை ஆதாரங்கள், மின்கம்பிகள் எந்தவொரு நிரந்தர அமைப்புகள் ஏதுமில்லை. மேலும் குவாரி அமைக்கக்கோரும் புலத்திற்கு வடமேற்குப்பக்கத்தில் புல எண்.198/2-ல் ஒரு வண்டிப்பாதையும், தெற்குப்பக்கத்தில் புல எண்.198/3-ல் ஒரு வண்டிப்பாதையும் செல்கிறது. மேற்படி குவாரி பணி செய்வதால் அதன் அருகில் உள்ள நிலங்களுக்கு எந்தவிதமான பாதிப்பும் இல்லை என்பது புலத்தணிக்கையின் மூலம் தெரியவருகிறது. மேலும் குவாரி அமைப்பது குறித்து பொது மக்களிடம் 07.03.2022 அன்று A1 நோட்டீஸ் கொடுத்து விளம்பரம் செய்யப்பட்டதில் 21.03.2022 வரை ஆட்சேபணை மனு ஏதுவும் வரப்பெறவில்லை என அப்பையநாயக்கன்பட்டி கிராம நிர்வாக அலுவலர் தெரிவித்துள்ளார். மேற்படி குவாரி அமைக்கக் கோரும் பட்டா நிலமானது அப்பையநாயக்கன்பட்டி பஞ்சாயத்து, வெம்பக்கோட்டை ஊராட்சி ஒன்றியத்திற்கு உட்பட்டது என்றும் அப்பதையும், மேலும் மனுதாரர் கோரியவாறு 5வருடங்களுக்கு உடைகல் மற்றும் கிராவல் குவாரி உரிமம் வழங்க பரிந்துரை செய்து பார்வை 3 முதல் 6 வரையிலான அறிக்கைகள் வரப்பெற்றுள்ளது.

(ஒ.ம்)இரா.ரெங்கநாதன்,
வருவாய்வட்டாட்சியர்,
வெம்பக்கோட்டை.

வட்டாபதியருக்காக.
4/11/2022

A86



விருதுநகர் மாவட்டம் வெம்பக்கோட்டை வருவாய் வட்டாட்சியரின் புலத்தணிக்கை அறிக்கை

1.	குத்தகை உரிமம் கோரிய விண்ணப்பம் பெறப்பட்ட தேதி					:	14.02.2022.
2.	அ) புலத்தணிக்கை செய்த நாள்					:	02.04.2022.
	ஆ) புலத்தணிக்கையின் போது உடனிருந்த அலுவலர்கள் பற்றிய விவரம்					:	அப்பையநாயக்கன்பட்டி கிராம நிர்வாக அலுவலர் மற்றும் ஆலங்குளம் குறுவட்ட வருவாய் ஆய்வாளர் மற்றும் குறுவட்ட அளவர்
3.	குத்தகை உரிமம் கோரும் விண்ணப்பதாரரின் பெயர் மற்றும் முகவரி					:	திரு.R.கோபாலகிருஷ்ணன், த/பெ.இராமசாமி, கதவு எண்.70/1, கற்பகம் நகர், திருமங்கலம் வட்டம், மதுரை மாவட்டம்-625 706
4.	குத்தகை உரிமம் கோரும் கனிமங்களின் பெயர்					:	உடைகல் மற்றும் கிராவல்குவாரி
5.	குத்தகை உரிமம் கோரும் கால அளவு					:	5 (ஐந்து ஆண்டுகள்)
6.	குத்தகை உரிமம் கோரும் இடம் அமைந்துள்ளது பற்றிய விவரம்					:	
வ. எண்	வட்டம்	கிராமம்	புல எண்கள்	மொத்த பரப்பு (ஹெக்ட)	குத்தகை உரிமம் கோரும் பரப்பு (ஹெக்ட)	வகைப்பாடு	
1	வெம்பக்கோட்டை	அப்பைய நாயக்கன்பட்டி	199/6A	1.08.00	1.08.00	பட்டா நிலம்	
			மொத்தம்	1.08.00	1.08.00		
7.	அ) குத்தகை உரிமம் கோரும் புல எண்கள், விண்ணப்பதாரரின் பெயரில் பட்டா நிலங்களாக இருப்பின் அது பற்றிய விவரம்				:	அப்பையநாயக்கன்பட்டி கிராமம் பட்டா எண்.2010, இராமசாமி மகன் கோபாலகிருஷ்ணன் என்பவரின் பெயரில் கிராமக் கணக்கில் தாக்கலாகியுள்ளது.	
	ஆ) பட்டாதாரரிடமிருந்து குத்தகை ஒப்பந்தம் பெறப்பட்டிருப்பின் அதுபற்றிய விவரம்				:	இல்லை.	
	இ) குத்தகை கோரும் புல எண்கள் தாழ்த்தப்பட்டோர் / பழங்குடியினருக்கு ஒதுக்கீட்டின் அடிப்படையில் பட்டா வழங்கப்பட்டிருப்பின் அதுபற்றிய விவரம்				:	இல்லை.	

R. Gopalakrishnan

A8749

8.	குத்தகை உரிமம் கோரும் புல எண்களின் நான்கு எல்லைகள்.	:	புல எண்	வடக்கு	தெற்கு	கிழக்கு	மேற்கு
			199/6 A	199/5	197/5	199/6 B	198/1,2, 5 & 203/6
9.	குத்தகை உரிமம் கோரும் புல எண்களுக்கு ஏற்கனவே குத்தகை உரிமம் வழங்கப்பட்டிருப்பின் அது பற்றிய விவரம்.	:	விருதுநகர் மாவட்ட ஆட்சியர் அவர்களின் செயல்முறை ஆணைகள் ந.க. கேவி1 /5171/2013-ன்படி 29.05.2017 முதல் 28.05.2022 வரை ஐந்து ஆண்டுகளுக்கு குவாரி உரிமம் வழங்கப்பட்டுள்ளது.				
10.	குத்தகை உரிமம் கோரும் புல எண்களுக்கு அருகில் பாதுகாப்பு இடைவெளிக்குள் அமைந்துள்ள நிரந்தர அமைப்புகள் ஒதுக்கப்பட வேண்டிய பாதுகாப்பு இடைவெளி பற்றிய விவரம்	:	மேற்படி புல எண்களுக்கு அருகில் உள்ள மட்டா நிலங்களுக்கு, ஓடைகளுக்கு போதிய பாதுகாப்பு இடைவெளி விட வேண்டும்.				
11.	அ) குத்தகை உரிமம் கோரும் புல எண்களிலிருந்து 300 மீட்டர் சுற்றளவுக்குள் குடியிருப்பு பகுதிகள்/ அங்கீகரிக்கப்பட்ட வீட்டுமனைப்பிரிவுகள் மற்றும் புராதனச் சின்னங்கள் அமைந்துள்ள விவரம்	:	300 மீட்டர் சுற்றளவுக்குள் குடியிருப்பு பகுதிகள் / அங்கீகரிக்கப்பட்ட வீட்டுமனைப் பிரிவுகள் மற்றும் புராதனச்சின்னங்கள் ஏதும் இல்லை.				
	ஆ) குத்தகை உரிமம் கோரும் பகுதிக்கு பாறை வசதி உள்ளது பற்றிய விவரம்	:	பாறை வசதி உள்ளது.				
12.	குத்தகை உரிமம் கோரும் புல எண்கள் அமைந்துள்ள கிராமம், மலையிடை பாதுகாப்பு குழுமத்தின் கீழ் வருவது மற்றும் தடையில்லா சான்று பெற வேண்டியது பற்றிய விவரம்	:	-இல்லை-				
13.	குத்தகை உரிமம் கோரும் பகுதி வனவிலங்கு சரணாலயத்திலிருந்து அமைந்துள்ள தூரம், பெறப்பட வேண்டிய தடையில்லா சான்று பற்றிய விவரம்.	:	-இல்லை-				
14.	குத்தகை கோரும் புலஎண்களில் தகுந்த அனுமதியின்றி ஏற்கனவே கனிமங்கள் எடுக்கப்பட்டு அபராதம் விதிக்கப்பட்டிருப்பின் அது பற்றிய விவரம்.	:	-இல்லை-				
15.	அ) குத்தகை உரிமம் கோரும் புலங்களின் பேரில் நிலம் கையகப்படுத்தும் நடவடிக்கைகள் இருப்பின் அது பற்றிய விவரம்.	:	-இல்லை-				
	ஆ) குத்தகை உரிமம் கோரும் புல எண்களின் பேரில் நீதிமன்றத்தில் வழக்குகள் இருப்பின் அதுபற்றிய விவரம்.	:	-இல்லை-				
16.	கிராம நிர்வாக அலுவலரின் வாக்குமூலம் பெறப்பட்டுள்ளதா?	:	கிராம நிர்வாக அலுவலர் வாக்குமூலம் அளித்துள்ளார்.				
17.	குத்தகை உரிமம் வழங்குவது தொடர்பாக "அ1" நோட்டீஸ் விளம்பரம் செய்யப்பட்டு பொது மக்களிடமிருந்து ஆட்சேபனை ஏதும் பெறப்பட்டுள்ளதா?	:	"அ1" நோட்டீஸ் விளம்பரம் 07.03.2022 அன்று பிரசுரம் செய்யப்பட்டு ஆட்சேபனைகள் ஏதும் பெறப்படவில்லை.				



18.	குத்தகை உரிமம் கோரும் புல எண்களின் பேரில் வருவாய்துறை பரிந்துரை செய்கின்றதா?	: ஆம்

19) குத்தகை உரிமம் கோரும் விண்ணப்பத்தின் பேரில் வெம்பக்கோட்டை வருவாய் வட்டாட்சியரின் அறிக்கையும் பரிந்துரையும்.

திரு.கோபாலகிருஷ்ணன் த/பெ.இராமசாமி என்பவர் விண்ணப்பித்துள்ள புல எண்கள் பட்டா நிலங்கள் என்ற அடிப்படையிலும் அப்பையநாயக்கன்பட்டி கிராம நிர்வாக அலுவலர் மற்றும் ஆலங்குளம் குறுவட்ட வருவாய் ஆய்வாளர் மற்றும் குறுவட்ட அளவர் ஆகியோர் மனுதாரர் நிறுவனத்திற்கு குத்தகை உரிமம் வழங்க பரிந்துரை செய்துள்ளதன் அடிப்படையிலும் மனுதாரர் நிறுவனத்தாருக்கு தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 1959, விதி 19 மற்றும் 20-ன் கீழ் கீழ்க்கண்ட நிபந்தனைகளுக்கு உட்பட்டு ஐந்தாண்டுகளுக்கு குத்தகை உரிமம் வழங்கலாம்.

- 1) அருகிலுள்ள பட்டா நிலங்களுக்கு 7.5மீ பாதுகாப்பு இடைவெளி விட வேண்டும்.
- 2) EB Line மற்றும் கிணற்றுக்கு 50மீ பாதுகாப்பு இடைவெளி விட வேண்டும்.
- 3) புல எண்களுக்கு அருகில் உள்ள குவாரிகளுக்கு போதிய பாதுகாப்பு தூரம் விட வேண்டும்.
- 4) குவாரி கழிவுகளை குத்தகை உரிமம் வழங்கப்படும் பகுதிக்கு உள்ளேயே இருப்பு வைக்க வேண்டும்.
- 5) வெடிமருந்தினை விதிகளின் படி பாதிப்பு ஏற்படா வண்ணம் பயன்படுத்த வேண்டும்.
- 6) சுரங்கத்திட்டம் மற்றும் சுற்றுச்சூழல் தடையில்லாச் சான்று குத்தகை உரிமம் வழங்குவதற்கு முன் சமர்ப்பிக்க வேண்டும்.


வருவாய் வட்டாட்சியர்
வெம்பக்கோட்டை



வெம்பக்கோட்டை வருவாய் வட்டாட்சியர் அவர்களுக்கு மண்டல துணை வட்டாட்சியரின் அறிக்கை
பணிநிறுத்தப்படுகிறது.

விருதுநகர் மாவட்டம், வெம்பக்கோட்டை வட்டம், பட்டா எண்.2010 புன்செய் புல எண்.199/6A-ல் 1.08.00ஹெக். பரப்பு நிலத்தில் 5 வருடங்களுக்கு உடைகல் மற்றும் கிராவல் குவாரி உரிமம் வழங்கக் கோரி திரு.இரா.கோபாலகிருஷ்ணன் த/பெ.இராமசாமி என்பவர் மனு செய்துள்ளது தொடர்பாக மேற்படி நிலத்தில் 5 வருடங்களுக்கு உடைகல் மற்றும் கிராவல் குவாரி உரிமம் வழங்குவது தொடர்பாக இன்று (01.04.2022) புலத்தணிக்கை செய்யப்பட்டு எனதறிக்கையினை கீழ்க்கண்டவாறு சமர்ப்பிக்கிறேன்.

வெம்பக்கோட்டை வட்டம், அப்பையநாயக்கன்பட்டி வருவாய் கிராமம், பட்டா எண்.2010-ல் புன்செய் புல எண்.199/6A பரப்பு (1.08.00ஹெக்.) இராமசாமி மகன் கோபாலகிருஷ்ணன் என்பவர் பெயரில் கிராமக்களாக்கில் தாக்கலாகியுள்ளது .

மேற்கண்ட புல எண்ணுக்கு நான்குமால் விபரம்:

புல எண்: 199/6A பரப்பு 1.08.00 ஏர்ஸ்-க்கு நான்குமால்

வடக்கு - புல எண்: 199/5 - பெரியசக்கணநாயக்கர் புஞ்சை நிலம்

தெற்கு - புல எண்:197/5 - ராம்ராஜ் புஞ்சை நிலம் (முடிவற்ற குவாரி நிலம்)

கிழக்கு - புல எண்: 199/6B - ராம்ராஜ் புஞ்சை நிலம்

மேற்கு - புல எண்:198/1, 2, 5 - ராம்ராஜ் புஞ்சை நிலம்

203/6 இராஜேந்திரன் புஞ்சை நிலம்

மேற்படி நிலத்தின் மொத்த பரப்பு 1.08.00 ஹெக்டேர் ஆகும். மேற்படி புலத்தை புலத்தணிக்கை செய்யப்பட்டதில் மனுதாரர் விருதுநகர் மாவட்ட ஆட்சியர் அவர்களின் செல்முறை ஆணைகள் ந.க.கேவி1/5171/2013-ன் படி 29.05.2017 முதல் 28.05.2022 வரை ஐந்து ஆண்டுகளுக்கு குவாரி உரிமம் பெற்றுள்ளது தெரியவருகிறது என்றும் மேலும் மேற்படி புல எண்ணில் தெற்குப்பகுதியில் சுமார் 4மீட்டர் ஆழத்திற்கு குவாரிப்பணி நடைபெற்றுள்ளது தெரியவருகிறது.

மேலும் குவாரி அமைக்கக் கோரும் புலத்தை புலத்தணிக்கை செய்யப்பட்டதில் 300 மீட்டர் சுற்றளவில் குடியிருப்பு பகுதிகள், பள்ளி மற்றும் கல்லூரிகள் ஏதும் இல்லை. 500 மீட்டர் சுற்றளவிற்குள் புல எண்கள்.46/1, 46/2, 46/3-ல் திரு.சுப்புராஜ் என்பவருக்கு சொந்தமான செயல்படும் குவாரியும் தெற்குப்பக்கமாக திரு.ராமராஜ் என்பவருக்குச் சொந்தமான புல எண்.197/5 மற்றும் 6-ல் முடிவற்ற குவாரியும் கிழக்குப்பக்கமாக புல எண்.50/4, 39/1A,1B-இல் செயல்படாத குவாரியும் புல எண்.49-ல் திரு.சண்முகராஜ் என்பவருக்கு சொந்தமான செயல்படும் குவாரியும் மேற்குப்பக்கமாக புல எண்.202/1A, 1B-இல் திரு.கனிராஜ் என்பவருக்கு சொந்தமான முடிவற்ற குவாரியும் புல எண்.198/4,5-ல் திரு.ராமராஜ் என்பவருக்கு சொந்தமான செயல்படும் குவாரியும் உள்ளது. மேலும் குவாரி அமைக்கக் கோரும் புலத்திற்கு 50 மீட்டர் சுற்றளவில் சாலைகள், இரயில் இருப்பு டைகைகள், கோவில்கள் மற்றும் புராதனச் சின்னங்கள், நிர்நிலை ஆதாரங்கள், மின்கம்பிகள் எந்தவொரு நிரந்தர அமைப்புகள் ஏதுமில்லை. மேலும் குவாரி அமைக்கக்கோரும் புலத்திற்கு வடமேற்குப்பக்கத்தில் புல எண்.198/2-ல் ஒரு வண்டிப்பாதையும், தெற்குப்பக்கத்தில் புல எண்.198/3-ல் ஒரு வண்டிப்பாதையும் செல்கிறது. மேற்படி குவாரி பணி செய்வதால் அதன் அருகில் உள்ள நிலங்களுக்கு எந்தவிதமான பாதிப்பும் இல்லை என்பது புலத்தணிக்கையின் மூலம் தெரியவருகிறது. மேலும் குவாரி அமைப்பது குறித்து பொது மக்களிடம் A1 நோட்டீஸ் கொடுத்து விளம்பரம் செய்யப்பட்டதில் ஆட்சேபனை மனு எதுவும் வரப்பெறவில்லை என அப்பையநாயக்கன்பட்டி கிராம நிர்வாக அலுவலர் தெரிவித்துள்ளார். மேற்படி குவாரி அமைக்கக் கோரும் பட்டா நிலமானது அப்பையநாயக்கன்பட்டி பஞ்சாயத்து, வெம்பக்கோட்டை ஊராட்சி ஒன்றியத்திற்கு உட்பட்டது என்றும் என்பதையும் மனுதாரர் கோரியவாறு 5வருடங்களுக்கு உடைகல் மற்றும் கிராவல் குவாரி உரிமம் வழங்க பரிந்துரை செய்கிறேன் என்பதையும் பணிவுடன் தெரிவித்துக் கொள்கிறேன்.

மண்டலத்துணை வட்டாட்சியர்,
வெம்பக்கோட்டை.

R. Gopalakrishnan

A90

152

சிறப்பு உரிமை. 50/4, 39/18, 18 மதி அமைச்சரவைகள்
 சிறப்பு சிறப்பு 49-ம் திரு. அமைச்சரவை அமைச்சரவை
 அமைச்சரவை, சிறப்பு உரிமை 2021/18, 18-ம் திரு. அமைச்சரவை
 அமைச்சரவை அமைச்சரவை அமைச்சரவை, 198/4, 5-ம்
 திரு. அமைச்சரவை அமைச்சரவை அமைச்சரவை அமைச்சரவை

50-ம் திரு. அமைச்சரவை அமைச்சரவை, அமைச்சரவை, அமைச்சரவை
 அமைச்சரவை, அமைச்சரவை அமைச்சரவை, அமைச்சரவை, அமைச்சரவை
 அமைச்சரவை அமைச்சரவை அமைச்சரவை அமைச்சரவை அமைச்சரவை
 அமைச்சரவை அமைச்சரவை அமைச்சரவை அமைச்சரவை அமைச்சரவை
 அமைச்சரவை அமைச்சரவை அமைச்சரவை அமைச்சரவை அமைச்சரவை
 அமைச்சரவை அமைச்சரவை அமைச்சரவை அமைச்சரவை அமைச்சரவை
 அமைச்சரவை அமைச்சரவை அமைச்சரவை அமைச்சரவை அமைச்சரவை
 அமைச்சரவை அமைச்சரவை அமைச்சரவை அமைச்சரவை அமைச்சரவை

அமைச்சரவை அமைச்சரவை அமைச்சரவை அமைச்சரவை அமைச்சரவை
 அமைச்சரவை அமைச்சரவை அமைச்சரவை அமைச்சரவை அமைச்சரவை
 அமைச்சரவை அமைச்சரவை அமைச்சரவை அமைச்சரவை அமைச்சரவை
 அமைச்சரவை அமைச்சரவை அமைச்சரவை அமைச்சரவை அமைச்சரவை
 அமைச்சரவை அமைச்சரவை அமைச்சரவை அமைச்சரவை அமைச்சரவை
 அமைச்சரவை அமைச்சரவை அமைச்சரவை அமைச்சரவை அமைச்சரவை
 அமைச்சரவை அமைச்சரவை அமைச்சரவை அமைச்சரவை அமைச்சரவை
 அமைச்சரவை அமைச்சரவை அமைச்சரவை அமைச்சரவை அமைச்சரவை

எ. சி. சி. சி.
 22/12/2022
 வகுவாய்
 ஆலங்குளம்.
 வெம்பக்கோட்டை வட்டம்.

2. துணி இயக்குநர் அலுவலகம்
சிறகுதூதர் மாடெட்டம்
15 JUN 2022
புதுச்சேரி

മുഖ്യാന ചരിത്രം ഭരണാധികാരി മുഖ്യാന 1991/1A

අගය - 9275 1.08.0 අනුග්‍රහ 2010
 (අනුග්‍රහ) ග්‍රහ 10

புதுப்புது - 9277 1. 08.00 புதுப்புது புதுப்புது
புதுப்புது 0800 புதுப்புது புதுப்புது புதுப்புது புதுப்புது
புதுப்புது புதுப்புது புதுப்புது புதுப்புது புதுப்புது

தொண்டிப்பாளர் அலுவலர்.
தொண்டிப்பாளர் அலுவலர் அலுவலர் - 300 மீட்டர் சிவந்தாணி
தொண்டிப்பாளர் அலுவலர் அலுவலர் - 300 மீட்டர் சிவந்தாணி
தொண்டிப்பாளர் அலுவலர் அலுவலர் - 300 மீட்டர் சிவந்தாணி
தொண்டிப்பாளர் அலுவலர் அலுவலர் - 300 மீட்டர் சிவந்தாணி

[illegible][illegible]

(A93)

சுமார் 1000000 ரூபாய்
சுமார் 1000000 ரூபாய்
சுமார் 1000000 ரூபாய்

தொழில் அம்சைய நலயக்கொட்டி கிளம்

மலரண் 199/6A வெளி 2-ம் பக்கம் கொள்கை

மலர்தில் கிளங்கு தென்கிழக்கே சமன்

600 பக்கம் கொள்கையில் 'மலரண் 156, 175,

177, 179, 180, 174, 175 சிவகாமசுந்தரி

P.S.R. கிளங்கு அமைக்கின்ற ருண்

மலர்தில் தென்கிழக்கே சமன்

சமன் பக்கம் கிளங்கு.

கி. கிளங்கு
கி. கிளங்கு
கி. கிளங்கு
கி. கிளங்கு

[illegible]

පළමු පරිච්ඡේදයේ පිටුපසට
 පිටුපසට, පළමු පිටුපසට පිටුපසට
 පළමු පිටුපසට පිටුපසට පිටුපසට
 පළමු පිටුපසට පිටුපසට පිටුපසට
 පළමු පිටුපසට පිටුපසට පිටුපසට
 පළමු පිටුපසට පිටුපසට පිටුපසට

24/03/2022.
VILLAGE ADMINISTRATIVE OFFICES
APPAYANICHENPATTI VILLAGE.
VENDIKOTTAI (T.N.)
CHUDHURAGAR (DL.)



தொகுதி எல்லை மாற்றும் தீர்மானம் 444 எண் 199/67
1-08-0 மதுரை-6-ன் பஞ்சாயத்து ஒன்றியத்தின் கீழ்

தலைவர் : 444 எண் - 199/5 - மதுரை மாவட்டம் கீழ்க்
கீழ்க் .

தொகுதி : 444 எண் - 197/5 - மதுரை மாவட்டம் கீழ்க்
(தமிழ்நாடு அரசு)

தொகுதி : 444 எண் - 199/68 - மதுரை மாவட்டம் கீழ்க் .

தொகுதி : 444 எண் - 198/1, 2, 5 - மதுரை மாவட்டம் கீழ்க்
444 எண் - 203/6 - மதுரை மாவட்டம் கீழ்க்

தொகுதி மாற்றம் மதுரை மாவட்டம் கீழ்க்
தொகுதி மாற்றம் மதுரை மாவட்டம் கீழ்க் .


21/09/2022
VILLAGE ADMINISTRATIVE OFFICER
APPAYANAICKENPATTI VILLAGE,
VEMBAKOTTAI (T.K)
VIRUDHUNAGAR (D.T.)

A1 நோட்டீஸ்



அரசு புறம்போக்கு / பட்டா நிலத்தில் கனிம உரிமம் (கல், மண், கிராவல், கங்கர் கல், கிராளைட்) செய்து கொள்ளும் விண்ணப்பம் குறித்து ஆட்சேபனை இல்லை என்பதற்கான அறிக்கை

!!!!

இதனால் அறிவிக்கப்படுவது என்னவென்றால்

கிராமத்தில் வசித்து வரும்

கிராமவர்

மகன் / மனைவி-கிராமவர்

என்பவர்

4௭௭௭ - 1971 5 — க்கு வடக்கிலும்,

4௭௭௭ - 1991 5 — க்கு தெற்கிலும்,

4௭௭௭ - 1991 1, 2, 5 3 — க்கு கிழக்கிலும்,
மேன்மை 2௦3/6

4௭௭௭ - 1991 6 ௩ — க்கு மேற்கிலும்

சர்வே எண் 199/6௭ விஸ்தீரணம் 1.௦8.௦ ஹெக்டேர் நிலத்தில்

பணி செய்வது தொடர்பாக ஆட்சேபனையுடைய நபர்கள் அதன் விபரத்தை இந்த அறிக்கை பிரசித்தம் செய்யப்படும் தேதியிலிருந்து பதினைந்து தினங்கள் கொண்ட கால அளவிற்குள் மேற்படி கிராமத்தின் கிராம நிர்வாக அலுவலர் மற்றும் வட்டாட்சியரிடம் தெரிவிக்க வேண்டும்.

VILLAGE ADMINISTRATIVE OFFICER,
ARAYANAIKKEENATTI VILLAGE,
VEMBAKOTTAI (T.K.)
VIRUDHUNAGAR (D.L.)

மேற்படி அறிக்கையானது ௧7/௦3/22 தேதியில் தண்டோரா மூலமாகவும், கிராமச் சாவுடி மற்றும் முக்கிய இடங்களிலும் பிரசித்தம் செய்யப்பட்டு கையொப்பம் பெறப்பட்டுள்ளது.

மன. கிராம - 8/10 மாநிலம் - 8/10

C. P. S. S. S. S.

K. S. S. S. S.

16/03/22

R. S. S. S. S.

K. Manikandan
S/o K. Ganesan

N. Raghavachandran
S/o N. Raghavan

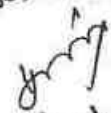
K. Manikandan
S/o K. Manikandan

S. R. Raghavan
S/o S. R. Raghavan

S. R. Raghavan

S/o. RAMAR.

சென்னை கிராம நிர்வாக அலுவலகம், அப்பையன்சுகெந்தர் விலா, சி.
வெங்கோட்டை (த.க.)
விருதுநகரம் (த.க.)


VILLAGE ADMINISTRATIVE OFFICER
APPAYANSUCKENTH VILLAGE,
VEMBACOTTA (T.K.)
VIRUDHUNAGAR (D.K.)



தமிழ்நாடு தமில்நாடு TAMILNADU

BD 853474

16492
28-4-2022
50/-

Handwritten signature and text in Tamil.

A.M. முகம்மது (அம்மது) முகம்மது
நகர உத்தரவுதரும் சிவபாலன் எக்சுபள
ச. கரு - மகமது முகம்மது முகம்மது
புதிதில் செய்து: 15.04.2022/77

DEED OF AGREEMENT

This Agreement is entered into at SANKARANKOVIL on this MAY 04 2022 between Thiru. GOPALAKRISHNAN, 70/1E, KARPAGA NAGAR THIRUMANGALAM MADURAI , DISTRICT herein after referred to as party of the FIRST PART, and SRIBALAN EXPLOSIVES, RAM BALAN EXPLOSIVES having office at No. 7 GOMATHY NAGAR 2ND STREET, SANKARANKOIL - 627756, THIRUNELVELI DISTRICT herein after referred to as party of the Second part.

R. Gopalakrishnan



The party of the first part is operating quarry work in the area **APPYANAKANPATTI** Village, **VEMPAKOTTAI TALUK, VIRUDHUNAGAR District.** over and extent of survey number 199/6A hectares in 1.08.0 as per Tamilnadu Govt's Collector Order No. NKV1/5171/2013.Dated:10.05.2017



Whereas the party of the First Part wants blasting to be done at quarry to excavate the Blue metal stone. The blasting work is so intensive and large that the part of the first part has decided to entrust the work involved to the party of the second part on contract basis is as follows.

The party of the First part will allot the blasting operations in the above said areas to the party of the Second part who is responsible for blasting rocks and also making his own arrangement for the explosives and exploding equipments required for the work. The entire blasting in the above quarry and the possession of the blasting equipment will be handled by the party of the second part having valid explosives License No. **E63073, E83537** and Shot Firer licenses issued by the Joint Chief Controller of Explosives, South Circle, Chennai and he hereby undertake the responsibility for the work entrusted.

Payments will be made periodically by the party of the first part for the quantity used, explosives consumed and hours and time of the exploding equipments put into use. Calculations will be made and settlement will be arrived every month. The rates for the items of work will as mutually agreed as marginal cost which includes cost of explosives, transportation cost and other charges for blasting work. This agreement is made for all blasting in the said area.

The Agreement is valid from the date of execution and validity of quarrying leases granted by the State Government to the party of the First part. The agreement is terminable earlier by mutual consent with a month's notice. The agreement will expire with the expiry of quarry lease.

First Party: *R. Gopalakrishnan*

Second Party: *J. Ramasamy*

Witnesses:

1. *Sasidharan*
2. *Subburaman*

Place: SANKARANKOVIL



अनुमति प्रारूप एन ई - 10 (Form LE-10)
 शॉट फायर करने प्रमाण-पत्र / Shot Firer's Certificate
 (अनुसूची IV के भाग 1 का अनुच्छेद 10 देखें) (See article 10 of Part 1 of Schedule IV)
 (विस्फोटक नियम, 2008 का नियम 107(5) देखें) (see rule 107(5) of Explosives Rules, 2008)

(खान अधिनियम, 1952 के अधीन न आने वाले क्षेत्र में विस्फोट करने के लिए सक्षमता प्रमाण)
 (Certificate of competency to carry out blasting of explosives in area not coming under the Mine)



संख्या | No.: E/SC/TN/30/1381(E79312)

प्रमाणित किया जाता है कि श्री P. Ganesha Kumar,
 जिनका जन्म 02/11/1977 को हुआ था, जो C/o. Sri Balan Explosives, 71 Gandhi Nagar, Sankarankovil, THIRUNELVELL, Tamil Nadu - 627756 के निवासी है जो, अपनी खाना
 तारीख को आयोजित शॉट फायर की परीक्षा तारीख को उत्तीर्ण कर सी है और वह विस्फोटक अधिनियम, 1884 और उसके अधीन विहित नियमों के उपबंधों के अधीन रहते हुए
 खान अधिनियम, 1952 की परिधि के अधीन आने वाले खानों से अन्यथा क्षेत्र में नीचे बताए उल्लिखित विस्फोटकों का उपयोग करते हुए विस्फोट प्रदान करने के लिए प्राधिकृत है।

This is to certify that Shri P. Ganesha Kumar,
 born on 02/11/1977 resident of C/o. Sri Balan Explosives, 71 Gandhi Nagar, Sankarankovil, THIRUNELVELL, Tamil Nadu - 627756 passed the shotfirer's examination held
 on conducted by Chennai and is authorized to conduct blasting operations as mentioned below using explosives in areas other than mines coming under the purview of the Mines
 Act 1952, subject to the provisions of the Explosives Act, 1884 and the rules framed thereunder.

विस्फोट करने के प्राधिकृत वर्ग, प्रकार और प्रकार :
 वर्गीकरण, श्रेणी: कृषि, कृषि और कुआँ नमाने में विस्फोटक के सभी प्रकार

Authorized class, category and type of blasting :
 Class : (F), Category : Agricultural, All phases of blasting in agricultural and well sinking

नियम 107 का उप-नियम (5) का स्पष्टीकरण देखें See explanation of sub-rule (5) of rule 107

यह प्रमाणपत्र 13/02/2019 (जारी करने की तारीख से पांच वर्षों तक विधिमान्य होगा)।
 This certificate shall remain valid till 13/02/2019 (five years from the date of issue)

यह प्रमाण-पत्र, अधिनियम या उसके अधीन विहित नियमों अथवा इस प्रमाण-पत्र की शर्तों का कोई अधिकरण करने पर या यदि अपेक्षित क्षमता अद्यतन प्रमाण में दो गड़
 सूचना में कोई कर्क या विचलन होता है तो निम्नलिखित का अधिनियम कर दिया जाएगा।
 This certificate is liable to be suspended or revoked for any violation of the Act or rules framed thereunder or the conditions of this certificate or if there is any discrepancy
 or deviation in the information or suppression of facts furnished by the applicant in his application form

स्थान : Place चेन्नई (Chennai)
 दिनांक : Date 13/02/2014

संयुक्त मुख्य विस्फोटक नियंत्रक | Joint Chief Controller of Explosives
 दक्षिण वृत्त, चेन्नई | South Circle, Chennai

पुनर्विचारानुमति के लिए प्रमाणपत्र Endorsement for revulsion		
पुनर्विचारानुमति की तारीख Date of Revulsion	समप्ति की तिथि Date of expiry	अनुमति प्राधिकारी के हस्ताक्षर Signature of licensing authority
07/03/2019	13/02/2024	Jt. Chief Controller of Explosives, South Circle, Chennai

कानूनी चेतावनी : विस्फोटकों को गलत ढंग से धराने या उनका दुरुपयोग विधि के अधीन गंभीर दंडित अपराध होगा।
 Statutory Warning : Mishandling and misuse of explosives shall constitute serious criminal offence under the law.

<http://10.0.1.11/IntExp/FirerPermitLE10Hindi.asp?LetterGeneratedYN=Y>

3/8/201

R. Gopalakrishnan A102



अनुज्ञापन प्रारूप एत. ई-3 | LICENCE FORM LE-

(विस्फोटक नियम, 2008 की अनुसूची 4 के भाग 1 के अनुच्छेद 3(क) से (घ) प्रमाणित है।
(See article 3(a) to (d) of Part 1 of Schedule IV of Explosives Rules, 2008)
(ग) उपयोग के लिए एक समय पर वर्ग 1, 2, 3, 4, 5 या वर्ग 7 के विस्फोटक या किसी मैगजीन में वर्ग 6 के विस्फोटक रखने
Licence to possess (c) for use explosives of class 1, 2, 3, 4, 5 or 7 in a magazine

अनुज्ञापन सं. (Licence No.): ESC/TN/22/352(E/3073)
वार्षिक वार्षिक शुल्क (Annual Fee Rs) 5300/-

1. Licence is hereby granted to

M/s Sri Balan Explosives (अधिभोगी / Occupier : Shri P. Ramasamy), 71-Gomathi Nagar, Sankarankoil, Town/Village
Sankarankoil, District-THIRUNELVELI, State-Tamil Nadu, Pincode - 627756



को अनुज्ञापन अनुदत्त की जाती है।

2. अनुज्ञापनारी की प्रकृति / Status of licensee - Partnership Firm

3. अनुज्ञापन निम्नलिखित प्रयोजनों के लिए विधिवत है।

Licence is valid only for the following purposes

4. अनुज्ञापन विस्फोटकों के निम्नलिखित किस्मों, प्रकार और मात्रा के लिए विधिवत है।

Licence is valid for the following kinds and quantity of explosives - (क) (a)

Sr No	नाम और विवरण Name and Description	वर्ग और प्रभाग Class & Division	उप-प्रभाग Sub-division	मात्रा किसी एक समय में Quantity at any one time
1	Nitrate Mixture	2 D	0	1750 Kg
2	Safety Fuse	6.1	0	15000 Mtrs
3	Electric and/or Ordinary Detonators	6.1	0	40000 Nos
4	Detonating Fuse	6.2	0	2000 Mtrs

(क) किसी एक कैलेंडर मास में खरीदे जाने वाले विस्फोटक की मात्रा (अनुच्छेद 3(क) और (ग) के अधीन अनुज्ञापन के लिए)
(b) Quantities of explosives to be purchased in a calendar month (applicable for license under article 3(b) and (c))

5. निम्नलिखित रेखाचित्र (रेखाचित्रों) से अनुज्ञापन परिसर की छवि होती है।

The licensed premises shall conform to the following drawing(s).

6. अनुज्ञापन परिसर निम्नलिखित पते पर स्थित है। The licensed premises are situated at following address:
Survey No. 97/5 ग्राम (Town/Village) Kuvalaikanni, Sankarankoil-taluk
जिल्ला (District) THIRUNELVELI राज्य (State) Tamil Nadu

दूरभाष (Phone)

ई-मेल (E-Mail)

Tamil Nadu

पोलिस थाना (Police Station) : Sankarankoil
पिनकोड (Pincode) 627756
फैक्स (Fax)

7. अनुज्ञापन परिसर में निम्नलिखित सुविधाएं अंतर्भूत हैं।

The licensed premises consist of following facilities

A High Explosives Room, Lobby and a Detonator room as per the plan

8. अनुज्ञापन समय-समय पर यथासंशोधित विस्फोटक अधिनियम, 1884 और उनके अधीन विस्तृत विस्फोटक नियम, 2008 के उपबंधों, शर्तों और अतिरिक्त शर्तों और निम्नलिखित उपबंधों के अधीन रहते हुए अनुदत्त की जाती है।

The licence is granted subject to the provision of Explosives Act 1884 as amended from time to time and the Explosives Rules, 2008 framed there under and the conditions, additional conditions and the following Annexures

1. उपर्युक्त क्रम सं. 5 में गणना किये रेखाचित्र (स्थान, संरचना संबंधी और अन्य विवरण दर्शाते हुए)
Drawings (showing site, constructional and other details) as stated in serial No. 5 above.

2. अनुज्ञापन प्राधिकारी द्वारा हस्ताक्षरित इस अनुज्ञापन की शर्तों और अतिरिक्त शर्तों।
Conditions and Additional Conditions of this licence signed by the licensing authority

3. दूरी प्रारूप DE-2 Distance Form DE-2

9. यह अनुज्ञापन तारीख 31 मार्च 2016 तक विधिवत रहेगा। This licence shall remain valid till 31st day of March 2016.

यह अनुज्ञापन अधिनियम या उसके अधीन विस्तृत विस्फोटक अधिनियम, 1884 और उनके अधीन विस्तृत विस्फोटक नियम, 2008 के उपबंधों, शर्तों और अतिरिक्त शर्तों और निम्नलिखित उपबंधों के अधीन रहते हुए अनुदत्त की जाती है।
This licence is liable to be suspended or revoked for any violation of the Act or Rules framed there under or the conditions of this licence as set forth under Ser VIII, wherever applicable, referred to in Part 4 of Schedule V or if the licensed premises are not found conforming to the description shown in the plan and Annexure attached hereto.

तारीख: The Date - 14/07/2011

संयुक्त मुख्य विस्फोटक नियंत्रक Joint Chief Controller of Explosives
South Circle, Chennai

Amendments:

- Amendment of Quantity of Explosives Monthly Purchase Limit dated: 30/07/2012
- Amendment of Quantity of Explosives Monthly Purchase Limit dated: 31/01/2013

नवीनीकरण के प्रमाणिक के लिए स्थान
Space for Endorsement of Renewal

नवीनीकरण की तारीख
Date of Renewal

21/04/2021

समाप्ति की तारीख
Date of Expiry

31/03/2026

अनुज्ञापन प्राधिकारी के हस्ताक्षर और स्टाम्प
Signature of licensing authority and stamp

R. Chief Controller of Explosives, South Circle, Chennai

कानूनी चेतावनी: विस्फोटकों को गलत ढंग से चलाए जाने या उनका दुरुपयोग विधि के अधीन गंभीर दंडित अपराध होगा।
Statutory Warning: Mishandling and misuse of explosives shall constitute serious criminal offence under the law.

Note :- This is system generated document does not require physical signature. Applicant may take printout for their records.

http://10.0.50.11/IntExp/ExplosivesLicenceLE3Hindi.asp?LetterGeneratedVN=V

A103

R. Gopalakrishnan

166

விருதுநகர் மாவட்ட ஆட்சியர் அவர்களின் செயல்முறை ஆணைகள்
முன்னிலை: திரு. அ. சிவஞானம், இ.ஆ.ப.,

ந.க.கேவி1/5171/2013

நாள்:

10.05.2015 5 JUN 2022

பொருள்: கனிமங்களும் குவாரிகளும் - விருதுநகர் மாவட்டம் - வெம்பக்கோட்டை வட்டம் - அப்பையநாயக்கன்பட்டி கிராமம் - பட்டா புல எண் 199/6A-ல் 1.08.0 ஹெக்டேர் பரப்பில் அய்ந்து வருடங்களுக்கு கல்குவாரி உரிமம் வழங்கி உத்தரவிடுதல் - தொடர்பாக.

படிக்கப்
பட்டவை:

- 1) திரு.இரா.கோபாலகிருஷ்ணன் த.பெ.இராமசாமி, கதவு எண் 70/1, கற்பகம் நகர், திருமங்கலம், மதுரை மாவட்டம் என்பவரது விண்ணப்பம் நாள் 07-02-2013.
- 2) இவ்வலுவலக கடிதம் எண் ந.க.கேவி 1/5171/2013-1,2 நாள் 07-02-2013.
- 3) வெம்பக்கோட்டை, ஊராட்சி ஒன்றிய ஆணையாளர் கடித எண் ந.க.அ2/491/13 நாள் 12-02-2013
- 4) சிவகாசி வருவாய் வட்டாட்சியர் கடித எண். ஒ.மு.அ4/541/2013 நாள் 25-03-2013.
- 5) சிவகாசி வருவாய் கோட்டாட்சியர் கடிதம் எண் ந.க.பி4/823/2013 நாள் 09-04-2013.
- 6) துணை இயக்குநர் (கனிமம்) மற்றும் தனித்துணை வட்டாட்சியர் (கனிமம்) புலத்தணிக்கை அறிக்கை நாள் 06-07-2013.
- 7) இவ்வலுவலக கடிதம் எண் ந.க.கேவி1/5171/2013, நாள்: 04-04-2014.
- 8) மாநில சுற்றுச்சூழல் பாதிப்பு மதிப்பீட்டு ஆணையம், சென்னை கடித எண்: SEIAA-TN/F.No.2510/ EC/ 1(a)/1800/2014, நாள். 27.03.2015.
- 9) 22-07-2015 நாளிட்ட தமிழ்சுடர் மற்றும் தினச்சூரியன் ஆகிய இரு நாளிதழ்களில் வெளியிடப்பட்ட பொது அறிவிப்பு
- 10) மாவட்ட சுற்றுச்சூழல் பொறியாளர், மாசுக்கப்பட்டுப்பாட்டு வாரியம், விருதுநகர் அவர்களின் ஒப்புதல் உத்தரவு எண்: 150112126024 மற்றும் 150122126024, நாள்: 18-09-2015
- 11) இதர சம்பந்தப்பட்ட ஆவணங்கள்.

oOo

உத்தரவு:

மதுரை மாவட்டம், திருமங்கலம், கற்பகம் நகர், கதவு எண் 70/1 என்ற முகவரியில் வசித்து வரும் இராமசாமி மகன் திரு.இரா.கோபாலகிருஷ்ணன்

என்பவர், விருதுநகர் மாவட்டம், வெம்பக்கோட்டை வட்டம் அப்பையநாயக்கன்பட்டி கிராமம் பட்டா புல எண் 199/6A மொத்தம் 1.08.0 ஹெக்டேர் பரப்பில் ஐந்து ஆண்டுகளுக்கு உடைகல், ஜல்லி மற்றும் கிராவல் எடுத்துக்கொள்ள கற்குவாரி குத்தகை உரிமம் வழங்குமாறு பார்வை 1-ல் காணும் மனுவில் கோரியுள்ளார்.

விண்ணப்பதாரர் தனது விண்ணப்பத்துடன் கீழ்க்கண்ட ஆவணங்களை சமர்ப்பித்துள்ளார்.

1. விண்ணப்பக் கட்டணம் ரூ.1500/-ஐ சிவகாசி பாரத வங்கியில் 28-12-2012 அன்று செலுத்தியதற்கான அசல் சலான்
2. விண்ணப்பிக்கப்பட்ட புலங்களுக்குரிய வருவாய் துறை ஆவணங்கள்
3. வருமான வரி பாக்கியில்லை என்பதற்கான உறுதிச் சான்று
4. கனிம வரி தொகை பாக்கியில்லை என்பதற்கான உறுதிச் சான்று
5. ஏ1 நோட்டீஸ்

மேற்படி அனுமதி வழங்குவது தொடர்பாக விண்ணப்பதாரர் பெயரிலோ, அவரது குடும்ப உறுப்பினர்கள் பெயரிலோ அரசுக்கு செலுத்த வேண்டிய பாக்கித்தொகை ஏதேனும் நிலுவையில் உள்ளதா? என்பது குறித்து அறிக்கை சமர்ப்பிக்கும்படி சிவகாசி வட்டாட்சியர் / வெம்பக்கோட்டை ஊராட்சி ஒன்றிய ஆணையாளர் ஆகியோரிடமும், விண்ணப்பிக்கப்பட்ட புலங்களை புலத்தணிக்கை செய்து அறிக்கை சமர்ப்பிக்குமாறு சிவகாசி வருவாய் கோட்டாட்சியரிடமும் பார்வை 2-ல் காணும் இவ்வலுவலகக் கடிதங்களின்படி கேட்டுக்கொள்ளப்பட்டது.

பார்வை 3-ல் காணும் கடிதத்தில் வெம்பக்கோட்டை ஊராட்சி ஒன்றிய ஆணையாளரும், பார்வை 4-ல் காணும் கடிதத்தில் சிவகாசி வட்டாட்சியரும் விண்ணப்பதாரர் பெயரிலோ அவரது குடும்ப உறுப்பினர்கள் பெயரிலோ அரசுக்கு செலுத்த வேண்டிய பாக்கித்தொகை ஏதும் நிலுவையில் "இல்லை" என்று அறிக்கை செய்துள்ளனர்.

பார்வை 5-ல் காணும் சிவகாசி வருவாய் கோட்டாட்சியரின் கடிதத்தில் மனுதார் கல்குவாரி அமைக்க கோரியுள்ள இடம் அப்பையநாயக்கன்பட்டி கிராமம், பட்டா புல எண். 199/6ஏ மொத்தம் 1.08.0 ஹெக்டேர்ஸ் நிலம் பட்டா எண் 2010-ன்படி இராமசாமி மகன் கோபாலகிருஷ்ணன் என மனுதாரர் பெயரில் தாக்கலாகியுள்ளது என்றும், மேற்படி பட்டாதாரருக்கு அரசு அனுமதி அளித்த காலம்



முதல் 5 வருட காலத்துக்கு கல்குவாரி பணி செய்ய நோட்டரி பப்ளிக் மூலம் துரிதப் பத்திரம் கொடுத்துள்ளார் என்றும், மேற்படி கிராமத்தில் அ1 நோட்டீஸ் விளம்பரம் செய்ததில் பொது மக்களிடமிருந்து ஆட்சேபணைகள் ஏதும் வரப்பெறவில்லை எனத் தெரிவித்து மேற்படி புல எண் 199/6ஏ-க்கு நான்குமால் கீழ்க்கண்டவாறு தெரிவித்துள்ளார்.

நான்குமால் விபரம்:

வடக்கு	புல எண். 199/5- பெரிய சக்கன நாயக்கர் என்பவரது நிலம்
கிழக்கு	புல எண். 197/5, 6 ராமராஜ் என்பவரது நிலம்
தெற்கு	புல எண். 203/3 லட்சுமண நாயக்கர் என்பவரது நிலம்
மேற்கு	புல எண். 199/6பி ராமராஜ் என்பவரது நிலம்

மனுதாரர் பட்டா புல எண். 199/6ஏ-க்கு மொத்தம் 1.08.0 ஹெக்டேர்ஸ் நிலத்தை சுற்றி 300 மீட்டா சுற்றளவில் குடியிருப்புகள் ஏதும் இல்லை என்றும், மேலும் 50மீ சுற்றளவில் சாலைகள், இரயில் இருப்பு பாதைகள், கல்வி நிலையங்கள், கோவில்கள் மற்றும் புராதனச்சின்னங்கள், மின் கம்பிகள், கிராமச் சாலைகள், வண்டிப்பாதை, நீர்நிலை ஆதாரங்கள் வேறு நிரந்தர அமைப்புகள் ஏதும் இல்லை எனத் தெரிவித்து வெம்பக்கோட்டை வட்டம், அப்பையநாயக்கன்பட்டி கிராமம், பட்டா புல எண். 199/6ஏ-க்கு மொத்தம் 1.08.0 ஹெக்டேர் பரப்பில் ஐந்தாண்டு காலத்திற்கு கல்குவாரி வைக்க அரசு விதிகளின்படி உரிமம் வழங்கலாம் எனப் பரிந்துரை செய்துள்ளார்.

பார்வை 6-ல் கண்டுள்ள துணை இயக்குநர் (கனிமம்), தனித்துணை வட்டாட்சியர் (கனிமம்) மற்றும் தனி வருவாய் ஆய்வாளர் (கனிமம்) ஆகியோரின் கூட்டு புலத்தணிக்கை அறிக்கையில், விண்ணப்பிக்கப்பட்ட புல எண் அப்பையநாயக்கன்பட்டி கிராமக் கணக்கில் பட்டா எண் 2010-ன்படி விண்ணப்பதாரர் பெயரில் பதிவாகி உள்ளது என்றும், விண்ணப்பிக்கப்பட்ட புலத்தின் நான்குமால் கீழ்க்கண்டவாறு உள்ளது என்றும் தெரிவித்துள்ளார்.

புல எண்	பரப்பு (ஹெக்டேர்ஸ்)	வடக்கு	தெற்கு	கிழக்கு	மேற்கு
199/6A	1.08.0	199/5	203/3	197/5, 6	199/6B

மேலும் விண்ணப்பிக்கப்பட்ட புல எண்ணுக்கு அருகில் உள்ள புல எண் 197/2-ல் திரு.சுப்பகிருஷ்ணன் என்பவருக்கு விருதுநகர் மாவட்ட ஆட்சியர் அவர்களின் செயல்முறை ஆணைகள் எண் ந.க.கேவி1/315/2009 நாள் 24-04-2009-ன்படி 28-04-2009 முதல் 27-04-2014 வரையிலும், புல எண். 196/6/1A, 197/1, 197/3, 198/1-ல் திரு.ராமராஜ் என்பவருக்கு விருதுநகர் மாவட்ட ஆட்சியர் அவர்களின் செயல்முறை ஆணைகள் எண் ந.க.கேவி 1/315/2009, நாள் 24-04-2009-ன்படி 23-02-2010 முதல் 22-02-2015 வரையிலும் ஐந்து ஆண்டுகளுக்கு கற்குவாரி உரிமம் வழங்கப்பட்டு நடைமுறையில் உள்ளது என்றும், விண்ணப்பம் செய்துள்ள புல எண்ணின் அருகில் உள்ள புலத்தின் வடமேற்கு மூலைப் பகுதியில் வடக்கு-மேற்கு திசையில் ஒரு வண்டிப்பாதை உள்ளது என்றும், மேற்படி வண்டிப்பாதை தவிர விண்ணப்பிக்கப்பட்ட புலங்களில் வேறு நிரந்தர அமைப்புகள் ஏதும் இல்லை எனத் தெரிவித்து, விருதுநகர் மாவட்டம் வெம்பக்கோட்டை வட்டம் அப்பையநாயக்கன்பட்டி கிராமம் பட்டா புல எண் 199/6A மொத்தம் 1.08.0 ஹெக்டேர் பரப்பில் ஐந்து வருடங்களுக்கு 1959-ம் வருட தமிழ்நாடு சிறுகனிம சலுகைவிதிகள் விதி எண் 19-ன் படி கீழ்க்காணும் நிபந்தனைக்குட்பட்டு கற்குவாரி அனுமதி வழங்கலாம் எனப் பரிந்துரை செய்துள்ளனர்.

1. புல எண் 199/6A-ன் அருகில் உள்ள புலத்தில் வடமேற்கு மூலைப்பகுதியில் செல்லும் வண்டிப்பாதைக்கு 10மீ பாதுகாப்பு இடைவெளி தூரம் கடைப்பிடித்து குவாரிப்பணி மேற்கொள்ள வேண்டும்.
2. புல எண் 199/6A-ன் அருகில் உள்ள புலத்தில் தெற்குப் பகுதியில் செல்லும் வண்டிப்பாதைக்கு 10மீ பாதுகாப்பு இடைவெளி தூரம் கடைப்பிடித்து குவாரிப்பணி மேற்கொள்ள வேண்டும்.
3. அருகிலுள்ள நிலங்களுக்கு 7.5 மீ பாதுகாப்பு இடைவெளி தூரம் கடைப்பிடித்து குவாரிப்பணி மேற்கொள்ள வேண்டும்.

பார்வை 7ல் காணும் கடிதத்தில் விருதுநகர் மாவட்டம் வெம்பக்கோட்டை வட்டம், அப்பையநாயக்கன்பட்டி கிராமம் பட்டா புல எண் 199/6A-ல் 1.08.0 ஹெக்டேர் பரப்பில் ஐந்து ஆண்டுகளுக்கு உடைகல், ஜல்லி மற்றும் கிராவல் குவாரி உரிமம் வழங்க சுரங்கத்திட்ட அறிக்கை ஒப்புதலுக்கும் மற்றும் மாநில சுற்றுச்சூழல் பாதிப்பு மதிப்பீட்டு ஆணையத்தின் பரிந்துரை பெற்று வரும்படி விண்ணப்பதாரரை கேட்டுக்கொள்ளப்பட்டது.

வ.எண்.	நில உபயோகம்	குத்தகை காலம் முடிவாகும் தருவாயில் நிலத்தின் பரப்பு (ஹெக்டேரில்)
1.	குவாரிப்பணி	0.63.0
2.	உள்கட்டமைப்பு மற்றும் சாலை	0.02.0
3.	குவாரி செய்யப்படாத பகுதி	0.41.5
4.	வேலி அமைத்தல்	0.01.5
	மொத்தம்	1.08.0

எனவே, சிவகாசி வருவாய் கோட்டாட்சியர், மாநில சுற்றுச்சூழல் பாதிப்பு மதிப்பீட்டு ஆணையம், விருதுநகர் மாசுகட்டுப்பாட்டு வாரியம், துணை இயக்குநர்(கனிமம்), தனித்துணை வட்டாட்சியர் (கனிமம்) மற்றும் தனி வருவாய் ஆய்வாளர் (கனிமம்) ஆகியோர்களின் பரிந்துரையினை ஏற்றும் நிபந்தனைகளுக்குட்பட்டும், மதுரை மாவட்டம், திருமங்கலம், கற்பகம் நகர், க்தவு எண் 70/1 என்ற முகவரியில் வசித்து வரும் இராமசாமி மகன்

திரு.இரா.கோபாலகிருஷ்ணன் என்பவருக்கு, விருதுநகர் மாவட்டம், வெம்பக்கோட்டை வட்டம், அப்பையநாயக்கன்பட்டி கிராமம், பட்டா புல எண்: 199/6A-ல் 1.08.0 ஹெக்டேர் பரப்பளவு நிலங்களில் தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 1959 விதி எண்: 19,20 மற்றும் 22-ன்படி சாதாரண உடைகல், ஜல்லி கற்கள் மற்றும் கிராவலை மாவட்ட ஆட்சியருடன் குத்தகை ஒப்பந்தப் பத்திரம் நிறைவேற்றும் நாளிலிருந்து அய்ந்து வருடங்களுக்கு எடுத்துக் கொள்ள கீழ்க்கண்ட நிபந்தனைகளுக்குட்பட்டும், கற்குவாரி குத்தகை உரிமம் வழங்கி உத்தரவிடப்படுகிறது.

நிபந்தனைகள்

1. குத்தகைதாரர் இந்த உத்தரவு கிடைக்கப் பெற்றவுடன் 5ஆண்டுகளுக்கான பரப்புலரித் தொகை ரூ. 540/-ஐ சலான் மூலம் வங்கியில் செலுத்தி அசல் சலானையும், காப்புத் தொகை ரூ. 5000/-ஐ கீழ்க்குறிப்பிட்டுள்ள கணக்குத் தலைப்பில் செலுத்தி அசல் செலானையும் ஆஜர்படுத்த வேண்டும்.
காப்புத்தொகை செலுத்தவேண்டிய கணக்குத் தலைப்பு
8443 Civil Deposits
103 Security Deposits
D.P.Code 8443-00-103-AA-010005
2. மேலும், 1959ம் ஆண்டு தமிழ்நாடு சிறுகனிம சலுகை விதிகள் அனுபந்தம் 4ல் கண்ட நமுனாவில் ரூ. 20200/- முத்திரைத்தாளில் குத்தகை ஒப்பந்த பத்திரம் நிறைவேற்றி அதனை அவரது சொந்த செலவில் பதிவு செய்து கொடுக்க வேண்டும்
3. சரியான முறையில் குறிப்பிட்ட படிவத்தில் கணக்குகள் பராமரிக்க வேண்டும் தினந்தோறும் வெட்டி எடுத்துக் கொண்டு செல்லப்பட்ட கனிம அளவைக் குறித்த பதிவேடுகள் வைத்திருக்க வேண்டும். அவைகளை தணிக்கை செய்யும் அதிகாரிகளுக்கு தவறாமல் காண்பிக்க வேண்டும்
4. சொந்த செலவிலேயே குறிப்பிட்ட படிவத்தில் நடைச்சீட்டு அச்சிட்டு நடைச்சீட்டில் துணை இயக்குநர் (புவியியல் மற்றும் சுரங்கத்துறை) விருதுநகர் அலுவலக முத்திரையுடன் கையொப்பமும் பெறவேண்டும். குவாரியில் இருந்து கனிமம் ஏற்றிச் செல்லும் ஒவ்வொரு வாகனத்திற்கும் நடைச்சீட்டு வழங்கப்பட வேண்டும். சோதனையின் போது நடைச்சீட்டு இல்லையென்று கண்டுபிடிக்கப்பட்டால் வாகனங்கள் பறிமுதல் செய்யப்படுவதோடு குவாரி குத்தகைதாரர் மீது நடவடிக்கையும் எடுக்கப்படும்.
5. குவாரி செய்ய அனுமதிக்கப்பட்ட குறிப்பிட்ட புல எண் மற்றும் குறிப்பிட்ட விஸ்தீரணத்திற்குள் தான் குவாரி செய்ய வேண்டும்

- R. J. Galasien A110/73

19. அருகில் அமைந்துள்ள விவசாய நிலங்களுக்கு எவ்வித பாதிப்பும் இல்லாத வகையில் குவாரிப்பணி மேற்கொள்ள வேண்டும்.
20. மாநில சுற்றுச்சூழல் பாதிப்பு மதிப்பீட்டு ஆணையம், சென்னை கடித எண். SEIAA-TN/F.No.2510/EC/1(a) 1800/2014, நாள். 27.03.2015 தெரிவிக்கப்பட்டுள்ள அனைத்து நிபந்தனைகளையும் தவறாது கடைப்பிடிக்க வேண்டும்.
21. சுரங்கத் திட்டத்தில் (Mining Plan) குறிப்பிட்டுள்ள விபரங்களின்படி குவாரிப்பணி மேற்கொள்ள வேண்டும்.
22. அருகிலுள்ள புல எண்களுக்கு 7.5 மீட்டர் பாதுகாப்புத்தூரம் கடைப்பிடித்து குவாரிப்பணி மேற்கொள்ள வேண்டும்.
23. காலை 7 மணி முதல் மாலை 5 மணி வரை குவாரிப் பணி மேற்கொள்ள வேண்டும். மேலும் இரவு நேரங்களில் கற்களை ஏற்றக்கூடாது.
24. புல எண் 199/6A-ன் அருகில் உள்ள புலத்தில் வடமேற்கு மூலைப்பகுதியில் செல்லும் வண்டிப்பாதைக்கு 10மீ பாதுகாப்பு இடைவெளி தூரம் கடைப்பிடித்து குவாரிப்பணி மேற்கொள்ள வேண்டும்.
25. புல எண் 199/6A-ன் அருகில் உள்ள புலத்தில் தெற்குப் பகுதியில் செல்லும் வண்டிப்பாதைக்கு 10மீ பாதுகாப்பு இடைவெளி தூரம் கடைப்பிடித்து குவாரிப்பணி மேற்கொள்ள வேண்டும்.

(ஓம்) அ. சிவஞானம்
மாவட்ட ஆட்சியர்,
விருதுநகர்.

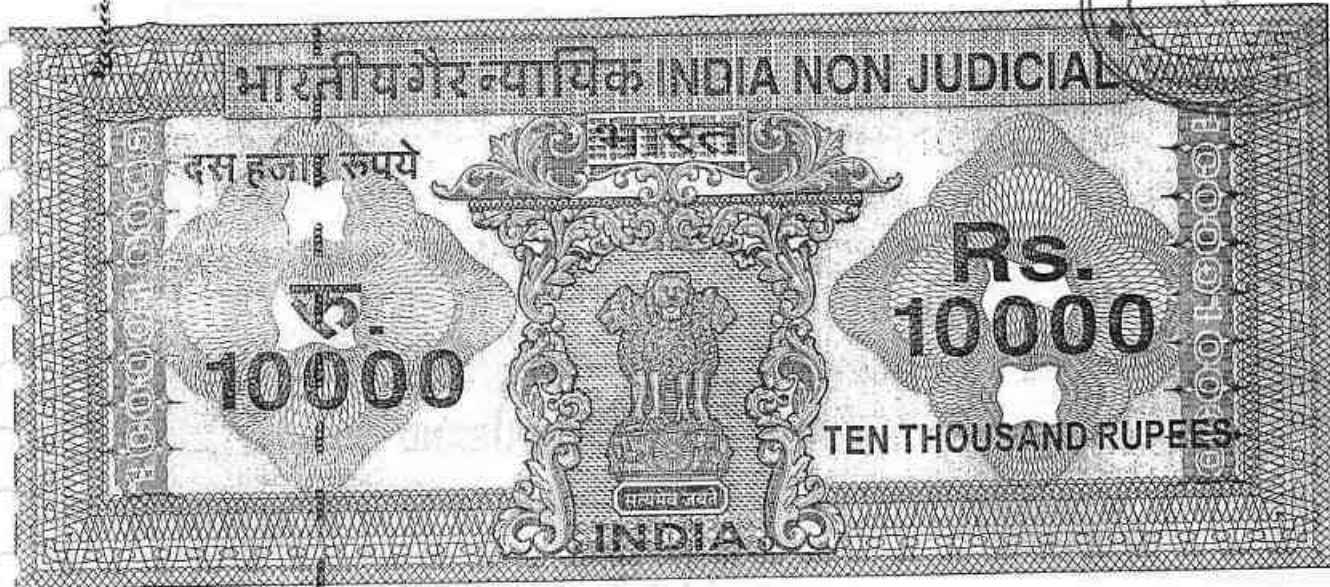
ஆணைப்படி / அனுப்பப்படுகிறது

மாவட்ட ஆட்சியருக்காக,
விருதுநகர்.

பெறுநர்:
திரு.இரா.கோபாலகிருஷ்ணன்
த.பெ.இராமசாமி,
கதவு எண் 70/1,
கற்பகம் நகர்,
திருமங்கலம்,
மதுரை மாவட்டம்.

11/5/17

நகல் வருவாய் வட்டாட்சியர், சிவகாசி
நகல் கிராம நிர்வாக அலுவலர், அப்பையநாயக்கன்பட்டி
நகல் கேவி 1 இருக்கைக்கு



தமிழ்நாடு தமிழ்நாடு TAMILNADU

D 785383

சென்னை நகரம்

12955

10090200

19.5-17

M.ராஜாம்பலா
எட்டாம்படி, கி.லி.என்.பி.பி.
மாநகரம்

உரிமம் எண்: 9315/ A1.2002 - 2

APPENDIX - IV

FORM OF AGREEMENT FOR QUARRYING AND CARRYING
AWAY MINOR MINERALS FROM RYOTWARI LANDS IN WHICH
THE MINERALS BELONGS TO GOVERNMENT

AGREEMENT MADE of this 29th day of May 2017
between Thiru R.Gopalakrishnan, S/o. Ramasamy residing at D.No.70/1,
Karpagam Nagar, Thirumangalam Post & Taluk, Madurai District. (hereinafter
referred to as "the registered holder" which term shall include in these presents

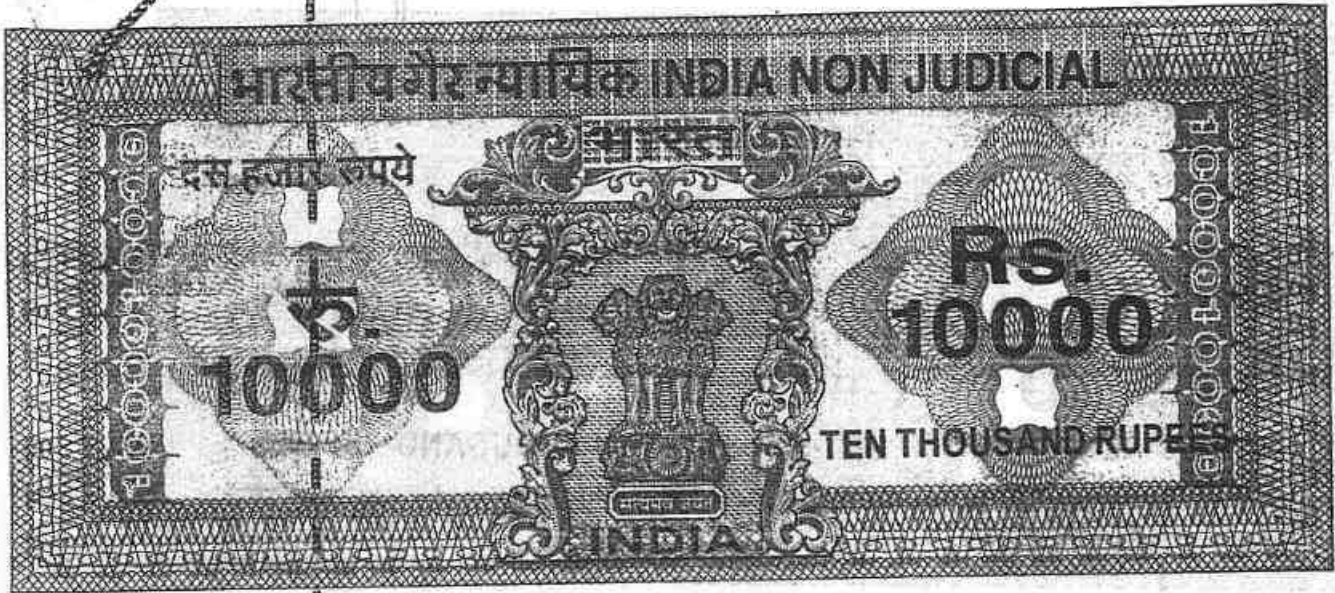
R. Palakrishnan

LESSEE

LESSOR



ATTZ
R. Gopalakrishnan 175



தமிழ்நாடு தமில்நாடு TAMILNADU

R. GANUN சிவசுந்தரம்
சிவசுந்தரம்

D 785385



17856

10000.00

195-17

M.ராஜாபெருமா
சென்னை
93151 A1.2002 -2

where the context so admits include also his heirs, executors, administrators, legal representatives and assigns) of the one part and the Collector of Virudhunagar District (hereinafter called "the Government" which term shall where the context so admits, include also his successors in office and assigns) of the other part.

WHEREAS the registered holder holds (amongst others) the lands described in the schedule hereunder written (hereinafter referred to as the said lands).

AND, WHEREAS, the registered holder has made application to the Collector of the District of Virudhunagar (hereinafter referred to as "The Collector") seeking grant of quarrying lease for quarrying Rough Stone, Gravel

R. Gopalakrishnan
LESSEE

M. Rajaperumal
LESSOR



A113
R. Gopalakrishnan

176

LESSOR

2.601 இயக்குநர் அலுவலகம்
சிவசுப்பிரமணியன் மாண்புமிகு
15 JUN 2022



தமிழ்நாடு தமிழ்நாடு TAMILNADU

R. சபாபதி ரிசுமன்
ரிசுமன்

BG 410237



and Jelly in the said lands and has lodged with the Collector an accurate map of sketch of the said lands.

M.ராஜாமணி
உரிமம் எண்: 5015-A1.2002-2

AND, WHEREAS, the Collector, acting for and on behalf of the Government, has granted a quarrying lease to the registered holder and allowed him to commence quarrying operations for Five Years in the said lands and to deposit mining waste there on by registered holder.

AND WHEREAS the registered holder has deposited with the Collector the sum of Rs.5,000/- as security against any loss or damage which may be incurred by the Government by reason of any of the said lands being rendered unfit for cultivation by any mining operations therein of the registered holder or by the deposit of mining waste thereon by the registered holder.

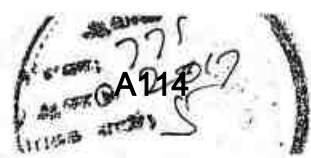
R. Gopalakrishnan
LESSEE

LESSOR



R. Gopalakrishnan
LESSEE

LESSOR



177



தமிழ்நாடு தமில்நாடு TAMILNADU

R. கோபாலகிருஷ்ணன்
கிருஷ்ணன் கமல்

BG 410236



17958
100-00
17.5.17

[Signature]
M. ராஜா மணி
தமிழ்நாடு வருமானத் துறை.
சாத்தூர்.

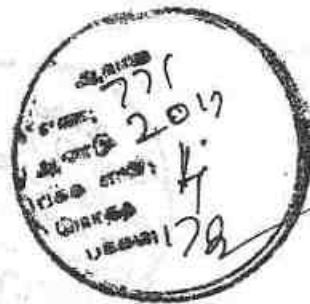
NOW THESE PRESENTS WITNESS and the registered holder doth

hereby agree with the Government in the manner following, that is to say:-

1. The registered holder shall be at liberty at all times during the period of the lease to carry on mining operations for Five Years in the said lands in a proper and workman like manner and to deposit mining waste on the said lands and shall at all times, be answerable and accountable to the Government for all acts and defaults by any of his nominees, servants or agents in carrying on such operations or in making such deposit.

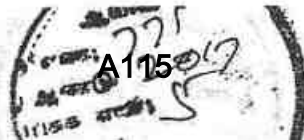
2. The said premises shall be held by the Registered Holder for a term of Five Years from the 29th day of May 2017 to the 28th day of May 2022.

R. Gopalakrishnan
LESSEE



[Signature]
LESSOR

R. Gopalakrishnan
LESSEE



[Signature]
LESSOR



The registered holder shall pay to the Collector for and on behalf of the Government in addition to the land assessment for the time being payable in respect of the said lands, seigniorage on the minor minerals viz. Rough Stone, Gravel and Jelly at the rate specified in Appendix-II to the Tamilnadu Minor Minerals Concession Rules, 1959.

3. The registered holder shall and will keep correct accounts in such form as the Collector shall from time to time required and direct showing the quantities and other particulars of all minerals obtained by the registered holder from the said lands and also the number of persons employed in carrying on the said mining operations therein and shall from time to time when so directed by the Collector prepare and maintain complete and correct plans of all mines and workings in the said lands and shall allow any officer hereunto authorized by the Director of Geology and Mining, Chennai-32 Tamilnadu from time to time and at any time to examine such accounts and any such plans and shall when so required supply and furnish all such information and returns regarding all or any of the matter aforesaid as the Government shall, from time to time require and direct.

4. The registered holder shall and will at all times allow any Officer authorized by the Director of Geology and Mining, Tamilnadu in that behalf to enter upon any part of the said lands where any mining operations may be carried on for the purpose of inspecting the same.

5. The registered holder shall forthwith send to the Collector a report of any accident which may occur at or in the said lands and also of the discovery of any minerals other than Rough Stone, Gravel and Jelly.

6. It shall be lawful for the registered holder at any time to cease mining operations under these presents provided he shall pay to the Collector, for and on behalf of the Government land assessment, cess and seigniorage due to the Government and shall restore the said lands or fence or fill in abandoned pits and excavations therein if required by the Collector and upon his so doing these presents shall cease and determine.

7. In case the registered holder shall relinquish the whole or any part of the said lands or in case of expiry or sooner determination of this agreement then and in

R. Gopalakrishnan
LESSEE



LESSOR

R. Gopalakrishnan

any such case, he shall restore the lands so relinquished or so much thereof as the Collector shall require to be restored to a state fit for cultivation or shall securely and permanently fence or fill in all such abandoned pits and excavations therein as the Collector shall require to be so fenced or filled in and in case the registered holder shall fail or neglect to restore any such lands which he shall be required to restore to a state fit for cultivation, or to so fence or fill in any such abandoned pit or excavation which he shall be required to so fence or fill in them and in such case, it shall be lawful for the Collector to so restore any such lands or as the case may be, to so fence or fill in any such pits, or excavation at the expense of the registered holder and to apply the said sum of Rs.5,000/- so deposited in or towards the cost of so doing and to deduct from the amount of the said deposit and retain on behalf of the Government a sum equal to thirty times the assessment of the said lands, which shall have been rendered unfit for cultivation. If however, the amount of deposit is not sufficient to cover the cost of such restoration or filling in or to meet thirty times the assessment on the area rendered uncultivable, it shall be lawful for the Government to recover the balance by resort to Civil Court.

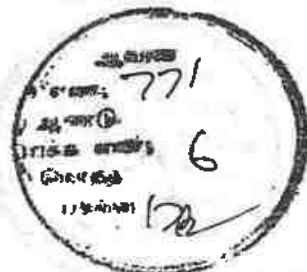
8. The registered holder shall not be entitled to any remission of assessment in respect of any of the said lands which shall be rendered unfit for surface cultivation by the carrying on of any mining operations or by the deposit of mining waste, unless thirty times the assessment thereon has already been deducted under the proceeding clause.

9. The registered holder shall not assign, lease or part with the possession of the said lands or any part thereof for the whole or any part of the said term without previous intimation in writing to the Collector.

10. If the registered holder does not intend to carry on mining operations himself, but intends to lease out the right to do so to another person the registered holder and his lessee shall enter into an agreement with Government binding themselves jointly and severally to accept the conditions and stipulations herein contained which agreement shall be in the form set out in Appendix-V to the Tamilnadu Minor Mineral Concession Rules, 1959.

R. Gopalakrishnan

LESSEE



[Signature]
LESSOR

R. Gopalakrishnan

A117

180



11. All land assessment, cess and seigniorage payable under these presents shall be recoverable under the provisions of the Tamilnadu Revenue Recovery Act, 1864, as if they were arrears of land revenue.

12. In the event of any breach by the registered holder by any of the conditions of this agreement, it shall be lawful for the Government to levy enhanced seigniorage fee or for the Collector to give notice in writing to the registered holder of his intention to cancel these presents whereupon the same shall stand cancelled but without prejudice to any rights which the Government may have against the pattadar in respect of any antecedent claim of breach of covenant or condition.

13. Any notice to be given to the registered holder may addressed to his last known place of abode and where a notice has been so addressed it shall be deemed to have been duly served for the purpose of these presents.

14. Should any question or dispute arises regarding the agreement executed in pursuance of these rules or any matter or thing connected therewith or the powers of the registered holder there under, the amount or payment of the Seigniorage fee or Area Assessment made payable thereby, the matter in issue shall be decided by the Director of Geology and Mining. In case the registered holder is not satisfied with the decision of the Director of Geology and Mining, the matter shall be referred to the State Government for decision.

15. The registered holder shall abide by the conditions laid down in the payment of wages Act 1936 (Central Act IV of 1936), the Mines Act, 1952 (Central Act XXXV of 1952) and the Indian Explosives Act, 1884 (Central Act IV of 1884).

16. The registered holder should demarcate the lease hold area at his own cost and shall quarry Rough Stone, Gravel and Jelly only within the area leased out to him and keep the boundary stones, painted and maintained at all times.

17. The registered holder shall make his own arrangements for road, pathways channels and ramp etc. to the quarry at his own cost.

18. The registered holder shall obtain the permits and dispatch slips for the transport of Rough Stone, Gravel and Jelly from the Assistant Director of Geology and Mining Virudhunagar. The despatch slips shall be kept in the quarry site and be issued to all the vehicles while transporting the Rough Stone and Jelly from the quarry.

R. Gopalakrishnan
LESSEE



LESSOR

19. The registered holder should leave necessary safety distance from the features like road, low tension and high tension power-lines, transformers, temples, villages, place of Historical importance and Archaeological importance, Highways habitations etc., as per relevant Mettalliferrous Mines Regulations 1961 and as per Tamilnadu Minor Mineral Concession Rules, 1959.

20. The registered holder shall put up a board at the entrance of the lease hold area showing very clearly the details of the S.Nos., Villages, Extent of the Area, Period of Lease, the authority granting the lease etc.

21. The registered holder shall immediately report any accident that may occur at the quarry site to the District Collector, Assistant Director of Geology and Mining and other authorities concerned including the Director of Mines Safety, Anna Nagar, Chennai

22. The registered holder should strictly adhere to the conditions and rules stipulated by the Government for the minor minerals from time to time.

23. Quarrying should be done without any hindrance to the adjacent pattadars.

24. Quarrying should be done 7.5 mtrs away from the boundaries of the area granted for quarry lease.

25. In case event of any breach of rules or the conditions of the lease stated above the lease shall become liable for automatic termination without any prior notice.

26. The Lessee should do quarrying operation as per the approved Mining Plan, Environmental Clearance Lr.No. SEIAA-TN/F.No.2510/EC/1(a) 1800/2014, dated 27.03.2015 and Proceedings No. F.0259VDR/RS/DEE/TNPCB/VDR/W/2015 Dated 18.09.2015(Consent Order No: 150112126024) and Proceedings No. F.0259VDR/RS/DEE/TNPCB/VDR/A/2015 Dated 18.05.2015(Consent Order No: 150122126024) of Tamil Nadu Pollution Control Board, Virudhunagar.

விருதுநகர் மாவட்ட ஆட்சித்தலைவர் அவர்களின் செயல்முறை ஆணைகளின்படி
குத்தகை நிபந்தனைகள் ந.க.கே.வி.1/5171/2013, நாள். 10.05.2017

- 1) சரியான முறையில் குறிப்பிட்ட படிவத்தில் கணக்குகள் பராமரிக்க வேண்டும் தினந்தோறும் வெட்டி எடுத்துக் கொண்டு செல்லப்பட்ட கனிய அளவைக் குறித்த பதிவேடுகள் வைத்திருக்க வேண்டும். அவைகளை தணிக்கை செய்யும் அதிகாரிகளுக்கு தவறாமல் காண்பிக்க வேண்டும்

R. Gopalakrishnan
LESSEE



Donnam
LESSOR

A119

R. Gopalakrishnan

182



- 2) சொந்த செலவிலேயே குறிப்பிட்ட படிவத்தில் நடைச்சீட்டு அச்சிட்டு நடைச்சீட்டில் துணை இயக்குநர் (புவியியல் மற்றும் சுரங்கத்துறை) விருதுநகர் அலுவலக முத்திரையுடன் கையொப்பமும் பெறவேண்டும். குவாரியில் இருந்து கனிமம் ஏற்றிச் செல்லும் ஒவ்வொரு வாகனத்திற்கும் நடைச்சீட்டு வழங்கப்பட வேண்டும். சோதனையின் போது நடைச்சீட்டு இல்லையென்று கண்டுபிடிக்கப்பட்டால் வாகனங்கள் பறிமுதல் செய்யப்படுவதோடு குவாரி குத்தகைதாரர் மீது நடவடிக்கையும் எடுக்கப்படும்.
- 3) குவாரி செய்ய அனுமதிக்கப்பட்ட குறிப்பிட்ட புல எண் மற்றும் குறிப்பிட்ட விஸ்தீரணத்திற்குள் தான் குவாரி செய்ய வேண்டும்
- 4) குவாரிப்பணி மேற்கொள்வதற்கு முன்பாக குவாரி குத்தகை அனுமதி வழங்கப்பட்ட பகுதியில் நான்கு பக்கங்களிலும் மூன்று மீட்டர் இடைவெளியில் இரண்டு மீட்டர் உயரத்திற்கும் குறையாமலும் கான்கிரீட் கலவை அமைத்து கல் தூண்கள் அமைத்தும் கம்பிவேலி அமைத்தும் பராமரிக்கவேண்டும்.
- 5) குத்தகைதாரர் குவாரியை வேறு யாருக்கும் உள் குத்தகைக்கு விடலாகாது.
- 6) ஒப்பந்தப் பத்திரத்தில் கண்டுள்ள நிபந்தனைகளுக்கு அவர் கட்டுப்பட்டு நடக்க வேண்டும்.
- 7) பிரதிமாதமும் 5ம் தேதிக்குள் முந்தைய மாதத்தில் குவாரி செய்து எடுக்கப்பட்ட கனிம அளவு வெளியில் அனுப்பப்பட்ட கனிம அளவு குவாரியில் வேலை செய்யவும் கூலி ஆட்களின் எண்ணிக்கை முதலிய விபரங்களை விருதுநகர் மாவட்ட புவியியல் மற்றும் சுரங்கத்துறை துணை இயக்குநருக்கு அனுப்பி வைக்க வேண்டும்
- 8) குத்தகை ஒப்பந்தப் பத்திரம் நிறைவேற்றப்பட்ட பின்புதான் குவாரியில் வேலை செய்யத் தொடங்க வேண்டும்.
- 9) குத்தகை பற்றிய முழு விபரங்கள் அடங்கிய தகவல் பலகை ஒன்று குவாரியில் கண்டிப்பாக வைத்திருக்க வேண்டும்.
- 10) சொந்த செலவிலும் முயற்சியாலும் குவாரிக்குச் செல்லும் சாலைகள் மற்றும் பாதைகள் மற்றும் வசதிகள் அமைத்துக் கொள்ள வேண்டும்.
- 11) தன் சொந்த செலவிலேயே குவாரியில் குத்தகை வழங்கப்பட்ட விஸ்தீரணத்தை வட்ட அளவர் மூலம் அளந்து நான்கு எல்லைக்கும் கல்தூண்கள் நட்டு அமைத்துப் பராமரித்து வர வேண்டும்.
- 12) குவாரிக்குரிய நடைச்சீட்டுகளை கண்டிப்பாக குவாரியில் இருந்துதான் வழங்க வேண்டும். நடைச்சீட்டுக்களின் அடிக்கட்டைகளை குவாரியில் வைத்திருக்க வேண்டும்.
- 13) குவாரிக்கு அருகில் வீடுகள், சாலைகள், பாதைகள், மின்சாரக்கம்பிகள், மின்சார டிரான்ஸ்பார்மர்கள் கோவில், ஓடை, குடிநீர் ஆதாரங்கள் மற்றும் சரித்திரப் புகழ் பெற்ற ஸ்தலங்கள் போன்றவை அமைந்திருந்தால் அவைகளுக்கு சேதம் ஏற்படாதவாறு தேவையான அளவு பாதுகாப்பு இடைவெளி விட்டு குவாரி செய்ய வேண்டும்.
- 14) அனுமதி பெறாமல் குவாரியில் வெடிமருந்துகள் பயன்படுத்தக்கூடாது. வெடிபொருட்கள் சட்டம் கண்டிப்பாக கடைப்பிடிக்கப்பட வேண்டும். குறைந்த அழுத்தமுள்ள வெடிமருந்துகளை பயன்படுத்தி குவாரிப் பணி செய்ய வேண்டும்.

R. Gopalakrishnan
LESSEE



LESSOR

- 15) குவாரியில் வேலை செய்யும் தொழிலாளர்களின் நலன் பேணப்படவேண்டும். குழந்தைத் தொழிலாளர்களை குவாரிப் பணியில் ஈடுபடுத்தக்கூடாது.
- 16) அனுமதிதாரர் புராதனச் சின்னங்களுக்கோ, அரசாங்க சொத்துக்களுக்கோ எவ்வித சேதமும் இன்றி குவாரி செய்ய வேண்டும். அருகாமையில் உள்ள பட்டா நிலங்களுக்கு எவ்வித சேதமும் இன்றி குவாரி செய்ய வேண்டும்.
- 17) அருகில் அமைந்துள்ள விவசாய நிலங்களுக்கு எவ்வித பாதிப்பும் இல்லாத வகையில் குவாரிப்பணி மேற்கொள்ள வேண்டும்.
- 18) மாநில சுற்றுச்சூழல் பாதிப்பு மதிப்பீட்டு ஆணையம், சென்னை கடித எண். SEIAA-TN/F.No.2510/EC/1(a) 1800/2014, நாள். 27.03.2015 தெரிவிக்கப்பட்டுள்ள அனைத்து நிபந்தனைகளையும் தவறாது கடைப்பிடிக்க வேண்டும்.
- 19) சுரங்கத் திட்டத்தில் (Mining Plan) குறிப்பிட்டுள்ள விபரங்களின்படி குவாரிப்பணி மேற்கொள்ள வேண்டும்.
- 20) அருகிலுள்ள புல எண்களுக்கு 7.5 மீட்டர் பாதுகாப்புத் தூரம் கடைப்பிடித்து குவாரிப்பணி மேற்கொள்ள வேண்டும்.
- 21) காலை 7 மணி முதல் மாலை 5 மணி வரை குவாரிப் பணி மேற்கொள்ள வேண்டும். மேலும் இரவு நேரங்களில் கற்களை ஏற்றக்கூடாது.
- 22) புல எண் 199/6A-ன் அருகில் உள்ள புலத்தில் வடமேற்கு மூலைப்பகுதியில் செல்லும் வண்டிப்பாதைக்கு 10மீ பாதுகாப்பு இடைவெளி தூரம் கடைப்பிடித்து குவாரிப்பணி மேற்கொள்ள வேண்டும்.
- 23) புல எண் 199/6A-ன் அருகில் உள்ள புலத்தில் தெற்குப் பகுதியில் செல்லும் வண்டிப்பாதைக்கு 10மீ பாதுகாப்பு இடைவெளி தூரம் கடைப்பிடித்து குவாரிப்பணி மேற்கொள்ள வேண்டும்.

For the purpose of stamp duty the anticipated Seigniorage Fee for a period of Five Years from the demised land is Rs. 20,08,600/-.

THE SCHEDULE

In the village of Appayanaickenpatti, Vembakkottai Taluk, Virudhunagar District and Sub-Registration Taluk of Keelarajakularaman within the registration District of Virudhunagar.

SF.No.	Lease granted area in Hectares	North	East	South	West
199/6A	1.08.0	199/5(P)	199/6B	197(P)	198, 203(P)

R. Gopalakrishnan
LESSEE



LESSOR



IN WITNESS WHEREOF Thiru A. Sivagnanam, I.A.S., District Collector, Virudhunagar acting for and on behalf and by the order and direction of the Governor of Tamil Nadu and Thiru R.Gopalakrishnan, S/o. Ramasamy residing at D.No.70/1, Karpagam Nagar, Thirumangalam Post & Taluk, Madurai District (Election Commission ID No.ZF10036905) The registered holder have hereunto set their respective hands.

R. Gopalakrishnan
LESSEE

Signed by the above named in
the presence of

Witness

1. டி. அனந்தன்
3/10 டி. அனந்தன்
அப்பாவுடைய கையாள்பட்டி.
பெரியகோட்டை புறம்

2
A. சிவசுப்பிரமணியன்
S/o அ. சிவசுப்பிரமணியன்

திருவாரூர்
விடுதலை

Collector
COLLECTOR,
VIRUDHUNAGAR DISTRICT
Signed by the above named in the
presence of

1
(K. Ayyappan)
ASSISTANT DIRECTOR
GEOLOGY AND MINING
VIRUDHUNAGAR DIST.
VIRUDHUNAGAR.

2
(Suresh Babu.V)
தனி வருவாய் அபிவிருத்தி
(புதிதில் 6 கால்கள்)
விருதுநகர்



Drafted by [Signature]

M. Muthulakshman
S/o S. Muthupandi
Karpagam Nagar, Thirumangalam
D.No. B/1/2003/19A

R. Gopalakrishnan

SAD. 74 of 2017

I hereby certify that a sum of Rs. 2950 Rupees only (in words) only) on account of proper / deficit stamp duty has been levied under section 41 of the Stamp Act in respect of this instrument from GOPALAKRISHNAN residing at Suburban.

Under Section 41 of the Indian Stamp Act.

$$(2000 + 195 + 50)$$


R. Gopalakrishnan

Additions As per the recitals of the document



R. f. palaknisi

Additions As per the recitals of the document



R. Gopalakrishnan 18/6

Execution Admitted by



I have satisfied my self as to the execution of the Instrument by Thiru COLLECTOR who is exempted from Personal Appearance under Section 88(1) of the Registration Act.

[Signature]
SUBREGISTRAR

Identified by

- 1 *[Signature]* Name : - *[Signature]* S/o *[Signature]* *[Signature]*
2 *[Signature]* Name : - *[Signature]* S/o *[Signature]* *[Signature]*

31st day of May 2017

[Signature]
SUBREGISTRAR

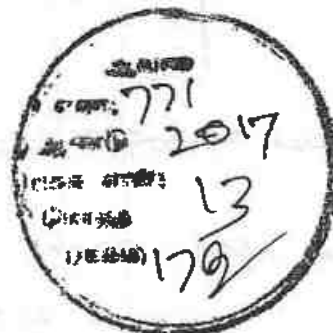
KeelaRajakularaman

Registered as No 771 of 2017 of Book I

Date : 31/05/2017

[Signature]
SUBREGISTRAR
KeelaRajakularaman

[Signature]



மாவட்டம். தர்மபுரம்

வட்டம். சூர்த் தூர்

புது ஏண். 199

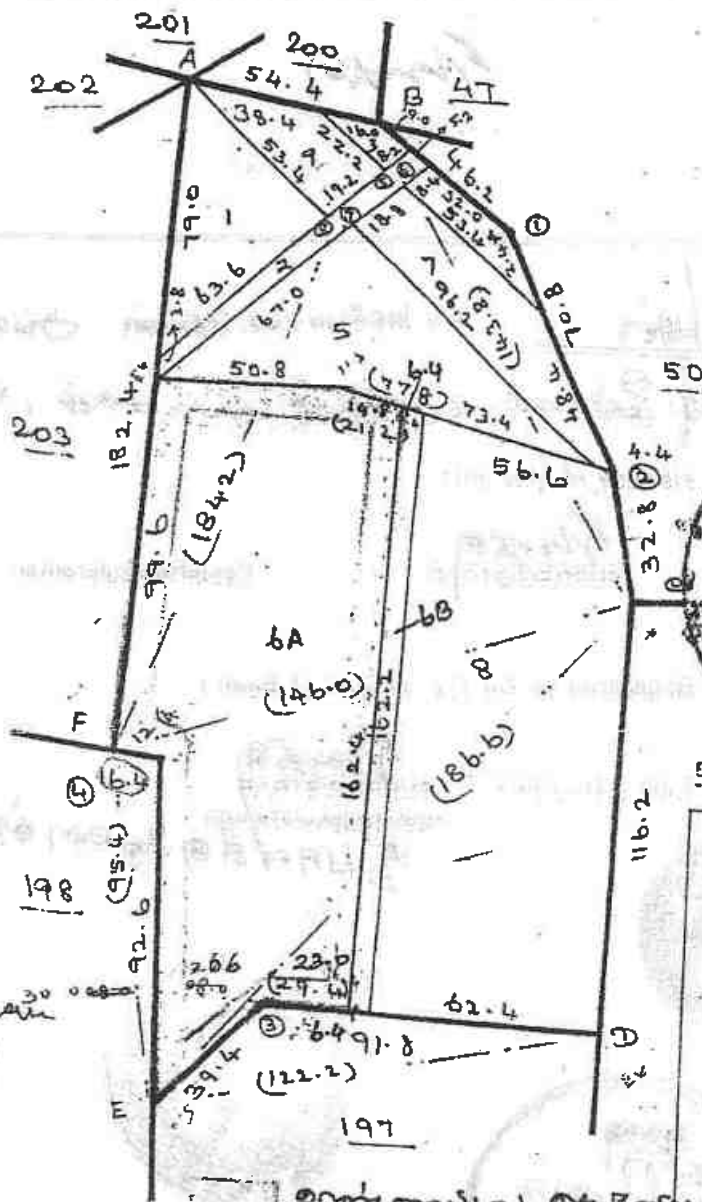
சிராமம்

எண். 9

பெயர். அம்மய்யாசிக் கி

பரப்பு: ஹெக்டேர்

2 ஏ. 92.0



புது ஏண். 199
LESSEE

	F
9	184.2
8	18.2
6	1.0
5	29.8
	28.0
	3.2
	11.0
	10.0
	12.2
	21.8
	33.4
	23.8
	113.2
	42.6
	B

சுற்றுலா துறை
புது ஏண். 199

சுற்றுலா துறை
புது ஏண். 199

சுற்றுலா துறை
புது ஏண். 199

ASSISTANT COLLECTOR
GEOLOGY AND MINING
VIRUDHUNAGAR DIST.
VIRUDHUNAGAR.

New subdivision
6A x 6B Plotted
approx 7K sq.
876/1422 dt 16.2.13
30.7.13
F.S. E.H.W.

சுற்றுலா துறை
புது ஏண். 199

சுற்றுலா துறை
புது ஏண். 199

சுற்றுலா துறை
புது ஏண். 199

198

India Driving Licence (Tamilnadu)
Form 7

EXD 03/06/2011

DL NO: TN76Z20110004006
NAME: MRAMAR
MARIAPPA KONAR

ADDRESS:
2/133, WEST ST
APPAYA NAYAKANPATTI, SIVAKASI TK
VNR

Temp Add:
SRI RAMANI DRIVING SCHOOL

DOB: 06/04/1968 B.G.:

DATE: 03/06/2011

DRIVER'S LICENCE (TAMILNADU) FORM 7 (NON-TRANSPORT VEHICLE) VALIDITY PERIOD: 03/06/2011 TO 03/06/2016

Non-Transport Veh Valid upto 03/06/2016

Signature of the holder: *[Signature]*

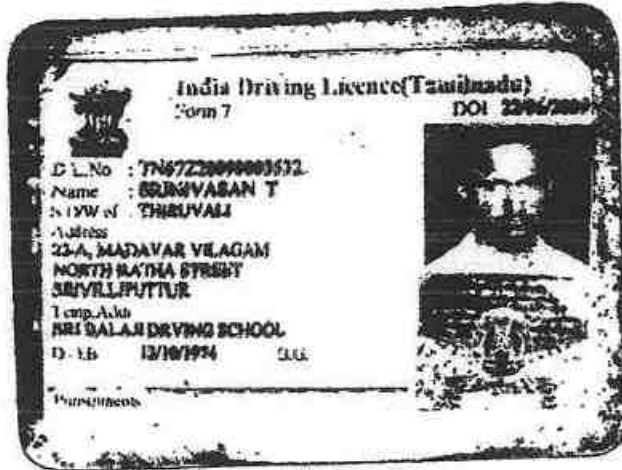
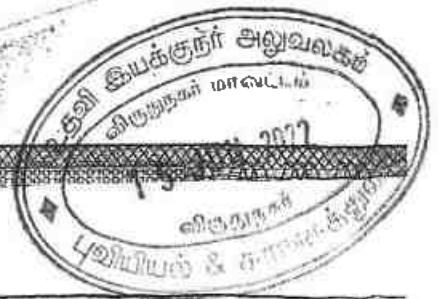
Signature of the issuing authority: *[Signature]*

Lt. [Signature]

R. Gopalakrishnan



R. Gopalakrishnan
A12790



f. f. f.

R. Gopalakrishnan



A128

R. Gopalakrishnan

(91)

STATE LEVEL ENVIRONMENT IMPACT ASSESSMENT AUTHORITY
ENVIRONMENTAL CLEARANCE

ANNEXURE-XIV

STATE LEVEL ENVIRONMENT
IMPACT ASSESSMENT
AUTHORITY, TAMILNADU



3rd Floor, Panagal Nagar
No.1, Jeenu Road, Saidapet,
Chennai-15.
Telephone :044 - 2435 9974



V. THANGAVELU, I.A.S., (Retd),
CHAIRMAN

V. HARIDASS,
MEMBER

DR. H. MALLESHAPPA, I.F.S.
MEMBER SECRETARY,

Lr. No. SEIAA-TN/F.No.2510/EC/1(a)/ 1800/2014 dated: 27.03.2015

To
Thiru R. Gopalakrishnan,
No 70/1- Karpagam Nagar
Thirumangalam Post & Taluk
Madurai - 625 706

Sir,

Sub: SEIAA-TN -Proposed Rough Stone Quarrying at S.F No.199/6A, Appayanaickanpatty Village, Sivakasi Taluk, Virudhunagar District by Thiru R. Gopalakrishnan- Environmental Clearance - Regarding

Ref: 1. Your Application for Environmental Clearance dt: 04.04.2014
2. Minutes of the SEAC meeting held on 30.01.2015 & 31.01.2015
3. Minutes of the SEIAA meeting held on 27.03.2015

1. Preamble:-

This has reference to your application first cited. The proposal is for obtaining environmental clearance for Rough Stone Quarrying at S.F No. 199/6A, Appayanaickanpatty Village, Sivakasi Taluk, Virudhunagar District. The proposed mining area is reported as lying in Latitude - 09°17'43" N; Longitude 77°41'46" E in Topo Sheet No.58/G-11.

The mine lease area of this proposal is 1.08.0ha. As per the proposals, the following is the land use pattern to be adopted by the proponent.

Description	Area at the end of lease period (Ha.)
Area under quarrying	Nil
Future Mining	0.63.0
Mine Roads	0.02.0
Safety & Afforestation	0.41.5
Site Services	0.01.5
Grand Total	1.08.0

The proponent shall carry out mining operation only in the area under quarry of 0.63.0 Ha. mentioned above.

MEMBER SECRETARY

[Signature]

R. Gopalakrishnan

A129

STATE LEVEL ENVIRONMENT IMPACT ASSESSMENT AUTHORITY
ENVIRONMENTAL CLEARANCE

The total area of Proposed/Existing/abandoned quarries within 500 m radius exceeds 5 ha. Hence General condition is applicable, as per the Notification No. S.O.2601(E) of Ministry of Environment, Forest and Climate change, dated 07.10.2014. Hence, the proponent has furnished sworn affidavit in the Non judicial stamp paper stating the following:

1. There are no protected areas notified under the Wildlife (Protection) Act, 1972 are located within 10km radius of the proposed project site.
2. There are no critically polluted areas as identified by CPCB constituted under Water (Prevention and Control of Pollution) Act, 1974, are located within 10km radius of the proposed project site.
3. There are no Eco Sensitive areas as notified, are located within 10km radius of the proposed project site.
4. There are no Interstate boundaries and International boundaries within 10Km radius from the boundary of the proposed site.

The proponent is squarely responsible to the correctness of the above affirmations.

In the above circumstances this proposal is treated as B2 category and public consultation is not required as per O.M. dated 24.12.2013 of MoEF, Govt.

No forest land is involved. Mine working will be open cast semi-mechanised mining and is proposed upto a depth of 12 metres. The production would be 36420 cu.m of Rough Stone & 14768 cu.m of Top Soil over a period of 5 Years. Water requirement of 0.06 KLD for drinking purposes will be sourced through water tanker and 0.3 KLD required for dust suppression and green belt will be sourced from Bore well. The proponent has submitted the mining plan approved by the Deputy Director, Geology and Mining, Virudhunagar District vide Rc. KV.1/5171/2013 dated 04.04.2014. The precise area communication has been approved by the District Collector, Virudhunagar in letter KV.1/5171/2013 dated 16.08.2013. The project cost is Rs.35.51 lakhs. EMP cost is Rs.6.00 lakhs.

The proponent has furnished sworn affidavits in the Non judicial stamp paper stating the following and he is responsible to its correctness:

1. The total area of all quarries located within 500 meter radius from the periphery of my quarry.
2. No habitations are located within 500 meters radius from the periphery of my quarry.

The proposal was appraised by the SEAC based on the project documents furnished and the explanation made before the Committee in its 63rd meeting held on 30.01.2015 & 31.01.2015. The SEAC has recommended for the grant of environmental clearance for the said Rough Stone quarry project.

MEMBER SECRETARY

STATE LEVEL ENVIRONMENT IMPACT ASSESSMENT AUTHORITY
ENVIRONMENTAL CLEARANCE



The proposal was placed before the SEIAA in its 124th meeting held on 27.03.2015 and hence decided to grant environmental clearance to the said project subject to usual terms and conditions. Accordingly, the SEIAA hereby accords environmental clearance to the said project under the provisions of Environment Impact Assessment Notification, 2006 subject to strict compliance of the terms and conditions as follows:-

2. Conditions to be Complied before commencing mining operations:-

- i. The project authorities should advertise with basic details at least in two widely circulated local newspapers, one of which shall be in the vernacular language of the locality concerned, within 7 days of the receipt of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and also at the web site of the SEIAA, TN at <http://seiaa.tn.gov.in> and a copy of the same is being sent to the Regional Office of Ministry of Environment and Forest, Government of India located at Nungambakkam.
- ii. Quarry lease area should be demarcated on the ground with wire fencing to show the boundary of the lease area on all sides with red flags on every pillar shall be erected before commencement of quarrying.
- iii. Copy of the Environmental Clearance letter shall be sent by the proponent to the concerned Panchayat, Town Panchayat/Panchayat union, Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the proponent and also kept at the site, for the general public to see.
- iv. Provision shall be made for the housing of construction labour nearby the site with all necessary infrastructure and facilities such as fuel for cooking, toilets, safe drinking water, etc. The housing may be in the form of temporary structures to be removed after the completion of the project.
- v. The proponent shall ensure that First Aid Box is available at site.
- vi. NOC from the Standing committee of the NBWL shall be obtained, if protected areas are located within 10 Km from the proposed project site.

3. Specific Conditions:

- i. The environmental clearance will be coterminous with the mine lease period, however limited to a maximum period of 5 Years from the date of issue of EC.

MEMBER SECRETARY

R. Gopalakrishnan

STATE LEVEL ENVIRONMENT IMPACT ASSESSMENT AUTHORITY
ENVIRONMENTAL CLEARANCE

- ii. The proponent shall take necessary measures to ensure that there shall not be any adverse impacts due to quarrying operation on the nearby human habitations, by way of pollution to the environment.
- iii. Mineral handling area shall be provided with adequate number of high efficiency dust extraction system. Loading and unloading areas including all the transfer points should also have efficient dust control arrangements. These should be properly maintained and operated.
- iv. 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 quarrying shall be stopped.
- v. At the end of mine closure, the Proponent shall immediately remove all the sheds put up in the quarry and all the equipment in the area at the time of closure of the operation of quarry. The mine closure plan as furnished in the proposals shall be strictly followed with back filling and tree plantation.
- vi. At the end of mining operations and wherever the mined out pit has to be left open as water reservoir, the Proponent shall immediately fence the entire area and access to the public is to be restricted. If the water accumulated has to be used by the nearby inhabitants, then the water has to be tested periodically for potability and only when all parameters are within the prescribed limit it could be allowed for public consumption. A sign board indicating the potability of the water is to be erected for public information.
- vii. The critical parameters such as RSPM (Particulate matter with size less than 10micron i.e., PM10) and NOX in the ambient air within the core zone shall be monitored periodically. The monitored data shall be uploaded on the website of the proponent as well as displayed on a display board at the project site. The Circular No. J-20012/1/2006-IA.II (M) dated 27.05.2009 issued by Ministry of Environment and Forests, which is available on the website of the Ministry www.envfor.nic.in shall also be referred to in this regard for its compliance.
- viii. Necessary allocation of funds for implementation of the conservation plan shall be made and the funds so allocated shall be included in the project cost. A copy of action plan shall be submitted to the Regional Office of the Ministry of Environment and Forests, Nungambakam.
- ix. Drilling and blasting shall be done only either by licensed explosive agent or by the proponent after obtaining required approvals from Competent Authorities.
- x. The explosives shall be stored at site as per the conditions stipulated in the permits issued by the licensing Authority.

MEMBER SECRETARY

STATE LEVEL ENVIRONMENT IMPACT ASSESSMENT AUTHORITY
ENVIRONMENTAL CLEARANCE



- xi. Blasting shall be carried out after announcing to the public through adequate public address system to avoid any accident.
- xii. A study has to be conducted to assess the optimum blast parameters and blast design to keep the vibration limits less than prescribed levels and only such design and parameters should be implemented while blasting is done. Periodical monitoring of the vibration at specified location to be conducted and records kept for inspection.
- xiii. The Proponent shall take appropriate measures to ensure that the GLC shall comply with the revised NAAQ norms notified by MoEF, GoI on 16.11.2009.
- xiv. The following measures are to be implemented to reduce Air Pollution during transportation of mineral
 - Roads shall be graded to mitigate the dust emission.
 - Water shall be sprinkled at regular interval on the main road and other service roads to suppress dust
- xv. The following measures are to be implemented to reduce Noise Pollution
 - Proper and regular maintenance of vehicles and other equipment
 - Limiting time exposure of workers to excessive noise.
 - The workers employed shall be provided with protection equipment and earmuffs etc.
 - Speed of trucks entering or leaving the mine is to be limited to moderate speed of 25 kmph to prevent undue noise from empty trucks.
- xvi. Measures should be taken to comply with the provisions laid under Noise Pollution (Regulation and Control) (Amendment) Rules, 2010, dt: 11.01.2010 issued by the MoE&F, GoI to control noise to the prescribed levels.
- xvii. Suitable conservation measures to augment groundwater resources in the area shall be planned and implemented in consultation with Regional Director, CGWB. Suitable measures should be taken for rainwater harvesting.
- xviii. Permission from the competent authority should be obtained for drawal of ground water, if any, required for this project.
- xix. Topsoil, if any, shall be stacked properly with proper slope with adequate measures and should be used for plantation purpose.
- xx. The following measures are to be adopted to control erosion of dumps:-
 - Retention/ toe walls shall be provided at the foot of the dumps.

MEMBER SECRETARY

R. Gopalakrishnan 196

STATE LEVEL ENVIRONMENT IMPACT ASSESSMENT AUTHORITY
ENVIRONMENTAL CLEARANCE

- Worked out slopes are to be stabilized by planting appropriate shrub/ grass species on the slopes.
- xxi. Waste oils, used oils generated from the EM machines, mining operations, if any, shall be disposed as per the Hazardous Wastes (Management, Handling, and trans boundary movement) Rules, 2008 and its amendments thereof to the recyclers authorized by TNPCB.
- xxii. Concealing the factual data or failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.
- xxiii. Rain water harvesting to collect and utilize the entire water falling in land area should be provided.
- xxiv. Rain water getting accumulated in the quarry floor shall not be discharged directly to the nearby stream or water body. If it is to be let into the nearby water body, it has to be discharged into a silt trap on the surface within the lease area and only the overflow after allowing settling of soil be let into the nearby waterways. The silt trap should be of sufficient dimensions to catch all the silt water being pumped out during one season. The silt trap should be cleaned of all the deposited silt at the end of the season and kept ready for taking care of the silt in the next season.
- xxv. The lease holder shall undertake adequate safeguard measures during extraction of material and ensure that due to this activity, the hydrogeological regime of the surrounding area shall not be affected. Regular monitoring of ground water level and quality shall be carried out around the mine lease area during the mining operation. If at any stage, if it is observed that the groundwater table is getting depleted due to the mining activity; necessary corrective measures shall be carried out. District Collector/mining officer shall ensure this.
- xxvi. No tree-felling shall be done in the leased area, except only with the permission from competent Authority.
- xxvii. It shall be ensured that the total extent of nearby quarries located within 500 meter radius from the periphery of this quarry is not exceeding 25 hectares.
- xxviii. It shall be ensured that there is no habitation is located within 500 meter radius from the periphery of the quarry site.
- xxix. Ground water quality monitoring should be conducted once in 3 Months
- xxx. Transportation of the quarried materials shall not cause any hindrance to the village people/Existing Village road.

MEMBER SECRETARY

STATE LEVEL ENVIRONMENT IMPACT ASSESSMENT AUTHORITY
ENVIRONMENTAL CLEARANCE



xxxv Rainwater shall be pumped out Via Settling Tank only

xxxvi Earthen bunds and barbed wire fencing around the pits with green belt all along the boundary shall be developed and maintained.

4. General Conditions:-

- i. The project proponent shall obtain Consent to Establish and Consent to Operate from the Tamil Nadu Pollution Control Board and effectively implement all the conditions stipulated therein.
- ii. No change in mining technology and scope of working should be made without prior approval of the Ministry of Environment & Forests.
- iii. No change in the calendar plan including excavation, quantum of mineral should be made.
- iv. The project proponent shall ensure that the plan of mining is in conformity with the mine lease conditions and the Rules prescribed in this regard, clearly showing the no work zone in the mine lease i.e. the distance from the bridges structures adjacent private land, streams river lake etc.
- v. The project proponent shall ensure that wherever deployment of labour attracts the Mines Act, the provision insurance thereof shall be strictly followed.
- vi. The project proponent shall ensure that child labour is not employed in the project as per the sworn affidavit furnished.
- vii. The project proponent shall undertake plantation/afforestation work by planting the native species on all side of the lease area and the approach road as per the sworn affidavit furnished.
- viii. The proponent shall maintain the village road through which transportation of mineral is carried out at his own cost. The roads shall be blacktopped to the extent required.
- ix. Quarrying should enrich rather than deplete the biodiversity as a corollary to their intervention in the ecology of their area of activity.
- x. EC is given only on the factual records, documents and the commitment furnished in non judicial stamp paper by the Proponent particularly in respect of
 - Aerial distance of the nearest village is as mentioned in the proposal from the mining site boundary
 - No structure is located within 500 m from the quarry site boundary.
- xi. Periodical medical examination of the workers engaged in the project shall be carried out and records maintained. For the purpose, schedule of health examination of the workers should be drawn and followed accordingly. The workers shall be provided with personnel protective measures such as masks, gloves, boots etc.

MEMBER SECRETARY

STATE LEVEL ENVIRONMENT IMPACT ASSESSMENT AUTHORITY
ENVIRONMENTAL CLEARANCE

- xii. The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry of Environment and Forests and its Regional Office located at Nungambakkam.
- xiii. The Regional Office of the Ministry located at Nungambakkam shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information / monitoring reports.
- xiv. The project proponent shall submit six monthly reports on the status of compliance of the stipulated environmental clearance conditions including results of monitored data (both in hard copies as well as by e-mail) to the Ministry of Environment and Forests, its Regional Office Nungambakkam, the respective Zonal Office of Central Pollution Control Board, SEIAA, TN and the State Pollution Control Board. The proponent shall upload the status of compliance of the environmental clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of the Ministry of Environment and Forests, Nungambakkam, the respective Zonal Office of Central Pollution Control Board and the State Pollution Control Board.
- xv. The environmental statement for each financial year ending 31st March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of environmental clearance conditions and shall also be sent to the Regional Office of the Ministry of Environment and Forests, Nungambakkam by e-mail.
- xvi. Precise mining area will be jointly demarcated at site by officials of Mining / Revenue department prior to mining operations for all proposals under consideration. Such site plan, duly verified by competent authority shall be submitted to Environment Department.
- xvii. All necessary statutory clearances shall be obtained before start of mining operations
- xviii. Mining shall be limited to 7 AM to 5 PM only. The loading shall not be done during night hours.
- xix. Waste water, if any, shall be properly collected and treated so as to conform to the standards prescribed by MoEF/CPCB.
- xx. No wildlife habitat will be infringed.
- xxi. Environmental clearance is subject to obtaining clearance under the Wildlife (Protection) Act 1972 from the competent authority, if applicable.

STATE LEVEL ENVIRONMENT IMPACT ASSESSMENT AUTHORITY
ENVIRONMENTAL CLEARANCE



- xxii. Parking of vehicles should not be made on public places.
- xxiii. Transportation of materials shall be done by covering the trucks / tractors with tarpaulin or other suitable mechanism so that no spillage of mineral/dust takes place. No unloading of trucks shall be allowed.
- xxiv. Any change in mining area, SF numbers, entailing capacity addition with change in process and or mining technology, modernization and scope of working shall again require prior Environmental Clearance as per provisions of EIA Notification, 2006 (as amended from time to time)
- xxv. The Environmental Clearance does not absolve the applicant/proponent of his obligation/requirement to obtain other statutory and administrative clearances from other statutory and administrative authorities.
- xxvi. This Environmental Clearance does not imply that the other statutory / administrative clearances shall be granted to the project by the concerned authorities. Such authorities would be considering the project on merits and be taking decisions independently of the Environmental Clearance.
- xxvii. The SEIAA, TN may alter/modify the above conditions or stipulate any further condition in the interest of environment protection.
- xxviii. The SEIAA, TN may cancel the environmental clearance granted to this project under the provisions of EIA Notification, 2006, if, at any stage of the validity of this environmental clearance, if it is found or if it comes to the knowledge of this SEIAA, TN that the project proponent has deliberately concealed and/or submitted false or misleading information or inadequate data for obtaining the environmental clearance.
- xxix. Failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of the Environment (Protection) Act, 1986.
- xxx. The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, the Public Liability Insurance Act, 1991, along with their amendments, draft Minor Mineral Conservation & Development Rules, 2010 framed under MMDR Act 1957, National Commission for protection of Child Right Rules, 2006 and rules made there under and also any other orders passed by the Hon'ble Supreme Court of India/Hon'ble High Court of Madras and any other Courts of Law relating to the subject matter.

MEMBER SECRETARY

R. G. Gopalakrishnan

STATE LEVEL ENVIRONMENT IMPACT ASSESSMENT AUTHORITY
ENVIRONMENTAL CLEARANCE

- xxxi. Hill area conservation Authority approval where ever necessary shall be obtained before commencing the quarrying operation.
- xxxii. Any other conditions stipulated by other Statutory/Government authorities shall be complied.
- xxxiii. If the periphery of any other quarry (sand, savudu, rough stone, granite etc.,) is located within 500 mts. from the periphery of this site and if the total extent of both the existing quarry and the quarry now cleared for Environmental Clearance exceeds 25 ha. of mining area, then this Environmental Clearance is not valid, since the activity shall become Category 'B1" project under the EIA Notification, 2006.
- xxxiv. In the event of the above condition is applicable, then the proponent concerned, is to file a fresh application under EIA Notification, 2006, seeking Environmental Clearance in respect of the cluster. [A cluster of mines is defined wherein more than one mining site is located within 500 mts., from the periphery of another nearby mining site and the total area of these mining sites exceeds 25 ha. Then a EIA study report along with Public Consultation are necessitated].
- xxxv. As CSR activity the project proponent shall take care of the needs of a nearby Government school by providing essential amenities.
- xxxvi. Any appeal against this environmental clearance shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.


MEMBER SECRETARY
SEIAA-TN

Copy to:

1. The Secretary, Ministry of Mines, Government of India, Shastri Bhawan, New Delhi.
2. The Secretary, Department of Environment and Forests, Government of Tamil Nadu, Tamil Nadu.
3. The Secretary, Department of Mines and Geology, Government of Tamil Nadu, Tamil Nadu.
4. The Additional Principal Chief Conservator of Forests, Regional Office (S2), 34, HEPB Building, 1st & 2nd Floor, Cathedral Garden Road, Nungampakkam, Chennai - 34.
5. The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-Cum-Office Complex, East Arjun Nagar, New Delhi-110 032.
6. The Chairman, Tamil Nadu Pollution Control Board, 76, Mount Salai, Guindy, Chennai-32.
7. The District Collector, Virudhunagar District
8. The Controller of Geology and Mines, Guindy, Chennai-32
9. EI Division, Ministry of Environment & Forests, Paryavaran Bhawan, New Delhi.
10. Spare.

MEMBER SECRETARY



PROCEEDINGS NO.F.0259VDR/RS/DEE/TNPCB/VDR/A/2015 DATED: 27/12/2015

A139

SPECIAL CONDITIONS

1. This consent to operate is valid for operating the facility for the manufacture of products (Col. 2) at the rate (Col. 3) mentioned below. Any change in the products and its quantity has to be brought to the notice of the Board and fresh consent has to be obtained.

Sl. No.	Description	Quantity	Unit
Product Details			
1.	TOP SOIL	14768	CU M (OVER A PERIOD OF 5 YEARS)
2.	ROUGH STONE UPTO A DEPTH OF 12 METRES (Latitude - 09° 17'43" N, Longitude 77°41'46" E)	36420	CU M (OVER A PERIOD OF 5 YEARS)

2. This consent to operate is valid for operating the facility with the below mentioned emission/noise sources along with the control measures and/or stack. Any change in the emission source/control measures/change in stack height has to be brought to the notice of the Board and fresh consent/Amendment has to be obtained.

I Point source emission with stack :				
Stack No.	Point Emission Source	Air pollution Control measures	Stack height from Ground Level in m	Gaseous Discharge in Nm ³ /hr
II Fugitive/Noise emission :				
Sl. No.	Fugitive or Noise Emission sources	Type of emission	Control measures	
1.	MINING OPERATION	Fugitive	Water sprinkler system	

- 3(a). The emission shall not contain constituents in excess of the tolerance limits as laid down hereunder :

Sl.	Parameter	Unit	Tolerance limits	Stacks

Annexure enclosed if applicable. :-

- 3(b) The Ambient Air in the industrial plant area shall not contain constituents in excess of the tolerance limits prescribed below.

Sl. No.	Pollutant	Time Weighted Average	Unit	Tolerance Limits	
				Industrial, Residential, Rural and other area	Ecologically Sensitive Area (notified by Central Govt.)
1.	Sulphur Dioxide (SO ₂)	Annual 24 hours	microgram/m ³ microgram/m ³	50 80	20 80
2.	Nitrogen Dioxide (NO ₂)	Annual 24 hours	microgram/m ³ microgram/m ³	40 80	30 80
3.	Particulate Matter (Size Less than 10 micro M) or PM ₁₀	Annual 24 hours	microgram/m ³ microgram/m ³	60 100	60 100
4.	Particulate Matter (Size Less than 2.5 micro M) or PM _{2.5}	Annual 24 hours	microgram/m ³ microgram/m ³	40 60	40 60
5.	Ozone (O ₃)	Annual 24 hours	8 Hours 1 Hour	100 180	100 180

203

Sl. No.	Pollutant	Time Weighted Average	Unit	Tolerance Limits	
				Industrial, Residential, Rural and other area	Ecologically Sensitive Area (notified by Central Govt.)
6.	Lead (Pb)	Annual 24 hours	microgram/m ³ microgram/m ³	0.5 1.0	0.5 1.0
7.	Carbon Monoxide (CO)	8 Hours 1 Hour	miligram/m ³ miligram/m ³	02 04	02 04
8.	Ammonia (NH ₃)	Annual 24 hours	microgram/m ³ microgram/m ³	100 400	100 400
9.	Benzene (C ₆ H ₆)	Annual	microgram/m ³	5	5
10.	Benzo(O) Pyrene (BaP) -particulate phase only	Annual	nanogram/m ³	01	01
11.	Arsenic (As)	Annual	nanogram/m ³	06	06
12.	Nickel (Ni)	Annual	nanogram/m ³	20	20

3(c) The Ambient Noise Level in the industrial plant area shall not exceed the limits prescribed below:

Limits in L.eq.-dB(A)	Day Time	Night Time
Residential Area	55	45

- All units of the Air pollution control measures shall be operated efficiently and continuously so as to achieve the standards prescribed in Sl. No.3 above.
- The occupier shall not change or alter quality or quantity or the rate of emission or replace or alter the air pollution control equipment or change the raw material or manufacturing process resulting in change in quality and/or quantity of emissions without the previous written permission of the Board.
- The occupier shall maintain log book regarding the stack monitoring system or operation of the plant or any other particulars for each of the unit operations of air pollution control systems to reflect the working condition which shall be furnished for verification of the Board officials during inspection.
- The occupier shall at his own cost get the samples of emission/air/noise levels collected and analyzed by the TNPC Board Laboratory once in every 6 months/once in a year/periodically for the parameters as prescribed.
- Any upset condition in any of the plants of the factory which is likely to result in increased emissions and result in violation of the standards mentioned in Sl.No.3 shall be reported to the Member Secretary / Joint Chief Environmental Engineer-Monitoring and the concerned District/Assistant Environmental Engineer of the Board by e-mail immediately and subsequently by Post with full details of such upset condition.
- The occupier shall always comply and carryout the order/directions issued by the Board in this Consent Order and from time to time without any negligence. The occupier shall be liable for action as per provisions of the Act in case of non compliance of any order/directions issued.

Additional Conditions:

- The operation of the unit shall not invite any complaint.
- The unit shall operate and maintain the control measures provided to mitigate the dust emission and shall adhere to AAQ standards prescribed by the Board.
- The unit shall develop adequate width of Greenbelt along the periphery.
- The unit shall comply with the conditions stipulated in Environmental Clearance issued by SEIAA-TN/F NO-05210/EC/1(a)/1800/2014 dtd 27/03/2015.

District Environmental Engineer,
Tamil Nadu Pollution Control Board,
VIRUDHUNAGAR

- District Environmental Engineer,
Tamilnadu Pollution Control Board,
VTRUDHUNAGAR**

205



TAMILNADU POLLUTION CONTROL BOARD

CONSENT ORDER NO. 150412576502

DATED: 27/12/2015.

PROCEEDINGS NO.F.0259VDR/RS/DEE/TNPCB/VDR/W/2015 DATED: 27/12/2015

SUB: Tamil Nadu Pollution Control Board -CONSENT TO OPERATE -After CTE -M/s. R.GOPALAKRISHNAN STONE QUARRY , S.F.No. 199/6A, APPAYANAICKANPATTI village Sivakasi Taluk and Virudhunagar District - Consent for the operation of the plant and discharge of sewage and/or trade effluent under Section 25 of the Water (Prevention and Control of Pollution) Act, 1974 as amended in 1988 (Central Act 6 of 1974) - Issued- Reg.

REF: 1. APPLICATION NO-2576502 DTD 16/10/2015
2. CTE Proceeding No-F0259VDR/RS/DEE/TNPCB/VDR/W&A/2015 DTD 18/09/2015
3. IR NO-F0259VDR/R/S/AEE/VDR/2015 DTD 23/12/2015
4. Minutes of the 34 th DCCC Meeting dated 23/12/2015 (Item No-34-13)

CONSENT TO OPERATE is hereby granted under Section 25 of the Water (Prevention and Control of Pollution) Act, 1974 as amended in 1988 (Central Act, 6 of 1974) (hereinafter referred to as "The Act") and the rules and orders made there under to

The Proprietor,
M/s. R.GOPALAKRISHNAN STONE QUARRY
S.F No.199/6A,
APPAYANAICKANPATTI Village,
Sivakasi Taluk,
Virudhunagar District.

Authorising the occupier to make discharge of sewage and /or trade effluent.

This is subject to the provisions of the Act, the rules and the orders made there under and the terms and conditions incorporated under the Special and General conditions stipulated in the Consent Order issued earlier and subject to the special conditions annexed.

This CONSENT is valid for the period ending March 31, 2016

District Environmental Engineer,
Tamilnadu Pollution Control Board,
VIRUDHUNAGAR

To

The Proprietor,
M/s.R.GOPALAKRISHNAN STONE QUARRY,
199/6A, APPAYANAICKANPATTI VILLAGE, SIVAKASI TALUK,
Pin: 626204

Copy to:

- 1.The Commissioner, VEMBAKKOTTAL Panchayat Union, Sivakasi Taluk, Virudhunagar District .
2. Copy submitted to the Member Secretary, Tamil Nadu Pollution Control Board, Chennai for favour of kind information.
3. Copy submitted to the JCEE-Monitoring, Tamil Nadu Pollution Control Board, Madurai for favour of kind information.
4. File

206
A143

SPECIAL CONDITIONS

1. This consent to operate is valid for operating the facility for the manufacture of products (Col. 2) at the rate (Col. 3) mentioned below. Any change in the products and its quantity has to be brought to the notice of the Board and fresh consent has to be obtained.

Sl. No.	Description	Quantity	Unit
Product Details			
1.	TOP SOIL	14768	CU M (OVER A PERIOD OF 5 YEARS)
2.	ROUGH STONE UPTO A DEPTH OF 12 METRES (Latitude - 09° 17'43" N, Longitude 77°41'46" E)	36420	CU M (OVER A PERIOD OF 5 YEARS)

2. This consent to operate is valid for operating the facility with the below mentioned permitted outlets for the discharge of sewage/trade effluent. Any change in the outlets and the quantity has to be brought to the notice of the Board and fresh consent has to be obtained.

Outlet No.	Description of Outlet	Maximum daily discharge in KLD	Point of disposal
Effluent Type : Sewage			
1.	SEPTIC TANK WITH DISPERSION TRENCH	0.05	On Industrys own land
Effluent Type : Trade Effluent			

3. The effluent discharge shall not contain constituents in excess of the tolerance Limits as laid down hereunder.

207

Sl. No.	Parameters	Unit	TOLERANCE LIMITS - OUTLETS			
			Sewage	Trade Effluent		
			01			
1.	Temperature	oC	-			
2.	Total Suspended Solids	mg/l	30			
3.	Total Dissolved solids (inorganic)	mg/l	-			
4.	Oil & Grease	mg/l	-			
5.	Biochemical Oxygen Demand (3 days at 27oC)	mg/l	20			
6.	pH	-	5.5 to 9			
7.	Particle size of Suspended solids	-	-			
8.	Chemical Oxygen Demand	mg/l	-			
9.	Chloride (as Cl)	mg/l	-			
10.	Sulphates (as SO ₄)	mg/l	-			
11.	Total Residual Chlorine	mg/l	-			
12.	Ammonical Nitrogen (as N)	mg/l	-			
13.	Total Kjeldahl Nitrogen (as N)	mg/l	-			
14.	Free Ammonia (as NH ₃)	mg/l	-			
15.	Arsenic (as As)	mg/l	-			
16.	Mercury (as Hg)	mg/l	-			
17.	Lead (as Pb)	mg/l	-			
18.	Cadmium(as Cd)	mg/l	-			
19.	Hexavalent Chromium (as Cr+6)	mg/l	-			
20.	Total Chromium (as Cr)	mg/l	-			
21.	Copper (as Cu)	mg/l	-			
22.	Zinc (as Zn)	mg/l	-			
23.	Selenium (as Se)	mg/l	-			
24.	Nickel (as Ni)	mg/l	-			
25.	Boron (as B)	mg/l	-			
26.	Percent Sodium	%	-			
27.	Cyanide (as CN)	mg/l	-			
28.	Fluoride (as F)	mg/l	-			
29.	Residual Sodium Carbonate	mg/l	-			
30.	Dissolved Phosphates(as P)	mg/l	-			
31.	Radioactive materials b). Beta emitters	micro curie/ml	-			
32.	Sulphide (as S)	mg/l	-			
33.	Radioactive materials a) Alpha emitters	micro curie/ml	-			
34.	Pesticides	mg/l	-			
35.	Phenolic Compounds (as C ₆ H ₅ OH)	mg/l	-			

4. All units of the sewage and Trade effluent treatment plants shall be operated efficiently and continuously so as to achieve the standards prescribed in Sl No.3 above or to achieve the zero liquid discharge of effluent as applicable.
5. The occupier shall maintain the Electro Magnetic Flow Meters/water Meters installed at the inlet of the water supply connection for each of the purposes mentioned below for assessing the quantity of water used and ensuring that such meters are easily accessible for inspection and maintenance and for other purposes of the Act.
 - a. Industrial Cooling, Spraying in mine pits or boiler feed.
 - b. Domestic purpose.
 - c. Process.

6. The occupier shall maintain the Electro Magnetic Flow Meters with computer recording arrangement for measuring the quantity of effluent generated and treated for the monitoring purposes of the Act.
7. Log book for each of the unit operations of ETP have to be maintained to reflect the working condition of ETP along with the readings of the Electro Magnetic Flow Meters installed to assess effluent quantity and the same shall be furnished for verification of the Board officials during inspection.
8. The occupier shall at his own cost get the samples of effluent/surface water/ground water collected in and around the unit by Board officials and analyzed by the TNPC Board Laboratory periodically.
9. Any upset condition in any of the plants of the factory which is, likely to result in increased effluent discharge and result in violation of the standards mentioned in Sl. No.3 above shall be reported to the Member Secretary / Joint Chief Environmental Engineer-Monitoring and the concerned District/Assistant Environmental Engineer of the Board by e-mail immediately and subsequently by Post with full details of such upset condition.
10. The occupier shall always comply and carryout the order/directions issued by the Board in this Consent Order and from time to time without any negligence. The occupier shall be liable for action as per provisions of the Act in case of non compliance of any order/directions issued.
11. The occupier shall develop adequate width of green belt at the rate of 400 numbers of trees per Hectare.
12. The occupier shall provide and maintain rain water harvesting facilities.
13. The occupier shall ensure that there shall not be any discharge of effluent either treated or untreated into storm water drain at any point of time.
14. In the case of zero liquid discharge of effluent units, the occupier shall adhere the following conditions as laid under.
 - i). The occupier shall ensure zero liquid discharge of effluent, thereby no discharge of untreated / treated effluent on land or into any water bodies either inside or outside the premises at any point of time.
 - ii) The occupier shall operate and maintain the Zero liquid discharge treatment components comprising of Primary, Secondary and tertiary treatment systems at all times and ensure that the RO permeate/Evaporator condensate shall be recycled in the process and the final RO reject shall be disposed off with the reject management system ensuring zero liquid discharge of effluents in the premises.
 - iii) The occupier shall operate and maintain the reject management system effectively and recover the salt from the system which shall be reused in the process if reusable or shall be disposed off as ETP sludge.
 - iv) In case of failure to achieve zero discharge of effluents for any reason, the occupier shall stop its production and operations forthwith and shall be reported to the Member Secretary/Joint Chief Environmental Engineer-Monitoring and the concerned District/Assistant Environmental Engineer of the Board by e-mail immediately and subsequently by Post with full details of such upset condition.
 - v) The occupier shall restart the production only after ascertaining that the Zero discharge treatment system can perform effectively for achieving zero discharge of effluents.

Additional Conditions:

1. The unit shall comply with the conditions stipulated in Environmental Clearance issued by SEIAA-TN/F NO-05210/EC/1(a)/1800/2014 dtd 27/03/2015.
2. The operation of the unit shall not invite any complaint.
3. The unit shall not generate trade effluent from its manufacturing activity.
4. The unit shall develop adequate width of Greenbelt along the periphery

**District Environmental Engineer,
Tamil Nadu Pollution Control Board,
VIRUDHUNAGAR**

GENERAL CONDITIONS

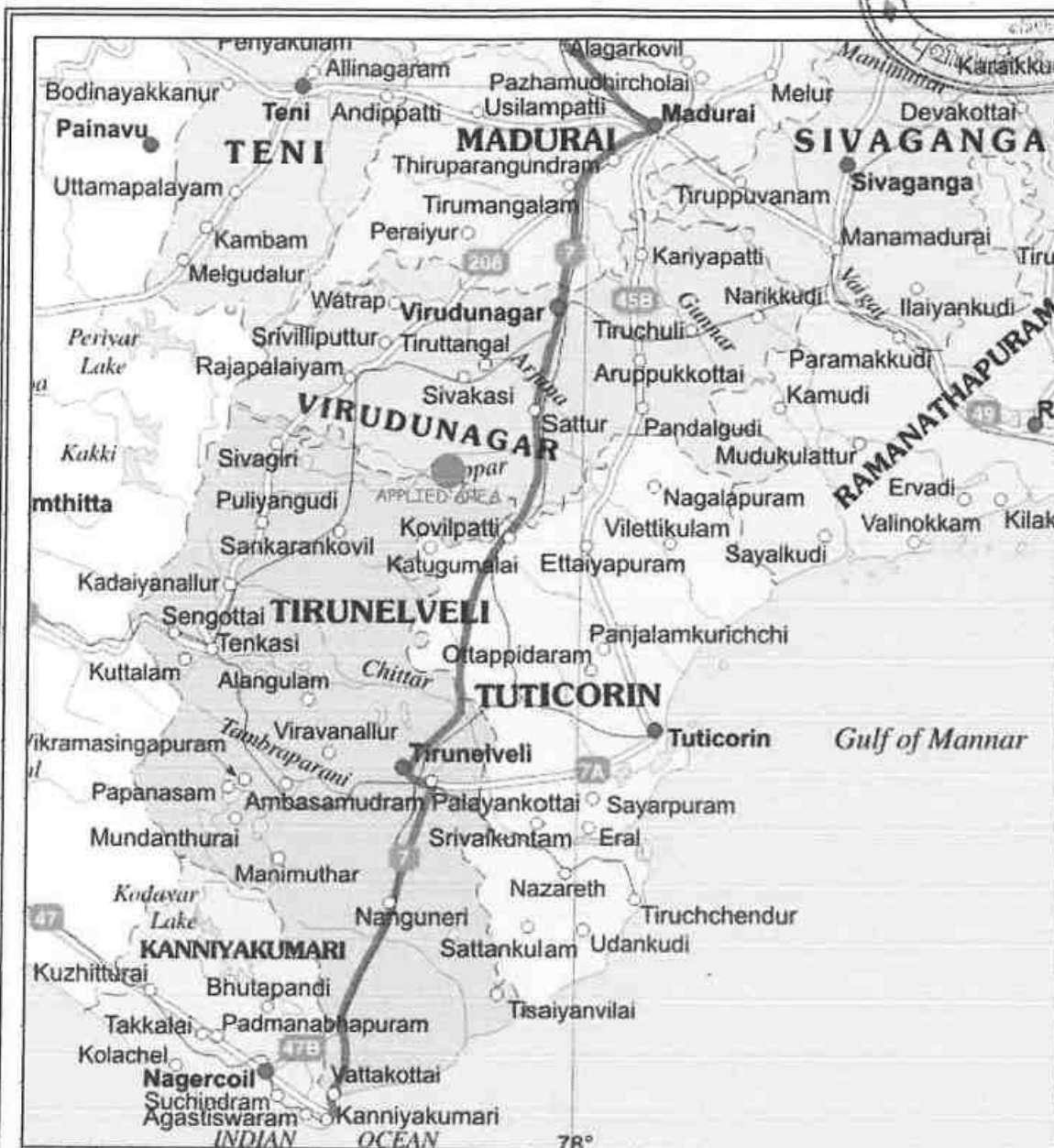


1. The occupier shall make an application along with the prescribed consent fee for grant of renewal of consent at least 60 days before the date of expiry of this Consent Order along with all the required particulars ensuring that there is no change in Production quantity and change in sewage/Trade effluent.
2. This Consent is issued by the Board in consideration of the particulars given in the application. Any change or alteration or deviation made in actual practice from the particulars furnished in the application will also be ground for review/variation/revocation of the Consent Order under Section 27 of the Act and to make such variation as deemed fit for the purpose of the Act.
3. The consent conditions imposed in this order shall continue in force until revoked under Section 27(2) of the Act.
4. After the issue of this order, all the 'Consent to Operate' orders issued previously under Water (Prevention and Control of Pollution) Act, 1974 as amended stands defunct.
5. The occupier shall maintain an Inspection Register in the factory so that the inspecting officer shall record the details of the observations and instructions issued to the unit at the time of inspection for adherence.
6. The occupier shall provide and maintain an alternate power supply along with separate energy meter for the Effluent Treatment Plant sufficient to ensure continuous operation of all pollution control equipments to maintain compliance.
7. The occupier shall provide all facilities to the Board officials for inspection and collection of samples in and around the factory at any time.
8. The occupier shall display the flow diagram of the sources of effluent generation and pollution control systems provided at the ETP site.
9. The solid waste such as sweepings, wastage, package, empty containers, residues, sludge including that from air pollution control equipments collected within the premises of the industrial plant shall be collected in an earmarked area and shall be disposed off properly.
10. The occupier shall collect, treat the solid wastes like food waste, green waste generated from the canteen and convert into organic compost.
11. The occupier shall segregate the Hazardous waste from other solid wastes and comply in accordance with Hazardous Wastes (Management, Handling and Transboundary Movement) Rules, 2008.
12. The occupier shall maintain good house-keeping within the factory premises.
13. All pipes, valves, sewers and drains shall be leak proof. Floor washings shall be admitted into the trade effluent collection system only and shall not be allowed to find their way in storm drains or open areas.
14. The occupier shall ensure that there shall not be any diversion or by-pass of trade effluent on land or into any water sources.
15. The occupier shall ensure that solar Evaporation pans shall be constructed in such a way that the bottom of the solar pan is at least 1 m above the Ground level (if applicable).
16. The occupier shall furnish the following returns in the prescribed formats to the concerned District office regularly.
 - a) Monthly water consumption returns of each of the purposes with water meter readings in Form-I on or before 5th of every month.
 - b) Yearly return on Hazardous wastes generated and accumulated for the period from 1st April to 31st March in Form-4 before the end of the subsequent 30th June of every year (if applicable).
 - c) Yearly Environmental Statement for the period from 1st April to 31st March in Form -V before the end of the subsequent 30th September of every year(if applicable).
17. If applicable, the occupier has to comply with the provisions of Public Liability Insurance Act, 1994 to provide immediate relief in the event of any hazard to human beings, other living creatures/plants and properties while handling and storage of hazardous substances.
18. The issuance of this consent does not authorize or approve the construction of any physical structures or facilities or the undertaking of any work in any natural watercourse or in Government Poramboke lands.
19. The issuance of this Consent does not convey any property right in either real personal property or any exclusive privileges, nor does it authorize any injury to private property or Government property or any invasion of personal rights nor any infringement of Central, State laws or regulation.
20. The occupier shall forth with keep the Board informed of any accident of unforeseen act or event of any poisonous, noxious or polluting matter or emissions are being discharged into stream or well or air as a result of such discharge, water or air is being polluted.
21. If due to any technological improvements or otherwise the Board is of opinion that all or any of the conditions referred to above requires variation (including the change of any treatment system, either in whole or in part) the Board shall, after giving the applicant an opportunity of being heard, vary all or any of such conditions and thereupon the applicant shall be bound to comply with the conditions as so varied.

22. In case there is any change in the constitution of the management, the occupier of the new management shall file fresh application under Water (Prevention and Control of Pollution) Act, 1974, as amended in Form-II alongwith relevant documents of change of management immediately and get the necessary amendment with renewal of consent order.
23. In case there is any change in the name of the company alone, the occupier shall inform the same with relevant documents immediately and get the necessary amendments for the change of name from the Board.
24. The occupier shall display this consent order granted to him in a prominent place for perusal of the inspecting Officers of this Board.

**District Environmental Engineer,
Tamil Nadu Pollution Control Board,
VIRUDHUNAGAR**

**** This consent order is computer generated by OCMMS of TNPCB and no signature is needed****



NAME OF THE APPLICANT:

R. GOPALAKRISHNAN, S/O. RAMASAMY,
70/1E, KARPAGAM NAGAR,
THIRUMANGALAM TOWN & TALUK,
MADURAI DISTRICT.

PLATE NO. 1

ROUGH STONE / JELLY / GRAVEL QUARRY

LOCATION PLAN

SCALE:- 1CM = 12.5KMS

INDEX:-

MINING LEASE APPLIED AREA

● State capital	Golden Quadrilateral
◆ District headquarters	North-South & East-West Corridors
○ Other town	National Highway
45 National Highway number	Railway

PREPARED BY:-

M. Dharmalingam

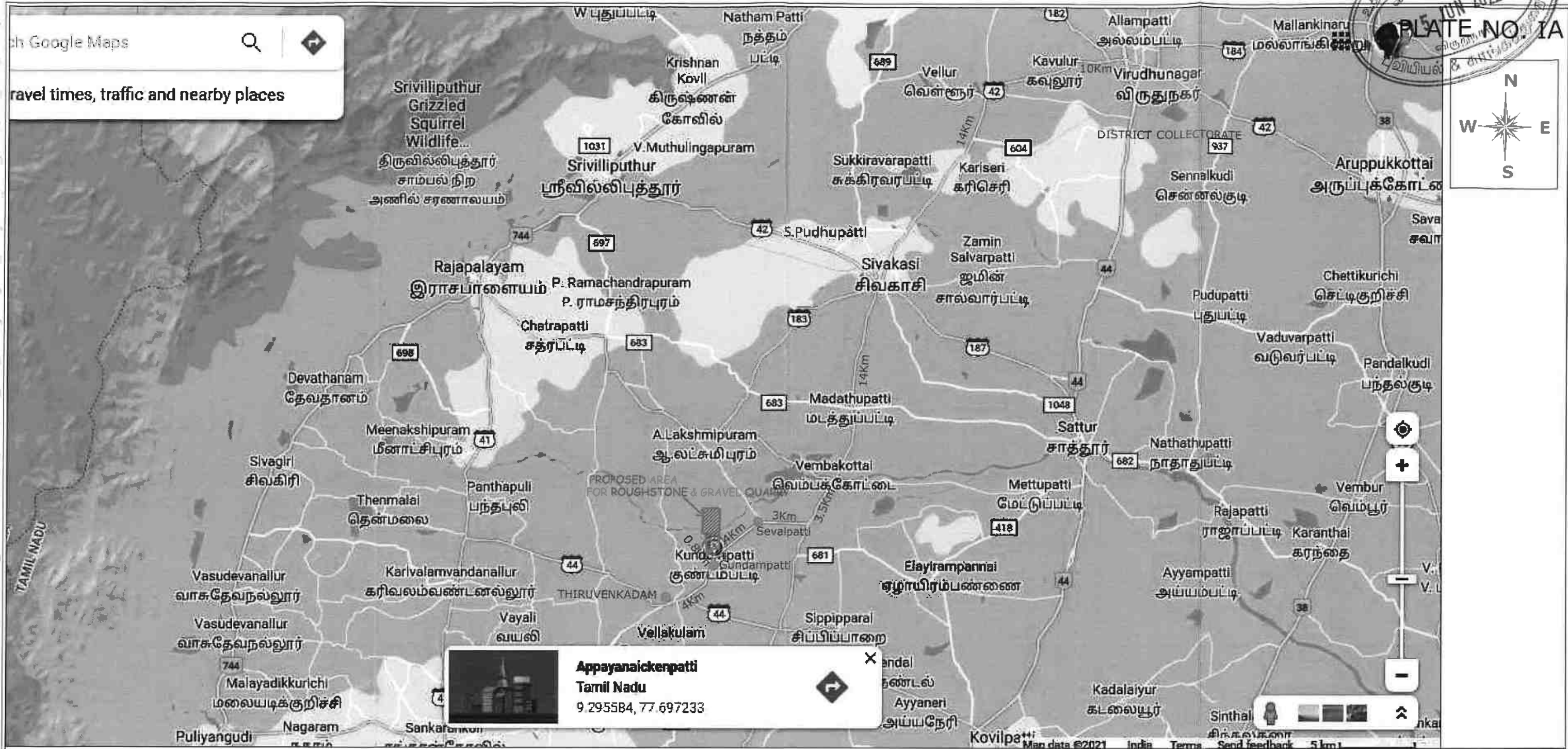
M. DHARMALINGAM

M.Sc.(Geol.) FCC (Mining)

Recognised Qualified Person

RQP / MAS / 260 / 2014 / A

Valid up to: 13-11-2024



NAME OF THE APPLICANT:

R. GOPALAKRISHNAN, S/O. RAMASAMY,
70/1E, KARPAGAM NAGAR,
THIRUMANGALAM TOWN & TALUK,
MADURAI DISTRICT.

LOCATION:-

DISTRICT : VIRUDHUNAGAR
TALUK : VEMBAKOTTAI
VILLAGE : APPAYANAICKENPATTI
S.F.No : 199/6A
EXTENT : 1-08.00 HECTARE.

INDEX:-

APPLIED AREA FOR ROUGHSTONE
& GRAVEL QUARRY
APPROACH ROAD
VILLAGE

ROUGHSTONE/JELLY/GRAVEL QUARRY

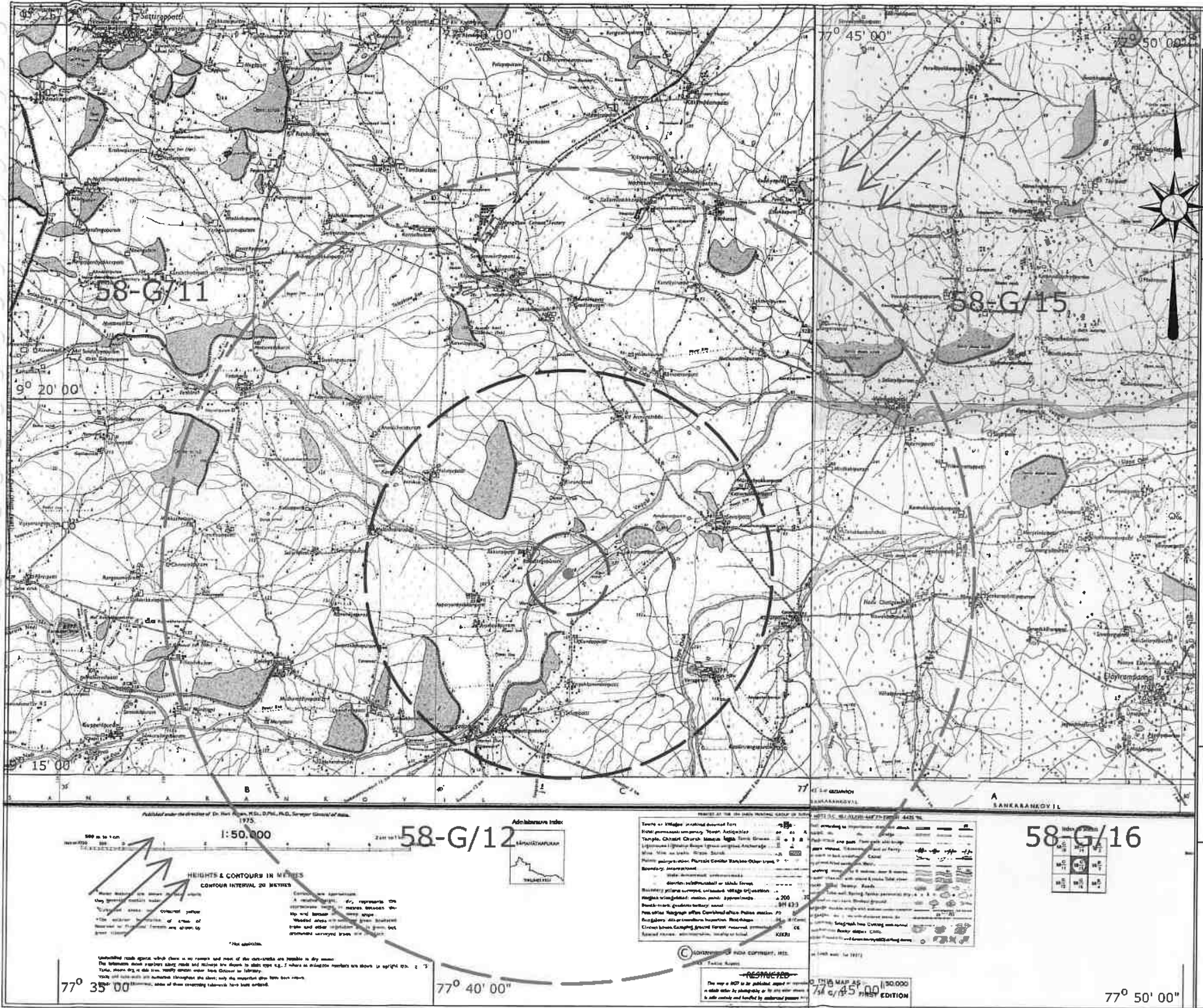
ROUTE MAP

SCALE:- NOT TO SCALE

PREPARED BY:-

M. Dharmalingam

M. DHARMALINGAM
M.Sc.(Geol.) FCC (Mining)
Recognised Qualified Person
RQP/MAS/260/2014/A
Valid up to: 13-11-2024



NAME OF THE APPLICANT:

R. GOPALAKRISHNAN, S/O. RAMASAMY,
70/1E, KARPAGAM NAGAR,
THIRUMANGALAM TOWN & TALUK,
MADURAI DISTRICT.

TOPO SHEET No.58-G/11

LATITUDE : 9° 17' 41.8" To 9° 17' 46.8"
LONGITUDE : 77° 41' 46.6" To 77° 41' 44.4"

INDEX:- MINING LEASE APPLIED AREA

WIND DIRECTION

1KM RADIUS

5KM RADIUS

10KM RADIUS

CONVENTIONAL SYMBOLS

Express highway with toll: with bridge: with distance stone			
Roads, metalled: according to importance			
Roads, double cartway: according to importance			
Unmetalled road: Cart-track: Pack-track with pass: Foot-path			
Streams with track in bed, undefined: Canal			
Dams: masonry or rock-filled: earthwork: Weir			
River: dry with water channel: with island & rocks: Tidal river			
Submerged rocks: Shoal: Swamp: Reeds			
Wells: lined: unlined: Tube-well: Spring: Tanks: perennial: dry			
Embankments: road or rail: tank: Broken ground			
Railways: broad gauge: double: single with station: under canopy			
Railways: other gauges: double: single with distance stone: do			
Mineral line or tramway: Kin: Cutting with tunnel			
Contours with sub-features: Rocky slopes: Gullies			
Sand features (1)flat: (2)sand-hills(permanent): (3)dunes(shifting)			
Towns or Villages: inhabited: deserted: Fort			

ROUGHSTONE/JELLY/GRAVEL QUARRY
TOPO SKETCH - 10KM RADIUS

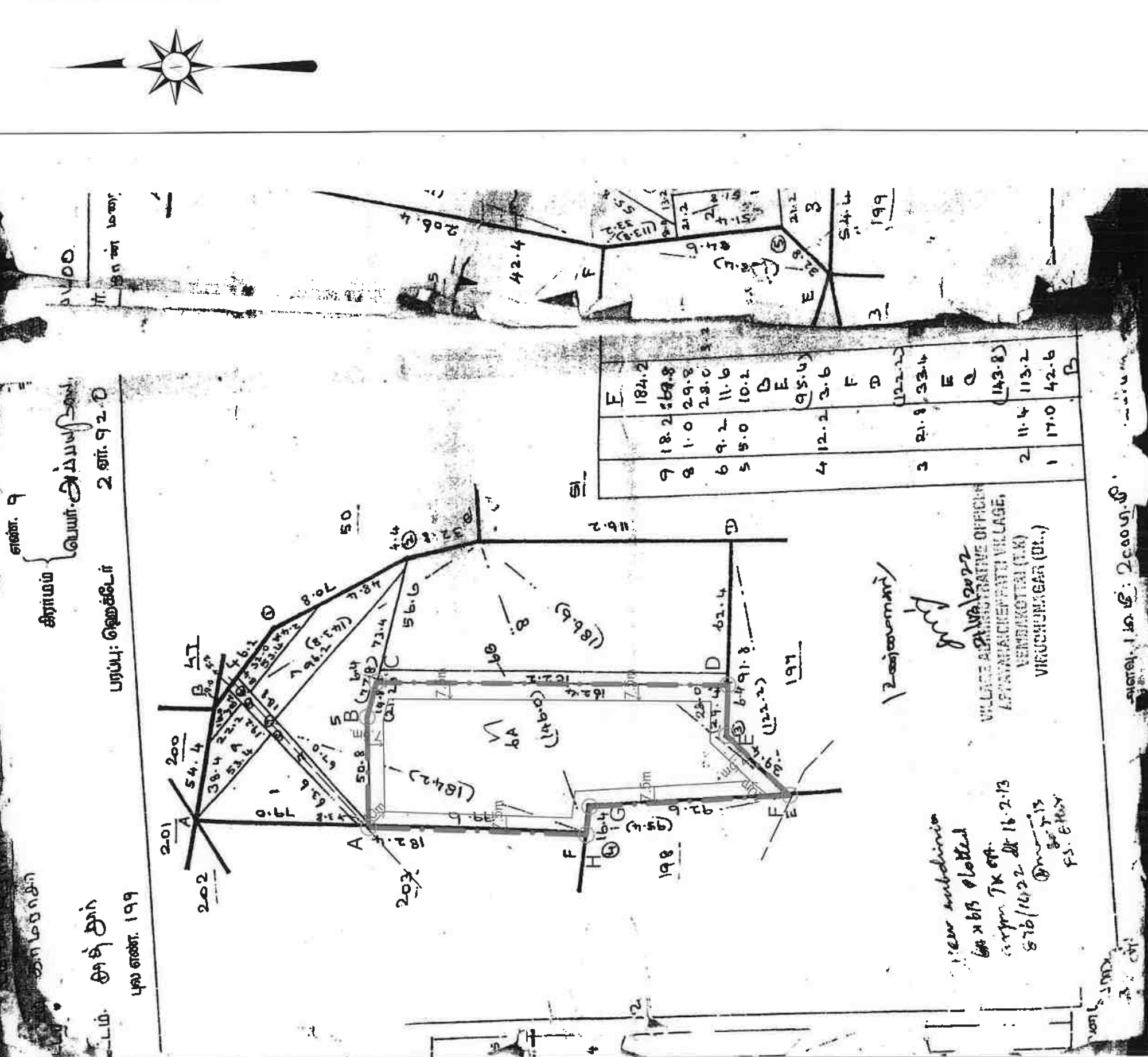
SCALE:- 1: 1,00,000

PREPARED BY:-

M. Dharmalingam

M. DHARMALINGAM
M.Sc.,(Geol.) FCC (Mining)
Recognised Qualified Person
RQP / MAS / 260 / 2014 / A
Valid up to: 13-11-2024

R. Gopalakrishnan
214



NAME OF THE APPLICANT: R. GOPALAKRISHNAN, S/O. RAMASAMY, 70/1E, KARPAGAM NAGAR, THIRUMANGALAM TOWN & TALUK, MADURAI DISTRICT.		INDEX:- LEASE APPLIED BOUNDARY SAFETY DISTANCE 7.5M & 10M from northwest and south side cartrack BOUNDARY PILLARS CART TRACK																												
DISTRICT : VIRUDHUNAGAR TALUK : VEMBAKOTTAI VILLAGE : APPAYANAICKENPATTI S.F.No : 199/6A EXTENT : 1-08.00 HECTARE.		ROUGHSTONE/JELLY/GRAVEL QUARRY FMB PLAN SCALE:- 1: 2000																												
ALL PLANS AND SECTIONS ARE PREPARED BASED ON THE LEASE MAP AUTHENTICATED BY STATE GOVERNMENT.																														
DETAILS OF BOUNDARY PILLARS <table border="1"> <thead> <tr> <th>PILLAR</th> <th>LATITUDE</th> <th>LONGITUDE</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>9° 17' 46.8"</td> <td>77° 41' 44.4"</td> </tr> <tr> <td>B</td> <td>9° 17' 46.8"</td> <td>77° 41' 45.9"</td> </tr> <tr> <td>C</td> <td>9° 17' 46.7"</td> <td>77° 41' 46.5"</td> </tr> <tr> <td>D</td> <td>9° 17' 41.8"</td> <td>77° 41' 46.6"</td> </tr> <tr> <td>E</td> <td>9° 17' 41.8"</td> <td>77° 41' 45.7"</td> </tr> <tr> <td>F</td> <td>9° 17' 41.0"</td> <td>77° 41' 44.8"</td> </tr> <tr> <td>G</td> <td>9° 17' 43.4"</td> <td>77° 41' 44.5"</td> </tr> <tr> <td>H</td> <td>9° 17' 43.6"</td> <td>77° 41' 44.0"</td> </tr> </tbody> </table>				PILLAR	LATITUDE	LONGITUDE	A	9° 17' 46.8"	77° 41' 44.4"	B	9° 17' 46.8"	77° 41' 45.9"	C	9° 17' 46.7"	77° 41' 46.5"	D	9° 17' 41.8"	77° 41' 46.6"	E	9° 17' 41.8"	77° 41' 45.7"	F	9° 17' 41.0"	77° 41' 44.8"	G	9° 17' 43.4"	77° 41' 44.5"	H	9° 17' 43.6"	77° 41' 44.0"
PILLAR	LATITUDE	LONGITUDE																												
A	9° 17' 46.8"	77° 41' 44.4"																												
B	9° 17' 46.8"	77° 41' 45.9"																												
C	9° 17' 46.7"	77° 41' 46.5"																												
D	9° 17' 41.8"	77° 41' 46.6"																												
E	9° 17' 41.8"	77° 41' 45.7"																												
F	9° 17' 41.0"	77° 41' 44.8"																												
G	9° 17' 43.4"	77° 41' 44.5"																												
H	9° 17' 43.6"	77° 41' 44.0"																												



R. gopalakrishnan

NAME OF THE APPLICANT:

R. GOPALAKRISHNAN, S/O. RAMASAMY,
70/1E, KARPAGAM NAGAR,
THIRUMANGALAM TOWN & TALUK,
MADURAI DISTRICT.

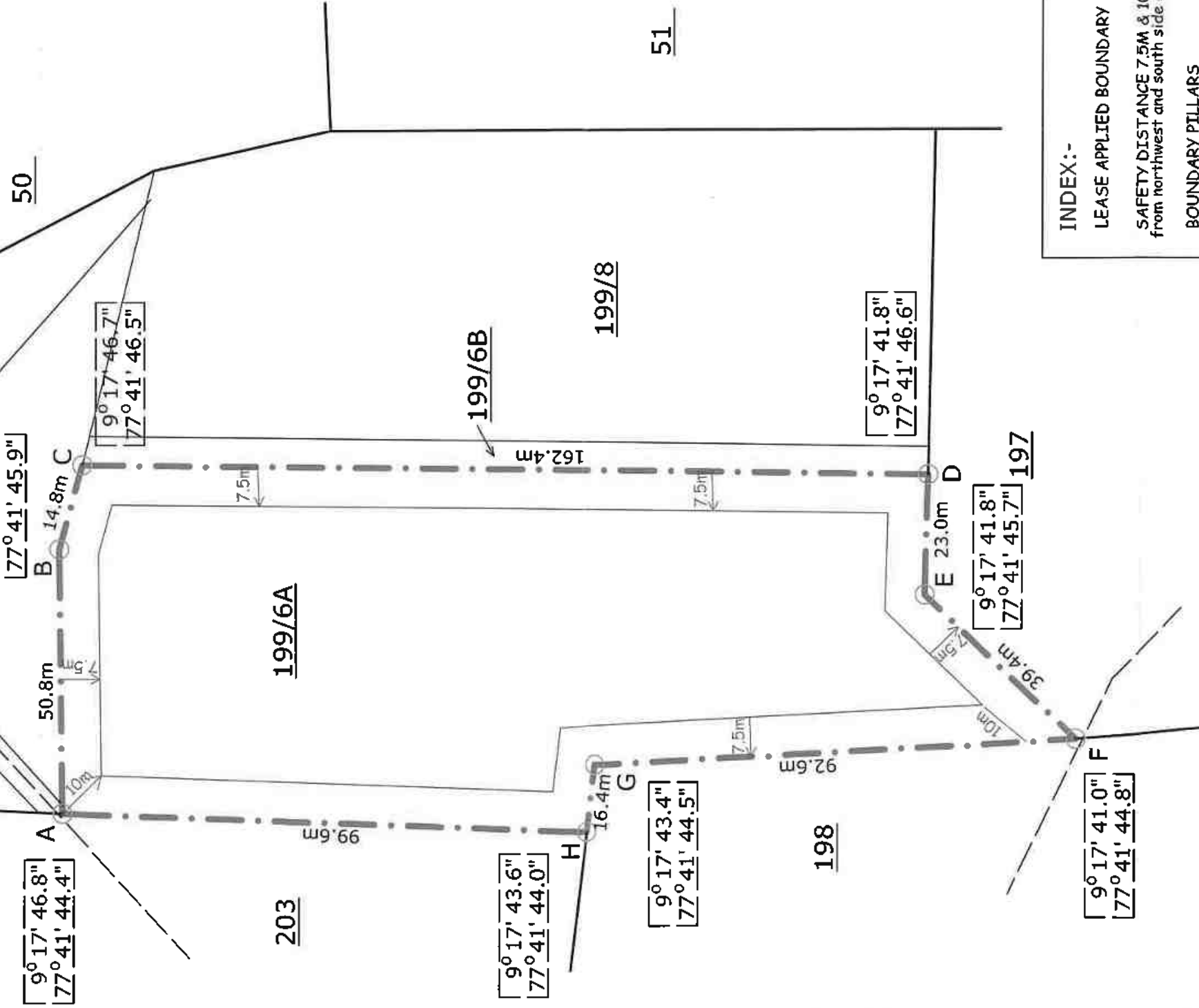
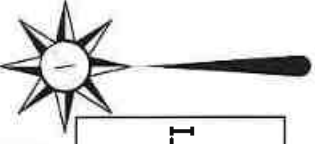
DISTRICT : VIRUDHUNAGAR

TALUK : VEMBAKOTTAI

VILLAGE : APPAYANAICKENPATTI

S.F.No : 199/6A

EXTENT : 1-08.00 HECTARE.



INDEX:-

LEASE APPLIED BOUNDARY

SAFETY DISTANCE 7.5M & 10M
from northwest and south side cart track

BOUNDARY PILLARS

CART TRACK

DETAILS OF BOUNDARY PILLARS

PILLAR	LATITUDE	LONGITUDE
A	9° 17' 46.8"	77° 41' 44.4"
B	9° 17' 46.8"	77° 41' 45.9"
C	9° 17' 46.7"	77° 41' 46.5"
D	9° 17' 41.8"	77° 41' 46.6"
E	9° 17' 41.8"	77° 41' 45.7"
F	9° 17' 41.0"	77° 41' 44.8"
G	9° 17' 43.4"	77° 41' 44.5"
H	9° 17' 43.6"	77° 41' 44.0"

ROUGHSTONE/JELLY/GRAVEL QUARRY

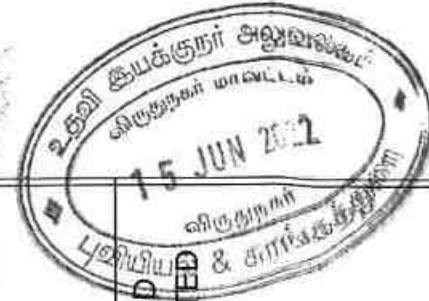
LEASE PLAN

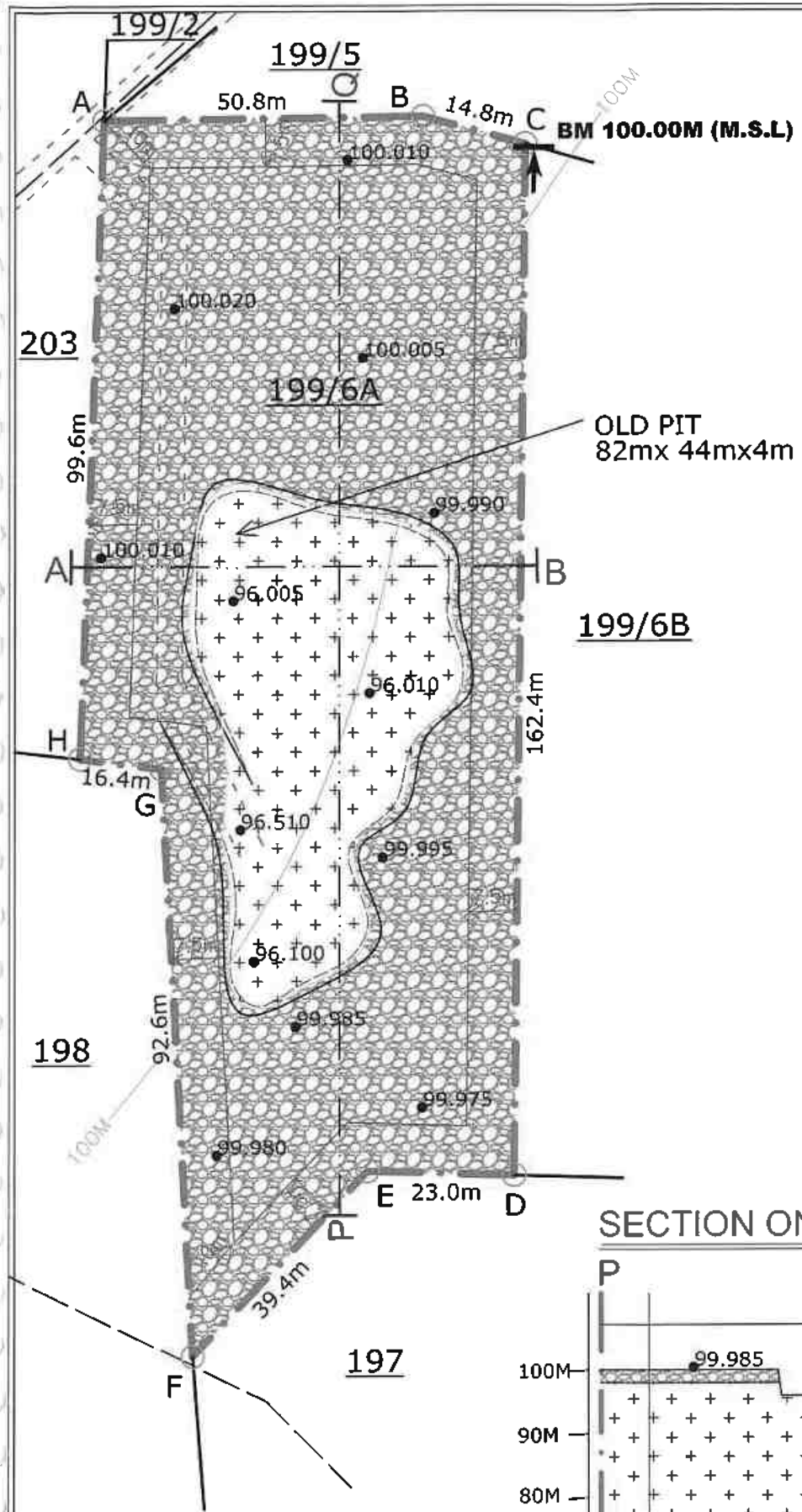
SCALE:- 1: 2000

ALL PLANS AND SECTIONS ARE PREPARED
BASED ON THE LEASE MAP AUTHENTICATED
BY STATE GOVERNMENT.

M. Dharmalingam

M. DHARMALINGAM
M.Sc.(Geol.) FCC (Mining)
Recognised Qualified Person
RQP / MAS / 260 / 2014 / A





OLD PIT SIZE		
LENGTH[M]	WIDTH[M]	DEPTH[M]
82	44	4.0

GEOLOGICAL RESERVES					
MINERAL	SECTION	LENGTH [M]	WIDTH [M]	HEIGHT [M]	VOLUME IN CUM
GRAVEL	PQ & AB	164	66	2.0	21648
ROUGH STONE	PQ & AB	164	66	23.0	248952
TOTAL VOLUME IN CU.M.					2,70,600
DEDUCT OLD PIT = 82x44x4m					-14,432
TOTAL GEOLOGICAL RESERVES					2,56,168 Cu.m.



NAME OF THE APPLICANT:

R. GOPALAKRISHNAN, S/O. RAMASAMY,
70/1E, KARPAGAM NAGAR,
THIRUMANGALAM TOWN & TALUK,
MADURAI DISTRICT.

INDEX:-

LEASE APPLIED BOUNDARY	
SAFETY DISTANCE 7.5M & 10M from northwest and south side carttrack	
BOUNDARY PILLARS	
CONTOURS	
BENCH MARK (M.S.L)	
EXISTING PIT	
APPROACH ROAD	
WEATHERED ROCK (GRAVEL)	
CHARNOKITE (ROUGH STONE)	

ROUGH STONE / JELLY / GRAVEL QUARRY

SURFACE CUM GEOLOGICAL PLAN & SECTIONS

PLAN SCALE:- 1: 1000

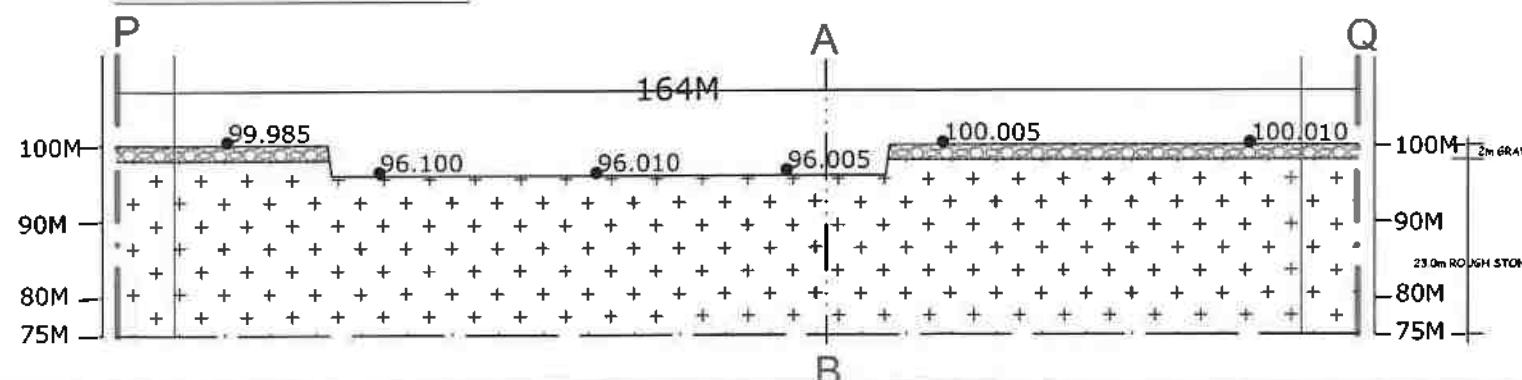
SECTION SCALE:- HOR- 1: 1000, VER- 1:1000

ALL PLANS AND SECTIONS ARE PREPARED
BASED ON THE LEASE MAP AUTHENTICATED
BY STATE GOVERNMENT.

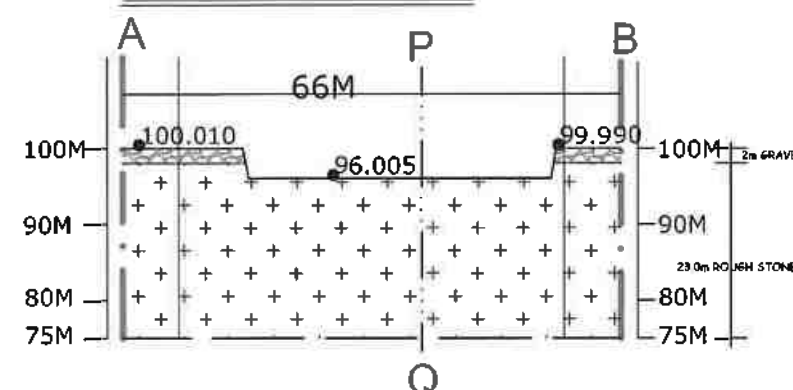
M. Dharmalingam

M. DHARMALINGAM
M.Sc.(Geol.) FCC (Mining)
Recognised Qualified Person
RQP / MAS / 260 / 2014 / A
Valid up to: 13-11-2024

SECTION ON P-Q



SECTION ON A-B



R. Gopalakrishnan



PLATE NO. V

NAME OF THE APPLICANT:

R. GOPALAKRISHNAN, S/O. RAMASAMY,
70/1E, KARPAGAM NAGAR,
THIRUMANGALAM TOWN & TALUK,
MADURAI DISTRICT.

INDEX:-

- LEASE APPLIED BOUNDARY
- SAFETY DISTANCE 7.5M & 10M
from northwest and south side carttrack
- BOUNDARY PILLARS
- CONTOURS
- BENCH MARK
- APPROACH ROAD
- I YEAR EXCAVATION
- II YEAR EXCAVATION
- III YEAR EXCAVATION
- IV YEAR EXCAVATION
- V YEAR EXCAVATION

ROUGH STONE / JELLY / GRAVEL QUARRY

LAND USE CUM YEARWISE PLAN & SECTIONS

PLAN SCALE:- 1: 1000

SECTION SCALE:- HOR- 1: 1000, VER- 1:1000

ALL PLANS AND SECTIONS ARE PREPARED
BASED ON THE LEASE MAP AUTHENTICATED
BY STATE GOVERNMENT.

M. Dharmalingam
M. DHARMALINGAM
M.Sc.(Geol.) FCC (Mining)
Recognised Qualified Person
RQP / MAS / 260 / 2014 / A
Valid up to: 13-11-2024

AFFORESTATION PROGRAMME

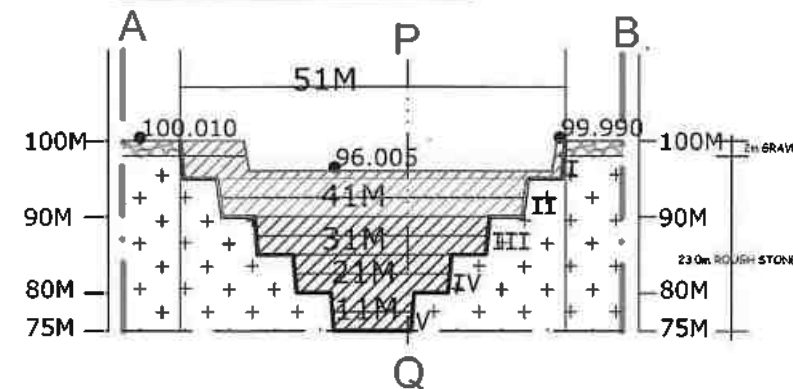
PLANTATION	TYPE	No of TREES	SPACING	AREA (Ha)	SURVIVAL
I YEAR	NEEM	15	6m x 6m	0-05.4	80%
II YEAR	NEEM	15	6m x 6m	0-05.4	80%
III YEAR	NEEM	15	6m x 6m	0-05.4	80%
IV YEAR	NEEM	15	6m x 6m	0-05.4	80%
V YEAR	NEEM	15	6m x 6m	0-05.4	80%
TOTAL PLANTATION AREA				0-27.0Ha	

YEARWISE PRODUCTION SCHEDULE						VOLUME IN CUM		TOTAL PRODUCTION IN CUM
YEAR	SECTION	BENCH	LENGTH [M]	WIDTH [M]	DEPTH [M]	GRAVEL	ROUGHSTONE	
I - YEAR	PQ & AB	I	125	51	2.0	5534	---	17,443
	DEDUCT OLD PIT - 82M X 44M X 2M = - 7216							
	PQ & AB	I	125	51	3.0	---	11909	
	DEDUCT OLD PIT - 82M X 44M X 2M = - 7216							
II - YEAR	PQ & AB	I	24	51	2.0	2448	---	18,010
	PQ & AB	I	24	51	3.0			
	PQ & AB	II	58	41	5.0			
III - YEAR	PQ & AB	II	81	41	5.0	---	16605	16,605
IV - YEAR	PQ & AB	III	129	31	5.0	---	19995	19,995
V - YEAR	PQ & AB	IV	119	21	5.0	---	18490	18,490
	PQ & AB	V	109	11	5.0			
				TOTAL PRODUCTION		7,982	82,561	90,543 Cu.m

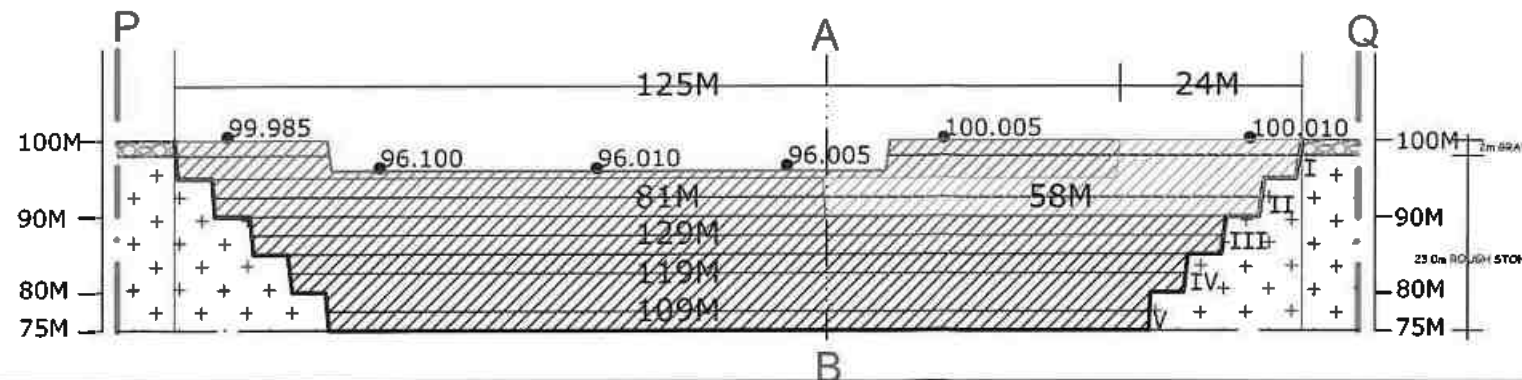
ULTIMATE PIT SIZE

SECTION	LENGTH[M]	WIDTH[M]	DEPTH[M]
PQ-AB	149	51	25.0

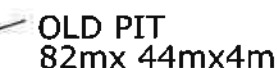
SECTION ON A-B



SECTION ON P-Q



R. Gopalakrishnan



GEOLOGICAL RESERVES	2,56,168
MINEABLE RESERVES	90,543
BALANCE RESERVES	1,65,625



NAME OF THE APPLICANT:

R. GOPALAKRISHNAN, S/O. RAMASAMY,
70/1E, KARPAGAM NAGAR,
THIRUMANGALAM TOWN & TALUK,
MADURAI DISTRICT.

INDEX:-

LEASE APPLIED BOUNDARY
SAFETY DISTANCE 7.5M & 10M
from northwest and south side cartrack

BOUNDARY PILLARS

CONTOURS

BENCH MARK

APPROACH ROAD

WEATHERED ROCK

CHARNOKITE (ROUGH STONE)

LAYOUT OF MINE WORKING

ULTIMATE PIT SLOPE

ROUGH STONE / JELLY / GRAVEL QUARRY

CONCEPTUAL MINING PLAN

& SECTIONS

PLAN SCALE:- 1: 1000

SECTION SCALE:- HOR- 1: 1000, VER- 1:1000

ALL PLANS AND SECTIONS ARE PREPARED
BASED ON THE LEASE MAP AUTHENTICATED
BY STATE GOVERNMENT.

M. DHARMALINGAM

M.Sc., (Geol.) FCC (Mining)

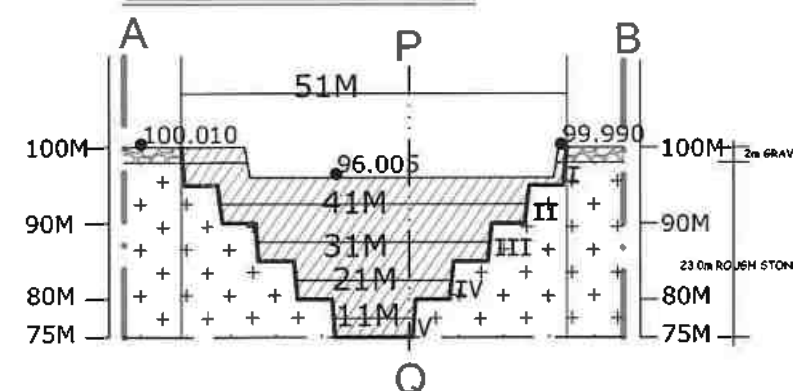
Recognised Qualified Person

RQP / MAS / 260 / 2014 / A

Valid up to: 13-11-2024

MINEABLE RESERVES							MINEABLE RESERVES IN CUM
MINERAL	SECTION	BENCH	LENGTH [M]	WIDTH [M]	DEPTH [M]	VOLUME IN CUM	
GRAVEL	PQ & AB	I	149	51	2.0	15198	7,982 Cu.m.
	DEDUCT OLD PIT = 82M X 44M X 2 =					- 7216	
ROUGH STONE	PQ & AB	I	149	51	3.0	22797	82,561Cu.m.
	PQ & AB	II	139	41	5.0	28495	
	PQ & AB	III	129	31	5.0	19995	
	PQ & AB	IV	119	21	5.0	12495	
	PQ & AB	V	109	11	5.0	5995	
	DEDUCT OLD PIT = 82M X 44M X 2 =					- 7216	
					TOTAL MINEABLE RESERVES		

SECTION ON A-B



SECTION ON P-Q

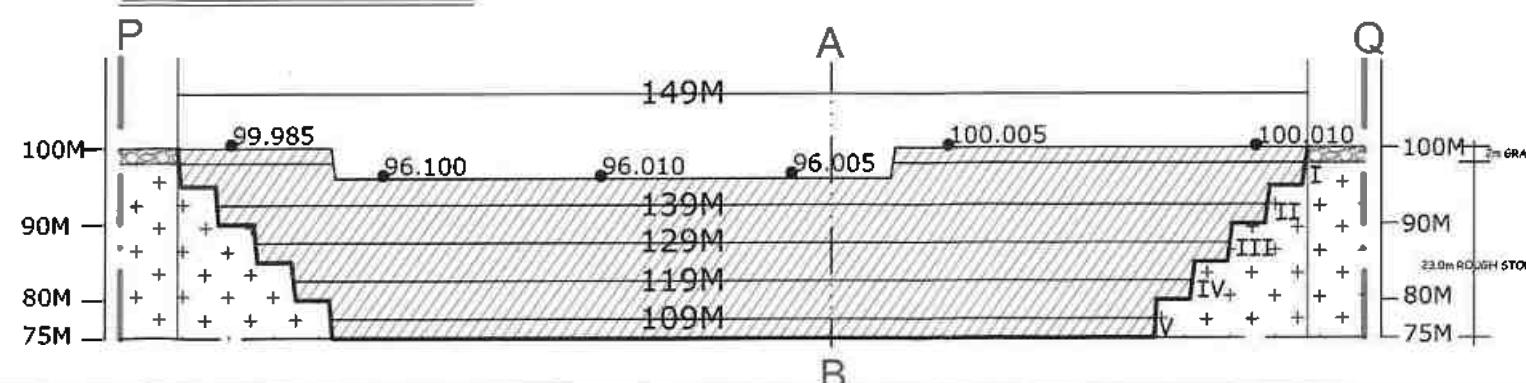




PLATE NO. VII

500m Radius from the proposed quarry

Quarries details	Name of owner	Village name	Survey nos	Extent (Ha)	Distance (m)
a. Existing workings	1.Ramasamy	Appaiyanaickanpatti	211/2A,etc	0-98.0	480m
	2.Shunmugaraj	Appaiyanaickanpatti	207/2A,2B	1-91.5	260m
	3.S.Ramraj	Appaiyanaickanpatti	196,197,etc.,	2-88.0	120m
	4.Shunmugaraj	Appaiyanaickanpatti	38/6A, etc.,	2-74.5	320m
b. Abondend	5.Ramasamy	Appaiyanaickanpatti	208/1,2,etc.,	perior 2019	480m
	6.Govt.pit	Appaiyanaickanpatti	50	perior 2012	160m
	7.Ragupathi	Appaiyanaickanpatti	38/10A,11	perior 2017	120m
c. present proposec	8.R.Gopalakrish	Appaiyanaickanpatti	199/6A	1-08.0	applied
	9.G.Kaniraj	Appaiyanaickanpatti	202/1A1	1-21.5	80m
	10.S.Ramraj	Appaiyanaickanpatti	207/3A,etc.,	1-28.5	320m
	11. Gayathiri	Appaiyanaickanpatti	39/1A,etc.,	2-30.2	250m
	TOTAL EXTENT (Ha)			14-40.2Ha	



NAME OF THE APPLICANT:

R. GOPALAKRISHNAN, S/O. RAMASAMY,
70/1E, KARPAGAM NAGAR,
THIRUMANGALAM TOWN & TALUK,
MADURAI DISTRICT.

INDEX:-

LEASE APPLIED BOUNDARY



WORKING PITS



ABONDENT PITS



300M RADIUS



500M RADIUS



WIND DIRECTION



APPROACH ROAD



ROUGH STONE / JELLY / GRAVEL QUARRY

ENVIRONMENTAL PLAN

SCALE:- 1: 5000

ALL PLANS AND SECTIONS ARE PREPARED
BASED ON THE LEASE MAP AUTHENTICATED
BY STATE GOVERNMENT.

M. Dharmalingam

M. DHARMALINGAM
M.Sc.,(Geol.) FCC (Mining)
Recognised Qualified Person
RQP / MAS / 260 / 2014 / A
Valid up to: 15-11-2024



220 R. Gopalakrishnan

BASE LINE DATA FOR WATER BODIES

SL.No.	SL.No.	DIRECTION	DIRECTION(M)	DEPTH (M)	WATER LEVEL
1	Season odai	Southeast	180	0.2	dry
2	Vaipar	Northwest	240	1.5	dry
3	well	west	120	15.0	dry
4	well	north	80	16.0	dry

500m Radius from the proposed quarry

PLATE NO. VIIA

Quarries details	Name of owner	Village name	Survey No.	Extent (Ha)	Distance (m)
a. Existing workings	1.Ramasamy 2.Shunmugara 3.S.Ramraj 4.Shunmugara	Appaiyanaickanpatti	207/2A, etc.	0-98.0	480m
		Appaiyanaickanpatti	196, 197, etc.	1-91.5	260m
		Appaiyanaickanpatti	38/6A, etc.	2-88.0	120m
		Appaiyanaickanpatti		2-74.5	320m
b. Abandoned	5.Ramasamy 6.Govt.pit 7.Ragupathi	Appaiyanaickanpatti	208/1,2, etc.	perior 2019	480m
		Appaiyanaickanpatti	50	perior 2012	160m
		Appaiyanaickanpatti	38/10A, 11	perior 2017	120m
c. present proposed	8.R.Gopalakrish 9.G.Kaniraj 10.S.Ramraj 11. Gayathiri	Appaiyanaickanpatti	199/6A	1-08.0	applied
		Appaiyanaickanpatti	202/1A1	1-21.5	80m
		Appaiyanaickanpatti	207/3A, etc.	1-28.5	320m
		Appaiyanaickanpatti	39/1A, etc.	2-30.2	250m
TOTAL EXTENT (Ha)				14-40.2Ha	

NAME OF THE APPLICANT:

R. GOPALAKRISHNAN, S/O. RAMASAMY,
70/1E, KARPAGAM NAGAR,
THIRUMANGALAM TOWN & TALUK,
MADURAI DISTRICT.

DISTRICT : VIRUDHUNAGAR
TALUK : VEMBAKOTTAI
VILLAGE : APPAYANAICKENPATTI
S.F.No : 199/6A
EXTENT : 1-08.00 HECTARE.

INDEX:-

- AREA APPLIED FOR QUARRY LEASE
- APPROACH ROAD (GOVT. PROMBOKE ROAD & Applicant own patta land)
- 300M RADIUS LINE
(No well, No historical monuments & Vaipar river - 240m dist.)
- 500M RADIUS LINE
(No habitations, No temples, 4 working quarries with in 500m & No other structures like culverts, head works, bridges etc.)

ROUGHSTONE/JELLY QUARRY

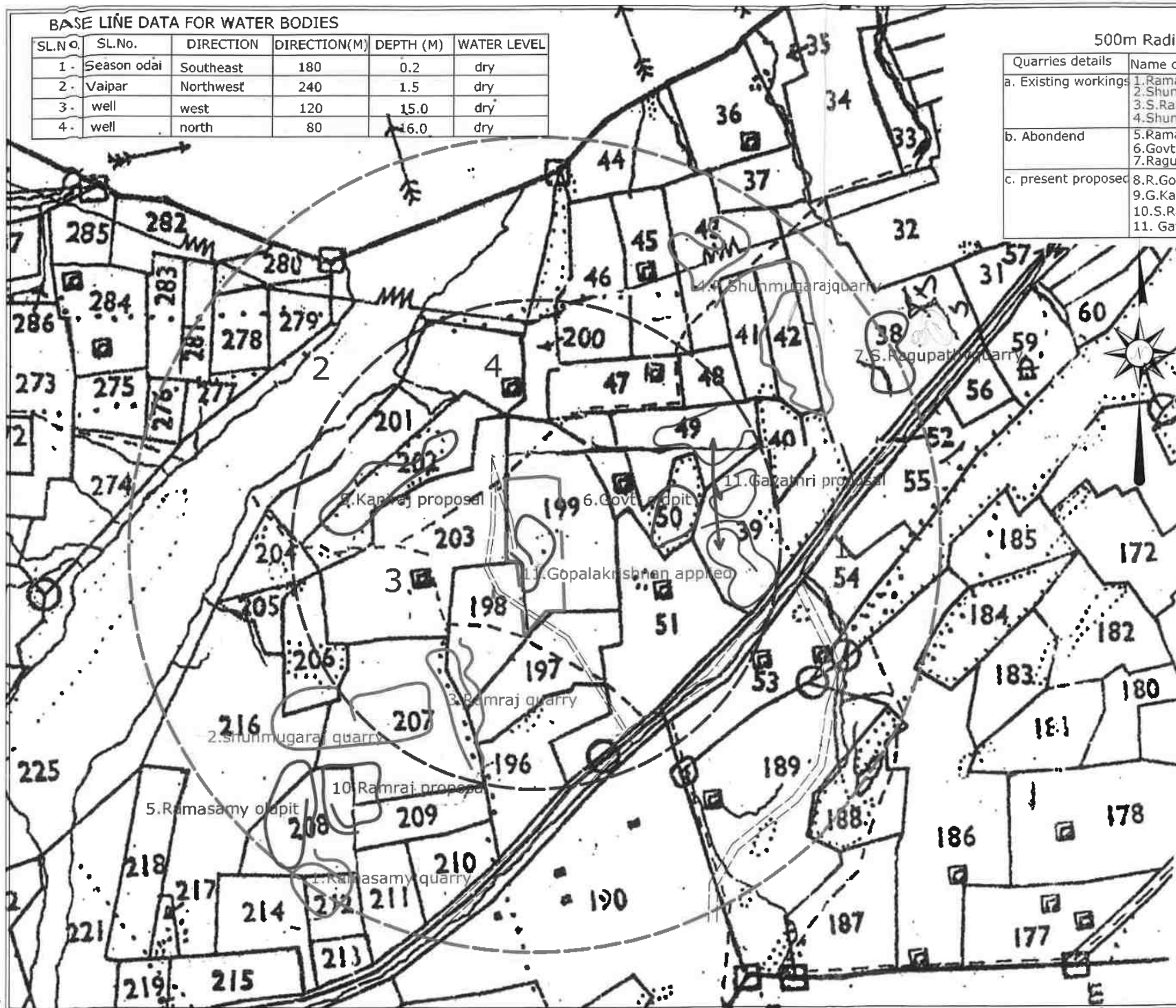
VILLAGE MAP

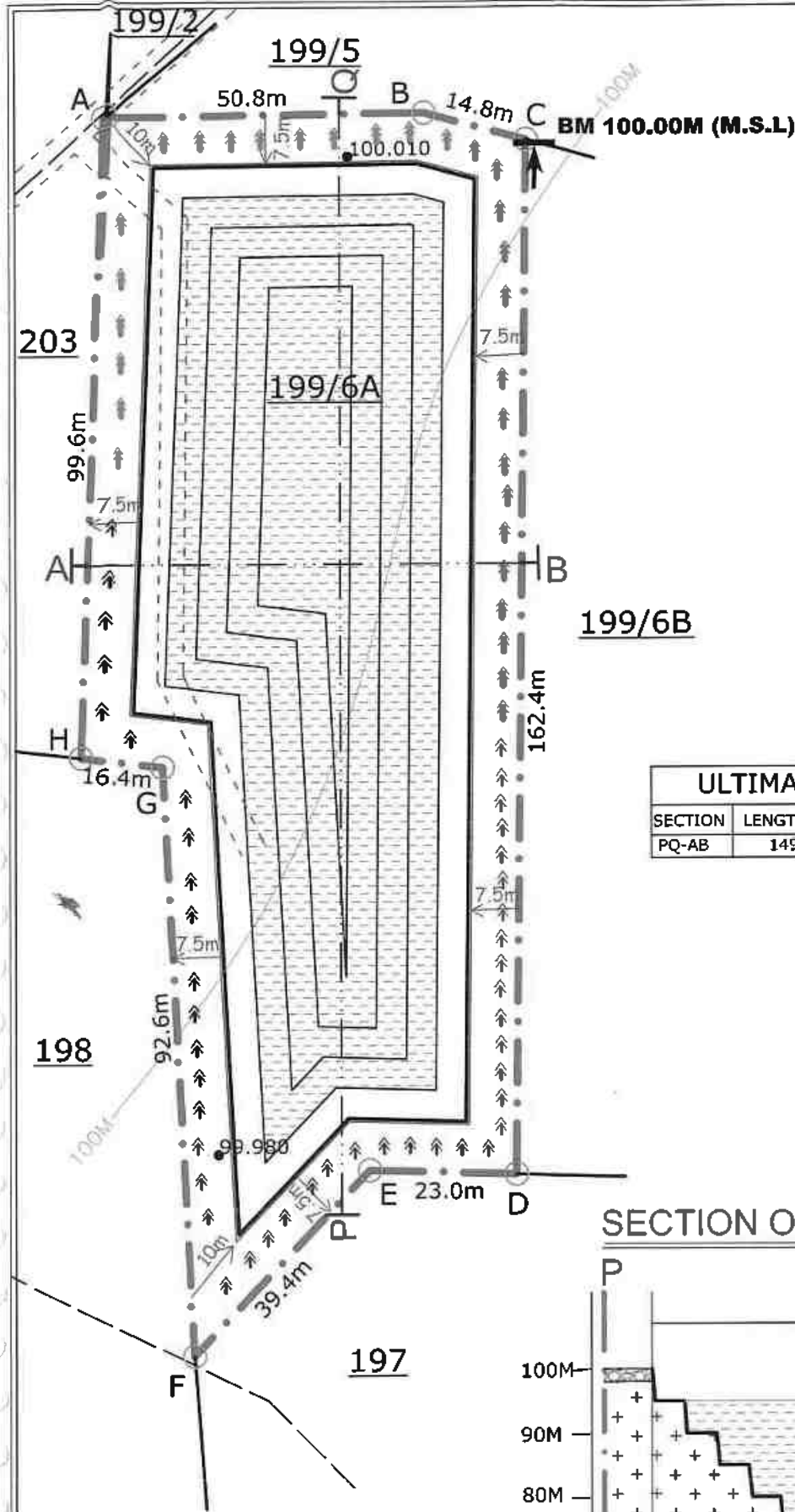
showing environmental features

SCALE:- 1: 5000

ALL PLANS AND SECTIONS ARE PREPARED
BASED ON THE LEASE MAP AUTHENTICATED
BY STATE GOVERNMENT.

Signature
M. DHARMALINGAM
M.Sc.,(Geol.) FCC (Mining)
Recognised Qualified Person
RQP / MAS / 260 / 2014 / A
Valid up to: 13-11-2024





AFFORESTATION PROGRAMME

PLANTATION	TYPE	No of TREES	SPACING	AREA (Ha)	SURVIVAL	
I YEAR	NEEM	15	6m x 6m	0-05.4	80%	↑
II YEAR	NEEM	15	6m x 6m	0-05.4	80%	↑
III YEAR	NEEM	15	6m x 6m	0-05.4	80%	↑
IV YEAR	NEEM	15	6m x 6m	0-05.4	80%	↑
V YEAR	NEEM	15	6m x 6m	0-05.4	80%	↑
TOTAL PLANTATION AREA				0-27.0Ha		

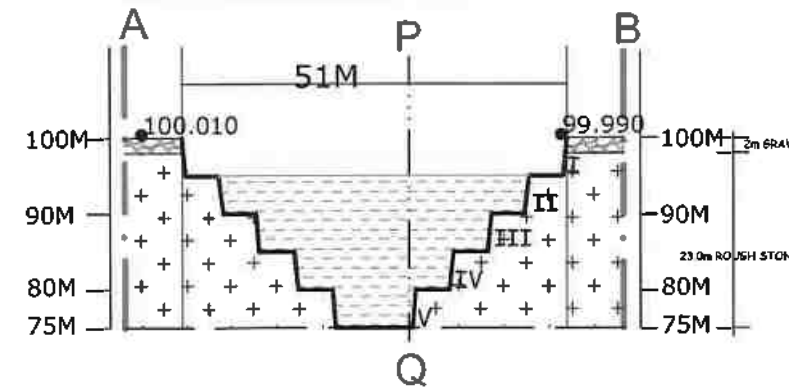
PRESENT MINING LAND USE PLANNING (BREAKUP ALONG WITH GREENBELT ETC.;)

SL.No.	LAND USE CATEGORY	AT THE END OF LIFE OF MINE
1.	Mining / Excavation	0-75.0 hectare
2.	Storage of Top soil	0-00.0 hectare
3.	Sorting and mineral Dressing yard	0-00.0 hectare
4.	Infrastructure & Road	0-02.0 hectare
5.	Afforestation (greenbelt & plantation)	0-27.0 hectare
6.	Water reservoir	0-75.0 hectare (after closure of mine)
7.	Undisturbed area	0-00.0 hectare
8.	Fencing	0-04.0 hectare
TOTAL		1-08.0 Hectare.

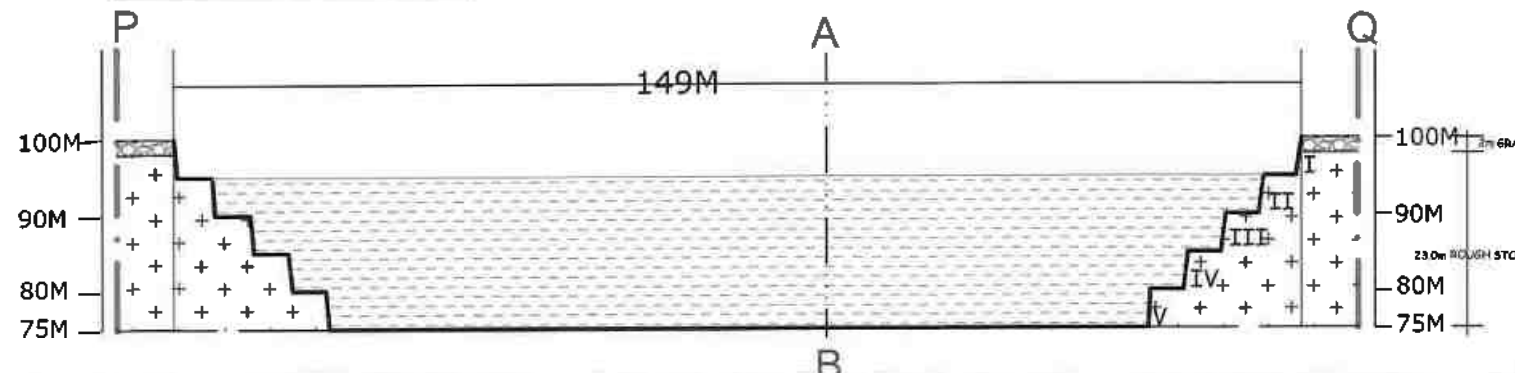


ULTIMATE PIT SIZE			
SECTION	LENGTH[M]	WIDTH[M]	DEPTH[M]
PQ-AB	149	51	25.0

SECTION ON A-B



SECTION ON P-Q



NAME OF THE APPLICANT:

R. GOPALAKRISHNAN, S/O. RAMASAMY,
70/1E, KARPAGAM NAGAR,
THIRUMANGALAM TOWN & TALUK,
MADURAI DISTRICT.

INDEX:-

LEASE APPLIED BOUNDARY	---
SAFETY DISTANCE 7.5M & 10M from northwest and south side cartrack	---
BOUNDARY PILLARS	○ A B C..
CONTOURS	100M
BENCH MARK	BM 100.000M
APPROACH ROAD	==
LAYOUT OF MINE WORKING (FUTURE WATER RESERVOIR)	---

ROUGH STONE / JELLY / GRAVEL QUARRY

PROGRESSIVE MINE CLOSURE PLAN & SECTIONS

PLAN SCALE:- 1: 1000

SECTION SCALE:- HOR- 1: 1000, VER- 1:1000

ALL PLANS AND SECTIONS ARE PREPARED
BASED ON THE LEASE MAP AUTHENTICATED
BY STATE GOVERNMENT.

M. Dharmalingam

M. DHARMALINGAM
M.Sc.(Geol.) FCC (Mining)
Recognised Qualified Person
RQP / MAS / 260 / 2014 / A
Valid up to: 13-11-2024

R. Gopalakrishnan
222